Source: T1

Title: CR's to TS 34.123-1 v4.0.0 for approval

Agenda item: 5.1.3

Document for: Approval

This document contains 17 CRs to TS 34.123-1 v4.0.0. These CRs have been agreed by T1 and are put forward to TSG T for approval.

NOTE: TS 34.123-1 R99 and TS 34.123-1 Rel-4 were merged at the last T#13. This means that test cases for both releases are included in TS 34.123-1 Rel-4 and therefore this is the only release being maintained.

CR related to maintenance of R99 and Rel-4:

Spec	CR	Rev	Release	Subject	Cat	Version	Version	Doc-2nd-	Workitem	Releases
						Current	New	Level		affected
34.123-1	113		Rel-4	Clause 7.3: PDCP testing: additional	F	4.0.0	4.1.0	T1-010406	TEI	R99, Rel-4
				configuration information						
34.123-1	114		Rel-4	Clause 7.4: BMC testing: update for BMC testing	F	4.0.0	4.1.0	T1-010407	TEI	R99, Rel-4
34.123-1	115		Rel-4	Clause 7.2: Update of UM and AM RLC test cases	F	4.0.0	4.1.0	T1-010408	TEI	R99, Rel-4
34.123-1	116		Rel-4	Idle mode tests (34.123-1)	F	4.0.0	4.1.0	T1-010409	TEI	R99, Rel-4
34.123-1	117		Rel-4	Removal of TBD Power Levels in section 6	F	4.0.0	4.1.0	T1-010410	TEI	R99, Rel-4
34.123-1	118		Rel-4	Idle Mode Test Parameters for Multi-mode environment (2G/3G) TDD	F	4.0.0	4.1.0	T1-010411	TEI	R99, Rel-4
34.123-1	119		Rel-4	Traffic Volume Measurement test cases (34.123-1 section 8.4)	F	4.0.0	4.1.0	T1-010412	TEI	R99, Rel-4
34.123-1	120		Rel-4	New interRAT test cases	F	4.0.0	4.1.0	T1-010413	TEI	R99, Rel-4
34.123-1	121		Rel-4	Corrections to Annex A	F	4.0.0	4.1.0	T1-010414	TEI	R99, Rel-4
34.123-1	122		Rel-4	Clause 12 Packet Switched Mobility Management	F	4.0.0	4.1.0	T1-010415	TEI	R99, Rel-4
34.123-1	123		Rel-4	Update to GMM test cases	F	4.0.0	4.1.0	T1-010416	TEI	R99, Rel-4
34.123-1	124		Rel-4	Update of interoperbility radio bearer test cases for FDD.	F	4.0.0	4.1.0	T1-010417	TEI	R99, Rel-4
34.123-1	125		Rel-4	Update to SMS test specification	F	4.0.0	4.1.0	T1-010418	TEI	R99, Rel-4
34.123-1	126		Rel-4	Corrections to RRC test cases	F	4.0.0	4.1.0	T1-010419	TEI	R99, Rel-4
34.123-1	127		Rel-4	RRC Connection Management Procedure Tests for the TDD options	F	4.0.0	4.1.0	T1-010420	TEI	R99, Rel-4

CR related to Low Chip Rate-TDD:

Spec	CR	Rev	Release	Subject	Cat	Version Current	Version New	Doc-2nd- Level	Workitem	Releases affected
						Current	New	Level		anecteu
34.123-1	128		Rel-4	Annex A Default RRC Message Contents for	F	4.0.0	4.1.0	T1-010421	LCRTDD	Rel-4
				1.28Mcps TDD Mode						
34.123-1	129		Rel-4	Radio Bearer Tests for 1.28 Mcps TDD Mode	F	4.0.0	4.1.0	T1-010422	LCRTDD	Rel-4

3GPP TSG-T1 Meeting #13 Cancun, Mexico, 29th November – 30th November 2001 3GPP TSG-T1 SIG Meeting #20 Cancun, Mexico, 26th November – 28th November 2001

Tdoc T1-010406 Tdoc T1S-010307r1

	CHANGE REQUEST	orm-v4
*	34.123-1 CR 113	
For HELP or	using this form, see bottom of this page or look at the pop-up text over the \ symbols	S.
Proposed chang	re affects: 第 (U)SIM ME/UE X Radio Access Network Core Network	k
Title:	# Additional configuration information and corrections for L2/PDCP testing	
Source:	₩ CETECOM GmbH	
Work item code:	第 TEI Date: 第 2001-11-22	
Category:	# F Use one of the following categories: F (correction) A (corresponds to a correction in an earlier release) B (addition of feature), C (functional modification of feature) D (editorial modification) Detailed explanations of the above categories can be found in 3GPP TR 21.900. Release: # REL-4 Use one of the following releases: 2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) REL-4 (Release 4) REL-5 (Release 5)	:
Reason for chan	ge: Correction of L2/PDCP testing and additional configuration information for tes	rt .
Troubon for onan	case 7.3.2.2.4, 3GPP TS 34.123-1, clause 7.3	
Summary of cha	1. correction of TS 34.123-1, clause 7.3, version 4.0.0 in reference to already agreed Cl T1S-010296 (Busan meeting T1S#19): During renaming of T1S-010182r2 to T1-010296, some revision marks were missing. Due to partially not existing revision marks, some changes are not implemented in TS 34.123-1 v4.0.0. The first part of this CR is to introduce the missing correction of T1S-010182r2 in TS 34.123-1v4.0.0. 2. Based on part one of this CR, the following corrections are recommended (highlighte vellow color): For test case 7.3.2.2.4, there are special Radio Bearer configurations (combined RB UN and RB AM) used. Therefore, the test case applicability is extended accordingly (clause 7.3.2.2.4.1 and a PICS item "Support of UM RB and AM RB" is included accordingly. In addition, this special Radio Bearer configuration information is included in clause 7.3.2.2.4.6 to be used only in this test case.	<mark>ed in</mark> M
Consequences in not approved:	# PDCP tests are not corrected	
Clauses affected	l:	
Other specs affected:	Contractions Test specifications O&M Specifications	
Other comments	# Releases affected: R00 and RFI -4	

7.3 PDCP

7.3.1 General

7.3.1.1 General assumptions

If not otherwise mentioned, the same procedures as used in RRC test specification (TS 34.123-1) or in the Generic procedure (TS 34.108) applies to reach Initial conditions for PDCP testing. In this test description, common test sequences for PDCP (clause 7.3.4.1) are defined and are applied either as preamble or post amble to establish or release a Packet Switched (PS) connection for a test case.

If not explicitly described, the same message contents and settings are applied as described in the RRC test description default settings.

Detailed IP header compression coding mechanism as well as mechanism related error recovery and packet reordering described in IETF RFC 2507 are not verified.

For PDCP testing TCP/IP data type and UDP/IP data type as Non-TCP/IP data types are applied for IP data.

An UE supporting IP Header compression protocol RFC 2507 shall be capable to store a header compression context of at least 512 bytes (Integer).

It shall be possible to reconfigure PDCP settings while UE test loop mode 1. With the applied test method using UE test loop mode 1, the UE as Originator and Receiver of PDCP SDUs (concurrent transmission) is tested.

7.3.1.2 Common Test sequences and Default message contents for PDCP

General

The settings and parameter used in the "Common Test sequences for PDCP" are described in the "Default PDCP Message Contents". If not explicitly shown there, the message contents are identical with the default contents for the same message type of layer 3 messages for RRC tests, to establish a packet switched session or connection. The contents of test case specific message parameters are described in the test case (Expected Sequence). If not explicitly shown, default settings and parameter are used as message content for all Common Test sequences.

7.3.1.2.1 Common Test sequences for PDCP

7.3.1.2.1.1 Setup a UE terminated PS session using IP Header compression in AM RLC (using UE Test loop test mode 1)

Initial Conditions

UE is in Idle mode.

Test procedure

After having received the System Information, the SS starts to setup a RRC connection. After connection establishment and Radio Bearer Setup, the UE test loop mode 1 is activated and the UE test loop mode 1 is closed.

Expected Sequence

Step	Direction	Message	Comments
	UE SS		
1	+	SYSTEM INFORMATION	
2	←	PAGING TYPE 1	CN domain identity: PS domain
			Paging cause: interactive session
3	\rightarrow	RRC CONNECTION REQUEST	
4	←	RRC CONNECTION SETUP	Connection Setup message PS sessions in AM
			RLC used in RRC testing matches here
5	\rightarrow	RRC CONNECTION SETUP COMPLETE	
6	←	ACTIVATE RB TEST MODE	
7	\rightarrow	ACTIVATE RB TEST MODE COMPLETE	
8	←	RADIO BEARER SETUP	The Radio Bearer configuration is as described
			in TS 34.108, clause 6.10, Prioritised RAB No.
			23: QoS parameter: Traffic Class: Interactive or
			Background, max. UL:64 kbps max. DL:64 kbps,
			Residual BER as described in TS 34.108,
			clause: 6.10.
9	\rightarrow	RADIO BEARER SETUP COMPLETE	
10	←	CLOSE UE TEST LOOP	The SS initiates UE test loop mode 1, indicated
			by the Parameter: "UE test loop mode" 1
			(X1=0 and X2=0)
			The "DCCH dummy transmission" not used:
,,		01 005 115 7507 1 005 001451 575	disabled: (Y1=0)
11	\rightarrow	CLOSE UE TEST LOOP COMPLETE	After having received the test mode
			acknowledgement, the UE test loop mode 1 is
			activated.

Specific message contents

The contents of test case specific message parameters are described in the test case (Expected Sequence). Default contents of messages are described in the clause Default PDCP Message Contents.

7.3.1.2.1.2 Setup a UE terminated PS session using IP Header compression in UM RLC (using UE Test loop test mode 1)

Initial Conditions

UE is in Iidle mode.

Test procedure

After having received the System Information, the SS starts to setup a RRC connection. After connection establishment and Radio Bearer Setup, the UE test loop mode 1 is activated and the UE test loop mode 1 is closed.

Expected Sequence

Step	Direction	Message	Comments
	UE SS		
1	+	SYSTEM INFORMATION	
2	←	PAGING TYPE 1	CN domain identity: PS domain
			Paging cause: interactive session
3	\rightarrow	RRC CONNECTION REQUEST	
4	←	RRC CONNECTION SETUP	Connection Setup message PS sessions in UM
			RLC used in RRC testing matches here
5	\rightarrow	RRC CONNECTION SETUP COMPLETE	
6	←	ACTIVATE RB TEST MODE	
7	\rightarrow	ACTIVATE RB TEST MODE COMPLETE	
8	←	RADIO BEARER SETUP	The Radio Bearer configuration is as described
			in TS 34.108, clause 6.10, Prioritised RAB No.
			23: QoS parameter: Traffic Class: Interactive or
			Background, max. UL:64 kbps max. DL:64 kbps,
			Residual BER as described in TS 34.108,
			clause: 6.10.
9	\rightarrow	RADIO BEARER SETUP COMPLETE	
10	←	CLOSE UE TEST LOOP	The SS initiates UE test loop mode 1, indicated
			by the Parameter: "UE test loop mode 1" (X1=0
			and X2=0)
			The "DCCH dummy transmission" not used:
			disabled: (Y1=0)
11	\rightarrow	CLOSE UE TEST LOOP COMPLETE	After having received the test mode
			acknowledgement, the UE test loop mode 1 is
			activated.

Specific message contents

The contents of test case specific message parameters are described in the test case (Expected Sequence) Default contents of messages are described in the clause Default PDCP Message Contents.

7.3.1.2.1.3 Deactivate a UE terminated PS session using IP Header compression (using UE test loop mode 1)

Initial Conditions

UE is in connected mode, a UE test loop mode 1 for PDCP is activated, and the UE loop mode 1 is "closed".

Test procedure

The UE opens the UE test loop mode 1, deactivates the test mode and the PS session, releases the Radio Bearer and enters Idle mode.

Step	Direction	Message	Comments
	UE SS		
1	+	OPEN UE TEST LOOP	The SS terminates the UE test loop mode 1,
			(see described parameter)
2	\rightarrow	OPEN UE TEST LOOP COMPLETE	After having received the test mode
			acknowledgement, the test loopmode 1 is
			deactivated.
3	←	DEACTIVATE RB TEST MODE	SS deactivates the RB test mode
4	\rightarrow	DEACTIVATE RB TEST MODE	UE shall confirm the previous message.
		COMPLETE	Afterwards, the UE returns to normal operation
5	←	RRC CONNECTION RELEASE	SS terminates the connection
6	\rightarrow	RRC CONNECTION RELEASE	UE confirms the connection release and returns
		COMPLETE	to Idle mode

Specific message contents

The contents of test case specific message parameter is described in the test case (Expected Sequence). Default contents of messages are described in the clause Default PDCP Message Contents.

7.3.1.2.2 Default PDCP Message Contents

This clause contains the default values of RRC messages used for PDCP testing, other than those specified in TS 34.108 clauses 6 and 9, and default values of PDCP messages. Unless indicated otherwise in specific test cases, only PDCP related specific message contents are described here which shall be transmitted by the system simulator in RRC messages, and which are required to be received from the UE under test. If not explicitly described, the message contents are identical with the default contents for the same message type of layer 3 messages for RRC tests, to establish a packet switched session or connection.

The necessary L3 messages are listed in alphabetic order, with the exception of the SYSTEM INFORMATION messages, where it is the information elements which are listed in alphabetic order (this is because some information elements occur in several SYSTEM INFORMATION types).

In this clause, decimal values are normally used. However, sometimes a hexadecimal value, indicated by an "H", or a binary value, indicated by a "B" is used.

Default SYSTEM INFORMATION:

NOTE:

SYSTEM INFORMATION BLOCK TYPE 1 (except for PLMN type "GSM-MAP"), SYSTEM INFORMATION BLOCK TYPE 8, SYSTEM INFORMATION BLOCK TYPE 9, SYSTEM INFORMATION BLOCK TYPE 10, SYSTEM INFORMATION BLOCK TYPE 14, SYSTEM INFORMATION BLOCK TYPE 15 and INFORMATION BLOCK TYPE 16 messages are not used.

Contents of CONNECTION SETUP message:

Information Element	Value/remark
Capability update requirement	
 UE radio access capability update requirement 	TRUE
 System specific capability update requirement 	UE only supports 1 system
list	

Contents of CONNECTION SETUP COMPLETE message:

Information Element	Value/remark
UE radio access capability	Value will be checked. Stated capability must be compatible with 34.123-2 (c.f. PICS/PIXIT statements in GSM) and the user settings
- Conformance test compliance - PDCP Capability - Max PDCP SN - Support of lossless SRNS relocation - Supported algorithm types - RFC2507 - Maximum MAX_HEADER - Maximum TCP_SPACE - Maximum NON_TCP_SPACE - RLC Capability - Transport channel capability - RF Capability - Physical channel capability - UE multi-mode/multi-RAT capability - Security Capability - LCS Capability	Gowy and the user settings
Measurement capability UE system specific capability	Value will be check. UE must include the classmark information for the supported system

Contents of ACTIVATE RB TEST MODE message:

Information Element	Value/remark
Protocol Discriminator	TS 24.007, 11.2.3.1.1
Skip indicator	TS 24.007, 11.2.3.1.2
Message type	01000100B

Contents of ACTIVATE RB TEST MODE COMPLETE message:

Information Element	Value/remark		
Protocol Discriminator	TS 24.007, 11.2.3.1.1		
Skip indicator	TS 24.007, 11.2.3.1.2		
Message type	01000101B		

Contents of DEACTIVATE RB TEST MODE message:

Information Element	Value/remark
Protocol Discriminator	TS 24.007, 11.2.3.1.1
Skip indicator	TS 24.007, 11.2.3.1.2
Message type	01000110B

Contents of DEACTIVATE RB TEST MODE COMPLETE message:

Information Element	Value/remark
Protocol Discriminator	TS 24.007, 11.2.3.1.1
Skip indicator	TS 24.007, 11.2.3.1.2
Message type	01000111B

Contents of CLOSE UE TEST LOOP message:

Information Element	Value/remark
Protocol Discriminator	TS 24.007, 11.2.3.1.1
Skip indicator	TS 24.007, 11.2.3.1.2
Message type	01000000B
UE test loop mode	000000100B (X2=0 and X1=0 for UE test mode 1, Y1=0 DCCH dummy transmission disabled)
UE test loop mode 1 LB setup	
- Length of UE loop mode 1 LB setup IE - LB setup list - LB setup RAB subflow #1	4 octets
- Z13Z0 (Uplink RLC SDU size in bits)	016383 (binary coded, Z13 most significant bit); value as negotiated

Contents of CLOSE UE TEST LOOP COMPLETE message:

Information Element	Value/remark
Protocol Discriminator	TS 24.007, 11.2.3.1.1
Skip indicator	TS 24.007, 11.2.3.1.2
Message type	01000001B

Contents of OPEN UE TEST LOOP message:

Information Element	Value/remark
IE Identifier (only in AM)	1000xxxx
Protocol Discriminator	TS 24.007, 11.2.3.1.1
Skip indicator	TS 24.007, 11.2.3.1.2
Message type	01000010B

Contents of OPEN UE TEST LOOP COMPLETE message:

Information Element	Value/remark
Protocol Discriminator	TS 24.007, 11.2.3.1.1
Skip indicator	TS 24.007, 11.2.3.1.2
Message type	01000011B

7.3.2 IP Header Compression and PID assignment

7.3.2.1 UE in RLC AM

7.3.2.1.1 Transmission of uncompressed Header

7.3.2.1.1.1 Definition and applicability

Applicable for all UEs supporting RLC AM and a Radio Bearer as described in the Common Test Sequences. The UE shall be capable to deal with TCP/IP and UDP/IP data packets with uncompressed IP header.

7.3.2.1.1.2 Conformance requirement

Packet Data Convergence Protocol shall perform the following functions:

- ...

- transfer of user data. Transmission of user data means that PDCP receives PDCP SDU from the NAS and forwards it to the RLC layer and vice versa;
- PDCP shall be able (...) to handle them with a correct header compression protocol and furthermore to indicate the type of the packet within a certain protocol.
- PID value 0 is reserved permanently for no compression

Reference(s)

TS 25.323 clause 5.

TS 25.323 clause 5.1.1.

7.3.2.1.1.3 Test purpose

The test case consists of two test procedures:

The first test procedure verifies, that the "PDCP Data" PDU is used for uncompressed IP header packets, if no IP header compression is configured by higher layers. The second test procedure verifies, that the "PDCP No header" PDU is used for uncompressed IP header packets, if no IP header compression is configured by higher layers.

- 1. To verify, that the UE transmits and receives in acknowledged mode (RLC AM) TCP/IP and UDP/IP data packets without IP header compression as configured by higher layers.
- 2. To verify, that PID assignment rules are correctly applied, if usage of "PDCP Data" PDU are negotiated, i.e. the UE shall recognize PID value = 0 for a received TCP/IP and UDP/IP data packet and it shall use PID=0 to transmit IP data packets, if no IP header compression is negotiated. If usage of "PDCP No Header" PDU is negotiated, no PID assignment is used for transmitting and receiving TCP/IP and UDP/IP data packets.

7.3.2.1.1.4 Method of test

Initial conditions

UE is in Iidle mode.

Test procedure 1: Usage of "PDCP Data" PDU and no IP header compression is configured

Test procedure 2: No IP header compression is configured

Related ICS/IXIT Statement(s)

Support of PS - Yes/No

PIXIT: Test PDCP TCP/IP Packet1

PIXIT: Test PDCP UDP/IP Packet1

1. Test procedure: Transmission of uncompressed IP header packets using PDCP Data PDU

- a) The SS setups a packet switched session including radio bearer and UE test loop mode 1 in RLC AM using Common test procedures for mobile terminated PS switched sessions. Usage of "PDCP Data" PDU has been configured by higher layers.
- b) The SS sends a TCP/IP data packet with uncompressed IP Header.
- c) After having received the TCP/IP data packet, the PDCP entity of the UE shall recognize the PDCP PDU type and shall handle the received data packet with the appropriate decoding method. Then it forwards the data to its Radio Bearer Loop Back entity. The received data shall be returned by the UE via its PDCP configuration using PDCP Data PDU.
- d) The SS receives and decodes the TCP/IP data packet. The decoded data packet shall be identical with the data as sent before.
- e) Step b) to d) shall be repeated by using a UDP/IP data packet with uncompressed IP Header.

The SS deactivates the UE test loop mode and terminates the connection.

Step	Direction	n Message	Comments
	UE SS		
S	Setup a UE terminated PS session using IP Header compression in AM RLC (using UE test loop mode 1)		
			The SS creates a TCP/IP packet without IP header compression (PDCP Data PDU).
1	←	PDCP Data	The SS sends a PDCP Data PDU using the RLC-AM-Data-Request Primitive with the following content to the UE: PDU type = 000 (PDCP Data PDU) PID = 0 (uncompressed IP header) data: below described TCP/IP packet
			After having received the PDCP Data PDU, the UE decodes the PDU and recognizes PID value = 0 (no IP header compression) Therefore, no IP header decompression is applied for this packet.
			The data packet is forwarded via PDCP-SAP to its Radio Bearer Loop Back (RB LB) entity.
			The RB LB entity in UE test loop mode 1 returns the received data packet and sends it back to its PDCP entity.

Step	Direction	Message	Comments
2	UE SS →	PDCP Data	The UE sends a PDCP Data PDU using the RLC-AM-Data-Request Primitive with the following content back to the SS: data: previously received TCP/IP packet After reception of this TCP/IP data packet, the SS applies the appropriate decoding function for the received data
3	←	PDCP Data	The SS creates a UDP/IP packet without IP header compression (PDCP Data PDU). The SS sends a PDCP Data PDU using the
3		FDGF Data	RLC-AM-Data-Request Primitive with the following content to the UE: PDU type = 000 (PDCP Data PDU) PID = 0 (uncompressed IP header) data: below described UDP/IP packet
			After having received the PDCP Data PDU, the UE decodes the PDU and recognizes with PID value = 0, there was no IP header compression applied for the UDP/IP packet. Therefore, no IP header decompression is applied for this packet.
			The data packet is forwarded via PDCP-SAP to the Radio Bearer Loop Back (RB LB) entity.
			The RB LB entity in UE test loop mode 1 returns the received data packet and sends it back to its PDCP entity.
4	→	PDCP Data	The UE sends a PDCP Data PDU using the RLC-AM-Data-Request Primitive with the following content back to the SS: data: previously received UDP/IP packet
	Deactivate a	a UE terminated PS session using IP Header of	After reception of this UDP/IP data packet, the SS decodes the received data compression (using UE test loop mode 1)

Specific Message Contents

RRC CONNECTION SETUP message

The contents of the RRC CONNECTION SETUP message applied in the preamble "Setup a UE terminated PS session using IP Header compression in AM RLC" of this test case is identical to those of the default contents of layer 3 messages for RRC tests [TS 34.123-1] (PS connection for AM) with the following exceptions:

Information Element	Value/remark
Capability update requirement	
 UE radio access capability update requirement 	TRUE
	NOTE: Value will be checked. Stated capability must be
	compatible with 34.123-2 (c.f. PICS/PIXIT statements in
	GSM) and the user settings

RADIO BEARER SETUP message

The contents of the RADIO BEARER SETUP message applied in the preamble "Setup a UE terminated PS session using IP Header compression in AM RLC" of this test case is identical to those of the default contents of layer 3 messages for RRC tests [TS 34.123-1] (PS connection for AM) which fits to the below described parameters with the following exceptions:

Information Element	Value/remark
RAB information for setup	
- RAB info	
- RAB identity	No. # 23 as described in TS 34.108, Table 6.10.2.1.1 Prioritised RABs. QoS parameter: Traffic Class: Interactive or Background, max. UL: 64 kbps and max. DL: 64 kbps as described in TS 34.108, including described physical channel parameters, configuration for AM RLC Residual BER as described in TS 34.108, clause: 6.10 Related Signalling RB UL: 3.4 kbps, DL: 3.4 kbps DCCH, No. #2 (as described in TS 34.108)
- CN domain identity - RB information to setup - RB identity - PDCP info - Support of lossless SRNS relocation - PDCP PDU header - RLC info - Downlink RLC mode	PS domain 20 False (IE "Support of lossless SRNS relocation" only present, if RLC "In-sequence delivery" is TRUE and in AM) present (AM RLC)

Content of PDCP Data PDU (Step 1)

Information Element	Value/remark
PDU type	000
PID	00000 (No header compression, PID = 0)
Data PDCP test data type #1: TCP/IP data packet with	
	header compression with any data content. The data
	shall be limited to 5 Kbytes.

Content of PDCP Data PDU (Step 3)

Information Element	Value/remark
PDU type	000
PID	00000 (No header compression, PID = 0)
Data PDCP test data type #2: UDP/IP data packet without	
	header compression with any data content. The data
	shall be limited to 5 Kbytes.

2. Test procedure: Transmission of uncompressed IP header packets using No Header PDU

- a) The SS setups a packet switched session including radio bearer and UE test loop mode 1 in RLC AM using Common test procedures for mobile terminated PS switched sessions. Usage of "PDCP No Header" PDU has been configured by higher layers.
- b) The SS sends a TCP/IP data packet with uncompressed IP Header.

- c) After having received the TCP/IP data packet, the PDCP entity of the UE shall recognize the PDCP PDU type and shall handle the received data packet with the appropriate decoding method. Then it forwards the data to its Radio Bearer Loop Back entity. The received data shall be returned by the UE via its PDCP configuration using PDCP No Header PDU.
- d) The SS receives and decodes the TCP/IP data packet. The decoded data packet shall be identical with the data as sent before.
- e) Step b) to d) shall be repeated by using a UDP/IP data packet with uncompressed IP Header.
- f) The SS deactivates the UE test loop mode and terminates the connection.

Step	Direction	Message	Comments	
	UE SS			
S	Setup a UE terminated PS session using IP Header compression in AM RLC (using UE test loop mode 1)			
			The SS creates a TCP/IP packet without IP header compression (PDCP No Header PDU).	
1	←	PDCP No Header	The SS sends a PDCP No Header PDU using the RLC-AM-Data-Request Primitive with the following content to the UE: data: below described TCP/IP packet	
			After having received the PDCP No Header PDU, the UE decodes the PDU and recognizes, there was no PID applied for the TCP/IP packet. Therefore, no IP header decompression shall be applied for this packet. Then, the data packet is forwarded via PDCP-SAP to the Radio Bearer Loop Back (RB LB) entity.	
			The RB LB entity in UE test loop mode 1 returns the received data packet and sends it back to its PDCP entity.	
2	→	PDCP No Header	The UE sends a PDCP No Header PDU using the RLC-AM-Data-Request Primitive with the following content back to the SS: data: previously received TCP/IP packet After reception of this TCP/IP data packet, the SS applies the appropriate decoding function for	
			the received data	
			The SS creates a UDP/IP packet without IP header compression (PDCP No Header PDU).	

Step	Direction	Message	Comments
	UE SS		
3	÷	PDCP No Header	The SS sends a PDCP No Header PDU using the RLC-AM-Data-Request Primitive with the following content to the UE: data: below described UDP/IP packet
			After having received the PDCP No Header PDU, the UE decodes the PDU and recognizes, there was no PID applied for the UDP/IP packet. Therefore, no IP header decompression shall be applied for this packet. Then, the data packet is forwarded via PDCP-SAP to the Radio Bearer Loop Back (RB LB) entity.
			The RB LB entity in UE test loop mode 1 returns the received data packet and sends it back to its PDCP entity.
4	→	PDCP No Header	The UE sends a PDCP No Header PDU using the RLC-AM-Data-Request Primitive with the following content back to the SS: data: previously received UDP/IP packet After reception of this UDP/IP data packet, the SS decodes the received data
	Deactivate a UE terminated PS session using IP Header compression (using UE test loop mode 1)		

Specific Message Contents

RRC CONNECTION SETUP message

The contents of the RRC CONNECTION SETUP message applied in the preamble "Setup a UE terminated PS session using IP Header compression in AM RLC" of this test case is identical to those of the default contents of layer 3 messages for RRC tests [TS 34.123-1] (PS connection for AM) with the following exceptions:

Information Element	Value/remark
Capability update requirement	
 UE radio access capability update requirement 	TRUE
	NOTE: Value will be checked. Stated capability must be
	compatible with 34.123-2 (c.f. PICS/PIXIT statements in
	GSM) and the user settings

RADIO BEARER SETUP message

The contents of the RADIO BEARER SETUP message applied in the preamble "Setup a UE terminated PS session using IP Header compression in AM RLC" of this test case is identical to those of the default contents of layer 3 messages for RRC tests [TS 34.123-1] (PS connection for AM) which fits to the below described parameters with the following exceptions:

Information Element	Value/remark
RAB information for setup	
- RAB info	
- RAB identity	No. # 23 as described in TS 34.108, Table 6.10.2.1.1 Prioritised RABs. QoS parameter: Traffic Class: Interactive or Background, max. UL: 64 kbps and max. DL: 64 kbps as described in TS 34.108, including described physical channel parameters, configuration for AM RLC
	Residual BER as described in TS 34.108, clause: 6.10 Related Signalling RB UL: 3.4 kbps, DL: 3.4 kbps DCCH, No. #2 (as described in TS 34.108) PS domain 20
- CN domain identity - RB information to setup - RB identity	
- PDCP info	False
- Support of lossless SRNS relocation	(IE "Support of lossless SRNS relocation" only present, if RLC "In-sequence delivery" is TRUE and in AM) absent
- PDCP PDU header	
- RLC info - Downlink RLC mode	(AM RLC)

Content of PDCP No Header PDU (Step 1)

Information Element	Value/remark
	PDCP test data type #1: TCP/IP data packet without IP header compression with any data content. The data shall be limited to 5 Kbytes.

Content of PDCP No Header PDU (Step 3)

Information Element	Value/remark
Data	PDCP test data type #2: UDP/IP data packet without IP
	header compression with any data content. The data
	shall be limited to 5 Kbytes.

7.3.2.1.1.5 Test requirements

1. Test requirements: Transmission of uncompressed IP header packets using PDCP Data PDU

The UE shall return the TCP/IP and UDP/IP data packets as indication, that the previous packets have been received and handled correctly (PDCP Data PDU). This verifies, that the PDCP configuration on UE side works as negotiated by the RRC.

2. Test requirements: Transmission of uncompressed IP header packets using PDCP No Header PDU

The UE shall return the TCP/IP and UDP/IP data packets as indication, that the previous packets have been received and handled correctly (PDCP No Header PDU). This verifies, that the PDCP configuration on UE side works as negotiated by the RRC.

7.3.2.1.2 Transmission of compressed Header

7.3.2.1.2.1 Definition and applicability

Applicable for all UEs supporting RLC AM and a Radio Bearer as described in the Common Test Sequences.

The UE shall be capable to deal with compressed TCP/IP and UDP/IP data packets and furthermore to establish a PDCP entity which applies IP header compression protocol RFC 2507.

7.3.2.1.2.2 Conformance requirement

Packet Data Convergence Protocol shall perform the following functions:

- ...

- transfer of user data. Transmission of user data means that PDCP receives PDCP SDU from the NAS and forwards it to the RLC layer and vice versa;
- PDCP shall be able (...) to handle them with a correct header compression protocol and furthermore to indicate the type of the packet within a certain protocol.

Reference(s)

TS 25.323 clause 5

TS 25.323 clause 5.1.1.

7.3.2.1.2.3 Test purpose

- 1. To verify, that the UE transmits and receives in acknowledged mode (RLC AM) TCP/IP and UDP/IP data packets by using IP header compression protocol as described in RFC2507 as configured by higher layers.
- 2. To verify, that the PID assignment rules are correctly applied by the UE. The UE as shall use the correct PID value for the applied optimisation method for transmitting and receiving TCP/IP and UDP/IP data packets.

7.3.2.1.2.4 Method of test

Initial conditions

UE is in Idle mode. Usage of "PDCP Data" PDU and IP header compression is configured

Related ICS/IXIT Statement(s)

Support of IP header compression protocol RFC 2507 - YES/NO

 $\underline{Support\ of\ PS-Yes/No}$

PIXIT: Test PDCP TCP/IP Packet1

PIXIT: Test PDCP TCP/IP Packet2

PIXIT: Test_PDCP_UDP/IP_Packet1

PIXIT: Test PDCP UDP/IP Packet2

Test procedure

a) The SS setups a packet switched session including radio bearer and UE test loop mode 1 in RLC AM using Common test procedures for mobile terminated PS switched sessions. Usage of "PDCP Data" PDU has been configured by higher layers.

- b) The SS sends a "normal" TCP/IP data packet (no compression packet type), PID=0.
- c) After having received the TCP/IP data packet, the PDCP entity of the UE shall recognize the PID value and shall handle the received data packet with the correct decompression protocol. Then, it forwards the data to its Radio Bearer Loop Back entity. The received data shall be returned by the UE via its PDCP configuration.
- d) The SS receives and decodes the TCP/IP data packet according to the inserted PID. The decoded data packet shall be identical with the data as sent before.
- e) The SS sends a TCP/IP data packet with packet type: Full_Header, PID=1.
- NOTE: According to the compression protocol RFC 2507, this is necessary to transmit the created CONTEXT and the assigned CID.
- f) After having received the TCP/IP data packet, the PDCP entity of the UE shall recognize the PID value and shall handle the received data packet with the correct decompression protocol. Then, it forwards the data to its Radio Bearer Loop Back entity. The received data shall be returned by the UE via its PDCP configuration.
- g) The SS receives and decodes the TCP/IP data packet according to the inserted PID. The decoded data packet shall be identical with the data as sent before.
- h) The SS sends a TCP/IP data packet with packet type: Compressed_TCP, PID=2.
- i) After having received the TCP/IP data packet, the PDCP entity of the UE shall recognize the PID value and shall handle the received data packet with the correct decompression protocol. Then, it forwards the data to its Radio Bearer Loop Back entity. The received data shall be returned by the UE via its PDCP configuration.
- j) The SS receives and decodes the TCP/IP data packet according to the inserted PID. The decoded data packet shall be identical with the data as sent before.
- k) Step b) to d) is repeated for a "normal" UDP/IP data packet, PID=0.
- 1) Step e) to g) is repeated for a UDP/IP data packet with packet type: Full_Header, PID=1.
- m) The SS sends a UDP/IP data packet with packet type: Compressed_non_TCP, PID=4.
- n) After having received the TCP/IP data packet, the PDCP entity of the UE shall recognize the PID value and shall handle the received data packet with the correct decompression protocol. Then, it forwards the data to its Radio Bearer Loop Back entity. The received data shall be returned by the UE via its PDCP configuration.
- o) The SS receives and decodes the UDP/IP data packet according to the inserted PID. The decoded data packet shall be identical with the data as sent before.
- p) The SS deactivates the UE tests loop mode 1 and terminates the connection.

Step	Direction	Message	Comments
	UE SS Setup a UF teri	L minated PS session using IP Header compres	sion in AM RLC (using UE test loop mode 1)
	land a GE ton	a.ca r e cococon acing ii ricaaci compres	The SS creates a TCP/IP packet without IP header compression.
1	+	PDCP Data	The SS sends a PDCP Data PDU using the RLC-AM-Data-Request Primitive with the following content to the UE: PDU type = 000 (PDCP Data PDU) PID = 0 (uncompressed IP header) data: below described TCP/IP packet
			After having received the PDCP Data PDU, the UE decodes the PDU and recognizes PID value = 0 (no IP header compression) Therefore, no IP header decompression is applied for this packet.
			The data packet is forwarded via PDCP-SAP to its Radio Bearer Loop Back (RB LB) entity.
			The RB LB entity in UE test loop mode 1 returns the received data packet and sends it back to its PDCP entity.
2	→	PDCP Data	The UE sends a PDCP Data PDU using the RLC-AM-Data-Request Primitive with the following content back to the SS: PDU type = 000 (PDCP Data PDU) PID value = 0 to 3 data: previously received TCP/IP packet
			After reception of this TCP/IP data packet, the SS applies the appropriate decoding function depending on the assigned PID.
3	+	PDCP Data	The SS sends a PDCP Data PDU using the RLC-AM-Data-Request Primitive with the following content to the UE: PDU type = 000 (PDCP Data PDU) PID = 1 (Full_Header packet type [TCP/IP]) data: below described TCP/IP packet
			After having received the PDCP Data PDU, the UE decodes the PDU, recognizes PID value = 1 applied for this TCP/IP data packet and decompresses it with the appropriate method. The data packet is forwarded via PDCP-SAP to its Radio Bearer Loop Back (RB LB) entity.
			The RB LB entity in UE test loop mode 1 returns the received data packet and sends it back to its PDCP entity.

Step	Direction	Message	Comments
4	UE SS →	PDCP Data	The UE sends a PDCP Data PDU using the RLC-AM-Data-Request Primitive with the following content back to the SS: PDU type = 000 (PDCP Data PDU) PID value = 0 to 3 data: previously received TCP/IP packet After reception of this TCP/IP data packet, the SS applies the appropriate decoding function depending on the assigned PID.
5	←	PDCP Data	The SS sends a PDCP Data PDU using the RLC-AM-Data-Request Primitive with the following content to the UE: PDU type = 000 (PDCP Data PDU) PID = 2 (Compressed_TCP packet type) data: below described TCP/IP packet After having received the PDCP Data PDU, the UE decodes the PDU, recognizes PID value = 2 applied for this TCP/IP data packet and decompress it with the appropriate method. The
6	→	PDCP Data	data packet is forwarded via PDCP-SAP to its Radio Bearer Loop Back (RB LB) entity. The RB LB entity in UE test loop mode 1 returns the received data packet and sends it back to its PDCP entity. The UE sends a PDCP Data PDU using the RLC-AM-Data-Request Primitive with the following content back to the SS: PDU type = 000 (PDCP Data PDU) PID value = 0 to 3 () data: previously received TCP/IP packet After reception of this TCP/IP data packet, the SS applies the appropriate decoding function depending on the assigned PID.
7	←	PDCP Data	The SS creates a UDP/IP packet without compressed IP header compression. The SS sends a PDCP Data PDU using the RLC-AM-Data-Request Primitive with the following content to the UE: PDU type = 000 (PDCP Data PDU) PID = 0 (uncompressed IP header) data: below described UDP/IP packet After having received the PDCP Data PDU, the UE decodes the PDU and recognizes with PID value = 0, there was no IP header compression
			applied for the UDP/IP packet. Therefore, no IP header decompression is applied for this packet. The data packet is forwarded via PDCP-SAP to the Radio Bearer Loop Back (RB LB) entity. The RB LB entity in UE test loop mode 1 returns the received data packet and sends it back to its PDCP entity.

Step	Direction	Message	Comments
Step 8	Direction UE SS →	Message PDCP Data	The UE sends a PDCP Data PDU using the RLC-AM-Data-Request Primitive with the following content back to the SS: PDU type = 000 (Data PDU with Header) PID value = 0,1 or 4 (depending on which UDP/IP header format is used by the UE) data: previously received UDP/IP packet
			After reception of this UDP/IP data packet, the SS applies the appropriate decoding function depending on the assigned PID.

Step	Direction	Message	Comments
9	UE SS ←	PDCP Data	The SS sends a PDCP Data PDU using the RLC-AM-Data-Request Primitive with the following content to the UE: PDU type = 000 (PDCP Data PDU) PID = 1 (Full_Header packet type) data: below described UDP/IP packet After having received the PDCP Data PDU, the UE decodes the PDU and recognizes PID value = 1 applied for this UDP/IP data packet and decompress it with the appropriate method. The data packet is forwarded via PDCP-SAP to the Radio Bearer Loop Back (RB LB) entity. The RB LB entity in UE test loop mode 1 returns the received data packet and sends it back to its
10	→	PDCP Data	PDCP entity. The UE sends a PDCP Data PDU using the RLC-AM-Data-Request Primitive with the following content back to the SS: PDU type = 000 (Data PDU with Header) PID value = 0,1 or 4 (depending on which UDP/IP header format is used by the UE) data: previously received UDP/IP packet After reception of this UDP/IP data packet, the SS applies the appropriate decoding function
			depending on the assigned PID.
11	+	PDCP Data	The SS sends a PDCP Data PDU using the RLC-AM-Data-Request Primitive with the following content to the UE: PDU type = 000 (PDCP Data PDU) PID = 4 (Compressed _non-TCP packet type) data: below described UDP/IP packet After having received the PDCP Data PDU, the UE decodes the PDU and recognizes PID value = 4 applied for this UDP/IP data packet and decompress it with the appropriate method. The data packet is forwarded via PDCP-SAP to the Radio Bearer Loop Back
			(RB LB) entity. The RB LB entity in UE test loop mode 1 returns the received data packet and sends it back to its PDCP entity.
12	\rightarrow	PDCP Data	The UE sends a PDCP Data PDU using the RLC-AM-Data-Request Primitive with the following content back to the SS: PDU type = 000 (Data PDU with Header) PID value = 0,1 or 4 (depending on which UDP/IP header format is used by the UE) data: previously received UDP/IP packet
			After reception of this UDP/IP data packet, the SS applies the appropriate decoding function depending on the assigned PID.
	Deactivate a UE terminated PS session using IP Header compression (using UE test loop mode 1)		

Specific Message Contents

RRC CONNECTION SETUP message

The contents of the RRC CONNECTION SETUP message applied in the preamble "Setup a UE terminated PS session using IP Header compression in AM RLC" of this test case is identical to those of the default contents of layer 3 messages for RRC tests [TS 34.123-1] (PS connection for AM) with the following exceptions:

Information Element	Value/remark
Capability update requirement	
 UE radio access capability update requirement 	TRUE
	NOTE: Value will be checked. Stated capability must be
	compatible with 34.123-2 (c.f. PICS/PIXIT statements in
	GSM) and the user settings

RADIO BEARER SETUP message

The contents of the RADIO BEARER SETUP message applied in the preamble "Setup a UE terminated PS session using IP Header compression in AM RLC" of this test case is identical to those of the default contents of layer 3 messages for RRC tests [TS 34.123-1] (PS connection for AM) which fit to the here described parameters with the following exceptions:

Information Element	Value/remark
RAB information for setup	
- RAB info	
- RAB identity	No. # 23 as described in TS 34.108, Table 6.10.2.1.1 Prioritised RABs. QoS parameter: Traffic Class: Interactive or Background, max. UL: 64 kbps and max. DL: 64 kbps as described ir TS 34.108, including described physical channel parameters, configuration for AM RLC
	Residual BER as described in TS 34.108, clause: 6.10 Related Signalling RB UL: 3.4 kbps, DL: 3.4 kbps DCCH, No. #2 (as described in TS 34.108) PS domain
	20
 - CN domain identity - RB information to setup - RB identity - PDCP info - Support of lossless SRNS relocation 	False (IE "Support of lossless SRNS relocation" only present if RLC "In-sequence delivery" is TRUE and in AM) present 1
- PDCP PDU header - Header compression information CHOICE algorithm type - RFC2507 - F_MAX_PERIOD - F_MAX_TIME - MAX_HEADER - TCP_SPACE - NON_TCP_SPACE - EXPECT_REORDERING	256 (Default) 5 (Default) 168 (Default) 15 (Default) 15 (Default) reordering expected (Default) (AM RLC)
- RLC info - Downlink RLC mode	

Content of PDCP Data PDU (Step 1)

Information Element	Value/remark
PDU type	000
PID	00000 (No header compression, PID = 0)
Data	PDCP test data type #1: TCP/IP data packet without IP
	header compression with any data content. The data
	shall be limited to 5 Kbytes.

Content of PDCP Data PDU (Step 3)

Information Element	Value/remark
PDU type	000
PID	00001 (Full_Header, PID = 1)
Data	PDCP test data type #1: TCP/IP data packet without IP
	header compression with any data content. The data
	shall be limited to 5 Kbytes.

Content of PDCP Data PDU (Step 5)

Information Element	Value/remark
PDU type	000
PID	00010 (Compressed_TCP, PID = 2)
Data	PDCP test data type #1: TCP/IP data packet without IP
	header compression with any data content. The data
	shall be limited to 5 Kbytes.

Content of PDCP Data PDU (Step 7)

Information Element	Value/remark
PDU type	000
PID	00000 (No header compression, PID = 0)
Data	PDCP test data type #2: UDP/IP data packet without IP
	header compression with any data content. The data
	shall be limited to 5 Kbytes.

Content of PDCP Data PDU (Step 9)

Information Element	Value/remark
PDU type	000
PID	00001 (Full_Header, PID = 1)
Data	PDCP test data type #2: UDP/IP data packet without IP
	header compression with any data content. The data
	shall be limited to 5 Kbytes.

Content of PDCP Data PDU (Step 11)

Information Element	Value/remark
PDU type	000
PID	00100 (Compressed_non-TCP, PID = 4)
Data	PDCP test data type #2: UDP/IP data packet without IP
	header compression with any data content. The data
	shall be limited to 5 Kbytes.

7.3.2.1.2.5 Test requirements

The UE shall return the TCP/IP and UDP/IP data packets as indication, that the previous packets have been received and handled with the correct compression protocol. This verifies, that the PDCP configuration on UE side works as negotiated by the RRC.

7.3.2.2 UE in RLC UM

7.3.2.2.1 Transmission of uncompressed Header

7.3.2.2.1.1 Definition and applicability

Applicable for all UEs supporting RLC UM and a Radio Bearer as described in the Common Test Sequences.

The UE shall be capable to deal with TCP/IP and UDP/IP data packets with uncompressed IP header.

7.3.2.2.1.2 Conformance requirement

Packet Data Convergence Protocol shall perform the following functions:

- ..

- transfer of user data. Transmission of user data means that PDCP receives PDCP SDU from the NAS and forwards it to the RLC layer and vice versa;
- PDCP shall be able (...) to handle them with a correct header compression protocol and furthermore to indicate the type of the packet within a certain protocol.
- PID value 0 is reserved permanently for no compression

Reference(s)

TS 25.323 clause 5

TS 25.323 clause 5.1.1.

7.3.2.2.1.3 Test purpose

The test case consists of two test procedures:

The first test procedure verifies, that the "PDCP Data" PDU is used for uncompressed IP header packets, if no IP header compression is configured by higher layers. The second test procedure verifies, that the "PDCP No header" PDU is used for uncompressed IP header packets, if no IP header compression is configured by higher layers.

- 1. To verify, that the UE transmits and receives in unacknowledged mode (RLC UM) TCP/IP and UDP/IP data packets without IP header compression as configured by higher layers.
- 2. To verify, that PID assignment rules are correctly applied, if usage of "PDCP Data" PDU are negotiated, i.e. the UE shall recognize PID value = 0 for a received TCP/IP and UDP/IP data packet and it shall use PID=0 to transmit IP data packets, if no IP header compression is negotiated. If usage of "PDCP No Header" PDU is negotiated, no PID assignment is used for transmitting and receiving TCP/IP and UDP/IP data packets.

7.3.2.2.1.4 Method of test

Initial conditions

UE is in Idle mode.

Test procedure 1: Usage of "PDCP Data" PDU and no IP header compression is configured

Test procedure 2: no IP header compression is configured

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Related ICS/IXIT Statement(s)

Support of PS - Yes/No

PIXIT: Test_PDCP_TCP/IP_Packet1

PIXIT: Test_PDCP_UDP/IP_Packet1

1. Test procedure: Transmission of uncompressed IP header packets using PDCP Data PDU

- a) The SS setups a packet switched session including radio bearer and UE test loop mode 1 in RLC UM using Common test procedures for mobile terminated PS switched sessions. Usage of "PDCP Data" PDU has been configured by higher layers.
- b) The SS sends a TCP/IP data packet with uncompressed IP Header.
- c) After having received the TCP/IP data packet, the PDCP entity of the UE shall recognize the PDCP PDU type and shall handle the received data packet with the appropriate decoding method. Then it forwards the data to its Radio Bearer Loop Back entity. The received data shall be returned by the UE via its PDCP configuration using PDCP Data PDU.
- d) The SS receives and decodes the TCP/IP data packet. The decoded data packet shall be identical with the data as sent before.
- e) Step b) to d) shall be repeated by using a UDP/IP data packet with uncompressed IP Header.

The SS deactivates the UE test loop mode and terminates the connection.

Step	Direction	Message	Comments			
	UE SS	_				
S	Setup a UE terminated PS session using IP Header compression in UM RLC (using UE test loop mode 1)					
			The SS creates a TCP/IP packet without IP header compression (PDCP Data PDU).			
1	←	PDCP Data	The SS sends a PDCP Data PDU using the RLC-UM-Data-Request Primitive with the following content to the UE: PDU type = 000 (PDCP Data PDU) PID = 0 (uncompressed IP header) data: below described TCP/IP packet			
			After having received the PDCP Data PDU, the UE decodes the PDU and recognizes PID value = 0 (no IP header compression) Therefore, no IP header decompression is applied for this packet.			
			The data packet is forwarded via PDCP-SAP to its Radio Bearer Loop Back (RB LB) entity.			
			The RB LB entity in UE test loop mode 1 returns the received data packet and sends it back to its PDCP entity.			
2	→	PDCP Data	The UE sends a PDCP Data PDU using the RLC-UM-Data-Request Primitive with the following content back to the SS: data: previously received TCP/IP packet			
			After reception of this TCP/IP data packet, the SS applies the appropriate decoding function for the received data			
			The SS creates a UDP/IP packet without IP header compression (PDCP Data PDU).			

Step	Direction	Message	Comments	
	UE SS			
3	÷	PDCP Data	The SS sends a PDCP Data PDU using the RLC-UM-Data-Request Primitive with the following content to the UE: PDU type = 000 (PDCP Data PDU) PID = 0 (uncompressed IP header) data: below described UDP/IP packet	
			After having received the PDCP Data PDU, the UE decodes the PDU and recognizes with PID value = 0, there was no IP header compression applied for the UDP/IP packet. Therefore, no IP header decompression is applied for this packet.	
			The data packet is forwarded via PDCP-SAP to the Radio Bearer Loop Back (RB LB) entity.	
			The RB LB entity in UE test loop mode 1 returns the received data packet and sends it back to its PDCP entity.	
4	→	PDCP Data	The UE sends a PDCP Data PDU using the RLC-UM-Data-Request Primitive with the following content back to the SS: data: previously received UDP/IP packet	
			After reception of this UDP/IP data packet, the SS decodes the received data	
	Deactivate a UE terminated PS session using IP Header compression (using UE test loop mode 1)			

Specific Message Contents

RRC CONNECTION SETUP message

The contents of the RRC CONNECTION SETUP message applied in the preamble "Setup a UE terminated PS session using IP Header compression in UM RLC" of this test case is identical to those of the default contents of layer 3 messages for RRC tests [TS 34.123-1] (PS connection for UM) with the following exceptions:

Information Element	Value/remark
Capability update requirement	
- UE radio access capability update requirement	TRUE NOTE: Value will be checked. Stated capability must be compatible with 34.123-2 (c.f. PICS/PIXIT statements in GSM) and the user settings

RADIO BEARER SETUP message

The contents of the RADIO BEARER SETUP message applied in the preamble "Setup a UE terminated PS session using IP Header compression in UM RLC" of this test case is identical to those of the default contents of layer 3 messages for RRC tests [TS 34.123-1] (PS connection for UM) which fits to the below described parameters with the following exceptions:

Information Element	Value/remark
RAB information for setup - RAB info	
- RAB identity	No. # 23 as described in TS 34.108, Table 6.10.2.1.1 Prioritised RABs. QoS parameter: Traffic Class: Interactive or Background, max. UL: 64 kbps and max. DL: 64 kbps as described in TS 34.108, including described physical channel parameters, configuration for UM RLC Residual BER as described in TS 34.108, clause: 6.10 Related Signalling RB UL: 3.4 kbps, DL: 3.4 kbps DCCH, No. #2 (as described in TS 34.108) PS domain
- CN domain identity	
- RB information to setup - RB identity	present
- PDCP info - PDCP PDU header	(UM RLC)
- RLC info - Downlink RLC mode	

Content of PDCP Data PDU (Step 1)

Information Element	Value/remark
PDU type	000
PID	00000 (No header compression, PID = 0)
Data	PDCP test data type #1: TCP/IP data packet without IP
	header compression with any data content. The data
	shall be limited to 5 Kbytes.

Content of PDCP Data PDU (Step 3)

Information Element	Value/remark
PDU type	000
PID	00000 (No header compression, PID = 0)
Data	PDCP test data type #2: UDP/IP data packet without IP
	header compression with any data content. The data
	shall be limited to 5 Kbytes.

2. Test procedure: Transmission of uncompressed IP header packets using No Header PDU

- a) The SS setups a packet switched session including radio bearer and UE test loop mode 1 in RLC UM using Common test procedures for mobile terminated PS switched sessions. Usage of "PDCP No Header" PDU has been configured by higher layers.
- b) The SS sends a TCP/IP data packet with uncompressed IP Header.
- c) After having received the TCP/IP data packet, the PDCP entity of the UE shall recognize the PDCP PDU type and shall handle the received data packet with the appropriate decoding method. Then it forwards the data to its Radio Bearer Loop Back entity. The received data shall be returned by the UE via its PDCP configuration using PDCP No Header PDU.
- d) The SS receives and decodes the TCP/IP data packet. The decoded data packet shall be identical with the data as sent before.
- e) Step b) to d) shall be repeated by using a UDP/IP data packet with uncompressed IP Header.
- f) The SS deactivates the Loop back test mode and terminates the connection.

Step	Direction		Message	Comments		
	UE	SS				
S	Setup a UE terminated PS session using IP Header compression in UM RLC (using UE test loop mode 1)					
				The SS creates a TCP/IP packet without IP		
				header compression (PDCP No Header PDU).		
1	*	.	PDCP No Header	The SS sends a PDCP No Header PDU using the RLC-UM-Data-Request Primitive with the following content to the UE: data: below described TCP/IP packet		
				After having received the PDCP No Header PDU, the UE decodes the PDU and recognizes, there was no PID applied for the TCP/IP packet. Therefore, no IP header decompression shall be applied for this packet. Then, the data packet is forwarded via PDCP-SAP to the Radio Bearer Loop Back (RB LB) entity.		
				The RB LB entity in UE test loop mode 1 returns the received data packet and sends it back to its PDCP entity.		
2	<u>-</u>	>	PDCP No Header	The UE sends a PDCP No Header PDU using the RLC-UM-Data-Request Primitive with the following content back to the SS: data: previously received TCP/IP packet		
				After reception of this TCP/IP data packet, the SS applies the appropriate decoding function for the received data		
				The SS creates a UDP/IP packet without IP header compression (PDCP No Header PDU).		

Step	Direction	Message	Comments	
	UE SS			
3	←	PDCP No Header	The SS sends a PDCP No Header PDU using the RLC-UM-Data-Request Primitive with the following content to the UE: data: below described UDP/IP packet	
			After having received the PDCP No Header PDU, the UE decodes the PDU and recognizes, there was no PID applied for the UDP/IP packet. Therefore, no IP header decompression shall be applied for this packet. Then, the data packet is forwarded via PDCP-SAP to the Radio Bearer Loop Back (RB LB) entity.	
			The RB LB entity in UE test loop mode 1 returns the received data packet and sends it back to its PDCP entity.	
4	→	PDCP No Header	The UE sends a PDCP No Header PDU using the RLC-UM-Data-Request Primitive with the following content back to the SS: data: previously received UDP/IP packet	
			After reception of this UDP/IP data packet, the SS decodes the received data	
	Deactivate a UE terminated PS session using IP Header compression (using UE test loop mode 1)			

Specific Message Contents

RRC CONNECTION SETUP message

The contents of the RRC CONNECTION SETUP message applied in the preamble "Setup a UE terminated PS session using IP Header compression in UM RLC" of this test case is identical to those of the default contents of layer 3 messages for RRC tests [TS 34.123-1] (PS connection for UM) with the following exceptions:

Information Element	Value/remark
Capability update requirement - UE radio access capability update requirement	TRUE NOTE: Value will be checked. Stated capability must be
	compatible with 34.123-2 (c.f. PICS/PIXIT statements in GSM) and the user settings

RADIO BEARER SETUP message

The contents of the RADIO BEARER SETUP message applied in the preamble "Setup a UE terminated PS session using IP Header compression in UM RLC" of this test case is identical to those of the default contents of layer 3 messages for RRC tests [TS 34.123-1] (PS connection for UM) which fits to the below described parameters with the following exceptions:

Information Element	Value/remark
RAB information for setup	
- RAB info	
- RAB identity	No. # 23 as described in TS 34.108, Table 6.10.2.1.1 Prioritised RABs. QoS parameter: Traffic Class: Interactive or Background, max. UL: 64 kbps and max. DL: 64 kbps as described in TS 34.108, including described physical channel parameters, configuration for UM RLC Residual BER as described in TS 34.108, clause: 6.10 Related Signalling RB UL: 3.4 kbps, DL: 3.4 kbps
- CN domain identity	DCCH, No. #2 (as described in TS 34.108) PS domain
- RB information to setup - RB identity - PDCP info	21
	False
- PDCP PDU header - RLC info	absent
- Downlink RLC mode	(UM RLC)

Content of PDCP No Header PDU (Step 1)

Information Element	Value/remark
	PDCP test data type #1: TCP/IP data packet without IP header compression with any data content. The data shall be limited to 5 Kbytes.

Content of PDCP No Header PDU (Step 3)

Information Element	Value/remark
Data	PDCP test data type #2: UDP/IP data packet without IP header compression with any data content. The data shall be limited to 5 Kbytes.

7.3.2.2.1.5 Test requirements

1. Test requirements: Transmission of uncompressed IP header packets using PDCP Data PDU

The UE shall return the TCP/IP and UDP/IP data packets as indication, that the previous packets have been received and handled correctly (PDCP Data PDU). This verifies, that the PDCP configuration on UE side works as negotiated by the RRC.

2. Test requirements: Transmission of uncompressed IP header packets using PDCP No Header PDU

The UE shall return the TCP/IP and UDP/IP data packets as indication, that the previous packets have been received and handled correctly (PDCP No Header PDU). This verifies, that the PDCP configuration on UE side works as negotiated by the RRC.

7.3.2.2.2 Transmission of compressed Header

7.3.2.2.2.1 Definition and applicability

Applicable for all UEs supporting RLC UM and a Radio Bearer as described in the Common Test Sequences.

The UE shall be capable to deal with compressed TCP/IP and UDP/IP data packets and furthermore to establish a PDCP entity which applies IP header compression protocol RFC 2507.

7.3.2.2.2.2 Conformance requirement

Packet Data Convergence Protocol shall perform the following functions:

- ...

- transfer of user data. Transmission of user data means that PDCP receives PDCP SDU from the NAS and forwards it to the RLC layer and vice versa;
- PDCP shall be able (...) to handle them with a correct header compression protocol and furthermore to indicate the type of the packet within a certain protocol.

Reference(s)

TS 25.323 clause 5.

TS 25.323 clause 5.1.1.

7.3.2.2.2.3 Test purpose

- 1. To verify, that the UE transmits and receives in unacknowledged mode (RLC UM) TCP/IP and UDP/IP data packets by using IP header compression protocol as described in RFC2507 as configured by higher layers.
- 2. To verify, that the PID assignment rules are correctly applied by the UE. The UE as shall use the correct PID value for the applied optimisation method for transmitting and receiving TCP/IP and UDP/IP data packets.

7.3.2.2.2.4 Method of test

Initial conditions

UE is in Idle mode. Usage of "PDCP Data" PDU and no IP header compression is configured

Related ICS/IXIT Statement(s)

Support of IP header compression method protocol RFC 2507 - YES/NO-

Support of PS - Yes/No

PIXIT: Test PDCP TCP/IP Packet1

PIXIT: Test_PDCP_TCP/IP_Packet2

PIXIT: Test PDCP UDP/IP Packet1

PIXIT: Test PDCP UDP/IP Packet2

Test procedure

- a) The SS setups a packet switched session including radio bearer and UE test loop mode 1 in RLC UM using Common test procedures for mobile terminated PS switched sessions. Usage of "PDCP Data" PDU has been configured by higher layers.
- b) The SS sends a "normal" TCP/IP data packet (no compression packet type), PID=0.
- c) After having received the TCP/IP data packet, the PDCP entity of the UE shall recognize the PID value and shall handle the received data packet with the correct decompression protocol. Then, it forwards the data to its Radio Bearer Loop Back entity. The received data shall be returned by the UE via its PDCP configuration.

- d) The SS receives and decodes the TCP/IP data packet according to the inserted PID. The decoded data packet shall be identical with the data as sent before.
- e) The SS sends a TCP/IP data packet with packet type: Full_Header, PID=1.
- NOTE: According to the compression protocol RFC 2507, this is necessary to transmit the created CONTEXT and the assigned CID.
- f) After having received the TCP/IP data packet, the PDCP entity of the UE shall recognize the PID value and shall handle the received data packet with the correct decompression protocol. Then, it forwards the data to its Radio Bearer Loop Back entity. The received data shall be returned by the UE via its PDCP configuration.
- g) The SS receives and decodes the TCP/IP data packet according to the inserted PID. The decoded data packet shall be identical with the data as sent before.
- h) The SS sends a TCP/IP data packet with packet type: Compressed_TCP, PID=2.
- i) After having received the TCP/IP data packet, the PDCP entity of the UE shall recognize the PID value and shall handle the received data packet with the correct decompression protocol. Then, it forwards the data to its Radio Bearer Loop Back entity. The received data shall be returned by the UE via its PDCP configuration.
- j) The SS receives and decodes the TCP/IP data packet according to the inserted PID. The decoded data packet shall be identical with the data as sent before.
- k) Step b) to d) is repeated for a "normal" UDP/IP data packet, PID=0.
- 1) Step e) to g) is repeated for a UDP/IP data packet with packet type: Full_Header, PID=1.
- m) The SS sends a UDP/IP data packet with packet type: Compressed_non_TCP, PID=4.
- n) After having received the TCP/IP data packet, the PDCP entity of the UE shall recognize the PID value and shall handle the received data packet with the correct decompression protocol. Then, it forwards the data to its Radio Bearer Loop Back entity. The received data shall be returned by the UE via its PDCP configuration.
- o) The SS receives and decodes the UDP/IP data packet according to the inserted PID. The decoded data packet shall be identical with the data as sent before.
- p) The SS deactivates the UE test loop test mode and terminates the connection.

Step	Direction UE SS	Message	Comments
S		minated PS session using IP Header compres	sion in UM RLC (using UE test loop mode 1)
			The SS creates a TCP/IP packet without IP header compression.
1	←	PDCP Data	The SS sends a PDCP Data PDU using the RLC-UM-Data-Request Primitive with the following content to the UE: PDU type = 000 (PDCP Data PDU) PID = 0 (uncompressed IP header) data: below described TCP/IP packet
			After having received the PDCP Data PDU, the UE decodes the PDU and recognizes PID value = 0 (no IP header compression) Therefore, no IP header decompression is applied for this packet.
			The data packet is forwarded via PDCP-SAP to its Radio Bearer Loop Back (RB LB) entity.
			The RB LB entity in UE test loop mode 1 returns the received data packet and sends it back to its PDCP entity.
2	→	PDCP Data	The UE sends a PDCP Data PDU using the RLC-UM-Data-Request Primitive with the following content back to the SS: PDU type = 000 (PDCP Data PDU) PID value = 0 to 3 data: previously received TCP/IP packet
			After reception of this TCP/IP data packet, the SS applies the appropriate decoding function depending on the assigned PID.
3	+	PDCP Data	The SS sends a PDCP Data PDU using the RLC-UM-Data-Request Primitive with the following content to the UE: PDU type = 000 (PDCP Data PDU) PID = 1 (Full_Header packet type [TCP/IP]) data: below described TCP/IP packet
			After having received the PDCP Data PDU, the UE decodes the PDU, recognizes PID value = 1 applied for this TCP/IP data packet and decompresses it with the appropriate method. The data packet is forwarded via PDCP-SAP to its Radio Bearer Loop Back (RB LB) entity.

Step	Direction UE SS	Message	Comments
	UE 33		The RB LB entity in UE test loop mode 1 returns the received data packet and sends it back to its PDCP entity.
4	→	PDCP Data	The UE sends a PDCP Data PDU using the RLC-UM-Data-Request Primitive with the following content back to the SS: PDU type = 000 (PDCP Data PDU) PID value = 0 to 3
			data: previously received TCP/IP packet After reception of this TCP/IP data packet, the SS applies the appropriate decoding function depending on the assigned PID.
5	+	PDCP Data	The SS sends a PDCP Data PDU using the RLC-UM-Data-Request Primitive with the following content to the UE: PDU type = 000 (PDCP Data PDU) PID = 2 (Compressed_TCP packet type) data: below described TCP/IP packet After having received the PDCP Data PDU, the UE decodes the PDU, recognizes PID value = 2 applied for this TCP/IP data packet and decompress it with the appropriate method. The data packet is forwarded via PDCP-SAP to its
6	→	PDCP Data	Radio Bearer Loop Back (RB LB) entity. The RB LB entity in UE test loop mode 1 returns the received data packet and sends it back to its PDCP entity. The UE sends a PDCP Data PDU using the RLC-UM-Data-Request Primitive with the following content back to the SS: PDU type = 000 (PDCP Data PDU) PID value = 0 to 3 data: previously received TCP/IP packet After reception of this TCP/IP data packet, the SS applies the appropriate decoding function depending on the assigned PID.
7	←	PDCP Data	The SS creates a UDP/IP packet without compressed IP header compression. The SS sends a PDCP Data PDU using the RLC-UM-Data-Request Primitive with the following content to the UE: PDU type = 000 (PDCP Data PDU) PID = 0 (uncompressed IP header) data: below described UDP/IP packet After having received the PDCP Data PDU, the UE decodes the PDU and recognizes with PID value = 0, there was no IP header compression applied for the UDP/IP packet. Therefore, no IP header decompression is applied for this packet. The data packet is forwarded via PDCP-SAP to
			the Radio Bearer Loop Back (RB LB) entity.
l		CR page 34	

Step	Direction	Message	Comments
	UE SS		The RB LB entity in UE test loop mode 1 returns the received data packet and sends it back to its PDCP entity.
8	→	PDCP Data	The UE sends a PDCP Data PDU using the RLC-UM-Data-Request Primitive with the following content back to the SS: PDU type = 000 (Data PDU with Header) PID value = 0,1 or 4 (depending on which UDP/IP header format is used by the UE) data: previously received UDP/IP packet
			After reception of this UDP/IP data packet, the SS applies the appropriate decoding function depending on the assigned PID.
9	+	PDCP Data	The SS sends a PDCP Data PDU using the RLC-UM-Data-Request Primitive with the following content to the UE: PDU type = 000 (PDCP Data PDU) PID = 1 (Full_Header packet type) data: below described UDP/IP packet
			After having received the PDCP Data PDU, the UE decodes the PDU and recognizes PID value = 1 applied for this UDP/IP data packet and decompress it with the appropriate method.
			The data packet is forwarded via PDCP-SAP to the Radio Bearer Loop Back (RB LB) entity.
			The RB LB entity in UE test loop mode 1 returns the received data packet and sends it back to its PDCP entity.
10	→	PDCP Data	The UE sends a PDCP Data PDU using the RLC-UM-Data-Request Primitive with the following content back to the SS: PDU type = 000 (Data PDU with Header) PID value = 0,1 or 4 (depending on which UDP/IP header format is used by the UE) data: below described UDP/IP packet
			After reception of this UDP/IP data packet, the SS applies the appropriate decoding function depending on the assigned PID.
11	+	PDCP Data	The SS sends a PDCP Data PDU using the RLC-UM-Data-Request Primitive with the following content to the UE: PDU type = 000 (PDCP Data PDU) PID = 4 (Compressed _non-TCP packet type) data: below described UDP/IP packet After having received the PDCP Data PDU, the UE decodes the PDU and recognizes PID value = 1 applied for this UDP/IP data packet and decompress it with the appropriate method. The data packet is forwarded via PDCP-SAP to the Radio Bearer Loop Back (RB I B) entity.
			The data packet is forwarded via PDCP-

Step	Direction	Message	Comments
·	UE SS	Š	The RB LB entity in UE test loop mode 1 returns the received data packet and sends it back to its PDCP entity.
12	→	PDCP Data	The UE sends a PDCP Data PDU using the RLC-UM-Data-Request Primitive with the following content back to the SS: PDU type = 000 (Data PDU with Header) PID value = 0,1 or 4 (depending on which UDP/IP header format is used by the UE) data: previously received UDP/IP packet After reception of this UDP/IP data packet, the
		a UE terminated PS session using IP Header o	SS applies the appropriate decoding function depending on the assigned PID.

Specific Message Contents

RRC CONNECTION SETUP message

The contents of the RRC CONNECTION SETUP message applied in the preamble "Setup a UE terminated PS session using IP Header compression in UM RLC" of this test case is identical to those of the default contents of layer 3 messages for RRC tests [TS 34.123-1] (PS connection for UM) with the following exceptions:

Information Element	Value/remark
Capability update requirement	
- UE radio access capability update requirement	TRUE NOTE: Value will be checked. Stated capability must be compatible with 34.123-2 (c.f. PICS/PIXIT statements in GSM) and the user settings

RADIO BEARER SETUP message

The contents of the RADIO BEARER SETUP message applied in the preamble "Setup a UE terminated PS session using IP Header compression in UM RLC" of this test case is identical to those of the default contents of layer 3 messages for RRC tests [TS 34.123-1] (PS connection for UM) which fit to the here described parameters with the following exceptions:

Information Element	Value/remark
RAB information for setup	
- RAB info	
- RAB identity	No. # 23 as described in TS 34.108, Table 6.10.2.1.1 Prioritised RABs. QoS parameter: Traffic Class: Interactive or Background, max. UL: 64 kbps and max. DL: 64 kbps as described in TS 34.108, including described physical channel parameters, configuration for UM RLC
	Residual BER as described in TS 34.108, clause: 6.10 Related Signalling RB UL: 3.4 kbps, DL: 3.4 kbps DCCH, No. #2 (as described in TS 34.108)
- CN domain identity - RB information to setup	PS domain
- RB identity - PDCP info	21
	False
- PDCP PDU header - Header compression information CHOICE algorithm type - RFC2507	present 1
- F_MAX_PERIOD - F_MAX_TIME - MAX_HEADER - TCP_SPACE	256 (Default) 5 (Default) 168 (Default) 15 (Default)
- NON_TCP_SPACE - EXPECT_REORDERING	15 (Default) reordering expected (Default)
- RLC info - Downlink RLC mode	(LIM PLO)
- DOWNINK RECTHOOLE	(UM RLC)

Content of PDCP Data PDU (Step 1)

Information Element	Value/remark
PDU type	000
PID	00000 (No header compression, PID = 0)
Data	PDCP test data type #1: TCP/IP data packet without IP
	header compression with any data content. The data
	shall be limited to 5 Kbytes.

Content of PDCP Data PDU (Step 3)

Information Element	Value/remark
PDU type	000
PID	00001 (Full_Header, PID = 1)
Data	PDCP test data type #1: TCP/IP data packet without IP
	header compression with any data content. The data
	shall be limited to 5 Kbytes.

Content of PDCP Data PDU (Step 5)

Information Element	Value/remark
PDU type	000
PID	00010 (Compressed_TCP, PID = 2)
Data	PDCP test data type #1: TCP/IP data packet without IP
	header compression with any data content. The data
	shall be limited to 5 Kbytes.

Content of PDCP Data PDU (Step 7)

Information Element	Value/remark
PDU type	000
PID	00000 (No header compression, PID = 0)
Data	PDCP test data type #2: UDP/IP data packet without IP
	header compression with any data content. The data
	shall be limited to 5 Kbytes.

Content of PDCP Data PDU (Step 9)

Information Element	Value/remark
PDU type	000
PID	00001 (Full_Header, PID = 1)
Data	PDCP test data type #2: UDP/IP data packet without IP
	header compression with any data content. The data
	shall be limited to 5 Kbytes.

Content of PDCP Data PDU (Step 11)

Information Element	Value/remark
PDU type	000
PID	00100 (Compressed_non-TCP, PID = 4)
Data	PDCP test data type #2: UDP/IP data packet without IP
	header compression with any data content. The data
	shall be limited to 5 Kbytes.

7.3.2.2.5 Test requirements

The UE shall return the TCP/IP and UDP/IP data packets as indication, that the previous packets have been received and handled with the correct compression method. This verifies, that the PDCP configuration on UE side works as negotiated by the RRC.

7.3.2.2.3 Extension of used compression methods

7.3.2.2.3.1 Definition and applicability

Applicable for all UEs supporting RLC UM and a Radio Bearer as described in the Common Test Sequences.

The UE shall be capable to deal with compressed TCP/IP data packets and furthermore to establish a PDCP entity which applies IP header compression protocol: RFC 2507.

7.3.2.2.3.2 Conformance requirement

Packet Data Convergence Protocol shall perform the following functions:

- ...

- transfer of user data. Transmission of user data means that PDCP receives PDCP SDU from the NAS and forwards it to the RLC layer and vice versa;
- PDCP shall be able (...) to handle them with a correct header compression protocol and furthermore to indicate the type of the packet within a certain protocol.

The PDCP layer shall be able to support several header compression protocols and it shall always be possible to extend the list of supported protocols in the future.

The table (PID value allocation table) is reconfigured every time the PDCP entity is reconfigured, with a change in the supported header compression protocols.

The assignment of the PID values follow the general rules listed below:

- PID values are reassigned for the PDCP entity after renegotiation of the header compression protocols;
- the list of negotiated (or re-negotiated) header compression entities shall be examined, starting from the first one in the list. The number of PID values to be assigned is specified in the clause for this protocol.

Reference(s)

TS 25.323 clause 5

TS 25.323 clause 5.1.1

TS 25.323 clause 5.1

7.3.2.2.3.3 Test purpose

1. To verify, that the UE is able to handle an extended PID value allocation table after PDCP reconfiguration as configured by RRC.

7.3.2.2.3.4 Method of test

Initial conditions

UE is in Idle mode. Usage of "PDCP Data" PDU and no IP header compression is configured

Related ICS/IXIT Statement(s)

Support of IP header compression methodprotocol RFC 2507 - YES/NO-

Support of PS - Yes/No

PIXIT: Test PDCP TCP/IP Packet1

PIXIT: Test PDCP TCP/IP Packet2

Test procedure

- a) The SS setups a packet switched session including radio bearer and UE test loop mode 1 in RLC UM using Common test procedures for mobile terminated PS switched sessions (with the UE test loop mode 1). Usage of "PDCP Data PDU" and no optimisation method has been configured by higher layers.
- b) The SS sends a TCP/IP data packet (no compression packet type), PID=0.
- c) After having received the TCP/IP data packet, the PDCP entity of the UE shall recognize the PID value and shall handle the received data packet correctly. Afterwards it forwards the data to its Radio Bearer Loop Back entity. The received data shall be returned by the UE via its PDCP configuration.

- d) The SS receives and decodes the TCP/IP data packet according to the inserted PID. The decoded data packet shall be identical with the data as sent before.
- e) The SS reconfigures (using RRC Radio Bearer Reconfiguration message) the PDCP entity by extending the PID value allocation table and therefore the applied optimisation method with the IP header compression protocol RFC 2507. The UE test loop mode 1 in RLC UM is still active.
- f) The SS sends a TCP/IP data packet (no compression packet type), PID=0.
- g) After having received the TCP/IP data packet, the PDCP entity of the UE shall recognize the PID value and shall handle the received data packet correctly. Afterwards it forwards the data to its Radio Bearer Loop Back entity. The received data shall be returned by the UE via its PDCP configuration.
- h) The SS receives and decodes the TCP/IP data packet according to the inserted PID. The decoded data packet shall be identical with the data as sent before.
- i) The SS sends a TCP/IP data packet with packet type: Full_Header, PID=1.
- j) After having received the TCP/IP data packet, the PDCP entity of the UE shall recognize the PID value and shall handle the received data packet correctly. Afterwards it forwards the data to its Radio Bearer Loop Back entity. The received data shall be returned by the UE via its PDCP configuration.
- k) The SS receives and decodes the TCP/IP data packet according to the inserted PID. The decoded data packet shall be identical with the data as sent before.
- 1) The SS deactivates the UE test loop mode and terminates the connection.

Expected sequence

Step	Direction UE SS	Message	Comments
		I minated PS session using IP Header compres	esion in LIM PLC (using LIE toot loop mode 1)
	betup a OE ter	minated F3 session using if Header compres	The SS creates a TCP/IP packet without IP header compression.
1	←	PDCP Data	The SS sends a PDCP Data PDU using the RLC-UM-Data-Request Primitive with the following content to the UE: PDU type = 000 (PDCP Data PDU) PID = 0 (uncompressed IP header) data: below described TCP/IP packet
			After having received the PDCP Data PDU, the UE decodes the PDU and recognizes PID value = 0 (no IP header compression) Therefore, no IP header decompression shall be applied for this packet.
			The data packet is forwarded via PDCP-SAP to its Radio Bearer Loop Back (RB LB) entity.
			The RB LB entity in UE test loop mode 1 return the received data packet and sends it back to PDCP entity.
2	→	PDCP Data	The UE sends a PDCP Data PDU using the RLC-UM-Data-Request Primitive with the following content back to the SS: PDU type = 000 (PDCP Data PDU) PID value = 0 data: previously received TCP/IP packet
			After reception of this TCP/IP data packet, the SS applies the appropriate decoding function depending on the assigned PID.
ധ	←	RRC RADIO BEARER RECONFIGURATION	SS extends the "PID value allocation table" wit IP header compression PID (RFC 2507) in the UE.
4	\rightarrow	RRC RADIO BEARER RECONFIGURATION COMPLETE	UE acknowledges the new settings
5	← -	PDCP Data	The SS sends a PDCP Data PDU using the RLC-UM-Data-Request Primitive with the following content to the UE: PDU type = 000 (PDCP Data PDU) PID = 0 (normal packet type [TCP/IP]) data: below described TCP/IP packet.
			After having received the PDCP Data PDU, the UE decodes the PDU and recognizes PID value 0 (no IP header compression) Therefore, no IP header decompression shall applied for this packet.
			The data packet is forwarded via PDCP-SAP t its Radio Bearer Loop Back (RB LB) entity.
			The RB LB entity in UE test loop mode 1 return the received data packet and sends it back to PDCP entity.

Step	Direction	Message	Comments
6	UE SS →	PDCP Data	The UE sends a PDCP Data PDU using the RLC-UM-Data-Request Primitive with the following content back to the SS: PDU type = 000 (PDCP Data PDU) PID value = 0 to 3 data: previously received TCP/IP packet After reception of this TCP/IP data packet, the SS applies the appropriate decoding function depending on the assigned PID.
7	←	PDCP Data	The SS sends a PDCP Data PDU using the RLC-UM-Data-Request Primitive with the following content to the UE: PDU type = 000 (PDCP Data PDU) PID = 1 (Full_Header packet type [TCP/IP]) data: below described TCP/IP packet After having received the PDCP Data PDU, the UE decodes the PDU and recognizes PID value = 1 applied for this TCP/IP data packet and shall decompress it with the appropriate method. The data packet is forwarded via PDCP-SAP to its Radio Bearer Loop Back (RB LB) entity. The RB LB entity in UE test loop mode 1 returns the received data packet and sends it back to its PDCP entity. The UE sends a PDCP Data PDU using the RLC-UM-Data-Request Primitive with the
	Deactivate	a UE terminated PS session using IP Header o	following content back to the SS: PDU type = 000 (PDCP Data PDU) PID value = 0 to 3 data: previously received TCP/IP packet After reception of this TCP/IP data packet, the SS applies the appropriate decoding function depending on the assigned PID. compression (using UE test loop mode 1)

Specific Message Contents

RRC RADIO BEARER RECONFIGURATION message

The contents of the RRC RADIO BEARER RECONFIGURATION message applied in the preamble "Setup a UE terminated PS session using IP Header compression in UM RLC" of this test case is identical to those of the default contents of layer 3 messages for RRC tests [TS 34.123-1] (PS connection for UM) with the following exceptions:

Information Element	Value/remark
RB information to reconfigure list	1
RB information to reconfigure	
- PDCP info	
- PDCP PDU header	present
- Header compression information	1
CHOICE algorithm type	
- RFC2507	
- F_MAX_PERIOD	256 (Default)
- F_MAX_TIME	5 (Default)
- MAX_HEADER	168 (Default)
- TCP_SPACE	15 (Default)
- NON_TCP_SPACE	15 (Default)
- EXPECT_REORDERING	reordering expected (Default)

RRC CONNECTION SETUP message

The contents of the RRC CONNECTION SETUP message applied in the preamble "Setup a UE terminated PS session using IP Header compression in UM RLC" of this test case is identical to those of the default contents of layer 3 messages for RRC tests [TS 34.123-1] (PS connection for UM) with the following exceptions:

Information Element	Value/remark
Capability update requirement	
- UE radio access capability update requirement	TRUE NOTE: Value will be checked. Stated capability must be compatible with 34.123-2 (c.f. PICS/PIXIT statements in GSM) and the user settings

RADIO BEARER SETUP message

The contents of the RADIO BEARER SETUP message applied in the preamble "Setup a UE terminated PS session using IP Header compression in UM RLC" of this test case is identical to those of the default contents of layer 3 messages for RRC tests [TS 34.123-1] (PS connection for UM) which fit to the here described parameters with the following exceptions:

Information Element	Value/remark
RAB information for setup	
- RAB info	
- RAB identity	No. # 23 as described in TS 34.108, Table 6.10.2.1.1 Prioritised RABs. QoS parameter: Traffic Class: Interactive or Background, max. UL: 64 kbps and max. DL: 64 kbps as described in TS 34.108, including described physical channel parameters, configuration for UM RLC
	Residual BER as described in TS 34.108, clause: 6.10 Related Signalling RB UL: 3.4 kbps, DL: 3.4 kbps DCCH, No. #2 (as described in TS 34.108)
- CN domain identity - RB information to setup	PS domain
- RB identity - PDCP info	21
- PDCP PDU header - RLC info	present
- Downlink RLC mode	(UM RLC)

Content of PDCP Data PDU (Step 1 and 5)

Information Element	Value/remark	
PDU type	000	
PID	00000 (No header compression, PID = 0)	
Data	PDCP test data type #1: TCP/IP data packet without IP	
	header compression with any data content. The data	
	shall be limited to 5 Kbytes.	

Content of PDCP Data PDU (Step 7)

Information Element	Value/remark	
PDU type	000	
PID	00001 (Full_Header, PID = 1)	
Data	PDCP test data type #1: TCP/IP data packet without IP	
	header compression with any data content. The data	
	shall be limited to 5 Kbytes.	

7.3.2.2.3.5 Test requirements

After PDCP reconfiguration, the UE shall return the TCP/IP data packets as indication, that the extension of used optimisation method are applied by UE. This verifies, that the PDCP configuration on UE side works as negotiated by the RRC.

7.3.2.2.4 Compression type used for different entities

7.3.2.2.4.1 Definition and applicability

Applicable only for an UE supporting the establishment of more than one PDCP entity in parallel, i.e. it shall be possible to configure more than one Radio Bearer Loop Back entities (each PDCP entity are assigned via PDCP-SAP to its own Radio Bearer Loop Back entity).

Applicable for all UEs supporting two RLC UM and a Radio Bearers in RLC UM and RLC AM as described in this test case, clause 7.3.2.2.4.6 Combined PDCP Acknowledged and Unacknowledged mode configuration Configuration of PS Cell PDCP AM UM RAB Test procedure.

The UE shall be capable to deal with compressed TCP/IP data packets and furthermore it shall apply IP header compression protocol RFC 2507.

7.3.2.2.4.2 Conformance requirement

Packet Data Convergence Protocol shall perform the following functions:

- ...

- transfer of user data. Transmission of user data means that PDCP receives PDCP SDU from the NAS and forwards it to the RLC layer and vice versa;
- PDCP shall be able (...) to handle them with a correct header compression protocol and furthermore to indicate the type of the packet within a certain protocol.

The assignment of the PID values follow the general rules listed below:

- PID values are assigned independently to each PDCP entity;

Different PDCP entities may include header compression protocols of the same type

Reference(s)

TS 25.323 clause 5

TS 25.323 clause 5.1.1

TS 25.323 clause 5.1

7.3.2.2.4.3 Test purpose

NOTE: For this test case, the SS shall be configured to handle more than one received PDCP messages.

To verify, that a configured IP header compression protocol are applied to compress and decompress TCP/IP
data packets by several PDCP entities in parallel, if more than one entities are established, i.e. the UE uses the
same PID to transmit two TCP/IP data packets with the same content in parallel using two Radio Bearer
configurations.

7.3.2.2.4.4 Method of test

Initial conditionsUE is in Idle mode. Usage of "PDCP Data" PDU and IP header compression is configured for both PDCP entities.

Related ICS/IXIT Statement(s)

Establishment of more than one PDCP entities - YES/NO

Support of IP header compression methodprotocol RFC 2507 - YES/NO-

Support of UM RB and AM RB

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Support of PS - Yes/No

IXIT: Test PDCP TCP/IP Packet1

IXIT: Test PDCP TCP/IP Packet2

Test procedure

- a) The SS setups a packet switched session including two radio bearer configurations in parallel in UE test loop mode 1 and in RLC UM using Common test procedures for mobile terminated PS switched sessions. Usage of IP header compression protocol RFC 2507 has been configured by higher layers.
- b) The SS sends two successive a "normal" TCP/IP data packet, PID=0 via both PDCP configurations to their peer entities.
- c) After having received the TCP/IP data packets, the PDCP entities of the UE shall recognize the PID value and shall handle the received data packet independent of the used PID with the correct decompression method. Then they forward the data to their Radio Bearer Loop Back entity. Both received data shall be returned by each Radio Bearer Loop Back entity.
- d) The SS receives and decodes TCP/IP data packets according to the inserted PID. The decoded data packets shall be identical with the data as sent before.
- e) After having received the TCP/IP data packets, the PDCP entities of the UE shall recognize the PID value and shall handle the received data packets independent of the used PID with the correct decompression method. Then they forward the data to their Radio Bearer Loop Back entity. Both received data shall be returned by each Radio Bearer Loop Back entity.
- f) The SS receives and decodes TCP/IP data packets according to the inserted PID. The decoded data packets shall be identical with the data as sent before.
- g) The SS deactivates the UE test loop mode and terminates the connection.

Expected sequence

Step	Direction	Message	Comments	
	UE SS			
S	Setup a UE terminated PS session using IP Header compression in UM RLC (using UE test loop mode 1)			
1	+	PDCP Data	The SS sends two successive a PDCP Data PDU using the RLC-UM-Data-Request Primitive via both PDCP entities with the following contents to the UE: PDU type = 000 (PDCP Data PDU) PID = 0 (uncompressed IP header) data: below described TCP/IP packet After having received both PDCP Data PDUs, the UE decodes each PDU and recognizes PID value = 0 (no IP header compression applied for both TCP/IP data packets). Although the same PID is used for both PDUs, the UE shall handle they with the correct method and it forwards both data packets via PDCP-SAPs to their Radio Bearer Loop Back (RB LB) entities. The RB LB entities in UE test loop mode 1 return the received data packets and send they back to their PDCP entities.	

Step	Direction	Message	Comments
	UE SS		
2	→	PDCP Data	The UE sends back for each PDCP configuration a PDCP Data PDU using the RLC-UM-Data-Request Primitive with the following content back to the SS: PDU type = 000 (PDCP Data PDU) PID value = 0 to 3
			data: previously received TCP/IP packet
			After reception of TCP/IP data packets, the SS applies the appropriate decoding function for both received messages depending on which
		DDCD Data	PID was assigned to the received data
3	←	PDCP Data	The SS sends two successive a PDCP Data PDU using the RLC-UM-Data-Request Primitive via both PDCP entities with the following contents to the UE: PDU type = 000 (PDCP Data PDU) PID = 1 (Full_Header packet type [TCP/IP]) data: below described TCP/IP packet
			After having received both PDCP Data PDUs, the UE decodes each PDU and recognizes PID value = 1 (Full_Header packet type applied for both TCP/IP data packets).
			Although the same PID is used for both PDUs, the UE shall handle they with the correct method and it forwards both data packets via PDCP-SAPs to their Radio Bearer Loop Back (RB LB) entities.
			The RB LB entities in UE test loop mode 1 return the received data packets and send they back to their PDCP entities.
4	→	PDCP Data	The UE sends back for each PDCP configuration a PDCP Data PDU using the RLC-UM-Data-Request Primitive with the following content back to the SS: PDU type = 000 (PDCP Data PDU) PID value = 0 to 3 data: previously received TCP/IP packet
			After reception of TCP/IP data packets, the SS applies the appropriate decoding function for both received messages depending on which
			PID was assigned to the received data
	Deactivate	a UE terminated PS session using IP Header	

Specific Message Contents

RRC CONNECTION SETUP message

The contents of the RRC CONNECTION SETUP message applied in the preamble "Setup a UE terminated PS session using IP Header compression in UM RLC" of this test case is identical to those of the default contents of layer 3 messages for RRC tests [TS 34.123-1] (PS connection for UM) with the following exceptions:

Information Element	Value/remark
Capability update requirement	TDUE
- UE radio access capability update requirement	TRUE NOTE: Value will be checked. Stated capability must be
	compatible with 34.123-2 (c.f. PICS/PIXIT statements in
	GSM) and the user settings

RADIO BEARER SETUP message

The contents of the RADIO BEARER SETUP message applied in the preamble "Setup a UE terminated PS session using IP Header compression in UM RLC" of this test case is identical to those of the default contents of layer 3 messages for RRC tests [TS 34.123-1] (PS connection for UM) which fit to the here described parameters with the following exceptions:

Information Element	Value/remark	
RAB information for setup	Taido, I Ollidi N	
- RAB info		
- RAB identity	No. # 23 as described in TS 34.108, Table 6.10.2.1.1 Prioritised RABs. QoS parameter: Traffic Class: Interactive or Background, max. UL: 64 kbps and max. DL: 64 kbps as described in TS 34.108, including described physical channel parameters, configuration for UM RLC configuration for UM RLC	
	Residual BER as described in TS 34.108, clause: 6.10 Related Signalling RB UL: 3.4 kbps, DL: 3.4 kbps DCCH, No. #2 (as described in TS 34.108)	
- CN domain identity	PS domain	
- RB information to setup - RB identity	20	
- PDCP info		
- PDCP PDU header	present	
- Header compression information	1	
CHOICE algorithm type - RFC2507		
- F_MAX_PERIOD	256 (Default)	
- F_MAX_TIME	5 (Default)	
- MAX_HEADER	168 (Default)	
- TCP_SPACE - NON_TCP_SPACE	15 (Default) 15 (Default)	
- EXPECT_REORDERING	reordering expected (Default)	
- RLC info	(= conserving only conserving	
- Downlink RLC mode - RB information to setup	(AM RLC) (NOTE: for RB ID 21, the same RAB configurations are used (No. # 23 as described in TS 34.108) as described for RB ID 20)	
- RB identity	21	
- PDCP info - PDCP PDU header	present	
- Header compression information	1	
CHOICE algorithm type		
- RFC2507		
- F_MAX_PERIOD	256 (Default)	
- F_MAX_TIME - MAX_HEADER	5 (Default) 168 (Default)	
- TCP_SPACE	15 (Default)	
- NON_TCP_SPACE	15 (Default)	
- EXPECT_REORDERING	reordering expected (Default)	
- RLC info	(UM PLC)	
- Downlink RLC mode	(UM RLC)	

Content of both PDCP Data PDU (Step 1)

Information Element	Value/remark
PDU type	000
PID 00000 (No header compression, PID = 0)	
Data	PDCP test data type #1: TCP/IP data packet without IP
	header compression with any data content. The data
	shall be limited to 5 Kbytes.

Content of both PDCP Data PDU (Step 3)

Information Element	Value/remark	
PDU type	000	
PID	00001 (Full_Header, PID = 1)	
Data	PDCP test data type #1: TCP/IP data packet without IP	
	header compression with any data content. The data	
	shall be limited to 5 Kbytes.	

7.3.2.2.4.5 Test requirements

The UE shall return both TCP/IP data packets as indication that the previous received data packets associated with the same PID value are handled in parallel with the same decompression protocol. This verifies, that more than one PDCP configuration on UE side using the same compression protocol is able to apply it in parallel.

7.3.2.2.4.6 Combined PDCP Acknowledged and Unacknowledged mode configuration Configuration of PS Cell_PDCP_AM_UM_RAB

The configuration is based on 34.108, 6.10.2.4.1.26. The RB0/UM CCCH is referred to 34.108, 6.10.2.4.3.2.1.2 and RB0/TM CCCH is referred to 34.108, 6.10.2.4.4.1.1.1. The configuration is applied to PDCP test cases using both the acknowledged and unacknowledged mode.

This configuration is based on the interactive or background / UL:64 DL 64 kbps / PS RAB. The SRB configurations are UL:3.4 DL:3.4 kbps for DCCH aligned to this combined RABs are described for SRB DL 3.4 kbps in TS 34.108, clause 6.10.2.4.1.2.2 and for SRB DL 3.4 kbps in TS 34.108, clause 6.10.2.4.1.2.1. The TFCS refer to TS34.108, clause 6.10.2.4.1.24.1.1.3 for UL and clause 6.10.2.4.1.25.2.1.3 for DL, the Physical channel parameters refer to TS 34.108, clause 6.10.2.4.1.24.1.2 for UL clause 6.10.2.4.1.25.2.2 and for DL accordingly. The configuration is applied to PDCP test cases using both the acknowledged and unacknowledged mode.

Table 7.3.2.2.4/1 Uplink Transport channel parameter for combined RABs PS AM_UM

Higher layer	RAB/Signalling RB	RAB #20	RAB #21	
RLC	Logical channel type	<u>DTCH</u>	<u>DTCH</u>	
	RLC mode	<u>AM</u>	<u>UM</u>	
	Payload sizes, bit	<u>316</u>	<u>324</u>	
	Max data rate, bps	<u>63200</u>	<mark>64800</mark>	
	TrD PDU header, bit	<u>16</u>	<u>8</u>	
MAC	MAC header, bit	4		
	MAC multiplexing	2 logical channel multiplexing		
Layer 1	TrCH type	<mark>DCH</mark>		
	TB sizes, bit	<u>3</u> :	<u>336</u>	
	TFS TF0, bits	<u>0x336</u>		
	TF1, bits	<u>1x336</u>		

TF2, bits	<u>2x336</u>
TF3, bits	<mark>3x336</mark>
TF4, bits	<u>4x336</u>
TTI, ms	<u>20</u>
Coding type	TC
CRC, bit	<u>16</u>
Max number of bits/TTI after channel coding	<u>4236</u>
Uplink: Max number of bits/radio frame before	<mark>2118</mark>
rate matching	
RM attribute	<u>130-170</u>

Table 7.3.2.2.4/2 Downlink Transport channel parameter for combined RABs PS AM_UM

<u>Higher</u> layer	RAB/Signalling RB	RAB #20	RAB #21
RLC	Logical channel type RLC mode Payload sizes, bit	DTCH AM 316	DTCH UM 324
	Max data rate, bps TrD PDU header, bit	<u>63200</u> <u>16</u>	<u>64800</u> <u>8</u>
MAC	MAC header, bit MAC multiplexing		<u>4</u> nel multiplexing
<u>Layer 1</u>	TrCH type TB sizes, bit	<u>3</u> 3	<u>CH</u> 36
	TFS TF0, bits TF1, bits	<u>1x(</u>	336 336
	TF2, bits TF3, bits	<u>3x3</u>	336 336
	TTI, ms	2	336 0
	Coding type CRC, bit Max number of bits/TTI after channel coding	1	<mark>C</mark> <u>6</u> 36
	RM attribute		<u>-170</u>

RB Identity	tsc_RB20 (20)	tsc_RB21 (21)	tsc_RB1 (1)	tsc_RB2 (2)	tsc_RB3 (3)	<u>tsc_RB4</u> (4)	<u>tsc_RB0</u> (0)
LogCh Type	<u>DTCH</u>	<u>DTCH</u>	<u>DCCH</u>	<u>DCCH</u>	<u>DCCH</u>	<u>DCCH</u>	<u>CCCH</u>
LogCh Identity	tsc_UL_DTCH1	tsc_UL_DTCH2	tsc_UL_DCCH1 (1)	tsc_UL_DCCH2	tsc_UL_DCCH3	tsc_UL_DCCH4	tsc_UL_CCCH5
RLC mode	AM.	<u>UM</u>	<u>UM</u>	AM	<u>AM</u>	AM	TM
TrCH Type	DCH DCH				RACH		
TrCH identity	<u>tsc_UL_DCH1</u>						tsc_RACH1 (15)
PhyCh Type	<u>DPDCH</u>					PRACH	
PhyCH identity						tsc_PRACH1 (8)	

Table 2: Downlink configuration of PS Cell PDCP AM UM RAB

RB Identity	tsc_RB20 (20)	tsc_RB21 (21)	tsc_RB1 (1)	tsc_RB2 (2)	tsc_RB3 (3)	<u>tsc_RB4</u> (4)	<u>tsc_RB0</u> (0)	tsc_RB_PCCH (-2)
LogCh Type	DTCH	DTCH	DCCH	DCCH	DCCH	DCCH	<u>CCCH</u>	PCCH
LogCh Identity	tsc_DL_DTCH1 (7)	tsc_DL_DTCH2 (8)	tsc_DL_DCCH1 (1)	tsc_DL_DCCH2 (2)	tsc_DL_DCCH3	tsc_DL_DCCH4 (4)	tsc_DL_CCCH5 (5)	tsc_PCCH1 (1)
RLC mode	<u>AM</u>	UM	<u>UM</u>	<u>AM</u>	<u>AM</u>	<u>AM</u>	<u>UM</u>	TM
MAC priority	<u>4</u>	<u>4</u>	<u>4</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>1</u>	<u>1</u>
TrCH Type			DCH			FACH	PCH	
TrCH identity	tsc_DL_DCH1 (6) (10)				tsc_FACH2 (14)	tsc_PCH1 (12)		
PhyCh Type	DPCH Secondary CCP(<mark>√ CCPCH</mark>		
PhyCH identity						tsc S C		

7.3.2.2.5 Reception of not defined PID values

7.3.2.2.5.1 Definition and applicability

Applicable for all UEs supporting RLC UM and a Radio Bearer as described in the Common Test Sequences.

The UE shall be capable to deal with compressed TCP/IP data packets and furthermore to establish a PDCP entity, which applies PDCP Data PDU if no IP header compression protocol, is negotiated.

The UE shall not forward invalid PDCP PDU data contents to its Radio Bearer.

7.3.2.2.5.2 Conformance requirement

PDCP shall be able (...) to handle them with a correct header compression protocol and furthermore to indicate the type of the packet within a certain protocol;

PID values that are used and are not defined invalidate the PDCP PDU;

Reference(s)

TS 25.323 clause 5.1.1

TS 25.323 clause 5.1.2.1

7.3.2.2.5.3 Test purpose

1. To verify, that a UE considers a received PDCP PDU message with not defined PID value as invalid, i.e. such an invalid PDCP PDU is not forwarded to the Radio Bearer entity on UE side. Therefore the UE using test loop mode 1 does not return such data packet to the SS.

7.3.2.2.5.4 Method of test

Initial conditions

UE is in Idle mode. Usage of "PDCP Data" PDU and no IP header compression is configured.

Related ICS/IXIT Statement(s)

Support of IP header compression protocol RFC 2507 - YES/NO

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Support of PS - Yes/No

IXIT: Test PDCP TCP/IP Packet1

IXIT: Test PDCP TCP/IP Packet2

Test procedure

- a) The SS setups a packet switched session including radio bearer and UE test loop mode 1 in RLC UM using Common test procedures for mobile terminated PS switched sessions. Usage of "PDCP Data PDU" and no PDCP IP header compression protocol has been configured by higher layers.
- b) The SS sends a "normal" TCP/IP data packet (no compression packet type), PID=0.
- c) After having received the TCP/IP data packet, the PDCP entity of the UE shall recognize the PID value and shall handle the received data packet with the correct decoding method. Afterwards it forwards the data to its Radio Bearer Loop Back entity. The received data shall be returned by the UE via its PDCP configuration.
- d) The SS receives and decodes TCP/IP data packets according to the inserted PID. The decoded data packets shall be identical with the data as sent before.
- e) The SS sends a TCP/IP data packet with packet type: Full_Header, PID=1.
- f) After having received the TCP/IP data packet, the PDCP entity of the UE shall recognize the PID value and shall handle the received data packet with the correct decoding method.
- g) The SS waits an amount of time to make sure, that no returned data packet was sent by UE.
- h) The SS deactivates the UE test loop mode and terminates the connection.

Expected sequence

Step	Direction	Message	Comments	
S	UE SS			
1	←	PDCP Data	The SS sends a PDCP Data PDU using the RLC-UM-Data-Request Primitive with the following content to the UE: PDU type = 000 (PDCP Data PDU) PID = 0 (uncompressed IP header) data: below described TCP/IP packet After having received the PDCP Data PDU, the UE decodes the PDU and recognizes PID value = 0 (no IP header compression) Therefore, no IP header decompression shall be applied for this packet.	
			The data packet is forwarded via PDCP-SAP to its Radio Bearer Loop Back (RB LB) entity.	
			The RB LB entity in UE test loop mode 1 returns the received data packet and sends it back to its PDCP entity.	
2	→	PDCP Data	The UE sends a PDCP Data PDU using the RLC-UM-Data-Request Primitive with the following content back to the SS: PDU type = 000 (PDCP Data PDU) PID value = 0 data: previously received TCP/IP packet	
			After reception of this TCP/IP data packet, the SS applies the appropriate decoding function depending on the assigned PID.	
3	+	PDCP Data	The SS sends a PDCP Data PDU using the RLC-UM-Data-Request Primitive with the following content to the UE: PDU type = 000 (PDCP Data PDU) PID = 1 (Full_Header packet type [TCP/IP]) data: below described TCP/IP packet. After having received the PDCP Data PDU, the UE shall recognize, that a not defined PID value (as configured by higher layers) is inserted in the PDCP PDU.	
			The UE shall consider this PDU as invalid, i.e. the data packet is not forwarded via PDCP-SAP to its Radio Bearer Loop Back (RB LB) entity.	
			Therefore this data packet is not returned to the SS.	
4			The SS waits a amount of time to make sure, that the previously sent data packet is not returned to the SS.	
	Deactivate a UE terminated PS session using IP Header compression (using UE test loop mode 1)			

Specific Message Contents

RRC CONNECTION SETUP message

The contents of the RRC CONNECTION SETUP message applied in the preamble "Setup a UE terminated PS session using IP Header compression in UM RLC" of this test case is identical to those of the default contents of layer 3 messages for RRC tests [TS 34.123-1] (PS connection for UM) with the following exceptions:

Information Element	Value/remark
Capability update requirement	
 UE radio access capability update requirement 	TRUE
	NOTE: Value will be checked. Stated capability must be
	compatible with 34.123-2 (c.f. PICS/PIXIT statements in
	GSM) and the user settings

RADIO BEARER SETUP message

The contents of the RADIO BEARER SETUP message applied in the preamble "Setup a UE terminated PS session using IP Header compression in UM RLC" of this test case is identical to those of the default contents of layer 3 messages for RRC tests [TS 34.123-1] (PS connection for UM) which fit to the here described parameters with the following exceptions:

Information Element	Value/remark
RAB information for setup	
- RAB info	
- RAB identity	No. # 23 as described in TS 34.108, Table 6.10.2.1.1 Prioritised RABs. QoS parameter: Traffic Class: Interactive or Background, max. UL: 64 kbps and max. DL: 64 kbps as described in TS 34.108, including described physical channel parameters, configuration for UM RLC Residual BER as described in TS 34.108, clause: 6.10
	Related Signalling RB UL: 3.4 kbps, DL: 3.4 kbps DCCH, No. #2 (as described in TS 34.108)
- CN domain identity - RB information to setup	PS domain
- RB identity - PDCP info	21
- PDCP PDU header - RLC info	present
 Downlink RLC mode 	(UM RLC)

Content of PDCP Data PDU (Step 1)

Information Element	Value/remark
PDU type	000
PID	00000 (No header compression, PID = 0)
Data	PDCP test data type #1: TCP/IP data packet without IP
	header compression with any data content. The data
	shall be limited to 5 Kbytes.

Content of PDCP Data PDU (Step 3)

Information Element	Value/remark
PDU type	000
PID	00001 (Full_Header, PID = 1)
Data	PDCP test data type #1: TCP/IP data packet without IP
	header compression with any data content. The data
	shall be limited to 5 Kbytes.

7.3.2.2.5.5 Test requirements

The UE shall return the received TCP/IP data packet using the PDCP Data PDU with PID = 0 as indication, that the UE works as configured.

The UE shall not return the TCP/IP data packet using the PDCP Data PDU with PID = 1 as indication, that this PDU was considered as invalid by the UE. This verifies, that the PDCP configuration on UE side has considered this PDU as invalid.

7.3.3 PDCP sequence numbering when lossless SRNS Relocation

7.3.3.1 Data transmission if lossless SRNS Relocation is supported

7.3.3.1.1 Definition and applicability

Applicable for all UEs supporting RLC AM, RLC in-sequence delivery, a Radio Bearer as described in the Common Test Sequences and lossless SRNS relocation.

The UE shall be capable to deal with uncompressed TCP/IP data packets and furthermore to establish a PDCP entity which applies PDCP Sequence Numbering

7.3.3.1.2 Conformance requirement

The PDCP layer shall carry out the following functions during lossless SRNS relocation:

- support PDCP sequence numbering as specified in clause 5.4.1.

The PDCP layer shall carry out the following during lossless SRNS relocation:

- provide unconfirmed PDCP SDUs and sequence numbers for forwarding to the target RNC.

Reference(s)

TS 25.323 clause 5.4

7.3.3.1.3 Test purpose

1. To verify, that a UE supporting lossless SRNS relocation is able to receive and to send IP data packets by using PDCP Sequence Numbering as configured by higher layers.

7.3.3.1.4 Method of test

Initial conditions

SS: 2 cells - Cell A belonging to the valid SRNS (Source SRNS), Cell B belonging to the DRNS (Target SRNS). Both cells are neighbour cells. Cell A has a higher RF power level than Cell B such that an UE shall find Cell A more suitable for service.

UE: It is in Idle mode and has selected cell A with valid SRNS (Source SRNS). Usage of "PDCP Data" PDU and no IP header compression is configured

Related ICS/IXIT Statement(s)

Support of lossless SRNS Relocation - YES/NO-

Support of RLC in sequence delivery YES/NO.PS – Yes/No

IXIT: Test_PDCP_TCP/IP_Packet1

IXIT: Test PDCP TCP/IP Packet2

Test procedure

- a) The SS setups a packet switched session including Radio Bearer and UE test loop mode 1 in RLC AM and insequence delivery using Common test procedures for mobile terminated PS switched sessions in Cell A. Usage of "PDCP Data" PDU, support of lossless SRNS relocation and no IP header compression has been configured by higher layers. The PDCP SN window size has been negotiated by RRC.
- b) The SS sends a TCP/IP data packet (no compression packet type), PID=0.
- c) After having received the TCP/IP data packet, the PDCP entity of the UE shall recognize the PID value and shall handle the received data packet correctly. Afterwards it forwards the data to its Radio Bearer Loop Back entity. The received data shall be returned by the UE via its PDCP configuration.
- d) The SS receives and decodes the TCP/IP data packet according to the inserted PID. The decoded data packet shall be identical with the data as sent before.
- e) The SS starts to broadcast BCCH messages on the primary CPICH in cell B with a power level higher than in cell A. The UE shall chose cell B to be more suitable for service and hence perform a cell reselection.
- f) After completion of cell reselection, the UE transmits a CELL UPDATE message to the SS on the uplink CCCH of cell B with the Cell update cause "Cell Reselection".
- g) After having performed SRNS relocation (target RNC allocated with new S-RNTI for the UE), the Target SRNS is the valid SRNS and the SS sends a "CELL UPDATE CONFIRM" message with new RNC_ID to indicate the completion of the cell update.
- h) The UE shall confirm the reallocation.
- i) The SS sends the next TCP/IP data packet (no compression packet type), PID=0 using the "PDCP Data" PDU to the UE.
- j) After having received the TCP/IP data packet, the UE shall recognize the PID value and shall handle the received data packet correctly. Afterwards it forwards the data to its Radio Bearer Loop Back entity. The received data shall be returned by the UE via its PDCP configuration.
- k) The SS receives and decodes TCP/IP data packets according to the inserted PID. The decoded data packets shall be identical with the data as sent before.
- 1) The SS deactivates the UE test loop mode and terminates the connection.

Expected sequence

Step	Direction	Message	Comments
Setup	UE SS	ted PS session using IP Header compression	in AM RLC (using UE test loop mode 1) in Cell A
Setup	a or tellilla	tted 1.3 session using it Treater compression	The SS creates a TCP/IP packet without IP header compression.
1	←	PDCP Data	The SS sends a PDCP Data PDU using the RLC-AM-Data-Request Primitive with the following content to the UE: PDU type = 000 (PDCP Data PDU) PID = 0 (uncompressed IP header) data: below described TCP/IP packet
			After having received the PDCP Data PDU, the UE decodes the PDU and recognizes PID value = 0 (no IP header compression) Therefore, no IP header decompression shall be applied for this packet.
			The data packet is forwarded via PDCP-SAP to its Radio Bearer Loop Back (RB LB) entity.
			The RB LB entity in UE test loop mode 1 returns the received data packet and sends it back to its PDCP entity.
2	→	PDCP Data	The UE sends a PDCP Data PDU using the RLC-AM-Data-Request Primitive with the following content back to the SS: PDU type = 000 (PDCP Data PDU) PID value = 0 data: previously received TCP/IP packet
			After reception of this TCP/IP data packet, the SS applies the appropriate decoding function depending on the assigned PID.
3			The SS increases the RF power level of cell B and decreases the power level of Cell A such that the UE finds cell B more suitable for service.
4			The UE cell reselection is performed and Cell B are selected for service.
5	→	RRC CELL UPDATE	Then, the UE shall inform the SS about the new cell selection by sending cell update with new parameters (parameter values as used in RRC testing).

Step	Direction	Message	Comments
	UE SS	_	
6	←	RRC CELL UPDATE CONFIRM	After having performed SRNS relocation, the Target SRNS is the valid SRNS and the SS sends a "CELL UPDATE CONFIRM" message with new parameter "RNC_ID" to indicate the completion of SRNS relocation (parameters as used in RRC testing).
7	→	RNTI REALLOCATION COMPLETE	The UE confirms the newly received information (parameters as used in RRC testing).
8	+	PDCP Data	The SS sends the next PDCP Data PDU using the RLC-AM-Data-Request Primitive with the following content to the UE: PDU type = 000 (PDCP Data PDU) PID = 0 (uncompressed IP header) data: below described TCP/IP packet After having received the PDCP Data PDU, the UE decodes the PDU and recognizes PID value = 0 (no IP header compression) Therefore, no IP header decompression shall be applied for this packet. The data packet is forwarded via PDCP-SAP to its Radio Bearer Loop Back (RB LB) entity. The RB LB entity in UE test loop mode 1 returns the received data packet and sends it back to its PDCP entity.
9	→	PDCP Data	The UE sends a PDCP Data PDU using the RLC-AM-Data-Request Primitive with the following content back to the SS: PDU type = 000 (PDCP Data PDU) PID value = 0 data: previously received TCP/IP packet After reception of this TCP/IP data packet, the SS applies the appropriate decoding function depending on the assigned PID.
	Deactivate	a UE terminated PS session using IP Header	compression (using UE test loop mode 1)

Specific Message Contents

RRC CONNECTION SETUP message

The contents of the RRC CONNECTION SETUP message applied in the preamble "Setup a UE terminated PS session using IP Header compression in AM RLC" of this test case is identical to those of the default contents of layer 3 messages for RRC tests [TS 34.123-1] (PS connection for AM) with the following exceptions:

Information Element	Value/remark
Capability update requirement	
- UE radio access capability update requirement	TRUE
	NOTE: Value will be checked. Stated capability must be
	compatible with 34.123-2 (c.f. PICS/PIXIT statements in
	GSM) and the user settings

RADIO BEARER SETUP message

The contents of the RADIO BEARER SETUP message applied in the preamble "Setup a UE terminated PS session using IP Header compression in AM RLC" of this test case is identical to those of the default contents of layer 3 messages for RRC tests [TS 34.123-1] (PS connection for AM) which fit to the here described parameters with the following exceptions:

Information Element	Value/remark
RAB information for setup	
- RAB info	
- RAB identity	No. # 23 as described in TS 34.108, Table 6.10.2.1.1 Prioritised RABs. QoS parameter: Traffic Class: Interactive or Background, max. UL: 64 kbps and max. DL: 64 kbps as described in TS 34.108, including described physical channel parameters, configuration for AM RLC
	Residual BER as described in TS 34.108, clause: 6.10 Related Signalling RB UL: 3.4 kbps, DL: 3.4 kbps DCCH, No. #2 (as described in TS 34.108)
- CN domain identity - RB information to setup	PS domain
- RB identity - PDCP info	20
- Max PDCP SN window size	65535
- Support of lossless SRNS relocation	TRUE
- PDCP PDU header	present
- RLC info	(AM DLO)
- Downlink RLC mode	(AM RLC)
- In-sequence delivery	True

Content of PDCP Data PDU (Step 1)

Information Element	Value/remark
PDU type	000
PID	00000 (No header compression, PID = 0)
Data	PDCP test data type #1: TCP/IP data packet without IP
	header compression with any data content. The data
	shall be limited to 5 Kbytes.

Content of PDCP Data PDU (Step 8)

Information Element	Value/remark
PDU type	000
PID	00000 (No header compression, PID = 0)
Data	PDCP test data type #1: TCP/IP data packet without IP
	header compression with any data content. The data
	shall be limited to 5 Kbytes.

7.3.3.1.5 Test requirements

After having sent the "RRC RNTI REALLOCATION COMPLETE", the UE shall return the received TCP/IP data packets as indication, that it supports lossless SRNS relocation. This implicitly verifies, that Sequence Numbering is used for lossless SRNS relocation.

7.3.3.2 Synchronisation of PDCP sequence numbers

7.3.3.2.1 Definition and applicability

Applicable for all UEs supporting RLC AM, RLC in-sequence delivery, a Radio Bearer as described in the Common Test Sequences.

The UE shall be capable to deal with compressed TCP/IP and UDP/IP data packets and furthermore it shall be capable to use IP Header compression protocol RFC 2507.

7.3.3.2.2 Conformance requirement

The PDCP SeqNum PDU shall be sent by the peer PDCP entities when synchronisation of the PDCP SN is required. (...) Synchronisation of PDCP SN is required after (...) RB reconfiguration.

Reference(s)

TS 25.323 clause 5.4

7.3.3.2.3 Test purpose

 To verify, that the UE supporting lossless SRNS relocation as configured by higher layers is able to handle the "PDCP SeqNum" PDU to synchronize the used PDCP Sequence Number after reconfiguration of the Radio Bearer

7.3.3.2.4 Method of test

Initial conditions

SS: 2 cells - Cell A belonging to the valid SRNS (Source SRNS), Cell B belonging to the DRNS (Target SRNS). Both cells are neighbour cells. Cell A has a higher RF power level than Cell B such that an UE shall find Cell A more suitable for service.

UE: It is in Idle mode and has selected cell A with valid SRNS (Source SRNS). Usage of "PDCP Data" PDU, "PDCP SeqNum" PDU and no IP header compression is configured

Related ICS/IXIT Statement(s)

Support of lossless SRNS relocation - YES/NO

Support of RLC in-sequence delivery - YES/NO

Test procedure

- a) The SS setups a packet switched session including Radio Bearer and UE test loop mode 1 in RLC AM and insequence delivery using Common test procedures for mobile terminated PS switched sessions in Cell A. Usage of "PDCP Data" PDU, support of lossless SRNS relocation and no IP header compression has been configured by higher layers. The PDCP SN window size has been negotiated by RRC.
- b) The SS sends a TCP/IP data packet (no compression packet type), PID=0.
- c) After having received the TCP/IP data packet, the PDCP entity of the UE shall recognize the PID value and shall handle the received data packet correctly. Afterwards it forwards the data to its Radio Bearer Loop Back entity. The received data shall be returned by the UE via its PDCP configuration.
- d) The SS receives and decodes the TCP/IP data packet according to the inserted PID. The decoded data packet shall be identical with the data as sent before.

- e) The SS reconfigures (using RRC Radio Bearer Reconfiguration message) the PDCP entity by extending the PID value allocation table and therefore the applied optimisation method with the IP header compression protocol RFC 2507. The UE test loop mode 1 in RLC AM is still active.
- f) The SS sends the next TCP/IP data packet (no compression packet type), PID=0 using the "PDCP SeqNum" PDU including the current PDCP Sequence Number value to the UE.
- g) After having received the TCP/IP data packet, the UE shall recognize the PID value and shall handle the received data packet correctly. Afterwards it forwards the data to its Radio Bearer Loop Back entity. The received data shall be returned by the UE via its PDCP configuration.
- h) The SS receives and decodes TCP/IP data packets according to the inserted PID. The decoded data packets shall be identical with the data as sent before.
- i) The SS deactivates the UE test loop mode and terminates the connection.

Expected sequence

Step	Direction	Message	Comments					
	UE SS	3						
Setup	a UE termina	ted PS session using IP Header compression	in AM RLC (using UE test loop mode 1) in Cell A					
			The SS creates a TCP/IP packet without IP header compression.					
1	+	PDCP Data	The SS sends a PDCP Data PDU using the RLC-AM-Data-Request Primitive with the following content to the UE: PDU type = 000 (PDCP Data PDU) PID = 0 (uncompressed IP header) data: below described TCP/IP packet					
			After having received the PDCP Data PDU, the UE decodes the PDU and recognizes PID value = 0 (no IP header compression) Therefore, no IP header decompression shall be applied for this packet.					
			The data packet is forwarded via PDCP-SAP to its Radio Bearer Loop Back (RB LB) entity.					
			The RB LB entity in UE test loop mode 1 returns the received data packet and sends it back to its PDCP entity.					
2	→	PDCP Data	The UE sends a PDCP Data PDU using the RLC-AM-Data-Request Primitive with the following content back to the SS: PDU type = 000 (PDCP Data PDU) PID value = 0 data: previously received TCP/IP packet					
			After reception of this TCP/IP data packet, the SS applies the appropriate decoding function depending on the assigned PID.					
3	Ψ	RRC RADIO BEARER RECONFIGURATION	SS extends the "PID value allocation table" with IP header compression PID (RFC 2507) in the UE.					
4	\rightarrow	RRC RADIO BEARER RECONFIGURATION COMPLETE	UE acknowledges its new settings					

Step	Direction	Message	Comments
	UE SS		
5	÷	PDCP SeqNum	The SS sends a PDCP SeqNum PDU including its current Sequence Number with the following content to the UE: PDU type = 001 (PDCP SeqNum PDU) PID = 0 (normal packet type [TCP/IP]) SeqNum = current PDCP Sequence Number data: below described TCP/IP packet
			After having received the PDCP SeqNum PDU, the UE shall set the received PDCP Sequence Number as its own valid value. It decodes the PDU, recognizes PID value = 0 applied for this TCP/IP data packet and shall decompress it with the appropriate method.
			The data packet is forwarded via PDCP-SAP to its Radio Bearer Loop Back (RB LB) entity.
			The RB LB entity in UE test loop mode 1 returns the received data packet and sends it back to its PDCP entity.
6	→	PDCP PDU	The UE sends a PDCP PDU with PDCP Header back to the SS. The content is as follows: PDU type = 000 (PDCP Data PDU) PID value = 0 to 3 SeqNum: current UE value, (optional parameter, depending on the used PDU) data: previously received TCP/IP packet.
			After reception of this TCP/IP data packet, the
			SS applies the appropriate decoding function depending on the assigned PID.
	Deactivate a	a UE terminated PS session using IP Header	

Specific Message Contents

RRC RADIO BEARER RECONFIGURATION message

The contents of the RRC RADIO BEARER RECONFIGURATION message applied in the preamble "Setup a UE terminated PS session using IP Header compression in AM RLC" of this test case is identical to those of the default contents of layer 3 messages for RRC tests [TS 34.123-1] (PS connection for AM) with the following exceptions:

Information Element	Value/remark
RB information to reconfigure list	1
RB information to reconfigure	
- PDCP info	
- Max PDCP SN window size	65535
- Support of lossless SRNS relocation	TRUE
- PDCP PDU header	present
- Header compression information	1
CHOICE algorithm type	
- RFC2507	
- F_MAX_PERIOD	256 (Default)
- F_MAX_TIME	5 (Default)
- MAX_HEADER	168 (Default)
- TCP_SPACE	15 (Default)
- NON_TCP_SPACE	15 (Default)
- EXPECT_REORDERING	reordering expected (Default)

RRC CONNECTION SETUP message

The contents of the RRC CONNECTION SETUP message applied in the preamble "Setup a UE terminated PS session using IP Header compression in AM RLC" of this test case is identical to those of the default contents of layer 3 messages for RRC tests [TS 34.123-1] (PS connection for AM) with the following exceptions:

Information Element	Value/remark
Capability update requirement	
- UE radio access capability update requirement	TRUE
· ·	NOTE: Value will be checked. Stated capability must be
	compatible with 34.123-2 (c.f. PICS/PIXIT statements in
	GSM) and the user settings

RADIO BEARER SETUP message

The contents of the RADIO BEARER SETUP message applied in the preamble "Setup a UE terminated PS session using IP Header compression in AM RLC" of this test case is identical to those of the default contents of layer 3 messages for RRC tests [TS 34.123-1] (PS connection for AM) which fit to the here described parameters with the following exceptions:

Information Element	Value/remark
RAB information for setup	
- RAB info	
- RAB identity	No. # 23 as described in TS 34.108, Table 6.10.2.1.1 Prioritised RABs. QoS parameter: Traffic Class: Interactive or Background, max. UL: 64 kbps and max. DL: 64 kbps as described in TS 34.108, including described physical channel parameters, configuration for AM RLC
	Residual BER as described in TS 24.108, clause: 6.10 Related Signalling RB UL: 3.4 kbps, DL: 3.4 kbps DCCH, No. #2 (as described in TS 34.108)
- CN domain identity - RB information to setup	PS domain
- RB identity - PDCP info	20
- Max PDCP SN window size	65535
- Support of lossless SRNS relocation	TRUE
- PDCP PDU header	present
- RLC info	
- Downlink RLC mode	(AM RLC)
- In-sequence delivery	True

Content of PDCP Data PDU (Step 1)

Information Element	Value/remark					
PDU type	000					
PID	00000 (No header compression, PID = 0)					
Data	PDCP test data type #1: TCP/IP data packet without IP					
	header compression with any data content. The data					
	shall be limited to 5 Kbytes.					

Content of PDCP SeqNum PDU (Step 5)

Information Element	Value/remark
PDU type	001
PID	00000 (No header compression, PID = 0)
Sequence number	(16 Bit value) valid Sequence Number of the SS
Data	PDCP test data type #1: TCP/IP data packet without IP
	header compression with any data content. The data
	shall be limited to 5 Kbytes.

7.3.3.2.5 Test requirements

After having received the TCP/IP data packet conveyed with the "PDCP SeqNum" PDU, the UE shall return the TCP/IP data packets as indication, that the UE is able to handle a Sequence Number synchronisation.

3GPP TSG-T1 Meeting #13 Cancun, Mexico, 29th November – 30th November 2001 3GPP TSG-T1 SIG Meeting #20 Cancun, Mexico, 26th November – 28th November 2001

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★ Other core specifications

Other specs

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7.4 BMC

General

For BMC testing, the UE manufacturers shall define CB data as PIXIT (CB-Data 1 and 2) for different CB message types and for CB Data41 (ANSI-41 data) and it shall describe how the reception is indicated in a clear way on UE side.

Only Cell Broadcast Services (CBS) as distributed BMC service is applied. For a UE supporting BMC, it is assumed, that there is a BMC entity established, if Initial conditions are reached.

If not otherwise mentioned, the same procedures as used in RRC test specification [TS 34.123-1] are applied to reach Initial conditions for BMC testing.

It shall be possible to activate and deactivate <u>a</u> CB message types by using the Message ID of CB data 1, 2 and CB41 data 1 on UE side.

7.4.1 BMC RAB + SRBs for CCCH + SRB for DCCH + SRB for BCCH

7.4.1.1 Transport channel parameters of BMC RAB and SRBs for CCCH, SRB for DCCH, and SRB for BCCH

<u>Higher</u>	RAB/signalli	ng RB	SRB#1	SRB#2	SRB#3	<u>SRB#4</u>	<u>SRB#5</u>	SRB#6	RAB#30	
<u>layer</u>	User of Radio Bearer		<u>RRC</u>	RRC	RRC	NAS_DT	NAS_DT	<u>RRC</u>	Ξ.	
						<u>High prio</u>	Low prio			
RLC	Logical channel type		<u>CCCH</u>	<u>DCCH</u>	<u>DCCH</u>	<u>DCCH</u>	<u>DCCH</u>	<u>BCCH</u>	<u>CTCH</u>	
	RLC mode		<u>UM</u>	<u>UM</u>	<u>AM</u>	<u>AM</u>	<u>AM</u>	<u>TM</u>	<u>UM</u>	
	Payload size	ayload sizes, bit		136 or 120*	<u>128</u>	<u>128</u>	<u>128</u>	<u>166</u>	<u>152</u>	
	Max data rat	te, bps	<u>45600</u>	40800 or	<u>38400</u>	<u>38400</u>	<u>38400</u>	<u>49800</u>	<u>45600</u>	
				36000						
	AMD/UMD/7 header, bit	rD PDU	<u>8</u>	<u>8</u>	<u>16</u>	<u>16</u>	<u>16</u>	<u>0</u>	<u>8</u>	
MAC	MAC header, bit		<u>8</u>	<u>24 or</u> 40	<u>24</u>	<u>24</u>	<u>24</u>	<u>2</u>	<u>8</u>	
1017 (0	MAC multipl	exina	7 logical channel multiplexing							
Layer 1	TrCH type									
<u>Layer r</u>	TB sizes, bit									
	1D 31203, DIL	TF0, bits	0x168							
i		TF1, bits								
	<u>TFS</u>	TF2, bits	<u>1x168</u>							
			<u>2x168</u>							
	TTI	TF3, bits				3x168				
	TTI, ms									
	Coding type		<u>CC 1/2</u>							
	CRC, bit					<u>16</u>				
	Max number before rate r					<u>1136</u>				
	RM attribute					200-240			_	
3.1.01	. 1	DD I G 1	1	•	CILDAM	T C DATE				

^{*} MAC header size and PRLC payload size depend on use of U-RNTI or C-RNTI.

7.4.1.2 TFCS

TFCS size	4
<u>TFCS</u>	(BMC RAB and SRBs for CCCH/DCCH/BCCH) = TF0, TF1, TF2, TF3

7.4.1.3 Physical channel parameters

<u>SCCPCH</u>	DTX position	<u>Flexible</u>
	Spreading factor	<u>64</u>
	Number of TFCI bits/slot	<u>8</u>
	Number of Pilot bits/slot	<u>0</u>
	Number of data bits/slot	<u>72</u>
	Number of data bits/frame	<u>1080</u>

7.4.17.4.2 General BMC message reception

7.4.1.17.4.2.1 UE in RRC Idle mode

7.4.1.1.1 Definition and applicability

Applicable only for a UE supporting Cell Broadcast Services (CBS) as a type of Broadcast/Multicast Services.

It shall be possible to indicate the reception of certain CBS message contents carried with certain activated CB message types in a clear way on UE side.

7.4.1.1.27.4.2.1.2 Conformance requirement

A UE supporting Cell Broadcast Services shall be capable to receive BMC messages in the RRC Idle mode.

Reference(s)

TS 25.324 clause 9.1

7.4.1.1.3<u>7.4.2.1.3</u> Test purpose

To verify, that a BMC configuration for a UE is able to receive activated CBS messages when in RRC Idle mode.

7.4.1.1.47.4.2.1.4 Method of test

Initial conditions

UE is in RRC Idle mode; BMC entity is established

SS: 1 cell,

NOTE: The CB message ID stored on the SIM shall be known for this test (parameter for CBS PDU's). The CBS data type shall be allocated and activated in the UE.

Related ICS/IXIT Statement(s)

Support of BMC - Yes/No

Support of PS – Yes/No

ICS: CBS message support - YES/No

IXIT: CBS-Data 1: Octetstring of N (where N≥1 and less than 1246)

NOTE: For CB-Data 1 IXIT, the manufacturer shall define CBS data as Octetstring together with the CB message ID used for transmitting this CB data, which is indicated by the UE after reception in a clear way according to the capabilities stored on the SIM. Furthermore, the manufacturer shall describe the indication on UE side (e.g. certain CBS traffic information)

Test procedure

- a) The UE in RRC Idle mode is triggered to wait for the next system information. The UE is activated to receive CBS messages.
- b) The UE and the SS have configured their RLC, MAC and PHYs layers with all CB related system information, broadcasted by SS
- c) The SS sends the CBS message containing an activated CBS message type according to CB-Data 1 to the UE; this shall be repeated for "CPREP" times (indicated by parameter "repetition period")
- d) The UE indicates in an unambiguous way, that this message was received, by certain clear indications (e.g. a unique part of the CB data contents)

Expected sequence

Step	Direction	Message	Comments
	UE SS	_	
1	+	SYSTEM INFORMATION	Transmit this message as described below on the BCCH, in addition to the regular BCCH transmissions (see RRC test description). Included are CB related system information parameter of the CBS: - CTCH ID, - FACH ID and associated format set, - S-CCPCH ID, - BMC Schedule Level 1 information (N,K)
2			The SS waits for about 10 s to make sure, that the UE is configured to receive CBS data
3	+	BMC CBS Message	Activated CBS message with CB Data 1 message content as described by the manufacturer. This message shall be repeated "CPREP" times, Parameter: - Message_ID, - Serial-No, - Data coding scheme, - CB-Data 1,
4			After having received the BMC CBS message the UE shall indicate the reception of CB Data 1 in a clear way.

Specific Message Contents

SYSTEM INFORMATION TYPE 5 AND 6

The contents of SYSTEM INFORMATION TYPE 5 AND 6 Information Element in this test case are identical to those of the default contents of layer 3 messages for RRC tests [TS 34.123-1] with the following exceptions:

Information Element	Value/remark
CHOICE mode	(see RRC default test settings)
- CTCH allocation period	N
- CTCH frame offset	K
Secondary CCPCH system	1
- Secondary CCPCH information	(see RRC default test settings)
- TFCS	1
- FACH/PCH information	(see RRC default test settings)
- TFS	TRUE
- CTCH indicator	

BMC CBS Message

Information Element Message Type	Value/remark 1 (CBS message)
Message ID	Bitstring (16) CB message ID, it shall fit to the stored Message ID in the SIM inserted in the UE (source and type) [see TS 23.041] according to the transmitted CB-Data 1 content.
Serial Number - Geographic Scope Indicator (2 bit) - Message Code (10 bit) - Update Number (4 bit)	[see TS 23.041] 11 (Normal Cell wide) in accordance with the Message ID for a new message: 0000, incremented by one for each repetition
Data Coding Scheme	Bitstring (16) ID of the alphabet/coding and the applied language [see TS 23.041]
CB Data	Octetstring, [see IXIT value: CB-Data 1]

7.4.1.1.57.4.2.1.5 Test requirements

The UE shall store and decode a received activated CBS message.

7.4.1.27.4.2.2 UE in RRC Connected mode, state CELL_PCH

7.4.1.2.1 Definition and applicability

Applicable only for a UE supporting Cell Broadcast Services (CBS) as a type of Broadcast/Multicast Services.

It shall be possible to indicate the reception of certain CBS message contents carried with certain activated CB message types in a clear way on UE side.

7.4.1.2.27.4.2.2.2 Conformance requirement

A UE supporting Cell Broadcast Service (CBS) shall be capable to receive BMC messages (...) in CELL_PCH RRC-state of Connected mode.

Reference(s)

TS 25.324 clause 9.1

7.4.1.2.37.4.2.2.3 Test purpose

To verify, that a BMC configuration for a UE is able to receive activated CBS messages when in RRC Connected mode, state CELL_PCH.

7.4.1.2.4<u>7.4.2.2.4</u> Method of test

Initial conditions

UE is in Connected mode state CELL_PCH; BMC entity is established

SS: 1 cell,

NOTE: The CB message ID stored on the SIM shall be known for this test (parameter for CBS PDU's). The CBS data type shall be allocated and activated in the UE.

Related ICS/IXIT Statement(s)

ICS:

Support of BMC - Yes/No

Support of PS - Yes/No

CBS message support - YES/No

IXIT: CBS-Data 1: Octetstring of N (where N≥1 and less than 1246)

NOTE: For CB-Data 1 IXIT, the manufacturer shall define CBS data as Octetstring together with the CB message ID used for transmitting this CB data, which is indicated by the UE after reception in a clear way according to the capabilities stored on the SIM. Furthermore, the manufacturer shall describe the indication on UE side (e.g. certain CBS traffic information)

Test procedure

- a) The UE in RRC CELL_PCH is triggered to wait for the next system information. The UE is activated to receive CBS messages,
- b) The UE and the SS have configured their RLC, MAC and PHYs layers with all CB related system information, broadcasted by SS
- c) The SS sends the CBS message containing an activated CBS message type according to CB-Data 1 to the UE; this shall be repeated for "CPREP" times (indicated by parameter "repetition period")
- d) The UE indicates in an unambiguous way, that this message was received, by certain clear indications (e.g. a unique part of the CB data contents)

Expected sequence

Step	Direction	Message	Comments
	UE SS		
1	\(\)	SYSTEM INFORMATION	Transmit this message as described below on the BCCH, in addition to the regular BCCH transmissions (see RRC test description). Included are CB related system information parameter of the CBS: - CTCH ID, - FACH ID and associated format set, - S-CCPCH ID, - BMC Schedule Level 1 information (N,K)
2			The SS waits for about 10 s to make sure, that the UE is configured to receive CBS data
3	+	BMC CBS Message	Activated CBS message with CB Data 1 message content as described by the manufacturer. This message shall be repeated "CPREP" times, Parameter: - Message_ID, - Serial-No, - Data coding scheme, - CB-Data 1,
4			After having received the BMC CBS message the UE shall indicate the reception of CB Data 1 in a clear way.

Specific Message Contents

SYSTEM INFORMATION TYPE 5 and 6

The contents of SYSTEM INFORMATION TYPE <u>5 and 6</u> Information Element in this test case are identical to those of the default contents of layer 3 messages for RRC tests [TS 34.123-1] with the following exceptions:

Information Element	Value/remark
CHOICE mode	(see RRC default test settings)
- CTCH allocation period	Ň
- CTCH frame offset	K
Secondary CCPCH system	1
- Secondary CCPCH information	(see RRC default test settings)
- TFCS	1
- FACH/PCH information	(see RRC default test settings)
- TFS	TRUE
- CTCH indicator	(see RRC default test settings)

BMC CBS Message

Information Element Message Type	Value/remark 1 (CBS message)
Message ID Serial Number	Bitstring (16) CB message ID, it shall fit to the stored Message ID in the SIM inserted in the UE (source and type) [see TS 23.041] according to the transmitted CB-Data 1 content. [see TS 23.041]
- Geographic Scope Indicator (2 bit) - Message Code (10 bit)	11 (Normal Cell wide) in accordance with the Message ID
- Update Number (4 bit)	for a new message: 0000, incremented by one for each repetition
Data Coding Scheme	Bitstring (16) ID of the alphabet/coding and the applied
CB Data	language [see TS 23.041] Octetstring, [see IXIT value: CB-Data 1]

7.4.1.2.5<u>7.4.2.2.5</u> Test requirements

The UE shall store and decode a received activated CBS message.

7.4.1.37.4.2.3 UE in RRC Connected mode, state URA_PCH

7.4.1.3.17.4.2.3.1 Definition and applicability

Applicable only for a UE supporting Cell Broadcast Services (CBS) as a type of Broadcast/Multicast Services.

It shall be possible to indicate the reception of certain CBS message contents carried with certain activated CB message types in a clear way on UE side.

7.4.1.3.27.4.2.3.2 Conformance requirement

A UE supporting Cell Broadcast Service (CBS) shall be capable to receive BMC messages (...) in CELL_PCH and URA PCH RRC-state of Connected mode.

Reference(s)

TS 25.324 clause 9.1.

7.4.1.3.3<u>7.4.2.3.3</u> Test purpose

To verify, that a BMC configuration for a UE is able to receive activated CBS messages when in RRC Connected mode, state URA_PCH.

7.4.1.3.47.4.2.3.4 Method of test

Initial conditions

UE is in Connected mode state URA_PCH; BMC entity is established

SS: 1 cell,

NOTE: The CB message ID stored on the SIM shall be known for this test (parameter for CBS PDU's). The CBS data type shall be allocated and activated in the UE.

Related ICS/IXIT Statement(s)

ICS:

Support of BMC - Yes/No

Support of PS - Yes/No

CBS message support - YES/No

IXIT: CBS-Data 1: Octetstring of N (where N≥1 and less than 1246)

NOTE: For CB-Data 1 IXIT, the manufacturer shall define CBS data as Octetstring together with the CB message ID used for transmitting this CB data, which is indicated by the UE after reception in a clear way according to the capabilities stored on the SIM. Furthermore, the manufacturer shall describe the indication on UE side (e.g. certain CBS traffic information)

Test procedure

- a) The UE in RRC URA_PCH is triggered to wait for the next system information. The UE is activated to receive CBS messages,
- b) The UE and the SS have configured their RLC, MAC and PHYs layers with all CB related system information, broadcasted by SS
- c) The SS sends the CBS message containing an activated CBS message type according to CB-Data 1 to the UE, this shall be repeated for "CPREP" times (indicated by parameter "repetition period")
- d) The UE indicates in an unambiguous way, that this message was received, by certain clear indications (e.g. a unique part of the CB data contents)

Expected sequence

Step	Direction		Message	Comments
	UE	SS	_	
1	+		SYSTEM INFORMATION	Transmit this message as described below on the BCCH, in addition to the regular BCCH transmissions (see RRC test description). Included are CB related system information parameter of the CBS: - CTCH ID, - FACH ID and associated format set, - S-CCPCH ID, - BMC Schedule Level 1 information (N,K)
2				The SS waits for about 10 s to make sure, that the UE is configured to receive CBS data
3	+	-	BMC CBS Message	Activated CBS message with CB Data 1 message content as described by the manufacturer. This message shall be repeated "CPREP" times, Parameter: - Message_ID, - Serial-No, - Data coding scheme, - CB-Data 1,
4				After having received the BMC CBS message the UE shall indicate the reception of CB Data 1 in a clear way.

Specific Message Contents

SYSTEM INFORMATION TYPE 5 and 6

The contents of SYSTEM INFORMATION TYPE <u>5 and 6</u> Information Element in this test case are identical to those of the default contents of layer 3 messages for RRC tests [TS 34.123-1] with the following exceptions:

Information Element	Value/remark
CHOICE mode	(see RRC default test settings)
- CTCH allocation period	N
- CTCH frame offset	K
Secondary CCPCH system	1
- Secondary CCPCH information	(see RRC default test settings)
- TFCS	1
- FACH/PCH information	(see RRC default test settings)
- TFS	TRUE
- CTCH indicator	(see RRC default test settings)

BMC CBS Message

Information Element Message Type	Value/remark 1 (CBS message)
Wessage Type	1 (ODO message)
Message ID	Bitstring (16) CB message ID, it shall fit to the stored Message ID in the SIM inserted in the UE (source and type) [see TS 23.041] according to the transmitted CB-Data 1 content.
Serial Number	[see TS 23.041]
- Geographic Scope Indicator (2 bit)	11 (Normal Cell wide)
- Message Code (10 bit)	in accordance with the Message ID
- Update Number (4 bit)	for a new message: 0000, incremented by one for each repetition
Data Coding Scheme	Bitstring (16) ID of the alphabet/coding and the applied
	language [see TS 23.041]
CB Data	Octetstring, [see IXIT value: CB-Data 1]

7.4.1.3.57.4.2.3.5 Test requirements

The UE shall store and decode a received activated CBS message.

7.4.1.4<u>7.4.2.4</u> UE in RRC Idle mode (ANSI-41 CB data)

7.4.1.4.1 Definition and applicability

Applicable only for a UE supporting Cell Broadcast Services (CBS) for ANSI-41 CB data as a type of Broadcast/Multicast Services.

It shall be possible to indicate the reception of a certain CBS41 message content carried with certain activated CB41 message types in a clear way on UE side.

7.4.1.4.27.4.2.4.2 Conformance requirement

A UE supporting Cell Broadcast Services shall be capable to receive BMC messages in RRC Idle mode. (...)BMC messages are identified: (...), CBS41 Message

Reference(s)

TS 25.324 clause 9.1.

7.4.1.4.37.4.2.4.3 Test purpose

To verify, that a BMC configuration supporting ANSI-41 CB Data is able to receive activated CBS41 messages when in RRC Idle mode.

7.4.1.4.47.4.2.4.4 Method of test

Initial conditions

UE is in RRC Idle mode; BMC entity is established

SS: 1 cell,

NOTE: The CB message ID stored on the SIM shall be known for this test (parameter for CBS41 PDU's). The CBS41 data type shall be allocated and activated in the UE.

Related ICS/IXIT Statement(s)

ICS:

Support of BMC - Yes/No

Support of PS - Yes/No

CBS41 message support - YES/No

IXIT: CB41-Data 1: Octetstring of N (where N≥1 and less than 1246)

NOTE: For CB41-Data 1 IXIT, the manufacturer shall define CBS data as Octetstring together with the CB message ID used for transmitting this CB41 data, which is indicated by the UE after reception in a clear way according to the capabilities stored on the SIM. Furthermore, the manufacturer shall describe the indication on UE side (e.g. certain CBS41 traffic information)

Test procedure

- a) The UE in RRC Idle mode is triggered to wait for the next system information. The UE is activated to receive expected CBS41 messages as described by the manufacturer,
- b) The UE and the SS have configured their RLC, MAC and PHYs layers with all CB related system information, broadcasted by SS
- c) The SS sends the CBS41 message containing an activated CBS41 message type according to CB41-Data 1 to the UE; this shall be repeated for "CPREP" times (indicated by parameter "repetition period")
- d) The UE indicates in an unambiguous way, that this message was received, by certain clear indications (e.g. a unique part of the CB41 data contents)

Expected sequence

Step	Direction	Message	Comments
-	UE SS		
1	(SYSTEM INFORMATION	Transmit this message as described below on the BCCH, in addition to the regular BCCH transmissions (see RRC test description). Included are CB related system information parameter of the CBS: - CTCH ID, - FACH ID and associated format set, - S-CCPCH ID, - BMC Schedule Level 1 information (N,K) In addition, the MIB and SIB 16 are sent as described below to setup the ANSI-41 parameters
2			The SS waits for about 10 s to make sure, that the UE is configured to receive CB41 data
3	+	BMC CBS41 Message	Activated CBS message with CB41 Data 1 message content as described by the manufacturer. This message shall be repeated "CPREP" times, Parameter: - Message_type, - Broadcast Address - CB41-Data 1
4			After having received the BMC CBS message the UE shall indicate the reception of CB41 Data 1 in a clear way.

Specific Message Contents

MASTER INFORMATION BLOCK (MIB)

The contents of MASTER INFORMATION BLOCK Information Element in this test case are identical to those of the default contents of layer 3 messages for RRC tests [TS 34.123-1] with the following exceptions:

Information Element	Value/remark
ANSI-41 Core Network information	Present

SYSTEM INFORMATION TYPE 5 AND 6

The contents of SYSTEM INFORMATION TYPE 5 AND 6 Information Element in this test case are identical to those of the default contents of layer 3 messages for RRC tests [TS 34.123-1] with the following exceptions:

Information Element	Value/remark
CHOICE mode	(see RRC default test settings)
- CTCH allocation period	N
- CTCH frame offset	K
Secondary CCPCH system	1
- Secondary CCPCH information	(see RRC default test settings)
- TFCS	1
- FACH/PCH information	(see RRC default test settings)
- TFS	TRUE
- CTCH indicator	(see RRC default test settings)

SYSTEM INFORMATION TYPE 13

The contents of SYSTEM INFORMATION TYPE 13 Information Element in this test case are identical to those of the default contents of layer 3 messages for RRC tests [TS 34.123-1] with the following exceptions:

Information Element	Value/remark
CHOICE CN Type	ANSI-41
- CN domain specific NAS information	
- NAS (ANSI-41) system information	T.B.D

BMC CBS41 Message

Information Element	Value/remark
Message Type	3 (CBS41 Message)
Broadcast Address	Bitstring (40) Address Information of higher layer
CB Data41	Octetstring, [see IXIT value: CB41-Data 1] (ANSI-41)

7.4.1.4.5<u>7.4.2.4.5</u> Test requirements

The UE shall store and decode a received activated CBS41 message.

7.4.1.57.4.2.5 UE in RRC Connected mode, state CELL_PCH (ANSI-41 CB data)

7.4.1.5.17.4.2.5.1 Definition and applicability

Applicable only for a UE supporting Cell Broadcast Services (CBS) for ANSI-41 CB data as a type of Broadcast/Multicast Services.

It shall be possible to indicate the reception of certain CBS41 message contents carried with certain activated CB41 message types in a clear way on UE side.

7.4.1.5.27.4.2.5.2 Conformance requirement

A UE supporting Cell Broadcast Service (CBS) shall be capable to receive BMC messages (...) in CELL_PCH RRC-state of Connected mode. (...)BMC messages are identified: (...), CBS41 Message

Reference(s)

TS 25.324 clause 9.1.

7.4.1.5.37.4.2.5.3 Test purpose

To verify, that a BMC configuration supporting ANSI-41 CB Data is able to receive activated CBS41 messages when in RRC Connected mode, state CELL PCH.

7.4.1.5.47.4.2.5.4 Method of test

Initial conditions

UE is in Connected mode state CELL_PCH; BMC entity is established

SS: 1 cell,

NOTE: The CB41 message ID stored on the SIM shall be known for this test (parameter for CBS41 PDU's). The CBS41 data type shall be allocated and activated in the UE.

Related ICS/IXIT Statement(s)

ICS:

Support of BMC - Yes/No

Support of PS - Yes/No

CBS41 message support - YES/No

IXIT: CBS41-Data 1: Octetstring of N (where N≥1 and less than 1246)

NOTE: For CB41-Data 1 IXIT, the manufacturer shall define CBS data as Octetstring together with the CB message ID used for transmitting this CB41 data, which is indicated by the UE after reception in a clear way according to the capabilities stored on the SIM. Furthermore, the manufacturer shall describe the indication on UE side

Test procedure

- a) The UE in RRC CELL_PCH is triggered to wait for the next system information. The UE is activated to receive expected CBS41 messages as described by the manufacturer,
- b) The UE and the SS have configured their RLC, MAC and PHYs layers with all CB41 related system information, broadcasted by SS
- c) The SS sends the CBS41 message containing an activated CBS41 message type according to CB41-Data 1 to the UE; this shall be repeated for "CPREP" times (indicated by parameter "repetition period")
- d) The UE indicates in an unambiguous way, that this message was received, by certain clear indications (e.g. a unique part of the CB41 data contents)

Expected sequence

Step	Direction		Message	Comments
	UE	SS	_	
1	*		SYSTEM INFORMATION	Transmit this message as described below on the BCCH, in addition to the regular BCCH transmissions (see RRC test description). Included are CB related system information parameter of the CBS: - CTCH ID, - FACH ID and associated format set, - S-CCPCH ID, - BMC Schedule Level 1 information (N,K) In addition, the MIB and SIB 13 are sent as described below for setup the ANSI-41 parameters
2				The SS waits for about 10 s to make sure, that the UE is configured to receive CB41 data
3	+		BMC CBS41 Message	Activated CBS message with CB41 Data 1 message content as described by the manufacturer. This message shall be repeated "CPREP" times, Parameter: - Message_type, - Broadcast Address - CB41-Data 1
4				After having received the BMC CBS message the UE shall indicate the reception of CB41 Data 1 in a clear way.

Specific Message Contents

MASTER INFORMATION BLOCK (MIB)

The contents of MASTER INFORMATION BLOCK Information Element in this test case are identical to those of the default contents of layer 3 messages for RRC tests [TS 34.123-1] with the following exceptions:

Information Element	Value/remark
ANSI-41 Core Network information	Present

SYSTEM INFORMATION TYPE 5 and 6

The contents of SYSTEM INFORMATION TYPE <u>5 and 6</u> Information Element in this test case are identical to those of the default contents of layer 3 messages for RRC tests [TS 34.123-1] with the following exceptions:

Information Element	Value/remark
CHOICE mode	(see RRC default test settings)
- CTCH allocation period	N
- CTCH frame offset	K
Secondary CCPCH system	1
- Secondary CCPCH information	(see RRC default test settings)
- TFCS	1
- FACH/PCH information	(see RRC default test settings)
- TFS	TRUE
- CTCH indicator	(see RRC default test settings)

SYSTEM INFORMATION TYPE 13

The contents of SYSTEM INFORMATION TYPE 13 Information Element in this test case are identical to those of the default contents of layer 3 messages for RRC tests [TS 34.123-1] with the following exceptions:

Information Element	Value/remark
CHOICE CN Type	ANSI-41
- CN domain specific NAS information	
- NAS (ANSI-41) system information	T.B.D

BMC CBS41 Message

Information Element	Value/remark
Message Type	3 (CBS41 Message)
Broadcast Address	Bitstring (40) Address Information of higher layer
CB Data41	Octetstring, [see IXIT value: CB41-Data 1] (ANSI-41)

7.4.1.5.5 Test requirements

The UE shall store and decode a received activated CBS41 message.

7.4.1.67.4.2.6 UE in RRC Connected mode, state URA_PCH (ANSI-41 CB data)

7.4.1.6.17.4.2.6.1 Definition and applicability

Applicable only for a UE supporting Cell Broadcast Services (CBS) for ANSI-41 CB data as a type of Broadcast/Multicast Services.

It shall be possible to indicate the reception of a certain CBS41 message content carried with certain activated CB41 message types in a clear way on UE side.

7.4.1.6.27.4.2.6.2 Conformance requirement

A UE supporting Cell Broadcast Service (CBS) shall be capable to receive BMC messages (...) in URA_PCH RRC-state of Connected mode. (...)BMC messages are identified: (...), CBS41 Message

Reference(s)

TS 25.324 clause 9.1.

7.4.1.6.37.4.2.6.3 Test purpose

To verify, that a BMC configuration supporting ANSI-41 CB Data is able to receive activated CBS41 messages when in RRC Connected mode, state URA_PCH.

7.4.1.3.47.4.2.3.4 Method of test

Initial conditions

UE is in Connected mode state URA_PCH; BMC entity is established

SS: 1 cell,

NOTE: The CB41 message ID stored on the SIM shall be known for this test (parameter for CBS41 PDU's). The CBS41 data type shall be allocated and activated in the UE.

Related ICS/IXIT Statement(s)

ICS:

Support of BMC - Yes/No

Support of PS - Yes/No

CBS41 message support - YES/No

IXIT: CBS41-Data 1: Octetstring of N (where N≥1 and less than 1246)

NOTE: For CB41-Data 1 IXIT, the manufacturer shall define CBS data as Octetstring together with the CB message ID used for transmitting this CB41 data, which is indicated by the UE after reception in a clear way according to the capabilities stored on the SIM. Furthermore, the manufacturer shall describe the indication on UE side (e.g. certain CBS41 traffic information)

Test procedure

- a) The UE in RRC URA_PCH is triggered to wait for the next system information. The UE is activated to receive expected CBS41 messages as described by the manufacturer,
- b) The UE and the SS have configured their RLC, MAC and PHYs layers with all CB related system information, broadcasted by SS
- c) The SS sends the CBS41 message containing an activated CBS41 message type according to CB41-Data 1 to the UE, this shall be repeated for "CPREP" times (indicated by parameter "repetition period")
- d) The UE indicates in an unambiguous way, that this message was received, by certain clear indications (e.g. a unique part of the CB41 data contents)

Expected sequence

Step	Direction	Message	Comments
_	UE SS	_	
1	-	SYSTEM INFORMATION	Transmit this message as described below on the BCCH, in addition to the regular BCCH transmissions (see RRC test description). Included are CB related system information parameter of the CBS: - CTCH ID, - FACH ID and associated format set, - S-CCPCH ID, - BMC Schedule Level 1 information (N,K) In addition, the MIB and SIB 13 are sent as described below for setup the ANSI-41 parameters
2			The SS waits for about 10 s to make sure, that the UE is configured to receive CB41 data
3	+	BMC CBS41 Message	Activated CBS message with CB41 Data 1 message content as described by the manufacturer. This message shall be repeated "CPREP" times, Parameter: - Message_type, - Broadcast Address - CB41-Data 1
4			After having received the BMC CBS message the UE shall indicate the reception of CB41 Data 1 in a clear way.

Specific Message Contents

MASTER INFORMATION BLOCK (MIB)

The contents of MASTER INFORMATION BLOCK Information Element in this test case are identical to those of the default contents of layer 3 messages for RRC tests [TS 34.123-1] with the following exceptions:

Information Element	Value/remark
ANSI-41 Core Network information	Present

SYSTEM INFORMATION TYPE 5 and 6

The contents of SYSTEM INFORMATION TYPE <u>5 and 6</u> Information Element in this test case are identical to those of the default contents of layer 3 messages for RRC tests [TS 34.123-1] with the following exceptions:

Information Element	Value/remark
CHOICE mode	(see RRC default test settings)
- CTCH allocation period	N
- CTCH frame offset	K
Secondary CCPCH system	1
- Secondary CCPCH information	(see RRC default test settings)
- TFCS	1
- FACH/PCH information	(see RRC default test settings)
- TFS	TRUE
- CTCH indicator	(see RRC default test settings)
	`

SYSTEM INFORMATION TYPE 13

The contents of SYSTEM INFORMATION TYPE 13 Information Element in this test case are identical to those of the default contents of layer 3 messages for RRC tests [TS 34.123-1] with the following exceptions:

Information Element	Value/remark
CHOICE CN Type	ANSI-41
- CN domain specific NAS information	
- NAS (ANSI-41) system information	T.B.D

BMC CBS41 Message

Information Element Message Type	Value/remark 3 (CBS41 Message)
Broadcast Address	Bitstring (40) Address Information of higher layer
CB Data41	Octetstring, [see IXIT value: CB41-Data 1] (ANSI-41)

7.4.1.6.5 Test requirements

The UE shall store and decode a received activated CBS41 message.

7.4.27.4.3 BMC message reception procedure

7.4.2.17.4.3.1 Reception of certain CBS message types

7.4.2.1.1 Definition and applicability

Applicable only for a UE supporting Cell Broadcast Services (CBS) as type of Broadcast/Multicast Services.

It shall be possible to indicate the reception of two different CBS message contents carried with different activated CB message types in a clear way on UE side.

It shall be possible to activate/deactivate the CBS message types used to receive CB Data 1 or 2.

7.4.2.1.27.4.3.1.2 Conformance requirement

A UE supporting Cell Broadcast Service (CBS) shall be capable to receive BMC messages in RRC Idle mode.

The BMC entity on UE side evaluates received BMC Schedule Messages and takes decisions which BMC messages are received.

If not otherwise requested by upper layers, only those CB messages received in BMC CBS Messages should be delivered to upper layers for which the Serial Number associated with the CB message has changed. This implies that the BMC has to store the last received Serial Number of each CB message activated by upper layers.

Reference(s)

TS 25.324 clause 9.1

TS 25.324 clause 9.4

<u>7.4.3.1.3</u> Test purpose

- To verify, that a UE supporting CBS ignores a deactivated CBS message type which has been broadcasted by SS.
- To verify, that a UE only stores Serial Numbers of a newly transmitted CBS messages. This shall be verified by indication of a received CBS message with changed Serial Number as indication for the storage of Serial Numbers.

7.4.2.1.47.4.3.1.4 Method of test

Initial conditions

UE is in RRC Idle mode.

SS: 1 cell,

NOTE: The CB message ID stored on the SIM shall be known for this test (as parameter for the CBS message PDU). The CBS data type shall be allocated and in the UE. It shall be possible to activate/deactivate such CBS data type.

Related ICS/IXIT Statement(s)

ICS:

Support of BMC - Yes/No

Support of PS – Yes/No

CBS message support - YES/No

IXIT: - CBS-Data 1: Octetstring of N (where N≥1 and less than 1246), with used CB message ID for CB-Data 1

- CBS-Data 2: Octetstring of N (where N≥1 and less than 1246), with used CB message ID for CB-Data 2 (CB message ID for CB-Data 1 shall be different to CB message ID for CB-Data 2)

NOTE: For CBS data IXIT's, the manufacturer shall define CBS data as Octetstring as described in the IXIT, which is indicated by the UE after reception in a clear way according to the capabilities stored on the SIM. The manufacturer shall describe the indication on UE side for both CBS data types (e.g. certain CBS broadcast information shown in the display of the UE)

Test procedure

- a) The UE in RRC Idle mode is triggered to wait for the next system information. The UE is activated to receive expected CBS messages (CBS data 1, and CBS data 2) are deactivated as described by the manufacturer,
- b) The UE and the SS have configured their RLC, MAC and PHYs layers with all CB related system information, broadcasted by SS
- c) The SS sends the first BMC CBS schedule message to predict the next CBS messages to the UE
- d) The SS sends the CBS message containing CB-Data 1 to the UE, together with the CBS schedule message to predict the next CBS messages (repetition of CB Data 1, first transmission of CB Data 2 and the next CBS schedule message)
- e) The UE indicates on an unambiguous way, that this CB-Data 1 has been received by the UE (e.g. a unique part of the CBS data contents shown on the display)
- f) The SS sends the repeated CB Data 1, the new CB Data 2 and the next CBS schedule message to predict the next CBS messages to the UE. (CBS schedule message predicts the first repetition of CB Data 2 and the new transmission of CB Data 1)
- g) The UE indicates on an unambiguous way, that CB-Data 2 has been received by the UE (e.g. a unique part of the CBS data contents shown in the display)
- h) The UE deactivates the CB Message type ID used for CB-Data 1
- i) The SS sends the repeated CB Data 2 together with the newly sent CB Data 1 (as deactivated CB Data type) to the UE.
- j) The UE ignores the newly received CB-Data 24 i.e. there is no indication for this CB Data 24 as described in step e)

Expected sequence

Step	Direction UE SS	Message	Comments
1	÷	SYSTEM INFORMATION	Transmit these messages as described below on the BCCH, in addition to the regular BCCH transmissions. Included are all CB related system information parameter of the CBS: - CTCH ID, and associated format act.
2			 FACH ID and associated format set, S-CCPCH ID, BMC Schedule Level 1 information (N,K) The SS waits for about 10 s to make sure, that the UE is configured to receive the CBS Data
<u>3</u>	<u>←</u>	BMC CBS Schedule	message Inband CBS schedule message with BMC schedule information Level 2 (DRX) to predict the next CB data block (CB Data 1 –new-, CBS Schedule message)
<u>43</u>	←	BMC CBS Message	Activated CBS message with certain CB data content (CBS data 1 as described by the manufacturer). This message shall be repeated "CPREP" times, is sent the first time. Parameter: - Message_ID, - Serial-No, - Data coding scheme,
<u>5</u> 4			- CB-Data 1 (new) After having received the BMC CBS message (CB-Data 1) the UE shall indicate the reception
<u>6</u> 5	←	BMC CBS Schedule	in a clear way. Inband CBS schedule message with BMC schedule information Level 2 (DRX) to predict the next CB data block (CB Data 21 -new-, CB Data 1 -rep.1-, CBS Schedule message)
<u>7</u>6	←	BMC CBS Message	Activated CBS message with certain CBS data content (CB-Data 2 as described by the manufacturer). This message is sent the first time. Parameter: - Message_ID; - Serial-No; - Data coding scheme; - CB-Data 2 (new)
<u>8</u> 7		•	After having received the BMC CB Data 2 the UE shall indicate the reception in a clear way. This implies that the changed Serial Number of the CBS message has been stored on UE.
7 <u>9</u> 7b	←	BMC CBS Message	Activated CBS message with certain CB data content (CBS data 1 as described by the manufacturer). This message is repeated. Parameter: - Message_ID, - Serial-No, - Data coding scheme, - CB-Data 1 (old) The UE deactivates "CB message type ID" used
<u>911</u> 9	←	BMC CBS Schedule	for CB-Data 1 Inband CBS schedule message with BMC schedule information Level 2 (DRX) to predict the next CB data block (CB-Data 2 - rep.1 - CB Data 24 - new-).
<u>1210</u>	€	BMC CBS Message	CBS message with certain CBS data content (CB-Data 2 as described by the manufacturer). This message is repeated, Parameter: - Message_ID; - Serial-No; - Data coding scheme; - CB-Data 2 (old)

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1043 10b	←	BMC CBS Message	Deactivated CBS message with certain CB data content (CBS data 24 as described by the manufacturer). This message is sent the first time. Parameter: - Message_ID, - Serial-No, - Data coding scheme, - CB-Data 24 (new)
1114 11			After having received the BMC CBS message (CB-Data 24) the UE shall ignore the newly received CBS data 1 message, i.e. there is no indication as described by the manufacturer.

Specific Message Contents

SYSTEM INFORMATION TYPE 5 and 6

The contents of SYSTEM INFORMATION TYPE <u>5 and 6</u> Information Element in this test case are identical to those of the default contents of layer 3 messages for RRC tests [TS 34.123-1] with the following exceptions:

Information Element	Value/remark
CHOICE mode	(see RRC default test settings)
- CTCH allocation period	N
- CTCH frame offset	K
Secondary CCPCH system	1
- Secondary CCPCH information	(see RRC default test settings)
- TFCS	1
- FACH/PCH information	(see RRC default test settings)
- TFS	TRUE
- CTCH indicator	(see RRC default test settings)

BMC CBS Message (Step 34 and 7b)9)7)

Information Element	Value/remark
Message Type	1 (CBS message)
Message ID	Bitstring (16) CB message ID, it shall fit to the stored Message ID in the SIM inserted in the UE (source and type) [see TS 23.041]
Serial Number	[see TS 23.041]
- Geographic Scope Indicator (2 bit)	11 (Normal Cell wide)
- Message Code (10 bit)	according with the Message ID
- Update Number (4 bit)	for a new message: 0000, incremented by one for each repetition
Data Coding Scheme	Bitstring (16) ID of the alphabet/coding and the applied language [see TS 23.041]
CB Data	Octetstring, [see IXIT value: CB-Data 1]

BMC CBS Message (Step 6 and 10b)7 and 103)

Information Element Message Type	Value/remark 1 (CBS message)
Message ID	Bitstring (16) CB message ID, it shall fit to the stored Message ID in the SIM inserted in the UE (source and type) [see TS 23.041]
Serial Number - Geographic Scope Indicator (2 bit) - Message Code (10 bit) - Update Number (4 bit)	[see TS 23.041] 11 (Normal Cell wide) according with the Message ID for a new message: 0000, incremented by one for each repetition
Data Coding Scheme	Bitstring (16) ID of the alphabet/coding and the applied language [see TS 23.041]
CB Data	Octetstring, [see IXIT value: CB-Data 2]

BMC CBS Message (Step 10)12)

Information Element	Value/remark
Message Type	1 (CBS message)
Message ID	Bitstring (16) CB message ID, it shall fit to the stored
	Message ID in the SIM inserted in the UE (source and
	type) [see TS 23.041]
Serial Number	[see TS 23.041]
- Geographic Scope Indicator (2 bit)	11 (Normal Cell wide)
-Message Code (10 bit)	according with the Message ID
- Update Number (4 bit)	for a new message: 0000, incremented by one for each
	repetition
Data Coding Scheme	Bitstring (16) ID of the alphabet/coding and the applied
	language [see TS 23.041]
CB Data	Octetstring, [see IXIT value: CB-Data 1]

BMC Schedule Message (Step 53.6 and Step 9)914)

The parameters for BMC Schedule Message (inband schedule message) in Step 5 are inserted for CB-Data 2 and in Step 8 for CB-Data 1.

Information Element Message Type	Value/remark 2 (Schedule message)
Offset to begin CTCH BS index	calculated offset value of the BS (Integer: 0255) as recommended in TR 25.925
Length of CBS Schedule Period	Number of consecutive CTCH BS of the next CBS Schedule Period, (Integer: 1255) as recommended in TR 25.925
New Message Bitmap	Bitmap (N*8), N = Length of CBS Schedule Period as recommended in TR 25.925
Message Description - Message Description Type	1 for new message (see TS 25.324, Table 11.9-3) 5 for old message (see TS 25.324, Table 11.9-3)
- Message ID	CB message ID used for the next CB data
- Offset to CTCH (BS index of first transmission)	for Message description type 1 or 5: CB message ID IE included (see TS 23.041)

7.4.2.1.5<u>7.4.3.1.5</u> Test requirements

After having received the CB-Data 1 message (step 3),4), the UE shall store the Serial Number of this message and indicate the reception of the CBS message as described by the manufacturer.

After having received the CB Data 2 message (step 6), 7), the UE shall store the Serial Number of this message and indicate the reception of the CBS message as described by the manufacturer.

After CB-Data 24 message was newly broadcasted (step 9),102), the UE shall not indicate the reception for the deactivated CBS message (CB-Data 1).

3GPP TSG-T1 Meeting #13 Cancun, Mexico, 29 – 30 Nov 2001

3GPP TSG-T1/SIG Meeting #20 Cancun, Mexico, 26 – 28 Nov 2001

Tdoc T1S-010340r2

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*	34.123-1 CR 115	₩ ev •	第 Current versi	on: 4.0.0 **
For <u>HELP</u> or	using this form, see bottom	of this page or look	at the pop-up text	over the ¥ symbols.
Proposed chang	e affects: 第 (U)SIM	ME/UE X Rac	dio Access Network	Core Network
Title:	[⊯] Update to UM and AM R	LC test cases		
Source:	用 MCC task 160 / Anritsu,	Ericsson		
Work item code:	# TEI		Date: ♯	2001-11-21
Category:	Use one of the following cate F (correction) A (corresponds to a co B (addition of feature), C (functional modification D (editorial modification Detailed explanations of the be found in 3GPP TR 21.900	rrection in an earlier r ion of feature) n) above categories can	2 2 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	REL-4 the following releases: (GSM Phase 2) (Release 1996) (Release 1997) (Release 1998) (Release 1999) (Release 4) (Release 5)

Reason for change: ₩

- Update of RLC tests to use of the common RB agreed during the T1/SIG#18 meeting.
- Timer tolerances in test requirements should be removed from test cases (general tolerances of timers in 34.108 to be applied instead)
- Correction of specific RLC UM and AM test cases
 - Test case 7.2.2.4 and 7.2.2.9:
 Clarification that also reassembly is tested.
 - Test case 7.2.2.5, 7.2.2.6, 7.2.2.7, 7.2.2.11 and 7.2.2.12:
 Correction of title
 - Test case 7.2.2.7 and 7.2.2.13:
 Clarification of the use of 'First Data Octet LI' needed.
 - Test case 7.2.3.2: Incorrect "£" symbol in test purpose (should be "≤")
 - Test case 7.2.3.3 and 7.2.3.7: Expanding test case also to cover reassembly.
 - Test case 7.2.3.4 and 7.2.3.8:
 Clarification that also reassembly is tested.
 - Test case 7.2.3.5 and 7.2.3.10:
 - Correction of title
 - Test Requirement not complete.
 - RLC parameter 'Missing PDU Indicator' need to be defined as FALSE to ensure that only one STATUS PDU is returned by the UE.

- Test case 7.2.3.6 and 7.2.3.11:
 Clarification that it is a reassembly test case.
- Test case 7.2.3.12:
 To test the receiver's behaviour to SNs wrapping around.
 Currently the poll in each 128th PDU transmitted, uplink STATUS PDUs, uplink polling and downlink STATUS PDU(s) are missing from Expected Sequence.
- Test case 7.2.3.13:
 Downlink RLC in Method of test need not be configured. There are no missing DL PDUs, and the Receiving window size must be set to at least 24 so that none of the PDUs sent in Step a) of the Test procedure are discarded.
- Test case 7.2.3.14: Incorrect SN value in step 12.
- Test case 7.2.3.16:
 The test scenario isn't valid. As it is written, the SS receiver would not know anything about PDUs not received (step 8), to be able to nack them; nor can it send a STATUS PDU as a result of receiving polling, since no PDUs (containing polling) would have been received at all.
- Test case 7.2.3.18:
 Last transmission PDU should be disabled in Initial Conditions, to ensure that Poll_SDU is being tested and not 'Last transmission PDU', see step 13.
- o Test case 7.2.3.19:
 - To avoid unwanted polling after step 19, "Last transmission PDU poll" should be disabled.
 - Confusing word "unacknowledged" in Test Procedure d).
 - Missing Test Requirement T3-T2.
 - SS should only nack PDU with SN=ceil(2T/TTI)-1 in step 12.
- o Test case 7.2.3.20:
 - To ensure reliable test case operation under all SS conditions, "Last transmission PDU poll" should be disabled.
 - Steps in Expected Sequence are out of order.
 - "SDU W/2" in step 3 of Expected Sequence should read
 "SDU W/2+2".
- o Test case 7.2.3.21:

To ensure Poll in step 10 is due to Timer_Poll, "Last transmission PDU poll" should be disabled.

- Test case 7.2.3.22:
 - To ensure Poll in step 11 is due to Timer_Poll_Periodic,
 "Last transmission PDU poll" should be disabled.
 - Stopping Timer_Poll due to negative acknowledgement is not tested by the test case.
- Test case 7.2.3.23:
 - SN value in step 12 incorrect (should be SN=2*Poll_PU-1 instead of SN=2*Poll_PU-2).
 - To ensure Poll in step 15 is due to Timer_Poll, "Last transmission PDU poll" should be disabled.
- Test case 7.2.3.24:

Corrections to Test Procedure and Expexted Sequence.

- Test case 7.2.3.27:
 Missing Test Requirement, to check that no further STATUS
 PDUs are received after step 8. To verify that only ONE
 STATUS report is sent on Timer expiry.
- Test case 7.2.3.28:
 - For a shorter test duration, the loopback uplink SDU size need only be 2* Poll_PDU * 16 + a few bytes. i.e. large enough to generate 2 polls from the UE in steps 7 and 9.
 - According to 25.331, the value of Poll PDU is not legal.
- o Test case 7.2.3.29:
 - It is not necessary to set Timer_MRW, MaxMRW, Timer_Status_Prohibit, and Timer_STATUS_periodic for the test case.
 - Simplification of test procedure.
- Test case 7.2.3.30:
 - MaxDAT, if active, should be set to 40 in Initial Conditions to avoid SDU Discard due to VT(DAT)>=MaxDAT.
 - Simplification of test procedure.
 - Calculation N_{LENGTH} 1 in step 17 may result in a value less than zero.
 - Requirement 3 can only be fulfilled by a UE if concatenation takes place in the uplink. Concatenation is not tested by the test case.
- Test case 7.2.3.31:
 - MaxDAT, if active, should be set to 40 in Initial Conditions to avoid SDU Discard due to VT(DAT)>=MaxDAT.
 - In the Test Requirements, there should be 3 repeats after step 17, not 4 repeats after step 16. The MRW command sent in step 16 is not a repeat, but the start of a new MRW procedure.
- Test case 7.2.3.33:
 - There is one too many Retransmissions of the PDU with SN=0.
 - There is one too many uplink PDUs for SDU3.
 - Clarification of 2nd Test Requirement.

Summary of change: # Changes to RLC UM test cases:

- 1. Removed timer tolerances in test requirements as general tolerances of timers in 34.108 applies instead.
- 2. 7.2.2.1:

a. Updated to use new common RB configurations specified in 3G TS 34.108 clauses 6.11.1 and 6.11.2 for UM testing.

3. 7.2.2.2:

- a. Updated to use common RB configurations, and a fixed SDU size for both 7 and 15 bit LI parts of the test.
- b. Changed transport channel reconfiguration to RB release followed by a new RB establishment.

4. 7.2.2.3:

a. Updated to use generic SDU sizes calculated from the payload size (UM tests with 7 bit LIs)

5. 7.2.2.4:

- a. Added reassembly in title and Test Purpose.
- b. Updated to use generic SDU sizes calculated from the payload size (UM tests with 7 bit LIs)

6. 7.2.2.5 and 7.2.2.6:

- a. Changed title from Segmentation to Reassembly.
- b. Updated to use generic SDU sizes calculated from the payload size (UM tests with 7 bit LIs)

7. 7.2.2.7:

- a. Changed title from Segmentation to Reassembly
- b. Changed Test Procedure and Expected sequence so that SS use LI = 'First Data Octet LI' for both transmitted SDUs.

8. 7.2.2.8:

a. Updated to use generic SDU sizes calculated from the payload size (UM tests with 15 bit LIs)

9. 7.2.2.9:

- a. Add reassembly in title and test purpose
- b. Updated to use generic SDU sizes calculated from the payload size (UM tests with 15 bit LIs)

10. 7.2.2.10

a. Updated to use generic SDU sizes calculated from the payload size (UM tests with 15 bit LIs)

11. 7.2.2.11 and 7.2.2.12:

- a. Changed title from Segmentation to Reassembly.
- Updated to use generic SDU sizes calculated from the payload size (UM tests with 15 bit LIs)
- 12. 7.2.2.13: Same changes as for 7.2.2.7.

Changes to RLC AM test cases:

13. 7.2.3.1:

a. Updated to use new common RB configurations specified in 3G TS 34.108 clauses 6.11.3 and 6.11.4 for AM testing.

14. 7.2.3.2:

- a. Updated to use common RB configurations, and a fixed SDU size for both 7 and 15 bit LI parts of the test.
- b. Changed symbol "£" to "≤" in test purpose.

c. Changed transport channel reconfiguration to RB release followed by a new RB establishment.

15. 7.2.3.3:

- a. Add reassembly in title
- Test purpose, method of test and test requirement changed to also cover the reassembly case with and without plggy-backed status.
- Updated to use generic SDU sizes calculated from the payload size

16. 7.2.3.4:

- a. Added reassembly in title
- Updated to use generic SDU sizes calculated from the payload size
- c. Updated test purpose to also cover teh reassembly case.

17. 7.2.3.5:

- a. Replaced Segmentation with Reassembly in title.
- b. Addition of 'Missing PDU Indicator' = FALSE to ensure that only one STATUS PDU is returned by the UE.
- c. Updated to use generic SDU sizes calculated from the payload size
- Added extra Test Requirement stating that no uplink SDUs shall be received.

18. 7.2.3.6:

- a. Replaced Segmentation with Reassembly in title
- b. Addition of 'Missing PDU Indicator' = FALSE to ensure that only one STATUS PDU is returned by the UE.
- c. Updated to use generic SDU sizes calculated from the payload size
- 19. 7.2.3.7: Same change as for 7.2.3.3
- 20. 7.2.3.8: Same change as for 7.2.3.4

21. 7.2.3.9:

- a. Updated to use generic SDU sizes calculated from the payload size
- 22. 7.2.3.10: Same change as for 7.2.3.5.
- 23. 7.2.3.11: Same change as for 7.2.3.6.

24. 7.2.3.12:

- a. Added verification of receiver behaviour when SNs wrap around to Test Purpose.
- b. Updated window sizes to be consistent with values supported by RRC ASN.1.
- c. Updated to use generic SDU sizes calculated from the payload size
- d. Added Poll in each 128th PDU transmitted, uplink STATUS PDUs, uplink polling and downlink STATUS PDU(s) to Expected Sequence.

25. 7.2.3.13:

- a. Removed Downlink RLC configuration in Method of test section.
- b. Updated to use generic SDU sizes calculated from the payload size
- c. Removed unnecessary polling from step a).

26. 7.2.3.14:

- Updated to use generic SDU sizes calculated from the payload size
- b. Changed specified SN value to W from W+1

27. 7.2.3.15:

a. Updated to use generic SDU sizes calculated from the payload size

28. 7.2.3.16:

- Updated to use generic SDU sizes calculated from the payload size
- b. Test scenario is modified such that it emulates that it is only the first PDU which not is received. As the last uplink PDU is received by the SS the SS behaviour will be in accordance to the RLC core specification (nack on 'Missing PDU Indicator') and legitimately respond with a nack for preceding uplink PDUs.

29. 7.2.3.17:

 Updated to use generic SDU sizes calculated from the payload size

30. 7.2.3.18:

- a. Added Last transmission PDU = FALSE to initial conditions.
- b. Updated to use generic SDU sizes calculated from the payload size

31. 7.2.3.19:

- a. Added "Last transmission PDU poll" = FALSE in Initial conditions.
- Updated to use generic SDU sizes calculated from the payload size
- c. Clarified step d) of the Test Procedure.
- d. Changed "SN ceil(2T/TTI)" in step 12 to "SN ceil(2T/TTI)-1".
- e. Added missing Test Requirement for time T3-T2.

32. 7.2.3.20:

- a. Added "Last transmission PDU poll" = FALSE in Initial conditions.
- Updated to use generic SDU sizes calculated from the payload size
- c. Changed "SDU W/2" in step 3 of Expected Sequence to "SDU W/2+2".
- d. Corrected step numbers in Expected Sequence.

33. 7.2.3.21:

- a. Added "Last transmission PDU poll" = FALSE in Initial conditions.
- b. Updated to use generic SDU sizes calculated from the payload size

34. 7.2.3.22:

- a. Removed reference to stopping Timer_Poll due to negative acknowledgement in Test Purpose.
- b. Added "Last transmission PDU poll" = FALSE in Initial conditions.
- Updated to use generic SDU sizes calculated from the payload size

35. 7.2.3.23:

- a. Added "Last transmission PDU poll" = FALSE in Initial conditions and deleted Poll SDU.
- Updated to use generic SDU sizes calculated from the payload size
- c. Changed to Ack PDU with SN=2*Poll_PDU-1 in step 12.

36. 7.2.3.24:

- a. Added to test purpose to verify that UE polls only once after Timer_Poll_Prohibit expires even though triggered several times during the prohibit time.
- b. Added "Last transmission PDU poll" = FALSE in Initial conditions and deleted Poll_SDU.
- c. Updated to use generic SDU sizes calculated from the payload size
- d. Changed test procedure step a) to SS transmitting [2*Poll_PDU + ceil(T / TTI)] SDUs instead of [(Transmission Window Size / 2) + ceil(T / TTI)] SDUs.
- e. Changed in step 12 of Expected Sequence that last poll to be in PDU with SN = poll_PU + ceil(T/TTI)-1.
- f. Added test requirement accordance with new test purpose

37. 7.2.3.25 to 7.2.3.26:

 Updated to use generic SDU sizes calculated from the payload size

38. 7.2.3.27:

- a. Updated to use generic SDU sizes calculated from the payload size
- b. Added to Test Requirement that only one STATUS PDU shall be received after Timer Status Prohibited expiry.

39. 7.2.3.28:

- a. Changed the Poll_PDU value from 10 to 4 to be consistent with allowed values as specified by 25.331.
- b. Added size of SDU sent by SS in step a) of the test procedure.
- c. Updated to use generic SDU sizes calculated from the payload size

40. 7.2.3.29:

- a. Removed timer definitions which are not essential to achieve the test purpose from Initial Conditions.
- b. Updated to use generic SDU sizes calculated from the payload size
- c. Changed Test Procedure and Expected Sequence to simplify the test.

41. 7.2.3.30:

- a. Added definition of MaxDAT and removed Timer_poll_periodic in Initial Conditions.
- b. Updated to use generic SDU sizes calculated from the payload size
- c. Changed Test Procedure and Expected Sequence.
- d. Changed N_{LENGTH} 1 in step 17 to $(N_{LENGTH} + 1)$ modulo 4, to avoid case where $N_{LENGTH} = 0$ or starting SN <> 0.
- e. Changed test requirement 3 to add time tolerances and to verify that the content of the received MRW command is identical for all retransmission of the STATUS PDUs.

42. 7.2.3.31:

- a. Added definition of MaxDAT=40 in Initial Conditions to avoid SDU Discard due to VT(DAT)>=MaxDAT.
- Updated to use generic SDU sizes calculated from the payload size
- c. Changed Test Requirements to state 3 repeats after step 17.

43. 7.2.3.32:

 Updated to use generic SDU sizes calculated from the payload size

44. 7.2.3.33:

- Updated to use generic SDU sizes calculated from the payload size
- b. Removed steps 15, 16, 23, 32 and 33 as there are on to many retransmissions of the PDU with SN=0.
- c. Added time tolerance to test requirement 1 and text "in steps 22 to 24" to Test Requirement 2.

45. 7.2.3.34:

a. Updated to use generic SDU sizes calculated from the payload size

Consequences if not approved:

★ Special RB configurations will be required that will only be used for RLC testing. Incorrect RLC test cases.

Clauses affected:	光 7.2
Other specs Affected:	# Other core specifications # Test specifications O&M Specifications
Other comments:	₩ R99 and REL-4

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at: http://www.3gpp.org/3G_Specs/CRs.htm. Below is a brief summary:

- 1) Fill out the above form. The symbols above marked \(\mathcal{H} \) contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3)	With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.	f

7.2 RLC testing

7.2.1 Transparent mode

7.2.1.1 Segmentation and reassembly

Transparent mode segmentation and reassembly are not tested in this release of the specification.

7.2.2 Unacknowledged mode

7.2.2.1 General information for UM tests

A-<u>Two</u> generic Radio Access Bearers is are provided for UM tests. This RAB is based upon the Stand alone 3.4kbps UL/DL Signalling RB, with an additional UM 3,4 kbps path mapped to a DTCH. This logical channel is multiplexed on the same transport channel as the DCCH.

The UM test RAB is set up using the Generic Procedure described in clause 7.1.3 of TS 34.108, and with the default RAB replaced as follows:

- For UM 7-bit length indicator tests: the RB configuration described in 3G TS 34.108 clause 6.11.1 is used. For these tests, let UM_7_PayloadSize denote the RAB payload size in octets.
- For UM 15-bit length indicator tests: the RB configuration described in 3G TS 34.108 clause 6.11.2 is used. For these tests, let UM 15 PayloadSize denote the RAB payload size in octets.

	RAB/signalling RB		SRB#1	SRB#2	SRB#3	SRB#4	RAB #1	
-Higher layer	User of Radio Bea			RRC	NAS_DT High prio	NAS_DT Low prio	User Plane	
	Logical channel ty	po	DCCH	DCCH	DCCH	DCCH	DTCH	
	RLC mode		UM	AM	AM	AM	UM	
RLC	Payload sizes, bit		136	128	128	128	136	
	Max data rate, bps	}	3400	3200	3200	3200	3400	
	AMD/UMD PDU h	eader, bit	8	16	16	16	8	
MAC	MAC header, bit		4	4	4	4	4	
WAC	MAC MAC multiplexing		4 logical channel multiplexing					
	TrCH type			DCH				
	TB sizes, bit			148				
	TES	TF0, bts		θ				
	+F-0	TF1, bits	1x148					
	TTI, ms			40				
Layer 1	Coding type	Coding type		CC 1/3				
Layor	CRC, bit		16					
	Max number of bit rate matching	Max number of bits/TTI before rate matching		516				
		Uplink: Max number of bits/radio frame before rate matching		129				

Table 7.2/1 RAB Configuration for UM testing (7-bit Lis)

The UM test RABs is are used in all tests with the following exceptions:

- Tests that only involve 15 bit length indicators;
- Tests that explicitly specify a different Radio Bearer configuration.

Tests that involve only 15 bit length indicators require a modified Radio Bearer configuration. To accommodate the larger payload size, these tests use a coded composite transport channel consisting of two DCH. The first DCH is specified as for the 7-bit length indicators, but not including the DTCH (RAB#1). This is shown in table 7.2/2A.

Table 7.2/2A SRB Configuration for UM testing (15-bit Lis)

	Signalling RB: DC	H 0	SRB#1	SRB#2	SRB#3	SRB#4	
Higher layer			RRC	RRC	NAS_DT High prio	NAS_DT Low prio	
	Logical channel ty	pe	DCCH	DCCH	DCCH	DCCH	
	RLC mode		UM	AM	AM	AM	
RLC	Payload sizes, bit		136	128	128	128	
	Max data rate, bps)	3400	3200	3200	3200	
	AMD/UMD PDU h	eader, bit	8	16	16	16	
MAC	IAC MAC header, bit MAC multiplexing		4	4	4	4	
WAC			4 logical channel multiplexing				
	TrCH type		DCH				
	TB sizes, bit		148				
	TES	TF0, bts	θ				
		TF1, bits	1x148				
	TTI, ms		40				
Layer 1	Coding type		CC 1/3				
Layor r	CRC, bit			16			
	Max number of bits/TTI before		516				
	rate matching		516				
	Uplink: Max numb						
	bits/radio frame be	ofore rate	129				
	matching						

This DCH is combined with a traffic DCH (at lower MAC priority) as described in table 7.2/2B.

Table 7.2/2B RAB Configuration for UM testing (15-bit Lis)

Higher layer	RAB: DCH 1	RAB		
	Logical channel type	DTCH		
	RLC mode	UM		
RLC	Payload sizes, bit	1280		
	Max data rate, bps	64000		
	UMD PDU header, bit	8		
NAA C	MAC header, bit	0		
MAC	MAC multiplexing	N/A		
	TrCH type	DCH		
	TB sizes, bit	1288		
	TES TEO, bits	0		
Layer 1	TF1, bits	1x1288		
	TTI, ms	20		
	Coding type	IC		
	CRC, bit	16		

All other settings are the same.

7.2.2.2 Segmentation and reassembly / Selection of 7 or 15 bit Length Indicators

7.2.2.2.1 Definition

The RLC segments and concatenates SDUs into payload units according to the payload unit size requested by MAC. Length indicators are added to allow correct reconstruction of SDUs. The selection of the size of the length indicator fields used must follow the specified rules. Incorrect operation of segmentation, concatenation, or coding of length indicators will result in failure of the UE to communicate.

7.2.2.2.2 Conformance requirement

The size of the Length Indicator may be either 7 bits or 15 bits.

For UM, 7 bit indicators shall be used if the UMD PDU size is ≤ 125 octets. Otherwise 15bit indicators shall be used.

The length of the Length Indicator only depends on the size of the largest RLC PDU. The length of the Length Indicator is always the same for all PDUs, for one RLC entity.

Reference(s)

TS 25.322 clauses 9.2.2.8 and 9.2.2.9.

7.2.2.2.3 Test purpose

To test that if the size of the largest PDU is \leq 125 octets, 7 bit indicators are used, otherwise, 15 bit indicators are used.

7.2.2.2.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the following exceptions:

Higher layer	RAB/Signalling RB	RAB
	Logical channel type	DTCH
	RLC mode	UM
RLC	Payload sizes, bit	960
	Max data rate, bps	4 8000
	UMD PDU header, bit	8
MAC	MAC header, bit	0
WAC	MAC multiplexing	N/A
	TrCH type	DCH
	TB sizes, bit	968
	TFS TFO, bits	θ
Layer 1	IF1, bits	1x968
	TTI, ms	20
	Coding type	IC
	CRC, bit	16

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for UM 7-bit length indicator tests in clause 7.2.2.1.

These settings apply to both the uplink and downlink DTCH.

The radio bearer is placed into UE test loop mode 1 with the UL SDU size set to 140 bytes.

Test procedure

- a) The SS transmits an RLC SDU of size 180 bytes.
- b) The SS checks the length indicator sizes and values of the RLC PDU returned on the uplink.
- c) The SS releases the RB, and performs the Radio Bearer establishment procedure (clause 7.1.3 of TS 34.108) with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for UM 15-bit length indicator tests in clause 7.2.2.1. reconfigures the Transport Channel as follows:

Higher layer	RAB/Signalling RB	RAB
	Logical channel type	DTCH
	RLC mode	UM
RLC	Payload sizes, bit	1280
	Max data rate, bps	64000
	UMD PDU header, bit	8
MAG	MAC header, bit	θ
MAC	MAC multiplexing	N/A
	TrCH type	DCH
	TB sizes, bit	1288
	TFS TFO, bits	θ
Layer 1	TF1, bits	1x1288
	TTI, ms	20
	Coding type	IC
	CRC, bit	16

All other settings the same.

- d) The SS transmits an RLC SDU of size <u>180</u> bytes.
- e) The SS checks the length indicator sizes and values of the RLC PDU returned on the uplink.
- f) The SS may optionally release the radio bearer.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1			RB ESTABLISHMENT	See generic procedures for UM 7 bit LIs
2	•	\leftarrow	DOWNLINK RLC PDU	180 byte SDU + padding
3	-	\rightarrow	UPLINK RLC PDU	140 byte SDU + padding
4	•	\leftarrow	TRANSPORT CHANNEL	PU size > 127 bytes
			RECONFIGURATION RB RELEASE	
<u>5</u>			RB ESTABLISHMENT	See generic procedures for UM 15 bit LIs
				(largest UMD PDU size > 125 bytes)
<u>6</u> 5	•	\leftarrow	DOWNLINK RLC PDU	180 byte SDU + padding
<u>7</u> 6	-	\rightarrow	UPLINK RLC PDU	140 byte SDU + padding
<u>8</u> 7			RB RELEASE	Optional step

7.2.2.2.5 Test requirements

- 1. The UE shall send 7 bit length indicators with values that correctly indicate the end of the SDU received in step 3.
- 2. The UE shall send 15 bit length indicators with values that correctly indicate the end of the SDU received in step 67.

7.2.2.3 Segmentation and reassembly / 7-bit Length Indicators / Padding

7.2.2.3.1 Definition

The RLC segments and concatenates SDUs into payload units according to the payload unit size requested by MAC. Length indicators are added to allow correct reconstruction of SDUs. Incorrect operation of segmentation, concatenation, or coding of length indicators will result in failure of the UE to communicate.

7.2.2.3.2 Conformance requirement

A PDU that has unused space, to be referred to as padding, shall use a Length Indicator to indicate that this space is used as padding unless the padding size is one octet for PDUs with 15-bit LIs. A padding Length Indicator must be placed after any Length Indicators for a PDU.

One length indicator field shall be included for each end of a SDU that the PDU includes. The LI shall be set equal to the number of octets between the end of the header fields and the end of the segment. If padding is needed, another LI field set to only 1's shall be added unless the padding size is one octet for PDUs with 15-bit LIs.

Reference(s)

TS 25.322 clauses 9.2.2.8 and 11.2.2.1.

7.2.2.3.3 Test purpose

- 1. To test that the UE correctly segments a large SDU and padding is added at the end.
- 2. To test that the UE correctly deals with a 7-bit padding LI when present in a received PDU.

7.2.2.3.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for UM 7-bit length indicator tests in clause 7.2.2.1.

These settings apply to both the uplink and downlink DTCH.

The radio bearer is placed into UE test loop mode 1 with the UL SDU size set to $\frac{18}{\text{UM}}$ 7 PayloadSize + 1 bytes.

Test procedure

- a) The SS transmits an RLC SDU of size <u>UM_7_PayloadSize + 1_48</u>-bytes. The second of the 2 PDUs sent shall contain an LI indicating that padding is present.
- b) The SS checks the length indicator sizes and values of the RLC PDU returned on the uplink, and checks the length and content of the received RLC SDU.
- c) The SS may optionally release the radio bearer.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1			RB ESTABLISHMENT	See generic procedures
2	←		DOWNLINK RLC PDU	SDU 1
3	←		DOWNLINK RLC PDU	SDU 1 & Padding
4	\rightarrow		UPLINK RLC PDU	No LI
5	\rightarrow		UPLINK RLC PDU	Check LIs and re-assembled SDU
6			RB RELEASE	Optional step

7.2.2.3.5 Test requirements

- 1. The UE shall return two RLC PDUs. The first shall have no LIs. The second shall have a LI indicating the PDU contains an SDU boundary after octet 1 of the data field, and the second shall indicate that the remainder of the PDU contains padding.
- 2. The length and data content of the received SDU should be the same as the transmitted SDU.

7.2.2.4 Segmentation and Reassembly / 7-bit Length Indicators / LI = 0

7.2.2.4.1 Definition

The RLC segments and concatenates SDUs into payload units according to the payload unit size requested by MAC. A pre-defined length indicator value is used to indicate when an SDUs ends coincident with the end of the previous PDU. Incorrect operation of segmentation, concatenation, or coding of length indicators will result in failure of the UE to communicate.

7.2.2.4.2 Conformance requirement

If the PDU is exactly filled with the last segment of a SDU and there is no room for an LI field, an LI field set to only 0's shall be included as the first length indicator in the following PDU.

Reference(s)

TS 25.322 clause 11.2.2.1

7.2.2.4.3 Test purpose

- 1. To test that where an SDU exactly fills a $P\underline{D}U$, an LI of value zero is placed by the transmitter as the first LI in the next $P\underline{D}U$.
- 2. To test that where an SDU exactly fills a PDU, the receiver accepts an LI of value of zero, placed as the first LI in the next PDU.

7.2.2.4.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for UM 7-bit length indicator tests in clause 7.2.2.1.

These settings apply to both the uplink and downlink DTCH.

The radio bearer is placed into loop-back mode 1 with the UL SDU size set to 17-UM 7 PayloadSize bytes.

Test procedure

- a) The SS transmits an RLC SDU of size 34-2 * UM_7_PayloadSize bytes.
- b) The SS checks the length indicator sizes and values of the RLC PDUs returned on the uplink, and checks the length and content of the received RLC SDU.
- c) The SS may optionally release the radio bearer.

Expected sequence

Step	Direction		Message	Comments
	UE	SS	_	
1			RB ESTABLISHMENT	See generic procedures
2	←		DOWNLINK RLC PDU	SDU 1
3	←		DOWNLINK RLC PDU	SDU 1
4	←		DOWNLINK RLC PDU	LI=0 and padding
5	\rightarrow		UPLINK RLC PDU	No Lis
6	\rightarrow		UPLINK RLC PDU	Check Lis and re-assembled SDU
7	ĺ		RB RELEASE	Optional step

7.2.2.4.5 Test requirements

The UE shall return two RLC PDUs. The first shall have no LIs. The second shall have an LI indicating that the SDU exactly filled the previous PU, and an LI indicating that the remainder of the PDU contains padding.

The length of the received SDU should be <u>UM_7_PayloadSize_17</u>-bytes, and the data content the same as the first <u>UM_7_PayloadSize_17</u>-bytes of the transmitted SDU.

7.2.2.5 Segmentation Reassembly / 7-bit Length Indicators / Invalid LI value

7.2.2.5.1 Definition

The RLC segments and concatenates SDUs into payload units according to the payload unit size requested by MAC. Length indicators are added to allow correct reconstruction of SDUs. The behaviour of the RLC on reception of an invalid LI value has been specified. Incorrect operation of segmentation, concatenation, or coding of length indicators will result in failure of the UE to communicate.

7.2.2.5.2 Conformance requirement

Upon reception of an UMD PDU that contains Length Indicator value 1111110 ("piggybacked STATUS PDU") the receiver shall discard that UMD PDU.

Reference(s)

TS 25.322 clause 11.2.4.1.

7.2.2.5.3 Test purpose

To test that PDUs with invalid length indicators are discarded by the receiving RLC.

7.2.2.5.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for UM 7-bit length indicator tests in clause 7.2.2.1.

These settings apply to both the uplink and downlink DTCH.

The radio bearer is placed into loop-back mode 1 with the UL SDU size set to UM 7 PayloadSize + 1 24-bytes.

Test procedure

- a) The SS transmits two RLC SDUs of size <u>UM_7_PayloadSize + 1_24-</u>bytes. In the third PDU for transmission, the SS sets the value of the second (padding) LI to 1111110.
- b) The SS checks the length indicator sizes and values of any RLC PDUs returned on the uplink, and checks for the presence of any received RLC SDUs.

c) The SS may optionally release the radio bearer.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1			RB ESTABLISHMENT	See generic procedures
2	←		DOWNLINK RLC PDU	SDU 1
3	←		DOWNLINK RLC PDU	SDU 1 & SDU 2
4	←		DOWNLINK RLC PDU	SDU 2 and invalid LI (=11111110)
5	\rightarrow		UPLINK RLC PDU	SDU 1
6	\rightarrow		UPLINK RLC PDU	SDU 1: Check Lis and re-assembled SDU
7			RB RELEASE	Optional step

7.2.2.5.5 Test requirements

The UE shall return two RLC PDUs. The first shall have no LIs. The second shall have a LI indicating the end of the SDU, and a padding LI.

The length and data content of the received SDU should be the same as the first transmitted SDU. The second SDU should not be returned.

7.2.2.6 Segmentation Reassembly / 7-bit Length Indicators / LI value > PDU size

7.2.2.6.1 Definition

The RLC segments and concatenates SDUs into payload units according to the payload unit size requested by MAC. Length indicators are added to allow correct reconstruction of SDUs. The behaviour of the RLC on reception of an invalid LI value has been specified. Incorrect operation of segmentation, concatenation, or coding of length indicators will result in failure of the UE to communicate.

7.2.2.6.2 Conformance requirement

If the length indicator of a PDU has a value that is larger than the PDU size – the number of octets containing LIs in the PDU - 1 and is not one of the predefined values listed in the table of 3GPP TS 25.322 clause 9.2.2.8, the PDU shall be discarded and treated as a missing PDU.

If a PDU with sequence number < VR(US) is missing then all SDUs that have segments in this PDU shall be discarded.

Reference(s)

TS 25.322 clauses 11.2.4.2 and 11.2.3.

7.2.2.6.3 Test purpose

To test that PDUs with length indicators that point beyond the end of the PDU are discarded by the receiving RLC.

7.2.2.6.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for UM 7-bit length indicator tests in clause 7.2.2.1.

These settings apply to both the uplink and downlink DTCH.

The radio bearer is placed into loop-back mode 1 with the UL SDU size set to UM 7 PayloadSize + 1 24-bytes.

Test procedure

- a) The SS transmits three RLC SDUs of size <u>UM 7 PayloadSize + 1 24-bytes</u>. All the SDUs are concatenated or segmented over successive RLC PDUs. In the third PDU for transmission, the SS sets value of the length indicator to be <u>UM_7_PayloadSize + 1 +8-(decimal)</u>.
- b) The SS checks the length indicator sizes and values of the RLC PDUs returned on the uplink, and checks the length and content of the received RLC SDUs.
- c) The SS may optionally release the radio bearer.

Expected sequence

Step	Direction		Message	Comments
	UE S	SS		
1			RB ESTABLISHMENT	See generic procedures
2	←		DOWNLINK RLC PDU	SDU 1
3	←		DOWNLINK RLC PDU	SDU 1 & SDU 2
4	←		DOWNLINK RLC PDU	SDU 2 & SDU 3, with bad LI
5	←		DOWNLINK RLC PDU	SDU 3
<u>5</u> 6	←		DOWNLINK RLC PDU	SDU 3 and padding
<u>6</u> 7	\rightarrow		UPLINK RLC PDU	SDU 1
78	\rightarrow		UPLINK RLC PDU	SDU 1 and padding: Check Lis and re-
				assembled SDU
<u>8</u> 9			RB RELEASE	Optional step

7.2.2.6.5 Test requirements

The UE shall return two RLC PDUs. The first shall have no LIs. The second shall have a LI indicating the end of an SDU and an LI indicating that the remainder of the PDU contains padding.

The length and data content of the received SDU should be the same as the first transmitted SDU. No further SDUs or PDUs should be received.

7.2.2.7 Segmentation Reassembly / 7-bit Length Indicators / First data octet LI

7.2.2.7.1 Definition

The RLC segments and concatenates SDUs into payload units according to the payload unit size requested by MAC. Length indicators are added to allow correct reconstruction of SDUs. A special LI is defined to indicate that the start of on SDU is coincident with the start of the PDU. Incorrect operation of segmentation, concatenation, or coding of length indicators will result in failure of the UE to communicate.

7.2.2.7.2 Conformance requirement

LI = 1111100, UMD PDU: The first data octet in this RLC PDU is the first octet of a RLC SDU.

Reference(s)

TS 25.322 clause 9.2.2.8.

7.2.2.7.3 Test purpose

To test that a UE in unacknowledged mode correctly handles a received RLC PDU with a 7-bit length indicator having its value equal to the special length indicator value 1111100.

7.2.2.7.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for UM 7-bit length indicator tests in clause 7.2.2.1.

These settings apply to both the uplink and downlink DTCH.

The radio bearer is placed into UE test loop mode 1 with the UL SDU size set to 12 bytes.

Test procedure

- a) The SS transmits a normal RLC SDU of size 12 bytes in a PDU which has the 'First Data Octet LI' as the first LI in the PDU.
- b) The SS waits until the SDU has been received back from the UE, and then transmits another SDU of 12 bytes in a PDU which has the 'First Data Octet LI' as the first LI in the PDU.
- c) The SS waits until this SDU has been received back from the UE.
- c) The SS may optionally release the radio bearer.

Expected sequence

Step	Direction		Message	Comments
	UE S	SS		
1			RB ESTABLISHMENT	See generic procedures
2	←		DOWNLINK RLC PDU	SDU 1 with LI = 1111100
3			•••	Wait for loopback
4	\rightarrow		UPLINK RLC PDU	SDU 1
5	←		DOWNLINK RLC PDU	SDU 2 with LI = 1111100
6	\rightarrow		UPLINK RLC PDU	SDU 2
7			RB RELEASE	Optional step

7.2.2.7.5 Test requirements

- 1. The UE shall return two RLC PDUs.
- 2. The length and data content of each received SDU should be the same as the transmitted SDU.

7.2.2.8 Segmentation and reassembly / 15-bit Length Indicators / Padding

7.2.2.8.1 Definition

The RLC segments and concatenates SDUs into payload units according to the payload unit size requested by MAC. Length indicators are added to allow correct reconstruction of SDUs. Incorrect operation of segmentation, concatenation, or coding of length indicators will result in failure of the UE to communicate.

7.2.2.8.2 Conformance requirement

A PDU that has unused space, to be referred to as padding, shall use a Length Indicator to indicate that this space is used as padding unless the padding size is one octet for PDUs with 15-bit LIs. A padding Length Indicator must be placed after any Length Indicators for a PU.

One length indicator field shall be included for each end of a SDU that the PDU includes. The LI shall be set equal to the number of octets between the end of the header fields and the end of the segment. If padding is needed, another LI field set to only 1's shall be added unless the padding size is one octet for PDUs with 15-bit LIs.

Reference(s)

TS 25.322 clauses 9.2.2.8 and 11.2.2.1.

7.2.2.8.3 Test purpose

- 1. To test that the UE correctly segments a large SDU and padding is added at the end.
- 2. To test that the UE correctly deals with a 15-bit padding LI when present in a received PDU.

7.2.2.8.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for UM 15-bit length indicator tests in clause 7.2.2.1.

These settings apply to both the uplink and downlink DTCH.

The radio bearer is placed into UE test loop mode 1 with the UL SDU size set to UM 15 PayloadSize + 1 161-bytes.

Test procedure

- a) The SS transmits an RLC SDU of size <u>UM 15 PayloadSize + 1 161</u> bytes. The second of the 2 PDUs sent shall contain an LI indicating that padding is present.
- b) The SS checks the length indicator sizes and values of the RLC PDU returned on the uplink, and checks the length and content of the received RLC SDU.
- c) The SS may optionally release the radio bearer.

Expected sequence

Step	Direction		Message	Comments
	UE SS			
1			RB ESTABLISHMENT	See generic procedures
2		\leftarrow	DOWNLINK RLC PDU	SDU 1
3	←		DOWNLINK RLC PDU	SDU 1 & Padding
4		\rightarrow	UPLINK RLC PDU	No LI
5	-	\rightarrow	UPLINK RLC PDU	Check Lls and re-assembled SDU
6			RB RELEASE	Optional step

7.2.2.8.5 Test requirements

- 1. The UE shall return two RLC PDUs. The first shall have no LIs. The second shall have a LI indicating the PDU contains an SDU boundary after octet 1 of the data field, and the second shall indicate that the remainder of the PDU contains padding.
- 2. The length and data content of the received SDU should be the same as the transmitted SDU.

7.2.2.9 Segmentation and Reassembly / 15-bit Length Indicators / LI = 0

7.2.2.9.1 Definition

The RLC segments and concatenates SDUs into payload units according to the payload unit size requested by MAC. A pre-defined length indicator value is used to indicate when an SDUs ends coincident with the end of the previous PU. Incorrect operation of segmentation, concatenation, or coding of length indicators will result in failure of the UE to communicate.

7.2.2.9.2 Conformance requirement

If the PDU is exactly filled with the last segment of a SDU and there is no room for an LI field, an LI field set to only 0's shall be included as the first length indicator in the following PDU.

Reference(s)

TS 25.322 clause 11.2.2.1.

7.2.2.9.3 Test purpose

- 1. To test that where an SDU exactly fills a $P\underline{D}U$, an LI of value zero is placed by the transmitter as the first LI in the next $P\underline{D}U$.
- 2. To test that where an SDU exactly fills a PDU, and an LI of value zero is the first LI in the next PDU, the receiver correctly reassembles the PDU.

7.2.2.9.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for UM 15-bit length indicator tests in clause 7.2.2.1.

These settings apply to both the uplink and downlink DTCH.

The radio bearer is placed into loop-back mode 1 with the UL SDU size set to 160-UM_15_PayloadSize_bytes.

Test procedure

- a) The SS transmits an RLC SDU of size 320-2 * UM_15_PayloadSize_bytes.
- b) The SS checks the length indicator sizes and values of the RLC PDUs returned on the uplink, and checks the length and content of the received RLC SDU.
- c) The SS may optionally release the radio bearer.

Expected sequence

Step	Direction		Message	Comments
	UE SS			
1			RB ESTABLISHMENT	See generic procedures
2	←		DOWNLINK RLC PDU	SDU 1
3	←		DOWNLINK RLC PDU	SDU 1
4	←		DOWNLINK RLC PDU	LI=0 and padding
5	\rightarrow		UPLINK RLC PDU	No Lis
6	\rightarrow		UPLINK RLC PDU	Check Lis and re-assembled SDU
7			RB RELEASE	Optional step

7.2.2.9.5 Test requirements

The UE shall return two RLC PDUs. The first shall have no LIs. The second shall have an LI indicating that the SDU exactly filled the previous PU, and an LI indicating that the remainder of the PDU contains padding.

The length of the received SDU should be <u>UM_15_PayloadSize_160</u>-bytes, and the data content the same as the first <u>UM_15_PayloadSize_160</u>-bytes of the transmitted SDU.

7.2.2.10 Segmentation and reassembly / 15-bit Length Indicators / One octet short LI

7.2.2.10.1 Definition

The RLC segments and concatenates SDUs into payload units according to the payload unit size requested by MAC. A pre-defined length indicator value is used to indicate when an SDUs ends one octet short of the end of the previous PDU. Incorrect operation of segmentation, concatenation, or coding of length indicators will result in failure of the UE to communicate.

7.2.2.10.2 Conformance requirement

In the case where the last segment of an RLC SDU is one octet short of exactly filling the last RLC PDU, and 15-bit Length Indicators are used, the next Length Indicator shall be placed as the first Length Indicator in the next PDU and have value LI=111 1111 1111 1011.

In the case where a PDU contains a 15-bit LI indicating that an SDU ends with one octet left in the PDU, the last octet of this PDU shall be ignored and shall not be filled with the first octet of the next SDU data.

Reference(s)

TS 25.322 clause 9.2.2.8.

7.2.2.10.3 Test purpose

- 1. To test that where the UE transmits an SDU, which is one byte short of filling a PDU, an LI indicating one byte short is placed as the first LI in the next PDU.
- 2. To test that where the UE correctly handles a received PDU containing an LI indicating that an SDU ended one byte short of the end of the previous PDU.

7.2.2.10.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for UM 15-bit length indicator tests in clause 7.2.2.1.

These settings apply to both the uplink and downlink DTCH.

The radio bearer is placed into UE test loop mode 1 with the UL SDU size set to UM_15_PayloadSize - 1459-bytes.

Test procedure

- a) The SS transmits an RLC SDU of size 319 (2 * UM 15 PayloadSize) 1 bytes.
- b) The SS checks the length indicator sizes and values of the RLC PDUs returned on the uplink, and checks the length and content of the received RLC SDU.
- c) The SS may optionally release the radio bearer.

Step	Direction		Message	Comments
	UE SS			
1			RB ESTABLISHMENT	See generic procedures
2	←		DOWNLINK RLC PDU	SDU 1
3		←	DOWNLINK RLC PDU	SDU 1
4	←		DOWNLINK RLC PDU	LI=111 1111 1111 1011 and padding
5	-	→	UPLINK RLC PDU	No LIs
6	\rightarrow		UPLINK RLC PDU	Check LIs and re-assembled SDU
7			RB RELEASE	Optional step

7.2.2.10.5 Test requirements

- 1. The UE shall return two RLC PDUs. The first shall have no LIs. The second shall have 2 LIs. The first LI shall be an LI indicating that the SDU was one byte short of filling the previous PDU, and the second an LI indicating that the remainder of the PDU contains padding.
- 2. The length of the received SDU should be <u>UM_15_PayloadSize 1459</u> bytes, and the data content the same as the first <u>UM_15_PayloadSize 1459</u> bytes of the transmitted SDU.

7.2.2.11 Segmentation Reassembly / 15-bit Length Indicators / Invalid LI value

7.2.2.11.1 Definition

The RLC segments and concatenates SDUs into payload units according to the payload unit size requested by MAC. Length indicators are added to allow correct reconstruction of SDUs. The behaviour of the RLC on reception of an invalid LI value has been specified. Incorrect operation of segmentation, concatenation, or coding of length indicators will result in failure of the UE to communicate.

7.2.2.11.2 Conformance requirement

Upon reception of an UMD PDU that contains Length Indicator value 11111111111111 ("piggybacked STATUS PDU") the receiver shall discard that UMD PDU.

Reference(s)

TS 25.322 clause 11.2.4.1.

7.2.2.11.3 Test purpose

To test that PDUs with invalid length indicators are discarded by the receiving RLC.

7.2.2.11.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for UM 15-bit length indicator tests in clause 7.2.2.1.

These settings apply to both the uplink and downlink DTCH.

The radio bearer is placed into loop-back mode 1 with the UL SDU size set to 220-UM_15_PayloadSize + 1 bytes.

Test procedure

a) The SS transmits two RLC SDUs of size <u>UM 15 PayloadSize + 1 220</u> bytes. In the third PDU for transmission, the SS sets the value of the second (padding) LI to 111111111111110.

- b) The SS checks the length indicator sizes and values of any RLC PDUs returned on the uplink, and checks for the presence of any received RLC SDUs.
- c) The SS may optionally release the radio bearer.

Step	Direction		Message	Comments
	UE SS			
1			RB ESTABLISHMENT	See generic procedures
2		\leftarrow	DOWNLINK RLC PDU	SDU 1
3		←	DOWNLINK RLC PDU	SDU 1 & SDU 2
4		\leftarrow	DOWNLINK RLC PDU	SDU 2 and invalid LI (=111111111111110)
5	-	\rightarrow	UPLINK RLC PDU	SDU 1
6	-	\rightarrow	UPLINK RLC PDU	SDU 1: Check Lis and re-assembled SDU
7			RB RELEASE	Optional step

7.2.2.11.5 Test requirements

The UE shall return two RLC PDUs. The first shall have no LIs. The second shall have a LI indicating the end of the SDU, and a padding LI.

The length and data content of the received SDU should be the same as the first transmitted SDU. The second SDU should not be returned.

7.2.2.12 Segmentation Reassembly / 15-bit Length Indicators / LI value > PDU size

7.2.2.12.1 Definition

The RLC segments and concatenates SDUs into payload units according to the payload unit size requested by MAC. Length indicators are added to allow correct reconstruction of SDUs. The behaviour of the RLC on reception of an invalid LI value has been specified. Incorrect operation of segmentation, concatenation, or coding of length indicators will result in failure of the UE to communicate.

7.2.2.12.2 Conformance requirement

If the length indicator of a PDU has a value that is larger than the PDU size – the number of octets containing LIs in the PDU - 1 and is not one of the predefined values listed in the table of 3GPP TS 25.322 clause 9.2.2.8, the PDU shall be discarded and treated as a missing PDU.

If a PDU with sequence number < VR(US) is missing then all SDUs that have segments in this PDU shall be discarded.

Reference(s)

TS 25.322 clauses 11.2.4.2 and 11.2.3.

7.2.2.12.3 Test purpose

To test that PDUs with length indicators that point beyond the end of the PDU are discarded by the receiving RLC.

7.2.2.12.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for UM 15-bit length indicator tests in clause 7.2.2.1.

These settings apply to both the uplink and downlink DTCH.

The radio bearer is placed into loop-back mode 1 with the UL SDU size set to UM 15 PayloadSize + 1 220-bytes.

Test procedure

- a) The SS transmits three RLC SDUs of size <u>UM 15 PayloadSize + 1 220-</u>bytes. All the SDUs are concatenated or segmented over successive RLC PDUs. In the third PDU for transmission, the SS sets value of the length indicator to be <u>UM_15_PayloadSize + 1 161-</u>(decimal).
- b) The SS checks the length indicator sizes and values of the RLC PDUs returned on the uplink, and checks the length and content of the received RLC SDUs.
- c) The SS may optionally release the radio bearer.

Expected sequence

Step	Direction		Message	Comments
	UE SS			
1			RB ESTABLISHMENT	See generic procedures
2	←		DOWNLINK RLC PDU	SDU 1
3	3 ← DOWNLINK RLC PDU SDU 1 & SDU 2		SDU 1 & SDU 2	
4	← D		DOWNLINK RLC PDU	SDU 2 & SDU 3, with bad LI
5	5 ← DOWNLINK RLC PDU SDU 3		DOWNLINK RLC PDU	SDU 3
<u>5</u> 6	6 ← DOV		DOWNLINK RLC PDU	SDU 3 and padding
<u>6</u> 7			UPLINK RLC PDU	SDU 1
78			UPLINK RLC PDU	SDU 1 and padding: Check Lis and re-
				assembled SDU
<u>8</u> 9			RB RELEASE	Optional step

7.2.2.12.5 Test requirements

The UE shall return two RLC PDUs. The first shall have no LIs. The second shall have a LI indicating the end of an SDU and an LI indicating that the remainder of the PDU contains padding.

The length and data content of the received SDU should be the same as the first transmitted SDU. No further SDUs or PDUs should be received.

7.2.2.13 Segmentation-Reassembly / 15-bit Length Indicators / First data octet LI

7.2.2.13.1 Definition

The RLC segments and concatenates SDUs into payload units according to the payload unit size requested by MAC. Length indicators are added to allow correct reconstruction of SDUs. A special LI is defined to indicate that the start of on SDU is coincident with the start of the PDU. Incorrect operation of segmentation, concatenation, or coding of length indicators will result in failure of the UE to communicate.

7.2.2.13.2 Conformance requirement

LI = 111111111111100, UMD PDU: The first data octet in this RLC PDU is the first octet of a RLC SDU.

Reference(s)

TS 25.322 clause 9.2.2.8.

7.2.2.13.3 Test purpose

To test that a UE in unacknowledged mode correctly handles a received RLC PDU with a 15-bit length indicator having its value equal to the special length indicator value 11111111111100.

7.2.2.13.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for UM 15-bit length indicator tests in clause 7.2.2.1.

These settings apply to both the uplink and downlink DTCH.

The radio bearer is placed into UE test loop mode 1 with the UL SDU size set to 150 bytes.

Test procedure

- a) The SS transmits a normal-RLC SDU of size 150 bytes in a PDU which has the 'First Data Octet LI' as the first LI in the PDU.
- b) The SS waits until the SDU has been received back from the UE, and then transmits another SDU of 150 bytes in a PDU which has the 'First Data Octet LI' as the first LI in the PDU.
- c) The SS waits until this SDU has been received back from the UE.
- c) The SS may optionally release the radio bearer.

Expected sequence

Step	Direction	Message	Comments
	UE SS		
1		RB ESTABLISHMENT	See generic procedures
2	←	DOWNLINK RLC PDU	SDU 1 with LI = 111111111111100
3			Wait for loopback
4	\rightarrow	UPLINK RLC PDU	SDU 1
5	←	DOWNLINK RLC PDU	SDU 2 with LI = 111111111111100
6	\rightarrow	UPLINK RLC PDU	SDU 2
7		RB RELEASE	Optional step

7.2.2.13.5 Test requirements

- 1. The UE shall return two RLC PDUs.
- 2. The length and data content of each received SDU should be the same as the transmitted SDU.

7.2.3 Acknowledged mode

7.2.3.1 General information for AM tests

A Two generic Radio Access Bearers is are provided for AM tests. This RAB is based upon the Stand alone 3,4 kbps UL/DL Signalling RB, with an additional AM 3.4kbps path mapped to a DTCH. This logical channel is multiplexed on the same transport channel as the DCCH.

The AM test RAB is set up using the Generic Procedure described in clause 7.1.3 of TS 34.108, and with the default RAB replaced as <u>follows</u>shown in tables 7.2/3A and 7.23B:

- For AM 7-bit length indicator tests: the RB configuration described in 3G TS 34.108 clause 6.11.3 is used. For these tests, let AM 7 PayloadSize denote the RAB payload size in octets.
- For AM 15-bit length indicator tests: the RB configuration described in 3G TS 34.108 clause 6.11.4 is used. For these tests, let AM 15 PayloadSize denote the RAB payload size in octets.

Table 7.2/3A: RAB Configuration for AM testing (7-bit Lis)

	RAB/signalling RE	3	SRB#1	SRB#2	SRB#3	SRB#4	RAB #1	
Higher layer		User of Radio Bearer		RRC	NAS_DT High prio	NAS_DT Low prio	User Plane	
	Logical channel ty	/pe	DCCH	DCCH	DCCH	DCCH	DTCH	
	RLC mode		UM	AM	AM	AM	AM	
RLC	Payload sizes, bit		136	128	128	128	128	
	Max data rate, bp	8	3400	3200	3200	3200	3200	
	AMD/UMD PDU header, bit		8	16	16	16	16	
MAC	MAC header, bit		4	4	4	4	4	
MAC	MAC multiplexing		5 logical channel multiplexing					
	TrCH type	DCH						
	TB sizes, bit		148					
	TES	TF0, bts	0					
	113	TF1, bits	1x148					
	TTI, ms		40					
Layer 1	Coding type	CC 1/3						
Layor	CRC, bit			16				
	Max number of bi	Max number of bits/TTI before		516				
	rate matching		310					
	Uplink: Max numb							
	bits/radio frame b	efore rate			129			
	matching							

Unless specified in individual test cases, the default RLC settings are given in table 7.2/13.

Table 7.2/13B: RLC Parameters for AM testing

Uplink RLC	
Transmission RLC discard	
Max DAT retransmissions	
Max_DAT	4
Transmission window size	128
Timer_RST	500
Max_RST	4
Polling info	
Timer_poll_prohibit	Disabled
Timer_poll	Disabled
Poll_PU	Disabled
Poll_SDU	Disabled
Last transmission PDU poll	TRUE
Last retransmission PDU poll	TRUE
Poll_Window	Disabled
Timer_poll_periodic	Disabled
Downlink RLC	
In-sequence delivery	TRUE
Receiving window size	128
Timer_Status_Prohibit	Disabled
Timer_EPC	Disabled
Missing PDU Indicator	TRUE
Timer_STATUS_periodic	Disabled

The AM test RABs is are used in all tests with the following exceptions:

- Tests that only involve 15 bit length indicators;
- Tests that explicitly specify a different Radio Bearer configuration.

Tests that involve only 15 bit length indicators require a modified Radio Bearer configuration. To accommodate the larger payload size, these tests use a coded composite transport channel consisting of two DCH. The first DCH is specified as for the 7 bit length indicators, but not including the DTCH (RAB#1). This is shown in table 7.2/4A.

Table 7.2/4A: SRB Configuration for AM testing (15-bit Lis)

	Signalling RB: DC	H 0	SRB#1	SRB#2	SRB#3	SRB#4	
Higher layer	User of Radio Bearer		RRC	RRC	NAS_DT	NAS_DT	
			Tito	TUTO	High prio	Low prio	
	Logical channel ty	pe	DCCH	DCCH	DCCH	DCCH	
	RLC mode		UM	AM	AM	AM	
RLC	Payload sizes, bit		136	128	128	128	
	Max data rate, bps)	3400	3200	3200	3200	
	AMD/UMD PDU h	eader, bit	Ф	16	16	16	
MAC	MAC header, bit		4	4	4	4	
IVIAG	MAC multiplexing		4 logical channel multiplexing				
	TrCH type		DCH				
	TB sizes, bit		148				
	TES	TF0, bts	Q				
	110	TF1, bits	1x148				
	TTI, ms		4 0				
Layer 1	Coding type		CC 1/3				
Layor	CRC, bit		16				
	Max number of bits/TTI before		516				
	rate matching)	10		
	Uplink: Max numb						
	bits/radio frame be	ofore rate	129				
	matching						

This DCH is combined with a traffic DCH (at lower MAC priority) as described in table 7.2/4B.

Table 7.2/4B: RAB Configuration for AM testing (15-bit Lis)

Higher layer	RAB: DCH 1	RAB	
	Logical channel type	DTCH	
	RLC mode	AM	
RLC	Payload sizes, bit	1280	
	Max data rate, bps	64000	
	AMD/UMD PDU header, bit	16	
NAAC	MAC header, bit	θ	
MAC	MAC multiplexing	N/A	
	TrCH type	DCH	
	TB sizes, bit	1296	
	TFS TF0, bits	θ	
Layer 1	TF1, bits	1x1296	
	TTI, ms	20	
	Coding type	TC	
	CRC, bit	16	

All other settings are the same.

7.2.3.2 Segmentation and reassembly / Selection of 7 or 15 bit Length Indicators

7.2.3.2.1 Definition

The RLC segments and concatenates SDUs into payload units according to the payload unit size configured by RRC. Length indicators are added to allow correct reconstruction of SDUs. The selection of the size of the length indicator fields used must follow the specified rules. Incorrect operation of segmentation, concatenation, or coding of length indicators will result in failure of the UE to communicate.

7.2.3.2.2 Conformance requirement

The size of the Length Indicator may be either 7 bits or 15 bits.

For AM, 7bit indicators shall be used if the AMD PDU size is ≤ 126 octets. Otherwise 15bit indicators shall be used.

The length of the Length Indicator only depends on the size of the largest RLC PDU. The length of the Length Indicator is always the same for all PUs, for one RLC entity.

Reference(s)

TS 25.322 clauses 9.2.2.8 and 9.2.2.9.

7.2.3.2.3 Test purpose

To test that if PDU carries a single PDU, and the size of the largetst PDU is $\frac{1}{2} \leq 126$ octets, 7 bit indicators are used, otherwise, 15 bit indicators are used.

7.2.3.2.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the following exceptions:

Higher layer	RAB/Signalling RB	RAB	
	Logical channel type	DTCH	
	RLC mode	AM	
RLC	Payload sizes, bit	960	
	Max data rate, bps	48000	
	AMD PDU header, bit	16	
MAC	MAC header, bit	θ	
WIAC	MAC multiplexing	N/A	
	TrCH type	DCH	
	TB sizes, bit	976	
	TFO, bits	θ	
Layer 1	IF1, bits	1x976	
	TTI, ms	20	
	Coding type	10	
	CRC, bit	16	

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit length indicator tests in clause 7.2.3.1.

These settings apply to both the uplink and downlink DTCH.

The radio bearer is placed into UE test loop mode 1 with the UL SDU size set to 410 bytes.

Test procedure

- a) The SS transmits an RLC SDU of size 180 bytes. The PDU carrying this SDU is transmitted with a poll for status.
- b) The SS checks the length indicator sizes and values of the RLC PDU returned on the uplink.
- c) The SS releases the RB, and performs the Radio Bearer establishment procedure (clause 7.1.3 of TS 34.108) with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 15-bit length indicator tests in clause 7.2.3.1.reconfigures the Transport Channel as follows:

Higher layer	RAB/Signalling RB	RAB		
	Logical channel type	DTCH		
	RLC mode	AM		
RLC	Payload sizes, bit	1280		
	Max data rate, bps	64000		
	AMD PDU header, bit	16		
NAAC	MAC header, bit	0		
MAC	MAC multiplexing	N/A		
	TrCH type	DCH		
	TB sizes, bit	1296		
	TES TEO, bits	0		
Layer 1	TF1, bits	1x1296		
	TTI, ms	20		
	Coding type	IC		
	CRC, bit	16		

All other settings the same.

- d) The SS transmits an RLC SDUs of size <u>\$1</u>0 bytes. The PDU carrying this SDU is transmitted with a poll for status.
- e) The SS checks the length indicator sizes and values of the RLC PDU returned on the uplink.
- f) The SS may optionally release the radio bearer.

Step	Direc	tion	Message	Comments
	UE	SS		
1			RB ESTABLISHMENT	See generic procedures for AM 7 bit LIs
2	←	É	DOWNLINK RLC PDU	180 byte SDU + padding + poll
3	-	→	UPLINK RLC PDU	140 byte SDU + piggy-backed status + poll
3a	-	→	STATUS PDU	If piggy-backed status is not used in 3
4	←	É	STATUS PDU	
5	←	É	TRANSPORT CHANNEL	PU size > 127 bytes
			RECONFIGURATION RB RELEASE	-
<u>6</u>			RB ESTABLISHMENT	See generic procedures for AM 7 bit LIs
				(AMD PDU size > 126 bytes)
<u>7</u> 6	←	(DOWNLINK RLC PDU	180 byte SDU + padding + poll
<u>8</u> 7	-	>	UPLINK RLC PDU	140 byte SDU + piggy-backed status + poll
<u>8</u> 7a	-)	STATUS PDU	If piggy-backed status is not used in 7
<u>9</u> 8	←	É	STATUS PDU	
<u>10</u> 9			RB RELEASE	Optional step

7.2.3.2.5 Test requirements

The UE shall send 7 bit length indicators with values that correctly indicate the end of SDU in step b).

The UE shall send 15 bit length indicators with values that correctly indicate the end of SDU in step e).

7.2.3.3 Segmentation <u>and Reassembly</u> / 7-bit Length Indicators / Padding or Piggy-backed Status

7.2.3.3.1 Definition

The RLC segments and concatenates SDUs into payload units according to the payload unit size configured by RRC. Length indicators are added to allow correct reconstruction of SDUs. Incorrect operation of segmentation, concatenation, or coding of length indicators will result in failure of the UE to communicate.

7.2.3.3.2 Conformance requirement

The Length Indicator is used to indicate, each time, the end of an SDU occurs in the PU. The Length Indicator points out the number of octets between the end of the last Length Indicator field and up to and including the octet at the end of an SDU segment

A PDU that has unused space, to be referred to as padding, shall use a Length Indicator to indicate that this space is used as padding unless the padding size is one octet for PDUs with 15-bit LIs. A padding Length Indicator must be placed after any Length Indicators for a PDU.

Upon reception of a SDU, RLC shall segment the SDU to fit into the fixed size of a PU. The segments are inserted in the data field of a PU. A length indicator shall be added to each PDU that includes a border of an SDU, i.e. if a PDU does not contain an LI, the SDU continues in the next PU. The length indicator indicates where the border occurs in the PU. The data after the indicated border can be either a new SDU, padding or piggybacked information. If padding or piggybacking is added another LI shall be added unless the padding size is one octet for PDUs with 15-bit LIs, see clauses 9.2.2.8 and 9.2.2.9.

Reference(s)

TS 25.322 clauses 9.2.2.8 and 11.3.2.1.2.

7.2.3.3.3 Test purpose

- 1. To test that a large SDU is correctly segmented and padding added at the end.
- 2. To test that a large SDU is received correctly, whether or not it has piggy-backed status at the end.

7.2.3.3.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit length indicator tests in clause 7.2.3.1.

These settings apply to both the uplink and downlink DTCH.

The radio bearer is placed into UE test loop mode 1 with the UL SDU size set to 47-AM 7 PayloadSize + 1 bytes.

Test procedure

- a) The SS transmits an RLC SDU (SDU1) of size AM 7 PayloadSize + 1 17 bytes, and polls the receiver for status.
- b) The SS checks the length indicator sizes and values of the RLC PDUs returned on the uplink, and checks the length and content of the received RLC SDU.
- c) The SS transmits another RLC SDU (SDU2) of size AM 7 PayloadSize + 1 bytes, and includes piggy-backed status in the second of the 2 PDUs sent. The SS also polls the receiver for status.
- d) The SS checks the length indicator sizes and values of the RLC PDUs returned on the uplink, and checks the length and content of the received RLC SDU.
- ee) The SS may optionally release the radio bearer.

Expected sequence

Step	Direc	tion	Message	Comments
	UE	SS		
1			RB ESTABLISHMENT	See generic procedures
2	•	(DOWNLINK RLC PDU	SDU 1
3	•	(DOWNLINK RLC PDU	SDU 1 +poll + Padding
4	-	>	UPLINK RLC PDU	No LI
5	-	>	UPLINK RLC PDU	Poll, Check Lis Lls and re-assembled SDU
5a	-	→	STATUS PDU	If piggy-backed status is not used in 5
6	•	(DOWNLINK RLC PDUSTATUS PDU	SDU 2
<u>7</u>	<u> </u>	<u>←</u> <u>→</u>	DOWNLINK RLC PDU	SDU 2 + poll + piggy-backed status
<u>8</u>	_	<u>></u>	<u>UPLINK RLC PDU</u>	No LI
9	_	<u>></u>	<u>UPLINK RLC PDU</u>	Poll, Check Lls and re-assembled SDU
<u>9a</u>		<u>→</u>	STATUS PDU	If piggy-backed status is not used in 9
<u>10</u>	4	<u> </u>	STATUS PDU	
<u>11</u> 7			RB RELEASE	Optional step

7.2.3.3.5 Test requirements

1. In steps 4 and 5, The UE shall return two RLC PDUs. The first shall have no LIs. The second shall have a LI indicating the PDU contains an SDU boundary after octet 1 of the data field, and the second shall indicate either that the remainder of the PDU contains padding, or that it contains a piggy-backed status PDU.

- 2. In steps 8 and 9, the UE shall return two RLC PDUs. The first shall have no LIs. The second shall have a LI indicating the PDU contains an SDU boundary after octet 1 of the data field, and the second shall indicate either that the remainder of the PDU contains padding, or that it contains a piggy-backed status PDU.
- 3. The length and data content of theall received SDUs should shall be the same as the transmitted SDUs.

7.2.3.4 Segmentation and Reassembly / 7-bit Length Indicators / LI = 0

7.2.3.4.1 Definition

The RLC segments and concatenates SDUs into payload units according to the payload unit size configured by RRC. A pre-defined length indicator value is used to indicate when an SDUs ends coincident with the end of the previous PU. Incorrect operation of segmentation, concatenation, or coding of length indicators will result in failure of the UE to communicate.

7.2.3.4.2 Conformance requirement

If the PDU is exactly filled with the last segment of a SDU and there is no room for an LI field, an LI field set to only 0's shall be included as the first length indicator in the following PDU.

Reference(s)

TS 25.322 clause 11.3.2.1.

7.2.3.4.3 Test purpose

- 1. To test that where an SDU exactly fills a PDU, an LI of value zero is placed by the transmitter as the first LI in the next PDU.
- 2. To test that where an SDU exactly fills a PDU, and an LI of value zero is the first LI in the next PDU, the receiver correctly reassembles the SDU.

7.2.3.4.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit length indicator tests in clause 7.2.3.1.

These settings apply to both the uplink and downlink DTCH.

The radio bearer is placed into UE test loop mode 1 with the UL SDU size set to 16-AM 7 PayloadSize bytes.

Test procedure

- a) The SS transmits an RLC SDU of size 32-2 * AM_7_PayloadSize bytes. The SS polls the receiver for status in the last RLC PDU sent.
- b) The SS checks the length indicator sizes and values of the RLC PDUs returned on the uplink, and checks the length and content of the received RLC SDU.
- c) The SS may optionally release the radio bearer.

Step	Direction		Message	Comments
	UE	SS		
1			RB ESTABLISHMENT	See generic procedures
2		\leftarrow	DOWNLINK RLC PDU	SDU 1
3		\leftarrow	DOWNLINK RLC PDU	SDU 1
4		\leftarrow	DOWNLINK RLC PDU	LI=0, poll and padding
5		\rightarrow	UPLINK RLC PDU	No Lis
6		\rightarrow	UPLINK RLC PDU	(Poll) Check Lis and re-assembled SDU
6a		\rightarrow	STATUS PDU	If piggy-backed status is not used in 6
7		\leftarrow	STATUS PDU	
8			RB RELEASE	Optional step

7.2.3.4.5 Test requirements

The UE shall return two RLC PDUs. The first shall have no LIs. The second shall have an LI indicating that the SDU exactly filled the previous PU, and an LI indicating either that the remainder of the PDU contains padding, or that it contains a piggy-backed STATUS PDU.

The length of the received SDU should be <u>AM_7_PayloadSize_16</u>-bytes, and the data content the same as the first <u>AM_7_PayloadSize_16</u>-bytes of the transmitted SDU.

7.2.3.5 Segmentation Reassembly / 7-bit Length Indicators / Reserved LI value

7.2.3.5.1 Definition

The RLC segments and concatenates SDUs into payload units according to the payload unit size configured by RRC. Length indicators are added to allow correct reconstruction of SDUs. The behaviour of the RLC on reception of a reserved LI value has been specified. Incorrect operation of segmentation, concatenation, or coding of length indicators will result in failure of the UE to communicate.

7.2.3.5.2 Conformance requirement

Upon reception of an AMD PDU that contains Length Indicator value "1111100" or "1111101": PDUs with this coding will be discarded by this version of the protocol.

Reference(s)

TS 25.322 clause 9.2.2.8.

7.2.3.5.3 Test purpose

To test that PDUs with reserved length indicators are discarded by the receiving RLC.

7.2.3.5.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit length indicator tests in clause 7.2.3.1.

The following RLC parameter values are used in place of the values in clause 7.2.3.1:

Downlink RLC	
Missing PDU Indicator	FALSE

These settings apply to both the uplink and downlink DTCH.

Test procedure

- a) The SS transmits two three RLC SDUs of size 24 AM 7 PayloadSize + 1 bytes. In the second PDU, the SS sets the value of the LI to 1111100. In the fourth third PDU for transmission, the SS sets the value of the second (padding) LI to 1111101.
- b) The SS waits to receive a status report from the UE.
- c) The SS may optionally release the radio bearer.

Expected sequence

Step	Direction	Message	Comments
-	UE SS	_	
1		RB ESTABLISHMENT	See generic procedures
2	←	DOWNLINK RLC PDU #0	SDU 1
3	←	DOWNLINK RLC PDU #1	SDU 1 + SDU 2, LI = 1111100
4	←	DOWNLINK RLC PDU #2	SDU 2 + SDU 3, LI = 1111101
5	←	DOWNLINK RLC PDU #3	SDU <u>32</u> + poll , second LI =1111101
6	\rightarrow	STATUS PDU	Nack PDUs 1 and 32
7		RB RELEASE	Optional step

7.2.3.5.5 Test requirements

- 1. The UE shall return a STATUS PDU indicating that PDUs with sequence numbers 1 and 3-2 were incorrectly received.
- 2. No uplink SDUs shall be received.

7.2.3.6 Segmentation Reassembly / 7-bit Length Indicators / LI value > PDU size

7.2.3.6.1 Definition

The RLC segments and concatenates SDUs into payload units according to the payload unit size configured by RRC. Length indicators are added to allow correct reconstruction of SDUs. The behaviour of the RLC on reception of an invalid LI value has been specified. Incorrect operation of segmentation, concatenation, or coding of length indicators will result in failure of the UE to communicate.

7.2.3.6.2 Conformance requirement

If the length indicator of a PDU has a value that is larger than the PDU size – the number of octets containing LIs in the PDU – 1 and is not one of the predefined values listed in the table of 3GPP TS 25.322 clause 9.2.2.8, the PDU shall be discarded and treated as a missing PDU.

Reference(s)

TS 25.322 clause 11.3.4.5.

7.2.3.6.3 Test purpose

To test that PDUs with length indicators that point beyond the end of the PDU are discarded by the receiving RLC.

7.2.3.6.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit length indicator tests in clause 7.2.3.1.

The following RLC parameter values are used in place of the values in clause 7.2.3.1:

Downlink RLC	
Missing PDU Indicator	<u>FALSE</u>

These settings apply to both the uplink and downlink DTCH.

Test procedure

- a) The SS transmits three RLC SDUs of size 22-AM 7 PayloadSize + 1 bytes. All the SDUs are concatenated or segmented over successive RLC PDUs. In the third PDU for transmission, the SS sets value of the length indicator to be AM 7 PayloadSize + 1 17 (decimal).
- b) The SS checks the length indicator sizes and values of the RLC PDUs returned on the uplink, and checks the content of the received STATUS PDU.
- c) The SS may optionally release the radio bearer.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1			RB ESTABLISHMENT	See generic procedures
2	←		DOWNLINK RLC PDU #0	SDU 1
3	←		DOWNLINK RLC PDU #1	SDU 1 & SDU 2
4	←	-	DOWNLINK RLC PDU #2	SDU 2 & SDU 3, with bad LI
5	←	-	DOWNLINK RLC PDU #3	SDU 3
<u>5</u> 6	←	-	DOWNLINK RLC PDU #34	SDU 3, poll and padding
<u>6</u> 7	-	>	STATUS PDU	Nack PDU #2
<u>7</u> 8			RB RELEASE	Optional step

7.2.3.6.5 Test requirements

The UE shall indicate that the PDU with sequence number 2 was not received-correctly.

7.2.3.7 Segmentation and Reassembly / 15-bit Length Indicators / Padding or Piggy-backed Status

7.2.3.7.1 Definition

The RLC segments and concatenates SDUs into payload units according to the payload unit size configured by RRC. Length indicators are added to allow correct reconstruction of SDUs. Incorrect operation of segmentation, concatenation, or coding of length indicators will result in failure of the UE to communicate.

7.2.3.7.2 Conformance requirement

The Length Indicator is used to indicate, each time, the end of an SDU occurs in the PU. The Length Indicator points out the number of octets between the end of the last Length Indicator field and up to and including the octet at the end of an SDU segment

A PDU that has unused space, to be referred to as padding, shall use a Length Indicator to indicate that this space is used as padding unless the padding size is one octet for PDUs with 15-bit LIs. A padding Length Indicator must be placed after any Length Indicators for a PDU.

Upon reception of a SDU, RLC shall segment the SDU to fit into the fixed size of a $P\underline{D}U$. The segments are inserted in the data field of a $P\underline{D}U$. A length indicator shall be added to each $P\underline{D}U$ that includes a border of an SDU, i.e. if a $P\underline{D}U$ does not contain an LI, the SDU continues in the next PU. The length indicator indicates where the border occurs in the PU. The data after the indicated border can be either a new SDU, padding or piggybacked information. If padding or piggybacking is added another LI shall be added unless the padding size is one octet for PDUs with 15-bit LIs, see clauses 9.2.2.8 and 9.2.2.9.

Reference(s)

TS 25.322 clauses 9.2.2.8 and 11.3.2.1.2.

7.2.3.7.3 Test purpose

- 1. To test that a large SDU is correctly segmented and padding added at the end.
- 2. To test that a large SDU is received correctly, whether or not it has piggy-backed status at the end.

7.2.3.7.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 15-bit length indicator tests in clause 7.2.3.1.

These settings apply to both the uplink and downlink DTCH.

The radio bearer is placed into UE test loop mode 1 with the UL SDU size set to 161-AM 15 PayloadSize + 1 bytes.

Test procedure

- a) The SS transmits an RLC SDU (SDU1) of size AM 15 PayloadSize + 1 161 bytes, and polls the receiver for status.
- b) The SS checks the length indicator sizes and values of the RLC PDU returned on the uplink, and checks the length and content of the received RLC SDU.
- c) The SS transmits another RLC SDU (SDU2) of size AM 15 PayloadSize + 1 bytes, and includes piggy-backed status in the second of the 2 PDUs sent. The SS also polls the receiver for status.
- d) The SS checks the length indicator sizes and values of the RLC PDUs returned on the uplink, and checks the length and content of the received RLC SDU.
- ee) The SS may optionally release the radio bearer.

Expected sequence

Step	Direc	tion	Message	Comments
	UE	SS		
1			RB ESTABLISHMENT	See generic procedures
2	· ·	-	DOWNLINK RLC PDU	SDU 1
3	· ·	-	DOWNLINK RLC PDU	SDU 1 +poll + Padding
4	-)	>	UPLINK RLC PDU	No LI
5)	>	UPLINK RLC PDU	Poll, Check Lis Lls and re-assembled SDU
5a	-	>	STATUS PDU	If piggy-backed status is not used in 5
6	· ·	-	DOWNLINK RLC PDUSTATUS PDU	SDU 2
<u>7</u>	<u> </u>	_	DOWNLINK RLC PDU	SDU 2 + poll + piggy-backed status
<u>8</u>	<u> </u>	<u> </u>	UPLINK RLC PDU	No LI
8 9 9a	<u> </u>	<u> </u>	UPLINK RLC PDU	Poll, Check Lls and re-assembled SDU
<u>9a</u>		<u>}</u>	STATUS PDU	If piggy-backed status is not used in 9
<u>10</u>	<u> </u>		STATUS PDU	
7 11			RB RELEASE	Optional step

7.2.3.7.5 Test requirements

- 1. In steps 4 and 5, the The-UE shall return two RLC PDUs. The first shall have no LIs. The second shall have a LI indicating the PDU contains an SDU boundary after octet 1 of the data field, and the second shall indicate either that the remainder of the PDU contains padding, or that it contains a piggy-backed status PDU.
- 2. In steps 8 and 9, the UE shall return two RLC PDUs. The first shall have no LIs. The second shall have a LI indicating the PDU contains an SDU boundary after octet 1 of the data field, and the second shall indicate either that the remainder of the PDU contains padding, or that it contains a piggy-backed status PDU.
- 3. The length and data content of theall received SDUs shallshould be the same as the transmitted SDUs.

7.2.3.8 Segmentation and Reassembly / 15-bit Length Indicators / LI = 0

7.2.3.8.1 Definition

The RLC segments and concatenates SDUs into payload units according to the payload unit size configured by RRC. A pre-defined length indicator value is used to indicate when an SDUs ends coincident with the end of the previous PU. Incorrect operation of segmentation, concatenation, or coding of length indicators will result in failure of the UE to communicate.

7.2.3.8.2 Conformance requirement

If the PDU is exactly filled with the last segment of a SDU and there is no room for an LI field, an LI field set to only 0's shall be included as the first length indicator in the following PDU.

Reference(s)

TS 25.322 clause 11.3.2.1.

7.2.3.8.3 Test purpose

- 1. To test that where an SDU exactly fills a $P\underline{D}U$, an LI of value zero is placed by the transmitter as the first LI in the next $P\underline{D}U$.
- 2. To test that where an SDU exactly fills a PDU, and an LI of value zero is the first LI in the next PDU, the receiver correctly reassembles the SDU.

7.2.3.8.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 15-bit length indicator tests in clause 7.2.3.1.

These settings apply to both the uplink and downlink DTCH.

The radio bearer is placed into UE test loop mode 1 with the UL SDU size set to AM 15 PayloadSize 160-bytes.

Test procedure

- a) The SS transmits an RLC SDU of size 320-2 * AM 15 PayloadSize bytes. The SS polls the receiver for status in the last RLC PDU sent.
- b) The SS checks the length indicator sizes and values of the RLC PDUs returned on the uplink, and checks the length and content of the received RLC SDU.
- c) The SS may optionally release the radio bearer.

Step	Direction	Message	Comments
	UE SS		
1		RB ESTABLISHMENT	See generic procedures
2	←	DOWNLINK RLC PDU	SDU 1
3	←	DOWNLINK RLC PDU	SDU 1
4	←	DOWNLINK RLC PDU	LI=0, poll and padding
5	\rightarrow	UPLINK RLC PDU	No Lis
6	\rightarrow	UPLINK RLC PDU	(Poll) Check Lis and re-assembled SDU
6a	→	STATUS PDU	If piggy-backed status is not used in 6
7	←	STATUS PDU	
8		RB RELEASE	Optional step

7.2.3.8.5 Test requirements

The UE shall return two RLC PDUs. The first shall have no LIs. The second shall have an LI indicating that the SDU exactly filled the previous PU, and an LI indicating either that the remainder of the PDU contains padding, or that it contains a piggy-backed STATUS PDU.

The length of the received SDU should be <u>AM_15_PayloadSize_160</u>-bytes, and the data content the same as the first <u>AM_15_PayloadSize_160</u>-bytes of the transmitted SDU.

7.2.3.9 Segmentation and reassembly / 15-bit Length Indicators / One octet short LI

7.2.3.9.1 Definition

The RLC segments and concatenates SDUs into payload units according to the payload unit size configured by RRC. A pre-defined length indicator value is used to indicate when an SDUs ends one octet short of the end of the previous PU. Incorrect operation of segmentation, concatenation, or coding of length indicators will result in failure of the UE to communicate.

7.2.3.9.2 Conformance requirement

In the case where the last segment of an RLC SDU is one octet short of exactly filling the last RLC PU, and 15-bit Length Indicators are used, the next Length Indicator shall be placed as the first Length Indicator in the next $P\underline{D}U$ and have value LI=111 1111 1111 1011.

In the case where a PDU contains a 15-bit LI indicating that an SDU ends with one octet left in the PDU, the last octet of this PDU shall be ignored and shall not be filled with the first octet of the next SDU data.

Reference(s)

TS 25.322 clause 9.2.2.8.

7.2.3.9.3 Test purpose

- 1. To test that where the UE transmits an SDU, which is one byte short of filling a PDU, an LI indicating one byte short is placed as the first LI in the next PDU.
- 2. To test that where the UE correctly handles a received PDU containing an LI indicating that an SDU ended one byte short of the end of the previous PDU.

7.2.3.9.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 15-bit length indicator tests in clause 7.2.3.1.

These settings apply to both the uplink and downlink DTCH.

The radio bearer is placed into UE test loop mode 1 with the UL SDU size set to AM 15 PayloadSize - 1 159 bytes.

Test procedure

- a) The SS transmits an RLC SDU of size 319 (2 * AM_15_PayloadSize) 1 bytes. The SS polls the receiver for status in the last RLC PDU sent.
- b) The SS checks the length indicator sizes and values of the RLC PDUs returned on the uplink, and checks the length and content of the received RLC SDU.
- c) The SS may optionally release the radio bearer.

Expected sequence

Step	Direction	Message	Comments
	UE SS		
1		RB ESTABLISHMENT	See generic procedures
2	←	DOWNLINK RLC PDU	SDU 1
3	←	DOWNLINK RLC PDU	SDU 1
4	←	DOWNLINK RLC PDU	LI=111 1111 1111 1011, poll and padding
5	\rightarrow	UPLINK RLC PDU	No LIs
6	\rightarrow	UPLINK RLC PDU	(Poll) Check LIs and re-assembled SDU
6a	→	STATUS PDU	If piggy-backed status is not used in 6
7	←	STATUS PDU	
8		RB RELEASE	Optional step

7.2.3.9.5 Test requirements

- 1. The UE shall return two RLC PDUs. The first shall have no LIs. The second shall have 2 LIs. The first LI shall be an LI indicating that the SDU was one byte short of filling the previous PDU, and the second an LI indicating that the remainder of the PDU contains padding.
- 2. The length of the received SDU should be <u>AM 15 PayloadSize 1 159</u> bytes, and the data content the same as the first <u>AM_15_PayloadSize 1 159</u> bytes of the transmitted SDU.

7.2.3.10 Segmentation Reassembly / 15-bit Length Indicators / Reserved LI value

7.2.3.10.1 Definition

The RLC segments and concatenates SDUs into payload units according to the payload unit size configured by RRC. Length indicators are added to allow correct reconstruction of SDUs. The behaviour of the RLC on reception of a reserved LI value has been specified. Incorrect operation of segmentation, concatenation, or coding of length indicators will result in failure of the UE to communicate.

7.2.3.10.2 Conformance requirement

Reference(s)

TS 25.322 clause 9.2.2.8.

7.2.3.10.3 Test purpose

To test that PDUs with reserved length indicators are discarded by the receiving RLC.

7.2.3.10.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 15-bit length indicator tests in clause 7.2.3.1.

The following RLC parameter values are used in place of the values in clause 7.2.3.1:

Downlink RLC	
Missing PDU Indicator	<u>FALSE</u>

These settings apply to both the uplink and downlink DTCH.

Test procedure

- a) The SS transmits two three RLC SDUs of size 240-AM_15_PayloadSize + 1 bytes. In the second PDU, the SS sets the value of the LI to 111111111111100. In the fourth-third PDU for transmission, the SS sets the value of the second (padding) LI to 11111111111111111.
- b) The SS waits to receive a status report from the UE.
- c) The SS may optionally release the radio bearer.

Expected sequence

Step	Direction	Message	Comments
	UE SS		
1		RB ESTABLISHMENT	See generic procedures
2	←	DOWNLINK RLC PDU #0	SDU 1
3	←	DOWNLINK RLC PDU #1	SDU 1 + SDU 2, LI = 111111111111100
4	←	DOWNLINK RLC PDU #2	SDU 2 + SDU 3, LI = 1111111111111101
5	←	DOWNLINK RLC PDU #3	SDU 2-3 + poll, second LI
			=11111111111101
6	\rightarrow	STATUS PDU	Nack PDUs 1 and 23
7		RB RELEASE	Optional step

7.2.3.10.5 Test requirements

- The UE shall return a STATUS PDU indicating that PDUs with sequence numbers 1 and 23 were incorrectly received.
- 2. No uplink SDUs shall be received.

7.2.3.11 Segmentation Reassembly / 15-bit Length Indicators / LI value > PDU size

7.2.3.11.1 Definition

The RLC segments and concatenates SDUs into payload units according to the payload unit size configured by RRC. Length indicators are added to allow correct reconstruction of SDUs. The behaviour of the RLC on reception of an invalid LI value has been specified. Incorrect operation of segmentation, concatenation, or coding of length indicators will result in failure of the UE to communicate.

7.2.3.11.2 Conformance requirement

If the length indicator of a PDU has a value that is larger than the PDU size – the number of octets containing LIs in the PDU – 1 and is not one of the predefined values listed in the table of 3GPP TS 25.322 clause 9.2.2.8, the PDU shall be discarded and treated as a missing PDU.

Reference(s)

TS 25.322 clause 11.3.4.5.

7.2.3.11.3 Test purpose

To test that PDUs with length indicators that point beyond the end of the PDU are discarded by the receiving RLC.

7.2.3.11.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 15-bit length indicator tests in clause 7.2.3.1.

The following RLC parameter values are used in place of the values in clause 7.2.3.1:

Downlink RLC	
Missing PDU Indicator	<u>FALSE</u>

These settings apply to both the uplink and downlink DTCH.

Test procedure

- a) The SS transmits three RLC SDUs of size 230-AM 15 PayloadSize + 1 bytes. All the SDUs are concatenated or segmented over successive RLC PDUs. In the third PDU for transmission, the SS sets value of the length indicator to be AM_15_PayloadSize + 1_161_(decimal).
- b) The SS checks the length indicator sizes and values of the RLC PDUs returned on the uplink, and checks the content of the received STATUS PDUs.
- c) The SS may optionally release the radio bearer.

Expected sequence

Step	Direction	Message	Comments
	UE SS		
1		RB ESTABLISHMENT	See generic procedures
2	←	DOWNLINK RLC PDU #0	SDU 1
3	←	DOWNLINK RLC PDU #1	SDU 1 & SDU 2
4	←	DOWNLINK RLC PDU #2	SDU 2 & SDU 3, with bad LI
5	\leftarrow	DOWNLINK RLC PDU #3	SDU 3
<u>5</u> 6	←	DOWNLINK RLC PDU #4	SDU 3, poll and padding
<u>6</u> 7	\rightarrow	STATUS PDU	Nack PDU #2
78		RB RELEASE	Optional step

7.2.3.11.5 Test requirements

The UE shall indicate that the PDU with sequence number 2 was not received correctly.

7.2.3.12 Correct use of Sequence Numbering

7.2.3.12.1 Definition

Peer RLC entities use sequence numbering to detect missing PDUs, and for flow control purposes. Incorrect operation of sequence numbering will result in failure of the UE to communicate.

7.2.3.12.2 Conformance requirement

PDUs are sequentially and independently numbered and may have the value 0 through n minus 1 (where n is the modulus of the sequence numbers). The modulus equals 2^{12} for AM ...; the sequence numbers cycle through the entire range: 0 through $2^{12} - 1$ for AM.

If the PDU is transmitted for the first time, the Sequence Number field shall be set equal to VT(S) and VT(S) shall be updated

Reference(s)

TS 25.322, clauses 9.4 and 11.3.2.1.

7.2.3.12.3 Test purpose

- 1. To verify that the UE transmits the first PDU with the Sequence Number field equal to 0.
- 2. To verify that the UE increments the Sequence Number field according to the number of PDUs transmitted.
- 3. To verify that the UE wraps the Sequence Number after transmitting the 2¹²-1th PDU.
- 4. To verify that the UE receiver accepts PDUs with SNs that wrap around every 2¹²-1th PDU.

7.2.3.12.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit length indicator tests in clause 7.2.3.1.

The following RLC parameter values are used in place of the values in clause 7.2.3.1:

Uplink RLC	
Transmission window size	409 <u>5</u> 6
Downlink RLC	
Receiving window size	409 <u>5</u> 6

These settings apply to both the uplink and downlink DTCH.

The Radio Bearer is placed in UE test loop mode 1 with the UL SDU size set to 31-(2 * AM_7_PayloadSize) - 1 bytes.

Test procedure

- a) The SS sends 2049 RLC SDUs to the UE, each of (2 * AM_7_PayloadSize) 1_31-bytes. The SS polls for status on each 128th RLC PDU and the last PDU transmitted
- b) The SS checks the sequence numbers of the RLC PDUs it receives in the uplink
- c) The SS checks the content of the SDUs it receives from the UE.
- d) The SS may optionally release the radio bearer.

Step	Direction		Message	Comments
	UE	SS		
1			RB ESTABLISHMENT	See generic procedures
2	+	-	DOWNLINK RLC PDU #0	
3	+	-	DOWNLINK RLC PDU #1	
				Transmission of DOWNLINK PDUs continues
4	→		UPLINK RLC PDU	SN should be set to 0
5	\rightarrow	•	UPLINK RLC PDU	SN should be set to 1
	<u> </u>	_	<u></u>	Transmission of DOWNLINK PDUs
				continues to SN = 127
<u>6</u> <u>7</u>	<u>+</u>		DOWNLINK RLC PDU #127	Poll
<u>7</u>	<u> </u>	<u> </u>	<u>UPLINK STATUS PDU</u>	
	<u> </u>	_	<u></u>	Transmission of DOWNLINK PDUs
				continues, polling every 128 th PDU, to
	_			SN = 4095
	 	-		Transfer of RLC PDUs continues to
	_			SN = 4 095
<u>68</u>	-		DOWNLINK RLC PDU #4095	
7 9	+		DOWNLINK RLC PDU #04096	<u>SN=0</u>
8 10	(DOWNLINK RLC PDU #14097	SN=1, Poll
	<u> </u>	<u>-</u>		Transfer of RLC PDUs continues to
				SN = 4.095
9 11	 		UPLINK RLC PDU	SN should be set to 4095
10 12)		UPLINK RLC PDU	SN should be set to 0
11 13)		UPLINK RLC PDU	SN should be set to 1, Poll
<u>14</u>	<u> </u>	_	DOWNLINK STATUS PDU	
12 15			RB RELEASE	Optional step

7.2.3.12.5 Test requirements

- 1. The first PDU received should have the SN field set to 0. The second PDU should have the SN field set to 1, and the $4\,097^{th}$ PDU should have the SN field set to 0.
- 2. The size and data content of the received SDUs shall match those of the transmitted SDUs.

7.2.3.13 Control of Transmit Window

7.2.3.13.1 Definition

This test is to check that the UE is able to correctly control its RLC transmission window. Correct operation of RLC windowing is critical for acknowledged mode operation.

7.2.3.13.2 Conformance requirement

The transmitter shall not transmit a $P\underline{D}U$ with $SN \ge VT(MS)$.

The receiver is always allowed to change the Tx window size of the peer entity during a connection, but the minimum and the maximum allowed value is given by RRC configuration. The Rx window of the receiver is not changed.

Reference(s)

TS 25.322, clauses 9.2.2.11.3 and 9.4.

7.2.3.13.3 Test purpose

To verify that the UE does not transmit PDUs with sequence numbers outside of the transmit window, even when the transmit window size is changed by the receiver.

7.2.3.13.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit length indicator tests in clause 7.2.3.1.

The following RLC parameter values are used in place of the values in clause 7.2.3.1:

Uplink RLC	0
Transmission window size	8
Downlink RLC	
— Missing PDU Indicator	FALSE
- Receiving window size	8

These settings apply to both the uplink and downlink DTCH.

The Radio Bearer is placed in UE test loop mode 1 with the UL SDU size set to AM 7 PayloadSize - 1 15-bytes.

Test procedure

Let W be the size of the transmit window.

The length of all transmitted SDUs is set to AM_7_PayloadSize - 1_15-bytes.

- a) The SS transmits 3*W RLC SDUs to the UE, polling regularly.
- b) The SS checks the RLC SDUs received on the uplink, but does not reply to poll requests from the UE, or transmit STATUS PDUs for any other reason.
- c) After confirming that the UE has stopped transmitting new RLC SDUs for at least (2*W*TTI) ms, the SS transmits a STATUS PDU acknowledging all the RLC PDUs received so far.
- d) The SS again checks the RLC SDUs received on the uplink, but does not reply to poll requests from the UE, or transmit further STATUS PDUs for any other reason.
- e) After confirming that the UE has again stopped transmitting new RLC SDUs for at least (2*W*TTI) ms, the SS transmits a STATUS PDU acknowledging all the RLC PDUs received so far, and containing a WINDOW command to reduce the UE transmit window size (W) to half its initial size.
- f) The SS checks the RLC SDUs received on the uplink, but does not reply to poll requests from the UE, or transmit STATUS PDUs for any other reason.
- g) After confirming that the UE has stopped transmitting new RLC SDUs for at least (2*W*TTI) ms, the SS transmits a STATUS PDU acknowledging all the RLC PDUs received so far.
- h) The SS checks the RLC SDUs received on the uplink.
- i) The SS may optionally release the radio bearer.

NOTE: Window arithmetic is carried out modulo 4096.

The test procedure is run with the window transmit window size set to the default (8), and the repeated with the transmit window size set to 1536.

Step	Direction	Message	Comments
<u> </u>	UE SS	DD FOTABLIOUNENT	
1	,	RB ESTABLISHMENT	See generic procedures
2	(DOWNLINK RLC PDU	SDU 1
3	(DOWNLINK RLC PDU	SDU 2
4	←	DOWNLINK RLC PDU	SDU 3
5	←	DOWNLINK RLC PDU	SDU 4
6	←		SS continues to transmit RLC SDUs
7	←	DOWNLINK RLC PDU	SDU 3W
8	\rightarrow	UPLINK RLC PDU	SDU 1
9	\rightarrow	UPLINK RLC PDU	SDU 2
	,	or Entricine 1 Bo	0002
10	\rightarrow		SS continues to receive RLC SDUs
11	\rightarrow	UPLINK RLC PDU	SDU W
12			No new transmissions from UE
13	←	STATUS PDU	
14	$\stackrel{\backprime}{ o}$	UPLINK RLC PDU	SDU W+1
15	$\stackrel{\checkmark}{\rightarrow}$	UPLINK RLC PDU	SDU W+2
15		OF LINK REG FDO	SDO W+2
16	\rightarrow		SS continues to receive RLC SDUs
17	\rightarrow	UPLINK RLC PDU	SDU 2W
18			No new transmissions from UE
19	←	STATUS PDU	WINDOW = W/2
20	$\stackrel{\circ}{\rightarrow}$	UPLINK RLC PDU	SDU 2W+1
21	÷	UPLINK RLC PDU	SDU 2W+2
21		OF LINK RECT DO	350 200+2
22	←		SS continues to receive RLC SDUs
23	\rightarrow	UPLINK RLC PDU	SDU 2W + W/2
24			No new transmissions from UE
25	←	STATUS PDU	
26	$\stackrel{\cdot}{\rightarrow}$	UPLINK RLC PDU	SDU 2W+W/2+1
27	$\stackrel{\checkmark}{\rightarrow}$	UPLINK RLC PDU	SDU 2W+W/2+2
	,	SI LIMICINEO I DO	000 211 111/212
28	←		SS continues to receive RLC SDUs
29	\rightarrow	UPLINK RLC PDU	SDU 3W
30	7	RB RELEASE	
	. The LID		Optional step
NOTE	. me uPl	INK and DOWNLINK PDU flows may over	nap, but are snown separate for clarity.

7.2.3.13.5 Test requirements

From steps 8 to 11, the SDU contents reassembled from the uplink shall match those of the first W transmitted SDUs.

At step 12 there shall be no further transmission on the uplink DTCH whilst the SS is waiting, except for any repeats of the last transmitted PDU.

After step 13, the UE shall resume transmission of the next W SDUs. The contents of these SDUs shall match those of SDUs W+1 to 2*W sent on the downlink.

At step 18 there shall be no further transmission on the uplink DTCH whilst the SS is waiting, except for any repeats of the last transmitted PDU.

After step 19, the UE shall resume transmission of the next W/2 SDUs. The contents of these SDUs shall match those of SDUs 2*W+1 to 2*W+W/2 sent on the downlink.

At step 24 there shall be no further transmission on the uplink DTCH whilst the SS is waiting, except for any repeats of the last transmitted PDU.

After step 25, the UE shall resume transmission of the next W/2 SDUs. The contents of these SDUs shall match those of SDUs 2*W+W/2+1 to 3*W sent on the downlink.

7.2.3.14 Control of Receive Window

7.2.3.14.1 Definition

This test is to check that the UE is able to correctly control its RLC receive window. Correct operation of RLC windowing is critical for acknowledged mode operation.

This test applies to all UE.

7.2.3.14.2 Conformance requirement

Upon reception of a PDU with SN<VR(R) or SN≥VR(MR) the receiver shall discard the PDU.

Reference(s)

TS 25.322, clause 11.3.4.2.

7.2.3.14.3 Test purpose

1. To verify that the UE discards PDUs with sequence numbers outside the upper boundary of the receive window.

7.2.3.14.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit length indicator tests in clause 7.2.3.1.

The following RLC parameter values are used in place of the values in clause 7.2.3.1:

ſ	Uplink RLC	
	Transmission window size	8
Γ	Downlink RLC	
	Missing PDU Indicator	FALSE
	Receiving window size	8

These settings apply to both the uplink and downlink DTCH.

The Radio Bearer is placed in UE test loop mode 1 with the UL SDU size set to AM 7 PayloadSize - 1 15-bytes.

Test procedure

Let W be the size of the receive window.

The length of all transmitted SDUs is set to AM 7 PayloadSize - 1 15 bytes.

- a) The SS transmits W RLC SDUs to the UE, polling only on the last RLC PDU.
- b) The SS checks the RLC SDUs received on the uplink, and after receiving the STATUS PDU from the UE it transmits a further RLC SDU. The SS sets the sequence number for the associated RLC PDU above the top of the receive window, for example, 2*W+1.

- c) The SS transmits a further RLC SDU with the sequence number set to the value of the next sequence number within the receive window.
- d) The SS checks the RLC SDUs received on the uplink.
- e) The SS may optionally release the radio bearer.

This test case is run once for the default receive window size (8) and again with the receive window size set to 1536.

Expected sequence

Step	Direction	Message	Comments
	UE SS	_	
1		RB ESTABLISHMENT	See generic procedures
2	←	DOWNLINK RLC PDU	SDU 1, <u>SN = 0</u>
3	←	DOWNLINK RLC PDU	SDU 2 <u>, SN = 1</u>
4	←		SS continues to transmit RLC SDUs
5	←	DOWNLINK RLC PDU	SDU W + Poll, SN = W-1
6	\rightarrow	STATUS PDU	
7	\rightarrow	UPLINK RLC PDU	SDU 1
8	\rightarrow	UPLINK RLC PDU	SDU 2
9			UE continues to transmit RLC SDUs
10	\rightarrow	UPLINK RLC PDU	SDU W
11	←	DOWNLINK RLC PDU	SDU W+1, SN = 2W+1
12	←	DOWNLINK RLC PDU	SDU W+2, SN = W+1
13	\rightarrow	UPLINK RLC PDU	SDU W+2
14		RB RELEASE	Optional step

The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity.

7.2.3.14.5 Test requirements

1. The SS shall receive back SDUs 1 to W, and SDU W + 2 only. No other SDUs shall be looped back.

7.2.3.15 Polling for status / Last PDU in transmission queue

7.2.3.15.1 Definition

This case tests that the UE will poll for a status request on the last PDU in its transmission queue when that mode is enabled. Incorrect operation of polling will cause degradation of service, or at worst service failure.

7.2.3.15.2 Conformance requirement

The Polling bit shall be set to 1 if any of following conditions are fulfilled except when the poll prohibit function is used and the timer Timer_Poll_Prohibit is active:

1. Last $P\underline{D}U$ in buffer is used and the last $P\underline{D}U$ available for transmission is transmitted.

Reference

TS 25.322 clause 11.3.2.1.1.

7.2.3.15.3 Test purpose

1. To verify that a poll is performed when only one PDU is available for transmission, and the poll prohibit timer is function is not used.

2. To verify that a poll is performed when only one $P\underline{D}U$ is available for transmission, and the poll prohibit timer is function is used, but inactive.

7.2.3.15.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit length indicator tests in clause 7.2.3.1.

The following RLC parameter values are used in place of the values in clause 7.2.3.1:

Uplink RLC	First run	Second run
Polling info		
Timer_poll_prohibit	disabled	200
Last transmission PD	U poll TRUE	TRUE
Last retransmission F	PDU poll FALSE	FALSE

These settings apply to both the uplink and downlink DTCH.

The Radio Bearer is placed in UE test loop mode 1 with the UL SDU size set to 31-(2 * AM_7_PayloadSize) - 1 bytes.

Test procedure

- a) The SS transmits an RLC SDU of length 63-(4 * AM 7 PayloadSize) 1 bytes to the UE.
- b) The SS checks the uplink RLC PDUs for a poll for status flag.
- c) The SS may optionally release the radio bearer.

The test is repeated using the RLC parameters given in the Second run column of the configuration table for the initial conditions.

Expected sequence

Step	Direction	Message	Comments
	UE SS		
1		RB ESTABLISHMENT	See generic procedures
2	←	DOWNLINK RLC PDU	SDU 1
3	←	DOWNLINK RLC PDU	SDU 1
4	←	DOWNLINK RLC PDU	SDU 1
5	←	DOWNLINK RLC PDU	SDU 1 + Poll
6	\rightarrow	STATUS PDU	
7	\rightarrow	UPLINK RLC PDU	SDU 1
8	\rightarrow	UPLINK RLC PDU	SDU 1 + Poll
9	←	STATUS PDU	
10		RB RELEASE	Optional step

7.2.3.15.5 Test requirements

The Poll bit shall be set in the AMD PDU header of the PDU returned in step 8.

7.2.3.16 Polling for status / Last PDU in retransmission queue

7.2.3.16.1 Definition

This case tests that the UE will poll for a status request on the last $P\underline{D}U$ in its retransmission queue when that mode is enabled. Incorrect operation of polling will cause degradation of service, or at worst service failure.

7.2.3.16.2 Conformance requirement

The Polling bit shall be set to 1 if any of following conditions are fulfilled except when the poll prohibit function is used and the timer Timer_Poll_Prohibit is active:

- 1) ...
- 2) Last PDU in retransmission buffer is used and the last PDU to be retransmitted is transmitted.

Reference

25.322 clause 11.3.2.1.1.

7.2.3.16.3 Test purpose

- To verify that a poll is performed when only one PDU is available for retransmission, and the poll prohibit timer
 is function is not used.
- 2. To verify that a poll is performed when only one $P\underline{D}U$ is available for retransmission, and the poll prohibit timer is function is used, but inactive.

7.2.3.16.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit length indicator tests in clause 7.2.3.1.

The following RLC parameter values are used in place of the values in clause 7.2.3.1:

Uplink RLC		First run	Second run
Polling info			
Timer_poll_prof	hibit	disabled	200
Last transmission	on P <u>D</u> U poll	FALSE	FALSE
Last retransmis	sion PDU poll	TRUE	TRUE

These settings apply to both the uplink and downlink DTCH.

The Radio Bearer is placed in UE test loop mode 1 with the UL SDU size set to 31-(2 * AM_7_PayloadSize) - 1_bytes.

Test procedure

- a) The SS transmits an RLC SDU of length 63-(4 * AM 7 PayloadSize) 1 bytes to the UE.
- b) The SS checks the uplink RLC PDUs for a poll for status flag.
- c) The SS transmits a STATUS PDU negatively acknowledging the $\underline{\text{first}}$ uplink RLC PDUs as missing.
- d) The SS waits for the RLC PDUs to be retransmitted and then checks the uplink RLC PDUs for a poll for status flag.
- e) The SS may optionally release the radio bearer.

The test is repeated using the RLC parameters given in the Second run column of the configuration table for the initial conditions.

Step	Direction	Message	Comments
	UE SS		
1		RB ESTABLISHMENT	See generic procedures
2	←	DOWNLINK RLC PDU	SDU 1
3	←	DOWNLINK RLC PDU	SDU 1
4	←	DOWNLINK RLC PDU	SDU 1
5	←	DOWNLINK RLC PDU	SDU 1 + Poll
6	\rightarrow	STATUS PDU	
7	\rightarrow	UPLINK RLC PDU	SDU 1, SN=0
8	\rightarrow	UPLINK RLC PDU	SDU 1 <u>, SN=1</u>
9	←	STATUS PDU	NAK: SN=0 and SN=1
10			Wait for retransmission
11	\rightarrow	UPLINK RLC PDU	SDU 1
12 11	\rightarrow	UPLINK RLC PDU	SDU 1, SN=0 + Poll
13 12	←	STATUS PDU	
14 13		RB RELEASE	Optional step

7.2.3.16.5 Test requirements

The Poll bit shall be set in the AMD PDU header of the PDU returned in step 1211.

7.2.3.17 Polling for status / Poll every Poll_PDU PDUs

7.2.3.17.1 Definition

This case tests that the UE will poll for a status request every Poll_PDU PDUs when that mode is enabled. Incorrect operation of polling will cause degradation of service, or at worst service failure.

7.2.3.17.2 Conformance requirement

 $VT(P\underline{D}U)$ should be incremented for both new and retransmitted $P\underline{D}Us$. When it reaches $Poll_P\underline{D}U$ a new poll is transmitted and the state variable is set to zero.

The Polling bit shall be set to 1 if ... Every Poll_P $\underline{D}U$ P $\underline{D}U$ is used and when VT(P $\underline{D}U$)=Poll_P $\underline{D}U$

Reference

TS 25.322 clauses 9. 4, 9.6 and 11.3.2.1.1.

7.2.3.17.3 Test purpose

- 1. To verify that a poll is performed when VT(PDU) reaches Poll_PDU.
- 2. To verify $VT(P\underline{D}U)$ is incremented for both new and retransmitted $P\underline{D}Us$.

7.2.3.17.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit length indicator tests in clause 7.2.3.1.

The following RLC parameter values are used in place of the values in clause 7.2.3.1:

Uplink RLC	
Polling info	
Poll_PDU	4
Last transmission PDU poll	FALSE
Last retransmission PDU poll	FALSE

These settings apply to both the uplink and downlink DTCH.

The Radio Bearer is placed in UE test loop mode 1 with the UL SDU size set to AM_7_PayloadSize - 1_15-bytes.

Test procedure

Let the value of Poll_PDU be P:

- a) The SS sends 3 * P 2 RLC SDUs of size <u>AM_7_PayloadSize 1_45</u>-bytes to the UE in PDUs with sequence numbers that are contiguous, starting from zero.
- b) The SS checks the sequence numbers and polling bits of the RLC SDUs returned on the uplink.
- c) The SS sends a STATUS PDU negatively acknowledging two RLC PDUs with a sequence numbers of already received PDUs. The other PDUs are acknowledged as received correctly.
- d) The SS checks the sequence numbers and polling bits of the RLC SDUs returned on the uplink.
- e) The SS terminates the connection.

Step	Direction	Message	Comments
-	UE SS		
1	←	DOWNLINK RLC PDU	SDU 1
2	←	DOWNLINK RLC PDU	SDU 2
3	←		SS continues to transmit RLC SDUs
4	←	DOWNLINK RLC PDU	SDU 3P – 2
5 6	<i>→</i>	UPLINK RLC PDU UPLINK RLC PDU	SDU 1 SDU 2
7	\rightarrow		SS continues to receive RLC SDUs
8	\rightarrow	UPLINK RLC PDU	SDU P, Poll
9	-	STATUS PDU	NAK SN=0 and SN=1
10	\rightarrow	UPLINK RLC PDU	SDU 1
11	\rightarrow	UPLINK RLC PDU	SDU 2
12	\rightarrow	UPLINK RLC PDU	SDU P+1
13	\rightarrow		SS continues to receive RLC SDUs
14 15	\rightarrow	UPLINK RLC PDU	SDU 2P – 2, Poll
	\rightarrow		SS continues to receive RLC SDUs
16 17	\rightarrow	UPLINK RLC PDU RB RELEASE	SDU 3P – 2, Poll Optional step

The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity.

7.2.3.17.5 Test requirements

The SS shall receive a poll for status in the RLC PDUs sent on the uplink in steps 8, 14 and 16 above.

7.2.3.18 Polling for status / Poll every Poll_SDU SDUs

7.2.3.18.1 Definition

This case tests that the UE will poll for a status request every Poll_SDU SDUs when that mode is enabled. Incorrect operation of polling will cause degradation of service, or at worst service failure.

7.2.3.18.2 Conformance requirement

The state variable VT(SDU) is used when the poll every Poll_SDU SDU function is used. It is incremented with 1 for each SDU that is transmitted. When it reaches Poll_SDU a new poll is transmitted and the state variable is set to zero. The poll bit should be set in the PDU that contains the last segment of the SDU. The initial value of this variable is 0.

The Polling bit shall be set to 1 if \dots Every Poll_SDU is used and VT(SDU)=Poll_SDU and the PDU contains the last segment that SDU

Reference

TS 25.322 clauses 9. 4, 9.6 and 11.3.2.1.1.

7.2.3.18.3 Test purpose

- 1. To verify that a poll is performed when VT(SDU) reaches Poll SDU.
- 2. To verify that the poll is sent in the last PDU of the SDU.

7.2.3.18.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit length indicator tests in clause 7.2.3.1.

The following RLC parameter values are used in place of the values in clause 7.2.3.1:

Uplink RLC	
Polling info	
Last transmission PDU poll	FALSE
Poll_SDU	1

These settings apply to both the uplink and downlink DTCH.

The Radio Bearer is placed in UE test loop mode 1 with the UL SDU size set to 63-(4 * AM 7 PayloadSize) - 1 bytes.

Let the value of Poll_SDU be P.

- a) The SS sends 2 * P RLC SDUs of size <u>AM 7 PayloadSize 1 +15</u> bytes to the UE in PDUs with sequence numbers that are contiguous, starting from zero.
- b) The SS checks the sequence numbers and polling bits of the RLC SDUs returned on the uplink.
- c) The SS terminates the connection.

The test is repeated with Poll_SDU set to 64.

Expected sequence

Step	Direction		Message	Comments	
0.00	UE	SS	ssouge		
1	←		DOWNLINK RLC PDU	SDU 1	
2	←		DOWNLINK RLC PDU	SDU 2	
3	+			SS continues to transmit RLC SDUs	
4	←		DOWNLINK RLC PDU	SDU 2P	
5	_		UPLINK RLC PDU	SDU 1 Expanded to 63-(4 *	
6		>	UPLINK RLC PDU	AM 7 PayloadSize) - 1 bytes by test function	
7	=	>		SS continues to receive RLC SDUs	
8	-		UPLINK RLC PDU	SDU P, Poll	
9	←		STATUS PDU		
10	\rightarrow		UPLINK RLC PDU	SDU P+1 Expanded to (4 *	
11	-	>	UPLINK RLC PDU	AM 7 PayloadSize) - 1 63-bytes by test	
12				function	
12	=	>		SS continues to receive RLC SDUs	
13		>	UPLINK RLC PDU	SDU 2P, Poll	
14			RB RELEASE	Optional step	

The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity.

7.2.3.18.5 Test requirements

The UE shall return uplink PDUs that contain polls for status in sequence numbers 4 * P - 1 and 8 * P - 1. No other PDUs should poll for status.

7.2.3.19 Polling for status / Timer triggered polling (Timer_Poll_Periodic)

7.2.3.19.1 Definition

This case tests that the UE will poll for a status request every Timer_Poll_Periodic ms when that mode is enabled. Incorrect operation of polling will cause degradation of service, or at worst service failure.

7.2.3.19.2 Conformance requirement

Each time the timer expires, the timer is restarted and a poll is triggered (either by the transmission of a PDU which was not yet sent, or by a retransmission). If there is no PDU to be transmitted and all PDUs have already been acknowledged, a poll shall not be triggered and the timer shall only be restarted. The value of the timer is signalled by RRC.

The Polling bit shall be set to 1 if ... timer based polling is used and Timer_Poll_Periodic has expired.

Reference

TS 25.322 clauses 9.5 and 11.3.2.1.1.

7.2.3.19.3 Test purpose

- 1. To verify that the UE polls the SS in the next PDU to be transmitted or retransmitted each time the Timer_Poll_Periodic timer expires.
- 2. To verify that if there is no $P\underline{D}U$ to be transmitted, and all the $P\underline{D}U$ s have already been acknowledged, the timer is restarted, but no poll is sent.

7.2.3.19.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit length indicator tests in clause 7.2.3.1.

The following RLC parameter values are used in place of the values in clause 7.2.3.1:

Uplink RLC	First run	Second run
Polling info		
Last transmission PDU poll	FALSE	<u>FALSE</u>
Timer_poll_periodic	100	2000

These settings apply to both the uplink and downlink DTCH.

The Radio Bearer is placed in UE test loop mode 1 with the UL SDU size set to AM_7_PayloadSize - 1 15-bytes.

Test procedure

Let T be the value of Timer_Poll_Periodic:

- a) The SS waits for at least 2*T ms before starting any transmissions, and monitors the uplink.
- b) The SS sends T * 0.1 RLC SDUs of size AM_7_PayloadSize 1 15-bytes to the UE.
- c) The SS waits for the first PDU to be received with the P bit set, records the arrival time (T_1) and responds with a STATUS PDU normally.
- d) The SS waits for the reception of the next PDU with the P bit set, records the arrival time (T₂), and then transmits a STATUS PDU reporting that none of the unacknowledged uplink PDUs were correctly received, except for the PDU with SN= ceil(2T/TTI) which is acknowledged.

- e) The SS waits for the next PDU received with the P bit set, and records the arrival time (T₃).
- f) The SS waits for the reception of the next PDU with the P bit set and records the arrival time (T₄).
- g) The SS may optionally release the radio bearer.

Step	Direction	Message	Comments
ĺ	UE SS		
1	+	DOWNLINK RLC PDU	SDU 1
2	←		SS continues to transmit RLC SDUs
3	←	DOWNLINK RLC PDU	SDU 0.1T
4	\rightarrow	UPLINK RLC PDU	SDU 1
5	\rightarrow	UPLINK RLC PDU	SDU 2
6	\rightarrow		SS continues to receive RLC PDUs
7	\rightarrow	UPLINK RLC PDU	SN = ceil(T/TTI), Poll: Note T ₁
8	←	STATUS PDU	ACK SN 0 to SN ceil(T/TTI)
9	\rightarrow	UPLINK RLC PDU	SN = ceil(T/TTI)+1
10	\rightarrow		SS continues to receive RLC PDUs
11	\rightarrow	UPLINK RLC PDU	$SN = ceil(2T/TTI)$, Poll: Note T_2
12	←	STATUS PDU	NAK SN ceil(T/TTI)+1 to SN ceil(2T/TTI)-1
13	\rightarrow	UPLINK RLC PDU	PDUs including some retransmissions
14	\rightarrow	UPLINK RLC PDU	Ğ
15	\rightarrow		SS continues to receive RLC PDUs
16	\rightarrow	UPLINK RLC PDU	Poll: Note T ₃
17	(STATUS PDU	Normal
18	\rightarrow		SS continues to receive RLC PDUs
10	7		33 Continues to receive KLC PDUS
19	\rightarrow	UPLINK RLC PDU	Poll: Note T ₄
20		RB RELEASE	Optional step

The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity.

7.2.3.19.5 Test requirements

Time $T_2 - T_1$ should be $T \pm TTI ms$.

Time $T_3 - T_2$ should be T.

Time $T_4 - T_3$ should be $T \pm TTI ms$.

7.2.3.20 Polling for status / Polling on Poll_Window% of transmission window

7.2.3.20.1 Definition

This case tests that the UE will poll for a status request when it has reached Poll_Window% of the transmission window, when that mode is enabled. Incorrect operation of polling will cause degradation of service, or at worst service failure.

This test applies to all UE.

7.2.3.20.2 Conformance requirement

The Polling bit shall be set to 1 if ... Window based polling is used, , and J≥Poll_Window, where J is:

J≥Poll_Window, where J is the window transmission percentage defined by

$$J = \frac{(4096 + VT(S) - VT(A)) \text{ mod } 4096}{VT(WS)} * 100,$$

where the constant 4096 is the modulus for AM described in 3GPP TS 25.322 clause 9.4.

Reference

25.322 clauses 9.6 and 11.3.2.1.1.

7.2.3.20.3 Test purpose

1. To verify that the UE polls the SS once the window based polling equation is satisfied.

7.2.3.20.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit length indicator tests in clause 7.2.3.1.

The following RLC parameter values are used in place of the values in clause 7.2.3.1:

Uplink RLC	
Polling info	
Last transmission PDU poll	<u>FALSE</u>
Poll_Window	50
Transmission window size	8
Downlink RLC	
Receiving window size	8

These settings apply to both the uplink and downlink DTCH.

The Radio Bearer is placed in UE test loop mode 1 with the UL SDU size set to AM 7 PayloadSize - 1 15-bytes.

Test procedure

Let W be the size of the transmission window.

- a) The SS transmits (W/2) + 2 RLC SDUs of size AM 7 PayloadSize 1 15-bytes.
- b) The SS checks the sequence number of the first uplink PDU to be received with the P bit set.
- c) The SS sends another RLC SDU of size <u>AM_7_PayloadSize 1_15</u>-bytes.
- d) The SS checks the sequence number of the next uplink PDU to be received with the P bit set.
- e) The SS sends a STATUS PDU acknowledging the first two RLC PDUs received, followed by two further RLC SDUs.
- f) The SS checks the sequence number of the next uplink PDU to be received with the P bit set.
- g) The SS may optionally release the radio bearer.

Step	Direction	Message	Comments
-	UE SS		
1	←	DOWNLINK RLC PDU	SDU 1
2	←		SS continues to transmit RLC SDUs
3	←	DOWNLINK RLC PDU	SDU W/2+2
4	\rightarrow	UPLINK RLC PDU	SDU 1
5	\rightarrow	UPLINK RLC PDU	SDU 2
6	\rightarrow		SS continues to receive RLC PDUs
7	\rightarrow	UPLINK RLC PDU	SN = W/2+1, Poll
<u>38</u>	←	DOWNLINK RLC PDU	·
9	\rightarrow	UPLINK RLC PDU	SN = W/2+2, Poll
8 <u>10</u>	←	STATUS PDU	ACK SN 0 to 3
<u>311</u>	←	DOWNLINK RLC PDU	
3 12	←	DOWNLINK RLC PDU	
11 13	\rightarrow	UPLINK RLC PDU	SN = W/2+3
11 14	\rightarrow	UPLINK RLC PDU	SN = W/2+4, Poll
20 15		RB RELEASE	Optional step

The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity.

7.2.3.20.5 Test requirements

The SS shall receive RLC PDUs with the P bit set in PDUs with sequence numbers of 5, 6 and 8. No other PDUs should have their P bits set.

7.2.3.21 Polling for status / Operation of Timer_Poll timer / Timer expiry

7.2.3.21.1 Definition

This case tests that the UE will retransmit a poll for status if it does not receive a STATUS PDU within Timer_Poll ms after a poll for status is transmitted. Incorrect operation of polling will cause degradation of service, or possible service failure.

7.2.3.21.2 Conformance requirement

The Polling bit shall be set to 1 if any of following conditions are fulfilled except when the poll prohibit function is used and the timer Timer_Poll_Prohibit is active.

• • •

3) Poll timer is used and timer Timer_Poll has expired.

Upon expiry of the Timer_Poll the sender shall retransmit the poll. The poll can be retransmitted in either a new PDU or a retransmitted PDU.

Reference

TS 25.322 clauses 11.3.2.1.1 and 11.3.4.1.

7.2.3.21.3 Test purpose

1. To verify that if the timer expires and no STATUS PDU containing an acknowledgement or negative acknowledgement of the AMD PDUs up to that which triggered the timer has been received, the receiver is polled once more.

7.2.3.21.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit length indicator tests in clause 7.2.3.1.

The following RLC parameter values are used in place of the values in clause 7.2.3.1:

Uplink RLC	First run	Second run
Polling info		
Last transmission PDU poll	FALSE	FALSE
Timer_poll	500	1000
Timer_Poll_Periodic	2000	2000

These settings apply to both the uplink and downlink DTCH.

The Radio Bearer is placed in UE test loop mode 1 with the UL SDU size set to AM_7_PayloadSize - 1_45-bytes.

Test procedure

Let T be the value of the Timer_Poll_Periodic timer.

- a) The SS transmits at least 2 * T / TTI SDUs of size AM_7_PayloadSize 1 15-bytes.
- b) The SS receives PDUs from the UE, and notes the time on receiving the first PDU with the P bit set, but does not respond. This time will be recorded as T_1 .
- c) The SS continues to receive PDUs from the UE and notes the time on receipt of the next $P\underline{D}U$ with the P bit set. This time will be recorded as T_2 .
- d) The SS may optionally release the radio bearer.

The test case is run once for each set of initial RLC parameters.

Expected sequence

Step	Direction	Message	Comments
	UE SS		
1	+	DOWNLINK RLC PDU	SDU 1
2	←		SS continues to transmit RLC SDUs
3	←	DOWNLINK RLC PDU	SDU ceil(2T/TTI)
4	\rightarrow	UPLINK RLC PDU	SDU 1
5	\rightarrow	UPLINK RLC PDU	SDU 2
6	\rightarrow		SS continues to receive RLC PDUs
7	\rightarrow	UPLINK RLC PDU	SN = ceil(T/TTI), Poll: Note T ₁
8	\rightarrow	UPLINK RLC PDU	SN = ceil(T/TTI)+1
		or Environment	011 = 0011(1711)11
9	\rightarrow		SS continues to receive RLC PDUs
10	\rightarrow	UPLINK RLC PDU	Poll: Note T ₂
11		RB RELEASE	Optional step

The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity.

7.2.3.21.5 Test requirements

For the first run, the measured time $T_2 - T_1$ should be 500 ms ± 40 ms (TTI = 40 ms).

For the second run, the measured time $T_2 - T_1$ should be $1000 \, \underline{\text{ms}} \pm 40 \, \underline{\text{ms}}$.

7.2.3.22 Polling for status / Operation of Timer_Poll timer / Stopping Timer_Poll timer

7.2.3.22.1 Definition

This case tests that the UE will stop the Timer_Poll timer if it receives a STATUS PDU within Timer_Poll ms after a poll for status is transmitted. Incorrect operation of polling will cause degradation of service, or possible service failure.

7.2.3.22.2 Conformance requirement

The timer is stopped when receiving a STATUS PDU that contains an acknowledgement of all AMD PDUs with SN up to and including VT(S)-1 at the time the poll was submitted to lower layer, or when a negative acknowledgement of the same PDU is received.

Reference

TS 25.322 clause 9.5.

7.2.3.22.3 Test purpose

To verify that the <u>Timer Poll</u> timer is stopped when receiving a STATUS PDU that an acknowledgement
 <u>acknowledges of</u> all AMD PDUs with SN up to and including VT(S)-1 at the time the poll was transmitted-(or a
 <u>negative acknowledgement of the same PU</u>).

7.2.3.22.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit length indicator tests in clause 7.2.3.1.

The following RLC parameter values are used in place of the values in clause 7.2.3.1:

Uplink RLC	First run	Second run
Polling info		
Last transmission PDU poll	<u>FALSE</u>	<u>FALSE</u>
Timer_poll	500	1000
Timer_Poll_Periodic	2000	2000

These settings apply to both the uplink and downlink DTCH.

The Radio Bearer is placed in UE test loop mode 1 with the UL SDU size set to AM_7_PayloadSize - 1 15-bytes.

Test procedure

Let T be the value of the Timer_Poll_Periodic timer.

- a) The SS transmits at least 2 * T / TTI SDUs of size AM 7 PayloadSize 1 15 bytes.
- b) The SS receives PDUs from the UE, and notes the time on receiving the first PDU with the P bit set. This time will be recorded as T₁.
- c) The SS sends a STATUS PDU acknowledging all the PDUs up to and including the PDU carrying the poll request.

- d) The SS continues to receive PDUs from the UE and notes the time on receipt of the next $P\underline{D}U$ with the P bit set. This time will be recorded as T_2 .
- e) The SS may optionally release the radio bearer.

Step	Direction	Message	Comments
	UE SS		
1	+	DOWNLINK RLC PDU	SDU 1
2	←		SS continues to transmit RLC SDUs
3	←	DOWNLINK RLC PDU	SDU ceil(2T/TTI)
4	\rightarrow	UPLINK RLC PDU	SDU 1
5	\rightarrow	UPLINK RLC PDU	SDU 2
6	\rightarrow		SS continues to receive RLC PDUs
7	\rightarrow	UPLINK RLC PDU	$SN = ceil(T/TTI)$, Poll: Note T_1
8	←	STATUS PDU	ACK SN 0 to SN ceil(T/TTI)
9	\rightarrow	UPLINK RLC PDU	SN = ceil(T/TTI)+1
10	\rightarrow		SS continues to receive RLC PDUs
11	\rightarrow	UPLINK RLC PDU	$SN = ceil(2T/TTI)$, Poll: Note T_2
12		RB RELEASE	Optional step

The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity.

7.2.3.22.5 Test requirements

For both execution runs, the measured time $T_2 - T_1$ should be 2000 $ms \pm 40 ms$ (TTI = 40ms).

7.2.3.23 Polling for status / Operation of Timer_Poll timer / Restart of the Timer_Poll timer

7.2.3.23.1 Definition

This case tests that the UE will restart the Timer_Poll timer if another poll request is transmitted whilst the timer is running. Incorrect operation of polling will cause degradation of service, or possible service failure.

This test applies to all UE.

7.2.3.23.2 Conformance requirement

If a new poll is sent when the timer is running it is restarted, with a new value of VT(S)-1.

Reference

TS 25.322 clause 9.5.

7.2.3.23.3 Test purpose

1. To verify that if a new poll is sent when the timer is running it is restarted.

7.2.3.23.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit length indicator tests in clause 7.2.3.1.

The following RLC parameter values are used in place of the values in clause 7.2.3.1:

Uplink RLC	
Polling info	
Last transmission PDU poll	FALSE
Timer_poll	200
Poll_PDU	8
———Poll_SDU	N/A

These settings apply to both the uplink and downlink DTCH.

The Radio Bearer is placed in UE test loop mode 1 with the UL SDU size set to AM 7 PayloadSize - 1 15-bytes.

Test procedure

Let T be the value of the Timer_Poll timer.

- a) The SS starts transmission of at least 2*Poll_PDU + ceil(T / TTI) numbers of SDUs of size <u>AM_7_PayloadSize_115</u>-bytes.
- b) Whilst transmitting, the SS receives PDUs from the UE, and notes the time on receiving the third PDU with the P bit set. This time will be recorded as T₁.
- c) The SS sends a STATUS PDU acknowledging all the PDUs <u>received so far.up to, but not including the PDU carrying the poll request.</u>
- d) The SS continues to receive PDUs from the UE and notes the time on receipt of the next or fourth $P\underline{D}U$ with the P bit set. This time will be recorded as T_2 .
- e) The SS may optionally release the radio bearer.

Step	Direction	Message	Comments
	UE SS		
1	+	DOWNLINK RLC PDU	SDU 1
2	←		SS continues to transmit RLC SDUs
3	←	DOWNLINK RLC PDU	2* Poll_PDU + ceil(T / TTI) numbers of
4	\rightarrow	UPLINK RLC PDU	SDUs are sent.
5	\rightarrow	UPLINK RLC PDU	SDU 2
5	,	OFLINK REC FDO	350 2
6	\rightarrow		SS continues to receive RLC PDUs
7	\rightarrow	UPLINK RLC PDU	SN = poll_PDU - 1, 1 st Poll, Timer_Poll started
8	\rightarrow		SS continues to receive RLC PDUs
9	\rightarrow	UPLINK RLC PDU	SN = poll_PDU-1+ceil(T /TTI), 2 nd Poll,
10	\rightarrow	UPLINK RLC PDU	Timer_Poll expired and again started SS continues to receive RLC PDUs
11	\rightarrow	UPLINK RLC PDU	SN= 2*Poll_PDU-1, 3 rd Poll, Timer_Poll restarted: Note T1
12	←	STATUS PDU	ACK SN 0 to SN = 2*Poll_PDU-12
13	\rightarrow	UPLINK RLC PDU	SN = 2*Poll_PDU
14			
	\rightarrow		SS continues to receive RLC PDUs
15	\rightarrow	UPLINK RLC PDU	SN = 2*Poll_PDU + ceil(T / TTI) -1, 4th Poll, Timer_Poll expired: Note T ₂
16		RB RELEASE	Optional step

The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity.

7.2.3.23.5 Test requirements

The measured time $T_2 - T_1$ should be $200 \text{ ms} \pm 40 \text{ ms} (TTI = 40 \text{ms})$.

7.2.3.24 Polling for status / Operation of timer Timer_Poll_Prohibit

7.2.3.24.1 Definition

This case tests that the UE will not send a poll request within Timer_Poll_Prohibit ms of a previous poll request when this mode of operation is enabled. Incorrect operation of polling will cause degradation of service, or possible service failure.

7.2.3.24.2 Conformance requirement

This timer is only used when the poll prohibit function is used. It is used to prohibit transmission of polls within a certain period. The timer shall be started when the successful or unsuccessful transmission of a PDU containing a poll is indicated by lower layer (in UE) or a PDU containing a poll is submitted to lower layer (in UTRAN). The prohibit time is calculated from the time a PDU containing a poll is submitted to lower layer until the timer has expired. A poll shall be delayed until the prohibit time expires if a poll is triggered during the prohibit time. Only one poll shall be transmitted when the prohibit time expires even if several polls were triggered during the prohibit time. This timer will not be stopped by a received STATUS PDU.

The Polling bit shall be set to 1 if any of conditions in 3GPP TS 25.322 clause 11.3.2.1.1 are fulfilled except when the poll prohibit function is used and the timer Timer_Poll_Prohibit is active.

Reference

TS 25.322 clauses 9.5 and 11.3.2.1.1.

7.2.3.24.3 Test purpose

- 1. To verify that no poll is transmitted if one or several polls are triggered when the Timer_Poll_Prohibit timer is active and has not expired.
- 2. To verify that the UE polls only once after Timer Poll Prohibit expires even though triggered several times during the prohibit time.

7.2.3.24.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit length indicator tests in clause 7.2.3.1.

The following RLC parameter values are used in place of the values in clause 7.2.3.1:

Uplink RLC	
Polling info	
Timer_poll_prohibit	500
Last transmission PDU poll	<u>FALSE</u>
Poll_PU	8
—— Poll_SDU	N/A
Poll_Window	50
Timer_poll_periodic	400
Transmission window size	32
Downlink RLC	
Receiving window size	32

These settings apply to both the uplink and downlink DTCH.

The Radio Bearer is placed in UE test loop mode 1 with the UL SDU size set to AM_7_PayloadSize - 1 15-bytes.

Test procedure

Let T be the value of the Timer_Poll_Prohibit timer.

- a) The SS starts transmission of at least (Transmission Window Size / 22*Poll_PDU) + ceil(T / TTI) SDUs of size AM_7_PayloadSize 1_15-bytes.
- b) Whilst transmitting, the SS receives PDUs from the UE, and notes the time on receiving the first PDU with the P bit set. This time will be recorded as T₁.
- c) The SS does not respond to the poll request.
- d) The SS continues to receive PDUs from the UE and notes the time on receipt of the next $P\underline{D}U$ with the P bit set. This time will be recorded as T_2 .
- e) The SS may optionally release the radio bearer.

Step	Direction	Message	Comments
	UE SS		
1	+	DOWNLINK RLC PDU	SDU 1
2	←		SS continues to transmit RLC SDUs
3	←	DOWNLINK RLC PDU	SDU (Transmission window Size/2(2*Poll_PDU)+ ceil(T/TTI)
4	\rightarrow	UPLINK RLC PDU	SDU 1
5	\rightarrow	UPLINK RLC PDU	SDU 2
6	\rightarrow		SS continues to receive RLC PDUs
7	\rightarrow	UPLINK RLC PDU	SN = Poll_PDU - 1, Poll: Note T ₁
8	\rightarrow		SS continues to receive RLC PDUs
9	\rightarrow	UPLINK RLC PDU	SN = ceil(Timer_poll_periodic/TTI) -1, No
10	\rightarrow	UPLINK RLC PDU	SN = (Transmission Window Size / 2) - 1, No Poll
11	\rightarrow		SS continues to receive RLC PDUs
12	\rightarrow	UPLINK RLC PDU	SN = pollPoll_PDU + ceil(T/TTI) - 1, Poll: Note T ₂
13		RB RELEASE	Optional step

The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity.

7.2.3.24.5 Test requirements

- 1. The measured time $T_2 T_1$ should be $500 \text{ ms} \pm 40 \text{ ms}$ (TTI = 40 ms).
- 2. Only one poll shall be received from the UE in step 12.
- 3. After step 12 no further poll shall be received from the UE for the next 500 ms.

7.2.3.25 Receiver Status Triggers / Detection of missing PDUs

7.2.3.25.1 Definition

This case tests that the UE transmits a status report whenever it detects that a PDU is missing, if this mode of operation is enabled. Incorrect operation of status reporting will cause degradation of service, or possible service failure.

7.2.3.25.2 Conformance requirement

The receiver in any of following cases initiates this procedure ... Detection of missing PDUs is used and a missing PDU is detected.

Reference

TS 25.322 clause 11.5.2.

7.2.3.25.3 Test purpose

1. To verify that a status report is transmitted if there are one or more missing PDUs.

7.2.3.25.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit length indicator tests in clause 7.2.3.1.

These settings apply to both the uplink and downlink DTCH.

Test procedure

- a) The SS transmits 7 SDUs, each of size AM 7 PayloadSize 1 15 bytes, in PDUs with consecutive sequence numbers starting from 0, followed by 5 SDUs in PDUs with consecutive sequence numbers starting from 8, followed by an SDU in a PDU with a sequence number of 15.
- b) While transmitting, the SS monitors the uplink for STATUS PDUs.
- c) The SS may optionally release the radio bearer

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		DOWNLINK RLC PDU	SN = 0
2	←			SS continues to transmit RLC SDUs
3	←		DOWNLINK RLC PDU	SN = 6
4			DOWNLINK RLC PDU	SN = 8
5	\rightarrow		STATUS PDU	
6	←		DOWNLINK RLC PDU	
7	←			SS continues to receive RLC PDUs
8	←		DOWNLINK RLC PDU	SN = 12
9	←		DOWNLINK RLC PDU	SN = 15
10	\rightarrow		STATUS PDU	
11			RB RELEASE	Optional step

7.2.3.25.5 Test requirements

A STATUS PDU should be received from the UE after step 4, indicating that the PDU with sequence number 7 was missing.

A STATUS PDU should be received from the UE after step 9, indicating that the PDUs with sequence numbers 13 and 14 were missing.

7.2.3.26 Receiver Status Triggers / Operation of timer Timer_Status_Periodic

7.2.3.26.1 Definition

This case tests that the UE transmits a status report every Timer_Status_Periodic ms when this mode of operation is enabled. Incorrect operation of status reporting will cause degradation of service, or possible service failure.

7.2.3.26.2 Conformance requirement

The timer is started when the successful or unsuccessful transmission of the last STATUS PDU in a status report is indicated by lower layer.

The receiver in any of following cases initiates this procedure ... The timer based STATUS transfer is used and the timer Timer_Status_Periodic has expired.

Reference

TS 25.322 clauses 9.5, 9.7.2 and 11.5.2.

7.2.3.26.3 Test purpose

1. To verify that a status report is transmitted each time the Timer_Status_Periodic timer expires.

7.2.3.26.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit length indicator tests in clause 7.2.3.1.

The following RLC parameter values are used in place of the values in clause 7.2.3.1:

Downlink RLC	
Timer_STATUS_periodic	100

These settings apply to both the uplink and downlink DTCH.

Test procedure

Let T be the value of the Timer_STATUS_periodic timer.

- a) The SS starts transmission of at least ceil(2 * T / TTI) SDUs of size AM 7 PayloadSize 1 15 bytes.
- b) The SS waits to receive a STATUS PDU and notes the time. This time will be recorded as T₁.
- c) The SS waits to receive a second STATUS PDU and notes the time. This time will be recorded as T_2 .
- d) The SS may optionally release the radio bearer.

Expected sequence

Step	Direction	Message	Comments
	UE SS		
1	+	DOWNLINK RLC PDU	SDU 1
2	←		SS continues to transmit RLC SDUs
3 4 5	← → ←	DOWNLINK RLC PDU STATUS PDU DOWNLINK RLC PDU	SDU ceil(T/TTI)-1 Note T ₁
6	←		SS continues to receive RLC PDUs
7 8 9	← →	DOWNLINK RLC PDU STATUS PDU RB RELEASE	SDU ceil(2T/TTI)-1 Note T ₂ Optional step

7.2.3.26.5 Test requirements

The measured time $T_2 - T_1$ should be 100 ms ± 40 ms (TTI = 40ms).

7.2.3.27 Receiver Status Triggers / Operation of timer Timer_Status_Prohibit

7.2.3.27.1 Definition

This case tests that the UE transmits a status report every Timer_Status_Prohibit ms when this mode of operation is enabled. Incorrect operation of status reporting will cause degradation of service, or possible service failure.

7.2.3.27.2 Conformance requirement

The sending of a status report shall be delayed, if ... STATUS prohibit is used and the timer Timer_Status_Prohibit is active.

The status report shall be transmitted after the Timer_Status_Prohibit has expired. The receiver shall send only one status report, even if there are several triggers when the timer is active. The rules for when the timer Timer_status_Prohibit is active are defined in 3GPP TS 25.322 clause 9.5.

Reference

TS 25.322 clause 11.5.2.

7.2.3.27.3 Test purpose

- 1. To verify that a status report is not transmitted while the Timer_Status_Prohibit timer is active.
- 2. To verify that only one status report is sent on the expiry of the Timer_Status_Prohibit timer if several triggers occur while it is active.

7.2.3.27.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit length indicator tests in clause 7.2.3.1.

The following RLC parameter values are used in place of the values in clause 7.2.3.1:

Downlink RLC		
Timer_Status_P	rohibit	500
Timer_STATUS	_periodic	200

These settings apply to both the uplink and downlink DTCH.

Test procedure

Let T_{pro} be the value of the Timer_Status_Prohibit timer, and T_{per} be the value of the Timer_Status_Periodic timer.

- a) The SS starts transmission of at least ceil(2 * T_{pro} / TTI) + ceil(T_{per}/TTI) SDUs of size <u>AM 7 PayloadSize 1 15</u> bytes.
- b) Whilst transmitting, the SS monitors the uplink for a STATUS PDU and notes the time. This time will be recorded as T_1 .
- c) The SS sets the P bit in a downlink PDU transmitted within the next floor(T_{pro}/TTI) PDUs.
- d) The SS waits to receive a second STATUS PDU and notes the time. This time will be recorded as T₂.
- e) The SS may optionally release the radio bearer.

Step	Direction	Message	Comments
	UE SS		
1	+	DOWNLINK RLC PDU	SDU 1
2	←		SS continues to transmit RLC SDUs
3 4 5	← → ←	DOWNLINK RLC PDU STATUS PDU DOWNLINK RLC PDU	SDU ceil(T _{per} /TTI) Note T ₁ Poll
6	←		SS continues to transmit RLC PDUs
7 8 9	← →	DOWNLINK RLC PDU STATUS PDU RB RELEASE	SDU ceil(T _{pro} / TTI) + ceil(T _{per} /TTI) Note T ₂ Optional step

7.2.3.27.5 Test requirements

- 1. The measured time $T_2 T_1$ should be $500 \text{ ms} \pm 40 \text{ ms}$ (TTI = 40 ms).
- 2. Only one STATUS PDU shall be received in step 8, after Timer_Status_Prohibit expiry.

7.2.3.28 Status reporting / Abnormal conditions / Reception of LIST SUFI with Length set to zero

7.2.3.28.1 Definition

Peer RLCs use STATUS PDUs to manage flow control and retransmission. On a STATUS report PDU with an invalid LIST SUFI the RLC must behave as specified. Incorrect behaviour may result in degradation of QoS, or failure of the UE to communicate.

7.2.3.28.2 Conformance requirement

The LENGTH field of the LIST SUFI is defined as:

The number of (SN_i, L_i) -pairs in the super-field of type LIST. The value "0000" is invalid and the list is discarded.

Reference

TS 25.322 clause 9.2.2.11.4.

7.2.3.28.3 Test purpose

To verify that if a STATUS PDU is received with a LIST SUFI and the LENGTH field is set to "0000" that the list is discarded.

7.2.3.28.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit length indicator tests in clause 7.2.3.1.

The following RLC parameter values are used in place of the values in clause 7.2.3.1:

Uplink RLC	
Polling info	
Poll_PDU	1084

These settings apply to both the uplink and downlink DTCH.

The Radio Bearer is placed in UE test loop mode 1 with the UL SDU size set to (2 * Poll PDU * AM 7 PayloadSize) – 1 500 bytes.

Test procedure

- a) The SS sends an SDU of size (2 * Poll PDU * AM 7 PayloadSize) 1.
- b) The SS monitors the received (looped back) PDUs for a poll request.
- c) The SS responds to the poll request by transmitting a STATUS PDU with a LIST SUFI. The list contains an indication that two PDUs were not received, but has the length field set to "0000".
- d) The SS continues to monitor the received PDUs to verify that none are retransmitted.
- e) The SS may optionally release the radio bearer.

Expected sequence

Step	Direction	Message	Comments
	UE SS		
1	+	DOWNLINK RLC PDU	SDU 1 (start)
2	←		SS continues to transmit RLC PDUs
3	←	DOWNLINK RLC PDU	SDU 1 (end)
4	\rightarrow	UPLINK RLC PDU	SDU 1 (start)
5	\rightarrow	UPLINK RLC PDU	
6	→		SS continues to receive RLC PDUs
7	\rightarrow	UPLINK RLC PDU	SN = Poll PDU - 1, Poll
<u>38</u>	-	STATUS PDU	LIST(LENGTH = "0000", SN = 1, SN = 2)
<u>89</u>	→		SS continues to receive RLC PDUs
9 10	\rightarrow	UPLINK RLC PDU	Poll
<u>311</u>	←	STATUS PDU	Normal reply
11 12	→		SS continues to receive RLC PDUs
12 13	\rightarrow	UPLINK RLC PDU	SDU 1 (end)
13 14		RB RELEASE	Optional step
NOTE	The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity.		

7.2.3.28.5 Test requirements

No RLC PDUs should be retransmitted by the UE.

7.2.3.29 Timer based discard, with explicit signalling / Expiry of Timer_Discard

7.2.3.29.1 Definition

This case tests that when the transmission of an SDU exceeds a time limit, the SDU is discarded by the sender, and the discard is signalled to the receiver. SDU discard is used to keep network delays within limits, and incorrect operation will effect the quality of service.

7.2.3.29.2 Conformance requirement

If the transmission time exceeds a predefined value for a SDU in acknowledged mode RLC, this SDU is discarded in the transmitter and a Move Receiving Window (MRW) command is sent to the receiver so that AMD PDUs carrying that SDU are discarded in the receiver and the receiver window is updated accordingly.

This procedure is initiated by the sender when the following conditions are fulfilled ... Timer based SDU discard with explicit signalling is used, and Timer_Discard expires for an SDU.

This status report is sent even if the 'STATUS prohibit' is used and the timer 'Timer_Status_Prohibit' is active.

The STATUS PDUs have higher priority than data PDUs.

Reference

TS 25.322 clauses 9.7.3.1, 11.3.4.3.1 and 11.6.

7.2.3.29.3 Test purpose

- 1. To verify that if the transmission time for an SDU exceeds Timer_Discard, the SDU is discarded in the transmitter and the MRW procedure is invoked.
- 2. ...

7.2.3.29.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit length indicator tests in clause 7.2.3.1.

The following RLC parameter values are used in place of the values in clause 7.2.3.1:

Uplink RLC	
Transmission RLC discard	
Timer based with explicit signalling	
Timer_MRW	500
Timer_Discard	1000
— MaxMRW	4
— Polling info	
— Timer_poll_periodic	100
Downlink RLC	
— Timer_Status_Prohibit	1000
— Timer_STATUS_periodic	100

These settings apply to both the uplink and downlink DTCH.

The Radio Bearer is placed in UE test loop mode 1 with the UL SDU size set to AM 7 PayloadSize - 1 55 bytes.

Test procedure

- a) The SS sends at least 2 RLC SDUs of size <u>AM_7_PayloadSize 1_15</u> bytes.
- b) Whilst transmitting, the The SS notes the time that the first RLC PDU is received on the uplink. This time will be recorded as T₁.
- c) The SS checks the RLC PDUs received on the uplink and responds to all poll requests with a STATUS PDU, negatively acknowledging the RLC PDU with sequence number 0, and positively acknowledging all other RLC PDUs received.
- d) The SS continues sending AM_7_PayloadSize 1_15 byte RLC SDUs with poll requests.
- ed) The SS monitors received STATUS PDUs for the presence of a MRW SUFI, noting the time it was received. This time will be recorded as T_2 .
- **fe**) The SS responds to the MRW command with a correct MRW_ACK.
- gf) The SS checks any RLC SDUs reassembled from the uplink.

hg) The SS may optionally release the radio bearer.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	+	•	DOWNLINK RLC PDU	SDU 1
2	←	•	DOWNLINK RLC PDU	SDU 2
3	<	-		SS continues to send RLC PDUs
4 <u>3</u>	\rightarrow	•	UPLINK RLC PDU	SDU 1: Note T ₁
<u>54</u>	\rightarrow	•		SS continues to receive RLC PDUs
6 5	\rightarrow	•	UPLINK RLC PDU	SDU 2 + Poll
7 6	←	•	STATUS PDU	NAK SN=0
8		-	DOWNLINK RLC PDU	Poll
9 <u>7</u>	→	•		SS continues to receive RLC PDUsPDU with SN=0 + Poll
10	\rightarrow	-	UPLINK RLC PDU	Poll
11 8	←	•	STATUS PDU	STATUS PDU, SS continues to NAK PDU with SN=0
12		-	DOWNLINK RLC PDU	SDU 3
13	\rightarrow	-		SS continues to receive RLC PDUs
14 9	→	•	STATUS PDU	MRW Command: Note T ₂
15 10	←		STATUS PDU	MRW_ACK
16 11			RB RELEASE	Optional step

7.2.3.29.5 Test requirements

- 1. The measured time $T_2 T_1$ should be $1000 \text{ ms} \pm 40 \text{ ms} (TTI = 40 \text{ms})$.
- 2. The STATUS PDU received in step <u>14-9</u> shall contain a MRW SUFI indicating that the first three PDUs should be discarded, and that the data indicated in the fourth PDU by the first LI should also be discarded.

7.2.3.29a Timer based discard, with explicit signalling / Expiry of Timer_Discard when Timer_STATUS_prohibit is active

7.2.3.29a.1 Definition

This case tests that when the transmission of an SDU exceeds a time limit, the SDU is discarded by the sender, and the discard is signalled to the receiver while the Timer_STATUS_Prohibit is active. SDU discard is used to keep network delays within limits, and incorrect operation will effect the quality of service.

This test applies to all UE.

7.2.3.29a.2 Conformance requirement

If the transmission time exceeds a predefined value for a SDU in acknowledged mode RLC, this SDU is discarded in the transmitter and a Move Receiving Window (MRW) command is sent to the receiver so that AMD PDUs carrying that SDU are discarded in the receiver and the receiver window is updated accordingly.

Upon expiry of Timer_Discard the sender shall initiate the SDU discard with explicit signalling procedure.

This status report is sent even if the 'STATUS prohibit' is used and the timer 'Timer_Status_Prohibit' is active.

The STATUS PDUs have higher priority than data PDUs.

Reference

TS 25.322 clauses 9.7.3.1, 11.3.4.3.1 and 11.6.

7.2.3.29a.3 Test purpose

- 1. ...
- 2. To verify that the MRW procedure status report is sent even if the 'STATUS prohibit' is used and the timer 'Timer_Status_Prohibit' is active.

7.2.3.29a.4 Method of test

TBD

7.2.3.29a.5 Test requirements

TBD

7.2.3.30 Timer based discard, with explicit signalling / Obsolete MRW_ACK

7.2.3.30.1 Definition

This case tests the ability of the receiving AM RLC entity to handle obsolete information that can be received during a failure of the SDU discard procedure. SDU discard is used to keep network delays within limits, and incorrect operation will effect the quality of service.

7.2.3.30.2 Conformance requirement

If Timer_MRW expires before the discard procedure is terminated,the MRW SUFI shall be retransmitted, VT(MRW) is incremented by one and Timer_MRW restarted. MRW SUFI shall be exactly the same as previously transmitted even though some new SDUs would have been discarded during the running of the Timer_MRW.

The received MRW_ACK shall be discarded in the following cases.

- 1. ...
- 2. If the SN_ACK field in the received MRW_ACK < SN_MRW_LENGTH in the transmitted MRW SUFI.
- 3. If the SN_ACK field in the received MRW_ACK is equal to the SN_MRW_{LENGTH} in the transmitted MRW SUFI and the N field in the received MRW_ACK is not equal to the N_{LENGTH} field in the transmitted MRW SUFI
- 4. If the SN_ACK field in the received MRW_ACK > SN_MRW_LENGTH in the transmitted MRW SUFI and the N field in the received MRW_ACK is not equal to zero.

Reference

TS 25.322 clauses 11.6.5 and 11.6.6.3.

7.2.3.30.3 Test purpose

- 1. To verify that the MRW SUFI is retransmitted if Timer_MRW expires before a valid MRW_ACK is received.
- 2. To verify that the MRW_ACK is discarded if the SN_ACK field < SN_MRW_{LENGTH}.
- 3. To verify that the MRW_ACK is discarded if the N field is not equal to N_{LENGTH} transmitted in the MRW SUFI.
- 4. To verify that the MRW_ACK is discarded if the N field is not zero and the SN_ACK field > SN_MRW_LENGTH in the transmitted MRW SUFI.

7.2.3.30.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit length indicator tests in clause 7.2.3.1.

The following RLC parameter values are used in place of the values in clause 7.2.3.1:

Uplink RLC	
Transmission RLC discard	
MaxDAT Retransmissions	
MaxDAT	<u>40</u>
Timer based with explicit signalling	
Timer_MRW	500
Timer_Discard	1000
MaxMRW	4
— Polling info	
Timer_poll_periodic	100

These settings apply to both the uplink and downlink DTCH.

The Radio Bearer is placed in UE test loop mode 1 with the UL SDU size set to AM 7 PayloadSize - 1 55-bytes.

Test procedure

- a) The SS sends at least 2 RLC SDUs of size AM_7_PayloadSize 1_15-bytes.
- b) The SS checks the RLC PDUs received on the uplink and responds to all poll requests with a STATUS PDU, negatively acknowledging the RLC PDU with sequence number 0, and positively acknowledging all other RLC PDUs received.
- c) The SS continues sending AM 7 PayloadSize 1 15 byte RLC SDUs with poll requests.
- $\underline{\text{dc}}$) The SS monitors received STATUS PDUs for the presence of a MRW SUFI, noting the time it was received. This time will be recorded as T_1 .
- \underline{ed}) The SS responds to the MRW command with an MRW_ACK with the SN_ACK field set to SN_MRW_LENGTH 1.
- $\underline{\text{fe}}$) The SS monitors received STATUS PDUs for another MRW SUFI, noting the time it was received. This time will be recorded as T_2 .
- gf) The SS responds to the MRW command with an MRW_ACK with the SN_ACK field set to SN_MRW_LENGTH, and the N field set to $(N_{LENGTH} \pm 1) \mod 4$.
- $\frac{\text{hg}}{\text{g}}$ The SS monitors received STATUS PDUs for another MRW SUFI, noting the time it was received. This time will be recorded as T_3 .
- ih) The SS responds to the MRW command with an MRW_ACK with the SN_ACK field set to SN_MRW_LENGTH + 1, and the N field set to 1.
- †i) The SS monitors received STATUS PDUs for another MRW SUFI.
- ki) The SS responds to the MRW command with a correct MRW_ACK.
- 1k) The SS may optionally release the radio bearer.

Step	Direction	Message	Comments
	UE SS		
1	←	DOWNLINK RLC PDU	SDU 1
2	←	DOWNLINK RLC PDU	SDU 2
	_		
3	\leftarrow		SS continues to send RLC PDUs
43	\rightarrow	UPLINK RLC PDU	SDU 1
42		OF EINIX REG F DO	350 1
5	\rightarrow		SS continues to receive RLC PDUs
<u>64</u>	\rightarrow	UPLINK RLC PDU	SDU 2 + Poll
7 5	←	STATUS PDU	NAK SN=0
8		DOWNLINK RLC PDU	Poll
06	\rightarrow		SS continues to receive RLC PDUsPDU with
9 6	7		SN=0 + Poll
			<u> </u>
10	\rightarrow	UPLINK RLC PDU	Poll
11 7	←	STATUS PDU	STATUS PDU, SS continues to NAK PDU
			with SN=0
12	\leftarrow	DOWNLINK RLC PDU	SDU 3
	_		
13	\rightarrow		SS continues to receive RLC PDUs
14 8	\rightarrow	STATUS PDU	MRW Command: Note T ₁
159	É	STATUS PDU	MRW_ACK, SN_ACK = SN_MRW _{LENGTH} - 1
16 10	$\stackrel{\cdot}{ o}$	STATUS PDU	MRW Command: Note T ₂
17 11	É	STATUS PDU	MRW_ACK, N field = $(N_{LENGTH} + 1)$ modulo
	-		4NLENGTH1
18 12	\rightarrow	STATUS PDU	MRW Command: Note T ₃
19 13	←	STATUS PDU	MRW_ACK, SN_ACK = SN_MRW _{LENGTH} +
			1, N field = 1
20 14	\rightarrow	STATUS PDU	MRW Command
21 15	←	STATUS PDU	MRW_ACK
22 16		RB RELEASE	Optional step

7.2.3.30.5 Test requirements

- 1. The measured time $T_2 T_1$ should be 500 ms.
- 2. The measured time $T_3 T_2$ should be 500 ms.
- 3. The STATUS PDUs received in steps-14_8, 16_10, 12 and 18_14 shall contain an identical MRW SUFI. indicating that the first three PDUs should be discarded, and that the data indicated in the fourth PDU by the first LI should also be discarded.

7.2.3.31 Timer based discard, with explicit signalling / Failure of MRW procedure

7.2.3.31.1 Definition

This case tests that if a failure occurs during the signalling of an SDU discard to the receiver, the retransmission protocol operates correctly. SDU discard is used to keep network delays within limits, and incorrect operation will effect the quality of service.

7.2.3.31.2 Conformance requirement

If the number of retransmission of a MRW command (i.e. VT(MRW)) reaches MaxMRW, an error indication shall be passed to RRC and RESET procedure shall be performed.

Reference

TS 25.322 clause 11.6.6.2.

7.2.3.31.3 Test purpose

1. To verify that when the number of retransmissions of a MRW command reaches MaxMRW, an error indication is passed to RRC and RESET procedure is initiated.

7.2.3.31.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit length indicator tests in clause 7.2.3.1.

The following RLC parameter values are used in place of the values in clause 7.2.3.1:

Uplink RLC		
Transmission RLC discard		
MaxDAT Retransmissions		
MaxDAT	40, See Note	
Timer based with explicit signalling		
Timer_MRW	500	
Timer_Discard	500	
MaxMRW	4	
Polling info		
Poll_P <u>D</u> U	2	
Note. MaxDat is set to 40 to avoid SDU discard during the test due to VT(DAT)		
≥ MaxDAT.		

These settings apply to both the uplink and downlink DTCH.

The Radio Bearer is placed in UE test loop mode 1 with the UL SDU size set to 31-(2 * AM_7_PayloadSize) - 1_bytes.

Test procedure

- a) The SS sends 4 RLC SDUs of size 31-(2 * AM 7 PayloadSize) 1 bytes.
- b) The SS checks the RLC PDUs received on the uplink and responds to all poll requests as follows: While the VR(H) is 4 or less, with a STATUS PDU, negatively acknowledging the RLC PDU with sequence number 0, and positively acknowledging all other RLC PDUs received. While the VR(H) is greater than 4, a STATUS PDU negatively acknowledging RLC PDUs with sequence numbers 0 and 4, and positively acknowledging all others.
- c) The SS monitors received STATUS PDUs for the presence of an MRW SUFI, noting the time it was received. This time will be recorded as T_1 .
- d) The SS makes no response, but monitors for the next STATUS PDU containing an MRW SUFI, noting the time it was received. This time will be recorded as T₂.
- e) The SS sends a STATUS PDU with an MRW_ACK indicating the discard of SDU 1 moving VR(R) to 4.
- f) The SS monitors for further STATUS PDUs containing an MRW SUFI, or for a RESET PDU. The SS records the number of STATUS PDUs it received with MRW SUFI before it received the RESET PDU.
- g) The SS checks any RLC SDUs reassembled from the uplink.
- h) The SS may optionally release the radio bearer.

Step	Direction	Message	Comments
-	UE SS	_	
1	←	DOWNLINK RLC PDU	SDU 1
2	←	DOWNLINK RLC PDU	SDU 1
3	←	DOWNLINK RLC PDU	SDU 2
4	←		SS continues to send RLC PDUs
5	←	DOWNLINK RLC PDU	SDU 4
6	\rightarrow	UPLINK RLC PDU	SDU 1
7	→		SS continues to receive RLC PDUs
8	\rightarrow	UPLINK RLC PDU	Poll
9	←	STATUS PDU	NAK SN=0
10	→		SS continues to receive RLC PDUs
11	\rightarrow	UPLINK RLC PDU	Poll
12	←	STATUS PDU	NAK SN=0, 4
13	→		SS continues to receive RLC PDUs
14	\rightarrow	STATUS PDU	MRW Command: Note T ₁
15	\rightarrow	STATUS PDU	MRW Command: Note T ₂
16	←	STATUS PDU	MRW_ACK indicating VR(R) = 4
17	\rightarrow	STATUS PDU	MRW Command, discard SDU 3
18	\rightarrow	STATUS PDU	MRW Command
19	\rightarrow	STATUS PDU	MRW Command
20	\rightarrow	STATUS PDU	MRW Command
21	\rightarrow	RESET PDU	
22	←	RESET ACK PDU	
23		RB RELEASE	Optional step

The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity.

7.2.3.31.5 Test requirements

The measured time $T_2 - T_1$ should be 500 ms ± 40 ms (TTI = 40ms).

After step 4617, the SS should detect 4-3 repeats of the MRW command sent in step 17 before a RESET PDU is sent.

7.2.3.32 SDU discard after MaxDAT number of retransmissions

7.2.3.32.1 Definition

This case tests that if a PDU is unsuccessfully transmitted MaxDAT times, the SDU it carries, and therefore all other associated PDUs, are discarded by the transmitter and receiver. This mode of SDU discard is used to minimize data loss, and incorrect operation will effect the quality of service.

7.2.3.32.2 Conformance requirement

There is one VT(DAT) for each $P\underline{D}U$ and it is incremented each time the $P\underline{D}U$ is transmitted. The initial value of this variable is 0.

If SDU discard after MaxDAT number of retransmission is used and $VT(DAT) \ge MaxDAT$ for any $P\underline{D}U$, the sender shall initiate the SDU discard with explicit signalling procedure for the SDUs to which the $P\underline{D}U$ with $VT(DAT) \ge MaxDAT$ belongs.

Reference

TS 25.322 clauses 9.4 and 11.3.4.4.

7.2.3.32.3 Test purpose

1. To verify that if $VT(DAT) \ge MaxDAT$ for any $P\underline{D}U$ the sender initiates the SDU discard with explicit signalling procedure.

7.2.3.32.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit length indicator tests in clause 7.2.3.1.

These settings apply to both the uplink and downlink DTCH.

The Radio Bearer is placed in UE test loop mode 1 with the UL SDU size set to (2 * AM_7_PayloadSize) - 1 31-bytes.

Test procedure

- a) The SS sends 2 RLC SDUs of size (2 * AM 7 PayloadSize) 1 31 bytes.
- b) The SS checks the RLC PDUs received on the uplink and responds to all poll requests with a STATUS PDU negatively acknowledging the RLC PDU with sequence number 0, and positively acknowledging all other RLC PDUs received.
- c) The SS monitors received STATUS PDUs for the presence of an MRW SUFI.
- d) The SS responds with a STATUS PDU containing a valid MRW_ACK SUFI.
- e) The SS checks any RLC SDUs reassembled from the uplink.
- f) The SS may optionally release the radio bearer.

Expected sequence

Step	Directio	n Message	Comments
	UE S	6	
1	←	DOWNLINK RLC PDU	SDU 1
2	←	DOWNLINK RLC PDU	SDU 1
3	←	DOWNLINK RLC PDU	SDU 2
4	←	DOWNLINK RLC PDU	SDU 2
5	\rightarrow	UPLINK RLC PDU	SDU 1
6	\rightarrow		SS continues to receive RLC PDUs
7	\rightarrow	UPLINK RLC PDU	SDU 2, Poll
8	←	STATUS PDU	NAK SN=0
9	\rightarrow	UPLINK RLC PDU	Retransmit SN=0, Poll
10	←	STATUS PDU	NAK SN=0
11	\rightarrow	UPLINK RLC PDU	Retransmit SN=0, Poll
12	←	STATUS PDU	NAK SN=0
13	\rightarrow	UPLINK RLC PDU	Retransmit SN=0, Poll
14	←	STATUS PDU	NAK SN=0
15	\rightarrow	STATUS PDU	MRW Command
16	←	STATUS PDU	MRW_ACK
17		RB RELEASE	Optional step
NOTE	: The l	IPLINK and DOWNLINK PDU flows may over	lap, but are shown separate for clarity.

7.2.3.32.5 Test requirements

The uplink RLC PDU with sequence number 0 shall be retransmitted three times, then the SS shall detect a STATUS PDU with an MRW command.

7.2.3.33 Operation of the RLC Reset procedure / UE Originated

7.2.3.33.1 Definition

This case tests that when an unrecoverable protocol error occurs the UE will initiate and perform the RLC Reset procedure. Incorrect operation of this procedure may cause loss of service.

7.2.3.33.2 Conformance requirement

The procedure shall be initiated when a protocol error occurs.

The sender sends the RESET PDU when it is in data transfer ready state and enters reset pending state. The sender shall start the timer Timer RST and increase VT(RST) with 1.

The RSN field shall indicate the sequence number of the RESET PDU. This sequence number is incremented every time a new RESET PDU is transmitted, but not when a RESET PDU is retransmitted.

Upon reception of a RESET PDU the receiver shall respond with a RESET ACK PDU. The receiver resets the state variables to their initial value and resets configurable parameters to their configured value. Both the transmitter and receiver side of the AM RLC entity are reset. All RLC PDUs in the AM RLC receiver shall be discarded. The RLC SDUs in the AM RLC transmitter that were transmitted before the reset shall be discarded.

When a RESET PDU is received, the receiver shall set the HFN (DL HFN when the RESET is received in UE or UL HFN when the RESET is received in UTRAN) equal to the HFNI field in the received RESET PDU.

Upon reception of a RESET ACK the Timer_RST shall be stopped. The sender resets the state variables to their initial value and resets configurable parameters to their configured value. The sender shall enter data transfer ready state.

Upon expiry of Timer_RST the sender shall retransmit the RESET PDU and increase VT(RST) with 1.

If VT(RST) becomes larger or equal to MaxRST the RRC layer shall be informed.

Reference

TS 25.322 clause 11.4.

7.2.3.33.3 Test purpose

- 1. To verify that the Reset procedure is initiated when a protocol error occurs.
- 2. To verify that the sender resets state variables to their initial value and resets configurable parameters to their configured value.
- 3. To verify that RSN is updated correctly.
- 4. To verify operation of Timer_RST.

7.2.3.33.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit length indicator tests in clause 7.2.3.1.

The following RLC parameter values are used in place of the values in clause 7.2.3.1:

Uplink RLC	
Transmission RLC discard	
No discard	

These settings apply to both the uplink and downlink DTCH.

The Radio Bearer is placed in UE test loop mode 1 with the UL SDU size set to (2 * AM_7_PayloadSize) - 1 31-bytes.

Test procedure

- a) The SS sends 2 RLC SDUs of size (2 * AM_7_PayloadSize) 1 31-bytes.
- b) The SS checks the RLC PDUs received on the uplink and responds to all poll requests with a STATUS PDU negatively acknowledging the RLC PDU with sequence number 0, and positively acknowledging all other RLC PDUs received.
- c) The SS notes the time that the RESET PDU is received. This time will be recorded as T₁. The SS notes the value of the RSN bit.
- d) The SS makes no response, and notes the time that the next RESET PDU is received. This time will be recorded as T₂. The SS notes the value of the RSN bit.
- e) The SS sends a RESET ACK PDU with the RSN bit set to the same value as received in the RESET PDU received in step d).
- f) The SS sends an RLC SDU of size (2 * AM_7_PayloadSize) 1 31-bytes.
- g) The SS checks the RLC PDUs received on the uplink and responds to all poll requests with a STATUS PDU negatively acknowledging the RLC PDU with sequence number 0, and positively acknowledging all other RLC PDUs received.
- h) The SS notes the value of the RSN bit of the RESET PDU received.
- i) The SS sends a RESET ACK PDU with the RSN bit set to the value received in the RESET PDU in step c (the incorrect value).
- j) The SS waits to receive another RESET PDU and checks the RSN bit.
- k) The SS sends a RESET ACK PDU with the correct RSN bit.
- 1) The SS checks any RLC SDU received on the uplink.
- m) The SS may optionally release the radio bearer.

Step	Direction	Message	Comments			
	UE SS					
1	+	DOWNLINK RLC PDU	SDU 1			
2	←	DOWNLINK RLC PDU	SDU 1			
3	←	DOWNLINK RLC PDU	SDU 2			
4	←	DOWNLINK RLC PDU	SDU 2			
5	\rightarrow	UPLINK RLC PDU	SDU 1			
6	\rightarrow		SS continues to receive RLC PDUs			
7	\rightarrow	UPLINK RLC PDU	SDU 2, Poll			
8	-	STATUS PDU	NAK SN=0			
9	\rightarrow	UPLINK RLC PDU	Retransmit SN=0, Poll			
10	-	STATUS PDU	NAK SN=0			
11	\rightarrow	UPLINK RLC PDU	Retransmit SN=0, Poll			
12	-	STATUS PDU	NAK SN=0			
13	\rightarrow	UPLINK RLC PDU	Retransmit SN=0, Poll			
14	-	STATUS PDU	NAK SN=0			
15	\rightarrow	UPLINK RLC PDU	Retransmit SN=0, Poll			
16	\leftarrow	STATUS PDU	NAK SN=0			
17 15	\rightarrow	RESET PDU	Note T ₁			
18 16	\rightarrow	RESET PDU	Note T ₂ , check RSN			
19 17	←	RESET ACK PDU				
20 18	←	DOWNLINK RLC PDU	SDU 3			
21 19	←	DOWNLINK RLC PDU	SDU 3			
22 20	\rightarrow	UPLINK RLC PDU	SDU 3, SN=0			
23	\rightarrow	UPLINK RLC PDU	SDU 3			
24 21	\rightarrow	UPLINK RLC PDU	SDU 3, Poll			
25 22	←	STATUS PDU	NAK SN=0			
26 23	\rightarrow	UPLINK RLC PDU	Retransmit SN=0, Poll			
27 24	←	STATUS PDU	NAK SN=0			
28 25	\rightarrow	UPLINK RLC PDU	Retransmit SN=0, Poll			
29 26	←	STATUS PDU	NAK SN=0			
30 27	\rightarrow	UPLINK RLC PDU	Retransmit SN=0, Poll			
31 28	←	STATUS PDU	NAK SN=0			
32	\rightarrow	UPLINK RLC PDU	Retransmit SN=0, Poll			
33	\leftarrow	STATUS PDU	NAK SN=0			
34 29	\rightarrow	RESET PDU	Check RSN			
35 30	←	RESET ACK PDU	RSN = 0			
34 <u>31</u>	\rightarrow	RESET PDU	Check RSN			
35 32	←	RESET ACK PDU	RSN = 1			
36 33		RB RELEASE	Optional step			
NOTE	TE: The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity.					

7.2.3.33.5 Test requirements

- 1. The measured time $T_2 T_1$ should be 500 ms.
- 2. <u>In steps 20 to 21 The the SS</u> shall receive an RLC SDU with contents that match the third RLC SDU sent to the UE. The first RLC PDU containing that SDU shall have sequence number 0.
- 3. The RSN bit of the first and second RESET PDUs received should be set to 0. The RSN bit of the third and fourth RESET PDU should be set to 1.

7.2.3.34 Operation of the RLC Reset procedure / UE Terminated

7.2.3.34.1 Definition

This case tests that when an unrecoverable protocol error occurs the UE responds correctly to the RLC Reset procedure initiated by the network. Incorrect operation of this procedure may cause loss of service.

7.2.3.34.2 Conformance requirement

Upon reception of a RESET PDU the receiver shall respond with a RESET ACK PDU. The receiver resets the state variables to their initial value and resets configurable parameters to their configured value. Both the transmitter and receiver side of the AM RLC entity are reset. All RLC PDUs in the AM RLC receiver shall be discarded. The RLC SDUs in the AM RLC transmitter that were transmitted before the reset shall be discarded.

Reference

TS 25.322 clause 11.4.3.

7.2.3.34.3 Test purpose

- 1. To verify that upon reception of a RESET PDU the receiver responds with a RESET ACK PDU.
- 2. To verify that the receiver resets its state variables to their initial value and resets configurable parameters to their configured value.

7.2.3.34.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit length indicator tests in clause 7.2.3.1.

The following RLC parameter values are used in place of the values in clause 7.2.3.1:

Uplink RLC	
Transmission RLC discard	
No discard	

These settings apply to both the uplink and downlink DTCH.

Test procedure

- a) The SS sends 2 RLC SDUs of size $(2 * AM_7_PayloadSize) 1_31$ -bytes, and polls on the last PDU sent.
- b) The SS checks the STATUS PDUs received on the uplink until both SDUs have been acknowledged.
- c) The SS transmits a RESET PDU.
- d) The SS monitors the uplink for a RESET ACK PDU.
- e) The SS sends an RLC SDU of size $(2 * AM_7_PayloadSize) 1_31$ -bytes, and polls on the last PDU sent.
- f) The SS checks for STATUS PDUs received on the uplink until the SDU has been acknowledged.
- g) The SS may optionally release the radio bearer.

Step	Direction	Message	Comments			
	UE SS					
1	←	DOWNLINK RLC PDU	SDU 1			
2	←	DOWNLINK RLC PDU	SDU 1			
3	←	DOWNLINK RLC PDU	SDU 2			
4	←	DOWNLINK RLC PDU	SDU 2, poll			
5	\rightarrow	STATUS PDU	ACK SN=0, 1, 2 and 3			
6	←	RESET PDU				
7	\rightarrow	RESET ACK PDU				
8	←	DOWNLINK RLC PDU	SDU 3			
9	←	DOWNLINK RLC PDU	SDU 3, poll			
10	\rightarrow	STATUS PDU	ACK SN=0 and 1			
11		RB RELEASE	Optional step			
NOTE	TE: The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity.					

7.2.3.34.5 Test requirements

- 1. The SS shall receive a RESET ACK PDU in step 7.
- 2. The SS shall receive a STATUS PDU in step 10 acknowledging for the third RLC SDU transmitted with PDUs starting at SN=0.

Tdoc T1-010409

3GPP TSG-T1/SIG Meeting #20 Cancun, Mexico, 26-28 Nov 2001

Tdoc T1S-010312

CHANGE REQUEST						CR-Form-v3			
*	TS 34	1.123-1	CR 116	ж	rev _		Current vers	ion: 4.0.0	¥
For <u>HEL</u>	P on us	ing this for	m, see bottom	of this pag	e or look	at the	pop-up text	over the # sy	mbols.
Proposed ch	Proposed change affects: # (U)SIM ME/UE X Radio Access Network Core Network								
Title:	ж	Idle mode	test cases						
Source:	Ħ	Ericsson							
Work item c	ode: ₩	TEI					Date: ♯	2001-11-22	
Category:	ж	F					Release: ₩	REL-4	
	Use one of the following categories: F (essential correction) A (corresponds to a correction in an earlier release) B (Addition of feature), C (Functional modification of feature) D (Editorial modification) Detailed explanations of the above categories can be found in 3GPP TR 21.900. Use one of the following release: 2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) REL-4 (Release 4) REL-5 (Release 5)))))		
Reason for o	Reason for change: Clause 6.2.2.2: In the Test procedure, the previous steps must be repeated in order to switch on the UE and make it camp on the GSM cell								
Summary of	change	e:	ove						
Consequence not approve		# A UE	will never suc	cessfully p	ass the te	est			
Clauses affe	ected:	₩ Claus	se 6.2.2.2						
Other specs affected:	;	Te	ther core specification My Specification	าร	ж				
Other comm	ents:	第 Affec	ts R99 and RE	L-4.					

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at: http://www.3gpp.org/3G Specs/CRs.htm. Below is a brief summary:

- 1) Fill out the above form. The symbols above marked # contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://www.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2000-09 contains the specifications resulting from the September 2000 TSG meetings.

3)	With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

6.2.2.2 Cell reselection if cell becomes barred or C1<0; GSM to UTRAN

6.2.2.2.1 Definition

Test to verify that if both a GSM and UTRAN network is available, the UE performs cell reselection from GSM to UTRAN if the GSM cell becomes barred or the path loss criterion C1 falls below zero for a period of 5 s.

6.2.2.2.2 Conformance requirement

- 1. At least every 5 s the MS shall calculate the value of C1 and C2 for the serving cell and re-calculate C1 and C2 values for non serving cells (if necessary). The MS shall then check whether:
 - 1.1 The path loss criterion (C1) for current serving cell falls below zero for a period of 5 s. This indicates that the path loss to the cell has become too high.
- 2. While camped on a cell of the registered PLMN ("camped normally"), the MS may need to select a different cell ("normal cell reselection" state). The following events trigger a cell reselection:
 - 2.1 The path loss criterion parameter C1 (see TS 03.22, clause 3.6) indicates that the path loss to the cell has become too high;
 - 2.2 The cell camped on (current serving cell) has become barred.

References

- 1. TS 05.08, clause 6.6.2.
- 2. TS 03.22, clause 4.5.

6.2.2.2.3 Test purpose

- 1. To verify that the UE performs reselection from GSM to UTRAN on the following occasions:
 - 1.1 Serving cell becomes barred.
 - 1.2 The path loss criterion C1 for serving cell falls below zero for a period of 5 s.

6.2.2.2.4 Method of test

Initial conditions

The USIM does not contain any preferred RAT.Step a-c:

Parameter	Unit	Cell 1 (GSM)
Test Channel		1
RF Signal Level	dBm	-50
RXLEV_ACCESS_ MIN	dBm	-70
MS_TXPWR_MAX_ CCH	dBm	Max. output power of UE
FDD_Qmin	dB	-20
FDD_Qoffset	dBm	0
CellBarred		0
C1*	dBm	20

Parameter	Unit	Cell 2 (UTRAN)	Cell 3 (UTRAN)
CPICH_Ec/lo	dB	-13	-15
CPICH_RSCP	dBm	-76	-78
Qqualmin	dB	-20	-20
Qrxlevmin	dBm	-100	-100
Squal*	dB	7	5
Srxlev*	dBm	24	22

Step d-e:

Parameter	Unit	Cell 1 (GSM)
CellBarred		0 -> 1

Step f-g:

Parameter	Unit	Cell 1 (GSM)
RF Signal Level	dBm	-50 -> -80 (4sec) -> -50
C1*	dBm	20 -> -10 (4sec) -> 20

Step h:

Parameter	Unit	Cell 1 (GSM)
RF Signal Level	dBm	-50 -> -80
C1*	dBm	20 -> -10

Test procedure

Method B is applied.

- a) The SS activates cells 1, 2, and 3. The SS monitors cells 1, 2 and 3 for random access requests from the UE.
- b) The UE is switched on.
- c) The SS waits for random access request from the UE.
- d) The SS sets Cell 1 to be barred.
- e) The SS waits for random access request from the UE.
- f) The stored information cell selection list in the UE is deleted and the UE is switched off.
- g) Step a-e) is repeated except that in step d), The SS reduces signal level on Cell 1 to -80 dBm for 4 s and then raises the level back to -50 dBm (C1 becomes -10 dBm during this period).
- h) The SS reduces signal level on Cell 1 to -80 dBm.

6.2.2.2.5 Test Requirements

- 1) In step c), after the UE has responded on Cell 1, it shall not respond on any other cell within 1 min.
- 2) In step e), the UE shall respond on Cell 2.
- 3) In step g), there shall be no access on Cell 2 within 30 s after having reduced the signal level on Cell 1.
- 4) In step h), the UE shall respond on Cell 2.

3GPP TSG-T1 Meeting #13 Cancún, México, 29th – 30th November 2001

3GPP TSG-T1/SIG SWG Meeting #19 Cancún, México, 26th – 28th November 2001

Tdoc TSG T1S-010325r1

CHANGE REQUEST				
# 34.123-1 CR 117				
For <u>HELP</u> on using this form, see bottom of this page or look at the pop-up text over the % symbols.				
Proposed change affects: # (U)SIM ME/UE X Radio Access Network Core Network				
Title:				
Source:				
Work item code: **TEI** Date: **26.11.01**				
Category: # F Release: # REL-4				
Use one of the following categories: F (essential correction) A (corresponds to a correction in an earlier release) B (Addition of feature), C (Functional modification of feature) D (Editorial modification) Detailed explanations of the above categories can be found in 3GPP TR 21.900. Use one of the following releases: 2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) REL-4 (Release 4) REL-5 (Release 5)				
Reason for change: # TBD entries in TS 34.123-1 are replaced for the concrete values needed for TDD mode 6.1.2.7 Emergency calls; Intra-frequency cell "Not allowed" is updated for TDD mode, including a table with the TDD values needed.				
Summary of change: #				
Consequences if not approved: ** Power levels will not be defined for TDD test channels.				
Clauses affected:				
Other specs affected: Control of the core specifications Test specifications O&M Specifications Test specifications O&M Specifications				
Other comments: # This CR affects Release 99 and Release 4				

6 Idle mode operations

In the following paragraphs some explanatory text is given concerning the nature of the tests in this clause and the general behaviour of the SS is described.

Since the conformance requirements of most of the tests in this clause cannot be tested explicitly, testing is done implicitly by testing the UE behaviour from its responses to the SS.

In some cases, a test is performed in multiple stages in order that the requirements can be tested within the above constraints.

For any UE all the carriers are in its supported band(s) of operation.

Unless otherwise stated in the method of test, in all of the tests of this clause:

- the default values of the system information data fields given in TS 34.108 are used;
- the UE is equipped with a USIM containing default values. The USIM is in the idle updated state in the default location area with a TMSI assigned at the beginning of each test;
- the cells shall be configured such that Squal>0 (FDD only) and Srxlev>0 while applying Qqualmin (FDD only) and Qrxlevmin in table 6.1. In addition, for an FDD cell, the measured primary CPICH RSCP value shall be greater than or equal to -95 dBm (definition of High Quality cell, see TS 25.304, clause 5.1.2.2). In addition, for a TDD cell, the measured P-CCPCH RSCP shall be greater than or equal to -84 dBm (definition of High Quality cell, see TS 25.304, clause 5.1.2.2).

Three different methods A, B and C are applied in the tests:

Method A:

- the SS is continuously paging the UE on all cells at the start of the test and does not respond to RACH requests from the UE (which causes a cell reselection). Where a test specifies that the UE is not paged on a particular cell, only idle paging is transmitted. This method is similar to the one used in TS 51.010-1, clause 20.

Method B:

the SS is continuously paging the UE on all cells at the start of the test and responds to RACH requests from the UE with an IMMEDIATE ASSIGNMENT REJECT (GERAN cell) or RRC CONNECTION REJECT (UTRAN cell) message which causes the UE to return to Idle mode. Where a test specifies that the UE is not paged in a particular cell, only idle paging is transmitted.

Method C:

- no continuously paging as in method A or B. Normal response to RACH requests so Location Updating and Calls can be done.

Table 6.1: Default values of the system information fields

Parameter	Setting
IMSI attach/detach	Method A, B: Not allowed
	Method C: Allowed
Intra-frequency cell re-selection	Allowed
indicator	
Cell_selection_and_reselection_qu	CPICH E₀/N₀ (FDD)
ality_measure	
Qqualmin (FDD only)	-20 dB
Qrxlevmin (FDD)	-115 dBm
Qrxlevmin (TDD)	-103 dBm
` ,	
DRX cycle length	1,28 s

It is a UE option whether to indicate access technologies to the user (TS 23.122, clause 4.4.3.1.2). Therefore, for combined UTRAN/GSM tests, it is indicated in parentheses which access technology shall be indicated to the user if the UE has this capability.

If a parameter is indicated with a *, it means that the parameter is calculated internally in the UE and is only shown for clarification of the test procedure.

The PLMN numbers indicated in table 6.2 are used in test cases to associate a cell with an MCC and MNC for that cell. If no PLMN is explicitly specified, the default value is PLMN 1.

Table 6.2: Location Area Information (LAI) in System Information type 3 messages broadcast on the BCCH

PLMN	MCC1	MCC2	MCC3	MNC1	MNC2	MNC3	LAC
1	0	0	1	0	1	F	Х
2	0	0	2	1	F	F	X
3	0	0	4	2	F	F	X
4	0	0	5	3	F	F	X
5	0	0	6	4	F	F	X
6	0	0	7	5	F	F	X
7	0	0	8	6	F	F	X
8	0	0	9	7	F	F	Χ
9	0	1	0	0	F	F	X
10	0	1	1	1	F	F	Χ
11	0	1	2	2	F	F	Χ
12	0	1	3	3	F	F	Χ
NOTE: 'x	NOTE: 'x' denotes any value.						

References: TS 23.122, annex A and TS 23.003, clause 2.

The test channel numbers indicated in tables 6.3, 6.4 and 6.5 are used in test cases to associate a cell with a frequency for that cell. The frequencies for GSM and DCS cells in table 6.5 are identical to those used in TS 51.010-1, clause 26.3.1. The RF signal levels for GSM cells are given in table 6.5 for UTRAN FDD cells in TS 34.108, table 6.1.1 and for UTRAN TDD cells in TS 34.108, table 6.1.5. If no channel is explicitly specified, the default value is Test Channel 1.

Table 6.3: UTRA (FDD) test frequencies

			ITU region 2		
Test Channel	CPICH_RSCP dBm	UARFCN	CPICH_RSCP dBm	UARFCN	
1	-72	9 613	-72	9 263	
2	-75	9 663	-75	9 313	
3	-78	9 713	-78	9 363	
4	-81	9 763	-81	9 413	
5	-84	9 813	-84	9 463	
6	-87	9 863	-87	9 513	

References: TS 34.108, clause 5.1.1 and TS 34.121, clause 4.

Table 6.4: UTRA TDD test frequencies

			ITU region 2		
Test Channel	P-CCPCH_ RSCP [dBm]	UARFCN	P-CCPCH_ RSCP [dBm]	UARFCN	
1	<u>-61[TBD]</u>	9 513	<u>-61[TBD]</u>	9 263	
2	-64[TBD]	9 550	-64[TBD]	9 537	
3	<u>-67[TBD]</u>	9 587	-67[TBD]	9 663	
4	-70 [TBD]	10 063	-70[TBD]	9 937	
5	<u>-73[TBD]</u>	10 087	<u>-73[TBD]</u>	9 563	
6	<u>-76[TBD]</u>	10 112	<u>-76[TBD]</u>	9 637	

References: TS 34.108, clause 5.1.2 and TS 34.122, clause 4.

Table 6.5: GSM/DCS test frequencies and levels

	GSM 900		DCS 1 800	
Test Channel	level dBμVemf() / dBm	BCCH ARFCN	level dBμVemf() / dBm	BCCH ARFCN
1	+65 / -48	1	+65 / -48	520
2	+63 / -50	7	+63 / -50	580
3	+61 / -52	39	+61 / -52	610
4	+55 / -58	65	+55 / -58	702
5	+59 / -54	66	+59 / -54	703
6	+57 / -56	85	+57 / -56	830
7	+55 / -58	97	+55 / -58	885
8	+53 / -60	124		

	GSM 450		DCS 480	
Test	level	BCCH ARFCN	level	BCCH ARFCN
Channel	dBμVemf()		dBμVemf()	
	/ dBm		/ dBm	
1	+65 / -48	259	+65 / -48	306
2	+63 / -50	261	+63 / -50	308
3	+61 / -52	267	+61 / -52	314
4	+55 / -58	268	+55 / -58	315
5	+59 / -54	281	+59 / -54	328
6	+57 / -56	288	+57 / -56	335
7	+55 / -58	291	+55 / -58	338
8	+53 / -60	293	+53 / -60	340

	Multiba	nd 900/1800	PCS 1900		
Test Channel	level dBμVemf() / dBm	BCCH ARFCN	level dBmVemf() / dBm	BCCH ARFCN	
1	+65 / -48	520	+65 / -48	512	
2	+63 / -50	7	+63 / -50	520	
3	+61 / -52	39	+61 / -52	580	
4	+55 / -58	702	+55 / -58	610	
5	+59 / -54	66	+59 / -54	702	
6	+57 / -56	85	+57 / -56	703	
7	+55 / -58	885	+55 / -58	800	
8	+53 / -60	124			

	Multiba	and 450/900	Multiba	nd 480/900
Test Channel	level dBμVemf() / dBm	BCCH ARFCN	level dBµVemf() / dBm	BCCH ARFCN
1	+65 / -48	1	+65 / -48	1
2	+63 / -50	261	+63 / -50	308
3	+61 / -52	267	+61 / -52	314
4	+55 / -58	65	+55 / -58	65
5	+59 / -54	281	+59 / -54	328
6	+57 / -56	288	+57 / -56	335
7	+55 / -58	124	+55 / -58	124
8	+53 / -60	293	+53 / -60	340

	Multiba	nd 450/1800	Multibar	nd 480/1800
Test Channel	level dBμVemf() / dBm	BCCH ARFCN	level dBµVemf() / dBm	BCCH ARFCN
1	+65 / -48	520	+65 / -48	520
2	+63 / -50	261	+63 / -50	308
3	+61 / -52	267	+61 / -52	314
4	+55 / -58	702	+55 / -58	702
5	+59 / -54	281	+59 / -54	328
6	+57 / -56	288	+57 / -56	335
7	+55 / -58	885	+55 / -58	885
8	+53 / -60	293	+53 / -60	340

For testing an E-GSM Mobile station, the BCCH ARFCN of GSM Test Channel 7 at GSM 900 column shall be 985 (instead of 97). For testing an R-GSM Mobile station, the BCCH ARFCN of GSM Test Channel 7 at GSM 900 column shall be 965 (instead of 97).

6.1 In a pure 3GPP environment

6.1.1 PLMN selection and reselection

6.1.1.1 PLMN selection of RPLMN, HPLMN, UPLMN and OPLMN; Manual mode

6.1.1.1.1 Definition

Test to verify that the UE can present the available PLMNs in priority order to the user when asked to do so in manual mode and that the displayed PLMNs can be selected / reselected by the user. Forbidden PLMNs shall also by displayed in the list. If available, the RPLMN shall be selected at switch-on, otherwise the displayed list shall include in priority order HPLMN, User-PLMN and Operator-PLMN. The last priority in the list is "Other PLMN/access technology combinations" which is not included in this test. Only UTRAN cells and a UE equipped with a USIM with Radio Access Technology fields set to UTRAN are considered.

6.1.1.1.2 Conformance requirement

1. At switch on, or following recovery from lack of coverage, the MS selects the registered PLMN or equivalent PLMN (if it is available) using all access technologies that the MS is capable of and if necessary (in the case of recovery from lack of coverage, see TS 23.122, clause 4.5.2) attempts to perform a Location Registration.

If successful registration is achieved, the MS indicates the selected PLMN.

If there is no registered PLMN, or if registration is not possible due to the PLMN being unavailable or registration failure, the MS follows either Automatic or Manual Network Selection Mode Procedure depending on its operating mode.

2. Manual Network Selection Mode Procedure:

The MS indicates whether there are any PLMNs, which are available using all supported access technologies. This includes PLMNs in the "forbidden PLMNs" list and PLMNs which only offer services not supported by the MS.

If displayed, PLMNs meeting the criteria above are presented in the following order:

2.1 HPLMN;

- 2.2 PLMNs contained in the "User Controlled PLMN Selector with Access Technology" data field in the SIM (in priority order);
- 2.3 PLMNs contained in the "Operator Controlled PLMN Selector with Access Technology" data field in the SIM (in priority order);
- 2.4 Other PLMN/access technology combinations with received high quality signal in random order:
- 2.5 Other PLMN/access technology combinations in order of decreasing signal quality.

The user may select his desired PLMN and the MS then initiates registration on this PLMN using the access technology chosen by the user for that PLMN or using the highest priority available access technology for that PLMN, if the associated access technologies have a priority order. (This may take place at any time during the presentation of PLMNs). For such a registration, the MS shall

ignore the contents of the "forbidden LAs for roaming", "forbidden LAs for regional provision of service", "forbidden PLMNs for GPRS service" and "forbidden PLMNs" lists.

If the user does not select a PLMN, the selected PLMN shall be the one that was selected before the PLMN selection procedure started. If no such PLMN was selected or that PLMN is no longer available, then the MS shall attempt to camp on any acceptable cell and enter the limited service state.

3. If a "PLMN not allowed" message is received by an MS in response to an LR request from a VPLMN, that VPLMN is added to a list of "forbidden PLMNs" in the SIM and thereafter that VPLMN will not be accessed by the MS when in automatic mode. A PLMN is removed from the "forbidden PLMNs" list if, after a subsequent manual selection of that PLMN, there is a successful LR. This list is retained when the MS is switched off or the SIM is removed. The HPLMN shall not be stored on the list of "forbidden PLMNs".

References

- 1. TS 23.122, clause 4.4.3.1;
- 2. TS 23.122, clause 4.4.3.1.2:
- 3. TS 23.122, clause 3.1.

NOTE: TS 31.102 defines the USIM fields.

6.1.1.1.3 Test purpose

- 1. To verify that if available, the RPLMN is selected at switch-on.
- 2. To verify that in Manual Network Selection Mode Procedure, the UE presents the HPLMN, UPLMN and OPLMN in a prioritized order.
- 3. To verify that forbidden PLMNs are also displayed in the list.

6.1.1.1.4 Method of test

Initial conditions

The UE is in manual PLMN selection mode.

Cell_selection_and_reselection_quality_measure is CPICH_RSCP. Cell levels are from table 6.3. (FDD).

All Radio Access Technology USIM fields and cells are UTRAN.

Cell	CPICH_ RSCP [dBm] (FDD)	P-CCPCH_ RSCP [dBm] (TDD)	Test Channel	PLMN
Cell 1	-72	<u>-61[TBD]</u>	1	PLMN 1
Cell 2	-75	<u>-64[TBD]</u>	2	PLMN 2
Cell 3	-78	<u>-67[TBD]</u>	3	PLMN 3
Cell 4	-81	<u>-70[TBD]</u>	4	PLMN 4
Cell 5	-84	<u>-73[TBD]</u>	5	PLMN 5
Cell 6	-87	-76 [TBD]	6	PLMN 6

The UE is equipped with a USIM containing default values except for those listed below.

USIM field	Priority	PLMN
EF _{LOCI}		PLMN 1
EF _{HPLMNwAcT}	1 st	PLMN 2
EF _{PLMNwAcT}	1 st	PLMN 3
	2 nd	PLMN 4
EFOPLMNWACT	1 st	PLMN 5
	2 nd	PLMN 6
EF _{FPLMN}	PL	MN 3

Test procedure

Method B is applied.

- a) The SS activates cells 1-6 and monitors the cells for random access requests from the UE.
- b) The UE is switched on.
- c) The SS waits for random access requests from the UE.
- d) Cell 1 is switched off.
- e) PLMN 4 shall be selected when the PLMN list is presented.
- f) The SS waits for random access requests from the UE.
- g) Cell 4 is switched off.
- h) PLMN 3 shall be selected when the PLMN list is presented. The SS shall reject the Registration Request from the UE.
- i) PLMN 5 shall be selected (the list is already available).
- j) The SS waits for random access requests from the UE.
- k) Cell 5 is switched off.
- 1) PLMN 2 shall be selected when the PLMN list is presented.
- m) The SS waits for random access requests from the UE.
- n) Cell 2 is switched off.
- o) PLMN 6 shall be selected when the PLMN list is presented.
- p) The SS waits for random access requests from the UE.
- q) Cell 6 is switched off.

6.1.1.1.5 Test Requirements

- 1) In step c), the response from the UE shall be on Cell 1. The displayed PLMN shall be PLMN 1.
- 2) In step e), the list shall be presented. The priority shall be as follows: PLMN 2, PLMN 3, PLMN 4, PLMN 5, PLMN 6.
- 3) In step f), the response from the UE shall be on Cell 4. The displayed PLMN shall be PLMN 4.
- 4) In step h), the list shall be presented. The priority shall be as follows: PLMN 2, PLMN 3, PLMN 5, PLMN 6. After PLMN 3 has been selected, the list shall appear again as the UE cannot perform registration.

- 6) In step j), the response from the UE shall be on Cell 5. The displayed PLMN shall be PLMN 5.
- 7) In step l), the list shall be presented. The priority shall be as follows: PLMN 2, PLMN 3, PLMN 6.
- 8) In step m), the response from the UE shall be on Cell 2. The displayed PLMN shall be PLMN 2.
- 9) In step 0), the list shall be presented. The priority shall be as follows: PLMN 3, PLMN 6.
- 10) In step p), the response from the UE shall be on Cell 6. The displayed PLMN shall be PLMN 6.
- 11) After step q), the UE shall inform that only limited service is possible.

6.1.1.2 PLMN selection of "Other PLMN / access technology combinations"; Manual mode

6.1.1.2.1 Definition

Test to verify that the UE can present the available PLMNs in priority order to the user when asked to do so in manual mode and that the displayed PLMNs can be selected / reselected by the user. Forbidden PLMNs shall also by displayed in the list. In this test are only considered "Other PLMN/access technology combinations" in the priority list.

Only UTRAN cells and a UE equipped with a USIM with Radio Access Technology fields set to UTRAN are considered.

6.1.1.2.2 Conformance requirement

1. At switch on, or following recovery from lack of coverage, the MS selects the registered PLMN or equivalent PLMN (if it is available) using all access technologies that the MS is capable of and if necessary (in the case of recovery from lack of coverage, see TS 23.122, clause 4.5.2) attempts to perform a Location Registration.

If successful registration is achieved, the MS indicates the selected PLMN.

If there is no registered PLMN, or if registration is not possible due to the PLMN being unavailable or registration failure, the MS follows either Automatic or Manual Network Selection Mode Procedure depending on its operating mode.

2. Manual Network Selection Mode Procedure:

The MS indicates whether there are any PLMNs, which are available using all supported access technologies. This includes PLMNs in the "forbidden PLMNs" list and PLMNs which only offer services not supported by the MS.

If displayed, PLMNs meeting the criteria above are presented in the following order:

- 2.1 HPLMN;
- 2.2 PLMNs contained in the "User Controlled PLMN Selector with Access Technology" data field in the SIM (in priority order);
- 2.3 PLMNs contained in the "Operator Controlled PLMN Selector with Access Technology" data field in the SIM (in priority order);
- 2.4 Other PLMN/access technology combinations with received high quality signal in random order;
- 2.5 Other PLMN/access technology combinations in order of decreasing signal quality.

In 2.5, the MS shall order the PLMN/access technology combinations in order of decreasing signal quality within each access technology. The order between PLMN/access technology combinations with different access technologies is an MS implementation issue.

The user may select his desired PLMN and the MS then initiates registration on this PLMN using the access technology chosen by the user for that PLMN or using the highest priority available access technology for that PLMN, if the associated access technologies have a priority order. (This may take place at any time during the presentation of PLMNs). For such a registration, the MS shall ignore the contents of the "forbidden LAs for roaming", "forbidden LAs for regional provision of service", "forbidden PLMNs for GPRS service" and "forbidden PLMNs" lists.

If the user does not select a PLMN, the selected PLMN shall be the one that was selected before the PLMN selection procedure started. If no such PLMN was selected or that PLMN is no longer available, then the MS shall attempt to camp on any acceptable cell and enter the limited service state.

- 3. If a "PLMN not allowed" message is received by an MS in response to an LR request from a VPLMN, that VPLMN is added to a list of "forbidden PLMNs" in the SIM and thereafter that VPLMN will not be accessed by the MS when in automatic mode. A PLMN is removed from the "forbidden PLMNs" list if, after a subsequent manual selection of that PLMN, there is a successful LR. This list is retained when the MS is switched off or the SIM is removed. The HPLMN shall not be stored on the list of "forbidden PLMNs".
- 4. The UE shall scan all RF channels in the UTRA band according to its capabilities to find available PLMNs. On each carrier, the UE shall search for the strongest cell according to the cell search procedures (for FDD, see TS 25.214, and TDD, see TS 25.224) and read its system information, in order to find out which PLMN the cell belongs to. If the UE can read the PLMN identity, the found PLMN shall be reported to the NAS as a high quality PLMN (but without the RSCP value), provided that the following high quality criterion is fulfilled:
 - For an FDD cell, the measured primary CPICH RSCP value shall be greater than or equal to -95 dBm.
 - For a TDD cell, the measured P-CCPCH RSCP shall be greater than or equal to -84 dBm.

Found PLMNs that do not satisfy the high quality criterion, but for which the UE has been able to read the PLMN identities are reported to the NAS together with the CPICH RSCP value for UTRA FDD cells and P-CCPCH RSCP for UTRA TDD cells.

References

- 1. TS 23.122, clause 4.4.3.1.
- 2. TS 23.122, clause 4.4.3.1.2.
- 3. TS 23.122, clause 3.1.
- 4. TS 25.304, clause 5.1.2.2.

NOTE: TS 31.102 defines the USIM fields.

6.1.1.2.3 Test purpose

- 1. To verify that in Manual Network Selection Mode Procedure, the UE presents "Other PLMN/access technology combinations" in a prioritized order according to conformance requirement 2.4 and 2.5.
- 2. To verify that forbidden PLMNs are also displayed in the list.

6.1.1.2.4 Method of test

Initial conditions

The UE is in manual PLMN selection mode.

Cell_selection_and_reselection_quality_measure is CPICH_RSCP (FDD).

All Radio Access Technology USIM fields and cells are UTRAN.

Cell	CPICH_RSCP [dBm] (FDD)	P-CCPCH_ RSCP [dBm] (TDD)	High Quality signal	Test Channel	PLMN
Cell 1	-85	-74	Yes	1	PLMN 6
Cell 2	-80	-69	Yes	2	PLMN 7
Cell 3	-80	-69	Yes	3	PLMN 8
Cell 4	-98	-87	No	4	PLMN 9
Cell 5	-101	-90	No	5	PLMN 10
Cell 6	-104	-93	No	6	PLMN 11

The UE is equipped with a USIM containing default values except for those listed below.

USIM field	Priority	PLMN
EF _{LOCI}		PLMN 1
EF _{HPLMNwAcT}	1 st	PLMN 2
EF _{PLMNwAcT}	1 st	PLMN 3
	2 nd	PLMN 4
EFOPLMNWACT	1 st	PLMN 5
	2 nd	PLMN 6
EF _{FPLMN}	PLM	N 10

Test procedure

Method B is applied.

- a) The SS activates cells 1-6 and monitors the cells for random access requests from the UE.
- b) The UE is switched on.
- c) PLMN 9 shall be selected when the PLMN list is presented.
- d) The SS waits for random access requests from the UE.
- e) Cell 4 is switched off.
- f) PLMN 7 shall be selected when the PLMN list is presented.
- g) The SS waits for random access requests from the UE.
- h) Cell 2 is switched off.
- i) PLMN 6 shall be selected when the PLMN list is presented.
- j) The SS waits for random access requests from the UE.
- k) Cell 1 is switched off.
- 1) PLMN 11 shall be selected when the PLMN list is presented.
- m) The SS waits for random access requests from the UE.
- n) Cell 6 is switched off.

- PLMN 10 shall be selected when the PLMN list is presented. The SS shall reject the Registration Request from the UE.
- p) Cell 5 is switched off.
- q) PLMN 8 shall be selected (the list is already available)
- r) The SS waits for random access requests from the UE.
- s) Cell 3 is switched off.

6.1.1.2.5 Test Requirements

- 1) In step c), the list shall be presented. The priority shall be as follows: PLMN 6 followed by PLMN 7, PLMN 8 in random order, followed by PLMN 9, PLMN 10, PLMN 11.
- 2) In step d), the response from the UE shall be on Cell 4. The displayed PLMN shall be PLMN 9.
- 3) In step f), the list shall be presented. The priority shall be as follows: PLMN 6 followed by PLMN 7, PLMN 8 in random order, followed by PLMN 10, PLMN 11.
- 4) In step g), the response from the UE shall be on Cell 2. The displayed PLMN shall be PLMN 7.
- 5) In step i), the list shall be presented. The priority shall be as follows: PLMN 6, PLMN 8, PLMN 10, PLMN 11.
- 6) In step j), the response from the UE shall be on Cell 1. The displayed PLMN shall be PLMN 6.
- 7) In step l), the list shall be presented. The priority shall be as follows: PLMN 8, PLMN 10, PLMN 11.
- 8) In step m), the response from the UE shall be on Cell 6. The displayed PLMN shall be PLMN 11.
- 9) In step o), the list shall be presented. The priority shall be as follows: PLMN 8, PLMN 10. After PLMN 10 has been selected, the list shall appear again as the UE cannot perform registration.
- 10) In step q), the list shall be presented and shall only contain PLMN 8.
- 11) In step r), the UE shall respond on Cell 3. The displayed PLMN shall be PLMN 8.
- 12) After step s), the UE shall inform that no network is available.

6.1.1.3 PLMN selection; independence of RF level and preferred PLMN; Manual mode

6.1.1.3.1 Definition

Test to verify that in Manual Network Selection Mode, the UE is able to obtain normal service on a PLMN which is neither the better nor a preferred PLMN and that it tries to obtain service on a VPLMN if and only if the user selects it manually.

6.1.1.3.2 Conformance requirement

1. At switch on, or following recovery from lack of coverage, the MS selects the registered PLMN or equivalent PLMN (if it is available) using all access technologies that the MS is capable of and if necessary (in the case of recovery from lack of coverage, see TS 23.122, clause 4.5.2) attempts to perform a Location Registration.

If successful registration is achieved, the MS indicates the selected PLMN.

If there is no registered PLMN, or if registration is not possible due to the PLMN being unavailable or registration failure, the MS follows either Automatic or Manual Network Selection Mode Procedure depending on its operating mode.

2. Manual Network Selection Mode Procedure:

The MS indicates whether there are any PLMNs, which are available using all supported access technologies. This includes PLMNs in the "forbidden PLMNs" list and PLMNs which only offer services not supported by the MS.

If displayed, PLMNs meeting the criteria above are presented in the following order:

2.1 HPLMN:

- 2.2 PLMNs contained in the "User Controlled PLMN Selector with Access Technology" data field in the SIM (in priority order);
- 2.3 PLMNs contained in the "Operator Controlled PLMN Selector with Access Technology" data field in the SIM (in priority order);
- 2.4 Other PLMN/access technology combinations with received high quality signal in random order;
- 2.5 Other PLMN/access technology combinations in order of decreasing signal quality.

The user may select his desired PLMN and the MS then initiates registration on this PLMN using the access technology chosen by the user for that PLMN or using the highest priority available access technology for that PLMN, if the associated access technologies have a priority order. (This may take place at any time during the presentation of PLMNs). For such a registration, the MS shall ignore the contents of the "forbidden LAs for roaming", "forbidden LAs for regional provision of service", "forbidden PLMNs for GPRS service" and "forbidden PLMNs" lists.

If the user does not select a PLMN, the selected PLMN shall be the one that was selected before the PLMN selection procedure started. If no such PLMN was selected or that PLMN is no longer available, then the MS shall attempt to camp on any acceptable cell and enter the limited service state.

References

- 1. TS 23.122, clause 4.4.3.1.
- 2. TS 23.122, clause 4.4.3.1.2

NOTE: TS 31.102 defines the USIM fields.

6.1.1.3.3 Test purpose

- 1. To verify that the selected PLMN at switch-on is the HPLMN.
- 2. To verify that in Manual Network Selection Mode Procedure the UE tries to obtain service on a VPLMN if and only if the user selects it manually.
- 3. To verify that the UE is able to obtain normal service on a PLMN which is neither the better nor a prefered PLMN.

6.1.1.3.4 Method of investigation

Initial conditions

The UE is in manual PLMN selection mode.

"IMSI attach" flag in the BCCH is set to allowed.

For FDD only:

Step a-d:

Parameter	Unit	Cell 1	Cell 2	Cell 3
Test Channel		1	2	3
CPICH_Ec/lo	dB	-12	-15	OFF
Qqualmin	dB	-20	-20	-20
Squal*	dB	8	5	-
PLMN		1	2	3

Step e-f:

CPICH_Ec/lo				
	CPICH_Ec/lo	-12 -> OFF	-15	

Step g-h:

CPICH_Ec/lo	OFF	-15	OFF -> -12

Step i-l:

CPICH_Ec/lo	OFF	-15 -> OFF	-12

For TDD only:

Step a-d:

Parameter	Unit	Cell 1	Cell 2	Cell 3
Test Channel		1	2	3
P-CCPCH RSCP	dBm	-69	-72	OFF
Qrxlevmin	<u>dBm</u>	-103[TBD]	-103 [TBD]	-103 [TBD]
Srxlev*	<u>dB</u>	34[TBD]	31[TBD]	<u>-{TBD}</u>
PLMN		1	2	3

Step e-f:

P-CCPCH RSCP	-69 -> OFF	-72	OFF

Step g-h:

P-CCPCH RSCP	OFF	-72	OFF -> -69

Step i-l:

P-CCPCH RSCP	OFF	-72 -> OFF	-69

The UE is equipped with a USIM containing default values except for those listed below.

USIM field	Priority	PLMN
EF _{LOCI}		
EF _{HPLMNwAcT}	1 st	PLMN 1
EF _{PLMNwAcT}	1 st	PLMN 3

Test procedure

Method C is applied.

- a) The SS activates cells 1 and 2.
- b) The UE is switched on.
- c) PLMN 1 is selected manually.

- d) The SS waits for random access requests from the UE. A complete Location Update is done.
- e) Cell 1 is switched off.
- f) The SS waits to see if there is any random access request from the UE.
- g) Cell 3 is switched on.
- h) The SS waits to see if there is any random access request from the UE.
- i) PLMN 2 is selected manually.
- j) The SS waits for random access requests from the UE. A complete Location Update is done.
- k) Cell 2 is switched off.
- 1) The SS waits to see if there is any random access request from the UE.

6.1.1.3.5 Test Requirements

- 1) In step d), there shall be a response on Cell 1. The selected PLMN shall be PLMN 1.
- 2) In step f), there shall be no response from the UE within 2 min.
- 3) In step h), there shall be no response from the UE within 2 min.
- 4) In step j), there shall be a response on Cell 2. The selected PLMN shall be PLMN 2.
- 5) In step 1), there shall be no response from the UE within 2 min.

6.1.1.4 PLMN selection of RPLMN, HPLMN, UPLMN and OPLMN; Automatic mode

6.1.1.4.1 Definition

Test to verify that in Automatic Network Selection Mode, the UE selects PLMNs in a prioritized order. Forbidden PLMNs shall not be selected. If available, the RPLMN shall be selected at switch-on, otherwise the list shall include in priority order HPLMN, User-PLMN and Operator-PLMN. The last priority in the list is "Other PLMN/access technology combinations" which is not included in this test. Only UTRAN cells and a UE equipped with a USIM with Radio Access Technology fields set to UTRAN are considered.

6.1.1.4.2 Conformance requirement

1. At switch on, or following recovery from lack of coverage, the MS selects the registered PLMN or equivalent PLMN (if it is available) using all access technologies that the MS is capable of and if necessary (in the case of recovery from lack of coverage, see TS 23.122, clause 4.5.2) attempts to perform a Location Registration.

If successful registration is achieved, the MS indicates the selected PLMN.

If there is no registered PLMN, or if registration is not possible due to the PLMN being unavailable or registration failure, the MS follows either Automatic or Manual Network Selection Mode Procedure depending on its operating mode.

2. Automatic Network Selection Mode Procedure:

The MS selects and attempts registration on other PLMNs, if available and allowable in the following order:

- 2.1 HPLMN (if not previously selected);
- 2.2 Each PLMN in the "User Controlled PLMN Selector with Access Technology" data field in the SIM (in priority order);
- 2.3 Each PLMN in the "Operator Controlled PLMN Selector with Access Technology" data field in the SIM (in priority order);
- 2.4 Other PLMN/access technology combinations with received high quality signal in random order:
- 2.5 Other PLMN/access technology combinations in order of decreasing signal quality.

If successful registration is achieved, the MS indicates the selected PLMN.

If registration cannot be achieved because no PLMNs are available and allowable, the MS indicates "no service" to the user, waits until a new PLMN is available and allowable and then repeats the procedure.

If there were one or more PLMNs which were available and allowable, but an LR failure made registration on those PLMNs unsuccessful or an entry in the "forbidden LAs for regional provision of service" list prevented a registration attempt, the MS selects the first such PLMN again and enters a limited service state.

3. If a "PLMN not allowed" message is received by an MS in response to an LR request from a VPLMN, that VPLMN is added to a list of "forbidden PLMNs" in the SIM and thereafter that VPLMN will not be accessed by the MS when in automatic mode. A PLMN is removed from the "forbidden PLMNs" list if, after a subsequent manual selection of that PLMN, there is a successful LR. This list is retained when the MS is switched off or the SIM is removed. The HPLMN shall not be stored on the list of "forbidden PLMNs".

References

- 1. TS 23.122, clause 4.4.3.1.
- 2. TS 23.122, clause 4.4.3.1.1.
- 3. TS 23.122, clause 3.1.

NOTE: TS 31.102 defines the USIM fields.

6.1.1.4.3 Test purpose

- 1. To verify that if available, the RPLMN is selected at switch-on.
- 2. To verify that in Automatic Network Selection Mode Procedure, the UE selects the RPLMN, HPLMN, UPLMN and OPLMN in a prioritized order.
- 3. To verify that forbidden PLMNs are not selected.

6.1.1.4.4 Method of test

Initial conditions

The UE is in automatic PLMN selection mode.

Cell_selection_and_reselection_quality_measure is CPICH_RSCP. Cell levels are from table 6.3 (FDD).

All Radio Access Technology USIM fields and cells are UTRAN.

Cell	CPICH_ RSCP [dBm] (FDD)	P-CCPCH_ RSCP [dBm] (TDD)	Test Channel	PLMN
Cell 1	-72	<u>-61[TBD]</u>	1	PLMN 1
Cell 2	-75	<u>-64[TBD]</u>	2	PLMN 2
Cell 3	-78	<u>-67[TBD]</u>	3	PLMN 3
Cell 4	-81	<u>-70[TBD]</u>	4	PLMN 4
Cell 5	-84	<u>-73[TBD]</u>	5	PLMN 5
Cell 6	-87	<u>-76[TBD]</u>	6	PLMN 6

The UE is equipped with a USIM containing default values except for those listed below.

USIM field	Priority	PLMN	
EF _{LOCI}		PLMN 1	
EF _{HPLMNwAcT}	1 st	PLMN 2	
EF _{PLMNwAcT}	1 st	PLMN 3	
	2 nd	PLMN 4	
EF _{OPLMNwAcT}	1 st	PLMN 5	
	2 nd	PLMN 6	
EF _{FPLMN}	PLMN 3		

Test procedure

Method B is applied.

- a) The SS activates cells 1-6 and monitors the cells for random access requests from the UE.
- b) The UE is switched on.
- c) The SS waits for random access requests from the UE.
- d) Cell 1 is switched off.
- e) The SS waits for random access requests from the UE.
- f) Cell 2 is switched off.
- g) The SS waits for random access requests from the UE.
- i) Cell 4 is switched off.
- j) The SS waits for random access requests from the UE.
- k) Cell 5 is switched off.
- 1) The SS waits for random access requests from the UE.
- m) Cell 6 is switched off.

6.1.1.4.5 Test Requirements

- 1) In step c), the response from the UE shall be on Cell 1. The displayed PLMN shall be PLMN 1.
- 2) In step e), the response from the UE shall be on Cell 2. The displayed PLMN shall be PLMN 2.
- 3) In step g), the response from the UE shall be on Cell 4. The displayed PLMN shall be PLMN 4.
- 4) In step j), the response from the UE shall be on Cell 5. The displayed PLMN shall be PLMN 5.
- 5) In step 1), the response from the UE shall be on Cell 6. The displayed PLMN shall be PLMN 6.

6) After step m), the UE shall inform that only limited service is possible

6.1.1.5 PLMN selection of "Other PLMN / access technology combinations"; Automatic mode

6.1.1.5.1 Definition

Test to verify that in Automatic Network Selection Mode, the UE selects PLMNs in a prioritized order. Forbidden PLMNs shall not be selected. In this test are only considered "Other PLMN/access technology combinations" in the priority list.

Only UTRAN cells and a UE equipped with a USIM with Radio Access Technology fields set to UTRAN are considered.

6.1.1.5.2 Conformance requirement

1. At switch on, or following recovery from lack of coverage, the MS selects the registered PLMN or equivalent PLMN (if it is available) using all access technologies that the MS is capable of and if necessary (in the case of recovery from lack of coverage, see TS 23.122, clause 4.5.2) attempts to perform a Location Registration.

If successful registration is achieved, the MS indicates the selected PLMN.

If there is no registered PLMN, or if registration is not possible due to the PLMN being unavailable or registration failure, the MS follows either Automatic or Manual Network Selection Mode Procedure depending on its operating mode.

2. Automatic Network Selection Mode Procedure:

The MS selects and attempts registration on other PLMNs, if available and allowable in the following order:

- 2.1 HPLMN (if not previously selected);
- 2.2 Each PLMN in the "User Controlled PLMN Selector with Access Technology" data field in the SIM (in priority order);
- 2.3 Each PLMN in the "Operator Controlled PLMN Selector with Access Technology" data field in the SIM (in priority order);
- 2.4 Other PLMN/access technology combinations with received high quality signal in random order;
- 2.5 Other PLMN/access technology combinations in order of decreasing signal quality.
- In 2.5, the MS shall order the PLMN/access technology combinations in order of decreasing signal quality within each access technology. The order between PLMN/access technology combinations with different access technologies is an MS implementation issue.

If successful registration is achieved, the MS indicates the selected PLMN.

If registration cannot be achieved because no PLMNs are available and allowable, the MS indicates "no service" to the user, waits until a new PLMN is available and allowable and then repeats the procedure.

If there were one or more PLMNs which were available and allowable, but an LR failure made registration on those PLMNs unsuccessful or an entry in the "forbidden LAs for regional provision of service" list prevented a registration attempt, the MS selects the first such PLMN again and enters a limited service state.

- 3. If a "PLMN not allowed" message is received by an MS in response to an LR request from a VPLMN, that VPLMN is added to a list of "forbidden PLMNs" in the SIM and thereafter that VPLMN will not be accessed by the MS when in automatic mode. A PLMN is removed from the "forbidden PLMNs" list if, after a subsequent manual selection of that PLMN, there is a successful LR. This list is retained when the MS is switched off or the SIM is removed. The HPLMN shall not be stored on the list of "forbidden PLMNs".
- 4. The UE shall scan all RF channels in the UTRA band according to its capabilities to find available PLMNs. On each carrier, the UE shall search for the strongest cell according to the cell search procedures (for FDD, see TS 25.214, and TDD, see TS 25.224) and read its system information, in order to find out which PLMN the cell belongs to. If the UE can read the PLMN identity, the found PLMN shall be reported to the NAS as a high quality PLMN (but without the RSCP value), provided that the following high quality criterion is fulfilled:
 - For an FDD cell, the measured primary CPICH RSCP value shall be greater than or equal to 95 dBm.
 - For a TDD cell, the measured P-CCPCH RSCP shall be greater than or equal to -84 dBm.

Found PLMNs that do not satisfy the high quality criterion, but for which the UE has been able to read the PLMN identities are reported to the NAS together with the CPICH RSCP value for UTRA FDD cells and P-CCPCH RSCP for UTRA TDD cells.

References

- 1. TS 23.122, clause 4.4.3.1.
- 2. TS 23.122, clause 4.4.3.1.1.
- 3. TS 23.122, clause 3.1.
- 4. TS 25.304, clause 5.1.2.2.

NOTE: TS 31.102 defines the USIM fields.

6.1.1.5.3 Test purpose

- 1. To verify that in Automatic Network Selection Mode Procedure, the UE selects "Other PLMN/access technology combinations" in a prioritized order according to conformance requirement 2.4 and 2.5.
- 2. To verify that forbidden PLMNs are not selected.

6.1.1.5.4 Method of test

Initial conditions

The UE is in automatic PLMN selection mode.

Cell_selection_and_reselection_quality_measure is CPICH_RSCP_(FDD).

All Radio Access Technology USIM fields and cells are UTRAN.

Cell	CPICH_RSCP [dBm] (FDD)	P-CCPCH_ RSCP [dBm] (TDD)	High Quality signal	Test Channel	PLMN
Cell 1	-85	-74	Yes	1	PLMN 6
Cell 2	-80	-69	Yes	2	PLMN 7
Cell 3	-80	-69	Yes	3	PLMN 8
Cell 4	-98	-87	No	4	PLMN 9
Cell 5	-101	-90	No	5	PLMN 10
Cell 6	-104	-93	No	6	PLMN 11

The UE is equipped with a USIM containing default values except for those listed below.

USIM field	Priority	PLMN	
EF _{LOCI}		PLMN 1	
EFHPLMNwAcT	1 st	PLMN 2	
EF _{PLMNwAcT}	1 st	PLMN 3	
	2 nd	PLMN 4	
EF _{OPLMNwAcT}	1 st	PLMN 5	
	2 nd	PLMN 6	
EF _{FPLMN}	PLMN 10		

Test procedure

Method B is applied.

- a) The SS activates cells 1-6 and monitors the cells for random access requests from the UE.
- b) The UE is switched on.
- c) The SS waits for random access requests from the UE.
- d) Cell 1 is switched off.
- e) The SS waits for random access requests from the UE.
- f) The cell associated to the currently shown PLMN shall be switched off.
- g) The SS waits for random access requests from the UE.
- h) The cell associated to the currently shown PLMN shall be switched off.
- i) The SS waits for random access requests from the UE.
- j) Cell 4 is switched off.
- k) The SS waits for random access requests from the UE.
- 1) Cell 6 is switched off.

6.1.1.5.5 Test Requirements

- 1) In step c), the response from the UE shall be on Cell 1. The displayed PLMN shall be PLMN 6.
- 2) In step e), the response from the UE shall be on either Cell 2 or 3. The displayed PLMN shall be the one associated with the cell on which the response was received.
- 3) In step g), the response from the UE shall be on either Cell 2 or 3 (excluding the cell in step 2). The displayed PLMN shall be the one associated with the cell on which the response was received.
- 4) In step i), the response from the UE shall be on Cell 4. The displayed PLMN shall be PLMN 9.

- 5) In step k), the response from the UE shall be on Cell 6. The displayed PLMN shall be PLMN 11.
- 6) After step 1), the UE shall inform that only limited service is possible.

6.1.1.6 UE will transmit only if PLMN available

6.1.1.6.1 Definition

Test to verify that the UE will not generate any RF output if no PLMN is available.

6.1.1.6.2 Conformance requirement

[FFS: Currently no requirements exist in core specs.]

6.1.1.6.3 Test purpose

- 1. To verify that the UE does not give any "Service indication" when no PLMN is available.
- 2. To verify that the UE will not generate any RF output when no PLMN is available.

6.1.1.6.4 Method of test

Initial conditions

For FDD only:

Parameter	Unit	Cell 1	Cell 2	Cell 3
CPICH_Ec/lo	dB	-13	-15	-17
Qqualmin	dB	-20	-20	-20
Squal*	dB	7	5	3

For TDD only:

Parameter	Unit	Cell 1	Cell 2	Cell 3
P-CCPCH RSCP	dBm	-69	-71	-73
Qrxlevmin	<u>dBm</u>	-103[TBD]	<u>-103[TBD]</u>	<u>-103[TBD]</u>
Srxlev*	<u>dB</u>	34[TBD]	32[TBD]	30[TBD]

Test procedure

Method C is applied.

- a) The SS activates the cells 1-3 and monitors them for random access requests from the UE.
- b) The UE is switched on.
- c) The SS waits for random access request from the UE.
- d) Cells 1-3 are switched off.
- e) The SS shall wait 20 s to allow the UE to detect the loss of cells.
- f) By MMI, an attempt to originate a call is made.
- g) By MMI, an attempt to originate an emergency call is made (only if UE supports speech).

6.1.1.6.5 Test Requirements

1) In step c), after the UE has responded on Cell 1, it shall not respond on any other cell within 1 min.

2) In step f) and g), the UE shall not produce any RF output, neither give any "service indication" within 2 min.

6.1.2 Cell selection and reselection

6.1.2.1 Cell reselection

6.1.2.1.1 Definition

Test to verify that the UE performs the cell reselection correctly for intra/inter-frequency cells if the serving cell becomes barred or S<0.

6.1.2.1.2 Conformance requirement

- 1. When camped on a cell, the UE shall regularly search for a better cell according to the cell reselection criteria. If a better cell is found, that cell is selected. The change of cell may imply a change of RAT.
- 2. A "suitable cell" is a cell on which the UE may camp on to obtain normal service. Such a cell shall fulfil all the following requirements.
 - 2.1 The cell is part of the selected PLMN or of a PLMN considered as equivalent by the UE according to the information provided by the NAS.
 - 2.2 The cell is not barred.
 - 2.3 The cell is not part of the list of "forbidden LAs for roaming".
 - 2.4 The cell selection criteria are fulfilled.
- 3. When camped normally, the UE shall execute the cell reselection evaluation process on the following occasions/triggers:
 - 3.1 UE internal triggers, so as to meet performance as specified in TS 25.133 for FDD mode and in TS 25.123 for TDD mode.
 - 3.2 When information on the BCCH used for the cell reselection evaluation procedure has been modified.
- 4. Cell Reselection Criteria:
 - 4.1 The UE shall perform ranking of all cells that fulfil the S criterion.
 - 4.2 The cells shall be ranked according to the R criteria. The best ranked cell is the cell with the highest R value. If an FDD cell is ranked as the best cell, the UE shall perform cell re-selection to that FDD cell. If a TDD cell is ranked as the best cell, the UE shall perform cell re-selection to that TDD cell.
 - 4.3 In all cases, the UE shall reselect the new cell, only if the cell reselection criteria are fulfilled during a time interval Treselection.
 - 4.4 The cell-ranking criterion R is derived from Q, Qhyst, Qoffset, TEMP_OFFSET and PENALTY_TIME. However, TEMP_OFFSET_n and PENALTY_TIME_n are only applicable if the usage of HCS is indicated in system information.
- 5. When cell status "barred" is indicated, the UE shall select another cell according to the following rule:

- 5.1 If the "Intra-frequency cell re-selection indicator" IE in Cell Access Restriction IE is set to value "allowed", the UE may select another cell on the same frequency if selection/re-selection criteria are fulfilled.
- 5.2 If the "Intra-frequency cell re-selection indicator" IE is set to "not allowed" the UE shall not reselect a cell on the same frequency as the barred cell. For emergency call, the Intra-frequency cell re-selection indicator IE" shall be ignored, i.e. even if it is set to "not allowed" the UE may select another intra-frequency cell.

References

- 1. TS 25.304, clause 5.2.1.
- 2. TS 25.304, clause 4.3.
- 3. TS 25.304, clause 5.2.5.1.
- 4. TS 25.304, clause 5.2.6.1.4.
- 5. TS 25.304, clause 5.3.1.1.

6.1.2.1.3 Test purpose

- 1. To verify that the UE performs cell reselection on the following occasions:
 - 1.1 Serving cell becomes barred;
 - 1.2 S<0 for serving cell.
- 2. To verify conformance requirement 5.

NOTE: Reselection triggered by the cell becoming a part of a forbidden registration area is tested in clause 9.4.2.3 and clause 9.4.2.4.

6.1.2.1.4 Method of test

Initial conditions

Treselection, Qhyst, Qoffset, TEMP_OFFSET and PENALTY_TIME are not used, so the cell-ranking criterion R equals CPICH_Ec/Io for FDD cells, and P-CCPCH RSCP for TDD cells.

Step a-c (FDD):

Parameter	Unit	Cell 1	Cell 2	Cell 3
Test Channel		1	1	2
CPICH_Ec/lo	dB	-13	-15	-17
Qqualmin	dB	-20	-20	-20
Squal*	dB	7	5	3
Intra-frequency cell re-selection indicator		Not Allowed	Not Allowed	Not Allowed
CellBarred		0	0	0

Step a-c (TDD):

Parameter	Unit	Cell 1	Cell 2	Cell 3
P-CCPCH RSCP	dBm	-69	-71	-73
<u>Qrxlevmin</u>	<u>dBm</u>	<u>-103</u>	<u>-103</u>	<u>-103</u>
Srxlev*	<u>dB</u>	<u>34</u>	<u>32</u>	<u>30</u>

Step d-f:

CellBarred	0->1	0	0

Step g-h:

Intra-frequency cell re-selection indicator		Not Allowed -> Allowed	Not Allowed -> Allowed	Not Allowed -> Allowed
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Step i (FDD):

Qqualmin	dB	-20 -> -10	-20	-20
Squal*	dB	7 -> -3	5	3

Step i (TDD):

Qrxlevm <u>in</u> eas	-103 -> - [TBD]	68 <u>-103[TBD]</u>	<u>-103[TBD]</u>
Srxlev <u>*</u>	34 -> -([TBD]	32[TBD]	30[TBD]

Test procedure

Method B is applied.

- a) The SS activates Cell 1-3 and monitors them for random access requests from the UE.
- b) The UE is switched on.
- c) The SS waits for random access requests from the UE.
- d) The SS sets Cell 1 to be barred.
- e) The SS waits for random access requests from the UE.
- f) The SS sets "Intra-frequency cell re-selection indicator" to "Allowed".
- g) The SS waits for random access requests from the UE.
- h) The stored information cell selection list in the UE is deleted and the UE is switched off.
- i) Step a-e) is repeated except that in step d) for FDD cells, Qqualmin is increased to -10 dB, or in step d) for TDD cells, Qrxlevmineas is increased to -68[TBD], so S will become negative instead of the cell being barred while maintaining the same RF level.

6.1.2.1.5 Test requirements

- 1) In step c), after the UE has responded on Cell 1, it shall not respond on any other cell within 1 min.
- 2) In step e), the UE shall respond on Cell 3.
- 3) In step g), the UE shall respond on Cell 2.

4) In step i), the UE shall respond on Cell 2.

6.1.2.2 Cell reselection using Qhyst, Qoffset and Treselection

6.1.2.2.1 Definition

Test to verify that the UE performs the cell reselection correctly if system information parameters Qoffset, Qhyst and Treselection are applied for non-hierarchical cell structures. TEMP_OFFSET and PENALTY_TIME are only applicable when HCS is applied and are tested in clauses 6.1.2.4 and 6.1.2.5.

6.1.2.2.2 Conformance requirement

- 1. When camped normally, the UE shall execute the cell reselection evaluation process on the following occasions/triggers:
 - 1.1 UE internal triggers, so as to meet performance as specified in TS 25.133 for FDD mode and in TS 25.123 for TDD mode.
 - 1.2 When information on the BCCH used for the cell reselection evaluation procedure has been modified.
- 2. Cell Reselection Criteria:
 - 2.1 The UE shall perform ranking of all cells that fulfil the S criterion.
 - 2.2 The cells shall be ranked according to the R criteria. The best ranked cell is the cell with the highest R value. If an FDD cell is ranked as the best cell, the UE shall perform cell re-selection to that FDD cell. If a TDD cell is ranked as the best cell, the UE shall perform cell re-selection to that TDD cell.
 - 2.3 In all cases, the UE shall reselect the new cell, only if the cell reselection criteria are fulfilled during a time interval Treselection.
 - 2.4 The cell-ranking criterion R is derived from Q, Qhyst, Qoffset, TEMP_OFFSET and PENALTY_TIME. However, TEMP_OFFSETn and PENALTY_TIMEn are only applicable if the usage of HCS is indicated in system information.

References

- 1. TS 25.304, clause 5.2.5.1.
- 2. TS 25.304, clause 5.2.6.1.4.

6.1.2.2.3 Test purpose

- 1. To verify that the UE calculates R from Qhyst and Qoffset and that the modification of these parameters on the BCCH triggers the cell reselection evaluation process. TEMP_OFFSET and PENALTY_TIME are not applied.
- 2. To verify that the UE reselects the new cell, if the cell reselection criteria are fulfilled during a time interval Treselection.

6.1.2.2.4 Method of test

Initial conditions

For FDD only:

Step a-c:

Parameter	Unit	Cell 1	Cell 2
CPICH_Ec/lo	dB	-12	-15
Qqualmin	dB	-20	-20
Squal*	dB	8	5
Qhyst2 _s	dB	10	
R _s *	dB	-2	
R _n *	dB	-15	

Step d-e:

CPICH_Ec/lo	dB	-12 -> -15	-15 -> -12
R _s *	dB	-2 -> -5	
R _n *	dB	-15 -> -12	

Step f-g:

Qhyst2 _s	dB	10 -> 0	
R _s *	dB	-5 - > -15	
R _n *	dB	-12	

Step h-j:

CPICH_Ec/lo	dB	-12	-15
Qoffset2 _{s,n}	dB	10	
R _s *	dB	-12	
R _n *	dB	-25	

Step k-l:

CPICH_Ec/lo	dB	-12 -> -15	-15 -> -12
R _s *	dB	-12 -> -15	
R _n *	dB	-25 -> -22	

Step m-n:

Qoffset2 _{s,n}	dB	10 -> 0	
R _s *	dB	-15	
R _n *	dB	-22 -> -12	

Step o-p:

Treselections	S	30	

For TDD only:

Step a-c:

Parameter	Unit	Cell 1	Cell 2
P-CCPCH RSCP	dBm	-68	-71
Qhyst1 _s	dB	10	
R _s *	dB	-58	
R _n *	dB	-71	

Step d-e:

P-CCPCH RSCP	dBm	-68 -> -71	-71 -> -68
R _s *	dB	-58 -> -61	
R _n *	dB	-71 -> -68	

Step f-g:

Qhyst1 _s	dB	10 -> 0	
R _s *	dB	-61 -> -71	
R _s *	dB	-68	

Step h-j:

P-CCPCH RSCP	dBm	-68	-71
Qoffset1 _{s,n}	dB	10	
R _s *	dB	-68	
R _n *	dB	-81	

Step k-l:

P-CCPCH RSCP	dBm	-68 -> -71	-71 -> -68
R _s *	dB	-68 -> -71	
R _n *	dB	-81 -> -78	

Step m-n:

Qoffset1 _{s,n}	dB	10 -> 0	
R _s *	dB	-71	
R _n *	dB	-78 -> -68	

Step o-p:

Treselections	S	30	

Test procedure

Method B is applied.

- a) The SS activates Cell 1 and 2 and monitors them for random access requests from the UE.
- b) The UE is switched on.
- c) The SS waits to see if there is any random access requests from the UE.
- d) The SS changes the level of Cell 1 and 2 and waits for 10 s (TS 25.133, A.4.2.1.2 for FDD mode and TS 25.123, A.4.2.1.2 for TDD mode).
- e) The SS waits for random access requests from the UE.
- f) The SS resets Qhyst for Cell 1.
- g) The SS waits for random access requests from the UE.
- h) The stored information cell selection list in the UE is deleted and the UE is switched off.
- i) The UE is switched on.
- j) The SS waits to see if there is any random access requests from the UE.
- k) The SS changes the level of Cell 1 and 2 and waits for 10 s (TS 25.133, clause A.4.2.1.2 for FDD mode and TS 25.123, clause A.4.2.1.2 for TDD mode).
- 1) The SS waits for random access requests from the UE.
- m) The SS resets Qoffset for Cell 1.
- n) The SS waits for random access requests from the UE.
- o) Step h-n) is repeated except that Treselection is 30 s

6.1.2.2.5 Test Requirements

- 1) In step c), after the UE has responded on Cell 1, it shall not respond on any other cell within 1 min.
- 2) In step e), the UE shall keep responding on Cell 1.

- 3) In step g), the UE shall respond on Cell 2.
- 4) In step j), the UE shall select a cell to camp on and eventually make a reselection to Cell 1.
- 5) In step 1), the UE shall keep responding on Cell 1.
- 6) In step n), the UE shall respond on Cell 2.
- 7) In step o), the UE shall respond as in previous steps except that when reselecting to Cell 2, there shall be no response from the UE on Cell 2 within 28 s of broadcasting Qoffset but the UE shall respond on Cell 2 within 34 s.

NOTE: Minimum time set by Treselection – 2 s tolerance. Maximum time set by Treselection + 1 280 msec. for DRX cycle + 2 s tolerance

6.1.2.3 HCS Cell reselection

6.1.2.3.1 Definition

Test to verify that the UE performs the cell reselection correctly for hierarchical cell structures. This shall be done according to the HCS priority, the received signal quality value Q and the quality level threshold criterion H.

6.1.2.3.2 Conformance requirement

- 1. When camped normally, the UE shall execute the cell reselection evaluation process on the following occasions/triggers:
 - 1.1 UE internal triggers, so as to meet performance as specified in TS 25.133 for FDD mode and in TS 25.123 for TDD mode.
 - 1.2 When information on the BCCH used for the cell reselection evaluation procedure has been modified.
- 2. Cell Reselection Criteria for hierarchical cells:
 - 2.1 The quality level threshold criterion H for hierarchical cell structures is used to determine whether prioritised ranking according to hierarchical cell re-selection rules shall apply, and is calculated from the Q, Qhcs, TEMP_OFFSET and PENALTY_TIME parameters.
 - 2.2 The UE shall perform ranking of all cells that fulfil the S criterion among all cells that have the highest HCS_PRIO among those cells that fulfil the criterion $H \ge 0$.
 - 2.3 The cells shall be ranked according to the R criteria. The best ranked cell is the cell with the highest R value. If an FDD cell is ranked as the best cell, the UE shall perform cell re-selection to that FDD cell. If a TDD cell is ranked as the best cell, the UE shall perform cell re-selection to that TDD cell.
 - 2.4 In all cases, the UE shall reselect the new cell, only if the cell reselection criteria are fulfilled during a time interval Treselection.
 - 2.5 The cell-ranking criterion R is derived from Q, Qhyst, Qoffset, TEMP_OFFSET, PENALTY TIME.

References

- 1. TS 25.304, clause 5.2.2.
- 2. TS 25.304, clause 5.2.6.1.4.

6.1.2.3.3 Test purpose

- 1. Verify that the UE ignores cells with H<0 for reselection and that H is calculated from Qhcs. The modification of this parameter on the BCCH shall trigger the cell reselection evaluation process.
- 2. Verify that the UE ranks cells based on both HCS priority and R. Qhyst, Qoffset, TEMP_OFFSET, PENALTY_TIME and Treselection are not applied so R equals CPICH_Ec/Io for FDD cells, and P-CCPCH RSCP for TDD cells.

6.1.2.3.4 Method of test

Initial conditions

For FDD only:

Step a-c:

Parameter	Unit	Cell 1	Cell 2	Cell 3
CPICH_Ec/lo	dB	-13	-15	-17
Qqualmin	dB	-20	-20	-20
Squal*	dB	7	5	3
HCS priority		6	7	7
Qhcss	dB	-24	-10	-10
H _s *	dB	11	-5	-7

Step d-e:

Qhcss	dB	-24	-10	-10 -> -24
H _s *	dB	11	-5	-7 -> 7

Step f-g:

Qhcss	dB	-24	-10 -> -24	-24
H _s *	dB	11	-5 -> 9	7

For TDD only:

Step a-c:

Parameter	Unit	Cell 1	Cell 2	Cell 3
P-CCPCH RSCP	dBm	-69	-71	-73
HCS priority		6	7	7
Qhcss	dB	-30	-10	-10
H _s *	dB	-39	-61	-63

Step d-e:

Qhcss	dB	-30	-10	-10 -> -30
H _s *	dB	-39	-61	-63 -> -43

Step f-g:

Qhcs _s	dB	-30	-10 -> -30	-30
H _s *	dB	-39	-61 -> -41	-43

Test procedure

Method B is applied.

- a) The SS activates the cells 1-3 and monitors them for random access requests from the UE.
- b) The UE is switched on.
- c) The SS waits for random access requests from the UE.

- d) The SS changes Qhcs for Cell 3.
- e) The SS waits for random access requests from the UE.
- f) The SS changes Qhcs for Cell 2.
- g) The SS waits for random access requests from the UE.

6.1.2.3.5 Test requirements

- 1) In step c), after the UE has responded on Cell 1, it shall not respond on any other cell within 1 min.
- 2) In step e), the UE shall respond on Cell 3.
- 3) In step g), the UE shall respond on Cell 2.

6.1.2.4 HCS Cell reselection using reselection timing parameters for the H criterion

6.1.2.4.1 Definition

Test to verify that the UE performs the cell reselection correctly for hierarchical cell structures using TEMP_OFFSET and PENALTY_TIME applied to the H criterion.

6.1.2.4.2 Conformance requirement

- 1. When camped normally, the UE shall execute the cell reselection evaluation process on the following occasions/triggers:
 - 1.1 UE internal triggers, so as to meet performance as specified in TS 25.133 for FDD mode and in TS 25.123 for TDD mode.
 - 1.2 When information on the BCCH used for the cell reselection evaluation procedure has been modified.
- 2. Cell Reselection Criteria for hierarchical cells:
 - 2.1 The quality level threshold criterion H for hierarchical cell structures is used to determine whether prioritised ranking according to hierarchical cell re-selection rules shall apply, and is calculated from the Q, Qhcs, TEMP_OFFSET and PENALTY_TIME parameters.
 - 2.2 The UE shall perform ranking of all cells that fulfil the S criterion among all cells that have the highest HCS_PRIO among those cells that fulfil the criterion $H \ge 0$.
 - 2.3 The cells shall be ranked according to the R criteria. The best ranked cell is the cell with the highest R value. If an FDD cell is ranked as the best cell, the UE shall perform cell re-selection to that FDD cell. If a TDD cell is ranked as the best cell, the UE shall perform cell re-selection to that TDD cell.
 - 2.4 In all cases, the UE shall reselect the new cell, only if the cell reselection criteria are fulfilled during a time interval Treselection.
 - 2.5 The cell-ranking criterion R is derived from Q, Qhyst, Qoffset, TEMP_OFFSET and PENALTY_TIME.
- 3. $TEMP_OFFSET_n$ applies an offset to the H criteria for the duration of $PENALTY_TIME_n$ after the timer T_n has started for that cell. T_n shall be started from zero when $Q_{meas,n} > Qhcs_n$. $TEMP_OFFSET$ is only applied to the H criteria if the cells have different HCS priorities.

References

- 1. TS 25.304, clause 5.2.2.
- 2,3. TS 25.304, clause 5.2.6.1.4.

6.1.2.4.3 Test purpose

1. Verify that TEMP_OFFSET is applied to the H criterion for a period of PENALTY_TIME and that the timer is started when $Q_{meas,n} > Qhcs_n$ if serving and neighbour cell have different HCS priorities.

6.1.2.4.4 Method of test

Initial conditions

For FDD only:

Step a-c:

Parameter	Unit	Cell 1	Cell 2	Cell 3
CPICH_Ec/lo	dB	-13	-17	-17
Qqualmin	dB	-20	-20	-20
Squal*	dB	7	3	3
HCS priority		2	4	7
Qhcss	dB	-20		
Qhcs _{n=2}	dB	-10		
Qhcs _{n=3}	dB	-10		
TEMP_OFFSET2 _{n=2}	dB	10		
TEMP_OFFSET2 _{n=3}	dB	10		
H _s *	dB	7		
H _{n=2} *	dB	-7		
H _{n=3} *	dB	-7		
PENALTY_TIME _{n=2}	sec	40		
PENALTY_TIME _{n=3}	sec	60		

Step d-e:

Qhcss	dB	-20	
Qhcs _{n=2}	dB	-10 -> -20	
Qhcs _{n=3}	dB	-10 -> -20	
H _s *	dB	7	
H _{n=2} *	dB	-7 -> 3 (after 40 sec)	
H _{n=3} *	dB	-7 -> 3 (after 60 sec)	

For TDD only:

Step a-c:

Parameter	Unit	Cell 1	Cell 2	Cell 3
P-CCPCH RSCP	dBm	-69	-73	-73
HCS priority		2	4	7
Qhcs _s	dB	-20		
Qhcs _{n=2}	dB	-10		
Qhcs _{n=3}	dB	-10		
TEMP_OFFSET2 _{n=2}	dB	10		
TEMP_OFFSET2 _{n=3}	dB	10		
H _s *	dB	-49		
H _{n=2} *	dB	-63		
H _{n=3} *	dB	-63		
PENALTY_TIME _{n=2}	sec	40		
PENALTY_TIME _{n=3}	sec	60		

Step d-e:

Qhcs _s	dB	-20	
Qhcs _{n=2}	dB	-10 -> -20	
Qhcs _{n=3}	dB	-10 -> -20	
H _s *	dB	-49	
H _{n=2} *	dB	-63 -> -53 (after 40 sec)	
H _{n=3} *	dB	-63 -> -53 (after 60 sec)	

Test procedure

Method B is applied.

- a) The SS activates the cells 1-3 and monitors them for random access requests from the UE.
- b) The UE is switched on.
- c) The SS waits for random access requests from the UE.
- d) The SS changes Qhcs for Cell 2 and 3.
- e) The SS waits for random access requests from the UE.

6.1.2.4.5 Test requirements

- 1) In step c), after the UE has responded on Cell 1, it shall not respond on any other cell within 1 min.
- 2) In step e), there shall be no response from the UE on Cell 2 within 38 s of changing the parameters but the UE shall respond on Cell 2 within 44 s. There shall be no response from the UE on Cell 3 within 58 s of changing the parameters but the UE shall respond on Cell 3 within 64 s.

NOTE: Minimum time set by PENALTY_TIME (cell 2) - 2 s tolerance. Maximum time set by PENALTY_TIME (cell 2) + 1 280 msec. for DRX cycle + 2 s tolerance. Same calculation for Cell 3.

6.1.2.5 HCS Cell reselection using reselection timing parameters for the R criterion

6.1.2.5.1 Definition

Test to verify that the UE performs the cell reselection correctly for hierarchical cell structures using TEMP_OFFSET and PENALTY_TIME applied to the R criterion.

6.1.2.5.2 Conformance requirement

- 1. When camped normally, the UE shall execute the cell reselection evaluation process on the following occasions/triggers:
 - 1.1 UE internal triggers, so as to meet performance as specified in TS 25.133 for FDD mode and in TS 25.123 for TDD mode.
 - 1.2 When information on the BCCH used for the cell reselection evaluation procedure has been modified.
- 2. Cell Reselection Criteria for hierarchical cells:
 - 2.1 The quality level threshold criterion H for hierarchical cell structures is used to determine whether prioritised ranking according to hierarchical cell re-selection rules shall apply, and is calculated from the Q, Qhcs, TEMP_OFFSET and PENALTY_TIME parameters.
 - 2.2 The UE shall perform ranking of all cells that fulfil the S criterion among all cells, not considering HCS priority levels, if no cell fulfil the criterion H>=0.
 - 2.3 The cells shall be ranked according to the R criteria. The best ranked cell is the cell with the highest R value. If a FDD cell is ranked as the best cell, the UE shall perform cell re-selection to that FDD cell. If a TDD cell is ranked as the best cell, the UE shall perform cell re-selection to that TDD cell.
 - 2.4 In all cases, the UE shall reselect the new cell, only if the cell reselection criteria are fulfilled during a time interval Treselection.
 - 2.5 The cell-ranking criterion R is derived from Q, Qhyst, Qoffset, TEMP_OFFSET, PENALTY TIME.
- 3. TEMP_OFFSET_n applies an offset to the R criteria for the duration of PENALTY_TIME_n after the timer T_n has started for that cell. T_n shall be started from zero when $Q_{meas,n} > Q_{meas,s} + Qoffset2_{s,n}$. TEMP_OFFSET is only applied to the R criteria if the cells have identical priorities.

References

- 1. TS 25.304, clause 5.2.2.
- 2,3. TS 25.304, clause 5.2.6.1.4.

6.1.2.5.3 Test purpose

1. Verify that TEMP_OFFSET is applied to the R criterion for a period of PENALTY_TIME and that the timer is started when $Q_{meas,n} > Q_{meas,s} + Qoffset2_{s,n}$ if serving and neighbour cell have identical HCS priorities.

6.1.2.5.4 Method of test

Initial conditions

For FDD only:

Step a-c:

Parameter	Unit	Cell 1	Cell 2	Cell 3
CPICH_Ec/lo	dB	-15	-17	-17
Qqualmin	dB	-20	-20	-20
Squal*	dB	5	3	3
HCS priority		1	1	1
TEMP_OFFSET2 _{n=2}	dB	10		
TEMP_OFFSET2 _{n=3}	dB	10		
PENALTY_TIME _{n=2}	sec	40		
PENALTY_TIME _{n=3}	sec	60		
H _s *	dB	-15		
H _{n=2} *	dB	-17		
H _{n=3} *	dB	-17		
R _s *	dB	-15		
R _{n=2} *	dB	-17		
R _{n=3} *	dB	-17		

Step d-e:

CPICH_Ec/Io	dB	-15 -> -17	-17 -> -15	-17 -> -13
R _s *	dB	-17		
R _{n=2} *	dB	-25 -> -15 (after 40 sec)		
R _{n=3} *	dB	-23 -> -13 (after 60 sec)		

For TDD only:

Step a-c:

Parameter	Unit	Cell 1	Cell 2	Cell 3
P-CCPCH RSCP	dBm	-69	-73	-73
HCS priority		1	1	1
H _s *	dB	-69		
$H_{n=2}^*$	dB	-73		
H _{n=3} *	dB	-73		
R _s *	dB	-69		
$R_{n=2}^*$	dB	-73		
R _{n=3} *	dB	-73		

Step d-e:

Qoffset1 _{s,n=2}	dB	0 -> -10	
Qoffset1 _{s,n=3}	dB	0 -> -10	
TEMP_OFFSET1 _{n=2}	dB	10	
TEMP_OFFSET1 _{n=3}	dB	10	
PENALTY_TIME _{n=2}	sec	40	
PENALTY_TIME _{n=3}	sec	60	
R _s *	dB	-13	
R _{n=2} *	dB	-73 -> -63	
Nn=2	uБ	(after 40 sec)	
R _{n=3} *	dB	-73 -> -63	
Nn=3	uБ	(after 60 sec)	

Test procedure

Method B is applied.

- a) The SS activates the cells 1-3 and monitors them for random access requests from the UE.
- b) The UE is switched on.
- c) The SS waits for random access requests from the UE.
- d) The SS changes the level of Cell 1-3.
- e) The SS waits for random access requests from the UE.

6.1.2.5.5 Test requirements

- 1) In step c), after the UE has responded on Cell 1, it shall not respond on any other cell within 1 min.
- 2) In step e), there shall be no response from the UE on Cell 2 within 38 s of changing the parameters but the UE shall respond on Cell 2 within 50 s. There shall be no response from the UE on Cell 3 within 58 s of changing the parameters but the UE shall respond on Cell 3 within 70 s.

NOTE: Minimum time set by PENALTY_TIME (cell 2) -2 s tolerance. Maximum time set by PENALTY_TIME (cell 2) +6.4 s ($T_{\rm evaluateFDD}$ from TS 25.133, table 4.1 for FDD mode and $T_{\rm evaluateTDD}$ from TS 25.123, table 4.1 for TDD mode) +1 280 msec. for system info scheduling +2 s tolerance. Same calculation for Cell 3.

6.1.2.6 Emergency calls

6.1.2.6.1 Definition

Test to verify that the UE shall be able to initiate emergency calls when no suitable cells of the selected PLMN are available, but at least one acceptable cell is available.

6.1.2.6.2 Conformance requirement

1. Acceptable cell:

An "acceptable cell" is a cell on which the UE may camp to obtain limited service (originate emergency calls). Such a cell shall fulfil the following requirements, which is the minimum set of requirements to initiate an emergency call in a UTRAN network:

- 1.1 The cell is not barred;
- 1.2 The cell selection criteria are fulfilled.
- 2. A "suitable cell" is a cell on which the UE may camp on to obtain normal service. Such a cell shall fulfil all the following requirements.
 - 2.1 The cell is part of the selected PLMN or, of a PLMN considered as equivalent by the UE according to the information provided by the NAS.
 - 2.2 The cell is not barred.
 - 2.3 The cell is not part of the list of "forbidden LAs for roaming".
 - 2.4 The cell selection criteria are fulfilled.
- 3. If the UE is unable to find any suitable cell of selected PLMN the UE shall enter the *Any cell selection* state.

- 4. Any Cell Selection State: In this state, the UE shall attempt to find an acceptable cell of an any PLMN to camp on, trying all RATs that are supported by the UE and searching first for a high quality cell. The UE, which is not camped on any cell, shall stay in this state until an acceptable cell is found.
- 5. Camped on Any Cell State: In this state the UE obtains limited service. The UE shall regularly attempt to find a suitable cell of the selected PLMN, trying RATs that are supported by the UE. If a suitable cell is found, this causes an exit to the Camped normally State.
- 6. In the Camped on Any Cell State, the UE shall perform the cell reselection evaluation process on the following occasions/triggers:
 - 6.1 UE internal triggers, so as to meet performance as specified in TS 25.133 for FDD mode and TS 25.123 for TDD mode.
 - 6.2 When information on the BCCH used for the cell reselection evaluation procedure has been modified.

References

- 1. TS 25.304, clause 4.3.
- 2. TS 25.304, clause 4.3.
- 3. TS 25.304, clause 5.2.2.1.
- 4. TS 25.304, clause 5.2.8.
- 5. TS 25.304, clause 5.2.2.5.
- 6. TS 25.304, clause 5.2.9.1.

6.1.2.6.3 Test purpose

- 1. To verify that the UE shall be able to initiate emergency calls when no suitable cells of the selected PLMN are available, but at least one acceptable cell is available.
- 2. To verify that the UE selects a cell with S>0 and CellBarred = 0 (acceptable cell) when no suitable cells of the selected PLMN are available.
- 3. To verify that the UE ranks the acceptable cells according to the cell-ranking criterion R which in this test case equals Q as Qhyst, Qoffset, TEMP_OFFSET and PENALTY_TIME parameters are not used. Treselection is not used either.

6.1.2.6.4 Method of test

Initial conditions

In step a-d, Cell 1 and 2 are neither suitable nor acceptable cells. Cell 3 is an acceptable cell but not suitable.

In step e-f, both Cell 1 and 3 are acceptable cells.

Step a-d:

For FDD only:

Parameter	Unit	Cell 1	Cell 2	Cell 3
CPICH_Ec/lo	dB	-15	-13	-17
Qqualmin	dB	-20	-10	-20
Squal*	dB	5	-3	3
CellBarred		1	0	0
PLMN		forbidden	forbidden	forbidden

For TDD only:

Parameter	Unit	Cell 1	Cell 2	Cell 3
P-CCPCH RSCP	dBm	-69	-77	-71
CellBarred		1	0	0
PLMN		forbidden	forbidden	forbidden

Step e-f:

CellBarred	1 -> 0	0	0

NOTE: All the BCCH cells belong to the same PLMN, which is not the UE's home PLMN and is in the USIM's forbidden PLMN's list.

Test procedure

Method C is applied.

- a) The SS activates the cells and monitors them for random access requests from the UE.
- b) The UE is switched on.
- c) 50 s after switch on, an emergency call is initiated on the UE.
- d) The SS waits for random access request from the UE.
- e) The SS changes the CellBarred of Cell 1 to 0.
- f) After 30 s an emergency call is initiated on the UE.
- g) The SS waits for random access request from the UE.

6.1.2.6.5 Test requirements

- 1) In step d), the first access from the UE shall be on Cell 3.
- 2) In step g), the first access from the UE shall be on Cell 1.

6.1.2.7 Emergency calls; Intra-frequency cell "Not allowed"

6.1.2.7.1 Definition

Test to verify that for emergency call and cell status "barred", the Intra-frequency cell re-selection indicator IE is ignored, i.e. even if it is set to "not allowed" the UE may select another intra-frequency cell.

6.1.2.7.2 Conformance requirement

- 1. When cell status "barred" is indicated:
 - The UE is not permitted to select/re-select this cell, not even for emergency calls.
 - The UE shall select another cell according to the following rule:

- If the "Intra-frequency cell re-selection indicator" IE is set to "not allowed" the UE shall not re-select a cell on the same frequency as the barred cell. For emergency call, the Intra-frequency cell re-selection indicator IE" shall be ignored, i.e. even if it is set to "not allowed" the UE may select another intra-frequency cell.

References

1. TS 25.304, clause 5.3.1.1.

6.1.2.7.3 Test purpose

To verify that for emergency call and cell status "barred", the Intra-frequency cell re-selection indicator IE is ignored, i.e. even if it is set to "not allowed" the UE may select another intra-frequency cell.

6.1.2.7.4 Method of test

Initial conditions

Cell 1 and 2 are on the same carrier frequency.

Step a-c:

For FDD only:

Parameter	Unit	Cell 1	Cell 2
CPICH_Ec/lo	dB	-13	-15
Qqualmin	dB	-20	-20
Squal*	dB	7	5
Intra-frequency cell re- selection indicator		Not allowed	Not allowed
CellBarred		0	0

For TDD only:

<u>Parameter</u>	<u>Unit</u>	<u>Cell 1</u>	Cell 2
P-CCPCH RSCP	<u>dBm</u>	<u>-77</u>	<u>-69</u>
<u>CellBarred</u>	<u>dBm</u>	<u>0</u>	<u>0</u>

Step d-i:

CellBarred	0 -> 1	0

Test procedure

Method C is applied.

- a) The SS activates the cells and monitors them for any random access requests from the UE.
- b) The UE is switched on.
- c) The SS waits for random access request from the UE.
- d) The SS sets Cell 1 to be barred.
- e) The SS waits to see if there is any random access request from the UE.
- f) By MMI, an attempt to originate a call is made.
- g) The SS waits to see if there is any random access request from the UE.
- h) By MMI, an emergency call is initiated on the UE.

i) The SS waits for random access request from the UE.

6.1.2.6.5 Test requirements

- 1) In step c), after the UE has responded on Cell 1, it shall nor respond on any other cell within 1 min.
- 2) In step e), there shall be no response from the UE within 2 min.
- 3) In step g), there shall be no response from the UE within 2 min. It shall not be possible to originate the call.
- 4) In step i), the UE shall respond on Cell 2. It shall be possible to originate the emergency call.

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6.2 Multi-mode environment (2G/3G case)

6.2.1 PLMN and RAT selection and reselection

6.2.1.1 Selection of the correct PLMN and associated RAT

6.2.1.1.1 Definition

Test to verify that the UE selects the correct combination of PLMN and associated access technology according to the fields on the USIM.

6.2.1.1.2 Conformance requirement

1. At switch on, or following recovery from lack of coverage, the MS selects the registered PLMN or equivalent PLMN (if it is available) using all access technologies that the MS is capable of and if necessary (in the case of recovery from lack of coverage, see TS 23.122, clause 4.5.2) attempts to perform a Location Registration.

If successful registration is achieved, the MS indicates the selected PLMN.

If there is no registered PLMN, or if registration is not possible due to the PLMN being unavailable or registration failure, the MS follows either Automatic or Manual Network Selection Mode Procedure depending on its operating mode.

References

1. TS 23.122, clause 4.4.3.1.

NOTE: TS 31.102 defines the USIM fields.

6.2.1.1.3 Test purpose

1. To verify that the UE selects the correct combination of PLMN and associated access technology according to the fields on the USIM.

6.2.1.1.4 Method of test

Initial conditions

The UE is in automatic PLMN selection mode.

Cell selection and reselection quality measure is CPICH RSCP (FDD). Cell levels are from tables 6.3 and 6.4

Cell	CPICH_RSCP /	P-CCPCH_RSCP/	Test	PLMN	Radio Access
	RF signal level [dBm] (FDD)	RF signal level [dBm] (TDD)	Channel		Technology
Cell 1	-48	<u>-48</u>	1	PLMN 1	GSM
Cell 2	-72	<u>-61</u>	1	PLMN 1	UTRAN
Cell 3	-75	<u>-64</u>	2	PLMN 2	UTRAN
Cell 4	-50	<u>-50</u>	2	PLMN 2	GSM

The UE is equipped with a USIM containing default values except for those listed below.

USIM A

USIM field	Priority	PLMN	Access Technology Identifier
EFLOCI			
EF _{HPLMNwAcT}	1 st	PLMN 1	GSM
	2 nd		UTRAN

USIM B

USIM field	Priority	PLMN	Access Technology Identifier
EF _{LOCI}			
EF _{HPLMNwAcT}	1 st	PLMN 2	UTRAN
	2 nd		GSM

Test procedure

Method B is applied.

- a) The SS activates cells 1-4 and monitors the cells for random access requests from the UE. The UE shall have a USIM with settings according to USIM A.
- b) The UE is switched on.
- c) The SS waits for random access requests from the UE.
- d) The UE is switched off and a USIM with settings according to USIM B is inserted.
- e) The UE is switched on.
- f) The SS waits for random access requests from the UE.

6.2.1.1.5 Test Requirements

- 1) In step c), the response from the UE shall be on Cell 1. The displayed PLMN shall be PLMN1 (GSM).
- 2) In step f), the response from the UE shall be on Cell 3. The displayed PLMN shall be PLMN2 (UTRAN).

6.2.1.2 Selection of RAT for HPLMN; Manual mode

6.2.1.2.1 Definition

Test to verify that the UE selects the HPLMN RAT according to the HPLMN RAT priority list on the USIM. If no RAT on the list is available, the UE shall try to obtain registration on the same PLMN using other UE-supported RATs.

6.2.1.2.2 Conformance requirement

- To allow provision for multiple HPLMN codes, the HPLMN access technologies are stored on the SIM together
 with PLMN codes. This version of the specification does not support multiple HLPMN codes and the "HPLMN
 Selector with Access Technology" data field is only used by the MS to get the HPLMN access technologies. The
 HPLMN code is the PLMN code included in the IMSI.
- 2. For HPLMN, the MS shall search for all access technologies it is capable of. The MS shall start its search using the access technologies stored in the "HPLMN Selector with Access Technology" data field on the SIM in priority order (i.e. the PLMN/access technology combinations are listed in priority order, if an entry includes more than one access technology then no priority is defined for the preferred access technology and the priority is an implementation issue).
- 3. Manual Network Selection Mode Procedure:

The MS indicates whether there are any PLMNs, which are available using all supported access technologies. This includes PLMNs in the "forbidden PLMNs" list and PLMNs which only offer services not supported by the MS.

If displayed, PLMNs meeting the criteria above are presented in the following order:

3.1 HPLMN;

- 3.2 PLMNs contained in the "User Controlled PLMN Selector with Access Technology" data field in the SIM (in priority order);
- 3.3 PLMNs contained in the "Operator Controlled PLMN Selector with Access Technology" data field in the SIM (in priority order);

- 3.4 Other PLMN/access technology combinations with received high quality signal in random order;
- 3.5 Other PLMN/access technology combinations in order of decreasing signal quality.

The user may select his desired PLMN and the MS then initiates registration on this PLMN using the access technology chosen by the user for that PLMN or using the highest priority available access technology for that PLMN, if the associated access technologies have a priority order. (This may take place at any time during the presentation of PLMNs). For such a registration, the MS shall ignore the contents of the "forbidden LAs for roaming", "forbidden LAs for regional provision of service", "forbidden PLMNs for GPRS service" and "forbidden PLMNs" lists.

If the user does not select a PLMN, the selected PLMN shall be the one that was selected before the PLMN selection procedure started. If no such PLMN was selected or that PLMN is no longer available, then the MS shall attempt to camp on any acceptable cell and enter the limited service state.

NOTE: It is an MS implementation option whether to indicate access technologies to the user. If the MS does display access technologies, then the access technology used should be the access technology chosen by the user for that PLMN. If the MS does not display access technologies, then the access technology chosen for a particular PLMN should be the highest priority available access technology for that PLMN, if the associated access technologies have a priority order.

References

- 1. TS 23.122, clause 4.4.3.
- 2. TS 23.122, clause 4.4.3.1.1 (f).
- 3. TS 23.122, clause 4.4.3.1.2.

NOTE: TS 31.102 defines the USIM fields.

6.2.1.2.3 Test purpose

- 1. To verify that:
 - 1.1 the UE searches for a HPLMN RAT according to the HPLMN Selector with Access Technology data field on the USIM in priority order.
 - 1.2 If no RAT on the priority list is available, the UE tries to obtain registration on the same PLMN using other UE-supported RATs.

6.2.1.2.4 Method of test

Initial conditions

The UE is in manual PLMN selection mode.

Cell_selection_and_reselection_quality_measure is CPICH_RSCP_(FDD). Cell levels are from tables 6.3 and 6.4.

Cell	CPICH_RSCP / RF signal level [dBm] (FDD)	P-CCPCH_RSCP/ RF signal level [dBm] (TDD)	Test Channel	PLMN	Radio Access Technology
Cell 1	-72	<u>-61</u>	1	PLMN 2	UTRAN
Cell 2	-48	<u>-48</u>	1	PLMN 2	GSM
Cell 3	-75	<u>-64</u>	2	PLMN 3	UTRAN
Cell 4	-50	<u>-50</u>	2	PLMN 3	GSM

The UE is equipped with a USIM containing default values except for those listed below.

USIM A

USIM field	Priority	PLMN	Access Technology Identifier
EFLOCI		PLMN 1	
EF _{HPLMNwAcT}	1 st	PLMN 2	UTRAN
	2 nd		GSM

USIM B

USIM field	Priority	PLMN	Access Technology Identifier
EF _{LOCI}		PLMN 1	
EF _{HPLMNwAcT}	1 st	PLMN 2	UTRAN
	2 nd		

Test procedure

Method B is applied.

- a) The SS activates cells 1-4 and monitors the cells for random access requests from the UE. The UE shall have a USIM with settings according to USIM A.
- b) The UE is switched on.
- c) PLMN2 (UTRAN) shall be selected when the PLMN list is presented.
- d) The SS waits for random access requests from the UE.
- e) Cell 1 is switched off.
- f) PLMN2 (GSM) shall be selected when the PLMN list is presented.
- g) The SS waits for random access requests from the UE.
- h) The UE is switched off and a USIM with settings according to USIM B is inserted. All cells except Cell 1 are active.
- i) The UE is switched on.
- j) PLMN2 (GSM) shall be selected when the PLMN list is presented.
- k) The SS waits for random access requests from the UE.

6.2.1.2.5 Test Requirements

- 1) In step c), the list shall be presented. It shall contain as highest priority PLMN2 (UTRAN as number 1 on the list and GSM as number 2).
- 2) In step d), the response from the UE shall be on Cell 1 (1st priority RAT for EF_{HPLMNwAcT}). The displayed PLMN shall be PLMN2 (UTRAN).
- 3) In step f), the list shall be presented. It shall contain as highest priority PLMN2 (GSM).
- 4) In step g), the response from the UE shall be on Cell 2 (2nd priority RAT for EF_{HPLMNwAcT}). The displayed PLMN shall be PLMN2 (GSM).
- 5) In step j), the list shall be presented. It shall contain as highest priority PLMN2 (GSM).
- 6) In step k), the response from the UE shall be on Cell 2. The displayed PLMN shall be PLMN2 (GSM). (PLMN2 is not available on UTRAN so registration on the same PLMN is attempted using other UE-supported RATs).

6.2.1.3 Selection of RAT for UPLMN; Manual mode

6.2.1.3.1 Definition

Test to verify that the UE selects the UPLMN RAT according to the UPLMN RAT priority list on the USIM. If no RAT on the list is available, the UE shall not try to obtain registration on the same PLMN(s) with other RAT(s) but instead search for PLMNs in the OPLMN list.

6.2.1.3.2 Conformance requirement

1. Manual Network Selection Mode Procedure:

The MS indicates whether there are any PLMNs, which are available using all supported access technologies. This includes PLMNs in the "forbidden PLMNs" list and PLMNs which only offer services not supported by the MS.

If displayed, PLMNs meeting the criteria above are presented in the following order:

- 1.1 HPLMN;
- 1.2 PLMNs contained in the "User Controlled PLMN Selector with Access Technology" data field in the SIM (in priority order);
- 1.3 PLMNs contained in the "Operator Controlled PLMN Selector with Access Technology" data field in the SIM (in priority order);
- 1.4 Other PLMN/access technology combinations with received high quality signal in random order;
- 1.5 Other PLMN/access technology combinations in order of decreasing signal quality.

The user may select his desired PLMN and the MS then initiates registration on this PLMN using the access technology chosen by the user for that PLMN or using the highest priority available access technology for that PLMN, if the associated access technologies have a priority order. (This may take place at any time during the presentation of PLMNs). For such a registration, the MS shall ignore the contents of the "forbidden LAs for roaming", "forbidden LAs for regional provision of service", "forbidden PLMNs for GPRS service" and "forbidden PLMNs" lists.

If the user does not select a PLMN, the selected PLMN shall be the one that was selected before the PLMN selection procedure started. If no such PLMN was selected or that PLMN is no longer available, then the MS shall attempt to camp on any acceptable cell and enter the limited service state.

NOTE: It is an MS implementation option whether to indicate access technologies to the user. If the MS does display access technologies, then the access technology used should be the access technology chosen by the user for that PLMN. If the MS does not display access technologies, then the access technology chosen for a particular PLMN should be the highest priority available access technology for that PLMN, if the associated access technologies have a priority order.

References

1. TS 23.122, clause 4.4.3.1.2.

NOTE: TS 31.102 defines the USIM fields.

6.2.1.3.3 Test purpose

- 1. To verify that:
 - 1.1 the UE selects the UPLMN RAT according to the UPLMN RAT priority list on the USIM.
 - 1.2 If no RAT on the list is available, the UE does not try to obtain registration on the same PLMN with another RAT but instead searches for PLMNs in the OPLMN list.

6.2.1.3.4 Method of test

Initial condition

The UE is in manual PLMN selection mode.

Cell_selection_and_reselection_quality_measure is CPICH_RSCP(FDD). Cell levels are from tables 6.3 and 6.4.

Cell	CPICH_RSCP / RF signal level [dBm] (FDD)	P-CCPCH RSCP/ RF signal level [dBm] (TDD)	Test Channel	PLMN	Radio Access Technology
Cell 1	-72	<u>-61</u>	1	PLMN 3	UTRAN
Cell 2	-48	<u>-48</u>	1	PLMN 3	GSM
Cell 3	-75	<u>-64</u>	2	PLMN 4	UTRAN
Cell 4	-50	<u>-50</u>	2	PLMN 4	GSM
Cell 5	-78	<u>-67</u>	3	PLMN 5	UTRAN

The UE is equipped with a USIM containing default values except for those listed below.

USIM field	Priority	PLMN	Access Technology Identifier
EF _{LOCI}		PLMN 1	
EF _{HPLMNwAcT}	1 st	PLMN 2	UTRAN
	2 nd		GSM
EF _{PLMNwAcT}	1 st	PLMN 3	UTRAN
	2 nd	PLMN 4	GSM
EF _{OPLMNwAcT}	1 st	PLMN 5	UTRAN
	2 nd	PLMN 6	GSM

Test procedure

Method B is applied.

- a) The SS activates cells 1-5 and monitors the cells for random access requests from the UE.
- b) The UE is switched on.
- c) PLMN3 (UTRAN) shall be selected when the PLMN list is presented.
- d) The SS waits for random access requests from the UE.
- e) Cell 1 is switched off.
- f) PLMN4 (GSM) shall be selected when the PLMN list is presented.
- g) The SS waits for random access requests from the UE.
- h) Cell 4 is switched off.
- i) PLMN5 (UTRAN) shall be selected when the PLMN list is presented.
- j) The SS waits for random access requests from the UE.

6.2.1.3.5 Test Requirements

- 1) In step c), the list shall be presented. It shall contain in priority PLMN3 (UTRAN), PLMN4 (GSM), other PLMNs.
- 2) In step d), the response from the UE shall be on Cell 1 (1^{st} priority RAT for EF_{PLMNwAcT}). The displayed PLMN shall be PLMN3 (UTRAN).
- 3) In step f), the list shall be presented. It shall contain in priority PLMN4 (GSM), PLMN5 (UTRAN), other PLMNs.
- 4) In step g), the response from the UE shall be on Cell 4 (2nd priority RAT for EF_{PLMNwACT}). The displayed PLMN shall be PLMN4 (GSM).
- 5) In step i), the list shall be presented. It shall contain as highest priority PLMN5 (UTRAN).

6) In step j), the response from the UE shall be on Cell 5 (1st priority RAT for EF_{OPLMNwAcT}). The displayed PLMN shall be PLMN5 (UTRAN).

6.2.1.4 Selection of RAT for OPLMN; Manual mode

6.2.1.4.1 Definition

Test to verify that the UE selects the OPLMN RAT according to the OPLMN RAT priority list on the USIM. If no RAT on the list is available, the UE shall not try to obtain registration on the same PLMN(s) with other RAT(s) but instead search for other PLMN/access technology combinations with received high quality signal in random order.

6.2.1.4.2 Conformance requirement

1. Manual Network Selection Mode Procedure:

The MS indicates whether there are any PLMNs, which are available using all supported access technologies. This includes PLMNs in the "forbidden PLMNs" list and PLMNs which only offer services not supported by the MS.

If displayed, PLMNs meeting the criteria above are presented in the following order:

- 1.1 HPLMN;
- 1.2 PLMNs contained in the "User Controlled PLMN Selector with Access Technology" data field in the SIM (in priority order);
- 1.3 PLMNs contained in the "Operator Controlled PLMN Selector with Access Technology" data field in the SIM (in priority order);
- 1.4 Other PLMN/access technology combinations with received high quality signal in random order;
- 1.5 Other PLMN/access technology combinations in order of decreasing signal quality.

The user may select his desired PLMN and the MS then initiates registration on this PLMN using the access technology chosen by the user for that PLMN or using the highest priority available access technology for that PLMN, if the associated access technologies have a priority order. (This may take place at any time during the presentation of PLMNs). For such a registration, the MS shall ignore the contents of the "forbidden LAs for roaming", "forbidden LAs for regional provision of service", "forbidden PLMNs for GPRS service" and "forbidden PLMNs" lists.

If the user does not select a PLMN, the selected PLMN shall be the one that was selected before the PLMN selection procedure started. If no such PLMN was selected or that PLMN is no longer available, then the MS shall attempt to camp on any acceptable cell and enter the limited service state.

NOTE: It is an MS implementation option whether to indicate access technologies to the user. If the MS does display access technologies, then the access technology used should be the access technology chosen by the user for that PLMN. If the MS does not display access technologies, then the access technology chosen for a particular PLMN should be the highest priority available access technology for that PLMN, if the associated access technologies have a priority order.

References

1. TS 23.122, clause 4.4.3.1.2.

NOTE: TS 31.102 defines the USIM fields.

6.2.1.4.3 Test purpose

- 1. To verify that:
 - 1.1 the UE selects the OPLMN RAT according to the OPLMN RAT priority list on the USIM.
 - 1.2 If no RAT on the list is available, the UE does not try to obtain registration on the same PLMN(s) with other RAT(s) but instead searches for "other PLMN/access technology combinations with received high quality signal in random order".

6.2.1.4.4 Method of test

Initial conditions

The UE is in manual PLMN selection mode.

Cell_selection_and_reselection_quality_measure is CPICH_RSCP_(FDD). Cell levels are from tables 6.3 and 6.4.

Cell	CPICH_RSCP / RF signal level [dBm] (FDD)	P-CCPCH RSCP / RF signal level [dBm] (TDD)	Test Channel	PLMN	Radio Access Technology
Cell 1	-72	<u>-61</u>	1	PLMN 5	UTRAN
Cell 2	-48	<u>-48</u>	1	PLMN 5	GSM
Cell 3	-75	<u>-64</u>	2	PLMN 6	UTRAN
Cell 4	-50	<u>-50</u>	2	PLMN 6	GSM
Cell 5	-78	-67	3	PLMN 7	UTRAN

The UE is equipped with a USIM containing default values except for those listed below.

USIM field	Priority	PLMN	Access Technology Identifier
EF _{LOCI}		PLMN 1	
EF _{HPLMNwAcT}	1 st	PLMN 2	UTRAN
	2 nd		GSM
EF _{PLMNwAcT}	1 st	PLMN 3	UTRAN
	2 nd	PLMN 4	GSM
EFOPLMNWACT	1 st	PLMN 5	UTRAN
	2 nd	PLMN 6	GSM

Test procedure

Method B is applied.

- a) The SS activates cells 1-5 and monitors the cells for random access requests from the UE.
- b) The UE is switched on.
- c) PLMN5 (UTRAN) shall be selected when the PLMN list is presented.
- d) The SS waits for random access requests from the UE.
- e) Cell 1 is switched off.
- f) PLMN6 (GSM) shall be selected when the PLMN list is presented.
- g) The SS waits for random access requests from the UE.
- h) Cell 4 is switched off.
- i) PLMN7 (UTRAN) shall be selected when the PLMN list is presented.
- j) The SS waits for random access requests from the UE.

6.2.1.4.5 Test Requirements

- 1) In step c), the list shall be presented. It shall contain in priority PLMN5 (UTRAN), PLMN6 (GSM), other PLMNs.
- 2) In step d), the response from the UE shall be on Cell 1 (1st priority RAT for EF_{OPLMNwAcT}). The displayed PLMN shall be PLMN5 (UTRAN).
- 3) In step f), the list shall be presented. It shall contain as highest priority PLMN6 (GSM) followed by PLMN5 (GSM), PLMN6 (UTRAN) and PLMN7 (UTRAN) in random order.
- 4) In step g), the response from the UE shall be on Cell 4 (2nd priority RAT for EF_{OPLMNwAcT}). The displayed PLMN shall be PLMN6 (GSM).
- 5) In step i), the list shall be presented. It shall contain PLMN5 (GSM), PLMN6 (UTRAN) and PLMN7 (UTRAN) in random order.
- 6) In step j), the response from the UE shall be on Cell 5. The displayed PLMN shall be PLMN7 (UTRAN).

6.2.1.5 Selection of "Other PLMN / access technology combinations"; Manual mode

6.2.1.5.1 Definition

Test to verify that if neither RPLMN, HPLMN, UPLMN nor OPLMN is available, the UE first tries to obtain registration on "Other PLMN/access technology combinations with received high quality signal in random order" and secondly on "Other PLMN/access technology combinations in order of decreasing signal quality".

6.2.1.5.2 Conformance requirement

1. Manual Network Selection Mode Procedure:

The MS indicates whether there are any PLMNs, which are available using all supported access technologies. This includes PLMNs in the "forbidden PLMNs" list and PLMNs which only offer services not supported by the MS.

If displayed, PLMNs meeting the criteria above are presented in the following order:

- 1.1 HPLMN;
- 1.2 PLMNs contained in the "User Controlled PLMN Selector with Access Technology" data field in the SIM (in priority order);
- 1.3 PLMNs contained in the "Operator Controlled PLMN Selector with Access Technology" data field in the SIM (in priority order);
- 1.4 Other PLMN/access technology combinations with received high quality signal in random order;
- 1.5 Other PLMN/access technology combinations in order of decreasing signal quality.

In 1.5, the MS shall order the PLMN/access technology combinations in order of decreasing signal quality within each access technology. The order between PLMN/access technology combinations with different access technologies is an MS implementation issue.

The user may select his desired PLMN and the MS then initiates registration on this PLMN using the access technology chosen by the user for that PLMN or using the highest priority available access technology for that PLMN, if the associated access technologies have a priority order. (This may take place at any time during the presentation of PLMNs). For such a registration, the MS shall ignore the contents of the "forbidden LAs for roaming", "forbidden LAs for regional provision of service", "forbidden PLMNs for GPRS service" and "forbidden PLMNs" lists.

If the user does not select a PLMN, the selected PLMN shall be the one that was selected before the PLMN selection procedure started. If no such PLMN was selected or that PLMN is no longer available, then the MS shall attempt to camp on any acceptable cell and enter the limited service state.

- NOTE: It is an MS implementation option whether to indicate access technologies to the user. If the MS does display access technologies, then the access technology used should be the access technology chosen by the user for that PLMN. If the MS does not display access technologies, then the access technology chosen for a particular PLMN should be the highest priority available access technology for that PLMN, if the associated access technologies have a priority order.
- 2. UTRA case: The UE shall scan all RF channels in the UTRA band according to its capabilities to find available PLMNs. On each carrier, the UE shall search for the strongest cell according to the cell search procedures (for FDD, see TS 25.214, and TDD, see TS 25.224) and read its system information, in order to find out which PLMN the cell belongs to. If the UE can read the PLMN identity, the found PLMN shall be reported to the NAS as a high quality PLMN (but without the RSCP value), provided that the following high quality criterion is fulfilled:
 - For an FDD cell, the measured primary CPICH RSCP value shall be greater than or equal to -95 dBm.
 - For a TDD cell, the measured P-CCPCH RSCP value shall be greater than or equal to -84 dBm.

Found PLMNs that do not satisfy the high quality criterion, but for which the UE has been able to read the PLMN identities are reported to the NAS together with the CPICH RSCP value for UTRA FDD cells and P-CCPCH RSCP for UTRA TDD cells.

3. GSM case: A PLMN shall be understood to be received with high quality signal if the signal level is above -85 dBm.

References

- 1. TS 23.122, clause 4.4.3.1.2.
- 2. TS 25.304, clause 5.1.2.2.
- 3. TS 03.22, clause 4.4.3.

NOTE: TS 31.102 defines the USIM fields.

6.2.1.5.3 Test purpose

- 1. To verify that:
 - 1.1 If neither RPLMN, HPLMN, UPLMN nor OPLMN is available, the UE tries to obtain registration on "Other PLMN/access technology combinations with received high quality signal in random order".
 - 1.2 If no PLMN is available in test purpose 1.1, the UE tries to obtain registration on "Other PLMN/access technology combinations in order of decreasing signal quality".
- 2. The "random order" in test purpose 1.1 is not verified.

6.2.1.5.4 Method of test

Initial conditions

The UE is in manual PLMN selection mode.

Cell_selection_and_reselection_quality_measure is CPICH_RSCP_(FDD).

Cell	CPICH_RSCP / RF signal level [dBm]_(FDD)	P-CCPCH_RSCP / RF signal level [dBm] (TDD)	High Quality signal	Test Channe I	PLMN	Radio Access Technology
Cell 1	-80	<u>-69</u>	Yes	1	PLMN 7	UTRAN
Cell 2	-65	<u>-65</u>	Yes	1	PLMN 8	GSM
Cell 3	-98	<u>-87</u>	No	2	PLMN 9	UTRAN
Cell 4	-101	<u>-90</u>	No	2	PLMN 10	UTRAN
Cell 5	-88	<u>-88</u>	No	3	PLMN 11	GSM
Cell 6	-91	<u>-91</u>	No	3	PLMN 12	GSM

The UE is equipped with a USIM containing default values except for those listed below.

USIM field	Priority	PLMN	Access Technology Identifier		
EF _{LOCI}		PLMN 1			
EFHPLMNWAcT	1 st	PLMN 2	UTRAN		
	2 nd		GSM		
EF _{PLMNwAcT}	1 st	PLMN 3	UTRAN		
	2 nd	PLMN 4	GSM		
EFOPLMNWACT	1 st	PLMN 5	UTRAN		
	2 nd	PLMN 6	GSM		
EF _{FPLMN}	PLMN 7				
	PLMN 12				

Test procedure

Method B is applied.

- a) The SS activates cells 1-6 and monitors the cells for random access requests from the UE.
- b) The UE is switched on.
- c) PLMN11 shall be selected when the PLMN list is presented.
- d) The SS waits for random access requests from the UE.
- e) Cell 5 is switched off.
- f) PLMN8 shall be selected when the PLMN list is presented.
- g) The SS waits for random access requests from the UE.
- h) Cell 2 is switched off.
- i) PLMN10 shall be selected when the PLMN list is presented.
- j) The SS waits for random access requests from the UE.
- k) Cell 4 is switched off.
- PLMN7 shall be selected when the PLMN list is presented. The SS shall reject the Registration Request from the UE.
- m) Cell 1 is switched off.
- n) PLMN9 shall be selected when the PLMN list is presented.
- o) The SS waits for random access requests from the UE.
- p) Cell 3 is switched off.
- q) PLMN12 shall be selected when the PLMN list is presented. The SS shall reject the Registration Request from the UE.
- r) Cell 6 is switched off.

6.2.1.5.5 Test Requirements

In all steps, the PLMN priority list shall be as follows: PLMN7, PLMN8 in random order followed by the other PLMNs. PLMN9 shall always come before PLMN10 and PLMN11 shall always come before PLMN12.

- 1) In step c), the list shall be presented and contain PLMN7, 8, 9, 10, 11, 12.
- 2) In step d), the response from the UE shall be on Cell 5. The displayed PLMN shall be PLMN11.
- 3) In step f), the list shall be presented and contain PLMN7, 8, 9, 10, 12.
- 4) In step g), the response from the UE shall be on Cell 2. The displayed PLMN shall be PLMN8.
- 5) In step i), the list shall be presented and contain PLMN7, 9, 10, 12.
- 6) In step j), the response from the UE shall be on Cell 4. The displayed PLMN shall be PLMN10.
- 7) In step l), the list shall be presented and contain PLMN7, 9, 12. After the PLMN has been selected, the list shall appear again as the UE cannot perform registration.
- 9) In step n), the list shall be presented and contain PLMN9, 12.
- 10) In step o), the response from the UE shall be on Cell 3. The displayed PLMN shall be PLMN9.
- 11) In step q), the list shall be presented and shall only contain PLMN12. After the PLMN has been selected, the list shall appear again as the UE cannot perform registration.
- 13) After step r), the UE shall inform that no network is available

6.2.1.6 Selection of RAT for HPLMN; Automatic mode

6.2.1.6.1 Definition

Test to verify that the UE selects the HPLMN RAT according to the HPLMN RAT priority list on the USIM. If no RAT on the list is available, the UE shall try to obtain registration on the same PLMN using other UE-supported RATs.

6.2.1.6.2 Conformance requirement

- To allow provision for multiple HPLMN codes, the HPLMN access technologies are stored on the SIM together
 with PLMN codes. This version of the specification does not support multiple HLPMN codes and the "HPLMN
 Selector with Access Technology" data field is only used by the MS to get the HPLMN access technologies. The
 HPLMN code is the PLMN code included in the IMSI.
- 2. For HPLMN, the MS shall search for all access technologies it is capable of. The MS shall start its search using the access technologies stored in the "HPLMN Selector with Access Technology" data field on the SIM in priority order (i.e. the PLMN/access technology combinations are listed in priority order, if an entry includes more than one access technology then no priority is defined for the preferred access technology and the priority is an implementation issue).
- 3. Automatic Network Selection Mode Procedure:

The MS selects and attempts registration on other PLMNs, if available and allowable in the following order:

- 3.1 HPLMN (if not previously selected);
- 3.2 Each PLMN in the "User Controlled PLMN Selector with Access Technology" data field in the SIM (in priority order);
- 3.3 Each PLMN in the "Operator Controlled PLMN Selector with Access Technology" data field in the SIM (in priority order);
- 3.4 Other PLMN/access technology combinations with received high quality signal in random order;
- 3.5 Other PLMN/access technology combinations in order of decreasing signal quality.

If successful registration is achieved, the MS indicates the selected PLMN.

If registration cannot be achieved because no PLMNs are available and allowable, the MS indicates "no service" to the user, waits until a new PLMN is available and allowable and then repeats the procedure.

If there were one or more PLMNs which were available and allowable, but an LR failure made registration on those PLMNs unsuccessful or an entry in the "forbidden LAs for regional provision of service" list prevented a registration attempt, the MS selects the first such PLMN again and enters a limited service state.

References

- 1. TS 23.122, clause 4.4.3.
- 2. TS 23.122, clause 4.4.3.1.1 (f).
- 3. TS 23.122, clause 4.4.3.1.1.

NOTE: TS 31.102 defines the USIM fields.

6.2.1.6.3 Test purpose

- 1. To verify that:
 - 1.1 the UE searches for a HPLMN RAT according to the HPLMN Selector with Access Technology data field on the USIM in priority order.
 - 1.2 If no RAT on the priority list is available, the UE tries to obtain registration on the same PLMN using other UE-supported RATs.

6.2.1.6.4 Method of test

Initial conditions

The UE is in automatic PLMN selection mode.

Cell_selection_and_reselection_quality_measure is CPICH_RSCP_(FDD). Cell levels are from tables 6.3 and 6.4.

Cell	CPICH_RSCP / RF signal level [dBm] (FDD)	P-CCPCH RSCP / RF signal level [dBm] (TDD)	Test Channe I	PLMN	Radio Access Technology
Cell 1	-72	<u>-61</u>	1	PLMN 2	UTRAN
Cell 2	-48	<u>-48</u>	1	PLMN 2	GSM
Cell 3	-75	<u>-64</u>	2	PLMN 3	UTRAN
Cell 4	-50	-50	2	PLMN 3	GSM

The UE is equipped with a USIM containing default values except for those listed below. USIM A

USIM field	Priority	PLMN	Access Technology Identifier
EF _{LOCI}		PLMN 1	
EF _{HPLMNwAcT}	1 st	PLMN 2	UTRAN
	2 nd		GSM

USIM B

USIM field	Priority	PLMN	Access Technology Identifier
EF _{LOCI}		PLMN 1	
EF _{HPLMNwAcT}	1 st	PLMN 2	UTRAN
	2 nd		

Test procedure

Method B is applied.

- a) The SS activates cells 1-4 and monitors the cells for random access requests from the UE. The UE shall have a USIM with settings according to USIM A.
- b) The UE is switched on.

- c) The SS waits for random access requests from the UE.
- d) The UE is switched off and a USIM with settings according to USIM A is again inserted. All cells except Cell 1 are active.
- e) The SS waits for random access requests from the UE.
- f) The UE is switched off and a USIM with settings according to USIM B is inserted. All cells except Cell 1 are active.
- g) The UE is switched on.
- h) The SS waits for random access requests from the UE.

6.2.1.6.5 Test Requirements

- 1) In step c), the response from the UE shall be on Cell 1 (1st priority RAT for EF_{HPLMNwAcT}). The displayed PLMN shall be PLMN2 (UTRAN).
- 2) In step e), the response from the UE shall be on Cell 2 (2nd priority RAT for EF_{HPLMNwAcT}). The displayed PLMN shall be PLMN2 (GSM).
- 3) In step h), the response from the UE shall be on Cell 2. The displayed PLMN shall be PLMN2 (GSM). (PLMN2 is not available on UTRAN so registration on the same PLMN is attempted using other UE-supported RATs).

6.2.1.7 Selection of RAT for UPLMN; Automatic mode

6.2.1.7.1 Definition

Test to verify that the UE selects the UPLMN RAT according to the UPLMN RAT priority list on the USIM. If no RAT on the list is available, the UE shall not try to obtain registration on the same PLMN(s) with other RAT(s) but instead search for PLMNs in the OPLMN list.

6.2.1.7.2 Conformance requirement

1. Automatic Network Selection Mode Procedure:

The MS selects and attempts registration on other PLMNs, if available and allowable in the following order:

- 1.1 HPLMN (if not previously selected);
- 1.2 Each PLMN in the "User Controlled PLMN Selector with Access Technology" data field in the SIM (in priority order);
- 1.3 Each PLMN in the "Operator Controlled PLMN Selector with Access Technology" data field in the SIM (in priority order);
- 1.4 Other PLMN/access technology combinations with received high quality signal in random order;
- 1.5 Other PLMN/access technology combinations in order of decreasing signal quality.

If successful registration is achieved, the MS indicates the selected PLMN.

If registration cannot be achieved because no PLMNs are available and allowable, the MS indicates "no service" to the user, waits until a new PLMN is available and allowable and then repeats the procedure.

If there were one or more PLMNs which were available and allowable, but an LR failure made registration on those PLMNs unsuccessful or an entry in the "forbidden LAs for regional provision of service" list prevented a registration attempt, the MS selects the first such PLMN again and enters a limited service state.

References

1. TS 23.122, clause 4.4.3.1.1.

NOTE: TS 31.102 defines the USIM fields.

6.2.1.7.3 Test purpose

- 1. To verify that:
 - 1.1 the UE selects the UPLMN RAT according to the UPLMN RAT priority list on the USIM.
 - 1.2 If no RAT on the list is available, the UE does not try to obtain registration on the same PLMN with another RAT but instead searches for PLMNs in the OPLMN list.

6.2.1.7.4 Method of test

Initial conditions

The UE is in automatic PLMN selection mode.

Cell_selection_and_reselection_quality_measure is CPICH_RSCP (FDD). Cell levels are from tables 6.3 and 6.4.

Cell	CPICH_RSCP / RF signal level [dBm] (FDD)	P-CCPCH / RF signal level [dBm] (TDD)	Test Channel	PLMN	Radio Access Technology
Cell 1	-72	<u>-61</u>	1	PLMN 3	UTRAN
Cell 2	-48	<u>-48</u>	1	PLMN 3	GSM
Cell 3	-75	<u>-64</u>	2	PLMN 4	UTRAN
Cell 4	-50	<u>-50</u>	2	PLMN 4	GSM
Cell 5	-78	<u>-67</u>	3	PLMN 5	UTRAN

The UE is equipped with a USIM containing default values except for those listed below.

USIM field	Priority	PLMN	Access Technology Identifier
EF _{LOCI}		PLMN 1	
EFHPLMNWACT	1 st	PLMN 2	UTRAN
	2 nd	1	GSM
EF _{PLMNwAcT}	1 st	PLMN 3	UTRAN
	2 nd	PLMN 4	GSM
EFOPLMNWACT	1 st	PLMN 5	UTRAN
	2 nd	PLMN 6	GSM

Test procedure

Method B is applied.

- a) The SS activates cells 1-5 and monitors the cells for random access requests from the UE.
- b) The UE is switched on.
- c) The SS waits for random access requests from the UE.
- d) Cell 1 is switched off.
- e) The SS waits for random access requests from the UE.
- f) Cell 4 is switched off.
- g) The SS waits for random access requests from the UE.

6.2.1.7.5 Test Requirements

- 1) In step c), the response from the UE shall be on Cell 1 (1^{st} priority RAT for EF_{PLMNwAcT}). The displayed PLMN shall be PLMN3 (UTRAN).
- 2) In step e), the response from the UE shall be on Cell 4 (2nd priority RAT for EF_{PLMNwAcT}). The displayed PLMN shall be PLMN4 (GSM).
- 3) In step g), the response from the UE shall be on Cell 5 (1st priority RAT for EF_{OPLMNwAcT}). The displayed PLMN shall be PLMN5 (UTRAN).

6.2.1.8 Selection of RAT for OPLMN; Automatic mode

6.2.1.8.1 Definition

Test to verify that the UE selects the OPLMN RAT according to the OPLMN RAT priority list on the USIM. If no RAT on the list is available, the UE shall not try to obtain registration on the same PLMN(s) with other RAT(s) but instead search for other PLMN/access technology combinations with received high quality signal in random order.

6.2.1.8.2 Conformance requirement

1. Automatic Network Selection Mode Procedure:

The MS selects and attempts registration on other PLMNs, if available and allowable in the following order:

- 1.1 HPLMN (if not previously selected);
- 1.2 Each PLMN in the "User Controlled PLMN Selector with Access Technology" data field in the SIM (in priority order);
- 1.3 Each PLMN in the "Operator Controlled PLMN Selector with Access Technology" data field in the SIM (in priority order);
- 1.4 Other PLMN/access technology combinations with received high quality signal in random order;
- 1.5 Other PLMN/access technology combinations in order of decreasing signal quality.

If successful registration is achieved, the MS indicates the selected PLMN.

If registration cannot be achieved because no PLMNs are available and allowable, the MS indicates "no service" to the user, waits until a new PLMN is available and allowable and then repeats the procedure.

If there were one or more PLMNs which were available and allowable, but an LR failure made registration on those PLMNs unsuccessful or an entry in the "forbidden LAs for regional provision of service" list prevented a registration attempt, the MS selects the first such PLMN again and enters a limited service state.

References

1. TS 23.122, clause 4.4.3.1.1.

NOTE: TS 31.102 defines the USIM fields.

6.2.1.8.3 Test purpose

- 1. To verify that:
 - 1.1 the UE selects the OPLMN RAT according to the OPLMN RAT priority list on the USIM.
 - 1.2 If no RAT on the list is available, the UE does not try to obtain registration on the same PLMN(s) with other RAT(s) but instead searches for "other PLMN/access technology combinations with received high quality signal in random order".

6.2.1.8.4 Method of test

Initial conditions

The UE is in automatic PLMN selection mode.

Cell_selection_and_reselection_quality_measure is CPICH_RSCP_(FDD). Cell levels are from tables 6.3 and 6.4.

Cell	CPICH_RSCP / RF signal level [dBm] (FDD)	P-CCPCH_RSCP / RF signal level [dBm] (TDD)	Test Channel	PLMN	Radio Access Technology
Cell 1	-72	<u>-61</u>	1	PLMN 5	UTRAN
Cell 2	-48	<u>-48</u>	1	PLMN 5	GSM
Cell 3	-75	<u>-64</u>	2	PLMN 6	UTRAN
Cell 4	-50	<u>-50</u>	2	PLMN 6	GSM
Cell 5	-78	<u>-67</u>	3	PLMN 7	UTRAN

The UE is equipped with a USIM containing default values except for those listed below.

USIM field	Priority	PLMN	Access Technology Identifier
EF _{LOCI}		PLMN 1	
EF _{HPLMNwAcT}	1 st	PLMN 2	UTRAN
	2 nd		GSM
EF _{PLMNwAcT}	1 st	PLMN 3	UTRAN
	2 nd	PLMN 4	GSM
EFOPLMNWACT	1 st	PLMN 5	UTRAN
	2 nd	PLMN 6	GSM

Test procedure

Method B is applied.

- a) The SS activates cells 1-5 and monitors the cells for random access requests from the UE.
- b) The UE is switched on.
- c) The SS waits for random access requests from the UE.
- d) Cell 1 is switched off.
- e) The SS waits for random access requests from the UE.
- f) Cell 4 is switched off.
- g) The SS waits for random access requests from the UE.

6.2.1.8.5 Test Requirements

- 1) In step c), the response from the UE shall be on Cell 1 (1^{st} priority RAT for EF_{OPLMNwAcT}). The displayed PLMN shall be PLMN5 (UTRAN).
- 2) In step e), the response from the UE shall be on Cell 4 (2nd priority RAT for EF_{OPLMNwAcT}). The displayed PLMN shall be PLMN6 (GSM).
- 3) In step g), the response from the UE shall be on either Cell 2, 3 or 5 (other PLMN/access technology combination) with associated PLMN5 (GSM), PLMN6 (UTRAN) or PLMN7 (UTRAN) shown.

6.2.1.9 Selection of "Other PLMN / access technology combinations"; Automatic mode

6.2.1.9.1 Definition

Test to verify that if neither RPLMN, HPLMN, UPLMN nor OPLMN is available, the UE first tries to obtain registration on "Other PLMN/access technology combinations with received high quality signal in random order" and secondly on "Other PLMN/access technology combinations in order of decreasing signal quality".

6.2.1.9.2 Conformance requirement

1. Automatic Network Selection Mode Procedure:

The MS selects and attempts registration on other PLMNs, if available and allowable in the following order:

- 1.1 HPLMN (if not previously selected);
- 1.2 Each PLMN in the "User Controlled PLMN Selector with Access Technology" data field in the SIM (in priority order);
- 1.3 Each PLMN in the "Operator Controlled PLMN Selector with Access Technology" data field in the SIM (in priority order);
- 1.4 Other PLMN/access technology combinations with received high quality signal in random order;
- 1.5 Other PLMN/access technology combinations in order of decreasing signal quality.

In 1.5, the MS shall order the PLMN/access technology combinations in order of decreasing signal quality within each access technology. The order between PLMN/access technology combinations with different access technologies is an MS implementation issue.

If successful registration is achieved, the MS indicates the selected PLMN.

If registration cannot be achieved because no PLMNs are available and allowable, the MS indicates "no service" to the user, waits until a new PLMN is available and allowable and then repeats the procedure.

If there were one or more PLMNs which were available and allowable, but an LR failure made registration on those PLMNs unsuccessful or an entry in the "forbidden LAs for regional provision of service" list prevented a registration attempt, the MS selects the first such PLMN again and enters a limited service state.

- 2. UTRA case: The UE shall scan all RF channels in the UTRA band according to its capabilities to find available PLMNs. On each carrier, the UE shall search for the strongest cell according to the cell search procedures (for FDD, see TS 25.214, and TDD, see TS 25.224) and read its system information, in order to find out which PLMN the cell belongs to. If the UE can read the PLMN identity, the found PLMN shall be reported to the NAS as a high quality PLMN (but without the RSCP value), provided that the following high quality criterion is fulfilled:
 - For an FDD cell, the measured primary CPICH RSCP value shall be greater than or equal to -95 dBm.
 - For a TDD cell, the measured P-CCPCH RSCP shall be greater than or equal to -84 dBm.

Found PLMNs that do not satisfy the high quality criterion, but for which the UE has been able to read the PLMN identities are reported to the NAS together with the CPICH RSCP value for UTRA FDD cells and P-CCPCH RSCP for UTRA TDD cells.

3. GSM case: A PLMN shall be understood to be received with high quality signal if the signal level is above -85 dBm.

References

- 1. TS 23.122, clause 4.4.3.1.1.
- 2. TS 25.304, clause 5.1.2.2.
- 3. TS 03.22, clause 4.4.3.

NOTE: TS 31.102 defines the USIM fields.

6.2.1.9.3 Test purpose

- 1. To verify that:
 - 1.1 If neither RPLMN, HPLMN, UPLMN nor OPLMN is available, the UE tries to obtain registration on "Other PLMN/access technology combinations with received high quality signal in random order".
 - 1.2 If no PLMN is available in test purpose 1.1, the UE tries to obtain registration on "Other PLMN/access technology combinations in order of decreasing signal quality".
- 2. The "random order" in test purpose 1.1 is not verified.

6.2.1.9.4 Method of test

Initial conditions

The UE is in automatic PLMN selection mode.

Cell_selection_and_reselection_quality_measure is CPICH_RSCP_(FDD).

Cell	CPICH_RSCP / RF signal level [dBm] (FDD)	P-CCPCH RSCP /RF signal level [dBm] (TDD)	"High Quality signal"	Test Channel	PLMN	Radio Access Technology
Cell 1	-80	<u>-69</u>	Yes	1	PLMN 7	UTRAN
Cell 2	-65	<u>-65</u>	Yes	1	PLMN 8	GSM
Cell 3	-98	<u>-87</u>	No	2	PLMN 9	UTRAN
Cell 4	-101	<u>-90</u>	No	2	PLMN 10	UTRAN
Cell 5	-88	<u>-88</u>	No	3	PLMN 11	GSM
Cell 6	-91	<u>-91</u>	No	3	PLMN 12	GSM

The UE is equipped with a USIM containing default values except for those listed below.

USIM field	Priority	PLMN	Access Technology Identifier
EF _{LOCI}		PLMN 1	
EF _{HPLMNwAcT}	1 st	PLMN 2	UTRAN
	2 nd		GSM
EF _{PLMNwAcT}	1 st	PLMN 3	UTRAN
	2 nd	PLMN 4	GSM
EFOPLMNWACT	1 st	PLMN 5	UTRAN
	2 nd	PLMN 6	GSM

Test procedure

Method B is applied.

- a) The SS activates cells 1-6 and monitors the cells for random access requests from the UE.
- b) The UE is switched on.
- c) The SS waits for random access requests from the UE.
- d) The cell on which a response was received, is switched off.
- e) Step c-d) is repeated until the UE informs that no network is available.

6.2.1.9.5 Test Requirements

- 1) In step c), the displayed PLMN is noted.
- 2) When the test procedure has finished, the noted PLMNs shall have appeared in the following order: PLMN7, PLMN8 in random order followed by the other PLMNs. PLMN9 shall come before PLMN10 and PLMN11 shall come before PLMN12.

6.2.2 Cell selection and reselection

6.2.2.1 Cell reselection if cell becomes barred or S<0; UTRAN to GSM

6.2.2.1.1 Definition

Test to verify that if both a GSM and UTRAN network is available, the UE performs cell reselection from UTRAN to GSM if the UTRAN cell becomes barred or S falls below zero.

6.2.2.1.2 Conformance requirement

- 1. When camped on a cell, the UE shall regularly search for a better cell according to the cell reselection criteria. If a better cell is found, that cell is selected. The change of cell may imply a change of RAT.
- 2. A "suitable cell" is a cell on which the UE may camp on to obtain normal service. Such a cell shall fulfil all the following requirements.
 - 2.1 The cell is part of the selected PLMN or, of a PLMN considered as equivalent by the UE according to the information provided by the NAS.
 - 2.2 The cell is not barred.
 - 2.3 The cell is not part of the list of "forbidden LAs for roaming".
 - 2.4 The cell selection criteria are fulfilled.
- 3. When camped normally, the UE shall execute the cell reselection evaluation process on the following occasions/triggers:
 - 3.1 UE internal triggers, so as to meet performance as specified in TS 25.133 for FDD and TS 25.123 for TDD.
 - 3.2 When information on the BCCH used for the cell reselection evaluation procedure has been modified.
- 4. Cell Reselection Criteria:
 - 4.1 The UE shall perform ranking of all cells that fulfil the S criterion.
 - 4.2 The cells shall be ranked according to the R criteria specified above, deriving Qmeas,n and Qmeas,s and calculating the R values using CPICH RSCP, P-CCPCH RSCP and the averaged received signal level as specified in TS 25.133 and TS 25.123 for FDD, TDD and GSM cells, respectively. The best ranked cell is the cell with the highest R value. If a TDD or GSM cell is ranked as the best cell, then the UE shall perform cell re-selection to that TDD or GSM cell.
 - 4.3 In all cases, the UE shall reselect the new cell, only if the cell reselection criteria are fulfilled during a time interval Treselection.
 - 4.4 The cell-ranking criterion R is derived from Q, Qhyst, Qoffset, TEMP_OFFSET and PENALTY_TIME. However, TEMP_OFFSET and PENALTY_TIME are only applicable if the usage of HCS is indicated in system information.

References

- 1. TS 25.304, clause 5.2.1.
- 2. TS 25.304, clause 4.3.
- 3. TS 25.304, clause 5.2.5.1.
- 4. TS 25.304, clause 5.2.6.1.4.

6.2.2.1.3 Test purpose

- $1. \ \ To\ verify\ that\ the\ UE\ performs\ reselection\ from\ UTRAN\ to\ GSM\ on\ the\ following\ occasions:$
 - 1.1 Serving cell becomes barred.
 - 1.2 S<0 for serving cell.

6.2.2.1.4 Method of test

Initial conditions

The USIM does not contain any preferred RAT. Step a-c:

Parameter	Unit	Cell 1 (UTRAN)
Test Channel		1
CPICH_Ec/Io_(FDD)	dB	-11
CPICH RSCP_(FDD)	dBm	-74
P-CCPCH RSCP (TDD)	<u>dBm</u>	<u>-63</u>
Qqualmin_(FDD)	dB	-20
Qrxlevmin	dBm	-100
Squal* (FDD)	dB	9
Srxlev*	dBm	26
CellBarred		0

Parameter	Unit	Cell 2 (GSM)	Cell 3 (GSM)
Test Channel		1	2
RF Signal Level	dBm	-80	-85
RXLEV_ACCESS _MIN	dBm	-100	-100
C1*	dBm	20	15
FDD_Qmin	dB	-20	-20
FDD_Qoffset	dBm	0	0

Step d-f:

 Parameter
 Unit
 Cell 1 (UTRAN)

 CellBarred
 0 -> 1

Step g:

Parameter	Unit	Cell 1 (UTRAN)
Qqualmin	dB	-20 -> -5
Squal*	dB	9 -> -6
<u>Qrxlevmin</u>	<u>dBm</u>	[TBD]

Test procedure

Method B is applied.

- a) The SS activates cells 1, 2, and 3. The SS monitors cells 1, 2 and 3 for random access requests from the UE.
- b) The UE is switched on.
- c) The SS waits for random access request from the UE.
- d) The SS sets Cell 1 to be barred.
- e) The SS waits for random access request from the UE.
- f) The stored information cell selection list in the UE is deleted and the UE is switched off.
- g) Step a-e) is repeated except that in step d), Qqualmin is increased to -5 dB, so S will become negative instead of being barred. Step g does not apply to TDD cells.

6.2.2.1.5 Test Requirements

- 1) In step c), after the UE has responded on Cell 1, it shall not respond on any other cell within 1 min.
- 2) In step e), the UE shall respond on Cell 2.
- 3) In step g), the UE shall respond on Cell 2 after Qualmin is increased to -5dB. <u>Step g does not apply to the testing of TDD cells.</u>

6.2.2.2 Cell reselection if cell becomes barred or C1<0; GSM to UTRAN

6.2.2.2.1 Definition

Test to verify that if both a GSM and UTRAN network is available, the UE performs cell reselection from GSM to UTRAN if the GSM cell becomes barred or the path loss criterion C1 falls below zero for a period of 5 s.

6.2.2.2.2 Conformance requirement

- 1. At least every 5 s the MS shall calculate the value of C1 and C2 for the serving cell and re-calculate C1 and C2 values for non serving cells (if necessary). The MS shall then check whether:
 - 1.1 The path loss criterion (C1) for current serving cell falls below zero for a period of 5 s. This indicates that the path loss to the cell has become too high.
- 2. While camped on a cell of the registered PLMN ("camped normally"), the MS may need to select a different cell ("normal cell reselection" state). The following events trigger a cell reselection:
 - 2.1 The path loss criterion parameter C1 (see TS 03.22, clause 3.6) indicates that the path loss to the cell has become too high;
 - 2.2 The cell camped on (current serving cell) has become barred.

References

- 1. TS 05.08, clause 6.6.2.
- 2. TS 03.22, clause 4.5.

6.2.2.2.3 Test purpose

- 1. To verify that the UE performs reselection from GSM to UTRAN on the following occasions:
 - 1.1 Serving cell becomes barred.
 - 1.2 The path loss criterion C1 for serving cell falls below zero for a period of 5 s.

6.2.2.2.4 Method of test

Initial conditions

The USIM does not contain any preferred RAT.Step a-c:

Parameter	Unit	Cell 1 (GSM)
Test Channel		1
RF Signal Level	dBm	-50
RXLEV_ACCESS_ MIN	dBm	-70
MS_TXPWR_MAX_ CCH	dBm	Max. output power of UE
FDD_Qmin	dB	-20
FDD_Qoffset	dBm	0
CellBarred		0
C1*	dBm	20

Parameter	Unit	Cell 2 (UTRAN)	Cell 3 (UTRAN)
P-CCPCH_RSCP (TDD)	<u>dBm</u>	<u>-65</u>	<u>-67</u>
CPICH_Ec/Io_(FDD)	dB	-13	-15
CPICH_RSCP_(FDD)	dBm	-76	-78
Qqualmin_(FDD)	dB	-20	-20
Qrxlevmin	dBm	-100	-100
Squal*_(FDD)	dB	7	5
Srxlev*	dBm	24	22

Step d-e:

Parameter	Unit	Cell 1 (GSM)
CellBarred		0 -> 1

Step f-g:

Parameter	Unit	Cell 1 (GSM)
RF Signal Level	dBm	-50 -> -80 (4sec) -> -50
C1*	dBm	20 -> -10 (4sec) -> 20

Step h:

Parameter	Unit	Cell 1 (GSM)
RF Signal Level	dBm	-50 -> -80
C1*	dBm	20 -> -10

Test procedure

Method B is applied.

- a) The SS activates cells 1, 2, and 3. The SS monitors cells 1, 2 and 3 for random access requests from the UE.
- b) The UE is switched on.
- c) The SS waits for random access request from the UE.
- d) The SS sets Cell 1 to be barred.
- e) The SS waits for random access request from the UE.
- f) The stored information cell selection list in the UE is deleted and the UE is switched off.
- g) Step a-e) is repeated except that in step d), Tthe SS reduces signal level on Cell 1 to -80 dBm for 4 s and then raises the level back to -50 dBm (C1 becomes -10 dBm during this period).
- h) The SS reduces signal level on Cell 1 to -80 dBm.

6.2.2.2.5 Test Requirements

- 1) In step c), after the UE has responded on Cell 1, it shall not respond on any other cell within 1 min.
- 2) In step e), the UE shall respond on Cell 2.
- 3) In step g), there shall be no access on Cell 2 within 30 s, after having reduced the signal level on Cell 1.
- 4) In step h), the UE shall respond on Cell 2.

6.2.2.3 Cell reselection timings; GSM to UTRAN

6.2.2.3.1 Definition

Test to verify that the UE meets the cell reselection timing requirements when both a GSM and UTRAN network is available.

6.2.2.3.2 Conformance requirement

- 1. If the 3G Cell Reselection list (see TS 04.18) includes UTRAN frequencies, the MS shall, at least every 5 s update the value RLA_C for the serving cell and each of the at least 6 strongest non-serving GSM cells.
 - 1.1 The MS shall then reselect a suitable UTRAN cell if its measured RSCP value exceeds the value of RLA_C for the serving cell and all of the suitable non-serving GSM cells by the value XXX_Qoffset for a period of 5 s and, for FDD, the UTRAN cells measured Ec/No value is equal or greater than the value FDD_Qmin.
 - Ec/No and RSCP are the measured quantities.
 - FDD_Qmin and XXX_Qoffset are broadcast on BCCH of the serving cell. XXX indicates other radio access technology/mode.
 - 1.2 In case of a cell reselection occurring within the previous 15 s, XXX_Qoffset is increased by 5 dB.
 - 1.3 Cell reselection to UTRAN shall not occur within 5 s after the MS has reselected a GSM from an UTRAN cell if a suitable GSM cell can be found.
 - 1.4 If more than one UTRAN cell fulfils the above criteria, the UE shall select the cell with the greatest RSCP value.
- 2. The MS shall be able to identify and select a new best UTRAN cell on a frequency, which is part of the 3G Cell Reselection list, within 30 s after it has been activated under the condition that there is only one UTRAN frequency in the list and under good radio conditions.

The allowed time is increased by 30 s for each additional UTRAN frequency in the 3G Cell Reselection list. However, multiple UTRAN cells on the same frequency in the neighbour cell list does not increase the allowed time.

NOTE: Definitions of measurements are in TS 25.215 and TS 25.101 for FDD mode, in TS 25.225 and TS 25.102 for TDD mode, clause 3.2 and TS 05.08, clause 6.1.

References

- 1. TS 05.08, clause 6.6.5.
- 2. TS 05.08, clause 6.6.4.

6.2.2.3.3 Test purpose

- 1. To verify that:
 - 1.1 The UE meets conformance requirement 1.1 and additionally, that no reselection is performed if the period is less than 5 s
 - 1.2 The UE meets conformance requirement 1.2.
 - 1.3 The UE meets conformance requirement 1.3.

6.2.2.3.4 Method of test

Initial conditions

The USIM does not contain any preferred RAT.

Step a-c:

Parameter	Unit	Cell 1 (GSM)	Cell 2 (GSM)
Test Channel		1	2
RF Signal Level	dBm	-70	-85
RXLEV_ACCESS_ MIN	dBm	-100	-100
MS_TXPWR_MAX_ CCH	dBm	Max. output power of UE	Max. output power of UE
FDD_Qmin	dBm	-20	-20
FDD_Qoffset	dBm	5	5

Parameter	Unit	Cell 3 (UTRAN)
Test Channel		1
CPICH_Ec/lo_(FDD)	dB	-11
CPICH_RSCP_(FDD)	dBm	-74
P-CCPCH_RSCP (TDD)	<u>dBm</u>	<u>-63</u>
Qqualmin_(FDD)	dB	-20
Qrxlevmin	dBm	-100
Squal*_(FDD)	dB	9
Srxlev*	dBm	26

Step d-g:

Parameter	Unit	Cell 1 (GSM)	Cell 2 (GSM)
RF Signal Level	dBm	-70 -> -82 (4 s) -> -70	OFF

Step h-j:

Parameter	Unit	Cell 1 (GSM)	Cell 2 (GSM)
RF Signal Level	dBm	-82 -> -70	OFF

Step k-m:

Parameter	Unit	Cell 1 (GSM)	Cell 2 (GSM)
RF Signal Level	dBm	-82 -> -70 -> -82	OFF

Test procedure

NOTE: Step a-c): Test purpose 1.3. Step d-g): test purpose 1.1. Step h-k): test purpose 1.2.

Method A is applied.

- a) The SS activates the channels. The UE is not paged on any of the cells.
- b) The UE is switched on.
- c) After 50 s, the SS starts paging continuously on cells 1 and 3 for 20 s. The SS monitors cells 1 and 3 for random access requests from the UE.
- d) Cell 2 is switched off. The SS stops paging on the cells and waits for 20 s. (The UE should revert to Cell 1 due to cell reselection).
- e) The SS starts paging continuously on Cell 3.
- f) The SS decreases the transmit level of Cell 1 to -82 dBm for a period of 4 s (RSCP will then exceed RXLEV by more than XXX_Qoffset) and then changes the level back to -70 dBm.
- g) The SS waits to see if there is any random access requests from the UE on Cell 3.
- h) The SS stops paging on all cells and sets the transmit level of Cell 1 to -82 dBm.

- i) The SS waits 20 s and then starts paging continously on Cell 1. (The UE should revert to Cell 3 due to cell reselection).
- j) The SS increases the transmit level of Cell 1 to -70 dBm and waits for the UE to access on Cell 1. The SS records the time t from the increase in the level of Cell 1 to the first response from the UE.
- k) The SS stops paging on all cells and sets the transmit level of Cell 1 back to -82 dBm.
- 1) The SS waits 20 s (The UE should revert to Cell 3 due to cell reselection).
- m) The SS increases the transmit level of Cell 1 to -70 dBm. After t+2 s (i.e. 2 s after reselection to Cell 1), the SS starts paging continuously on Cell 3, changes the level of Cell 1 back to -82 dBm and waits to see if there is any random access request on Cell 3. (Within 15 sec after reselection to GSM, the level of Cell 1 is -82 + 10 dBm=-72 dBm. After the 15 s period, the level of Cell 1 is -82 + 5 dBm=-77 dBm. The level of Cell 3 is -74 dBm, thus leading to reselection to Cell 3 after 15 s).

6.2.2.3.5 Test Requirements

- 1) In step c), after the UE has reselected Cell 1 from Cell 3 as indicated by random access requests, any random access requests on Cell 3 shall not occur within 4,5 s of the last random access request on Cell 1.
- 2) In step g), there shall be no access on Cell 3 within 34 s of decreasing the level of Cell 1.
- 3) In step j), the UE shall respond on Cell 1.
- 4) In step m), there shall be no response on Cell 3 within 11 s after the level of Cell 1 is changed back to -82 dBm.

NOTE: The 11 s is derived from (t+15) s minimum cell reselection timer minus (t+2) s from the start of step m) up to the decrease of the level of Cell 1. A further 2 s are subtracted to cover for any uncertainty introduced by the random access process occurring after step g).

3GPP TSG-T1 Meeting #13 Cancun, Mexico, 29-30 November 2001

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How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at: http://www.3gpp.org/3G Specs/CRs.htm. Below is a brief summary:

- 1) Fill out the above form. The symbols above marked ## contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://www.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2000-09 contains the specifications resulting from the September 2000 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

8.4.1.15 Measurement Control and Report: Configuration Incomplete

8.4.1.15.1 Definition

8.4.1.15.2 Conformance requirement

When the UE received a MEASUREMENT CONTROL message which results in an "configuration incomplete" condition to be detected, the UE shall retain the measurement configuration that was valid before the MEASUREMENT CONTROL message was received. It shall also send MEASUREMENT CONTROL FAILURE, with the IE "RRC transaction identifier" set to the value of the same IE in the received MEASUREMENT CONTROL message, and also the "failure cause" IE set to "incomplete configuration".

Reference

3GPP TS 25.331 clause 8.4.1.4a, <u>8.6.7.10</u>, <u>8.6.7.13</u>, 8.6.7.14, 8.6.7.16, <u>8.6.7.17</u>, <u>8.6.7.18</u>

8.4.1.14.3 Test Purpose

To confirm that the UE sends a MEASUREMENT CONTROL FAILURE message, after receiving a MEASUREMENT CONTROL message with IE "Measurement command" set to "Setup" and the following contents:

- "CHOICE measurement type" IE is set to "Intra-frequency measurement" and "Intra-frequency measurement quantity" is omitted or
- "CHOICE measurement type" IE is set to "Inter-frequency measurement" and "Inter-frequency reporting quantity" is omitted or
- "Reporting mode" IE is omitted or
- "CHOICE measurement type" IE is set to "Quality measurement" and IE "Quality reporting quantity" is omitted or
- "CHOICE measurement type" IE is set to "UE internal measurement" and IE "UE internal measurement quantity" is omitted or
- "CHOICE measurement type" IE is set to "UE internal measurement" and IE "UE internal reporting quantity" is omitted or
- "CHOICE measurement type" IE is set to "Traffic volume measurement" and IE "Traffic volume measurement quantity" is omitted or
- <u>- "CHOICE measurement type" IE is set to "Traffic volume measurement" and IE "Traffic volume reporting quantity" is omitted</u>

To confirm that the UE set the "failure cause" IE to value "incomplete configuration" in the uplink MEASUREMENT CONTROL FAILURE message.

8.4.1.15.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CS-DCCH_DCH (State 6-5) or PS-DCCH_DCH (State 6-7) in cell 1 as specified in clause 7.4 of TS 34.108, depending on the CN domain supported by the UE.

Test Procedure

The UE is initially brought to CELL_DCH. SS transmits a MEASUREMENT CONTROL message to the UE, commanding it to start an intra-frequency measurement and reporting task. However, IE "Intra-frequency measurement quantity" is absent in the message. The UE shall not establish the intra-frequency measurement. It shall send a MEASUREMENT CONTROL FAILURE message to report that a "configuration incomplete" error has been detected.

Next, SS sends the MEASUREMENT CONTROL message once more. In this message, SS commands the establishment of an inter-frequency measurement and reporting task, but IE "Inter-frequency reporting quantity" is omitted in this message. The UE shall not establish the intra-frequency measurement. It shall send a MEASUREMENT CONTROL FAILURE message to report that a "configuration incomplete" error has been detected.

In the final sequence Next, SS sends a third MEASUREMENT CONTROL message. In this message, SS commands the establishment of an intra-frequency measurement and reporting task, but IE "Measurement reporting mode" is omitted in this message. The UE shall not establish the intra-frequency measurement. It shall send a MEASUREMENT CONTROL FAILURE message to report that a "configuration incomplete" error has been detected.

Next, SS sends a fourth MEASUREMENT CONTROL message. In this message, SS commands the establishment of a quality measurement and reporting task, but IE "Quality reporting quantity" is omitted in this message. The UE shall not establish the quality measurement. It shall send a MEASUREMENT CONTROL FAILURE message to report that a "configuration incomplete" error has been detected.

Next, SS sends a fifth MEASUREMENT CONTROL message. In this message, SS commands the establishment of UE internal measurement and reporting task, but IE "UE internal measurement quantity" is omitted in this message. The UE shall not establish the UE internal measurement. It shall send a MEASUREMENT CONTROL FAILURE message to report that a "configuration incomplete" error has been detected.

Next, SS sends a sixth MEASUREMENT CONTROL message. In this message, SS commands the establishment of UE internal measurement and reporting task, but IE "UE internal reporting quantity" is omitted in this message. The UE shall not establish the UE internal measurement. It shall send a MEASUREMENT CONTROL FAILURE message to report that a "configuration incomplete" error has been detected.

Next, SS sends a seventh MEASUREMENT CONTROL message. In this message, SS commands the establishment of a traffic volume measurement and reporting task, but IE "Traffic volume measurement quantity" is omitted in this message. The UE shall not establish the traffic volume measurement. It shall send a MEASUREMENT CONTROL FAILURE message to report that a "configuration incomplete" error has been detected.

In the final sequence, SS sends an eight MEASUREMENT CONTROL message. In this message, SS commands the establishment of a traffic volume measurement and reporting task, but IE "Traffic volume reporting quantity" is omitted in this message. The UE shall not establish the traffic volume measurement. It shall send a MEASUREMENT CONTROL FAILURE message to report that a "configuration incomplete" error has been detected.

Expected Sequence

Step	Direc	ction	Message	Comment
	UE	SS		
1				The UE is CELL_DCH state in cell 1.
2	*	.	MEASUREMENT CONTROL	SS commands the start of an intra-frequency measurement and reporting task. IE "Intra-frequency measurement quantity" is absent.
3	_	>	MEASUREMENT CONTROL FAILURE	UE reports the occurrence of "incomplete configuration"
4	•	_	MEASUREMENT CONTROL	SS commands the start of an inter-frequency measurement and reporting task. IE "Inter-frequency reporting quantity" is absent.
5	-	>	MEASUREMENT CONTROL FAILURE	UE reports the occurrence of "incomplete configuration"

6	←	MEASUREMENT CONTROL	SS commands the start of an inter-frequency measurement and reporting task. IE "Measurement reporting mode" is absent.
7	\rightarrow	MEASUREMENT CONTROL FAILURE	UE reports the occurrence of "incomplete configuration"
8	<u> </u>	MEASUREMENT CONTROL	SS commands the start of a Quality measurement and reporting task. IE "Quality reporting quantity" is absent.
9	<u> </u>	MEASUREMENT CONTROL FAILURE	UE reports the occurrence of "incomplete configuration"
10	<u> </u>	MEASUREMENT CONTROL	SS commands the start of an UE internal measurement and reporting task. IE "UE internal measurement quantity" is absent.
11	<u>→</u>	MEASUREMENT CONTROL FAILURE	UE reports the occurrence of "incomplete configuration"
<u>12</u>	<u>←</u>	MEASUREMENT CONTROL	SS commands the start of an UE internal measurement and reporting task. IE "UE internal reporting quantity" is absent.
<u>13</u>	<u> </u>	MEASUREMENT CONTROL FAILURE	UE reports the occurrence of "incomplete configuration"
<u>14</u>	<u> </u>	MEASUREMENT CONTROL	SS commands the start of a Traffic volume measurement and reporting task. IE "Traffic volume measurement quantity" is absent.
<u>15</u>	<u> </u>	MEASUREMENT CONTROL FAILURE	UE reports the occurrence of "incomplete configuration"
<u>16</u>	<u>←</u>	MEASUREMENT CONTROL	SS commands the start of a Traffic volume measurement and reporting task. IE "Traffic volume reporting quantity" is absent.
<u>17</u>	\rightarrow	MEASUREMENT CONTROL FAILURE	<u>UE reports the occurrence of "incomplete configuration"</u>

MEASUREMENT CONTROL (Step 2)

Information Element	Value/Remark
Measurement Identity	1
RRC transaction Identifier	Arbitrarily selected between 0 and 3
Measurement Command	Setup
Measurement Reporting Mode	'
- Measurement Report Transfer Mode	Acknowledged mode RLC
- Periodical Reporting/Event Trigger Reporting	Periodical reporting
Mode	3
Additional measurements list	Not Present
CHOICE measurement type	Intra-frequency measurement
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Remove no intra-frequency cells
- New intra-frequency cell	Not Present
- Cell for measurement	
- Intra-frequency cell id	Set to id of cell 1
- Intra-frequency measurement quantity	Not Present
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- SFN-SFN onserved time difference reporting	No report
indicator	'
- Cell synchronization information reporting	FALSE
indicator	
- Cell identity reporting indicator	FALSE
- CHOICE mode	FDD
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- SFN-SFN onserved time difference reporting	No report
indicator	·
 Cell synchronization information reporting 	FALSE
indicator	
 Cell identity reporting indicator 	FALSE
- CHOICE mode	FDD
 CPICH Ec/No reporting indicator 	FALSE
 CPICH RSCP reporting indicator 	TRUE
- Pathloss reporting indicator	FALSE
- Reporting cell status	
- CHOICE reported cell	Report cells within active set
 Maximum number of reported cells 	1
- Measurement validity	CELL_DCH
- CHOICE report criteria	Periodical reporting criteria
- Amount of reporting	Infinity
- Reporting interval	32 seconds
DPCH compressed mode status info	Not Present

MEASUREMENT CONTROL FAILURE (Step 3)

Information Element	Value/Remark
RRC transaction identifier	Check if it is set to the same value of the same
	IE in the MEASUREMENT CONTROL
	message sent in Step 2
Failure cause	Check to see if set to "incomplete
	configuration"

MEASUREMENT CONTROL (Step 4) (Note 1)

Information Element	Value/Remark
---------------------	--------------

Measurement Identity **RRC** transaction Identifier Arbitrarily selected between 0 and 3 Measurement Command Setup Measurement Reporting Mode - Measurement Report Transfer Mode Acknowledged mode RLC - Periodical Reporting/Event Trigger Reporting Periodical reporting Mode Additional measurements list Not Present CHOICE measurement type Inter-frequency measurement - Inter-frequency cell info list - CHOICE inter-frequency cell removal No inter-frequency cells removed - New inter-frequency cell - Inter-frequency cell id Set to id of cell 4 - Frequency info - CHOICE Mode **FDD** - UARFCN uplink (Nu) Set to the same UARFCN as cell 4 in clause 6.1 of TS 34.108 - UARFCN downlink (Nu) Set to the same UARFCN as cell 4 in clause 6.1 of TS 34.108 - Cell info - Cell individual offset 0 dB - Reference time difference to cell 0 chips - Read SFN Indicator FALSE - CHOICE mode **FDD** - Primary CPICH Info - Primary Scrambling Code Set to same code as used for cell 4 - Primary CPICH TX power Not Present - TX Diversity Indicator **FALSE** - Cell selection and re-selection info Not Present - Cell for measurement - Inter-frequency cell id Set to id of cell 4 - Inter-frequency measurement quantity - CHOICE rerporting criteria Inter-frequency reporting criteria - Filter coefficients - CHOICE mode **FDD** - Measurement quantity for frequency quality **CPICH RSCP** estimate Not Present - Inter-frequency reporting quantity - Reporting cell status - CHOICE reported cell Report cells within monitored set on non-used frequency - Maximum number of reported cells - Measurement validity CELL DCH Periodical reporting criteria - CHOICE report criteria - Amount of reporting Infinity - Reporting interval 32 seconds - Inter-frequency set update Not Present

MEASUREMENT CONTROL FAILURE (Step 5)

DPCH compressed mode status info

Information Element	Value/Remark
RRC transaction identifier	Check if it is set to the same value of the same
	IE in the MEASUREMENT CONTROL
	message sent in Step 4
Failure cause	Check to see if set to "incomplete
	configuration"

Not Present

MEASUREMENT CONTROL (Step 6)

Information Florant	Value/Damark
Information Flement	Value/Remark

Measurement Identity	3
RRC transaction Identifier	Arbitrarily selected between 0 and 3
Measurement Command	Setup
Measurement Reporting Mode	Not Present
Additional measurements list	Not Present
CHOICE measurement type	Intra-frequency measurement
- Intra-frequency cell info list	
 CHOICE intra-frequency cell removal 	Remove no intra-frequency cells
- New intra-frequency cell	Not Present
- Cell for measurement	
- Intra-frequency cell id	Set to id of cell 1
- Intra-frequency measurement quantity	
- Filter coefficient	0
- CHOICE mode	FDD
- Measurement quantity	CPICH RSCP
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- SFN-SFN onserved time difference reporting	No report
indicator	'
- Cell synchronization information reporting	FALSE
indicator	
- Cell identity reporting indicator	FALSE
- CHOICE mode	FDD
 CPICH Ec/No reporting indicator 	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- SFN-SFN onserved time difference reporting	No report
indicator	•
- Cell synchronization information reporting	No report
indicator	·
- Cell identity reporting indicator	FALSE
- CHOICE mode	FDD
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting cell status	
- CHOICE reported cell	Report cells within active set
- Maximum number of reported cells	1
- Measurement validity	CELL DCH
- CHOICE report criteria	Periodical reporting criteria
- Amount of reporting	Infinity
- Reporting interval	32 seconds
DPCH compressed mode status info	Not Present

MEASUREMENT CONTROL FAILURE (Step 7)

Information Element	Value/Remark
RRC transaction identifier	Check if it is set to the same value of the same
	IE in the MEASUREMENT CONTROL
	message sent in Step 6
Failure cause	Check to see if set to "incomplete
	configuration"

MEASUREMENT CONTROL (Step 8)

Information Element	<u>Value/Remark</u>
Measurement identity	<u>16</u>
Measurement command	<u>Setup</u>
- CHOICE measurement type	Quality measurement
- Quality reporting quantity	Not present
- Reporting criteria	Periodical reporting criteria
- Reporting amount	<u>Infinity</u>
- Reporting interval	<u>64 sec</u>
Measurement reporting mode	
- Transfer Mode	Acknowledged mode
- Periodical or event trigger	<u>Periodic</u>
Additional measurement list	Not Present
DPCH compressed mode status	Not Present

MEASUREMENT CONTROL FAILURE (Step 9)

Information Element	<u>Value/Remark</u>
RRC transaction identifier	Check if it is set to the same value of the same
	IE in the MEASUREMENT CONTROL
	message sent in Step 8
Failure cause	Check to see if set to "incomplete
	configuration"

MEASUREMENT CONTROL (Step 10)

Information Element	<u>Value/Remark</u>
Measurement Identity	1
Measurement Command	<u>Setup</u>
CHOICE measurement type	UE internal measurement
 UE internal measurement quantity 	Not present
 UE internal reporting quantity 	
- UE Transmitted Power	TRUE
- CHOICE mode	<u>FDD</u>
 - UE Rx-Tx time difference 	<u>FALSE</u>
- CHOICE report criteria	Periodical reporting criteria
 - Amount of reporting 	<u>Infinity</u>
- Reporting interval	1000 msec
Measurement Reporting Mode	Not Present
Additional measurements list	Not Present
DPCH compressed mode status	Not Present

MEASUREMENT CONTROL FAILURE (Step 11)

Information Element	<u>Value/Remark</u>
RRC transaction identifier	Check if it is set to the same value of the same
	IE in the MEASUREMENT CONTROL
	message sent in Step 10
Failure cause	Check to see if set to "incomplete
	configuration"

MEASUREMENT CONTROL (Step 12)

Information Element	Value/Remark
Measurement Identity	1
Measurement Command	Setup
CHOICE measurement type	UE internal measurement
 UE internal measurement quantity 	
- CHOICE mode	<u>FDD</u>
- Measurement quantity	UE Transmitted Power
- Filter Coefficient	<u>0</u>
- UE internal reporting quantity	Not present
- CHOICE report criteria	Periodical reporting criteria
- Amount of reporting	<u>Infinity</u>
- Reporting interval	1000 msec
Measurement Reporting Mode	Not Present
Additional measurements list	Not Present
DPCH compressed mode status	Not Present

MEASUREMENT CONTROL FAILURE (Step 13)

Information Element	<u>Value/Remark</u>
RRC transaction identifier	Check if it is set to the same value of the same
	IE in the MEASUREMENT CONTROL
	message sent in Step 12
Failure cause	Check to see if set to "incomplete
	configuration"

MEASUREMENT CONTROL (Step 14)

Information Element	Value/Remark
Measurement Identity	1
Measurement Command	Setup
- CHOICE measurement type	Traffic Volume Measurement
- Traffic volume measurement object list	Not Present
- Traffic volume measurement quantity	Not present
 Traffic volume reporting quantity 	
- RB buffer payload	<u>True</u>
- RB buffer payload average	<u>False</u>
- RB buffer payload variance	<u>False</u>
- Measurement validity	Not Present
- Report criteria	Periodical Reporting Criteria
- Reporting amount	<u>8</u>
- Reporting interval	8 Sec
Measurement reporting mode	
- Transfer Mode	Acknowledged mode
- Periodical or event trigger	<u>Periodic</u>
Additional measurement list	Not Present
DPCH compressed mode status	Not Present

MEASUREMENT CONTROL FAILURE (Step 15)

Information Element	<u>Value/Remark</u>
RRC transaction identifier	Check if it is set to the same value of the same
	IE in the MEASUREMENT CONTROL
	message sent in Step 14
Failure cause	Check to see if set to "incomplete
	configuration"

MEASUREMENT CONTROL (Step 16)

Information Element	<u>Value/Remark</u>
Measurement Identity	<u>1</u>
Measurement Command	<u>Setup</u>
- CHOICE measurement type	Traffic Volume Measurement
- Traffic volume measurement object list	Not Present
 Traffic volume measurement quantity 	RLC Buffer Payload
 Traffic volume reporting quantity 	Not present
 Measurement validity 	Not Present
- Report criteria	Periodical Reporting Criteria
- Reporting amount	<u>8</u>
- Reporting interval	8 Sec
Measurement reporting mode	
- Transfer Mode	Acknowledged mode
 Periodical or event trigger 	<u>Periodic</u>
Additional measurement list	Not Present
DPCH compressed mode status	Not Present

MEASUREMENT CONTROL FAILURE (Step 17)

Information Element	<u>Value/Remark</u>
RRC transaction identifier	Check if it is set to the same value of the same
	IE in the MEASUREMENT CONTROL
	message sent in Step 16
Failure cause	Check to see if set to "incomplete
	configuration"

Note1: For the MEASUREMENT CONTROL message in step 4, cell 4 is signalled to be added as a new cell into the UE's inter-frequency cell list. However, SS does not need to transmit cell 4 in the downlink, as the UE is not expected to perform measurement and reporting for this cell.

8.4.1.15.5 Test Requirement

After step 2, step 4, 6, 8, 10, 12, 14 and step 16, the UE shall transmit MEASUREMENT CONTROL FAILURE message, stating the IE "failure cause" as "incomplete configuration". The UE shall not transmit any MEASUREMENT REPORT messages during the execution of this test case.

8.4.1.16 Measurement Control and Report: Traffic volume measurement for transition from idle mode to CELL_FACH state

8.4.1.16.1 Definition

8.4.1.16.2 Conformance requirement

Upon transition from idle mode to CELL_FACH state, the UE shall store the measurement control information from the IE "Traffic volume measurements system information" received in System Information Block type 11 or System Information Block type 12. UE shall begin traffic volume measurement reporting according to the assigned information.

Reference

3GPP TS 25.331 clause 8.4.1.9.4

8.4.1.16.3 Test Purpose

To confirm that after a state transition from idle mode to CELL_FACH state, the UE shall begin a traffic volume type measurement, as specified in System Information Block type 11 or 12 messages on BCCH. To confirm that in CELL FACH state, the UE shall send a MEASUREMENT REPORT message when reporting criteria is satisfied. During CELL_FACH state, if the UE receives a MEASUREMENT CONTROL message, it shall perform the measurement and reporting tasks based on the MEASUREMENT CONTROL message received.

8.4.1.16.4 Method of test

Initial Condition

System Simulator: 1cell

<u>UE</u>: "Registered idle mode on CS" (state 2) or "Registered idle mode on PS" (state 3) in cell 1 as specified in clause 7.4 of TS 34.108, depending on the CN domain supported by the UE. If the UE supports both CS and PS domains, the initial UE state shall be "Registered idle mode on CS/PS" (state 7).

Test Procedure

The UE is initially in idle mode. The System Information Block type 11 message is modified with respect to the default settings to request UE to perform traffic volume measurements. Key measurement parameters are as follows:

measurement quantity = "RLC Buffer Payload", report criteria = "periodic reporting criteria", reporting interval = "6 seconds", reporting amount = 'infinity'. The System Information type 12 message is not broadcasted.

SS prompts the operator to make an outgoing call for one of the traffic classes supported by the UE. The UE shall transmit a RRC CONNECTION REQUEST message on the uplink CCCH, SS replies with RRC CONNECTION SETUP message and allocates PRACH and S-CCPCH physical channels for uplink and downlink usage. UE shall then enter CELL_FACH state.

<u>UE shall begin traffic volume measurements, and shall send MEASUREMENT REPORT message after completing first measurement. UE shall send second MEASUREMENT REPORT message 6 seconds after first MEASUREMENT REPORT message.</u>

SS sends MEASUREMENT CONTROL message to the UE. This message overwrites measurement information saved from System information type 11. Key measurement parameters are as follow: measurement type = "traffic volume measurement", measurement quantity = "RLC Buffer Payload", report criteria = "Event triggered, event 4B: Transport Channel Traffic Volume becomes smaller than an absolute threshold", Time to trigger = "5 seconds", pending time after trigger = "16 seconds", "reporting threshold = '4K'. Since there is no uplink traffic, UE shall send MEASUREMENT REPORT message after 5 seconds (time to trigger interval).

Expected Sequence

Step	Direction	<u>Message</u>	Comment
1	<u>UE</u> <u>SS</u> <u>←</u>	System Information Block type 11	The UE is idle mode and camped onto cell 1. System Information Block type 11 to be transmitted is different from the default settings (see specific message contents)
2			SS prompts the test operator to make an outgoing call.
<u>3</u>	<u>→</u>	RRC CONNECTION REQUEST	
<u>4</u>	<u></u>	RRC CONNECTION SETUP	SS allocates common physical channels to UE.
<u>5</u>	<u> </u>	RRC CONNECTION COMPLETE	UE shall enter CELL_FACH state, and transmit this message to acknowledge the RRC CONNECTION SETUP message.
<u>6</u>	<u></u>	MEASUREMENT REPORT	
7	≥	MEASUREMENT REPORT	Time difference between earlier and this MEASUREMENT REPORT message should be 6 Seconds.
<u>8</u>	<u>←</u>	MEASUREMENT CONTROL	Traffic volume measurement reporting is requested if measurement is below threshold.

9			SS monitors the uplink DCCH to confirm that no MEASUREMENT REPORT messages are received in 5 seconds.
10	≥	MEASUREMENT REPORT	Measurement report because event 4b is triggered

Specific Message Content

System Information Block type 11 (Step 1)

Information Element	<u>Value/Remarks</u>
SIB12 indicator	<u>FALSE</u>
FACH measurement occasion info	Not Present
Measurement control system information	
- Use of HCS	Not used
 Cell selection and reselection quality 	CPICH RSCP
 Intra-frequency measurement system 	
<u>information</u>	Not Present
 Inter-frequency measurement system 	
<u>information</u>	Not Present
 Inter-RAT measurement system information 	Not Present
 Traffic volume measurement system information 	
- Traffic volume measurement ID	<u>4</u>
- Traffic volume measurement object list	Rach
- Traffic volume measurement quantity	RLC Buffer Payload
- Traffic volume reporting quantity	
- RB buffer payload	<u>True</u>
- RB buffer payload average	<u>False</u>
- RB buffer payload variance	<u>False</u>
- Traffic volume measurement reporting criteria	Not Present
- Measurement validity	All States except CELL_DCH
- Measurement reporting mode	
- Measurement report transfer mode	Acknowledged Mode
- Periodical or event trigger	<u>Periodical</u>
- Report criteria system Information	Periodical reporting criteria
- Reporting amount	Infinity
- Reporting interval	6 seconds
 UE internal measurement system information 	Not Present

RRC CONNECTION REQUEST (Step 3)

Information Element	<u>Value/Remarks</u>
Initial UE Identity	Check to see if it is the same as the IMSI in
	USIM card, TMSI or P-TMSI previously
	allocated.
Establishment cause	Check to see if set to originating call of the
	compatible traffic classes supported by the UE
Measured results on RACH	Check to see if IE is absent

RRC CONNECTION SETUP (Step 4)

Use the same message sub-type found in Annex A, which is titled "Transition to CELL_FACH".

MEASUREMENT REPORT (Step 6,7)

Information Element	<u>Value/Remarks</u>
Measurement identity	Check to see if set to 4
Measured Results	
- CHOICE measurement	Check to see if set to "traffic volume measured
	results list"
 Traffic volume measurement results 	
- RB identity	<u>0</u>
 RLC buffer payload 	Check to see if this IE is present
 RLC buffer payload average 	Check to see if this IE is absent
 RLC buffer payload variance 	Check to see if this IE is absent
- RB identity	1
- RLC buffer payload	Check to see if this IE is present
 RLC buffer payload average 	Check to see if this IE is absent
 RLC buffer payload variance 	Check to see if this IE is absent
- RB identity	<u>2</u>
- RLC buffer payload	Check to see if this IE is present
 RLC buffer payload average 	Check to see if this IE is absent
 RLC buffer payload variance 	Check to see if this IE is absent
- RB identity	<u>3</u>
 RLC buffer payload 	Check to see if this IE is present
 RLC buffer payload average 	Check to see if this IE is absent
 RLC buffer payload variance 	Check to see if this IE is absent
- RB identity	<u>4</u>
- RLC buffer payload	Check to see if this IE is present
 RLC buffer payload average 	Check to see if this IE is absent
 RLC buffer payload variance 	Check to see if this IE is absent
Measured results on RACH	Check to see if this IE is absent
Additional measured results	Check to see if this IE is absent
Event results	Check to see if this IE is absent

MEASUREMENT CONTROL (Step 8)

Information Element	Value/Remark
Measurement Identity	4
Measurement Command	<u>Setup</u>
- CHOICE measurement type	Traffic Volume Measurement
 Traffic volume measurement object list 	Not Present
 Traffic volume measurement quantity 	RLC Buffer Payload
 Traffic volume reporting quantity 	
- RB buffer payload	<u>True</u>
- RB buffer payload average	<u>False</u>
- RB buffer payload variance	<u>False</u>
 Measurement validity 	Not Present
- Report criteria	Traffic Volume Reporting Criteria
- UL transport channel id	Rach Null
- Event specific parameters	
- Event id	<u>4B</u>
- Reporting threshold	<u>4K</u>
- Time to trigger	<u>5000 ms</u>
- Pending time after trigger	<u>16000 ms</u>
 - Tx interruption after trigger 	Not Present
Measurement reporting mode	
- Transfer Mode	Acknowledged mode
- Periodical or event trigger	Event trigger
Additional measurement list	Not Present
DPCH compressed mode status	Not Present

MEASUREMENT REPORT (Step 10)

Information Element	<u>Value/Remarks</u>
Measurement identity	4
Measured Results	
- CHOICE measurement	Traffic volume measured results list
 Traffic volume measurement results 	
- RB identity	<u>0</u>
- RLC buffer payload	Check to see if this IE is present
 RLC buffer payload average 	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	<u>1</u>
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
 RLC buffer payload variance 	Check to see if this IE is absent
- RB identity	<u>2</u>
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	<u>3</u>
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	<u>4</u>
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
Measured results on RACH	Check to see if this IE is absent
Additional measured results	Check to see if this IE is absent
Event results	<u>Traffic Volume Event Results</u>
- UL transport channel causing event	Rach Null
- Traffic volume event identity	<u>4B</u>

8.4.1.16.5 Test Requirement

After step 5 the UE shall send MEASUREMENT REPORT messages on the uplink DCCH containg RLC buffer payload information for all SRBs. After 6 seconds UE shall send second MEASUREMENT REPORT messages containg RLC buffer payload information for all SRBs.

After step 8 the UE shall overwrite measurement information received from system information type 11 with measurement information in MEASUREMENT CONTROL message. The UE shall not send MEASUREMENT REPORT message within time to trigger interval. After step 9 the UE shall transmit MEASUREMENT REPORT messages with event identity 4B.

8.4.1.17 Measurement Control and Report: Traffic volume measurement for transition from idle mode to CELL_DCH state

8.4.1.17.1 Definition

8.4.1.17.2 Conformance requirement

<u>Upon transition from idle mode to CELL_DCH state, the UE shall begin a traffic volume type measurement, assigned in System Information Block type 11 or System Information Block type 12.</u>

Reference

3GPP TS 25.331 clause 8.4.1.8.4

8.4.1.17.3 Test Purpose

To confirm that after a state transition from idle mode to CELL DCH state, the UE begin a traffic volume type measurement, as specified in System Information Block type 11 or 12 messages on BCCH. When entering CELL DCH state, the UE shall send a MEASUREMENT REPORT message when reporting criteria is satisfied. During CELL DCH state, if the UE receives a MEASUREMENT CONTROL message, it shall perform the measurement and reporting tasks based on the MEASUREMENT CONTROL message received.

8.4.1.17.4 Method of test

Initial Condition

System Simulator: 1cell

<u>UE</u>: "Registered idle mode on CS" (state 2) or "Registered idle mode on PS" (state 3) in cell 1 as specified in clause 7.4 of TS 34.108, depending on the CN domain supported by the UE. If the UE supports both CS and PS domains, the initial UE state shall be "Registered idle mode on CS/PS" (state 7).

Test Procedure

The UE is initially in idle mode. The System Information Block type 11 message is modified with respect to the default settings to request UE to perform traffic volume measurements. Key measurement parameters are as follows: measurement quantity = "Average RLC Buffer Payload", report criteria = "Event triggered, event 4B", reporting threshold = "8K", report transfer mode = "Unacknowledged mode". The System Information type 12 message is not broadcasted.

SS prompts the operator to make an outgoing call for one of the traffic classes supported by the UE. Dedicated resources are allocated to the UE during RRC connection establishment procedure.

<u>UE shall begin traffic volume measurements after entering in CELL_DCH state. The UE shall send MEASUREMENT REPORT message because uplink traffic is below threshold.</u>

SS sends MEASUREMENT CONTROL message to the UE. This message reconfigures measurement information saved from System information type 11. Key measurement parameters are as follow: measurement type = "traffic volume measurement", measurement quantity = "RLC Buffer Payload", report criteria = "Periodic reporting criteria", reporting interval = "8 seconds", reporting amount = "8". The UE shall periodically send MEASUREMENT REPORT message to report RLC Buffer Payload for each RB.

SS sends MEASUREMENT CONTROL message to release traffic volume measurement. UE shall not send measurement report after receiving this message.

Expected Sequence

Step	Direction	<u>Message</u>	Comment
1	<u>UE</u> <u>SS</u> <u>←</u>	System Information Block type 11	The UE is idle mode and camped onto cell 1. System Information Block type 11 to be transmitted is different from the default settings (see specific message contents)
2			SS prompts the test operator to make an outgoing call.
<u>3</u>	<u> </u>	RRC CONNECTION REQUEST	
<u>4</u>	<u>←</u>	RRC CONNECTION SETUP	SS allocates dedicated physical channels to UE.
<u>5</u>	<u> </u>	RRC CONNECTION COMPLETE	UE shall enter CELL_DCH state.

<u>6</u>	<u>→</u>	MEASUREMENT REPORT	Event 4B is triggered. This message should come on RB1.
<u>7</u>	<u> </u>	MEASUREMENT CONTROL	Periodic Traffic volume measurement reporting is requested.
<u>8</u>	<u> </u>	MEASUREMENT REPORT	This message should come on RB2.
9	<u> </u>	MEASUREMENT REPORT	Time difference between earlier and this MEASUREMENT REPORT message should be 8 Seconds.
<u>10</u>	<u> </u>	MEASUREMENT CONTROL	Release traffic volume measurement.
<u>11</u>			Wait for 8 Seconds to confirm that UE does not send measurement report message.

Specific Message Content

System Information Block type 11 (Step 1)

Information Element	<u>Value/Remarks</u>
SIB12 indicator	FALSE
FACH measurement occasion info	Not Present
Measurement control system information	
- Use of HCS	Not used
- Cell selection and reselection quality	CPICH RSCP
- Intra-frequency measurement system	
information	Not Present
 Inter-frequency measurement system 	
information	Not Present
- Inter-RAT measurement system information	Not Present
- Traffic volume measurement system information	
- Traffic volume measurement ID	<u>2</u>
- Traffic volume measurement object list	Not Present
- Traffic volume measurement quantity	Average RLC Buffer Payload
- Time Interval to take an average	200 msec
 Traffic volume reporting quantity 	
- RB buffer payload	<u>False</u>
- RB buffer payload average	True
- RB buffer payload variance	<u>False</u>
- Traffic volume measurement reporting criteria	Not Present
- Measurement validity	CELL_DCH
- Measurement reporting mode	
 Measurement report transfer mode 	<u>Unacknowledged Mode</u>
 Periodical or event trigger 	Event Trigger
- Report criteria system Information	Traffic Volume Reporting Criteria
- UL transport channel id	Not Present
- Event specific parameters	
- Event id	<u>4B</u>
- Reporting threshold	<u>8K</u>
- Time to trigger	Not Present
- Pending time after trigger	Not Present
- Tx interruption after trigger	Not Present
- UE internal measurement system information	Not Present

RRC CONNECTION REQUEST (Step 3)

Information Element	<u>Value/Remarks</u>
Initial UE Identity	Check to see if it is the same as the IMSI in
	USIM card, TMSI or P-TMSI previously
	allocated.
Establishment cause	Check to see if set to originating call of the
	compatible traffic classes supported by the UE
Measured results on RACH	Check to see if IE is absent

RRC CONNECTION SETUP (Step 4)

Use the same message sub-type found in Annex A, which is titled "Transition to CELL DCH".

MEASUREMENT REPORT (Step 6)

Information Element	<u>Value/Remarks</u>
Measurement identity	Check to see if set to 2
Measured Results	
- CHOICE measurement	Check to see if set to "traffic volume measured
	results list"
 Traffic volume measurement results 	
- RB identity	<u>0</u>
- RLC buffer payload	Check to see if this IE is absent
 RLC buffer payload average 	Check to see if this IE is present
 RLC buffer payload variance 	Check to see if this IE is absent
- RB identity	<u>1</u>
 RLC buffer payload 	Check to see if this IE is absent
 RLC buffer payload average 	Check to see if this IE is present
 RLC buffer payload variance 	Check to see if this IE is absent
- RB identity	<u>2</u>
 RLC buffer payload 	Check to see if this IE is absent
 RLC buffer payload average 	Check to see if this IE is present
 RLC buffer payload variance 	Check to see if this IE is absent
- RB identity	<u>3</u>
 RLC buffer payload 	Check to see if this IE is absent
 RLC buffer payload average 	Check to see if this IE is present
 RLC buffer payload variance 	Check to see if this IE is absent
- RB identity	<u>4</u>
 RLC buffer payload 	Check to see if this IE is absent
 RLC buffer payload average 	Check to see if this IE is present
 RLC buffer payload variance 	Check to see if this IE is absent
Measured results on RACH	Check to see if this IE is absent
Additional measured results	Check to see if this IE is absent
Event results	
 UL transport channel causing event 	<u>DCH 5</u>
 Traffic volume event identity 	<u>4B</u>

MEASUREMENT CONTROL (Step 7)

Information Element	<u>Value/Remark</u>
Measurement Identity	2
Measurement Command	Reconfigure
- CHOICE measurement type	Traffic Volume Measurement
- Traffic volume measurement object list	<u>DCH 5</u>
 Traffic volume measurement quantity 	RLC Buffer Payload
 Traffic volume reporting quantity 	
- RB buffer payload	True
- RB buffer payload average	<u>False</u>
- RB buffer payload variance	<u>False</u>
- Measurement validity	Not Present
- Report criteria	Periodical Reporting Criteria
- Reporting amount	<u>8</u>
- Reporting interval	8 Sec
Measurement reporting mode	
- Transfer Mode	Acknowledged mode
- Periodical or event trigger	<u>Periodic</u>
Additional measurement list	Not Present
DPCH compressed mode status	Not Present

MEASUREMENT REPORT (Step 8,9)

Information Element	<u>Value/Remarks</u>
Measurement identity	<u>2</u>
Measured Results	
- CHOICE measurement	Traffic volume measured results list
- Traffic volume measurement results	
- RB identity	<u>0</u>
- RLC buffer payload	Check to see if this IE is present
 RLC buffer payload average 	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	<u>1</u>
- RLC buffer payload	Check to see if this IE is present
 RLC buffer payload average 	Check to see if this IE is absent
 RLC buffer payload variance 	Check to see if this IE is absent
- RB identity	<u>2</u>
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	<u>3</u>
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	<u>4</u>
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
Measured results on RACH	Check to see if this IE is absent
Additional measured results	Check to see if this IE is absent
Event results	Check to see if this IE is absent

MEASUREMENT CONTROL (Step 10)

Information Element	<u>Value/Remark</u>
Measurement Identity	<u>2</u>
Measurement Command	Release
Measurement reporting mode	Not Present
Additional measurement list	Not Present
DPCH compressed mode status	Not Present

8.4.1.17.5 Test Requirement

After step 5, due to triggering of event 4B, the UE shall send MEASUREMENT REPORT message using unacknowledged mode of RLC. After step 7, UE shall send MEASUREMENT REPORT message using Acknowledged mode of RLC. After 8 seconds UE shall send second MEASUREMENT REPORT message. After step 10, the UE shall not send MEASUREMENT REPORT message.

8.4.1.18 Measurement Control and Report: Traffic volume measurement for transition from CELL_FACH state to CELL_DCH state

8.4.1.18.1 Definition

8.4.1.18.2 Conformance requirement

Upon transition from CELL FACH to CELL DCH state, the UE shall:

- retrieve each set of measurement control information of measurement type "traffic volume" stored;
 - if the optional IE "measurement validity" for this measurement has not been included:
 - delete the measurement;
 - if the IE "measurement validity" for the measurement has been included, and the IE "UE state" has been assigned to value "all states except CELL DCH":
 - stop measurement reporting; and
 - save the measurement to be used after the next transition to CELL_FACH state;
 - if the IE "measurement validity" for the measurement has been included, and the IE "UE state" has been assigned to value "all states":
 - continue measurement reporting;
 - if the IE "measurement validity" has been included and the IE "UE state" has been assigned to value "CELL DCH":
 - resume this measurement and associated reporting;
- if no traffic volume type measurement has been assigned to the UE with a MEASUREMENT CONTROL message when transiting to CELL DCH state:
 - continue an ongoing traffic volume type measurement, assigned in System Information Block type 11 or System Information Block type 12.

Reference

3GPP TS 25.331 clause 8.4.1.7.4

8.4.1.18.3 Test Purpose

To confirm that the UE performs traffic volume measurements and the associated reporting when it enters CELL_DCH state from CELL FACH state, and that such measurement contexts (and optionally, the reporting context) valid for CELL DCH state have been previously stored.

To confirm that the UE shall continue to perform traffic volume measurement listed in the System Information Block type 11 or 12 messages, if no previously assigned measurements are present. The UE shall transmit MEASUREMENT REPORT messages if reporting conditions stated in System Information Block type 11 or 12 messages have been satisfied.

8.4.1.18.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: PS-DCCH+DTCH FACH (state 6-11) as specified in clause 7.4 of TS 34.108

Test Procedure

Initially the UE is in CELL FACH state. MEASUREMENT CONTROL message is sent to the UE to establish traffic volume measurement context with optional IE "measurement validity" is not present. The UE shall perform measurement and reporting as assigned in MEASUREMENT CONTROL message. RADIO BEARER RECONFIGURATION procedure is used to take the UE from CELL FACH state to CELL DCH state. While entering CELL DCH state from CELL FACH state, the UE shall delete traffic volume measurement contexts if optional IE "measurement validity" is not present. So, in CELL_DCH state UE shall not perform traffic volume measurement and reporting. UE is taken to the CELL FACH state from CELL DCH state using RADIO BEARER RECONFIGURATION procedure. The UE shall not send MEASUREMENT REPORT message as measurement context is already deleted.

Similarly behavior of the UE when moved from CELL_FACH state to CELL_DCH state and assigned traffic volume measurement context is present with IE "measurement validity" is set to "All But CELL_DCH state" or "CELL_DCH state" or "All states" is tested.

When the UE is in CELL_FACH state, System Information is modified to assign traffic volume measurement and reporting to the UE. No previously assigned traffic volume measurement contexts are present in the UE. The UE is taken to CELL_DCH state from CELL_FACH state using RADIO BEARER RECONFIGURATION procedure. In CELL_DCH state the UE shall continue traffic volume measurement and reporting as assigned in System Information. Traffic volume measurement and reporting is released by sending MEASUREMENT CONTROL message.

Expected Sequence

<u>Step</u>	Direction UE SS	Message	Comment
1	←	MEASUREMENT CONTROL	Optional IE "measurement validity" is not included.
2	<u>→</u>	MEASUREMENT REPORT	
3	<u>←</u>	RADIO BEARER RECONFIGURATION	
4	<u></u>	RADIO BEARER RECONFIGURATION COMPLETE	While entering in CELL_DCH state from CELL FACH state UE shall delete measurement context setup by MEASUREMENT CONTROL message (Step 1).
<u>5</u>			SS waits for 8 seconds to confirm that there is no MEASUREMENT REPORT message from UE.
<u>6</u>	<u>←</u>	RADIO BEARER RECONFIGURATION	
7	<u></u>	RADIO BEARER RECONFIGURATION COMPLETE	UE is in CELL FACH state.
8			SS waits for 8 seconds to confirm that there is no MEASUREMENT REPORT message from UE.
9	<u></u>	MEASUREMENT CONTROL	IE "measurement validity" is set to "All But CELL_DCH".
<u>10</u>	<u>→</u>	MEASUREMENT REPORT	-
<u>11</u>	<u></u>	RADIO BEARER RECONFIGURATION	
12	<u>→</u>	RADIO BEARER RECONFIGURATION COMPLETE	While entering in CELL DCH state from CELL_FACH state UE shall stop traffic volume measurement setup by MEASUREMENT CONTROL message (Step 9).
<u>13</u>			SS waits for 8 seconds to confirm that there is no MEASUREMENT REPORT message from UE.
14	<u>←</u>	MEASUREMENT CONTROL	UE shall release measurement context setup by MEASUREMENT CONTROL message (Step 9).

<u>15</u>	<u></u>	RADIO BEARER RECONFIGURATION	
<u>16</u>	<u>→</u>	RADIO BEARER RECONFIGURATION COMPLETE	UE is in CELL FACH state.
17	<u>←</u>	MEASUREMENT CONTROL	IE "measurement validity" is set to "CELL_DCH".
18			SS waits for 8 seconds to confirm that there is no MEASUREMENT REPORT message from UE.
19	<u>←</u>	RADIO BEARER RECONFIGURATION	
20	⇒	RADIO BEARER RECONFIGURATION COMPLETE	While entering in CELL_DCH state from CELL_FACH state UE shall start traffic volume measurement setup by MEASUREMENT CONTROL message (Step 17).
<u>21</u>	\rightarrow	MEASUREMENT REPORT	
22	<u>←</u>	MEASUREMENT CONTROL	UE shall release measurement context setup by MEASUREMENT CONTROL message (Step 17)
23	<u>←</u>	RADIO BEARER RECONFIGURATION	
24	<u></u>	RADIO BEARER RECONFIGURATION COMPLETE	UE is in CELL_FACH state.
<u>25</u>	<u>←</u>	MEASUREMENT CONTROL	IE "measurement validity" is set to "All states".
<u>26</u>	<u> </u>	MEASUREMENT REPORT	
27	<u>←</u>	RADIO BEARER RECONFIGURATION	
<u>28</u>	⇒	RADIO BEARER RECONFIGURATION COMPLETE	While entering in CELL_DCH state from CELL_FACH state UE shall continue traffic volume measurement setup by MEASUREMENT CONTROL message (Step 25).
29	→	MEASUREMENT REPORT	
30	<u>←</u>	MEASUREMENT CONTROL	UE shall release measurement context setup by MEASUREMENT CONTROL message (Step 25)
31	<u> </u>	RADIO BEARER RECONFIGURATION	

32	<u></u>	RADIO BEARER RECONFIGURATION COMPLETE	UE is in CELL FACH state.
<u>33</u>	<u>←</u>	SIB11 modified	Traffic volume measurements and reporting is assigned to Ues
34	<u>→</u>	MEASUREMENT REPORT	
<u>35</u>	<u>←</u>	RADIO BEARER RECONFIGURATION	
<u>36</u>	<u> </u>	RADIO BEARER RECONFIGURATION COMPLETE	While entering in CELL_DCH state from CELL_FACH state UE shall continue traffic volume measurement assigned in System Information (Step 33).
<u>37</u>	<u>→</u>	MEASUREMENT REPORT	
<u>38</u>	<u>←</u>	MEASUREMENT CONTROL	UE shall release measurement context assigned in System Information (Step 33).

Specific Message Content

MEASUREMENT CONTROL (Step 1)

Information Element	<u>Value/Remark</u>
Measurement Identity	<u>1</u>
Measurement Command	<u>Setup</u>
- CHOICE measurement type	Traffic Volume Measurement
- Traffic volume measurement object list	Not Present
- Traffic volume measurement quantity	RLC Buffer Payload
 Traffic volume reporting quantity 	
- RB buffer payload	<u>True</u>
- RB buffer payload average	<u>False</u>
- RB buffer payload variance	<u>False</u>
- Measurement validity	Not Present
- Report criteria Periodical Reporting Criteria	
- Reporting amount	<u>8</u>
- Reporting interval	8 Sec
Measurement reporting mode	
- Transfer Mode	Acknowledged mode
- Periodical or event trigger	<u>Periodic</u>
Additional measurement list	Not Present
DPCH compressed mode status	Not Present

MEASUREMENT REPORT (Step 2)

Information Element	Value/Remarks
Measurement identity	1
Measured Results	
- CHOICE measurement	Traffic volume measured results list
- Traffic volume measurement results	
- RB identity	<u>0</u>
- RLC buffer payload	Check to see if this IE is present
 RLC buffer payload average 	Check to see if this IE is absent
- RLC buffer variance	Check to see if this IE is absent
- RB identity	<u>1</u>
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
 RLC buffer payload variance 	Check to see if this IE is absent
- RB identity	<u>2</u>
- RLC buffer payload	Check to see if this IE is present
 RLC buffer payload average 	Check to see if this IE is absent
 RLC buffer payload variance 	Check to see if this IE is absent
- RB identity	<u>3</u>
- RLC buffer payload	Check to see if this IE is present
 RLC buffer payload average 	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	<u>4</u>
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	<u>20</u>
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
Measured results on RACH	Check to see if this IE is absent
Additional measured results	Check to see if this IE is absent
Event results	Check to see if this IE is absent

RADIO BEARER RECONFIGURATION (Step 3, 11, 19, 27, and 35)

Use the same message type found in Annex A with condition set to A4.

RADIO BEARER RECONFIGURATION (Step 6, 15, 23, and 31)

Use the same message type found in Annex A with condition set to A5.

MEASUREMENT CONTROL (Step 9)

The contents of this message are identical to MEASUREMENT CONTROL (Step 1) message with the following exceptions:

Information Element	<u>Value/Remark</u>
Measurement Identity	<u>2</u>
Measurement Command	<u>Setup</u>
- CHOICE measurement type	Traffic Volume Measurement
- Measurement validity	All But CELL_DCH

MEASUREMENT REPORT (Step 10)

The contents of this message are identical to MEASUREMENT REPORT (Step 2) message with the following exceptions:

<u>Value/Remarks</u>
2
_

MEASUREMENT CONTROL (Step 14)

Information Element	<u>Value/Remark</u>
Measurement Identity	<u>2</u>
Measurement Command	<u>Release</u>
Measurement reporting mode	Not Present
Additional measurement list	Not Present
DPCH compressed mode status	Not Present

MEASUREMENT CONTROL (Step 17)

The contents of this message are identical to MEASUREMENT CONTROL (Step 1) message with the following exceptions:

Information Element	<u>Value/Remark</u>
Measurement Identity	<u>3</u>
Measurement Command	Setup
- CHOICE measurement type	Traffic Volume Measurement
- Measurement validity	CELL DCH

MEASUREMENT REPORT (Step 21)

The contents of this message are identical to MEASUREMENT REPORT (Step 2) message with the following exceptions:

Information Element	<u>Value/Remarks</u>
Measurement identity	<u>3</u>

MEASUREMENT CONTROL (Step 22)

The contents of this message are identical to MEASUREMENT CONTROL (Step 14) message with the following exceptions:

Information Element	<u>Value/Remark</u>
Measurement Identity	<u>3</u>

MEASUREMENT CONTROL (Step 25)

The contents of this message are identical to MEASUREMENT CONTROL (Step 1) message with the following exceptions:

Information Element	<u>Value/Remark</u>
Measurement Identity	<u>4</u>
Measurement Command	Setup
- CHOICE measurement type	Traffic Volume Measurement
- Measurement validity	All States

MEASUREMENT REPORT (Step 26, and 29)

The contents of this message are identical to MEASUREMENT REPORT (Step 2) message with the following exceptions:

Information Element	<u>Value/Remarks</u>
Measurement identity	4

MEASUREMENT CONTROL (Step 30)

The contents of this message are identical to MEASUREMENT CONTROL (Step 14) message with the following exceptions:

<u>Value/Remark</u>
<u>4</u>
_

System Information Block type 11 (Step 33)

Information Element	Value/Remarks	
SIB12 indicator	FALSE	
FACH measurement occasion info	Not Present	
Measurement control system information		
- Use of HCS	Not used	
 Cell selection and reselection quality 	<u>CPICH RSCP</u>	
 Intra-frequency measurement system 		
<u>information</u>	Not Present	
 Inter-frequency measurement system 		
<u>information</u>	Not Present	
 Inter-RAT measurement system information 	Not Present	
- Traffic volume measurement system information		
- Traffic volume measurement ID	<u>5</u>	
- Traffic volume measurement object list	Not Present	
- Traffic volume measurement quantity	RLC Buffer Payload	
- Traffic volume reporting quantity		
- RB buffer payload	<u>True</u>	
- RB buffer payload average	<u>False</u>	
- RB buffer payload variance	False	
- Traffic volume measurement reporting criteria	Not Present	
- Measurement validity	Not Present	
- Measurement reporting mode		
- Measurement report transfer mode	Acknowledged Mode	
- Periodical or event trigger	Periodical	
- Report criteria system Information	Periodical reporting criteria	
- Reporting amount	Infinity	
- Reporting interval	8 seconds	
- UE internal measurement system information	Not Present	

MEASUREMENT REPORT (Step 34, and 37)

The contents of this message are identical to MEASUREMENT REPORT (Step 2) message with the following exceptions:

Information Element	<u>Value/Remarks</u>
Measurement identity	<u>5</u>

MEASUREMENT CONTROL (Step 38)

The contents of this message are identical to MEASUREMENT CONTROL (Step 14) message with the following exceptions:

Information Element	<u>Value/Remark</u>
Measurement Identity	<u>5</u>

8.4.1.18.5 Test Requirement

The UE shall send MEASUREMENT REPORT message in steps 21, 29 and 37. The UE shall not send MEASUREMENT REPORT message in steps 5, 8, and 13.

8.4.1.19 Measurement Control and Report: Traffic volume measurement for transition from CELL DCH to CELL FACH state

8.4.1.19.1 Definition

8.4.1.19.2 Conformance requirement

Upon transition from CELL_DCH to CELL_FACH state, the UE shall:

- retrieve each set of measurement control information of measurement type "traffic volume" stored in the UE;
 and
 - if the optional IE "measurement validity" for this measurement has not been included:
 - delete the associated measurement;
 - if the IE "measurement validity" for the measurement has been included, and the IE "UE state" has been assigned to value "CELL_DCH":
 - stop measurement reporting;
 - save the associated measurement to be used after the next transition to CELL DCH state;
 - if the IE "measurement validity" for the measurement has been included, and the IE "UE state" has been assigned to value "all states":
 - continue measurement reporting;
 - if the IE "measurement validity" has been included and the IE "UE state" has been assigned to value "all states except CELL DCH":
 - resume this measurement and associated reporting;
- if no traffic volume type measurements applicable to CELL_FACH states are stored in the UE:
 - store the measurement control information from the IE "Traffic volume measurement system information" received in System Information Block type 12 or System Information Block type 11;
 - begin traffic volume measurement reporting according to the assigned information.

8.4.1.19.3 Test Purpose

The UE shall performs traffic volume measurements and the associated reporting when it enters CELL FACH state from CELL DCH state, and that such measurement contexts (and optionally, the reporting context) valid for CELL FACH state have been previously stored.

The UE shall perform traffic volume measurement listed in the System Information Block type 11 or 12 messages, if no previously assigned measurements are present. The UE shall transmit MEASUREMENT REPORT messages if reporting conditions has been satisfied.

Reference

3GPP TS 25.331 clause 8.4.1.6.6

8.4.1.19.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: PS-DCCH+DTCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108

Test Procedure

Initially the UE is in CELL DCH state. MEASUREMENT CONTROL message is sent to the UE to establish traffic volume measurement context with optional IE "measurement validity" is not present. The UE shall perform measurement and reporting as assigned in MEASUREMENT CONTROL message. RADIO BEARER RECONFIGURATION procedure is used to take the UE from CELL DCH state to CELL FACH state. While entering CELL FACH state from CELL DCH state, the UE shall delete traffic volume measurement contexts if optional IE "measurement validity" is not present. So, in CELL FACH state UE shall not perform traffic volume measurement and reporting. UE is taken to the CELL DCH state from CELL FACH state using RADIO BEARER RECONFIGURATION procedure. The UE shall not send MEASUREMENT REPORT message as measurement context is already deleted.

Similarly behavior of the UE when moved from CELL_DCH state to CELL_FACH state and assigned traffic volume measurement context is present with IE "measurement validity" is set to "All But CELL_DCH state" or "CELL_DCH state" or "All states" is tested.

When the UE is in CELL DCH state, System Information is modified to assign traffic volume measurement and reporting to the UE. No previously assigned traffic volume measurement contexts are present in the UE. The UE is taken to CELL FACH state from CELL DCH state using RADIO BEARER RECONFIGURATION procedure. In CELL FACH state the UE shall perform traffic volume measurement and reporting as assigned in System Information. Traffic volume measurement and reporting is released by sending MEASUREMENT CONTROL message.

Expected Sequence

01	D:	ha	
<u>Step</u>	<u>Direction</u>	<u>Message</u>	Comment
	UE SS		
1	<u>←</u>	MEASUREMENT CONTROL	Optional IE "measurement validity" is not included.
<u>2</u>	<u>→</u>	MEASUREMENT REPORT	
<u>3</u>	<u>←</u>	RADIO BEARER RECONFIGURATION	
4	⇒	RADIO BEARER RECONFIGURATION COMPLETE	While entering in CELL FACH state from CELL DCH state UE shall delete measurement context setup by MEASUREMENT CONTROL message (Step 1).
<u>5</u>			SS waits for 8 seconds to confirm that there is no MEASUREMENT REPORT message from UE.
<u>6</u>	<u></u>	RADIO BEARER RECONFIGURATION	

<u>7</u>	<u></u>	RADIO BEARER RECONFIGURATION	UE is in CELL DCH state.
1		COMPLETE	
8			SS waits for 8 seconds to confirm that there is no MEASUREMENT REPORT message from UE.
9	<u></u>	MEASUREMENT CONTROL	IE "measurement validity" is set to "All But CELL_DCH".
10			SS waits for 8 seconds to confirm that there is no MEASUREMENT REPORT message from UE.
11	<u>←</u>	RADIO BEARER RECONFIGURATION	
12	<u> </u>	RADIO BEARER RECONFIGURATION COMPLETE	While entering in CELL FACH state from CELL DCH state UE shall start traffic volume measurement setup by MEASUREMENT CONTROL message (Step 9).
13	<u> </u>	MEASUREMENT REPORT	
14	<u>←</u>	MEASUREMENT CONTROL	UE shall release measurement context setup by MEASUREMENT CONTROL message (Step 9).
15	<u>←</u>	RADIO BEARER RECONFIGURATION	
16	<u> </u>	RADIO BEARER RECONFIGURATION COMPLETE	UE is in CELL DCH state.
17	<u>←</u>	MEASUREMENT CONTROL	IE "measurement validity" is set to "CELL_DCH".
<u>18</u>	<u></u>	MEASUREMENT REPORT	
<u>19</u>	<u>←</u>	RADIO BEARER RECONFIGURATION	
<u>20</u>	<u> </u>	RADIO BEARER RECONFIGURATION COMPLETE	While entering in CELL_FACH state from CELL_DCH state UE shall stop traffic volume measurement setup by MEASUREMENT CONTROL message (Step 17).
<u>21</u>			SS waits for 8 seconds to confirm that there is no
22	<u>←</u>	MEASUREMENT CONTROL	MEASUREMENT DESCRIPTION MEASUREMENT CONTROL message (Step 17)
<u>23</u>	<u></u>	RADIO BEARER RECONFIGURATION	

24	<u> </u>	RADIO BEARER RECONFIGURATION COMPLETE	UE is in CELL DCH state.
<u>25</u>	<u>←</u>	MEASUREMENT CONTROL	IE "measurement validity" is set to "All states".
<u>26</u>	<u></u>	MEASUREMENT REPORT	
<u>27</u>	<u></u>	RADIO BEARER RECONFIGURATION	
<u>28</u>	<u> </u>	RADIO BEARER RECONFIGURATION COMPLETE	While entering in CELL_FACH state from CELL_DCH state UE shall continue traffic volume measurement setup by MEASUREMENT CONTROL message (Step 25).
<u>29</u>	<u> </u>	MEASUREMENT REPORT	
<u>30</u>	<u>←</u>	MEASUREMENT CONTROL	UE shall release measurement context setup by MEASUREMENT CONTROL message (Step 25)
<u>31</u>	<u>←</u>	RADIO BEARER RECONFIGURATION	
<u>32</u>	<u></u>	RADIO BEARER RECONFIGURATION COMPLETE	UE is in CELL_DCH state.
33	<u> </u>	SIB12 modified	Traffic volume measurements and reporting is assigned to UEs
34	<u>←</u>	RADIO BEARER RECONFIGURATION	
<u>35</u>	<u> </u>	RADIO BEARER RECONFIGURATION COMPLETE	While entering in CELL_FACH state from CELL_DCH state UE shall start traffic volume measurement as assigned in System Information (Step 33).
<u>36</u>	<u></u>	MEASUREMENT REPORT	
<u>37</u>	<u> </u>	MEASUREMENT CONTROL	UE shall release measurement context assigned in System Information (Step 33).

Specific Message Content

MEASUREMENT CONTROL (Step 1)

Information Element	<u>Value/Remark</u>	
Measurement Identity	<u>1</u>	
Measurement Command	Setup	
- CHOICE measurement type	Traffic Volume Measurement	
- Traffic volume measurement object list	Not Present	
- Traffic volume measurement quantity	RLC Buffer Payload	
- Traffic volume reporting quantity	·	
- RB buffer payload	<u>True</u>	
- RB buffer payload average	False	
- RB buffer payload variance	<u>False</u>	
- Measurement validity	Not Present	
- Report criteria	Periodical Reporting Criteria	
- Reporting amount	8	
- Reporting interval	8 Sec	
Measurement reporting mode		
- Transfer Mode	Acknowledged mode	
- Periodical or event trigger	Periodic	
Additional measurement list	Not Present	
DPCH compressed mode status	Not Present	

MEASUREMENT REPORT (Step 2)

late and a Flancia	V-1 - /B 1
Information Element	<u>Value/Remarks</u>
Measurement identity	1
Measured Results	
- CHOICE measurement	Traffic volume measured results list
 Traffic volume measurement results 	
- RB identity	<u>0</u>
- RLC buffer payload	Check to see if this IE is present
 RLC buffer payload average 	Check to see if this IE is absent
- RLC buffer variance	Check to see if this IE is absent
- RB identity	<u>1</u>
- RLC buffer payload	Check to see if this IE is present
 RLC buffer payload average 	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	<u>2</u>
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	3
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	4
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	20
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
Measured results on RACH	Check to see if this IE is absent
Additional measured results	Check to see if this IE is absent
Event results	Check to see if this IE is absent

RADIO BEARER RECONFIGURATION (Step 3, 11, 19, 27, and 34)

Use the same message type found in Annex A with condition set to A5.

RADIO BEARER RECONFIGURATION (Step 6, 15, 23, and 31)

Use the same message type found in Annex A with condition set to A4.

MEASUREMENT CONTROL (Step 9)

The contents of this message are identical to MEASUREMENT CONTROL (Step 1) message with the following exceptions:

Information Element	<u>Value/Remark</u>
Measurement Identity	<u>2</u>
Measurement Command	<u>Setup</u>
- CHOICE measurement type	Traffic Volume Measurement
- Measurement validity	All But CELL_DCH
-	

MEASUREMENT REPORT (Step 13)

The contents of this message are identical to MEASUREMENT REPORT (Step 2) message with the following exceptions:

Information Element	<u>Value/Remarks</u>
Measurement identity	<u>2</u>

MEASUREMENT CONTROL (Step 14)

Information Element	<u>Value/Remark</u>
Measurement Identity	2
Measurement Command	<u>Release</u>
Measurement reporting mode	Not Present
Additional measurement list	Not Present
DPCH compressed mode status	Not Present

MEASUREMENT CONTROL (Step 17)

The contents of this message are identical to MEASUREMENT CONTROL (Step 1) message with the following exceptions:

Information Element	<u>Value/Remark</u>
Measurement Identity	<u>3</u>
Measurement Command	<u>Setup</u>
- CHOICE measurement type	Traffic Volume Measurement
- Measurement validity	CELL_DCH

MEASUREMENT REPORT (Step 18)

The contents of this message are identical to MEASUREMENT REPORT (Step 2) message with the following exceptions:

Information Element	<u>Value/Remarks</u>
Measurement identity	3

MEASUREMENT CONTROL (Step 22)

The contents of this message are identical to MEASUREMENT CONTROL (Step 14) message with the following exceptions:

Information Element	<u>Value/Remark</u>
Measurement Identity	3

MEASUREMENT CONTROL (Step 25)

The contents of this message are identical to MEASUREMENT CONTROL (Step 1) message with the following exceptions:

Information Element	<u>Value/Remark</u>
Measurement Identity	4
Measurement Command	<u>Setup</u>
- CHOICE measurement type	Traffic Volume Measurement
 Measurement validity 	All States
·	

MEASUREMENT REPORT (Step 26, and 29)

The contents of this message are identical to MEASUREMENT REPORT (Step 2) message with the following exceptions:

Information Element	<u>Value/Remarks</u>
Measurement identity	4

MEASUREMENT CONTROL (Step 30)

The contents of this message are identical to MEASUREMENT CONTROL (Step 14) message with the following exceptions:

Information Element	<u>Value/Remark</u>
Measurement Identity	4

System Information Block type 12 (Step 33)

Information Element	<u>Value/Remarks</u>
FACH measurement occasion info	Not Present
Measurement control system information	
- Use of HCS	Not used
Cell_selection_and_reselection_quality	CPICH RSCP
- Intra-frequency measurement system	
<u>information</u>	Not Present
 Inter-frequency measurement system 	
<u>information</u>	Not Present
 Inter-RAT measurement system information 	Not Present
- Traffic volume measurement system information	
- Traffic volume measurement ID	<u>5</u>
- Traffic volume measurement object list	Not Present
- Traffic volume measurement quantity	RLC Buffer Payload
 Traffic volume reporting quantity 	
- RB buffer payload	<u>True</u>
- RB buffer payload average	<u>False</u>
- RB buffer payload variance	<u>False</u>
 Traffic volume measurement reporting criteria 	Not Present
- Measurement validity	Not Present
 Measurement reporting mode 	
 Measurement report transfer mode 	Acknowledged Mode
- Periodical or event trigger	<u>Periodical</u>
- Report criteria system Information	Periodical reporting criteria
- Reporting amount	<u>Infinity</u>
- Reporting interval	8 seconds
- UE internal measurement system information	Not Present

MEASUREMENT REPORT (Step 36)

The contents of this message are identical to MEASUREMENT REPORT (Step 2) message with the following exceptions:

Information Element	<u>Value/Remarks</u>
Measurement identity	<u>5</u>

MEASUREMENT CONTROL (Step 37)

The contents of this message are identical to MEASUREMENT CONTROL (Step 14) message with the following exceptions:

Information Element	<u>Value/Remark</u>
Measurement Identity	<u>5</u>
	-

8.4.1.19.5 Test Requirement

The UE shall send MEASUREMENT REPORT message in steps 13, 29 and 36. The UE shall not send MEASUREMENT REPORT message in steps 5, 8, and 21.

8.4.1.20 Measurement Control and Report: Traffic volume measurement in CELL_PCH state

8.4.1.20.1 Definition

8.4.1.20.2 Conformance requirement

In CELL PCH state, when the reporting criteria is fulfilled for any traffic volume measurement which is being performed in the UE, the UE shall first perform the cell update procedure with the cause "uplink data transmission", in order to transit to CELL_FACH state and then transmit a MEASUREMENT REPORT message on the uplink DCCH

8.4.1.20.3 Test Purpose

To confirm that in CELL PCH state, UE performs assigned traffic volume measurement. When reporting criteria for ongoing traffic volume measurement is fulfilled, the UE shall first perform cell update procedure and then transmit MEASUREMENT REPORT message.

Reference

3GPP TS 25.331 clause 8.4.2.2

8.4.1.20.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: PS-DCCH+DTCH DCH (state 6-10) as specified in clause 7.4 of TS 34.108

Test Procedure

Initially the UE is in CELL DCH state. System Information block type 12 message is modified to assign traffic volume measurement and reporting. RADIO BEARER RECONFIGURATION procedure is used to take UE from CELL_DCH state to CELL PCH state. While entering in CELL PCH state from CELL DCH state UE should start traffic volume measurement as assigned in System Information. When reporting criteria for traffic volume measurement is satisfied the UE shall change state to CELL_FACH and perform CELL UPDATE procedure. After successful completion of CELL UPDATE procedure, UE shall transmit MEASUREMENT REPORT message.

Expected Sequence

Step	Direction	Message	Comment
	UE SS		
1	<u>←</u>	SIB12 modified	Traffic volume measurements and reporting is assigned to UEs
2	<u></u>	RADIO BEARER RECONFIGURATION	IE "RRC State Indicator" is set to "CELL PCH"
3	→	RADIO BEARER RECONFIGURATION COMPLETE	While entering in CELL_PCH state from CELL_DCH state UE shall start traffic volume measurement as assigned in System Information (Step 1).

4	<u> </u>	CELL UPDATE	The UE shall move to CELL FACH state with the message set to "uplink data transmission" in IE "Cell update cause".
<u>5</u>	<u>←</u>	CELL UPDATE CONFIRM	
<u>6</u>	<u>→</u>	MEASUREMENT REPORT	

Specific Message Content

System Information Block type 12 (Step 1)

Information Element	<u>Value/Remarks</u>
FACH measurement occasion info	Not Present
Measurement control system information	
- Use of HCS	Not used
- Cell selection and reselection quality	CPICH RSCP
- Intra-frequency measurement system	
<u>information</u>	Not Present
 Inter-frequency measurement system 	
<u>information</u>	Not Present
 Inter-RAT measurement system information 	Not Present
 Traffic volume measurement system information 	
- Traffic volume measurement ID	<u>1</u>
- Traffic volume measurement object list	Not Present
 Traffic volume measurement quantity 	Variance of RLC Buffer Payload
- Time Interval to take an average	200 msec
- Traffic volume reporting quantity	
- RB buffer payload	<u>False</u>
- RB buffer payload average	<u>False</u>
- RB buffer payload variance	<u>True</u>
- Traffic volume measurement reporting criteria	Not Present
- Measurement validity	All States
- Measurement reporting mode	
- Measurement report transfer mode	Acknowledged Mode
- Periodical or event trigger	<u>Periodical</u>
- Report criteria system Information	Periodical reporting criteria
- Reporting amount	Infinity
- Reporting interval	8 seconds
- UE internal measurement system information	Not Present

RADIO BEARER RECONFIGURATION (Step 2)

Use the same message type found in Annex A with condition set to A5 except following exceptions:

Information Element	<u>Value/remark</u>
RRC State Indicator	CELL PCH

CELL UPDATE (Step 4)

Use the same message type found in Annex A with condition set to A5 except following exceptions:

Information Element	<u>Value/remark</u>
Cell Update Cause	Check to see if set to "Uplink data transmission"

MEASUREMENT REPORT (Step 6)

Information Element	Value/Remarks
Measurement identity	1
Measured Results	
- CHOICE measurement	Traffic volume measured results list
- Traffic volume measurement results	
- RB identity	<u>0</u>
- RLC buffer payload	Check to see if this IE is absent
 RLC buffer payload average 	Check to see if this IE is absent
- RLC buffer variance	Check to see if this IE is present
- RB identity	<u>1</u>
- RLC buffer payload	Check to see if this IE is absent
 RLC buffer payload average 	Check to see if this IE is absent
 RLC buffer payload variance 	Check to see if this IE is present
- RB identity	<u>2</u>
- RLC buffer payload	Check to see if this IE is absent
 RLC buffer payload average 	Check to see if this IE is absent
 RLC buffer payload variance 	Check to see if this IE is present
- RB identity	<u>3</u>
- RLC buffer payload	Check to see if this IE is absent
 RLC buffer payload average 	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is present
- RB identity	<u>4</u>
- RLC buffer payload	Check to see if this IE is absent
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is present
- RB identity	<u>20</u>
- RLC buffer payload	Check to see if this IE is absent
- RLC buffer payload average	Check to see if this IE is absent
 RLC buffer payload variance 	Check to see if this IE is present
Measured results on RACH	Check to see if this IE is absent
Additional measured results	Check to see if this IE is absent
Event results	Check to see if this IE is absent

8.4.1.20.5 Test Requirement

The UE shall send CELL UPDATE message with cause "Uplink data transfer" in step 4 and MEASUREMENT REPORT message in 6.

8.4.1.21 Measurement Control and Report: Traffic volume measurement in URA_PCH state

8.4.1.21.1 Definition

8.4.1.21.2 Conformance requirement

In URA_PCH state, when the reporting criteria is fulfilled for any traffic volume measurement which is being performed in the UE, the UE shall first perform the cell update procedure with the cause "uplink data transmission", in order to transit to CELL_FACH state and then transmit a MEASUREMENT REPORT message on the uplink DCCH

8.4.1.21.3 Test Purpose

To confirm that in URA_PCH state, UE performs assigned traffic volume measurement. When reporting criteria for ongoing traffic volume measurement is fulfilled, the UE shall first perform cell update procedure and then transmit MEASUREMENT REPORT message.

Reference

3GPP TS 25.331 clause 8.4.2.2

8.4.1.21.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: PS-DCCH+DTCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108

Test Procedure

Initially the UE is in CELL DCH state. MEASUREMENT CONTROL message is sent to UE to assign traffic volume measurement and reporting to be performed in all states except CELL DCH. The UE is requested to perform periodic reporting of measurements with IE "Reporting amount" is set to 1. RADIO BEARER RECONFIGURATION procedure is used to take UE from CELL DCH state to URA PCH state. While entering in URA PCH state from CELL DCH state UE should start traffic volume measurement as assigned by MEASUREMENT CONTROL message. When reporting criteria for traffic volume measurement is satisfied the UE shall change state to CELL_FACH and perform CELL UPDATE procedure. After successful completion of CELL UPDATE procedure, UE shall transmit MEASUREMENT REPORT message. The UE shall not send second MEASUREMENT REPORT message after reporting interval, because IE "Reporting amount" in MEASUREMENT CONTROL message is set to 1.

Expected Sequence

Step	Direction UE SS	Message	Comment
1	€	MEASUREMENT CONTROL	IE "Reporting amount" is set to 1.
2	<u>←</u>	RADIO BEARER RECONFIGURATION	IE "RRC State Indicator" is set to "URA_PCH"
3	<u> </u>	RADIO BEARER RECONFIGURATION COMPLETE	While entering in URA_PCH state from CELL_DCH state UE shall start traffic volume measurement as assigned in System Information (Step 1).
4	<u> </u>	CELL UPDATE	The UE shall move to CELL FACH state with the message set to "uplink data transmission" in IE "Cell update cause".
<u>5</u>	<u>←</u>	CELL UPDATE CONFIRM	
<u>6</u>	≥	MEASUREMENT REPORT	
<u>7</u>			SS waits for 8 Sec to confirm that UE does not send second MEASUREMENT REPORT message

Specific Message Content

MEASUREMENT CONTROL (Step 1)

Information Element	<u>Value/Remark</u>
Measurement Identity	<u>15</u>
Measurement Command	<u>Setup</u>
- CHOICE measurement type	Traffic Volume Measurement
- Traffic volume measurement object list	RACH
 Traffic volume measurement quantity 	Variance of RLC Buffer Payload
- Time Interval to take an average	200 msec
- Traffic volume reporting quantity	
- RB buffer payload	<u>False</u>
- RB buffer payload average	<u>False</u>
- RB buffer payload variance	<u>True</u>
- Measurement validity	All but CELL_DCH State
- Report criteria	Periodical Reporting Criteria
- Reporting amount	<u>1</u>
- Reporting interval	8 Sec
Measurement reporting mode	
- Transfer Mode	Acknowledged mode
- Periodical or event trigger	<u>Periodic</u>
Additional measurement list	Not Present
DPCH compressed mode status	Not Present

RADIO BEARER RECONFIGURATION (Step 2)

Use the same message type found in Annex A with condition set to A5 except following exceptions:

Information Element	<u>Value/remark</u>
RRC State Indicator	<u>URA PCH</u>

CELL UPDATE (Step 4)

Use the same message type found in Annex A with condition set to A5 except following exceptions:

Information Element	<u>Value/remark</u>
Cell Update Cause	Check to see if set to "Uplink data transmission"

MEASUREMENT REPORT (Step 6)

Information Element	<u>Value/Remarks</u>
Measurement identity	<u>15</u>
Measured Results	
- CHOICE measurement	Traffic volume measured results list
 Traffic volume measurement results 	
- RB identity	<u>0</u>
- RLC buffer payload	Check to see if this IE is absent
 RLC buffer payload average 	Check to see if this IE is absent
- RLC buffer variance	Check to see if this IE is present
- RB identity	<u>1</u>
- RLC buffer payload	Check to see if this IE is absent
 RLC buffer payload average 	Check to see if this IE is absent
 RLC buffer payload variance 	Check to see if this IE is present
- RB identity	<u>2</u>
- RLC buffer payload	Check to see if this IE is absent
 RLC buffer payload average 	Check to see if this IE is absent
 RLC buffer payload variance 	Check to see if this IE is present
- RB identity	<u>3</u>
- RLC buffer payload	Check to see if this IE is absent
 RLC buffer payload average 	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is present
- RB identity	<u>4</u>
- RLC buffer payload	Check to see if this IE is absent
 RLC buffer payload average 	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is present
- RB identity	<u>20</u>
- RLC buffer payload	Check to see if this IE is absent
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is present
Measured results on RACH	Check to see if this IE is absent
Additional measured results	Check to see if this IE is absent
Event results	Check to see if this IE is absent

8.4.1.21.5 Test Requirement

The UE shall send CELL UPDATE message with cause "Uplink data transfer" in step 4 and MEASUREMENT REPORT message in 6. The UE shall not send MEASUREMENT REPORT message in step 7.

8.4.1.22 Measurement Control and Report: Quality measurements

8.4.1.22.1 Definition

8.4.1.22.2 Conformance requirement

<u>In CELL_DCH</u> state, the <u>UE</u> shall send <u>MEASUREMENT REPORT</u> message when reporting criteria is fulfilled for <u>any ongoing quality measurements.</u>

Reference

3GPP TS 25.331 clause 8.4

8.4.1.22.3 Test Purpose

To confirm that the UE performs quality measurement as specified in MEASUREMENT CONTROL message received. In CELL_DCH state, the UE shall send MEASUREMENT REPORT message when the reporting criteria is fulfilled for any ongoing quality measurement.

8.4.1.22.4 Method of test

Initial Condition

System Simulator: 1 cell

 $\underline{\text{UE: CELL_DCH state (state 6-1 or state 6-3) as specified in clause 7.4 of TS 34.108}$, depending on the CN domain(s) $\underline{\text{supported by the UE}}$

Test Procedure

The UE is in CELL_DCH state. MEASUREMENT CONTROL message is sent to UE to assign quality measurement and reporting. As assigned in MEASUREMENT CONTROL message, the UE shall periodically send MEASUREMENT REPORT message reporting BLER of downlink transport channel(s).

Expected Sequence

Step	Direction	<u>Message</u>	Comment		
	UE SS				
1	<u>←</u>	MEASUREMENT CONTROL	The UE is requested to perform "Quality measurements"		
<u>2</u>	\rightarrow	MEASUREMENT REPORT			
3	⇒	MEASUREMENT REPORT	UE shall send second MEASUREMENT REPORT message after 64 seconds.		

Specific Message Content

MEASUREMENT CONTROL (Step 1)

Information Element	Value/Remark
Measurement identity	<u>16</u>
Measurement command	<u>Setup</u>
- CHOICE measurement type	Quality measurement
 Quality reporting quantity 	
- DL transport channel BLER	<u>True</u>
- Transport channel ID list	Not present
- Mode specific Info	<u>fdd : Null</u>
- Reporting criteria	Periodical reporting criteria
- Reporting amount	<u>Infinity</u>
- Reporting interval	<u>64 sec</u>
Measurement reporting mode	
- Transfer Mode	Acknowledged mode
- Periodical or event trigger	<u>Periodic</u>
Additional measurement list	Not Present
DPCH compressed mode status	Not Present

MEASUREMENT REPORT (Step 2,3)

Information Element	<u>Value/Remarks</u>		
Measurement identity	<u>16</u>		
Measured Results			
- CHOICE measurement	Quality measurement		
- BLER measurement results list			
- Transport channel identity	<u>10</u>		
- DL transport channel BLER	Check to see if this IE is present		
- Mode specific info	fdd: Null		
Measured results on RACH	Check to see if this IE is absent		
Additional measured results	Check to see if this IE is absent		
Event results	Check to see if this IE is absent		

8.4.1.22.5 Test Requirement

In step 2 and 3, the UE shall send MEASUREMENT REPORT message to report BLER for downlink DCH transport channel.

3GPP TSG-T1 #13 Cancun, Mexico, November 29 to 30, 2001 3GPP TSG-T1 SIG #20 Cancun, Mexico, November 26 to 28, 2001

T1S-010350

CHANGE REQUEST				
* 34.	123-1 CR 120 # ev - # Current version: 4.0.0 #			
For <u>HELP</u> on usin	g this form, see bottom of this page or look at the pop-up text over the ₩ symbols.			
Proposed change aff	ects: (U)SIM ME/UE X Radio Access Network Core Network			
Title: ೫ (Jpdate in Clause 8.3.7 InterSystem Handover from UTRAN to GSM			
Source: # N	MOTOROLA and MCC Task 160			
Work item code: ₩	TEI Date: 第 16-Nov-2001			
De	Release: # REL-4 se one of the following categories: F (correction) A (corresponds to a correction in an earlier release) B (addition of feature), C (functional modification of feature) D (editorial modification) etailed explanations of the above categories can fround in 3GPP TR 21.900. REL-4 REL-4 REL-4 REL-5 REL-4 REL-5 REL-6 REL-6 REL-7 REL-7 REL-7 REL-7 REL-8 REL-8 REL-9 REL-9			
Reason for change:	第 1. Addition of 7 New Failure Test cases			
	2. Specific Message Contents			
Summary of change:	# 1. New test cases to Check the 7 different Failure scenarios have been added.			
	2. Specific message content has been modified			
	a. The embedded GSM Handover Command shall be formatted as Variable Length BIT STRING without Length Indicator			
b. The UE's reporting of Inter-system message in the Handover From UTRAN Failure Message shall not Be Checked.				
	3. In test case 8.3.7.5 As the Target GSM traffic Channel is not configured on SS side, the Handover access sent by UE shall not be received by SS.			
Consequences if not approved:	** Test Coverage will be affected, Expected Sequence and Specific Message Content shall remain incorrect			
Clauses affected:	Clause 8.3.7 Inter-system hard handover from UTRAN to GSM ■ Clause 8.3.7 Inter-system hard handover from UTRAN to GSM			
Other specs affected:	# Other core specifications # Test specifications O&M Specifications			
Other comments:	# Applicable to R99 and later releases			

8.3.7 Inter-system hard handover from UTRAN to GSM

Clauses 8.3.7 contains test procedures to be used for executing Inter-system Handover from UTRAN to GSM tests. Table 8.3.7-1 contains a summary of the different combinations of parameters being tested, together with a reference to the appropriate generic test procedure. If a test uses a parameter which the UE under test does not support, the test shall be skipped. Test cases in this clause are applicable only to the UE supporting both UTRAN and GSM. The test USIM shall support service 27 to carry out these test cases.

Table 8.3.7-1

From	То	State of call	Ref. clause	Exec counter	Remark
UTRAN AMR (conversational/speech/ uplink:12.2 DL:12.2 kbps/CS RAB + uplink:3.4 DL3.4 kbps SRBS)	GSM AMR	U10	8.3.7.1	1	call active state
UTRAN AMR (conversational/speech/ uplink:12.2 DL:12.2 kbps/CS RAB + uplink:3.4 DL3.4 kbps SRBS)	GSM EFR	U10	8.3.7.1	2	call active state
UTRAN AMR (conversational/speech/ uplink:12.2 DL:12.2 kbps/CS RAB + uplink:3.4 DL3.4 kbps SRBS)	GSM FR	U10	8.3.7.1	3	call active state
UTRAN AMR (conversational/speech/ uplink:12.2 DL:12.2 kbps/CS RAB + uplink:3.4 DL3.4 kbps SRBS)	GSM HR	U10	8.3.7.1	4	call active state
UTRAN (Streaming/unknown/ uplink:14.4 DL:14.4 kbps/CS RAB + uplink:3.4 DL:3.4 kbps SRBS)	GSM 14.4 kbps CS data	U10	8.3.7.2	1	Same data rate
UTRAN (Streaming/unknown/ uplink:28.8 DL:28.8 kbps/CS RAB + uplink:3.4 DL:3.4 kbps SRBS)	GSM 28.8 kbps CS data	U10	8.3.7.2	2	Same data rate
UTRAN (Streaming/unknown/ uplink:57.6 DL:57.6 kbps/CS RAB + uplink:3.4 DL:3.4 kbps SRBS)	GSM 57.6 kbps CS data	U10	8.3.7.2	3	Same data rate
UTRAN (Streaming/unknown/ uplink:28.8 DL:28.8 kbps/CS RAB + uplink:3.4 DL:3.4 kbps SRBS)	GSM 14.4 kbps CS data	U10	8.3.7.3	1	Data rate down grading
UTRAN (Streaming/unknown/ uplink:57.6 DL:57.6 kbps/CS RAB + uplink:3.4 DL:3.4 kbps SRBS)	GSM 14.4 kbps CS data	U10	8.3.7.3	2	Data rate down grading
UTRAN (Streaming/unknown/ uplink:57.6 DL:57.6 kbps/CS RAB + uplink:3.4 DL:3.4 kbps SRBS)	GSM 28.8 kbps CS data	U10	8.3.7.3	3	Data rate down grading
UTRAN AMR (conversational/speech/ uplink:12.2 DL:12.2 kbps/CS RAB + uplink:3.4 DL3.4 kbps SRBS)	GSM FR	U1	8.3.7.4	1	During call establishment
UTRAN AMR (conversational/speech/ uplink:12.2 DL:12.2 kbps/CS RAB + uplink:3.4 DL3.4 kbps SRBS)	GSM FR	U10	8.3.7.5	1	failure case

	T = = = =				
UTRAN AMR	GSM FR	<u>U10</u>	<u>8.3.7.6</u>	<u>1</u>	<u>failure case</u>
(conversational/speech/					
uplink:12.2 DL:12.2 kbps/CS					
RAB +					
uplink:3.4 DL3.4 kbps SRBS)					
<u>UTRAN AMR</u>	GSM FR	<u>U10</u>	8.3.7.7	<u>1</u>	failure case
(conversational/speech/					
uplink:12.2 DL:12.2 kbps/CS					
RAB +					
uplink:3.4 DL3.4 kbps SRBS)					
UTRAN AMR	GSM FR	U10	8.3.7.8	1	failure case
(conversational/speech/				_	
uplink:12.2 DL:12.2 kbps/CS					
RAB +					
uplink:3.4 DL3.4 kbps SRBS)					
UTRAN AMR	GSM FR	U10	8.3.7.9	1	failure case
(conversational/speech/					
uplink:12.2 DL:12.2 kbps/CS					
RAB +					
uplink:3.4 DL3.4 kbps SRBS)					
UTRAN AMR	GSM FR	U10	8.3.7.10	1	failure case
(conversational/speech/	<u> </u>	<u> </u>	<u> </u>	-	10.1010 00.00
uplink:12.2 DL:12.2 kbps/CS					
RAB +					
uplink:3.4 DL3.4 kbps SRBS)					
UTRAN AMR	GSM FR	U10	8.3.7.11	1	failure case
(conversational/speech/	SOWITK	010	0.0.7.11		idilate ease
uplink:12.2 DL:12.2 kbps/CS					
RAB +					
uplink:3.4 DL3.4 kbps SRBS)					
UTRAN AMR	GSM FR	U10	8.3.7.12	1	failure case
(conversational/speech/	GOWLER	010	0.3.1.12		ialiule case
uplink:12.2 DL:12.2 kbps/CS					
RAB +					
uplink:3.4 DL3.4 kbps SRBS)					
upilitik.3.4 DL3.4 KDPS SKBS)					

8.3.7.1 Inter system handover from UTRAN/To GSM/Speech/Success

8.3.7.1.1 Definition

8.3.7.1.2 Conformance requirement

When the UE receives an HANDOVER FROM UTRAN COMMAND message from UTRAN the UE shall take the following actions:

- Establish the connection to the other radio access system, by using the contents of the IE "Inter system message". This IE contains candidate/ target cell identifier(s) and radio parameters relevant for the other radio access system.
- For each IE "Remaining radio access bearer", associate the radio access bearer given by the IE "RAB info" to the radio resources in the target system given by the IE "Inter system message". Other information for making the association may be included in the IE "Inter system message" and requirements may be stated in the specifications relevant for the target system [FFS].
- Switch the current connection to the other radio access system.
- NOTE 1: Requirements concerning the establishment of the radio connection towards the other radio access system and the signalling procedure are outside the scope of this specification.
- NOTE 2: The release of the UMTS radio resources is initiated by the other system.
- NOTE 3: Currently only one radio access bearer can be associated with the IE "Inter-system message", and this association is limited to the radio access bearers in the CS domain. It is assumed that all the radio access bearers in the PS domain, if any, remain after the handover.

Reference(s)

TS 25.331 Clause 8.3.7.3.

8.3.7.1.3 Test purpose

To test that the UE supporting both GSM and UTRAN handovers from a UTRAN serving cell to the indicated channel of GSM target cell when the UE is in the speech call active state and receives an HANDOVER FROM UTRAN COMMAND.

8.3.7.1.4 Method of test

Initial conditions

System Simulator: 2 cells - Cell 1 is UTRAN, Cell 2 is GSM. GSM 11.10-1 section 26.6.5.1 shall be referenced for the default parameters of cell 2.

UE: CC State U10 in cell 1

Related ICS/IXIT statement(s)

UE supports both GSM and UTRAN Radio Access Technologies,

UE supports GSM ARM,

UE supports GSM EFR,

UE supports GSM HR,

UE supports GSM-P, GSM-E, GSM-DCS, GSM-450, GSM-480.

Foreseen final state of the UE

The UE is in CC state U10 on cell 2.

Test Procedure

The SS starts the UTRAN cell and brings the UE into call active state (CC state U10) with AMR. The SS starts GSM cell and configures a traffic channel, then sends HANDOVER FROM UTRAN COMMAND indicating the traffic channel of the target GSM cell to the UE through DCCH of the serving UTRAN cell. After the UE receives the command it shall configure itself accordingly and switch to the new channel of the UTRAN cell. The SS checks whether the handover is performed by checking that the UE transmits the HANDOVER COMPLETE message to the SS through GSM cell.

Depending on the PIXIT parameters the above procedure is executed maximum four times, each time with different target channel in the GSM cell.

Expected sequence

This sequence is performed for a maximum execution counter M = 1, 2, 3, 4, depending on the PIXIT parameters.

Step	Direction	Message	Comments
	UE SS		
1	UE		The SS bring the UE into UTRAN U10 state in cell 1
2	SS		The SS configures cell 2 as a GSM cell with a traffic channel: for GSM AMR (M = 1); or for GSM EFR (M = 2); or for GSM FR (M = 3); or for GSM HR (M = 4).
3	←	HANDOVER FROM UTRAN COMMAND-GSM	Send on cell 1 (UTRAN cell) and the message indicates: the target channel for GSM AMR (M = 1); or the target channel for GSM EFR (M = 2); or the target channel for GSM FR (M = 3); or the target channel for GSM HR (M = 4).
4	UE		The UE accepts the handover command and switches to the GSM traffic channel specified in the HANDOVER FROM UTRAN COMMAND-GSM
5	→	HANDOVER ACCESS	The SS receives this burst on the traffic channel of cell 2 (GSM cell) It implies that the UE has switched to GSM cell.
6	\rightarrow	HANDOVER ACCESS	
7	\rightarrow	HANDOVER ACCESS	
8	\rightarrow	HANDOVER ACCESS	
9	+	PHYSICAL INFORMATION	
10	\rightarrow	SABM	
11	+	UA	
12	\rightarrow	HANDOVER COMPLETE	The SS receives the message on the traffic channel of GSM cell.

Specific message contents

For execution:

HANDOVER FROM UTRAN COMMAND-GSM

Information Element	Value/remark	
Message Type		
RRC transaction identifier	Arbitrarily selects one integer between 0 to 3	
Integrity check info	The presence of this IE is dependent on IXIT statements in TS 34.123-2. If integrity protection is indicated to be active, this IE is present with the values of the sub IEs as stated below. Else, this IE and the sub-IEs are omitted.	
- Message authentication code	SS calculates the value of MAC-I for this message and writes to this IE.	
 RRC Message sequence number 	SS provides the value of this IE, from its internal counter.	
Activation time	Now	
RAB Info	Not present	
Inter-system message		
- System type	GSM	
- Frequency Band	GSM/DCS 1800 Band	
- CHOICE GSM message	Single GSM message	
- Message	GSM HANDOVER COMMAND formatted as <u>Variable</u> <u>Length BIT STRING without Length Indicator</u> <u>STRING(1512)</u> . The contents of the HANDOVER	
	COMMAND see next table.	

HANDOVER COMMAND

Same as the HANDOVER COMMAND for M=2 in clause 26.6.5.1 of GSM 11.10-1, Release 1999, except that the CHANNEL MODE IE is included with value = speech full rate or half rate version 3

For execution 2:

HANDOVER FROM UTRAN COMMAND-GSM

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects one integer between 0 to 3
Integrity check info	The presence of this IE is dependent on IXIT statements in TS 34.123-2. If integrity protection is indicated to be active, this IE is present with the values of the sub IEs as stated below. Else, this IE and the sub-IEs are omitted.
- Message authentication code	SS calculates the value of MAC-I for this message and writes to this IE.
 RRC Message sequence number 	SS provides the value of this IE, from its internal counter.
Activation time	now
RAB Info	Not present
Inter-system message	
- System type	GSM
- Frequency Band	GSM/DCS 1800 Band
- CHOICE GSM message	Single GSM message
- Message	GSM HANDOVER COMMAND formatted as <u>Variable</u> <u>Length BIT STRING without Length IndicatorBIT</u> <u>STRING(1512)</u> . The contents of the HANDOVER COMMAND see next table.

HANDOVER COMMAND

Same as the HANDOVER COMMAND for M = 2 in clause 26.6.5.1 of GSM 11.10-1, Release 1999, except that the CHANNEL MODE IE is included with value = speech full rate or half rate version 2

For execution 3:

HANDOVER FROM UTRAN COMMAND-GSM

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects one integer between 0 to 3
Integrity check info	The presence of this IE is dependent on IXIT statements in TS 34.123-2. If integrity protection is indicated to be active, this IE is present with the values of the sub IEs as stated below. Else, this IE and the sub-IEs are omitted.
- Message authentication code	SS calculates the value of MAC-I for this message and writes to this IE.
- Message sequence number	SS provides the value of this IE, from its internal counter.
Activation time	now
RAB Info	Not present
Inter-system message	
- System type	GSM
- Frequency Band	GSM/DCS 1800 Band
- CHOICE system	Single GSM message
- Message	GSM HANDOVER COMMAND formatted as BIT STRING(1512). The contents of the HANDOVER COMMAND see next table.

HANDOVER COMMAND

Same as the HANDOVER COMMAND for M = 2 in clause 26.6.5.1 of GSM 11.10-1, Release 1999, except that the CHANNEL MODE IE is included with value = speech full rate or half rate version 1

For execution 4:

HANDOVER FROM UTRAN COMMAND-GSM

Information Element	Value/remark	
Message Type		
RRC transaction identifier	Arbitrarily selects one integer between 0 to 3	
Integrity check info	The presence of this IE is dependent on IXIT statements in TS 34.123-2. If integrity protection is indicated to be active, this IE is present with the values of the sub IEs as stated below. Else, this IE and the sub-IEs are omitted.	
- Message authentication code	SS calculates the value of MAC-I for this message and writes to this IE.	
 RRC Message sequence number 	SS provides the value of this IE, from its internal counter.	
Activation time	now	
RAB Info	Not present	
Inter-system message		
- System type	GSM	
- Frequency Band	GSM/DCS 1800 Band	
- CHOICE system	Single GSM message	
- Message	GSM HANDOVER COMMAND formatted as <u>Variable</u> <u>Length BIT STRING without Length IndicatorBIT</u> <u>STRING(1512)</u> . The contents of the HANDOVER COMMAND see next table.	

HANDOVER COMMAND

Same as the HANDOVER COMMAND for M = 4 in clause 26.6.5.1 of GSM 11.10-1 version 8.2.0 Release 1999, except that the CHANNEL MODE IE is included with value = speech full rate or half rate version 1

8.3.7.1.5 Test requirement

After step 12 the ongoing call shall be continued on the GSM cell.

8.3.7.2 Inter system handover from UTRAN/To GSM/Data/Same data rate/Success

8.3.7.2.1 Definition

8.3.7.2.2 Conformance requirement

When the UE receives an HANDOVER FROM UTRAN COMMAND message from UTRAN the UE shall take the following actions:

- Establish the connection to the other radio access system, by using the contents of the IE "Inter system message". This IE contains candidate/ target cell identifier(s) and radio parameters relevant for the other radio access system.
- For each IE "Remaining radio access bearer", associate the radio access bearer given by the IE "RAB info" to the radio resources in the target system given by the IE "Inter system message". Other information for making the association may be included in the IE "Inter system message" and requirements may be stated in the specifications relevant for the target system [FFS].

- Switch the current connection to the other radio access system.
- NOTE 1: Requirements concerning the establishment of the radio connection towards the other radio access system and the signalling procedure are outside the scope of this specification.
- NOTE 2: The release of the UMTS radio resources is initiated by the other system.
- NOTE 3: Currently only one radio access bearer can be associated with the IE "Inter-system message", and this association is limited to the radio access bearers in the CS domain. It is assumed that all the radio access bearers in the PS domain, if any, remain after the handover.

Reference(s)

TS 25.331 Clause 8.3.7.3.

8.3.7.2.3 Test purpose

To test that the UE handovers to the indicated channel of same data rate in the GSM target cell when it is in the data call active state in the UTRAN serving cell and receives an HANDOVER FROM UTRAN COMMAND.

8.3.7.2.4 Method of test

Initial conditions

System Simulator: 2 cells - Cell 1 is UTRAN, Cell 2 is GSM. GSM 11.10-1 section 26.6.5.1 or section 26.13.1.3 (for HSCSD) shall be referenced for the default parameters of cell 2.

UE: CC State U10 in cell 1

Related ICS/IXIT statement(s)

UE supports both GSM and UTRAN Radio Access Technologies,

UE supports UTRAN Streaming/unknown/uplink:14.4 DL:14.4 kbps/CS RAB + uplink:3.4 DL:3.4 kbps SRBs,

UE supports UTRAN Streaming/unknown/uplink:28.8 DL:28.8 kbps/CS RAB + uplink:3.4 DL:3.4 kbps SRBs,

UE supports UTRAN Streaming/unknown/uplink:57.6 DL:57.6 kbps/CS RAB + uplink:3.4 DL:3.4 kbps SRBs,

UE supports GSM 14.4 kbps data (HSCSD or full rate traffic channel for 14.4 kbit/s user data (TCH/F14.4)),

UE supports GSM 28.8 kbps data (HSCSD or enhanced circuit switched full rate traffic channel for 28.8 kbit/s user date (E-TCH/F28.8)),

UE supports GSM 57.6 kbps data,

UE supports GSM-P, GSM-E, GSM-DCS, GSM-450, GSM-480.

Foreseen final state of the UE

The UE is in CC state U10 on cell 2.

Test Procedure

The SS starts the UTRAN cell and brings the UE into data call active state (CC state U10) with a suitable configuration (e.g. Streaming/unknown/uplink:14.4 DL:14.4 kbps/CS RAB + uplink:3.4 DL:3.4 kbps SRBs for M=1). The SS starts GSM cell and configures a traffic channel (e.g. 14.4 kbps data channel for M=1), then sends HANDOVER FROM UTRAN COMMAND indicating the traffic channel of the target GSM cell to the UE through DCCH of the serving UTRAN cell. After the UE receives the command it shall configure itself accordingly and switch to the new channel of the GSM cell. The SS checks whether the handover is performed by checking that the UE transmits the HANDOVER COMPLETE message to the SS in GSM cell.

Depending on the PIXIT parameters the above procedure is executed maximum three times, each time with different target channel in the GSM cell.

Expected sequence

This sequence is performed for a maximum execution counter M = 1, 2, 3, depending on the PIXIT parameters.

Step	Direction		Message	Comments
	UE	SS		
1	U	E		The SS bring the UE into UTRAN U10 state in cell 1, the configuration is: Streaming/unknown/uplink:14.4 DL:14.4 kbps/CS RAB + uplink:3.4 DL:3.4 kbps SRBs (for M = 1); Streaming/unknown/uplink:28.8 DL:28.8 kbps/CS RAB + uplink:3.4 DL:3.4 kbps SRBs (for M = 2); Streaming/unknown/uplink:57.6 DL:57.6 kbps/CS RAB + uplink:3.4 DL:3.4 kbps SRBs (for M = 3).
2	S	S		The SS configures cell 2 as a GSM cell with a traffic channel: for GSM 14.4 kbps data (M = 1); or for GSM 28.8 kbps data (M = 2); or for GSM 57.6 kbps data (M = 3).
3	*	_	HANDOVER FROM UTRAN COMMANDGSM	Send on cell 1 (UTRAN cell) and the message indicates: the target channel for GSM 14.4 kbps data (M = 1); or for GSM 28.8 kbps data (M = 2); or for GSM 57.6 kbps data (M = 3).
4	U	E		The UE accepts the handover command and switches to the GSM traffic channel specified in the HANDOVER FROM UTRAN COMMAND-GSM
5	=	>	HANDOVER ACCESS	The SS receives this burst on the traffic channel of cell 2 (GSM cell) It implies that the UE has switched to GSM cell.
6	-)	HANDOVER ACCESS	
7	-	>	HANDOVER ACCESS	
8	-		HANDOVER ACCESS	
9	+	-	PHYSICAL INFORMATION	
10	-		SABM	
11	+		UA	
12	_	→	HANDOVER COMPLETE	The SS receives the message on the traffic channel of GSM cell.

Specific message contents

For execution:

HANDOVER FROM UTRAN COMMAND-GSM

Value/remark
Arbitrarily selects one integer between 0 to 3
The presence of this IE is dependent on IXIT statements in TS 34.123-2. If integrity protection is indicated to be active, this IE is present with the values of the sub IEs as stated below. Else, this IE and the sub-IEs are omitted.
SS calculates the value of MAC-I for this message and writes to this IE.
SS provides the value of this IE, from its internal counter.
now
Not present
·
GSM
GSM/DCS 1800 Band
Single GSM message
GSM HANDOVER COMMAND formatted as BIT STRING(1512). The contents of the HANDOVER COMMAND see next table.

If the UE supports 14.4 kbps single slot:

HANDOVER COMMAND

Same as the HANDOVER COMMAND for M = 2 in clause 26.6.5.1 of GSM 11.10-1, Release 1999, except that the CHANNEL MODE IE is included with value = data, 14.5 kbit/s radio interface rate (14.4 kbit/s user data (TCH/F14.4))

If the UE supports HSCSD:

HANDOVER COMMAND

Same as the HANDOVER COMMAND in clause 26.13.3.1 of GSM 11.10-1, Release 1999, except that the Description of a multi-slot configuration supporting 14.4 kbps user data.

For execution 2:

HANDOVER FROM UTRAN COMMAND-GSM

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects one integer between 0 to 3
Integrity check info	The presence of this IE is dependent on IXIT statements in TS 34.123-2. If integrity protection is indicated to be active, this IE is present with the values of the sub IEs as stated below. Else, this IE and the sub-IEs are omitted.
- Message authentication code	SS calculates the value of MAC-I for this message and writes to this IE.
- RRC Message sequence number	SS provides the value of this IE, from its internal counter.
Activation time	now
RAB Info	Not present
Inter-system message	
- System type	GSM
- Frequency Band	GSM/DCS 1800 Band
- CHOICE GSM message	Single GSM message
- Message	GSM HANDOVER COMMAND formatted as Variable
, and the second	Length BIT STRING without Length IndicatorBIT STRING(1512). The contents of the HANDOVER COMMAND see next table.
	COMMENTAL GOOD HOAR RADIO.

If the UE supports enhanced circuit switched full rate traffic channel for 28.8 kbps user data:

HANDOVER COMMAND

Same as the HANDOVER COMMAND for M = 2 in clause 26.6.5.1 of GSM 11.10-1, Release 1999, except that the CHANNEL MODE IE is included with value = data, 29.0 kbit/s radio interface rate (28.8 kbit/s user data (E-TCH/F28.8))

If the UE supports HSCSD:

HANDOVER COMMAND

Same as the HANDOVER COMMAND in clause 26.13.3.1 of GSM 11.10-1, Release 1999, except that the Description of a multi-slot configuration supporting 28.8 kbps user data.

For execution 3:

HANDOVER FROM UTRAN COMMAND-GSM

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects one integer between 0 to 3
Integrity check info	The presence of this IE is dependent on IXIT statements in TS 34.123-2. If integrity protection is indicated to be active, this IE is present with the values of the sub IEs as stated below. Else, this IE and the sub-IEs are omitted.
- Message authentication code	SS calculates the value of MAC-I for this message and writes to this IE.
- RRC Message sequence number	SS provides the value of this IE, from its internal counter.
Activation time	now
RAB Info	Not present
Inter-system message	
- System type	GSM
- Frequency Band	GSM/DCS 1800 Band
- CHOICE GSM message	Single GSM message
- Message	GSM HANDOVER COMMAND formatted as <u>Variable</u> <u>Length BIT STRING without Length Indicatoras BIT</u> <u>STRING(1512)</u> . The contents of the HANDOVER COMMAND see next table.

HANDOVER COMMAND

Same as the HANDOVER COMMAND in clause 26.13.3.1 of GSM 11.10-1, Release 1999, except that the Description of a multi-slot configuration supporting 57.6 kbps user data.

8.3.7.2.5 Test requirement

After step 12 the ongoing call shall be continued on the GSM cell.

8.3.7.3 Inter system handover from UTRAN/To GSM/Data/Data rate down grading/Success

8.3.7.3.1 Definition

8.3.7.3.2 Conformance requirement

When the UE receives an HANDOVER FROM UTRAN COMMAND message from UTRAN the UE shall take the following actions:

- Establish the connection to the other radio access system, by using the contents of the IE "Inter system message". This IE contains candidate/ target cell identifier(s) and radio parameters relevant for the other radio access system.
- For each IE "Remaining radio access bearer", associate the radio access bearer given by the IE "RAB info" to the radio resources in the target system given by the IE "Inter system message". Other information for making the association may be included in the IE "Inter system message" and requirements may be stated in the specifications relevant for the target system [FFS].
- Switch the current connection to the other radio access system.
- NOTE 1: Requirements concerning the establishment of the radio connection towards the other radio access system and the signalling procedure are outside the scope of this specification.
- NOTE 2: The release of the UMTS radio resources is initiated by the other system.

NOTE 3: Currently only one radio access bearer can be associated with the IE "Inter-system message", and this association is limited to the radio access bearers in the CS domain. It is assumed that all the radio access bearers in the PS domain, if any, remain after the handover.

Reference(s)

TS 25.331 Clause 8.3.7.3.

8.3.7.3.3 Test purpose

To test that the UE handovers to the indicated channel of lower data rate in the GSM target cell when it is in the data call active state in the UTRAN serving cell and receives an HANDOVER FROM UTRAN COMMAND.

8.3.7.3.4 Method of test

Initial conditions

System Simulator: 2 cells - Cell 1 is UTRAN, Cell 2 is GSM. GSM 11.10-1 section 26.6.5.1 or section 26.13.1.3 (for HSCSD) shall be referenced for the default parameters of cell 2.

UE: CC State U10 in cell 1

Related ICS/IXIT statement(s)

UE supports both GSM and UTRAN Radio Access Technologies,

UE supports UTRAN Streaming/unknown/uplink:28.8 DL:28.8 kbps/CS RAB + uplink:3.4 DL:3.4 kbps SRBs,

UE supports UTRAN Streaming/unknown/uplink:57.6 DL:57.6 kbps/CS RAB + uplink:3.4 DL:3.4 kbps SRBs,

UE supports GSM 14.4 kbps data (HSCSD or full rate traffic channel for 14.4 kbit/s user data (TCH/F14.4)),

UE supports GSM 28.8 kbps data (HSCSD or enhanced circuit switched full rate traffic channel for 28.8 kbit/s user date (E-TCH/F28.8)),

UE supports GSM-P, GSM-E, GSM-DCS, GSM-450, GSM-480.

Foreseen final state of the UE

The UE is in CC state U10 on cell 2.

Test Procedure

The SS starts the UTRAN cell and brings the UE into data call active state (CC state U10) with a suitable configuration (e.g. Streaming/unknown/uplink:28.8 DL:28.8 kbps/CS RAB + uplink:3.4 DL:3.4 kbps SRBs for M=1). The SS starts GSM cell and configures a traffic channel (e.g. 14.4 kbps data channel for M=1), then sends HANDOVER FROM UTRAN COMMAND indicating the traffic channel of the target GSM cell to the UE through DCCH of the serving UTRAN cell. After the UE receives the command it shall configure itself accordingly and switch to the new channel of the GSM cell. The SS checks whether the handover is performed by checking that the UE transmits the HANDOVER COMPLETE message to the SS in GSM cell.

Depending on the PIXIT parameters the above procedure is executed maximum three times, each time with different target channel in the GSM cell.

Expected sequence

This sequence is performed for a maximum execution counter M = 1, 2, 3, depending on the PIXIT parameters.

Step	Direction	Message	Comments
	UE SS		
1	UE		The SS bring the UE into UTRAN U10 state in cell 1, the configuration is: Streaming/unknown/uplink:28.8 DL:28.8 kbps/CS RAB +
			uplink:3.4 DL:3.4 kbps SRBs (for M = 1); Streaming/unknown/uplink:57.6 DL:57.6 kbps/CS RAB + uplink:3.4 DL:3.4 kbps SRBs (for M = 2 and 3).
2	SS		The SS configures cell 2 as a GSM cell with a traffic channel: for GSM 14.4 kbps data (M = 1 and 2); or for GSM 28.8 kbps data (M = 3).
3	+	HANDOVER FROM UTRAN COMMAND-GSM	Send on cell 1 (UTRAN cell) and the message indicates: the target channel for GSM 14.4 kbps data (M = 1 and 2); or for GSM 28.8 kbps data (M = 3).
4	UE		The UE accepts the handover command and switches to the GSM traffic channel specified in the HANDOVER FROM UTRAN COMMAND-GSM
5	→	HANDOVER ACCESS	The SS receives this burst on the traffic channel of cell 2 (GSM cell) It implies that the UE has switched to GSM cell.
6	\rightarrow	HANDOVER ACCESS	
7	\rightarrow	HANDOVER ACCESS	
8	\rightarrow	HANDOVER ACCESS	
9	+	PHYSICAL INFORMATION	
10	\rightarrow	SABM	
11	←	UA	
12	\rightarrow	HANDOVER COMPLETE	The SS receives the message on the traffic channel of GSM cell.

Specific message contents

For execution 1:

Same as the message contents of clause 8.3.7.2 for M = 1.

For execution 2:

Same as the message contents of clause 8.3.7.2 for M = 1.

For execution 3:

Same as the message contents of clause 8.3.7.2 for M = 2.

8.3.7.3.5 Test requirement

After step 12 the ongoing call shall be continued on the GSM cell.

8.3.7.4 Inter system handover from UTRAN/To GSM/Speech/Establishment/Success

8.3.7.4.1 Definition

8.3.7.4.2 Conformance requirement

When the UE receives an HANDOVER FROM UTRAN COMMAND message from UTRAN the UE shall take the following actions:

- Establish the connection to the other radio access system, by using the contents of the IE "Inter system message". This IE contains candidate/ target cell identifier(s) and radio parameters relevant for the other radio access system.
- For each IE "Remaining radio access bearer", associate the radio access bearer given by the IE "RAB info" to the radio resources in the target system given by the IE "Inter system message". Other information for making the association may be included in the IE "Inter system message" and requirements may be stated in the specifications relevant for the target system [FFS].
- Switch the current connection to the other radio access system.
- NOTE 1: Requirements concerning the establishment of the radio connection towards the other radio access system and the signalling procedure are outside the scope of this specification.
- NOTE 2: The release of the UMTS radio resources is initiated by the other system.
- NOTE 3: Currently only one radio access bearer can be associated with the IE "Inter-system message", and this association is limited to the radio access bearers in the CS domain. It is assumed that all the radio access bearers in the PS domain, if any, remain after the handover.

Reference(s)

TS 25.331 Clause 8.3.7.3.

8.3.7.4.3 Test purpose

To test that the UE handovers to the indicated channel in the GSM target cell when it is in the call establishment phase in the UTRAN serving cell and receives an HANDOVER FROM UTRAN COMMAND.

8.3.7.4.4 Method of test

Initial conditions

System Simulator: 2 cells - Cell 1 is UTRAN, Cell 2 is GSM. GSM 11.10-1 section 26.6.5.1 shall be referenced for the default parameters of cell 2.

UE: CC State U1 in cell 1

Related ICS/IXIT statement(s)

UE supports both GSM and UTRAN Radio Access Technologies,

UE supports UTRAN AMR,

UE supports GSM FR,

UE supports GSM-P, GSM-E, GSM-DCS, GSM-450, GSM-480.

Foreseen final state of the UE

The UE is in CC state U1 on cell 2.

Test Procedure

The SS starts the UTRAN cell and the UE is triggered to initialise an MO speech call. During the call establishment phase, after the SS receives SETUP message the SS starts GSM cell and configures a dedicated channel, then sends the UE an HANDOVER FROM UTRAN COMMAND indicating the dedicated channel in the target GSM cell. After the UE receives the command it shall configure itself accordingly and switch to the new channel of the GSM cell. The SS checks whether the handover is performed by checking that the UE transmits the HANDOVER COMPLETE message to the SS in GSM cell.

Expected sequence

Step	Direction	Message	Comments
	UE SS		
1	UE		To trigger the UE to initialise an MO call
2	\rightarrow	SETUP	U1
3	SS		The SS starts the GSM cell and configure a dedicated channel SDCCH.
4	←	HANDOVER FROM UTRAN COMMANDGSM	Send on cell 1 (UTRAN cell) and the message indicates: the dedicated channel SDCCH.
5	UE		The UE accepts the handover command and switches to the GSM dedicated channel specified in the HANDOVER FROM UTRAN COMMAND-GSM
6	→	HANDOVER ACCESS	The SS receives this burst on the dedicated channel of cell 2 (GSM cell) It implies that the UE has switched to GSM cell.
7	\rightarrow	HANDOVER ACCESS	
8	\rightarrow	HANDOVER ACCESS	
9	\rightarrow	HANDOVER ACCESS	
10	←	PHYSICAL INFORMATION	
11	\rightarrow	SABM	
12	+	UA	
13	→	HANDOVER COMPLETE	The SS receives the message on the dedicated channel of GSM cell.

Specific message contents

HANDOVER FROM UTRAN COMMAND-GSM

Information Element	Value/remark	
Message Type		
RRC transaction identifier	Arbitrarily selects one integer between 0 to 3	
Integrity check info	The presence of this IE is dependent on IXIT statements in TS 34.123-2. If integrity protection is indicated to be active, this IE is present with the values of the sub IEs as stated below. Else, this IE and the sub-IEs are omitted.	
- Message authentication code	SS calculates the value of MAC-I for this message and writes to this IE.	
 RRC Message sequence number 	SS provides the value of this IE, from its internal counter.	
Activation time	now	
RAB Info	Not present	
Inter-system message	·	
- System type	GSM	
- Frequency Band	GSM/DCS 1800 Band	
- CHOICE GSM message	Single GSM message	
- Message	GSM HANDOVER COMMAND formatted as <u>Variable</u> <u>Length</u> BIT STRING <u>without Length Indicator(1512)</u> . The contents of the HANDOVER COMMAND see next table.	

HANDOVER COMMAND

Same as the HANDOVER COMMAND for M=4 in clause 26.6.5.2 of GSM 11.10-1 version 8.2.0 Release 1999

8.3.7.4.5 Test requirement

At step 13 the SS shall receive HANDOVER COMPLETE message on the dedicated channel of the GSM cell.

8.3.7.5 Inter system handover from UTRAN/To GSM/Speech/Failure

8.3.7.5.1 Definition

8.3.7.5.2 Conformance requirement

If the UE does not succeed to establish the connection to the other radio access technology, it shall

- resume the connection to UTRAN using the resources used before receiving the HANDOVER FROM UTRAN COMMAND message; and
- transmit the INTER-SYSTEM HANDOVER FAILURE message on uplink DCCH using AM RLC. When
 the successful delivery of the INTER-SYSTEM FAILURE message has been confirmed by RLC, the
 procedure ends.

Reference(s)

TS 25.331 Clause 8.3.7.5.

8.3.7.5.3 Test purpose

To test that the UE reactivates the old channel and transmits HANDOVER FROM UTRAN FAILURE message to the network on the old channel in UTRAN cell when it receives an HANDOVER FROM UTRAN COMMAND and the connection to GSM for handover can not be established.

8.3.7.5.4 Method of test

Initial conditions

System Simulator: 2 cells - Cell 1 is UTRAN, Cell 2 is GSM. GSM 11.10-1 section 26.6.5.1 shall be referenced for the default parameters of cell 2.

UE: CC State U10 in cell 1

Related ICS/IXIT statement(s)

UE supports both GSM and UTRAN Radio Access Technologies,

UE supports GSM FR,

UE supports UTRAN AMR,

UE supports GSM-P, GSM-E, GSM-DCS, GSM-450, GSM-480.

Foreseen final state of the UE

The UE is in CC state U10 on cell 1.

Test Procedure

The SS starts the UTRAN cell and brings the UE into call active state (CC state U10) with AMR. The SS starts GSM cell without activating any dedicated channel in the cell, then sends HANDOVER FROM UTRAN COMMAND indicating a dedicated channel of the target GSM cell to the UE through DCCH of the serving UTRAN cell. The UE receives the command and configures itself accordingly but can not complete the handover. The SS checks that the handover is failed by checking that the UE transmits the HANDOVER FROM UTRAN FAILURE message to the SS in UTRAN cell.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	U	Е		The SS bring the UE into UTRAN U10 state in cell 1
2	S	S		The SS configures cell 2 as a GSM cell but without any traffic channel.
3	•		HANDOVER FROM UTRAN COMMAND-GSM	Send on cell 1 (UTRAN cell) and the message indicates: the target channel for GSM FR which does not exist in the GSM cell.
4	U	E		The UE accepts the handover command and switches to the GSM traffic channel specified in the HANDOVER FROM UTRAN COMMAND-GSM.
5	-)	HANDOVER ACCESS	The SS receives this burst on the traffic channel of cell 2 (GSM cell) It implies that the UE has switched to GSM cell.
6	_	>	HANDOVER ACCESS	
7	_	}	HANDOVER ACCESS	
8	-)	HANDOVER ACCESS	
n	-)	HANDOVER ACCESS	The last handover access burst before T3124 times out.
N+1 <u>5</u>	-	>	HANDOVER FROM UTRAN FAILURE	The SS receives the message on the old channel of UTRAN cell.

Specific message contents

Same as the message contents of clause 8.3.7.1 for M = 3.

HANDOVER FROM UTRAN FAILURE

Information Element	Value/remark
Message Type	
RRC transaction identifier	Checked to see if it matches the same value used in the corresponding downlink HANDOVER FROM UTRAN COMMAND –GSM message
Integrity check info	The presence of this IE is dependent on IXIT statements in TS 34.123-2. If integrity protection is indicated to be active, this IE shall be present with the values of the sub IEs as stated below. Else, this IE and the sub-IEs shall be absent.
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Inter-RAT handover failure	
-Inter-RAT handover failure cause	physical channel failure
Inter-system message	Not Checked
—- System type	GSM
	GSM/DCS 1800 Band
	Single GSM message
——- Message	Is its presence required, is for FFS

8.3.7.5.5 Test requirement

After step n+1 the SS shall receive HANDOVER FROM UTRAN FAILURE message on the old channel of the UTRAN cell.

8.3.7.6 Inter system handover from UTRAN/To GSM/Speech/Failure (L2 Establishment)

8.3.7.6.1 Definition

8.3.7.6.2 Conformance requirement

If the UE does not succeed to establish the connection to the other radio access technology , as is unable to obtain L2 establishment it shall

- resume the connection to UTRAN using the resources used before receiving the HANDOVER FROM UTRAN COMMAND message; and
- transmit the HANDOVER FROM UTRAN FAILURE message on uplink DCCH using AM RLC.

Reference(s)

3GPP TS 25.331 clause 8.3.7

TS 04.06 Clause 5.4.1.3

TS 04.08 Clause 3.1.5

8.3.7.6.3 Test purpose

To Test that the UE shall keep its old configuration and transmit a HANDOVER FROM UTRAN FAILURE message, which is set to "physical channel failure" in IE "Inter_RAT HO failure cause", when it receives a HANDOVER FROM UTRAN COMMAND and the connection to GSM for handover cannot be established due to failure in L2 establishment.

8.3.7.6.4 Method of test

Initial conditions

System Simulator: 2 cells - Cell 1 is UTRAN, Cell 2 is GSM. GSM 51010-1 section 26.6.5.1 shall be referenced for the default parameters of cell 2.

UE: CC State U10 in cell 1

Related ICS/IXIT statement(s)

UE supports both GSM and UTRAN Radio Access Technologies.

UE supports GSM FR,

UE supports UTRAN AMR,

UE supports GSM-P, GSM-E, GSM-DCS, GSM-450, GSM-480.

Foreseen final state of the UE

The UE is in CC state U10 on cell 1.

Test Procedure

The SS starts the UTRAN cell and brings the UE into call active state (CC state U10) with AMR. SS activates a dedicated GSM traffic channel then sends HANDOVER FROM UTRAN COMMAND indicating a dedicated channel of the target GSM cell to the UE through DCCH of the serving UTRAN cell. When the UE does not succeed in establishing the connection to the target radio access technology it shall revert back to UTRA

configuration establish the UTRA physical channel(s) used at the time for reception of HANDOVER FROM UTRAN COMMAND transmit the HANDOVER FROM UTRAN FAILURE.

Expected sequence

Step	Direction	<u>Message</u>	<u>Comments</u>
	UE SS		
<u>1</u>	UE		The SS brings the UE into UTRAN U10 state in cell 1
2	<u>ss</u>		The SS configures cell 2 as a GSM cell with traffic
			<u>channel.</u>
<u>3</u>	<u>←</u>	HANDOVER FROM UTRAN	Send on cell 1 (UTRAN cell) and the message indicates:
		COMMAND-GSM	The target channel.
<u>4</u>	<u>UE</u>		The UE accepts the handover command and switches to
			the GSM traffic channel specified in the HANDOVER FROM UTRAN COMMAND-GSM
			FROM OTRAIN COMMAND-GSIM
5	\rightarrow	HANDOVER ACCESS	The SS receives this burst on the traffic channel of cell 2
-	_		(GSM cell) It implies that the UE has switched to GSM
			cell.
<u>6</u>	<u>→</u> →	HANDOVER ACCESS	
<u>7</u>		HANDOVER ACCESS	
<u>8</u>	<u>→</u>	HANDOVER ACCESS	
9	<u></u>	PHYSICAL INFORMATION	Allows a proper transmission by the MS.
			Sent in unacknowledged mode as soon as the SS has
			detected a HANDOVER ACCESS.
			As soon as MS detects it then it stops T3124. On SS side T3105 could be started N times at the
			maximum as long as the step 8 is not performed
10	\rightarrow	SABM	To establish L2 connection
11	SS	<u> </u>	SS does not sent UA frame
			Se doce not con or maine
12	UE		On T200 expiration, SS sends N200 times the SABM
			frame (steps 10)
			Then MS deactivates new channels and reactivates old
			UTRA resources it had before receiving the handover
12		HANDOVED EDOM LITRAN	The SS receives the massage on the old shappel of
<u>13</u>	<u>→</u>	HANDOVER FROM UTRAN FAILURE	The SS receives the message on the old channel of UTRAN cell. Sent in acknowledge mode
		TALOILE	The cause in the IE "inter-RAT change failure" is set to
			"physical channel failure"

Specific message contents

Same as the message contents of clause 8.3.7.1 for M = 3.

HANDOVER FROM UTRAN FAILURE

Information Element	<u>Value/remark</u>
Message Type	
RRC transaction identifier	Checked to see if it matches the same value used in the
	corresponding downlink HANDOVER FROM UTRAN
	COMMAND –GSM message
Integrity check info	The presence of this IE is dependent on IXIT statements
	in TS 34.123-2. If integrity protection is indicated to be
	active, this IE shall be present with the values of the sub
	IEs as stated below. Else, this IE and the sub-IEs shall be
	absent.
 Message authentication code 	This IE is checked to see if it is present. The value is
	compared against the XMAC-I value computed by SS.
 - RRC Message sequence number 	This IE is checked to see if it is present. The value is used
	by SS to compute the XMAC-I value.
Inter-RAT handover failure	
-Inter-RAT handover failure cause	physical channel failure
Inter-system message	Not Checked

8.3.7.6.5 Test requirement

The SS shall receive HANDOVER FROM UTRAN FAILURE message on the old channel of the UTRAN cell.

8.3.7.7 Inter system handover from UTRAN/To GSM/Speech/Failure (L1 Synchronization)

8.3.7.7.1 Definition

8.3.7.7.2 Conformance requirement

If the UE does not succeed to establish the connection to the other radio access technology, as is unable to obtain L1 synchronization it shall

- resume the connection to UTRAN using the resources used before receiving the HANDOVER FROM UTRAN COMMAND message; and
- transmit the HANDOVER FROM UTRAN FAILURE message on uplink DCCH using AM RLC.

Reference(s)

TS 25.331 Clause 8.3.7.5

TS 04.06 Clause 5.4.1

8.3.7.7.3 Test purpose

To Test that the UE shall keep its old configuration and transmit a HANDOVER FROM UTRAN FAILURE message, which is set to "physical channel failure" in IE "Inter_RAT HO failure cause", when it receives a HANDOVER FROM UTRAN COMMAND and the connection to GSM for handover cannot be established due failure in L1 Synchronization.

8.3.7.7.4 Method of test

Initial conditions

System Simulator: 2 cell - Cell 1 is UTRAN, Cell 2 is GSM. GSM 51.010 version 4.4.0 section 26.6.5.1 shall be referenced for the default parameters of cell 2.

UE: CC State U10 in cell 1

Related ICS/IXIT statement(s)

UE supports both GSM and UTRAN Radio Access Technologies,

UE supports GSM FR,

UE supports UTRAN AMR,

UE supports GSM-P, GSM-E, GSM-DCS, GSM-450, GSM-480.

Foreseen final state of the UE

The UE is in CC state U10 on cell 1.

Test Procedure

The SS starts the UTRAN cell and brings the UE into call active state (CC state U10). The SS starts GSM cell activating dedicated channel in the cell, then sends HANDOVER FROM UTRAN COMMAND indicating a dedicated channel of the target GSM cell to the UE through DCCH of the serving UTRAN cell. The power level of target GSM cell is kept at very low level. The UE receives the command and configures itself accordingly but cannot complete the handover. The SS checks that the handover is failed by checking that the UE transmits the HANDOVER FROM UTRAN FAILURE message to the SS in UTRAN cell.

Expected sequence

Step	<u>Direction</u>	<u>Message</u>	<u>Comments</u>
	UE SS		
<u>1</u>	<u>UE</u>		The SS brings the UE into UTRAN U10 state in cell 1.
2	<u>SS</u>		The SS configures cell 2 as a GSM cell with a traffic channel.
<u>3</u>	<u>←</u>	HANDOVER FROM UTRAN COMMAND-GSM	Send on cell 1 (UTRAN cell) and the message indicates: The target channel for GSM FR in GSM Cell.
4	<u>UE</u>		The UE accepts the handover command and switches to the GSM traffic channel specified in the HANDOVER FROM UTRAN COMMAND-GSM
<u>5</u>	<u> </u>	HANDOVER ACCESS	The SS receives this burst on the traffic channel of cell 2 (GSM cell) It implies that the UE has switched to GSM cell.
<u>6</u>	<u>→</u>	HANDOVER ACCESS	
<u>7</u>	<u>SS</u>		The target GSM Trafic Channel is Switched off
<u>8</u>	<u>→</u>	HANDOVER FROM UTRAN FAILURE	The SS receives the message on the old channel of UTRAN cell. The cause in the IE "inter-RAT change failure" is set to "physical channel failure"

Specific message contents

Same as the message contents of clause 8.3.7.1 for M = 3.

HANDOVER FROM UTRAN FAILURE

Information Element	<u>Value/remark</u>
Message Type	
RRC transaction identifier	Checked to see if it matches the same value used in the
	corresponding downlink HANDOVER FROM UTRAN
	COMMAND –GSM message
Integrity check info	The presence of this IE is dependent on IXIT statements
	in TS 34.123-2. If integrity protection is indicated to be
	active, this IE shall be present with the values of the sub
	IEs as stated below. Else, this IE and the sub-IEs shall be
	absent.
 Message authentication code 	This IE is checked to see if it is present. The value is
	compared against the XMAC-I value computed by SS.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used
	by SS to compute the XMAC-I value.
Inter-RAT handover failure	
-Inter-RAT handover failure cause	physical channel failure
Inter-system message	Not Checked

8.3.7.7.5 Test requirement

The SS shall receive HANDOVER FROM UTRAN FAILURE message on the old channel of the UTRAN cell.

8.3.7.8 Inter system handover from UTRAN/To GSM/Speech/Failure (Invalid Inter-RAT message)

8.3.7.8.1 Definition

8.3.7.8.2 Conformance requirement:

If the UE does not succeed to establish the connection to the other radio access technology, as the Inter-RAT message received is invalid, it shall

- resume the connection to UTRAN using the resources used before receiving the INTER-SYSTEM HANDOVER COMMAND message; and
- transmit the INTER-SYSTEM HANDOVER FAILURE message on uplink DCCH using AM RLC. When the successful delivery of the INTER-SYSTEM FAILURE message has been confirmed by RLC, the procedure ends.

Reference

3GPP TS 25.331 clause 8.3.7.6

8.3.7.8.3 Test purpose

To Test that the UE shall keep its old configuration and transmit a HANDOVER FROM UTRAN FAILURE message, which is set to "Inter-RAT protocol error" in IE "Inter_RAT HO failure cause", when it receives a Handover From UTRAN message, with the IE "Inter-RAT message" received within the HANDOVER FROM UTRAN COMMAND message not including a valid inter RAT handover message in accordance with the protocol specifications for the target RAT.

8.3.7.8.4 Method of test

Initial conditions

System Simulator: 1 UTRAN cell.

UE: CC State U10 in cell 1

Related ICS/IXIT statement(s)

UE supports both GSM and UTRAN Radio Access Technologies,

UE supports GSM FR,

UE supports UTRAN AMR,

UE supports GSM-P, GSM-E, GSM-DCS, GSM-450, GSM-480.

Foreseen final state of the UE

The UE is in CC state U10 on cell 1.

Test Procedure

The SS starts the UTRAN cell and brings the UE into call active state (CC state U10) with AMR. The SS then sends an HANDOVER FROM UTRAN COMMAND message not including a valid inter RAT handover message in accordance with the protocol specifications for the target RAT, to the UE through DCCH of the serving UTRAN cell. The UE receives the command and finds that the Inter Rat message is Invalid. The SS checks that the handover is failed by checking that the UE transmits the INTER-SYSTEM HANDOVER FAILURE message to the SS in UTRAN cell.

Expected sequence

<u>Step</u>	Direction	<u>Message</u>	<u>Comments</u>
	UE SS		
1	<u>UE</u>		The SS brings the UE into UTRAN U10 state in cell 1
2	<u>←</u>	HandoverFromUTRAN Command- GSM	Send on cell 1 (UTRAN cell) and the message carries an Invalid HANDOVER FROM UTRAN COMMAND -GSM
<u>3</u>	<u>→</u>	<u>InterSystemHandoverFailure</u>	The SS receives the message on the old channel of UTRAN cell.

Specific message contents

HANDOVER FROM UTRAN COMMAND-GSM

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects one integer between 0 to 3
Integrity check info	The presence of this IE is dependent on IXIT statements
	in TS 34.123-2. If integrity protection is indicated to be
	active, this IE is present with the values of the sub IEs as
	stated below. Else, this IE and the sub-IEs are omitted.
 Message authentication code 	SS calculates the value of MAC-I for this message and
	writes to this IE.
 RRC Message sequence number 	SS provides the value of this IE, from its internal counter.
Activation time	<u>Now</u>
RAB Info	Not present
Inter-system message	
- System type	<u>GSM</u>
- Frequency Band	GSM/DCS 1800 Band
- CHOICE GSM message	Single GSM message
- Message	GSM HANDOVER COMMAND formatted as Variable
	Length BIT STRING without Length Indicator. The
	contents of the HANDOVER COMMAND see next table.

HANDOVER COMMAND

Contains an Invalid Handover Command.

. HANDOVER FROM UTRAN FAILURE

Information Element	Value/remark
Message Type	
RRC transaction identifier	Checked to see if it matches the same value used in the
	corresponding downlink HANDOVER FROM UTRAN
	COMMAND –GSM message
Integrity check info	The presence of this IE is dependent on IXIT statements
	in TS 34.123-2. If integrity protection is indicated to be
	active, this IE shall be present with the values of the sub
	IEs as stated below. Else, this IE and the sub-IEs shall be
	absent.
 Message authentication code 	This IE is checked to see if it is present. The value is
	compared against the XMAC-I value computed by SS.
 - RRC Message sequence number 	This IE is checked to see if it is present. The value is used
	by SS to compute the XMAC-I value.
Inter-RAT handover failure	
-Inter-RAT handover failure cause	Inter-RAT protocol error
Inter-system message	Not checked

8.3.7.8.5 Test requirement

In step 3 the SS shall receive INTER-SYSTEM HANDOVER FAILURE message on the old channel of the UTRAN cell.

8.3.7.9 Inter system handover from UTRAN/To GSM/Speech/Failure (Unsupported configuration)

8.3.7.9.1 Definition

8.3.7.9.2 Conformance requirement:

If the UE does not succeed to establish the connection to the other radio access technology, as the configuration specified in the Inter-RAT message is not supported, it shall

- resume the connection to UTRAN using the resources used before receiving the INTER-SYSTEM HANDOVER COMMAND message; and
- transmit the INTER-SYSTEM HANDOVER FAILURE message on uplink DCCH using AM RLC. When the successful delivery of the INTER-SYSTEM FAILURE message has been confirmed by RLC, the procedure ends.

Reference

3GPP TS 25.331 clause 8.3.7.8

8.3.7.9.3 Test purpose

To Test that the UE shall keep its old configuration and transmit a HANDOVER FROM UTRAN FAILURE message, which is set to "configuration unsupported" in IE "Inter_RAT HO failure cause", when it receives a Handover From UTRAN message, with the IE "Inter-RAT message" received within the HANDOVER FROM UTRAN COMMAND message including a Configuration not Supported by the UE.

8.3.7.9.4 Method of test

Initial conditions

System Simulator: 1 UTRAN cell.

UE : CC State U10 in cell 1

Related ICS/IXIT statement(s)

UE supports both GSM and UTRAN Radio Access Technologies,

UE supports GSM FR,

UE supports UTRAN AMR,

UE supports GSM-P, GSM-E, GSM-DCS, GSM-450, GSM-480.

Foreseen final state of the UE

The UE is in CC state U10 on cell 1.

Test Procedure

The SS starts the UTRAN cell and brings the UE into call active state (CC state U10) with AMR. The SS then sends an HANDOVER FROM UTRAN COMMAND message including a Configuration not Supported by the UE in inter RAT handover message, to the UE through DCCH of the serving UTRAN cell. The UE receives the command and finds that the configuration given in Inter Rat message is not supported. The SS checks that the handover is failed by checking that the UE transmits the INTER-SYSTEM HANDOVER FAILURE message to the SS in UTRAN cell.

Expected sequence

<u>Step</u>	<u>Direction</u>	<u>Message</u>	<u>Comments</u>
	UE SS		
<u>1</u>	<u>UE</u>		The SS brings the UE into UTRAN U10 state in cell 1
<u>2</u>	<u> </u>	HandoverFromUTRAN Command- GSM	Send on cell 1 (UTRAN cell) and the message carries an unsupported configuration.
<u>3</u>	<u> </u>	<u>InterSystemHandoverFailure</u>	The SS receives the message on the old channel of UTRAN cell.

Specific message contents

HANDOVER FROM UTRAN COMMAND-GSM

Information Element	<u>Value/remark</u>
Message Type	
RRC transaction identifier	Arbitrarily selects one integer between 0 to 3
Integrity check info	The presence of this IE is dependent on IXIT statements
	in TS 34.123-2. If integrity protection is indicated to be
	active, this IE is present with the values of the sub IEs as
	stated below. Else, this IE and the sub-IEs are omitted.
 Message authentication code 	SS calculates the value of MAC-I for this message and
_	writes to this IE.
- RRC Message sequence number	SS provides the value of this IE, from its internal counter.
Activation time	Now
RAB Info	Not present
Inter-system message	
- System type	<u>GSM</u>
- Frequency Band	GSM/DCS 1800 Band
- CHOICE GSM message	Single GSM message
- Message	GSM HANDOVER COMMAND formatted as Variable
	Length BIT STRING without Length Indicator. The
	contents of the HANDOVER COMMAND see next table.

HANDOVER COMMAND

Contains a Configuration not supported By the UE (Handover to a Band not supported by the UE)

. HANDOVER FROM UTRAN FAILURE

Information Element	<u>Value/remark</u>
Message Type	
RRC transaction identifier	Checked to see if it matches the same value used in the
	corresponding downlink HANDOVER FROM UTRAN
	COMMAND -GSM message
Integrity check info	The presence of this IE is dependent on IXIT statements
	in TS 34.123-2. If integrity protection is indicated to be
	active, this IE shall be present with the values of the sub
	IEs as stated below. Else, this IE and the sub-IEs shall be
	absent.
 Message authentication code 	This IE is checked to see if it is present. The value is
	compared against the XMAC-I value computed by SS.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used
	by SS to compute the XMAC-I value.
Inter-RAT handover failure	
-Inter-RAT handover failure cause	configuration unsupported
Inter-system message	Not checked

8.3.7.9.5 Test requirement

In step 3 the SS shall receive INTER-SYSTEM HANDOVER FAILURE message on the old channel of the UTRAN cell.

8.3.7.10 Inter system handover from UTRAN/To GSM/Speech/Failure (Reception by UE in CELL_FACH)

8.3.7.10.1 Definition

8.3.7.10.2 Conformance requirement:

If the UE does not succeed to establish the connection to the other radio access technology, as the Message received is not compatible with receiver state, it shall

- resume the connection to UTRAN using the resources used before receiving the INTER-SYSTEM HANDOVER COMMAND message; and
- transmit the INTER-SYSTEM HANDOVER FAILURE message on uplink DCCH using AM RLC. When the successful delivery of the INTER-SYSTEM FAILURE message has been confirmed by RLC, the procedure ends.

Reference

3GPP TS 25.331 clause 8.3.7.8a

8.3.7.10.3 Test purpose

The UE shall keep its old configuration when the UE receives a HANDOVER FROM UTRAN COMMAND message when in CELL FACH state and then transmit a HANDOVER FROM UTRAN COMMAND FAILURE message on the DCCH using AM RLC, which sets value "protocol error" in IE "Inter_RAT HO failure cause" and is set to "Message not compatible with receiver state" in IE "Protocol error cause".

8.3.7.10.4 Method of test

Initial conditions

System Simulator: 1 UTRAN Cell

<u>UE</u>: RRC State CS-DCCH_FACH (state 6-6) as specified in clause 7.4 of TS 34.108, on Cell 1

Related ICS/IXIT statement(s)

UE supports both GSM and UTRAN Radio Access Technologies,

UE supports GSM FR,

UE supports UTRAN AMR,

UE supports GSM-P, GSM-E, GSM-DCS, GSM-450, GSM-480.

Foreseen final state of the UE

The UE is in RRC is in State CS-DCCH_FACH (state 6-6) as specified in clause 7.4 of TS 34.108, on cell 1.

Test Procedure

The SS starts the UTRAN cell and brings the UE into RRC Cell_FACH_DTCH. It then Transmits Radio Bearer reconfiguration PDU to move UE to Cell_FACH state. The SS starts GSM cell without activating any dedicated channel in the cell, then sends INTER-SYSTEM HANDOVER COMMAND indicating a dedicated channel of the target GSM cell to the UE through DCCH of the serving UTRAN cell. The UE receives the command and configures itself accordingly but cannot complete the handover. The SS checks that the handover is failed by checking that the UE transmits the INTER-SYSTEM HANDOVER FAILURE message to the SS in UTRAN cell.

Expected sequence

Step	<u>Direction</u>	<u>Message</u>	<u>Comments</u>
	UE SS		
<u>1</u>	<u>UE</u>		The SS brings the UE into CS-DCCH_FACH (state 6-6) FACH state in cell 1
<u>2</u>	<u>←</u>	InterSystemHandoverCommand- GSM	Send on cell 1 (UTRAN cell) and the message indicates: The target channel for GSM
<u>3</u>	<u>→</u>	<u>InterSystemHandoverFailure</u>	The SS receives the message on the old channel of UTRAN cell.

Specific message contents

Same as the message contents of clause 8.3.7.1 for M = 3.

HANDOVER FROM UTRAN FAILURE

Information Element	<u>Value/remark</u>
Message Type	
RRC transaction identifier	Checked to see if it matches the same value used in the
	corresponding downlink HANDOVER FROM UTRAN
	COMMAND -GSM message
Integrity check info	The presence of this IE is dependent on IXIT statements
	in TS 34.123-2. If integrity protection is indicated to be
	active, this IE shall be present with the values of the sub
	IEs as stated below. Else, this IE and the sub-IEs shall be
	absent.
 Message authentication code 	This IE is checked to see if it is present. The value is
	compared against the XMAC-I value computed by SS.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used
	by SS to compute the XMAC-I value.
Inter-RAT handover failure	
-Inter-RAT handover failure cause	Protocol Error
-Diagnostics Type	Type1
-Protocol Error Cause	Message Not Compatible With Receiver State
Inter-system message	Not Checked

8.3.7.10.5 Test requirement

After step 2 the SS shall receive INTER-SYSTEM HANDOVER FAILURE message on the old channel of the UTRAN cell.

8.3.7.11 Inter system handover from UTRAN/To GSM/Speech/Failure (Invalid message reception)

8.3.7.11.1 Definition

8.3.7.11.2 Conformance requirement:

If the UE does not succeed to establish the connection to the other radio access technology, as the Handover Message received is short to decode into a valid message, it shall

- resume the connection to UTRAN using the resources used before receiving the INTER-SYSTEM HANDOVER COMMAND message; and
- transmit the INTER-SYSTEM HANDOVER FAILURE message on uplink DCCH using AM RLC. When the successful delivery of the INTER-SYSTEM FAILURE message has been confirmed by RLC, the procedure ends.

Reference

3GPP TS 25.331 clause 8.3.7

8.3.7.11.3 Test purpose

The UE shall keep its old configuration when the UE receives a Handover From UTRAN message, which will be short to decode into a valid Handover From UTRAN message. It shall then transmit an RRC STATUS message on the uplink DCCH. The IE "Protocol error information" shall contain an IE "Protocol error cause" set to "ASN.1 violation or encoding error";

8.3.7.11.4 Method of test

Initial conditions

System Simulator: 1 UTRAN cell.

UE: CC State U10 in cell 1

Related ICS/IXIT statement(s)

UE supports both GSM and UTRAN Radio Access Technologies.

UE supports GSM FR,

UE supports UTRAN AMR,

UE supports GSM-P, GSM-E, GSM-DCS, GSM-450, GSM-480.

Foreseen final state of the UE

The UE is in CC state U10 on cell 1.

Test Procedure

The SS starts the UTRAN cell and brings the UE into call active state (CC state U10) with AMR. The SS then sends an HANDOVER FROM UTRAN COMMAND message, which will be short to decode into a valid Handover From UTRAN message, to the UE through DCCH of the serving UTRAN cell. The SS checks that the handover is failed by checking that the UE transmits an RRC STATUS message on the uplink DCCH.

The IE "Protocol error information" shall contain an IE "Protocol error cause" set to "ASN.1 violation or encoding error";

Expected sequence

Step	<u>Direction</u>	<u>Message</u>	<u>Comments</u>			
	UE SS					
<u>1</u>	<u>UE</u>		The SS brings the UE into UTRAN U10 state in cell 1			
2	<u>+</u>	HandoverFromUTRAN Command- GSM	Send on cell 1 (UTRAN cell) and the message is short in length to be decoded into a valid Handover From UTRAN command			
<u>3</u>	<u>→</u> RRCStatus		The SS receives the message on the old channel of UTRAN cell.			

Specific message contents

HANDOVER FROM UTRAN COMMAND-GSM

A Short Message that shall not result in a valid Handover From UTRAN Command shall be sent.

RRC STATUS (Step 3)

Information Element	<u>Value/remark</u>				
Protocol error information	Checked to see if set to "ASN.1 Violation or Encoding				
	error"				

8.3.7.11.5 Test requirement

In step 3 the SS shall receive RRC Status message in the UTRAN cell.

8.3.7.12 Inter system handover from UTRAN/To GSM/Speech/Failure (Physical channel Failure and Reversion Failure)

8.3.7.12.1 Definition

8.3.7.12.2 Conformance requirement:

If the UE does not succeed to establish the connection to the other radio access technology and fail to resume the connection to UTRAN using the resources used before receiving the INTER-SYSTEM HANDOVER COMMAND message, it shall

- perform a cell update procedure; and
- transmit the INTER-SYSTEM HANDOVER FAILURE message on uplink DCCH using AM RLC. When the successful delivery of the INTER-SYSTEM FAILURE message has been confirmed by RLC, the procedure ends.

Reference

3GPP TS 25.331 clause 8.3.7.5

8.3.7.12.3 Test purpose

The UE shall perform a cell update when the UE fails to revert to the old configuration after the detection of physical channel failure in the target RAT cell as given in HANDOVER FROM UTRAN procedure. After the

<u>UE completes cell update procedure, the UE transmit HANDOVER FROM UTRAN FAILURE message on the DCCH using AM RLC, which is set IE "failure cause" to "physical channel failure".</u>

8.3.7.12.4 Method of test

Initial conditions

System Simulator : 2 cells - Cell 1 is UTRAN, Cell 2 is GSM. GSM 11.10-1 section 26.6.5.1 shall be referenced for the default parameters of cell 2.

UE: CC State U10 in cell 1

Related ICS/IXIT statement(s)

UE supports both GSM and UTRAN Radio Access Technologies,

UE supports GSM FR,

UE supports UTRAN AMR.

UE supports GSM-P, GSM-E, GSM-DCS, GSM-450, GSM-480.

Foreseen final state of the UE

The UE is in CC state U10 on cell 1.

Test Procedure

The SS starts the UTRAN cell and brings the UE into call active state (CC state U10) with AMR. The SS starts GSM cell without activating any dedicated channel in the cell, then sends INTER-SYSTEM HANDOVER COMMAND indicating a dedicated channel of the target GSM cell to the UE through DCCH of the serving UTRAN cell. The UE receives the command and configures itself accordingly but cannot complete the handover and wants to revert to the old configuration, but the UE cannot revert to the old configuration because the SS shall not use the old configuration. The UE transmit CELL UPDATE message on uplink CCCH with IE "Cell update cause" set to "radio link failure". The SS shall transmit CELL UPDATE CONFIRM message on downlink CCCH after receiving CELL UPDATE message. The UE transmits PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC and subsequently transmits the INTER-SYSTEM HANDOVER FAILURE message to the SS in UTRAN cell, on the DCCH using AM RLC, setting the value of IE "failure cause" to "physical channel failure".

Expected sequence

Step	<u>Direction</u>	<u>Message</u>	<u>Comments</u>			
	UE SS					
<u>1</u>	<u>UE</u>		The SS brings the UE into UTRAN U10 state in cell 1			
<u>2</u>	<u>SS</u>		The SS configures cell 2 as a GSM cell but without any			
			traffic channel.			
<u>3</u>	<u>←</u>	HandoverFromUTRAN Command-	Send on cell 1 (UTRAN cell) and the message indicates:			
		<u>GSM</u>	The target channel for GSM FR, which does not exist in			
			the GSM cell.			
<u>4</u>	<u>UE</u>		The UE accepts the handover command and switches to			
			the GSM traffic channel specified in the			
			InterSystemHandoverCommand-GSM			
<u>5</u>	<u>ss</u>		SS removes the Physical channel (DPCH) allocated to			
			the mobile before handover command transmission			
<u>6</u>	\rightarrow	CELL UPDATE	The value "radio link failure" shall be set in IE "Cell			
			update cause".			
<u>7</u>	<u>←</u>	CELL UPDATE CONFIRM	This message include IE "Physical channel information			
			elements".			
<u>8</u>			The SS configure the dedicated physical channel			
			according to the IE "Physical channel information			
			elements" included in the CELL UPDATE CONFIRM			
			message.			
<u>9</u>	\rightarrow	PHYSICAL CHANNEL				
		RECONFIGURATION				
4.0		COMPLETE				
<u>10</u>	\rightarrow	<u>InterSystemHandoverFailure</u>	The IE "failure cause" shall be set to "physical channel			
			<u>failure"</u>			

Specific message contents

Same as the message contents of clause 8.3.7.1 for M = 3.

CELL UPDATE (Step n+1)

The contents of CELL UPDATE message is identical as "Contents of CELL UPDATE message" as found in Annex with the following exceptions:

Information Element	Value/remark				
<u>U-RNTI</u>					
- SRNC Identity	Check to see if set to '0000 0000 0001'				
<u>- S-RNTI</u>	Check to see if set to '0000 0000 0000 0000 0001'				
Cell Update Cause	<u>"radio link failure"</u>				

CELL UPDATE CONFIRM (Step n+2)

The contents of CELL UPDATE CONFIRM message is identical as "CELL UPDATE CONFIRM message" as found in Annex with the following exceptions:

Information Element	<u>Value/remark</u>
<u>U-RNTI</u>	Same as CELL UPDATE message in step 3
RRC State indicator	CELL DCH
Frequency info	
 - UARFCN uplink (Nu) 	Reference to TS34.108 clause 5.1 Test frequencies
 - UARFCN downlink (Nd) 	Reference to TS34.108 clause 5.1 Test frequencies
Maximum allowed UL TX power	<u>33dBm</u>
CHOICE Mode	<u>FDD</u>
Downlink information for each radio links	
- Primary CPICH info	
 Primary scrambling code 	<u>100</u>
- PDSCH with SHO DCH info	Not Present
- PDSCH code mapping	Not Present
 Downlink DPCH info for each RL 	
 Primary CPICH usage for channel estimation 	Primary CPICH may be used
- DPCH frame offset	<u>0 chips</u>
 Secondary CPICH info 	Not Present
 DL channelisation code 	
- Secondary scrambling code	2
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set
<u>Code number</u>	SF-1(SF is reference to TS34.108 clause 6.10 Parameter
	Set)
- Scrambling code change	No change
- TPC combination index	
- SSDT Cell Identity	- <u>a</u>
- Closed loop timing adjustment mode	Not Present
- SCCPCH information for FACH	Not Present

HANDOVER FROM UTRAN FAILURE

Information Element	Value/remark
Message Type	
RRC transaction identifier	Checked to see if it matches the same value used in the
	corresponding downlink HANDOVER FROM UTRAN
	COMMAND –GSM message
Integrity check info	The presence of this IE is dependent on IXIT statements
	in TS 34.123-2. If integrity protection is indicated to be
	active, this IE shall be present with the values of the sub
	IEs as stated below. Else, this IE and the sub-IEs shall be
	absent.
 Message authentication code 	This IE is checked to see if it is present. The value is
	compared against the XMAC-I value computed by SS.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used
	by SS to compute the XMAC-I value.
Inter-RAT handover failure	
-Inter-RAT handover failure cause	physical channel failure
Inter-system message	Not Checked

8.3.7.12.5 Test requirement

In step 3 the SS shall receive RRC Status message in the UTRAN cell.

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3GPP TSG-T1 SIG Meeting #20 Cancun, Mexico, 26th – 28th November 2001

	CHANGE REQUEST						CR-Form-v4					
*	TS 3	4.123-	1 CR	121	ж	ev	-	ж	Current ver	sion:	4.0.0	æ
For <u>HE</u>	LP on u	sing this	form, see	e bottom	of this pa	age oi	look	at th	e pop-up tex	t over t	he ₩ sy	mbols.
Proposed	change a	affects:	₩ (U)	SIM	ME/U	EX	Radi	io Ac	cess Netwo	rk	Core N	etwork
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Reason fo												
Summary	of chang	Eor refe	dating of radio bearing the value rences to sage is of TS 3	the IEs a arer contr n found in es of the o clause revised to 44.108.	rol messan clause IE in the 6.10 of 5 o base o	ages a 6.10 defai S 34, n exa	ne ve are rev of TS : ult me 108 a mple r	rsior /ised 34.1(ssag re pr radio	n TS 25.331. I to base on	here ar CONI iguratio	oplicable NECTIO on found	2. N SETUP in clause
		Cor thes	ndition A	7 and A8 ages are	of RADI				FUP messagnsit from CE			ded as

Radio bearer control failure messages are added.

	A second multiplexing option for RB mapping info is added to the SRB in RRC CONNECTION SETUP and RADIO BEARER SETUP messages.
	ACTIVE SET UPDATE Addition of radio link is all specified in the individual test cases, therefore it is not necessary to do so in the default message. IE "Radio link addition information" is set to "Not Present".
	MEASUREMENT CONTROL Cell 1 (with primary scrambling code) is always assigned a cell id of 1, instead of 0. This is done to match exactly with the cell numbering used by SS (i.e. cell id in SIB 11, SIB 12, MEASUREMENT CONTROL and MEASUREMENT REPORT = cell number).
	From ETRI,
	Editorial modification (Annex A. introduction)
	PHYSICAL CHANNEL RECONFIGURATION
	Descriptions of 'Frequency info' are changed to 'Reference to clause 5.1 Test
	frequencies'
	RADIO BEARER SETUP
	PS domain the RAB Identity should be the same as NSAPI. The range of NSAPI starts from 5.
	Descriptions of 'Frequency info' are changed to 'Reference to clause 5.1 Test frequencies'
	RRC CONNECTION SETUP (Transition to CELL_FACH) 'Transmission RLC discard' for UM RLC is changed to 'timer based no explicit'
	Descriptions of 'Frequency info' are changed to 'Reference to clause 5.1 Test frequencies'
	TRANSPORT CHANNEL RECONFIGURATION Descriptions of 'Frequency info' are changed to 'Reference to clause 5.1 Test
	frequencies'.
Companyone	
Consequences if # not approved:	The default message will result in wrong test conditions.

Clauses affected:	* Annex A
Other specs affected:	# Other core specifications # Test specifications O&M Specifications
Other comments:	# Affects Rel'99 and Rel'4 UE test cases.

How to create CRs using this form:
Comprehensive information and tips about how to create CRs can be found at: http://www.3gpp.org/3G_Specs/CRs.htm. Below is a brief summary:

1) Fill out the above form. The symbols above marked \(\mathbb{K} \) contain pop-up help information about the field that they are closest to.

- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

Annex A (normative): Default RRC Message Contents

This clause contains the default values of RRC messages, other than those specified in TS 34.108 clauses 6 and 9. Unless indicated otherwise in specific test cases, they shall be transmitted by the system simulator in RRC messages, and which are required to be received from the UE under test.

The necessary L3 messages are listed in alphabetic order, with the exception of the SYSTEM INFORMATION messages, where it is the information elements which are listed in alphabetic order (this is because some information elements occur in several SYSTEM INFORMATION types).

In this clause, decimal values are normally used. However, sometimes a hexadecimal value, indicated by an "H", or a binary value, indicated by a "B" is used.

Default SYSTEM INFORMATION:

NOTE: SYSTEM INFORMATION BLOCK TYPE 1 (except for PLMN type "GSM-MAP"),

SYSTEM INFORMATION BLOCK TYPE 8, SYSTEM INFORMATION BLOCK TYPE 9, SYSTEM INFORMATION BLOCK TYPE 10, SYSTEM INFORMATION BLOCK TYPE 14, SYSTEM INFORMATION BLOCK TYPE 15 and SYSTEM INFORMATION BLOCK

TYPE 16 messages are not used.

Contents of ACTIVE SET UPDATE message: AM

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects one integer between 0 to 3
Integrity check info	The presence of this IE is dependent on IXIT statements
	in TS 34.123-2. If integrity protection is indicated to be
	active, this IE is present with the values of the sub IEs as
	stated below. Else, this IE and the sub-IEs are omitted.
- message authentication code	SS calculates the value of MAC-I for this message and
	writes to this IE.
- RRC message sequence number	SS provides the value of this IE, from its internal counter.
Integrity protection mode info	Not Present
Ciphering mode info	Not Present
Activation time	(256+CFN-(CFN MOD 8 + 8))MOD 256
New U-RNTI	Not Present
CN information info	Not Present
Downlink counter synchronisation info	Not Present
Maximum allowed UL TX power	33dBm
Radio link addition information	(This IE is repeated for addition RL number.) Not Present
- Primary scrambling code	The value is for additional cell
- Primary CPICH usage for channel estimation	Primary CPICH may be used
	O chips
- Power offset Ppilot-DPDCH	TBD
- Secondary CPICH info	Not Present
- Secondary scrambling code	1
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set
	SF-1(SF is reference to TS34.108 clause 6.10 Parameter
	Set)
	No change

Information Element	Value/remark
TPC combination index	0
- SSDT Cell Identity	♥ - 2
- Closed loop timing adjustment mode	Not Present
- TFCI combining indicator	TRUE
	TRUE
	N · B
- Selection Indicator	Not Present
- Primary CPICH usage for channel estimation	Primary CPICH may be used
	Not Present
- Secondary scrambling code	1
	FALSE
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set
	SF-1(SF is reference to TS34.108 clause 6.10 Parameter Set)
- Pilot symbol existence	FALSE
	TRUE
- Fixed or Flexible Position	Elexible
- Timing offset	0
——————————————————————————————————————	(This IE is repeated for TFC number for PCH and FACH.)
- Normal	THIS IS IS IS TOPCARCULOF IT O HUMBUR FOR AND FACE.
	A alalitica
- CHOICE TFCS representation	Addition
The Communication of the Commu	
	Number of bits used must be enough to cover all
	combinations of CTFC from clause 6.10.
- CTFC information	Refer to TS34.108 clause 6.10 Parameter Set.
- Power offset information	Not Present
- FACH/PCH information	
	(PCH)
- CHOICE Transport channel type	Common transport channels
- Dynamic Transport format information	(This IE is repeated for TFI number.)
	Reference to TS34.108 clause 6.10 Parameter Set
- Number of TBs and TTI List	(This IE is repeated for TFI number.)
- Number of Transport blocks	Reference to TS34.108 clause 6.10 Parameter Set
	FDD
	ALL
- Semi-static Transport Format information	ALL
- Transmission time interval	Reference to TS34.108 clause 6.10 Parameter Set
	Reference to TS34.108 clause 6.10 Parameter Set
- Coding Rate - Rate matching attribute	Reference to TS34.108 clause 6.10 Parameter Set
3	Reference to TS34.108 clause 6.10 Parameter Set
	Reference to TS34.108 clause 6.10 Parameter Set
- Transport Channel Identity	12 (for PCH)
	FALSE
- TFS	(FACH)
- CHOICE Transport channel type	Common transport channels
Dynamic Transport format information	(This IE is repeated for TFI number.)
	Reference to TS34.108 clause 6.10 Parameter Set
- Number of TBs and TTI List	(This IE is repeated for TFI number.)
- Number of Transport blocks	Reference to TS34.108 clause 6.10 Parameter Set
- CHOICE mode	FDD
- CHOICE Logical Channel List	ALL
- Semi-static Transport Format information	
- Transmission time interval	Reference to TS34.108 clause 6.10 Parameter Set
- Type of channel coding	Reference to TS34.108 clause 6.10 Parameter Set
- Coding Rate	Reference to TS34.108 clause 6.10 Parameter Set
	Reference to TS34.108 clause 6.10 Parameter Set
- Rate matching attribute	
	Reference to TS34.108 clause 6.10 Parameter Set
- Transport Channel Identity	13 (for FACH)
	FALSE
— CHOICE mode	FDD

Information Element	Value/remark
- References to system information blocks	
- Scheduling information	
	Cell Value tag
	4
	3
	128
	26
	2
	2
	System Information Type 5
	Cell Value tag
	4
	3
	128
	42
	2
	2
- SIB type SIBs only	System Information Type 6
Radio link removal information	(This IE is repeated for removal RL number.)Not Present
- Primary CPICH info	
- Primary scrambling code	The value is for removal cell
TX Diversity Mode	None
SSDT information	Not Present

Contents of ACTIVE SET UPDATE COMPLETE message: AM

Information Element	Value/remark
Message Type	
RRC transaction identifier	Checked to see if it matches the same value used in the corresponding downlink ACTIVE SET UPDATE message
Integrity check info	The presence of this IE is dependent on IXIT statements in TS 34.123-2. If integrity protection is indicated to be active, this IE shall be present with the values of the sub IEs as stated below. Else, this IE and the sub-IEs shall be absent.
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Uplink integrity protection activation info	Not checked
Radio bearer uplink ciphering activation time info	Not checked
Uplink counter synchronisation info	Not checked

Contents of ACTIVE SET UPDATE FAILURE message: AM

Information Element	Value/remark
Message Type	
RRC transaction identifier	Checked to see if it matches the same value used in the corresponding downlink ACTIVE SET UPDATE message
Integrity check info	The presence of this IE is dependent on IXIT statements in TS 34.123-2. If integrity protection is indicated to be active, this IE shall be present with the values of the sub IEs as stated below. Else, this IE and the sub-IEs shall be absent.
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Failure cause	Value will be checked Refer to test requirement

Contents of CELL UPDATE message: TM

Information Element	Value/remark
Message Type	
U-RNTI	Checked to see if it is set to the following values
- SRNC identity	0000 0000 0001B
- S-RNTI	0000 0000 0000 0000 0001B
RRC transaction identifier	Checked to see if it is absent
Integrity check info	The presence of this IE is dependent on IXIT statements
	in TS 34.123-2. If integrity protection is indicated to be
	active, this IE shall be present with the values of the sub
	IEs as stated below. Else, this IE and the sub-IEs shall be
	absent.
- Message authentication code	This IE is checked to see if it is present. The value is
	compared against the XMAC-I value computed by SS.
- RRC Message sequence number	This IE is checked to see if it is present. The value is
	used by SS to compute the XMAC-I value.
START List	Checked to see if the 'CN domain identity' and 'START'
	IEs are present for all CN domains supported by the UE
- CN domain identity	Checked to see if it is one of the supported CN domains
- START	Checked to see if it is present
AM_RLC error indication (RB2 or RB3)	Checked to see if it is set to 'FALSE'
AM_RLC error indication (RB>3)	Checked to see if it is set to 'FALSE'
Cell update cause	See the test content
Failure cause	Checked to see if it is absent
RB timer indicator	[O
- T314 expired	Checked to see if it is set to 'FALSE'
- T315 expired	Checked to see if it is set to 'FALSE'
Measured results on RACH	Not checked

Contents of CELL UPDATE CONFIRM message: UM

Information Element	Value/remark
Message Type	value/Tellial k
U-RNTI	If this message is sent on CCCH, use the following
O-KN11	values. Else, this IE is absent.
- SRNC identity	0000 0000 0001B
- S-RNTI	0000 0000 0001B
RRC transaction identifier	
Integrity check info	Selects an arbitrary integer between 0 to 3 The presence of this IE is dependent on IXIT statements
integrity check into	in TS 34.123-2. If integrity protection is indicated to be active, this IE is present with the values of the sub IEs as stated below. Else, this IE and the sub-IEs are omitted.
- message authentication code	SS calculates the value of MAC-I for this message and writes to this IE.
- RRC message sequence number	SS provides the value of this IE, from its internal counter.
Integrity protection mode info	Not Present
Ciphering mode info	Not Present
Activation time	Not Present – use default value
New U-RNTI	Not Present
New C-RNTI	Not Present
RRC State indicator	CELL_FACH
UTRAN DRX cycle length coefficient	Not Present
RLC re-establish indicator (RB2 or RB3)	FALSE
RLC re-establish indicator (RB>3)	FALSE
CN information info	Not Present
URA identity	0000 0000 0001B
RB information to release list	Not Present
RB information to reconfigure list	Not Present
RB information to be affected list	Not Present
Downlink counter synchronisation info	Not Present
UL Transport channel information common for all	Not Present
transport channels	
Deleted TrCH information list	Not Present
Added or Reconfigured TrCH information list	Not Present
CHOICE Mode	Net PresentFDD
- CPCH set ID	Not Present
- Added or Reconfigured TrCH	Not Present
information for DRAC list	
DL Transport channel information common for all	Not Present
transport channels	
Deleted TrCH information list	Not Present
Added or Reconfigured TrCH information list	Not Present
Frequency info	Not Present
Maximum allowed UL TX power	Not Present
CHOICE channel requirement	Not Present
CHOICE mode	FDD
- Downlink PDSCH information	Not Present
Downlink information common for all radio links	Not Present
Downlink information per radio link list	Not Present

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects an unused integer between 0 to 3
Integrity check info	The presence of this IE is dependent on IXIT statements
	in TS 34.123-2. If integrity protection is indicated to be
	active, this IE is present with the values of the sub IEs as
	stated below. Else, this IE and the sub-IEs are omitted.
- Message authentication code	SS calculates the value of MAC-I for this message and
	writes to this IE.
- RRC message sequence number	SS provides the value of this IE, from its internal counter.
Measurement Identity	1
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Report Transfer Mode	Acknowledged mode RLC
- Measurement Reporting/Event Trigger Reporting	Event Trigger
Mode	
Additional measurement list	Not Present
CHOICE Measurement type	Intra-frequency measurement
- Intra-frequency measurement	mad noquency measurement
- Intra-frequency cell info	
- New intra-frequency cell	
- Intra-frequency cell-id	<u>91</u>
- Cell info	<u> </u>
- Cell individual offset	0dB
- Reference time difference to cell	Not Present
- Read SFN number	FALSE
- CHOICE mode	FDD
	רטט
- Primary CPICH info	150
Primary scrambling code Primary CPICH Tx power	Not Present
	FALSE
- TX Diversity indicator	FALSE
Intra-frequency measurement quantity Filter coefficient	
	0
- Measurement quantity	CPICH RSCP
- Intra-frequency reporting quantity	
 Reporting quantities for active set cells SFN-SFN observed time difference reporting 	No report
indicator	No report
	FALCE
 Cell synchronisation information reporting indicator 	FALSE
	TDUE
- Cell Identity reporting indicator	TRUE
- CPICH Ec/N0 reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored cells	No way and
- SFN-SFN observed time difference reporting	No report
indicator	EALOE
- Cell synchronisation information reporting	FALSE
indicator	TOUE
- Cell Identity reporting indicator	TRUE
- CPICH Ec/N0 reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for detected set cells	Not Present
- Reporting cell status	
- CHOICE reported cell	Report cell within active set and/or monitored cells on
	used frequency
- Maximum number of reported cells	2
- Measurement validity	Not Present
- CHOICE report criteria	Periodic reporting criteria

- Amount of reporting	Infinity
- Reporting interval	64 sec
DPCH Compressed mode status info	Not Present

Contents of MEASUREMENT CONTROL FAILURE message: $\ensuremath{\mathsf{AM}}$

Information Element	Value/remark
Message Type	
RRC transaction identifier	Checked to see if it's set to the identical value for the same IE in the downlink MEASUREMENT CONTROL
	message
Integrity check info	The presence of this IE is dependent on IXIT statements
	in TS 34.123-2. If integrity protection is indicated to be
	active, this IE shall be present with the values of the sub
	IEs as stated below. Else, this IE and the sub-IEs shall be
	absent.
- Message authentication code	This IE is checked to see if it is present. The value is
3	compared against the XMAC-I value computed by SS.
- RRC Message sequence number	This IE is checked to see if it is present. The value is
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	used by SS to compute the XMAC-I value.
Failure cause	See the test content

Contents of MEASUREMENT REPORT message: AM

Information Element	Value/remark
Message Type	
Integrity check info	The presence of this IE is dependent on IXIT statements
	in TS 34.123-2. If integrity protection is indicated to be
	active, this IE shall be present with the values of the sub
	IEs as stated below. Else, this IE and the sub-IEs shall be
	absent.
- Message authentication code	This IE is checked to see if it is present. The value is
	compared against the XMAC-I value computed by SS.
- RRC Message sequence number	This IE is checked to see if it is present. The value is
	used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	
- Intra-frequency measured results	
- Cell measured results	No.
- Cell Identity	Not present
- SFN-SFN observed time difference	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	150
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	Checked that this IE is absent

Contents of PAGING TYPE 1 message: TM (SMS in CS)

Information Element	Value/remark
Message Type	
Paging record list	
-Paging record	
 CHOICE Used paging identity 	CN identity
- Paging cause	Terminating Low Priority Signalling
- CN domain identity	CS domain
- CHOICE UE identity	
- IMSI (GSM-MAP)	Set to the same octet string as in the IMSI stored in the
	TEST USIM card
BCCH modification info	Not Present

Contents of PAGING TYPE 1 message: TM (SMS in PS)

Information Element	Value/remark
Message Type	
Paging record list	
-Paging record	
 CHOICE Used paging identity 	CN identity
- Paging cause	Terminating Low Priority Signalling
- CN domain identity	PS domain
- CHOICE UE identity	
- IMSI (GSM-MAP)	Set to the same octet string as in the IMSI stored in the
	TEST USIM card
BCCH modification info	Not Present

Contents of PAGING TYPE 2 message: AM (Speech in CS)

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects an integer between 0 and 3
Integrity check info	The presence of this IE is dependent on IXIT statements
	in TS 34.123-2. If integrity protection is indicated to be
	active, this IE is present with the values of the sub IEs as
	stated below. Else, this IE and the sub-IEs are omitted.
- message authentication code	SS calculates the value of MAC-I for this message and writes to this IE.
- RRC message sequence number	SS provides the value of this IE, from its internal counter.
Paging cause	Terminating Conversational Call
CN domain identity	CS domain
Paging record type identifier	Select the same type as in the IE "Initial UE Identity" in
	RRC CONNECTION REQUEST" message.

Contents of PHYSICAL CHANNEL RECONFIGURATION message: AM or UM

Information Element	Condition	Value/remark
Message Type	A1, A2, A3,	raidon onidit
I woodago Typo	A4, A5, A6	
RRC transaction identifier		Arbitrarily selects an integer between 0 and 3
Integrity check info		The presence of this IE is dependent on IXIT
		statements in TS 34.1-present-23-2. If
		integrity protection is indicated to be active,
		this IE is with the values of the sub IEs as
		stated below. Else, this IE and the sub-IEs
		are omitted.
- message authentication code		SS calculates the value of MAC-I for this
		message and writes to this IE.
- RRC message sequence number		SS provides the value of this IE, from its
·		internal counter.
Integrity protection mode info		Not Present
Ciphering mode info		Not Present
Activation time		(256+CFN-(CFN MOD 8 + 8))MOD 256
New U-RNTI		Not Present
New C-RNTI		Not Present
RRC State indicator	A1, A2, A3,	CELL_DCH
	A4	
RRC State indicator	A5, A6	CELL_FACH
UTRAN DRX cycle length coefficient	A1, A2, A3,	Not Present
	A4, A5, A6	
CN information info		Not Present
URA identity		Not Present
Downlink counter synchronisation info		Not Present
Frequency info		
- UARFCN uplink_(Nu)		Reference to clause 5.1 Test
		frequenciesReference to TS34.108 clause
LIADEONI davoribale (NId)		6.10 Parameter Set
- UARFCN downlink_(Nd)		Reference to clause 5.1 Test
		frequencies Reference to TS34.108 clause 6.10 Parameter Set
Maximum allowed UL TX power		33dBm
CHOICE channel requirement	A1, A2, A3,	Not Present
OTOTOL CHAITHET TEQUITETIETIC	A5, A6	Not i lesent
Uplink DPCH infoCHOICE channel requirement	A1, A2, A3,	Uplink DPCH info
	A4	
 Uplink DPCH power control info 		
- DPCCH power offset		-6dB
- PC Preamble		1 frame
- SRB delay		7 frames
- Power Control Algorithm		Algorithm1
- TPC step size		1dB
- Scrambling code type		Long
- Scrambling code number		0 (0 to 16777215)
- Number of DPDCH		Not Present(1)
- spreading factor		Reference to TS34.108 clause 6.10
		Parameter SetSF is reference to TS34.108
- TFCI existence		clause 6.10 Parameter Set
- I COI EXISTENDE		Reference to TS34.108 clause 6.10 Parameter SetTRUE
- Number of FBI bit		Reference to TS34.108 clause 6.10
Hambor of For bit		Parameter SetNot Present(0)
- Puncturing Limit		Reference to TS34.108 clause 6.10
. anotaring Entite		Parameter Set
CHOICE Mode	A1, A2, A3,	FDD
	A4, A5, A6	
- Downlink PDSCH information		Not Present

Information Element	Condition	Value/remark
Downlink information common for all radio links	A1, A2, A3,	
Downlink information continued for all radio links	A4	
- Downlink DPCH info common for all RL		
- Timing indicator		Maintain
- CFN-targetSFN frame offset		Not Present
- Downlink DPCH power control information		Not i resent
- DPC mode		0 (single)
- CHOICE mode		0 (single) FDD
- Power offset Ppilot-DPDCH		TBD0
- DL rate matching restriction information		Not Present
 Spreading factor 		Reference to TS34.108 clause 6.10
		Parameter Set
- Fixed or Flexible Position		Reference to TS34.108 clause 6.10
		Parameter SetFlexible
- TFCI existence		Reference to TS34.108 clause 6.10
		Parameter SetTRUE
- Number of bits for Pilot		Not PresentOtherwise
bits(SF=128,256)CHOICE SF		
Downlink information common for all radio links	A2	
- Downlink DPCH info common for all RL		
- Timing indicator		Maintain
- CFN-targetSFN frame offset		Not Present
- Downlink DPCH power control information		NOT I 1850HL
		O (cingle)
- DPC mode		0 (single)
		EDD
- Power offset Ppilot-DPDCH		<u>0</u>
 DL rate matching restriction information 		Not Present
- Spreading factor		<u>128</u>
- Fixed or Flexible Position		<u>Fixed</u>
- TFCI existence		TRUE
		<u>SF = 128</u>
- Number of bits for Pilot bits		4
Downlink information common for all radio links	A3	
- Downlink DPCH info common for all RL		
- Timing indicator		Maintain
- CFN-targetSFN frame offset		Not Present
- Downlink DPCH power control information		
- DPC mode		0 (single)
- CHOICE mode		FDD
- Power offset Ppilot-DPDCH		<u>0</u>
- DL rate matching restriction information		⊻ Not Present
——————————————————————————————————————		<u>8</u> Flexible
- TFCI existence		TRUE
- CHOICE SF	45.40	<u>Otherwise</u>
Downlink information common for all radio links	<u>A5, A6</u>	Not Present
- DPCH compressed mode info		Not Present
		4
- TPGS status Flag		Inactive
——-TGCFN		(Current CFN + (256 - TTI/10msec)) mod
100/11		256
- Transmission gap pattern sequence		200
configuration parameters		EDD Magaziramant
		FDD Measurement
- TGPRC		62
		8
		10
TGL2		5
TGD		15
		35
	1	35

Information Element	Condition	Value/remark
		Mode 1
- ITPITP		Mode 1
		DL
- Downlink compressed mode method		SF/2
- Downlink frame type		A
- DeltaSIR1		2.0
- DeltaSIRafter1		1.0
- DeltaSIR2		Not Present
- DeltaSIRafter2		Not Present
- N Identify abort		Not Present
- T Reconfirm abort		Not Present
- TX Diversity mode		None
- SSDT information		Not Present
- Default DPCH Offset Value	A.E. A.O.	<u> </u>
Downlink information common for all radio links	A5, A6	Not Present
Downlink information for each radio links	<u>A1,</u>	
	A2,A3,A4	
- Primary CPICH info		
- Primary scrambling code		100
- PDSCH with SHO DCH info		Not Present
- PDSCH code mapping		Not Present
- Downlink DPCH info for each RL		
- Primary CPICH usage for channel estimation		Primary CPICH may be used
- DPCH frame offset		0 chips
- Power offset P _{Pilot-DPDCH}		TBD0
		Not Present
- Secondary CPICH info		Not Present
- DL channelisation code		
- Secondary scrambling code		<u>45</u>
- Spreading factor		Reference to TS34.108 clause 6.10
		Parameter Set
- Code number		SF-1(SF is reference to TS34.108 clause
		6.10 Parameter Set)0
- Scrambling code change		No change
- TPC combination index		0
- SSDT Cell Identity		Not Present-a
- Closed loop timing adjustment mode		Not Present
- SCCPCH information for FACH		Not Present
Downlink information for each radio link	A2	THOU TOOM
- Choice mode	ALE	FDD
- Primary CPICH info		<u></u>
		400
- Primary scrambling code		100 100
- PDSCH with SHO DCH info		Not Present
- PDSCH code mapping		Not Present
 Downlink DPCH info for each RL 		
 Primary CPICH usage for channel estimation 		Primary CPICH may be used
- DPCH frame offset		<u>0-chips</u>
		
- Secondary CPICH info		Not Present
- Secondary scrambling code		
- channelisation code		
- DL channelisation code		
- Secondary scrambling code		5
		120
- Spreading factor		<u>128</u>
		$\frac{\Theta}{N}$
- Scrambling code change		No change
- TPC combination index		<u> 0</u>
- SSDT Cell Identity		Not Present
- Closed loop timing adjustment mode		Not Present
- SCCPCH information for FACH		Not Present
- Downlink information for each radio link list	A3	
	- · · ·	I and the second
- Choice mode		FDD

Information Element	Condition	Value/remark
- Primary scrambling code		100
- PDSCH with SHO DCH info		Not Present
— - PDSCH code mapping		Not Present
- Downlink DPCH info for each RL		
- Primary CPICH usage for channel estimation		Primary CPICH may be used
		<u>0 chips</u>
- Secondary CPICH info		Not Present
- Secondary scrambling code		<u>5</u>
- Spreading factor		<u>용</u> 용
- Code number		<u>0</u>
		No change
- TPC combination index		<u>0</u>
		Not Present
— - Closed loop timing adjustment mode		Not Present
- SCCPCH information for FACH		Not Present
- Downlink information for each radio link	<u>A5</u>	
- Choice mode		<u>FDD</u>
- Primary CPICH info		
- Primary scrambling code		<u>100</u>
- PDSCH with SHO DCH info		Not Present
- PDSCH code mapping		Not Present
- Downlink DPCH info for each RL		Not Present
- SCCPCH Information for FACH	4.0	Not Present
- Downlink information for each radio link	<u>A6</u>	TDD.
- Choice mode		FDD
- Primary CPICH info - Primary scrambling code		150
- PDSCH with SHO DCH info		Not Present
- PDSCH code mapping		Not Present
- Downlink DPCH info for each RL		Not Present
- SCCPCH Information for FACH		Not Present

Condition	Explanation
A1	This IE need for "Non speech in CS"
A2	This IE need for "Speech in CS"
A3	This IE need for "Packet to CELL_DCH from CELL_DCH in PS"
A4	This IE need for "Packet to CELL_DCH from CELL_FACH in PS"
A5	This IE need for "Packet to CELL_FACH from CELL_DCH in PS"
A6	This IE need for "Packet to CELL_FACH from CELL_FACH in PS"

Note: The radio bearer configurations used here are served as example only, test operator can choose to use other radio bearer configurations.

Contents of PHYSICAL CHANNEL RECONFIGURATION COMPLETE message: AM

Information Element	Value/remark
Message Type	
RRC transaction identifier	Checked to see if it's set to identical value of the same IE in the downlink PHYSICAL CHANNEL RECONFIGURATION message
Integrity check info	The presence of this IE is dependent on IXIT statements in TS 34.123-2. If integrity protection is indicated to be active, this IE shall be present with the values of the sub IEs as stated below. Else, this IE and the sub-IEs shall be absent.
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Uplink integrity protection activation info	Not checked
CHOICE mode	<u>FDD</u>
COUNT-C activation time	The presence of this IE depends on the following 2 factors: (a) There exists RB(s) mapped to RLC-TM, (b) UE is transiting to CELL_DCH state after the reconfiguration procedure. Else, this IE is absent.
CHOICE mode	FDD
Radio bearer uplink ciphering activation time info	Not checked
Uplink counter synchronisation info	Not checked

Contents of PHYSICAL CHANNEL RECONFIGURATION FAILURE message: AM

Information Element	<u>Value/remark</u>
Message Type	
RRC transaction identitifer	Checked to see if it is set to identical value of the same IE
	in the downlink PHYSICAL CHANNEL
	RECONFIGURATION message.
Integrity check info	The presence if this IE is dependent on IXIT statements in
	TS 34.123-2. if integrity protection is indicated to be
	active, this IE shall be present with the values of the sub
	IEs as stated below. Else, this IE and the sub-IEs shall be
	absent.
 Message authentication code 	This IE is checked to see if it is present. The value is
	compared against the XMAC-I value computed by SS.
 - RRC Message sequence number 	This IE is checked to see if it is present. The value is
	used by SS to compute the XMAC-I value.
Failure cause	Checked to see if it meets test requirement

Contents of RADIO BEARER SETUP message: AM or UM

Information Element	Condition	Value/remark
Message Type	<u>A1, A4,</u>	
	<u>A5,</u>	
DD0 / // // //	A6,A7,A8	
RRC transaction identifier		Arbitrarily selects an integer between 0 and 3
Integrity check info		The presence of this IE is dependent on IXIT
		statements in TS 34.123-2. If integrity protection is indicated to be active, this IE is
		present with the values of the sub IEs as
		stated below. Else, this IE and the sub-IEs are
		omitted.
- message authentication code		SS calculates the value of MAC-I for this
		message and writes to this IE.
- RRC message sequence number		SS provides the value of this IE, from its
		internal counter.
Integrity protection mode info		Not Present
Ciphering mode info		The presence of this IE is dependent on IXIT
		statements in TS 34.123-2. If ciphering is
		indicated to be active, this IE present with the
		values of the sub IEs as stated below. Else,
- Ciphering mode command		this IE is omitted. Start/restart
- Ciphering mode command - Ciphering algorithm		Use one of the supported ciphering algorithms
- Ciphering activation time for DPCH		(256+CFN-(CFN MOD 8 + 8))MOD 256
Radio bearer downlink ciphering activation time		Not Present
info		1.001.1.7000.11
Activation time		(256+CFN-(CFN MOD 8 + 8))MOD 256
New U-RNTI		Not Present
New C-RNTI		Not Present
RRC State indicator	A1, A2,	CELL_DCH
	A3,	
DDC State indicator	A4 <u>,A7,A8</u> A5, A6	CELL FACH
RRC State indicator UTRAN DRX cycle length coefficient	A5, A6 A1, A4,	Not Present
O TRAIN DICK Cycle length coemicient	A5,	Not i resent
	A6,A7,A8	
CN information info		Not Present
URA identity		Not Present
Signalling RB information to setup		Not Present
RAB information for setup	A1 <u>,A7</u>	
- RAB info		0000 00045
- RAB identity		0000 0001B

Information Element	Condition	Value/remark
- CN domain identity	Contantion	CS domain
- NAS Synchronization Indicator		Not Present
- Re-establishment timer		useT314
- T314		20 seconds
		20 Seconds
- RB information to setup		40
- RB identity		10
- PDCP info		Not Present
- CHOICE RLC info type		RLC info
- CHOICE Uplink RLC mode		TM RLC
- Transmission RLC discard		Not Present
 Segmentation indication 		TRUE FALSE
- CHOICE Downlink RLC mode		TM RLC
 Segmentation indication 		TRUE FALSE
 RB mapping info 		
 Information for each multiplexing option 		
 RLC logical channel mapping indicator 		Not Present
- Number of uplink RLC logical channels		1
- Uplink transport channel type		DCH
- UL Transport channel identity		1
- Logical channel identity		Not Present 7
- CHOICE RLC size list		AllConfigured
- MAC logical channel priority		1
- Downlink RLC logical channel info		'
Number of downlink RLC logical channels		1
- Downlink transport channel type		DCH
- DCH Transport channel identity		6
- DL DSCH Transport channel identity - DL DSCH Transport channel identity		Not Present
- Logical channel identity	4.0	Not Present7
RAB information for setup	<u>A8</u>	
- RAB info		0000 0004B
- RAB identity		0000 0001B
- CN domain identity		CS domain
- NAS Synchronization Indicator		Not Present
- Re-establishment timer		<u>useT314</u>
- RB information to setup		
- RB identity		<u>10</u>
- PDCP info		Not Present
- CHOICE RLC info type		RLC info
- CHOICE Uplink RLC mode		TM RLC
- Transmission RLC discard		Not Present
 Segmentation indication 		FALSE
- CHOICE Downlink RLC mode		TM RLC
- Segmentation indication		FALSE
- RB mapping info		
- Information for each multiplexing option		
- RLC logical channel mapping indicator		Not Present
- Number of uplink RLC logical channels		1
- Uplink transport channel type		DCH
- UL Transport channel identity		1
- Logical channel identity		Not Present
- CHOICE RLC size list		Configured
- MAC logical channel priority		1
- Downlink RLC logical channel info		-
Number of downlink RLC logical channels		1
- Downlink transport channel type		1 DCH
- DCH Transport channel identity		
		6 Not Procent
- DL DSCH Transport channel identity		Not Present
- Logical channel identity		Not Present
- RB identity		11 Not Present
- PDCP info		Not Present
- CHOICE RLC info type]	RLC info

Information Element	Condition	Value/remark
- CHOICE Uplink RLC mode	Condition	
- CHOICE Uplink RLC mode - Transmission RLC discard		TM RLC Not Present
- Segmentation indication		FALSE
- CHOICE Downlink RLC mode		TM RLC
- Segmentation indication		FALSE
- RB mapping info		TALSE
- Information for each multiplexing option		
- RLC logical channel mapping indicator		Not Present
- Number of uplink RLC logical channels		1
- Uplink transport channel type		<u>DCH</u>
- UL Transport channel identity		2
- Logical channel identity		Not Present
- CHOICE RLC size list		Configured
- MAC logical channel priority		1
- Downlink RLC logical channel info		
- Number of downlink RLC logical channels		<u>1</u>
 Downlink transport channel type 		1 DCH
 DL DCH Transport channel identity 		<u>7</u>
- DL DSCH Transport channel identity		Not Present
 Logical channel identity 		Not Present
- RB identity		12
- PDCP info		Not Present
- CHOICE RLC info type		RLC info
- CHOICE Uplink RLC mode		TM RLC
- Transmission RLC discard		Not Present
- Segmentation indication		FALSE
- CHOICE Downlink RLC mode		TM RLC
- Segmentation indication - RB mapping info		FALSE
- Information for each multiplexing option		
- RLC logical channel mapping indicator		Not Present
- Number of uplink RLC logical channels		1
- Uplink transport channel type		<u>DCH</u>
- UL Transport channel identity		3
- Logical channel identity		Not Present
- CHOICE RLC size list		Configured
- MAC logical channel priority		1
- Downlink RLC logical channel info		
 Number of downlink RLC logical channels 		<u>1</u>
 Downlink transport channel type 		1 DCH
 DL DCH Transport channel identity 		<u>8</u>
- DL DSCH Transport channel identity		Not Present
- Logical channel identity	10	Not Present
RAB information for setup	A2	
		0000 0004B
- RAB identity		0000 0001B
——————————————————————————————————————		CS domain Not Present
- Re-establishment timer		THUL FICSCIII
——————————————————————————————————————		20 seconds
		20 00001103
- RB identity		40
		Not Present
- CHOICE RLC info type		RLC info
- CHOICE Uplink RLC mode		TM RLC
- Transmission RLC discard		Not Present
- Segmentation indication		TRUE
		TM RLC
- Segmentation indication		TRUE
——————————————————————————————————————		
- Information for each multiplexing option		

Information Element	Condition	Value/remark
- RLC logical channel mapping indicator		Not Present
- Number of RLC logical channels		4
- Uplink transport channel type		DCH
- UL Transport channel identity		
		1 1 7
- Logical channel identity		7
- CHOICE RLC size list		All
- MAC logical channel priority		4
- Downlink RLC logical channel info		
- Number of RLC logical channels		4
- Downlink transport channel type		DCH
- DL DCH Transport channel identity		6
- DL DSCH Transport channel identity		Not Present
•		Z
- Logical channel identity		+
- RB information to setup		
- RB identity		11
 PDCP info		Not Present
- CHOICE RLC info type		RLC info
- CHOICE Uplink RLC mode		TM RLC
- Transmission RLC discard		Not Present
- Segmentation indication		TRUE
		TM RLC
- Segmentation indication		TRUE
- RB mapping info		
- Information for each multiplexing option		
- RLC logical channel mapping indicator		Not Present
- Number of RLC logical channels		4
- Uplink transport channel type		DCH
- UL Transport channel identity		2
- Logical channel identity		- 8
		_
- CHOICE RLC size list		All
		4
Downlink RLC logical channel info		
- Number of RLC logical channels		4
- Downlink transport channel type		DCH
- DL DCH Transport channel identity		Z
- DL DSCH Transport channel identity		Not Present
- Logical channel identity		0
		(This IE is possed of fau 40.0 kbms and 40.0
- RB Information to Setup		(This IE is needed for 12.2 kbps and 10.2
		kbps)
- RB identity		12
- PDCP info		Not Present
CHOICE RLC info type		RLC info
- CHOICE Uplink RLC mode		TM RLC
- Transmission RLC discard		Not Present
- Segmentation indication		TRUE
- CHOICE Downlink RLC mode		TM RLC
- Segmentation indication		TRUE
- RB mapping info		
- Information for each multiplexing option		
- RLC logical channel mapping indicator		Not Present
- Number of RLC logical channels		4
- Uplink transport channel type		DCH
- UL Transport channel identity		3
- Logical channel identity		9
		-
- CHOICE RLC size list		All
- MAC logical channel priority		4
Downlink RLC logical channel info		
- Number of RLC logical channels		4
- Downlink transport channel type		DCH
- DL DCH Transport channel identity		8
- DL DSCH Transport channel identity		Not Present
— - D. DOUT HAUSDON CHANNEL IGENIIV	1	I IND FIRSHIII

Information Element	Condition	Value/remark
- Logical channel identity		9
RAB information for setup	∆3, ∧4	
- RAB info		
		0000 0001B
- CN domain identity		PS domain
- NAS Synchronization Indicator		Not Present
- Re-establishment timer		useT314
- T314		20 seconds
- RB information to setup		20 00001140
- RB identity		20
- PDCP info		Not Present
		RLC info
		1
- CHOICE Uplink RLC mode		AM RLC
- Transmission RLC discard		
- SDU discard mode		Max DAT retransmissions
		4
		100
- MaxMRW		4
- Transmission window size		8
		500
- Max_RST		4
- Polling info		
- Timer_poll_prohibit		200
- Timer_poll		200
		4
- Last transmission PDU poll		TRUE
- Last retransmission PDU poll		TRUE
		99
		AM RLC
		7 1120
- In-sequence delivery		TRUE
- Receiving window size		8
- Downlink RLC status info		
- Timer_status_prohibit		200
		200
Missing PDU indicator		TRUE
- RB mapping info		
- Information for each multiplexing option		
- RLC logical channel mapping indicator		Not Present
- Number of uplink RLC logical channels		4
- Uplink transport channel type		DCH
- UL Transport channel identity		4
- Logical channel identity		Not Present7
- CHOICE RLC size list		ConfiguredAll
- MAC logical channel priority		4
- Downlink RLC logical channel info		'
- Number of downlink RLC logical channels		1
		1 DCH
- Downlink transport channel type		DCH
- DL DCH Transport channel identity		6 Not Droppet
- DL DSCH Transport channel identity		Not Present
- Logical channel identity		Not Present7
RAB information for setup	<u>A4,</u> A5, A6	
- RAB info		(AM DTCH for PS domain)
- RAB identity		0000 0001B <u>0101B</u>
- CN domain identity		PS domain
- NAS Synchronization Indicator		Not Present
- Re-establishment timer		useT314
		20 seconds
- RB information to setup		
- RB identity		20
- PDCP info		Not Present
- CHOICE RLC info type		RLC info
- : HI III E E I I INTO TODA	1	LIKEG INTO

Information Element	Condition	Value/remark
- CHOICE Uplink RLC mode		AM RLC
- Transmission RLC discard		7 WITCE
- CHOICE SDU discard mode		Max DAT retransmissions
- MAX DAT		4
- Timer_MRW		100
- MaxMRW		4
		8
- Transmission window size		_
- Timer_RST		500
- Max_RST		4
- Polling info		
- Timer_poll_prohibit		200
- Timer_poll		200
- Poll_SDU		1
 Last transmission PDU poll 		TRUE
 Last retransmission PDU poll 		TRUE
- Poll_Windows		99
- CHOICE Downlink RLC mode		AM RLC
- In-sequence delivery		TRUE
 Receiving window size 		8
- Downlink RLC status info		
 Timer_status_prohibit 		200
- Timer_EPC		200
- Missing PDU indicator		TRUE
- RB mapping info		
- Information for each multiplexing option		2 RBMuxOptions
- RLC logical channel mapping indicator		Not Present
- Number of uplink RLC logical channels		1
- Uplink transport channel type		<u>DCH</u>
- UL Transport channel identity		1
- Logical channel identity		Not Present
- CHOICE RLC size list		Configured
- MAC logical channel priority		
- Downlink RLC logical channel info		1
- Number of downlink RLC logical channels		1
- Downlink transport channel type		DCH
- DL DCH Transport channel identity		<u>6</u>
- DL DSCH Transport channel identity		Not Present
- Logical channel identity		Not Present
- RLC logical channel mapping indicator		Not Present
 Number of uplink RLC logical channels 		1
- Uplink transport channel type		RACH
- UL Transport channel identity		Not Present
 Logical channel identity 		7
- CHOICE RLC size list		<u>Configured</u> Explicit
- RLC size index		Reference to TS34.108 clause 6.10 Parameter
		Set
 MAC logical channel priority 		6
 Downlink RLC logical channel info 		
 Number of downlink RLC logical channels 		1
 Downlink transport channel type 		FACH
 DL DCH Transport channel identity 		Not Present
 DL DSCH Transport channel identity 		Not Present
- Logical channel identity		Not Present6
RB information to be affected	A1, A2,	(UM DCCH for RRC)
	A3, A4	
- RB identity	,	4
- RB mapping info		
- Information for each multiplexing option		
- RLC logical channel mapping indicator		Not Present
- Number of uplink RLC logical channels		4
- Uplink transport channel type		DCH
		DOI 1

Information Element	Condition	Value/remark
- UL Transport channel identity		5
- Logical channel identity		4
		ConfiguredAll
- MAC logical channel priority		4
- Downlink RLC logical channel info		
- Number of downlink RLC logical channels		4
- Downlink transport channel type		DCH
- DL DCH Transport channel identity		10
- DL DSCH Transport channel identity		Not Present
- Logical channel identity		4
RB information to be affected	A1, A2,	(AM DCCH for RRC)
	A3, 	
- RB identity		2
 Information for each multiplexing option 		
- RLC logical channel mapping indicator		Not Present
 Number of uplink RLC logical channels 		4
- Uplink transport channel type		DCH
- UL Transport channel identity		5
- Logical channel identity		2
- CHOICE RLC size list		Configured All
- MAC logical channel priority		2
- Downlink RLC logical channel info		
- Number of downlink RLC logical channels		4
- Downlink transport channel type		DCH
- DL DCH Transport channel identity		10
- DL DSCH Transport channel identity		Not Present
- Logical channel identity		2
RB information to be affected	A1, A2,	(AM DCCH for NAS_DT High priority)
	A3, A4	
		3
- RB mapping info		
- Information for each multiplexing option		
- RLC logical channel mapping indicator		Not Present
- Number of uplink RLC logical channels		4
		DCH
- UL Transport channel identity		5
		3
		<u>Configured</u> All
- MAC logical channel priority		3
- Number of downlink RLC logical channels		4
- Downlink transport channel type		DCH
		10
- DL DSCH Transport channel identity		Not Present
- Logical channel identity		3
RB information to be affected	A1, A2,	(AM DCCH for NAS_DT Low priority)
	A3, A4	
		4
- Information for each multiplexing option		
		Not Present
 Number of uplink RLC logical channels 		4
Uplink transport channel type		DCH
		5
- Logical channel identity		4
		<u>Configured</u> All
- MAC logical channel priority		4
- Downlink RLC logical channel info		
- Number of downlink RLC logical channels		4
- Downlink transport channel type		DCH

Information Element	Condition	Value/remark
- DL DCH Transport channel identity		10
- DL DSCH Transport channel identity		Not Present
- Logical channel identity		4
RB information to be affected	A1, A4, A5,	(UM DCCH for RRC)Not Present
DD:11 (%	<u>A6,A7,A8</u> , A6	
- RB identity		4
- Information for each multiplexing option		
- RLC logical channel mapping indicator		Not Present
- Number of uplink RLC logical channels		4
- Uplink transport channel type		RACH
- UL Transport channel identity		Not Present
- Logical channel identity		1
- CHOICE RLC size list		<u>Configured</u> Explicit
		Reference to TS34.108 clause 6.10 Parameter
		Set
- MAC logical channel priority		2
- Downlink RLC logical channel info		
- Number of downlink RLC logical channels		1
- Downlink transport channel type		FACH
- DL DCH Transport channel identity		Not Present
- DL DSCH Transport channel identity		Not Present
- Logical channel identity		4
RB information to be affected	A5, A6	(AM DCCH for RRC)
RB identity	7.0, 7.0	2
		=
- Information for each multiplexing option		
- RLC logical channel mapping indicator		Not Present
		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
- Number of uplink RLC logical channels		1 RACH
- Uplink transport channel type		RACH
- Logical channel identity		∠ Openfigures dEvelight
- CHOICE RLC size list		Configured Explicit
- RLC size index		Reference to TS34.108 clause 6.10 Parameter Set
- MAC logical channel priority		3
- Downlink RLC logical channel info		
- Number of downlink RLC logical channels		4
- Downlink transport channel type		FACH
- DL DCH Transport channel identity		Not Present
- DL DSCH Transport channel identity		Not Present
- Logical channel identity		2
RB information to be affected	A5, A6	(AM DCCH for NAS_DT High priority)
- RB identity	-, -	3
RB mapping info		
- Information for each multiplexing option		
- RLC logical channel mapping indicator		Not Present
- Number of uplink RLC logical channels		4
- Uplink transport channel type		RACH
- UL Transport channel identity		Not Present
- Logical channel identity		2
- CHOICE RLC size list		ConfiguredExplicit
- RLC size index		Reference to TS34.108 clause 6.10 Parameter
MAG legical shape 1 1 2		Set
- MAC logical channel priority		4
- Downlink RLC logical channel info		
- Number of downlink RLC logical channels		4
- Downlink transport channel type		FACH
DI DOUTE CONTROL OF	i	TALL A DOLLAR AND A STATE OF THE ADDRESS OF THE ADD
- DL DCH Transport channel identity - DL DSCH Transport channel identity		Not Present Not Present

Information Element	Condition	Value/remark
- Logical channel identity		3
RB information to be affected	A5, A6	(AM DCCH for NAS_DT Low priority)
	7.0,7.0	4
- RB mapping info		
- Information for each multiplexing option		
- RLC logical channel mapping indicator		Not Present
Number of unlink DLC legical shappels		
- Number of uplink RLC logical channels		4
- Uplink transport channel type		RACH
- UL Transport channel identity		Not Present
- Logical channel identity		4
- CHOICE RLC size list		<u>Configured</u> Explicit
		Reference to TS34.108 clause 6.10 Parameter
		Set
- MAC logical channel priority		5
- Downlink RLC logical channel info		
- Number of downlink RLC logical channels		4
- Downlink transport channel type		FACH
- DL DCH Transport channel identity		Not Present
- DL DSCH Transport channel identity		Not Present
		A
- Logical channel identity	A.F. A.C.	(TM DOOU (DDO)
RB information to be affected	A5, A6	(TM BCCH for RRC)
- RB identity		6
- Information for each multiplexing option		
- Number of downlink RLC logical channels		4
- Downlink transport channel type		FACH
- Logical channel identity		5
- Downlink RLC logical channel info		Not Present
Downlink counter synchronisation info	A1, A4,	Not Present
	A5,	
	A6,A7,A8	
UL Transport channel information for all transport	A1,A4,A7,	
channels	A8 , A2, A4	
- Allowed Transport Format combination	<u>70, 72, 711</u>	0 to MaxTFCValue-1 (MaxTFCValue is refer to
		TS34.108 clause 6.10 Parameter Set.)
- PRACH TFCS		Not Present
- CHOICE mode		FDD
- TFC subset		(This IE is repeated for TFC number.)Not
		Present
- UL DCH TFCS		(This IE is repeated for TFC number.)
- CHOICE TFCI signalling		Normal
 TFCI Field 1 information 		
 CHOICE TFCS representation 		Complete_reconfiguration
 TFCS complete reconfigure information 		
- CHOICE CTFC Size		Number of bits used must be enough to cover
0.10.02 0.11 0 0.20		all combinations of CTFC from TS34.108
		clause 6.10 Parameter Set.
- CTFC information		This IE is repeated for TFC numbers and
- CTFC initiation		
		reference to TS34.108 clause 6.10 Parameter
		Set Refer to TS34.108 clause 6.10 Parameter
OLY OTEO		Set
- 2bit-CTFC		O Reference to TS34.108 clause 6.10
		Parameter Set
Power offset information		
- CHOICE Gain Factors		Computed Gain Factors(The last TFC is set to
		Signalled Gain Factors)
- Gain factor •c		TBD(Not Present if the CHOICE Gain Factors
		is set to Signalled Gain Factors)
- Gain factor •d		TBD(Not Present if the CHOICE Gain Factors
		is set to Signalled Gain Factors)
- Reference TFC ID		0
TOTOTOTO IT O ID	_i	I <u>≚</u>

Information Element	Condition	Value/remark
- CHOICE mode		FDD
- Power offset P p-m		Not Present
- 2bit CTFC		<u>4</u>
- Power offset information		<u> </u>
- CHOICE Gain Factors		Computed Gain Factors
- Reference TFC ID		Q
- CHOICE mode		FDD
- Power offset P p-m		Not Present
- CTFC information		NOT FIGSCHE
- 2bit CTFC		2
		2
- Power offset information		Operation of Opin Footons
- CHOICE Gain Factors		Computed Gain Factors
- Reference TFC ID		9
- CHOICE mode		FDD
- Power offset P p m		Not Present
- CTFC information		<u>3</u> 1 <u>2</u> 1
- 2bit CTFC		€
- Power offset information		
- CHOICE Gain Factors		Signalled Gain Factor
		FDD
Gain factor •c		0
- Gain factor •d		0
- Reference TFC ID		Not Present0
- CHOICE mode		FDD
- Power offset Pp-m		OdBNot Present
UL Transport channel information for all transport	A4	NOT TOSCITE
channels	7.44	
Chamels		
DDACH TECC		Not Droppet
- PRACH TECS		Not Present
		EDD
- TFC subset		Not Present
UL DCH TFCS		
		<u>Normal</u>
- TFCI Field 1 information		
- CHOICE TFCS representation		Complete reconfiguration
- TFCS complete reconfigure information		
- CHOICE CTFC Size		4 bit CTFC
- 4bit CTFC		<u>0</u>
- Power offset information		
- CHOICE Gain Factors		Computed Gain Factors
- Reference TFC ID		0
- CHOICE mode		FDD
- Power offset P p-m		Not Present
- CTFC information		
- 4bit CTFC		2
- Power offset information		=
- CHOICE Gain Factors		Computed Gain Factors
- Reference TFC ID		
		<u>0</u>
- CHOICE mode		Not Present
Power offset P p-m		Not Present
- CTFC information		
- 4bit CTFC		4
- Power offset information		
- CHOICE Gain Factors		Computed Gain Factors
- Reference TFC ID		<u>0</u>
		FDD
- Power offset P-p-m		Not Present
- CTFC information		
- 4bit CTFC		6
		· -

Information Element	Condition	Value/remark
- Power offset information	Condition	Value/ICIIIai K
		Commuted Cain Factors
- CHOICE Gain Factors		Computed Gain Factors
- Reference TFC ID		<u>0</u>
		EDD
- Power offset P-p-m		Not Present
- CTFC information		
- 4bit CTFC		<u>8</u>
- Power offset information		
- CHOICE Gain Factors		Computed Gain Factors
- Reference TFC ID		<u>0</u>
		FDD
- Power offset P p-m		Not Present
- CTFC information		
- 4bit CTFC		<u>4</u>
- Power offset information		=
- CHOICE Gain Factors		Computed Gain Factors
- Reference TFC ID		
- CHOICE mode		FDD
		'
- Power offset P.p-m		Not Present
- CTFC information		
-4bit CTFC		<u>3</u>
- Power offset information		
- CHOICE Gain Factors		Computed Gain Factors
- Reference TFC ID		<u> </u>
- CHOICE mode		FDD
- Power offset P-p-m		Not Present
- CTFC information		
- 4bit CTFC		<u>5</u>
- Power offset information		_
- CHOICE Gain Factors		Computed Gain Factors
- Reference TFC ID		0
- CHOICE mode		FDD
- Power offset P p-m		Not Present
- CTFC information		HOLLIOON
- 4bit CTFC		<u> 7</u>
- Power offset information		±
- CHOICE Gain Factors		Computed Gain Factors
- Reference TFC ID		9
		FDD
- Power offset P p-m		Not Present
- CTFC information		<u> 9 </u>
		<u>2</u>
- Power offset information		
- CHOICE Gain Factors		Signalled Gain Factor
- CHOICE mode		FDD
- Gain factor +c		<u>Q</u>
- Gain factor +d		$\frac{\omega}{\Theta}$
- Reference TFC ID		<u>0</u>
- CHOICE mode		FDD
- Power offset Pp-m		Not Present
<u></u>	A3	THE PROPERTY OF THE PROPERTY O
UL Transport channel information for all transport	A0	
channels		O to MonTEOValue 4 (NA TEOVA I C. C.
		0 to MaxTFCValue-1 (MaxTFCValue is refer to
		TS34.108 clause 6.10 Parameter Set.)
		Not Present
		FDD
- TFC subset		(This IE is repeated for TFC number.)
		(This IE is repeated for TFC number.)
- CHOICE TFCI signalling		Normal
- CHOICE TFCS representation		Complete
The second secon	•	

Information Element	Condition	Value/remark
- TFCS complete reconfigure information		
		Number of bits used must be enough to cover
		all combinations of CTFC from clause 6.10.
		Refer to TS34.108 clause 6.10 Parameter Set
- Power offset information		Not Present
UL Transport channel information for all transport	A5, A6	Not Present
channels	·	
- Allowed Transport Format combination		0 to MaxTFCValue-1 (MaxTFCValue is refer to
1 11 11 11 11 11 11 11 11 11 11		TS34.108 clause 6.10 Parameter Set.)
- PRACH TFCS		Not Present
- CHOICE mode		EDD
- TFC subset		(This IE is repeated for TFC number.)Not
11 0 300301		Present
- UL DCH TFCS		Not Present
Deleted UL TrCH information	A1, A2,	Not Present
Deleted OL TICH information		Not Present
	A3, A4,	
	<u>A5,</u>	
	A6 <u>,A7,A8</u>	
Deleted UL TrCH information	A 5	
 Uplink transport channel type 		DCH
- UL Transport channel identity		5
Added or Reconfigured UL TrCH information	A1 , A2,	
•	A3, A4	
 Uplink transport channel type 	·	DCH
- UL Transport channel identity		1
- TFS		
- CHOICE Transport channel type		Dedicated transport channels
- Dynamic Transport format information		(This IE is repeated for TFI number)
- RLC Size		Reference to TS34.108 clause 6.10 Parameter
- NEO SIZE		Set
- Number of TBs and TTI List		(This IE is repeated for TFI number.) ₂
- Transmission Time Interval		Not Present
 Number of Transport blocks 		Reference to TS34.108 clause 6.10 Parameter
		Set-0
- Transmission Time Interval		Not Present
- Number of Transport blocks		1 1
 CHOICE Logical Channel list 		<u>All</u> Explicit
 Semi-static Transport Format information 		
 Transmission time interval 		Reference to TS34.108 clause 6.10 Parameter
		Set
 Type of channel coding 		Reference to TS34.108 clause 6.10 Parameter
		Set
- Coding Rate		Reference to TS34.108 clause 6.10 Parameter
-		Set
- Rate matching attribute		Reference to TS34.108 clause 6.10 Parameter
5		Set
- CRC size		Reference to TS34.108 clause 6.10 Parameter
		Set
Added or Reconfigured UL TrCH information	A4,A7	2 TrCHs(DCH for DCCH and DCH for DTCH)
- Uplink transport channel type	231,737	DCH
- UL Transport channel identity		<u>5</u>
- TFS		<u> =</u>
- CHOICE Transport channel type		Dedicated transport channels
- Dynamic Transport format information		Dedicated transport challings
		Poterance to TS34 109 clause 6 10 December
- RLC Size		Reference to TS34.108 clause 6.10 Parameter
Number of TDs and TTLL ist		Set (This IC is reported for TCI number.)
- Number of TBs and TTI List		(This IE is repeated for TFI number.)
- Transmission Time Interval		Not Present
 Number of Transport blocks 		Reference to TS34.108 clause 6.10 Parameter
		<u>Set</u>
- CHOICE Logical Channel list		All

Information Element	Condition	Value/remark
- Semi-static Transport Format information		
- Transmission time interval		Reference to TS34.108 clause 6.10 Parameter
- Type of channel coding		Set Reference to TS34.108 clause 6.10 Parameter Set
- Coding Rate		Reference to TS34.108 clause 6.10 Parameter Set
- Rate matching attribute		Reference to TS34.108 clause 6.10 Parameter
- CRC size		Set Reference to TS34.108 clause 6.10 Parameter
- Uplink transport channel type - UL Transport channel identity - TFS		Set DCH 1
- CHOICE Transport channel type - Dynamic Transport format information		Dedicated transport channels
- RLC Size		Reference to TS34.108 clause 6.10 Parameter Set
- Number of TBs and TTI List - Transmission Time Interval		(This IE is repeated for TFI number.) Not Present
- Number of Transport blocks		Reference to TS34.108 clause 6.10 Parameter Set
- CHOICE Logical Channel list - Semi-static Transport Format information		All
- Transmission time interval		Reference to TS34.108 clause 6.10 Parameter Set
- Type of channel coding		Reference to TS34.108 clause 6.10 Parameter Set
- Coding Rate		Reference to TS34.108 clause 6.10 Parameter Set
- Rate matching attribute		Reference to TS34.108 clause 6.10 Parameter Set
- CRC size		Reference to TS34.108 clause 6.10 Parameter Set
Added or Reconfigured UL TrCH information	<u>A8</u>	4 TrCHs(DCH for DCCH and 3DCHs for DTCH)
 Uplink transport channel type 		<u>DCH</u>
 UL Transport channel identity 		<u>5</u>
<u>- TFS</u>		
- CHOICE Transport channel type - Dynamic Transport format information		Dedicated transport channels
- RLC Size		Reference to TS34.108 clause 6.10 Parameter Set
- Number of TBs and TTI List		(This IE is repeated for TFI number.)
- Transmission Time Interval		Not Present
- Number of Transport blocks		Reference to TS34.108 clause 6.10 Parameter Set
- CHOICE Logical Channel list		All
- Semi-static Transport Format information		
- Transmission time interval		Reference to TS34.108 clause 6.10 Parameter Set
- Type of channel coding		Reference to TS34.108 clause 6.10 Parameter Set
- Coding Rate		Reference to TS34.108 clause 6.10 Parameter Set
- Rate matching attribute		Reference to TS34.108 clause 6.10 Parameter Set
- CRC size		Reference to TS34.108 clause 6.10 Parameter Set
- Uplink transport channel type		DCH
- UL Transport channel identity		1

Information Element	Condition	Value/remark
- TFS	Jonation	Faiue/Ferrial N
- CHOICE Transport channel type		Dedicated transport channels
- Dynamic Transport format information		
- RLC Size		Reference to TS34.108 clause 6.10 Parameter
		Set
 Number of TBs and TTI List 		(This IE is repeated for TFI number.)
- Transmission Time Interval		Not Present
 Number of Transport blocks 		Reference to TS34.108 clause 6.10 Parameter
OHOLOE La sical Obassa el list		Set
- CHOICE Logical Channel list - Semi-static Transport Format information		All
- Transmission time interval		Reference to TS34.108 clause 6.10 Parameter
- Transmission time interval		Set
- Type of channel coding		Reference to TS34.108 clause 6.10 Parameter
		Set
- Coding Rate		Reference to TS34.108 clause 6.10 Parameter
		<u>Set</u>
 Rate matching attribute 		Reference to TS34.108 clause 6.10 Parameter
000		<u>Set</u>
- CRC size		Reference to TS34.108 clause 6.10 Parameter
- Uplink transport channel type		Set DCH
- UL Transport channel identity		2
- TFS		<u> </u>
- CHOICE Transport channel type		Dedicated transport channels
- Dynamic Transport format information		
- RLC Size		Reference to TS34.108 clause 6.10 Parameter
		<u>Set</u>
- Number of TBs and TTI List		(This IE is repeated for TFI number.)
- Transmission Time Interval		Not Present
- Number of Transport blocks		Reference to TS34.108 clause 6.10 Parameter
- CHOICE Logical Channel list		Set All
- Semi-static Transport Format information		All
- Transmission time interval		Reference to TS34.108 clause 6.10 Parameter
		Set
- Type of channel coding		Reference to TS34.108 clause 6.10 Parameter
		<u>Set</u>
- Coding Rate		Reference to TS34.108 clause 6.10 Parameter
5		Set Set
- Rate matching attribute		Reference to TS34.108 clause 6.10 Parameter
- CRC size		Set Reference to TS34.108 clause 6.10 Parameter
		Set
- Uplink transport channel type		DCH
- UL Transport channel identity		3
<u>- TFS</u>		
- CHOICE Transport channel type		Dedicated transport channels
- Dynamic Transport format information		D (
- RLC Size		Reference to TS34.108 clause 6.10 Parameter
- Number of TBs and TTI List		Set (This IE is repeated for TEI number)
- Transmission Time Interval		(This IE is repeated for TFI number.) Not Present
- Number of Transport blocks		Reference to TS34.108 clause 6.10 Parameter
Transport blooks		Set
- CHOICE Logical Channel list		All
- Semi-static Transport Format information		
- Transmission time interval		Reference to TS34.108 clause 6.10 Parameter
		Set
- Type of channel coding		Reference to TS34.108 clause 6.10 Parameter
		<u>Set</u>

Information Element	Condition	Value/remark
- Coding Rate		Reference to TS34.108 clause 6.10 Parameter
		Set
- Rate matching attribute		Reference to TS34.108 clause 6.10 Parameter
		<u>Set</u>
- CRC size		Reference to TS34.108 clause 6.10 Parameter
		<u>Set</u>
Added or Reconfigured UL TrCH information	<u>A4</u>	
 Uplink transport channel type 		DCH
- UL Transport channel identity		<u>4</u>
—- TFS		
- CHOICE Transport channel type		Dedicated transport channels
——————————————————————————————————————		226
		336 5
- Transmission Time Interval		Not Present
- Number of Transport blocks		<u>Not Freschi</u> Ω
- Transmission Time Interval		Not Present
- Number of Transport blocks		4
- Transmission Time Interval		Not Present
- Number of Transport blocks		2
- Transmission Time Interval		Not Present
- Number of Transport blocks		<u>3</u>
- Transmission Time Interval		Not Present
- Number of Transport blocks		4
- CHOICE Logical Channel list		All
- Semi-static Transport Format information		
- Transmission time interval		20 .
——————————————————————————————————————		Turbo
		Not Present
——————————————————————————————————————		150 16
——-CHOICE mode		<u>16</u> FDD
- CPCH set ID		Not Present
- Added or Reconfigured TrCH information for		Not Present
DRAC list		Not Fresent
Added or Reconfigured UL TrCH information	A1, A2,	If TrCH reconfiguration is executed then this is
7.4404 01.1.0001gu104 02.1.011	A3, A4	needed(e.g. The rate of SRB for DCCH is
	- /	changed.).
- Uplink transport channel type		DCH
- UL Transport channel identity		5
TFS		
- CHOICE Transport channel type		Dedicated transport channels
 Dynamic Transport format information 		(This IE is repeated for TFI number)
		Reference to TS34.108 clause 6.10 Parameter
N. J. CTD. LTT.LL.		Set 144 (T) 15
- Number of TBs and TTI List		(This IE is repeated for TFI number.)2
- Transmission Time Interval		Not Present
- Number of Transport blocks		Reference to TS34.108 clause 6.10 Parameter
- Transmission Time Interval		Set 0 Not Present
- Hansmission Hine Interval - Number of Transport blocks		1
- CHOICE Logical Channel list		± AllExplicit
- Semi-static Transport Format information		-mexpilott
- Transmission time interval		40ms Reference to TS34.108 clause 6.10
Tranomicolori timo intervar		Parameter Set
- Type of channel coding		Convolutional Reference to TS34.108 clause
1,750 or charmor obtains		6.10 Parameter Set
- Coding Rate		1/3Reference to TS34.108 clause 6.10
333		Parameter Set
- Rate matching attribute		170Reference to TS34.108 clause 6.10
3 · · · · · · · · · · · · · · · · ·	1	Parameter Set
	1	1

Information Element	Condition	Value/remark
		16Reference to TS34.108 clause 6.10
		Parameter Set
Added or Reconfigured UL TrCH information	A2	DOLL
		DCH 2
TES		≠
		Dedicated transport channels
- Dynamic Transport format information		(This IE is repeated for TFI number)
		Reference to clause 6.10 Parameter Set
- Number of TBs and TTI List		Reference to clause 6.10 Parameter Set
- Transmission Time Interval - Number of transport blocks		Not Present Reference to clause 6.10 Parameter Set
- CHOICE Logical Channel List		Explicit
- Semi-static Transport Format information		Σχριιοίτ
- Transmission time interval		Reference to clause 6.10 Parameter Set
- Type of channel coding		Reference to clause 6.10 Parameter Set
		Reference to clause 6.10 Parameter Set
- Rate matching attribute		Reference to clause 6.10 Parameter Set
- CRC size	A2	Reference to clause 6.10 Parameter Set (This IE is needed for 12.2 kbps and 10.2
Added or Reconfigured UL TrCH information	/\Z	(+nis te is needed for 12.2 kbps and 10.2 kbps)
- Uplink transport channel type		DCH
		3
——-TFS		(This IE is repeated for TFI number)
		Dedicated transport channels
- Dynamic Transport format information		Deference to alove C40 Devementar Cat
		Reference to clause 6.10 Parameter Set Reference to clause 6.10 Parameter Set
- Transmission Time Interval		Not Present
- Number of transport blocks		Reference to clause 6.10 Parameter Set
		Explicit
- Semi-static Transport Format information		
		Reference to clause 6.10 Parameter Set
		Reference to clause 6.10 Parameter Set Reference to clause 6.10 Parameter Set
- Rate matching attribute		Reference to clause 6.10 Parameter Set
- CRC size		Reference to clause 6.10 Parameter Set
Added or Reconfigured UL TrCH information	A5, A6	Not Present
CHOICE mode	A1, A4,	FDD
	<u>A5,</u>	
00011 410	<u>A6,A7,A8</u>	N . B
- CPCH set ID		Not Present
- Added or Reconfigured TrCH information for DRAC list		Not Present
DRAC static information		Not Present
DL Transport channel information common for all	A1,A7,A8,	
transport channel	<u>A4</u>	
- SCCPCH TFCS		Not Present
- CHOICE mode		FDD Furtification and III
- CHOICE DL parameters		ExplicitSameasUL (This IE is repeated for TFC number.)
- CHOICE TFCI signalling		Normal
- TFCI Field 1 information		
- CHOICE TFCS representation		Complete
- TFCS complete reconfigure information		
		Number of bits used must be enough to cover
		all combinations of CTFC from clause 6.10. Refer to TS34.108 clause 6.10 Parameter Set
		Not Present
DL Transport channel information common for all	<u>A4</u>	Not 1 1000Ht
transport channel	1	
1. — — — — — — — — — — — — — — — — — — —	1	1

Information Element	Condition	Value/remark
- SCCPCH TFCS	Condition	
- SCOPCH TFCS - CHOICE mode		Not Present FDD
- CHOICE DL parameters		Explicit
- DL DCH TFCS		Explicit
- CHOICE TFCI Signalling		Normal
- TFCI Field 1 Information		- Italian
- CHOICE TFCS representation		Complete reconfiguration
- TFCS complete reconfigure		
- CHOICE CTFC Size		Number of bits used must be enough to cover
		all combinations of CTFC from clause
		TS34.108 clause 6.10 Parameter Set.
- CTFC information		This IE is repeated for TFC numbers and
		reference to TS34.108 clause 6.10
<u>- CTFC</u>		Reference to TS34.108 clause 6.10 Parameter
		Set _
- Power offset information	ļ	Not Present
DL Transport channel information common for all	A2, A3, A4	
transport channel		N (B)
		Not Present FDD
- CHOICE DL parameters		Explicit (This IF is reported for TEC powerbox)
		(This IE is repeated for TFC number.) Normal
		Normal
		Complete
- TFCS complete reconfigure		Complete
		Number of bits used must be enough to cover
		all combinations of CTFC from clause 6.10.
- CTFC information		Refer to clause 6.10 Parameter Set
- Power offset information		Neiter to clause of to Farameter Set
- CHOICE Gain Factors		Signalled Gain Factor
- Gain factor Sc		0
- Gain factor 8d		0
- Reference TFC ID		Not Present
- Power offset Pp-m		OdB
DL Transport channel information common for all	A5, A6	Not Present
transport channel	7.0,7.0	THE PROPERTY OF THE PROPERTY O
- SCCPCH TFCS		(This IE is repeated for TFC number.)Not
		Present
- CHOICE TFCI signalling		Normal
- TFCI Field 1 information		
- CHOICE TFCS representation		Addition
- TFCS addition information		
		Number of bits used must be enough to cover
		all combinations of CTFC from clause 6.10.
		Refer to TS34.108 clause 6.10 Parameter Set
- Power offset information		
- CHOICE mode		FDD
- CHOICE DL parameters		Not Present
Deleted DL TrCH information	A1, A2,	Not Present
	A3, A4,	
	<u>A5,</u>	
	A6 <u>,A7,A8</u>	
Deleted DL TrCH information	A5	BOLL
- Downlink transport channel type		DCH
- Transport channel identity		10
Added or Reconfigured DL TrCH information	A1 ,_∆2<u>∧4</u>	
- Downlink transport channel type	1	DCH
- DL Transport channel identity		6
- CHOICE DL parameters	1	Same as UL
 Uplink transport channel type 	1	DCH

Information Element	Condition	Value/remark
- UL TrCH identity	Condition	1
- DCH quality target		'
		0.0
- BLER Quality value		-6.3
- Transparent mode signalling info		Not Present
Added or Reconfigured DL TrCH information	<u>A4,A7</u>	2 TrCHs(DCH for DCCH and DCH for DTCH)
 Downlink transport channel type 		<u>DCH</u>
 DL Transport channel identity 		<u>10</u>
- CHOICE DL parameters		Same as UL
 Uplink transport channel type 		<u>DCH</u>
- UL TrCH identity		<u>5</u>
- DCH quality target		
- BLER Quality value		Not Present
- Transparent mode signalling info		Not Present
- Downlink transport channel type		DCH
- DL Transport channel identity		6
- CHOICE DL parameters		Explicit
- TFS		Explicit
		Dedicated transport shapped
- CHOICE Transport channel type		Dedicated transport channel
- Dynamic transport format information		D (
- RLC Size		Reference to TS34.108 clause 6.10 Parameter
		Set
- Number of TBs and TTI List		(This IE is repeated for TFI number.)
 Dynamic transport format information 		
- Transmission Time Interval		Not Present
- Number of Transport blocks		Reference to TS34.108 clause 6.10 Parameter
· · · · · · · · · · · · · · · · · · ·		Set
- Semi-static Transport Format information		
- Transmission time interval		Reference to TS34.108 clause 6.10 Parameter
Transmooth time mervar		Set
- Type of channel coding		Reference to TS34.108 clause 6.10 Parameter
Type of charmer county		Set
- Coding Rate		Reference to TS34.108 clause 6.10 Parameter
- Coung Nate		Set
Data matahina attributa		
- Rate matching attribute		Reference to TS34.108 clause 6.10 Parameter
000		Set Tool 4 400 Handle Brown
- CRC size		Reference to TS34.108 clause 6.10 Parameter
		<u>Set</u>
 DCH quality target 		
- BLER Quality value		<u>-6.3</u>
 Transparent mode signalling info 		Not Present
Added or Reconfigured DL TrCH information	A8	4 TrCHs(DCH for DCCH and 3DCHs for
		DTCH)
- Downlink transport channel type		DCH
- DL Transport channel identity		10
- CHOICE DL parameters		Same as UL
- Uplink transport channel type		DCH
- UL TrCH identity		
		<u>5</u>
- DCH quality target		Not Propert
- BLER Quality value		Not Present
- Transparent mode signalling info		Not Present
- Downlink transport channel type		<u>DCH</u>
- DL Transport channel identity		<u>6</u>
- CHOICE DL parameters		Explicit
TFS		
 CHOICE Transport channel type 		Dedicated transport channel
- Dynamic transport format information		
- RLC Size		Reference to TS34.108 clause 6.10 Parameter
		Set
- Number of TBs and TTI List		(This IE is repeated for TFI number.)
- Dynamic transport format information		A THE RESIDENCE OF THE PROPERTY.
- Transmission Time Interval		Not Present
- Hansmission Time Interval		Not Present

Information Element	Condition	Value/remark
- Number of Transport blocks		Reference to TS34.108 clause 6.10 Parameter
		Set
 Semi-static Transport Format information 		
- Transmission time interval		Reference to TS34.108 clause 6.10 Parameter
		<u>Set</u>
- Type of channel coding		Reference to TS34.108 clause 6.10 Parameter
		Set
- Coding Rate		Reference to TS34.108 clause 6.10 Parameter
D. C. C. L. W. T. C.		Set Control of the Property of
- Rate matching attribute		Reference to TS34.108 clause 6.10 Parameter
CDC size		Set Reference to TS34.108 clause 6.10 Parameter
- CRC size		Set
- DCH quality target		<u>Set</u>
- BLER Quality value		<u>-6.3</u>
- Transparent mode signalling info		Not Present
- Downlink transport channel type		DCH
- DL Transport channel identity		7
- CHOICE DL parameters		Explicit
- TFS		
- CHOICE Transport channel type		Dedicated transport channel
- Dynamic transport format information		Beardated transport entarmer
- RLC Size		Reference to TS34.108 clause 6.10 Parameter
		Set
- Number of TBs and TTI List		(This IE is repeated for TFI number.)
- Dynamic transport format information		<u> </u>
- Transmission Time Interval		Not Present
- Number of Transport blocks		Reference to TS34.108 clause 6.10 Parameter
· · · · · · · · · · · · · · · · · · ·		Set
- Semi-static Transport Format information		
- Transmission time interval		Reference to TS34.108 clause 6.10 Parameter
		<u>Set</u>
 Type of channel coding 		Reference to TS34.108 clause 6.10 Parameter
		<u>Set</u>
- Coding Rate		Reference to TS34.108 clause 6.10 Parameter
		<u>Set</u>
- Rate matching attribute		Reference to TS34.108 clause 6.10 Parameter
		Set
- CRC size		Reference to TS34.108 clause 6.10 Parameter
DOLL FOR A		<u>Set</u>
- DCH quality target		N (D
- BLER Quality value		Not Present
- Transparent mode signalling info		Not Present
- Downlink transport channel type		DCH
- DL Transport channel identity		8 Evaliait
- CHOICE DL parameters		Explicit
- TFS - CHOICE Transport channel type		Dedicated transport channel
		Dedicated transport channel
- Dynamic transport format information		Reference to TS34.108 clause 6.10 Parameter
- RLC Size		Set
- Number of TBs and TTI List		(This IE is repeated for TFI number.)
- Dynamic transport format information		(This is is repeated for TETHURIDEL.)
- Transmission Time Interval		Not Present
- Number of Transport blocks		Reference to TS34.108 clause 6.10 Parameter
- Number of Hampfort blocks		Set
- Semi-static Transport Format information		OGI
- Transmission time interval		Reference to TS34.108 clause 6.10 Parameter
- Hansinission tillic interval		Set
- Type of channel coding		Reference to TS34.108 clause 6.10 Parameter
Type of original todaing		Set
		UGL

Information Element	Condition	Value/remark
- Coding Rate		Reference to TS34.108 clause 6.10 Parameter
		Set
- Rate matching attribute		Reference to TS34.108 clause 6.10 Parameter
000		Set
- CRC size		Reference to TS34.108 clause 6.10 Parameter
DOLL surelity to meet		<u>Set</u>
- DCH quality target		Not Droppet
- BLER Quality value		Not Present
- Transparent mode signalling info Added or Reconfigured DL TrCH information	ΛΕ Λ <u>Ε</u>	Not Present
	A5, A6	Not Present
Added or Reconfigured DL TrCH information	A1, A2, A3, A4	If TrCH reconfiguration is executed then this is needed(e.g. The rate of SRB for DCCH is
	A3, A4	changed.).
- Downlink transport channel type		DCH
- DL Transport channel identity		10
- CHOICE DL parameters		ExplicitSameAsUL
- Uplink transport channel type		DCH
- UL TrCH identity		5
- TFS		
- CHOICE Transport channel type		Dedicated transport channels
		(This IE is repeated for TFI number)
		Reference to TS34.108 clause 6.10 Parameter
		Set
- Number of TBs and TTI List		(This IE is repeated for TFI number.)
- Transmission Time Interval		Not Present
- Number of Transport blocks		Reference to TS34.108 clause 6.10 Parameter
·		Set
		Explicit
- Semi-static Transport Format information		
		Reference to TS34.108 clause 6.10 Parameter
		Set
- Type of channel coding		Reference to TS34.108 clause 6.10 Parameter
		Set
		Reference to TS34.108 clause 6.10 Parameter
		Set
		Reference to TS34.108 clause 6.10 Parameter
000 -:		Set
		Reference to TS34.108 clause 6.10 Parameter
DCH quality target		Set
— - DCH quality target — - BLER Quality value		-6.3
- BLER Quality value - Transparent mode signalling info		Not Present
Added or Reconfigured DL TrCH information	A2	NOT TOOM
- Downlink transport channel type	T-C	DCH
- Transport channel identity		7
- CHOICE DL parameters		SameAsUL
- Uplink transport channel type		DCH
UL TrCH identity		2
Added or Reconfigured DL TrCH information	A2	(This IE is needed for 12.2 kbps and 10.2
		kbps)
- Downlink transport channel type		DCH
- Transport channel identity		8
- CHOICE DL parameters		SameAsUL
- Uplink transport channel type		DCH
		3
- DCH quality target		
- BLER Quality value		-6.3
- Transparent mode signalling info		Not Present
Added or Reconfigured DL TrCH information	A3, A4	
- Downlink transport channel type		DCH
		6

Information Element	Condition	Value/remark
		Explicit
——- TFS		
		Dedicated transport channels
		(This IE is repeated for TFI number)
- RLC Size		Reference to TS34.108 clause 6.10 Parameter Set
- Number of TBs and TTI List		(This IE is repeated for TFI number.)
- Transmission Time Interval		Not Present
- Number of Transport blocks		Reference to TS34.108 clause 6.10 Parameter
- Number of Hansport blocks		Set
		Explicit
- Semi-static Transport Format information		Explicit
- Transmission time interval		Reference to TS34.108 clause 6.10 Parameter
		Set
- Type of channel coding		Reference to TS34.108 clause 6.10 Parameter
1 ypo or orial more obtaining		Set
- Coding Rate		Reference to TS34.108 clause 6.10 Parameter
- Coding Nato		Set
- Rate matching attribute		Reference to TS34.108 clause 6.10 Parameter
rate matering attribute		Set
		Reference to TS34.108 clause 6.10 Parameter
ONO SIZE		Set
- DCH quality target		001
- BLER Quality value		-6.3
- Transparent mode signalling info		Not Present
Frequency info	A1, A4,	Hot Froom
1 requerity into	A5, A6	
- UARFCN uplink_(Nu)	<u> </u>	Reference to clause 5.1 Test
- OAKI ON upilitik_(INU)		frequencies Reference to TS34.108 clause
		6.10 Parameter Set
- UARFCN downlink_(Nd)		Reference to clause 5.1 Test
Sittle of Cashining (1907)		frequenciesReference to TS34.108 clause
		6.10 Parameter Set
Maximum allowed UL TX power	A1, A4,	33dBm
·	<u>A5, A6</u>	
CHOICE channel requirement	A1, <u>A4</u> A3,	Uplink DPCH info
	A 4	
- Uplink DPCH power control info		
- DPCCH power offset		-6dB
- PC Preamble		1 frame
- SRB delay		7 frames
- Power Control Algorithm		Algorithm1
- TPC step size		1dB
- Scrambling code type		Long
- Scrambling code number		0 (0 to 16777215)
- Number of DPDCH		Not Present(1)
- spreading factor		Reference to TS34.108 clause 6.10 Parameter
		SetSF is reference to TS34.108 clause 6.10
TECL evictories		Parameter Set 16
- TFCI existence		Reference to TS34.108 clause 6.10 Parameter
Number of EDI hit		SetTRUE
- Number of FBI bit		Reference to TS34.108 clause 6.10 Parameter
Duncturing Limit	۸1	SetNot Present(0) Reference to TS34.108 clause 6.10 Parameter
- Puncturing Limit	<u>A1</u>	Set 0.88
Puncturing Limit	Λ4	Reference to TS34.108 clause 6.10 Parameter
	<u>A4</u>	
CHOICE channel requirement	A2	Set 9.96 Uplink DPCH info
CHOICE channel requirement	***	Оринк ОЕСП IIIIU
——————————————————————————————————————		- 6dB
- DPCCH power oilset - PC Preamble		1 frame
TO FIBATION	I	1 Hame

Information Element	Condition	Value/remark
SRB delay	55	7 frames
- Power Control Algorithm		Algorithm1
		1 dB
- Scrambling code number		Long
		0 (0 to 16777215)
		Not Present(1)
- spreading factor		SF is reference to clause 6.10 Parameter Set
- TFCI existence		TRUE
- Number of FBI bit		Not Present(0)
- Puncturing Limit		Reference to clause 6.10 Parameter Set
CHOICE channel requirement	<u>A5,A6</u>	Not Present
CHOICE Mode	A1, A4,	FDD
	A5,	
	A6,A7,A8	
- Downlink PDSCH information		Not Present
Downlink information common for all radio links	A1,	
	A4,A7,A8	
	A2, A3, A4	
- Downlink DPCH info common for all RL	,, , , ,	
- Timing indicator		Maintain
- CFN-targetSFN frame offset		Not Present
- Downlink DPCH power control information		Not Flesent
		O (oingle)
- DPC mode		0 (single)
- CHOICE mode		FDD
Power offset P _{Pilot-DPDCH}		<u>TBD0</u>
 DL rate matching restriction information 		Not Present
- Spreading factor		Reference to TS34.108 clause 6.10 Parameter
		Set
- Fixed or Flexible Position		Reference to TS34.108 clause 6.10 Parameter
		Set Flexible
- TFCI existence		Reference to TS34.108 clause 6.10 Parameter
		Set TRUE
- Number of bits for Pilot		Not PresentOtherwise
bits(SF=128,256)CHOICE SF		
- CHOICE mode		FDD
- DPCH compressed mode info		Not Present
— - TGPSI		4
- TGPS Status Flag		Inactive
— - TGCFN		(Current CFN + (256 - TTI/10msec)) mod 256
- Transmission gap pattern sequence		(222 2 (2.2 11 12 1
configuration parameters		
- TGMP		FDD Measurement
		62
		8
		10
		1 1 0 5
		15
TGPL1		35
		35
		Mode 1
——————————————————————————————————————		Mode 1
- CHOICE UL/DL Mode		DL .
 Downlink compressed mode method 		SF/2
Downlink frame type		A
		2.0
		1.0
- DeltaSIR2		Not Present
		Not Present
N_Identify_abort		Not Present
- T_Reconfirm_abort		Not Present
TX Diversity mode		None
	1	1

Information Element	Condition	Value/remark
- SSDT information		Not Present
- Default DPCH Offset Value		ONOT Present
Downlink information common for all radio links	A5,A6	Not Present
Downlink information for each radio link list	A1,A4,A7,	
	<u>A8</u>	
Downlink information for each radio link list	A1, A2,	
	A3, A4	
- Choice mode		<u>FDD</u>
- Primary CPICH info		
- Primary scrambling code		100
- PDSCH with SHO DCH info		Not Present
- PDSCH code mapping		Not Present
- Downlink DPCH info for each RL		Drive and CDICI I receive heaving
 Primary CPICH usage for channel estimation DPCH frame offset 		Primary CPICH may be used
- DPCH frame offset - Power offset Pellot-DPDCH		0 chips
- Secondary CPICH info		Not Present
- DL channelisation code		Not i resent
- Secondary scrambling code		1
- Spreading factor		Reference to TS34.108 clause 6.10 Parameter
Spreading reserve		Set
- Code number		SF-1(SF is reference to TS34.108 clause 6.10
		Parameter Set)0
- Scrambling code change		No change
- TPC combination index		0
- SSDT Cell Identity		Not Present-a
- Closed loop timing adjustment mode		Not Present
- SCCPCH information for FACH		Not Present
Downlink information for each radio link list	A5 , A6 <u>A5</u>	
- Downlink information for each radio link	<u>A5</u>	FDD
- Choice mode		FDD
- Primary CPICH info - Primary scrambling code		Set to the default value of cell 1. 100 150
- PDSCH with SHO DCH info		Not Present
- PDSCH code mapping		Not Present
- Downlink DPCH info for each RL		Not present
- SCCPCH information for FACH		Not Present
Downlink information for each radio link list	<u>A6</u>	*
- Downlink information for each radio link	A6	
- Choice mode		FDD
- Primary CPICH info		
- Primary scrambling code		<u>150</u>
- PDSCH with SHO DCH info		Not Present
- PDSCH code mapping		Not Present
- Downlink DPCH info for each RL		Not present
- SCCPCH information for FACH		Not Present

Condition	Explanation
A1	This IE need for "Non speech in CS" from CELL_DCH to CELL_DCH in CS"
A2 is defined in TS34.108 clause 9.	This IE need for "Speech in CS" from CELL DCH to CELL DCH in CS"
A3 is defined in TS34.108 clause 9.	This IE need for "Packet to CELL_DCH from CELL_DCH in PS"
A4	This IE need for "Packet to CELL_DCH from CELL_FACH in PS"
A5	This IE need for "Packet to CELL_FACH from CELL_DCH in PS"
A6	This IE need for "Packet to CELL_FACH from CELL_FACH in PS"
A6 <u>A7</u> <u>A8</u>	This IE need for "Non speech from CELL_FACH to CELL_DCH in CS"
<u>A8</u>	This IE need for "Speech from CELL_FACH to CELL_DCH in CS"

Note: The radio bearer configurations used here are served as example only, test operator can choose to use other radio bearer configurations.

Contents of RADIO BEARER SETUP FAILURE message: AM

Information Element	<u>Value/remark</u>
Message Type	
RRC transaction identitifer	Checked to see if it is set to identical value of the same IE
	in the downlink RADIO BEARER SETUP message.
Integrity check info	The presence if this IE is dependent on IXIT statements in
	TS 34.123-2. if integrity protection is indicated to be
	active, this IE shall be present with the values of the sub
	IEs as stated below. Else, this IE and the sub-IEs shall be
	absent.
 Message authentication code 	This IE is checked to see if it is present. The value is
	compared against the XMAC-I value computed by SS.
 - RRC Message sequence number 	This IE is checked to see if it is present. The value is
	used by SS to compute the XMAC-I value.
Failure cause	Checked to see if it meets test requirement
Radio bearers for which reconfiguration would have	Not checked
succeeded	

Contents of RADIO BEARER RECONFIGURATION message: AM or UM $\,$

Information Element	Condition	Value/remark
Message Type	A1,A2,A3,	
	A4,A5,A6	
RRC transaction identifier		Arbitrarily selects an integer between 0 and 3
Integrity check info		The presence of this IE is dependent on IXIT
		statements in TS 34.123-2. If integrity
		protection is indicated to be active, this IE is
		present with the values of the sub IEs as
		stated below. Else, this IE and the sub-IEs are
		omitted.
- message authentication code		SS calculates the value of MAC-I for this
DDO		message and writes to this IE.
- RRC message sequence number		SS provides the value of this IE, from its internal counter.
Integrity protection mode info		Not Present
Ciphering mode info		Not Present
Activation time		(256+CFN-(CFN MOD 8 + 8))MOD 256
New U-RNTI		Not Present
New C-RNTI		Not Present
RRC State indicator	A1, A2, A3,	CELL_DCH
	A4	
RRC State indicator	A5, A6	CELL_FACH
UTRAN DRX cycle length coefficient	A1,A2,A3,	Not Present
	A4,A5,A6	
CN information info		Not Present
URA identity		Not Present
RAB information to reconfigure list	11 10 10	Not Present
RB information to reconfigure list	A1 , A2, A3	TS25.331 specifies that "Although this IE is not
		always required, need is MP to align with ASN.1".
- RB information to reconfigure		(UM DCCH for RRC)
- RB identity		1
- PDCP info		Not Present
- PDCP SN info		Not Present
- RLC info		Not Present
- RB mapping info		Not Present
- RB stop/continue	_	Not Present
- RB information to reconfigure	1	(AM DCCH for RRC)
- RB identity		2
- PDCP info	1	Not Present
- PDCP SN info		Not Present

Information Element	Condition	Value/remark
- RLC info	- Containion	Not Present
- RB mapping info		Not Present
- RB stop/continue		Not Present
- RB information to reconfigure		(AM DCCH for NAS DT High priority)
- RB identity		<u>3</u>
- PDCP info		Not Present
- PDCP SN info		Not Present
- RLC info		Not Present
- RB mapping info - RB stop/continue		Not Present Not Present
- RB information to reconfigure		(AM DCCH for NAS_DT Low priority)
- RB identity		4
- PDCP info		Not Present
- PDCP SN info		Not Present
- RLC info		Not Present
- RB mapping info		Not Present
- RB stop/continue		Not Present
- RB information to reconfigure		(TM DTCH)
- RB identity		10 Not Breezewa
- PDCP info		Not Present
- PDCP SN info - RLC info		Not Present Not Present
- REC INIO - RB mapping info		Not Present
- RB stop/continue		Not Present
RB information to reconfigure list	<u>A2</u>	TS25.331 specifies that "Although this IE is not
NB momation to recomigate list	112	always required, need is MP to align with
		ASN.1".
- RB information to reconfigure	<u>A2</u>	(UM DCCH for RRC)
- RB identity		<u>1</u>
- PDCP info		Not Present
- PDCP SN info		Not Present
- RLC info		Not Present
- RB mapping info		Not Present
- RB stop/continue - RB information to reconfigure		Not Present (AM DCCH for RRC)
- RB identity		2
- PDCP info		Not Present
- PDCP SN info		Not Present
- RLC info		Not Present
- RB mapping info		Not Present
- RB stop/continue		Not Present
- RB information to reconfigure		(AM DCCH for NAS DT High priority)
- RB identity		3
- PDCP info		Not Present
- PDCP SN info - RLC info		Not Present Not Present
- RB mapping info		Not Present
- RB stop/continue		Not Present
- RB information to reconfigure		(AM DCCH for NAS_DT Low priority)
- RB identity		4
- PDCP info		Not Present
- PDCP SN info		Not Present
- RLC info		Not Present
- RB mapping info		Not Present
- RB stop/continue		Not Present
- RB information to reconfigure		(TM DTCH)
- RB identity - PDCP info		10 Not Present
- PDCP SN info		Not Present
- RLC info		Not Present
- RB mapping info		Not Present
II	1	

Information Element	Condition	Value/remark
- RB stop/continue	Condition	Not Present
- RB information to reconfigure		(TM DTCH)
- RB identity		11
- PDCP info		Not Present
- PDCP SN info		Not Present
- RLC info		Not Present
- RB mapping info		Not Present
- RB stop/continue		Not Present
- RB information to reconfigure		(TM DTCH)
		(This IE is needed for 12.2 kbps and 10.2
		kbps)
- RB identity		<u>12</u>
- PDCP info		Not Present
- PDCP SN info		Not Present
- RLC info		Not Present
- RB mapping info		Not Present
- RB stop/continue		Not Present
RB information to reconfigure list	A3,A4,A5,	TS25.331 specifies that "Although this IE is not
	<u>A6</u>	always required, need is MP to align with
DD information to reconfigure	A	ASN.1".
- RB information to reconfigure - RB identity	A3, A6	(UM DCCH for RRC)
- PDCP info		Not Present
- PDCP SN info		Not Present
- RLC info		Not Present
- RB mapping info		Not Present
- RB stop/continue		Not Present
- RB information to reconfigure		(AM DCCH for RRC)
- RB identity		2
- PDCP info		Not Present
- PDCP SN info		Not Present
- RLC info		Not Present
- RB mapping info		Not Present
- RB stop/continue		Not Present
- RB information to reconfigure		(AM DCCH for NAS_DT High priority)
- RB identity		3 Not Present
- PDCP info - PDCP SN info		Not Present Not Present
- RLC info		Not Present
- RB mapping info		Not Present
- RB stop/continue		Not Present
- RB information to reconfigure		(AM DCCH for NAS_DT Low priority)
- RB identity		<u>4</u>
- PDCP info		Not Present
- PDCP SN info		Not Present
- RLC info		Not Present
- RB mapping info		Not Present
- RB stop/continue		Not Present
- RB information to reconfigure		(AM DTCH)
- RB identity		20 Not Present
- PDCP info - PDCP SN info		Not Present Not Present
- PDCP SN IIIIO - RLC info		Not Present
- RB mapping info		Not Present
- RB stop/continue		Not Present
RB information to reconfigure list	A 4	
- RB information to reconfigure		(UM DCCH for RRC)
- RB identity		4
- PDCP info		Not Present
— - RLC info		Not Present
- RB mapping info		

Information Element	Condition	Value/remark
- Information for each multiplexing option		
- RLC logical channel mapping indicator		Not Present
- Number of uplink RLC logical channels		4
- Uplink transport channel type		DCH
- UL Transport channel identity		5
- Logical channel identity		4
- CHOICE RLC size list		AllConfigured
- MAC logical channel priority		1
- Downlink RLC logical channel info		
- Number of downlink RLC logical channels		4
- Downlink transport channel type		DCH
- DL DCH Transport channel identity		10
- DL DSCH Transport channel identity		Not Present
		4
- RB stop/continue		Not Present
		(AM DCCH for RRC)
- RB identity		2
- PDCP info		Not Present
		Not Present
- RB mapping info		
 Information for each multiplexing option 		
- RLC logical channel mapping indicator		Not Present
- Number of uplink RLC logical channels		5
- Uplink transport channel type		DCH
- UL Transport channel identity		1
- Logical channel identity		2
- CHOICE RLC size list		<u>Configured</u> All
- MAC logical channel priority		2
- Downlink RLC logical channel info		
- Number of downlink RLC logical channels		4
- Downlink transport channel type		DCH
- DL DCH Transport channel identity		10
- DL DSCH Transport channel identity		Not Present
- Logical channel identity		Not Donough
		Not Present
		(AM DCCH for NAS_DT High priority)
		Not Present
——————————————————————————————————————		
1120 1110		Not Present
- RB mapping info		
- Information for each multiplexing option		Not Present
- RLC logical channel mapping indicator - Number of uplink RLC logical channels		1
		+ DCH
- Uplink transport channel type		
UL Transport channel identity		5
- Logical channel identity		3 Configured All
		Configured All
- MAC logical channel priority - Number of downlink RLC logical channels		± 4
- Number of downlink RLC logical channels - Downlink transport channel type		+ DCH
- DL DCH Transport channel identity		10
- DL DSCH Transport channel identity - DL DSCH Transport channel identity		Not Present
- Logical channel identity		2
		Not Present
- RB information to reconfigure		(AM DCCH for NAS_DT Low priority)
		4
——————————————————————————————————————		Not Present
		Not Present
		140t 1 1000Ht
- Information for each multiplexing option		
- RLC logical channel mapping indicator		Not Present
Treo logical challio mapping indicator	1	TTO TOO OTT

Information Element	Condition	Value/remark
- Number of uplink RLC logical channels		4
- Uplink transport channel type		DCH
UL Transport channel identity		5
- Logical channel identity		4
- CHOICE RLC size list		ConfiguredAll
- MAC logical channel priority		4
- Downlink RLC logical channel info		
- Number of downlink RLC logical channels		4
- Downlink transport channel type		DCH
- DL DCH Transport channel identity		10
- DL DSCH Transport channel identity		Not Present
- Logical channel identity		4
- RB information to reconfigure		(AM DTCH)
		20
- PDCP info		Not Present
- RLC info		Not Present
		Not i resent
- Information for each multiplexing option		
		Not Present
- RLC logical channel mapping indicator - Number of uplink RLC logical channels		1
		·
- Uplink transport channel type		DCH
- UL Transport channel identity		4
- Logical channel identity		Not Present7
		<u>Configured</u> All
- MAC logical channel priority		1
- Downlink RLC logical channel info		
- Number of downlink RLC logical channels		4
- Downlink transport channel type		DCH
- DL DCH Transport channel identity		6
- DL DSCH Transport channel identity		Not Present
- Logical channel identity		Not Present7
		Not Present
RB information to reconfigure list	A5,A6	
- RB information to reconfigure		(UM DCCH for RRC)
		4
- PDCP info		Not Present
		Not Present
- RB mapping info		
 Information for each multiplexing option 		
- RLC logical channel mapping indicator		Not Present
- Number of uplink RLC logical channels	1	4
- Uplink transport channel type		RACH
- UL Transport channel identity		Not Present
- Logical channel identity		1
	1	Configured Explicit list
- RLC size index		Reference to TS34.108 clause 6.10 Parameter
		Set
- MAC logical channel priority		2
- Downlink RLC logical channel info		
- Number of downlink RLC logical channels		4
- Downlink transport channel type		FACH
- DL DCH Transport channel identity		Not Present
- DL DSCH Transport channel identity		Not Present
- Logical channel identity		4
		Not Present
		(AM DCCH for RRC)
	1	2
l · · · · · · · · · · · · · · · · · · ·		
——————————————————————————————————————		Not Present
		Not Present
 Information for each multiplexing option 		

Information Element	Condition	Value/remark
- RLC logical channel mapping indicator		Not Present
- Number of uplink RLC logical channels		4
- Uplink transport channel type		RACH
- UL Transport channel identity		Not Present
- Logical channel identity		2
		ConfiguredExplicit List
- RLC size index		Reference to TS34.108 clause 6.10 Parameter
		Set
- MAC logical channel priority		3
- Downlink RLC logical channel info		
- Number of downlink RLC logical channels		4
- Downlink transport channel type		FACH
- DL DCH Transport channel identity		Not Present
- DL DSCH Transport channel identity		Not Present
- Logical channel identity		2
		Not Present
- RB information to reconfigure		(AM DCCH for NAS_DT High priority)
		3
		Not Present
- RLC info		Not Present
- Information for each multiplexing option		
- RLC logical channel mapping indicator		Not Present
- Number of uplink RLC logical channels		4
- Uplink transport channel type		RACH
- UL Transport channel identity		Not Present
- Logical channel identity		3
- CHOICE RLC size list		Configured Explicit list
		Reference to TS34.108 clause 6.10 Parameter Set
		4
- Number of downlink RLC logical channels		4
Downlink transport channel type		FACH
- DL DCH Transport channel identity		Not Present
		Not Present
- Logical channel identity		3
- RB stop/continue		Not Present
		(AM DCCH for NAS_DT Low priority)
- RB identity		4
		Not Present
		Not Present
- RB mapping info	1	
Information for each multiplexing option RLC logical channel mapping indicator		Not Present
- RLC logical channel mapping indicator - Number of uplink RLC logical channels	1	Not Present
- Number of upitrik KLC logical channels - Uplink transport channel type	1	+ RACH
- UL Transport channel identity		Not Present
	1	4
- CHOICE RLC size list		ConfiguredExplicit list
- RLC size index	1	Reference to TS34.108 clause 6.10 Parameter
TALO SIZO I NGOX	1	Set
- MAC logical channel priority		5
- Downlink RLC logical channel info	1	
- Number of downlink RLC logical channels		4
- Downlink transport channel type	1	FACH
		Not Present
- DL DSCH Transport channel identity	1	Not Present
- Logical channel identity		4
- RB stop/continue	1	Not Present
- RB information to reconfigure		(AM DTCH)

Information Element	Condition	Value/remark
		20
- PDCP info		Not Present
		Not Present
- RB mapping info		
- Information for each multiplexing option		
- RLC logical channel mapping indicator		Not Present
- Number of uplink RLC logical channels		4
- Uplink transport channel type		RACH
- UL Transport channel identity		Not Present
- Logical channel identity		7
		ConfiguredExplicit list
		Reference to TS34.108 clause 6.10 Parameter Set
- MAC logical channel priority		6
- Downlink RLC logical channel info		
- Number of downlink RLC logical channels		4
- Downlink transport channel type		FACH
- DL DCH Transport channel identity		Not Present
		Not Present
- Logical channel identity		Not Present6
		Not Present
- RB information to reconfigure		(TM BCCH for RRC)
- RB identity		5
——————————————————————————————————————		Not Present
- RLC info		THOU TOOSIN
		Not Present
- CHOICE Downlink RLC mode		TMRLC
- Segmentation Indication		TRUE
- RB mapping info		THE L
- Information for each multiplexing option		
- Downlink RLC logical channel info		
- Number of downlink RLC logical channels		1
- Downlink transport channel type		FACH
- DL DCH Transport channel identity		Not Present
- DL DSCH Transport channel identity		Not Present
- Logical channel identity		5
- RB stop/continue		Not Present
RB information to be affected	A1, A2,	(UM DCCH for RRC) Not Present
To illionnation to be affected	A3 <u>,A4,A5,</u>	(OW DOCKTON NACE) NOTE TESSER
- RB identity	<u>A6</u>	4
		+
- Information for each multiplexing option - RLC logical channel mapping indicator		Not Present
- RLC logical channel mapping indicator - Number of uplink RLC logical channels		
		1 DCH
		5 4
		All
- MAC logical channel priority		4
- Number of downlink RLC logical channels		4
- Downlink transport channel type		DCH
- DL DCH Transport channel identity		Net Present
- DL DSCH Transport channel identity		Not Present
Logical channel identity	A 4 A 5 A 5	4
RB information to be affected	A1, A2, A3	(AM DCCH for RRC)
- RB identity		2
- RB mapping info		
- Information for each multiplexing option		N. B.
- RLC logical channel mapping indicator		Not Present
- Number of uplink RLC logical channels		4

Uplink transport channel identity Legical channel identity Legical channel identity 2 2 2 2 2 2 2 2 2	Information Element	Condition	Value/remark
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- DL DSCH Transport channel identity Not Present			
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Information Element	Condition	Value/remark
- Logical channel identity		7
RB information to be affected	A2	(DTCH TM)
- RB identity		111
- RB mapping info		
- Information for each multiplexing option		
- RLC logical channel mapping indicator		Not Present
- Number of uplink RLC logical channels		4
- Uplink transport channel type		DCH
- UL Transport channel identity		2
- Logical channel identity		8
- CHOICE RLC size list		All
- MAC logical channel priority		4
- Downlink RLC logical channel info		
- Number of downlink RLC logical channels		4
- Downlink transport channel type		DCH
- DL DCH Transport channel identity		7
- DL DSCH Transport channel identity		Not Present
- Logical channel identity		8
RB information to be affected	A2	(This IE is needed for 12.2 kbps and 10.2
		kbps)
- RB identity		12
- RB mapping info		
- Information for each multiplexing option		
- RLC logical channel mapping indicator		Not Present
- Number of uplink RLC logical channels		4
- Uplink transport channel type		DCH
- UL Transport channel identity		3
- Logical channel identity		9
- CHOICE RLC size list		All
- MAC logical channel priority		4
- Downlink RLC logical channel info		
- Number of downlink RLC logical channels		4
- Downlink transport channel type		DCH
- DL DCH Transport channel identity		8
- DL DSCH Transport channel identity		Not Present
- Logical channel identity		9
UL Transport channel information for all transport	A1, A2, A3,	Not Present
channels	A4,A5,A6	Itel Floori
<u>orialinois</u>	7 () () ()	
UL Transport channel information for all transport	A1, A2, A3,	
channels	A4	
onamoio	741	
- Allowed Transport Format combination		0 to MaxTFCValue-1 (MaxTFCValue is refer to
7 monou Transport Format c ombination		TS34.108 clause 6.10 Parameter Set.)
		Not Present
		EDD
- TFC subset		(This IE is repeated for TFC number.)
		(This IE is repeated for TFC number.)
- Normal		(This IE is repeated for it o Hamber.)
- CHOICE TFCS representation		Addition
- TECS addition information		/ Nadition
- CHOICE CTFC Size		
- CTFC information		Refer to TS34.108 clause 6.10 Parameter Set
		Troibi to 100 i. 100 diagos 0. 10 i aramotel 38t
		Signalled Gain Factor
		0
		-
- Gain factor •d		O Not Propert
- Reference TFC ID		Not Present
Power offset Pp-m		OdB
UL Transport channel information for all transport	A5, A6	

Information Element	Condition	Value/remark
channels		- 51-51-511-511-51
- Allowed Transport Format combination		0 to MaxTFCValue-1 (MaxTFCValue is refer to TS34.108 clause 6.10 Parameter Set.)
- PRACH TECS		Not Present
- CHOICE TFCI signalling		Normal
- TFCI Field 1 information		
- CHOICE TFCS representation		Addition
- TFCS complete reconfigure information		
		Number of bits used must be enough to cover
		all combinations of CTFC from clause 6.10.
		Refer to TS34.108 clause 6.10 Parameter Set
- Power offset information		Not Present
- CHOICE mode		FDD
		Not Present(This IE is repeated for TFC
		number.)
		Not Present
Deleted UL TrCH information	A1, A2, A3,	Not Present
	A4, <u>A5,</u> A6	
Deleted UL TrCH information	A5	
- Uplink transport channel type		DCH
- Transport channel identity		4
- Uplink transport channel type		DCH
- Transport channel identity		5
Added or Reconfigured UL TrCH information	A1, A2, A3, A4 <u>, A5,A6</u>	Not Present
- Uplink transport channel type		DCH
		5
 TFS		
		Dedicated transport channels
 - Dynamic Transport format information 		(This IE is repeated for TFI number)
		Reference to TS34.108 clause 6.10 Parameter
		Set
- Number of TBs and TTI List		(This IE is repeated for TFI number.)
- Transmission Time Interval		Not Present
- Number of Transport blocks		Reference to TS34.108 clause 6.10 Parameter
01101051 : 101 11:4		Set
- CHOICE Logical Channel list		Explicit
- Semi-static Transport Format information		D (T004 400 1
- Transmission time interval		Reference to TS34.108 clause 6.10 Parameter Set
Type of channel coding		Reference to TS34.108 clause 6.10 Parameter Set
		Reference to TS34.108 clause 6.10 Parameter Set
- Rate matching attribute		Reference to TS34.108 clause 6.10 Parameter Set
		Reference to TS34.108 clause 6.10 Parameter Set
Added or Reconfigured UL TrCH information	A4	
- Uplink transport channel type		DCH
- UL Transport channel identity		4
—— - TFS		
- CHOICE Transport channel type		Dedicated transport channels
 Dynamic Transport format information 		(This IE is repeated for TFI number)
——— RLC Size		Reference to TS34.108 clause 6.10 Parameter Set
		(This IE is repeated for TFI number.) Not Present
- Number of Transport blocks		Reference to TS34.108 clause 6.10 Parameter Set
- CHOICE Logical Channel list		Explicit
	1	I TO THE STATE OF

Information Element	Condition	Value/remark
- Semi-static Transport Format information		
- Transmission time interval		Reference to TS34.108 clause 6.10 Parameter Set
- Type of channel coding		Reference to TS34.108 clause 6.10 Parameter Set
		Reference to TS34.108 clause 6.10 Parameter Set
- Rate matching attribute		Reference to TS34.108 clause 6.10 Parameter Set
		Reference to TS34.108 clause 6.10 Parameter Set
Added or Reconfigured UL TrCH information	<u>A4</u>	
- Uplink transport channel type		DCH
- UL Transport channel identity		4
——- TFS		
- CHOICE Transport channel type		Dedicated transport channels
- Dynamic Transport format information		
- RLC Size		336
- Number of TBs and TTI List		<u>5</u>
- Transmission Time Interval		Not Present
- Number of Transport blocks		0
- Transmission Time Interval		Not Present
- Number of Transport blocks		<u> </u>
- Transmission Time Interval		Not Present
- Number of Transport blocks		2
- Transmission Time Interval		Not Present
- Number of Transport blocks		3
- Transmission Time Interval		Not Present
- Number of Transport blocks		4
- CHOICE Logical Channel list		All
- Semi-static Transport Format information		
- Transmission time interval		<u>20</u>
- Type of channel coding		Turbo
- Coding Rate		Not Present
- Rate matching attribute		150
- CRC size		16
Added or Reconfigured UL TrCH information	-A 4	
- Uplink transport channel type		DCH
- UL Transport channel identity		<u>5</u>
-TFS		_
- CHOICE Transport channel type		Dedicated transport channels
- Dynamic Transport format information		
- RLC Size		<u>144</u>
		2
- Transmission Time Interval		Not Present
- Number of Transport blocks		0
- Transmission Time Interval		Not Present
- Number of Transport blocks		4
- CHOICE Logical Channel list		Äll
- Semi-static Transport Format information		_
- Transmission time interval		4 0ms
- Type of channel coding		Convolutional
- Coding Rate		<u>1/3</u>
- Rate matching attribute		170 170
- CRC size		16
CHOICE mode	A1,A2,A3,	FDD
<u> </u>	A4,A5,A6	
- CPCH set ID	2 (1,7 (0,7 (0	Not Present
- Added or Reconfigured TrCH information for		Not Present
DRAC list		140t i 1000iit
DRAC static information		Not Present
DNAO SIGUO INIONINGUON		TWOLF FEEDERIN

Information Element	Condition	Value/remark
DL Transport channel information common for all	A1, A2, A3,	Not Present
transport channel	A1, <u>A2,</u> A3, A4,A5, A6	NOT Present
	A4,A5, A6	Not Present
		FDD
- CHOICE DL parameters		Explicit
——————————————————————————————————————		(This IE is repeated for TFC number.)
- Normal		(This is is repeated for it o humber.)
- TFCI Field 1 information		
- CHOICE TFCS representation		Addition
- TFCS addition information		radition
		Number of bits used must be enough to cover
0.10.02 0.1 0 0.20		all combinations of CTFC from clause 6.10.
- CTFC information		Refer to TS34.108 clause 6.10 Parameter Set
- Power offset information		
- CHOICE Gain Factors		Signalled Gain Factor
- Gain factor +c		0
- Gain factor +d		0
- Reference TFC ID		Not Present
- Power offset Pp-m		0dB
DL Transport channel information common for all	A2, A4	
transport channel		
		Not Present
		FDD
- CHOICE DL parameters		ExplicitSameAsUL
——- DL DCH TFCS		(This IE is repeated for TFC number.)
- CHOICE TFCS representation		Addition
- TFCS addition information		
		Number of bits used must be enough to cover
		all combinations of CTFC from clause 6.10.
		Refer to TS34.108 clause 6.10 Parameter Set
- Power offset information	45.46	Not Present
DL Transport channel information common for all	A5, A6	
transport channel		(TI: 15: () (TEO)
		(This IE is repeated for TFC number.) Normal
		Normal
		Addition
- TFCS addition information		Addition
- CHOICE CTFC Size		Number of bits used must be enough to cover
		all combinations of CTFC from clause 6.10.
- CTFC information		Refer to TS34.108 clause 6.10 Parameter Set
- Power offset information		Not Present
- CHOICE mode		FDD
- CHOICE DL parameters		Not Present
Deleted DL TrCH information	A1, A2, A3,	Not Present
	A4, <u>A5,</u> A6	
Deleted DL TrCH information	A5	
- Downlink transport channel type		DCH
- Transport channel identity		6
- Downlink transport channel type		DCH
- Transport channel identity		10
Added or Reconfigured DL TrCH information	A1 <u>, A2, A3,</u>	Not Present
· ·	A4,A5, A6	
- Downlink transport channel type		DCH
- Transport channel identity		10
		Same as UL
- Uplink transport channel type		DCH
		5

Information Element	Condition	Value/remark
- BLER Quality value		-6.3
- Transparent mode signalling info		Not Present
Added or Reconfigured DL TrCH information	A2, A3, A4	Not Frescht
	A2, A3, A4	DOLL
- Downlink transport channel type		DCH
- DL Transport channel identity		10
		ExplicitSameAsUL
 Uplink transport channel type 		DCH
		<u>5</u>
- TFS		
- CHOICE Transport channel type		Dedicated transport channels
- Dynamic Transport format information		(This IE is repeated for TFI number)
- RLC Size		Reference to TS34.108 clause 6.10 Parameter
TIEO GIZO		Set
- Number of TBs and TTI List		
		(This IE is repeated for TFI number.)
- Transmission Time Interval		Not Present
- Number of Transport blocks		Reference to TS34.108 clause 6.10 Parameter
		Set
- CHOICE Logical Channel list		Explicit
- Semi-static Transport Format information		
- Transmission time interval		Reference to TS34.108 clause 6.10 Parameter
		Set
- Type of channel coding		Reference to TS34.108 clause 6.10 Parameter
Type of charmor county		Set
- Coding Rate		Reference to TS34.108 clause 6.10 Parameter
- Coung Rate		
B. C. C. C. William		Set
- Rate matching attribute		Reference to TS34.108 clause 6.10 Parameter
		Set
		Reference to TS34.108 clause 6.10 Parameter
		Set
- DCH quality target		
- BLER Quality value		-6.3
- Transparent mode signalling info		Not Present
Added or Reconfigured DL TrCH information	A4	
- Downlink transport channel type		DCH
DL Transport channel identity		6
- CHOICE DL parameters		IndependentSameAsUL
- Uplink transport channel type		DCH
		<u>4</u>
——- TFS		
- CHOICE Transport channel type		Dedicated transport channels
- Dynamic Transport format information		(This IE is repeated for TFI number)
		Reference to TS34.108 clause 6.10 Parameter
		Set
- Number of TBs and TTI List		(This IE is repeated for TFI number.)
- Transmission Time Interval		Not Present
- Number of Transport blocks		Reference to TS34.108 clause 6.10 Parameter
		Set
- CHOICE Logical Channel list		ALL
- Semi-static Transport Format information		,
- Transmission time interval		Reference to TS34.108 clause 6.10 Parameter
- rransmission time interval		
Time of charged and the c		Set
- Type of channel coding		Reference to TS34.108 clause 6.10 Parameter
		Set
- Coding Rate		Reference to TS34.108 clause 6.10 Parameter
		Set
- Rate matching attribute		Reference to TS34.108 clause 6.10 Parameter
-		Set
- CRC size		Reference to TS34.108 clause 6.10 Parameter
		Set
- DCH quality target		
Dorr quality larget	1	

Information Element	Condition	Value/remark
- BLER Quality value		-6.3
- Transparent mode signalling info		Not Present
Frequency info	A1,A2,A3, A4,A5,A6	
- UARFCN uplink_(Nu)		Reference to clause 5.1 Test frequenciesReference to TS34.108 clause
		6.10 Parameter Set
- UARFCN downlink_(Nd)		Reference to clause 5.1 Test
(, ta)		frequencies Reference to TS34.108 clause
		6.10 Parameter Set
Maximum allowed UL TX power	<u>A1,A2,A3,</u> <u>A4,A5,A6</u>	33dBm
CHOICE channel requirement	A1, A2, A3, A4	Uplink DPCH info
-Uplink DPCH power control info		
- DPCCH power offset		-6dB
- PC Preamble		1 frame
- SRB delay		7 frames
- Power Control Algorithm		Algorithm1
- TPC step size		1dB
- Scrambling code type		Long
- Scrambling code number		0 (0 to 16777215)
- Number of DPDCH		Not Present(1)
- spreading factor		Reference to TS34.108 clause 6.10 Parameter
·		Set SF is reference to TS34.108 clause 6.10 Parameter Set 16
- TFCI existence		Reference to TS34.108 clause 6.10 Parameter Set TRUE
- Number of FBI bit		Reference to TS34.108 clause 6.10 Parameter Set Not Present(0)
- Puncturing Limit		Reference to TS34.108 clause 6.10 Parameter
		Set Reference to TS34.108 clause 6.10 Parameter Set 0.96
CHOICE channel requirement	A1, A2, A3,	Not Present
	A5, A6	
CHOICE Mode	A1,A2,A3, A4,A5,A6	FDD
- Downlink PDSCH information		Not Present
Downlink information common for all radio links	A1, A2, A3, A5, A6	Not Present
Downlink information common for all radio links	A1, A2, <u>A3,</u> A4	
- Downlink DPCH info common for all RL		
- Timing indicator		Maintain
- CFN-targetSFN frame offset		Not Present
- Downlink DPCH power control information		
- DPC mode		0 (single)
- CHOICE mode		FDD
- Power offset P _{Pilot-DPDCH}		TBD0
- DL rate matching restriction information		Not Present
- Spreading factor		Reference to TS34.108 clause 6.10 Parameter Set 32
- Fixed or Flexible Position		Reference to TS34.108 clause 6.10 Parameter Set Flexible
- TFCI existence		Reference to TS34.108 clause 6.10 Parameter
- CHOICE SFNumber of bits for Pilot		Set TRUE Not PresentOtherwise
bits(SF=128,256) - DPCH compressed mode info		Not Present

Information Element	Condition	Value/remark
— TGPSI		4
		Inactive
TGCFN		(Current CFN + (256 - TTI/10msec)) mod 256
- Transmission gap pattern sequence		(Odirent Of 14 1 (250 - 111/10m3coj) mod 250
configuration parameters		
- TGMP		FDD Measurement
- TGPRC		62
		8
		10
- TGL2		5
		15
		35
		35
		Mode 1
		Mode 1
		DL
- Downlink compressed mode method		SE/2
- Downlink frame type		A
- DeltaSIR1		2.0
- DeltaSIRafter1		1.0
- DeltaSIR2		Not Present
- DeltaSIRafter2		Not Present
- N_Identify_abort		Not Present
		Not Present
- TX Diversity mode		None
- SSDT information		Not Present
- Default DPCH Offset Value		9Not Present
Downlink information per radio link list	A1, A2, A3,	onor resent
Downlink information per faulo link list	A1, A2, A3, A4	
-Downlink information for each radio link	A1, A2, A3, A4	
- Choice mode	741	FDD
- Primary CPICH info		
- Primary scrambling code		100
- PDSCH with SHO DCH info		Not Present
- PDSCH code mapping		Not Present
- Downlink DPCH info for each RL		
- Primary CPICH usage for channel estimation		Primary CPICH may be used
- DPCH frame offset		0 chips
- Power offset Ppilot-DPDCH		TBD
- Secondary CPICH info		Not Present
- Secondary scrambling code		
- channelisation code		
- DL channelisation code		
- Secondary scrambling code		<u>42</u>
- Spreading factor		Reference to TS34.108 clause 6.10 Parameter
		Set
- Code number		SF-1(SF is reference to TS34.108 clause 6.10
		Parameter Set)0
- Scrambling code change		No change
- TPC combination index		0
- SSDT Cell Identity		-aNot Present
- Closed loop timing adjustment mode		Not Present
- SCCPCH information for FACH	.	Not Present
- Downlink information for each radio link	A1, A4	
——————————————————————————————————————		FDD
- Primary CPICH info		
Primary scrambling code		100 B
- PDSCH with SHO DCH info		Not Present
- PDSCH code mapping		Not Present
- Downlink DPCH info for each RL		

Information Element	Condition	Value/remark
- Primary CPICH usage for channel estimation		Primary CPICH may be used
- DPCH frame offset		O chips
- Secondary CPICH info		Not Present
- DL channelisation code		140t F 1000ftt
- Secondary scrambling code		2
- Spreading factor		2 32
- Code number		<u>0</u>
- Scrambling code change		No change
- TPC combination index		0
- SSDT Cell Identity		Not Present
- Closed loop timing adjustment mode		Not Present
- SCCPCH information for FACH		Not Present
- Downlink information for each radio link	A3	NOCT FOODIL
- Choice mode	7.0	FDD
- Primary CPICH info		100
- Primary scrambling code		100
- PDSCH with SHO DCH info		Not Present
- PDSCH code mapping		Not Present
- Downlink DPCH info for each RL		Not 1 1000/III
- Primary CPICH usage for channel estimation		Primary CPICH may be used
- DPCH frame offset		O chips
- Secondary CPICH info		Not Present
- DL channelisation code		Not Frederic
- Secondary scrambling code		2
- Spreading factor		<u>\$</u>
- Code number		<u>0</u>
- Scrambling code change		No change
- TPC combination index		0
- SSDT Cell Identity		Not Present
- Closed loop timing adjustment mode		Not Present
- SCCPCH information for FACH		Not Present
- Downlink information for each radio link	A5 , A6	NOCT TOOOTIC
- Choice mode	710,710	FDD
- Primary CPICH info		Set to the default value of cell 1.
- Primary scrambling code		100
- PDSCH with SHO DCH info		Not Present
- PDSCH code mapping		Not Present
- Downlink DPCH info for each RL		Not present
- SCCPCH Information for FACH		Not Present
- Downlink information for each radio link	A6	
- Choice mode	7.0	FDD
- Primary CPICH info		
- Primary scrambling code		150
- PDSCH with SHO DCH info		Not Present
- PDSCH code mapping		Not Present
- Downlink DPCH info for each RL		Not Present
- Secondary CCPCH info		Not Present
	1	140t Frogerit

	Condition	Explanation	
A1		This IE need for "Non speech in CS"	
A2		This IE need for "Speech in CS"	
A3		This IE need for "Packet to CELL_DCH from CELL_DCH in PS"	
A3 A4		This IE need for "6426 Packet to CELL_DCH from CELL_FACH in PS"	
A5		This IE need for "Packet to CELL_FACH from CELL_DCH in PS"	
A6		This IE need for "Packet to CELL_FACH from CELL_FACH in PS"	

Note: The radio bearer configurations used here are served as example only, test operator can choose to use other radio bearer configurations.

Contents of RADIO BEARER RECONFIGURATION FAILURE message: AM

Information Element	<u>Value/remark</u>
Message Type	
RRC transaction identitifer	Checked to see if it is set to identical value of the same IE
	in the downlink RADIO BEARER RECONFIGURATION
	message.
Integrity check info	The presence if this IE is dependent on IXIT statements in
	TS 34.123-2. if integrity protection is indicated to be
	active, this IE shall be present with the values of the sub
	IEs as stated below. Else, this IE and the sub-IEs shall be
	absent.
 Message authentication code 	This IE is checked to see if it is present. The value is
	compared against the XMAC-I value computed by SS.
- RRC Message sequence number	This IE is checked to see if it is present. The value is
	used by SS to compute the XMAC-I value.
Failure cause	Checked to see if it meets test requirement
Radio bearers for which reconfiguration would have	Not checked
succeeded List	

Contents of RADIO BEARER RECONFIGURATION COMPLETE message: AM

Information Element	Value/remark
Message Type	
RRC transaction identifier	Checked to see if the value is identical to the same IE in the downlink RADIO BEARER RECONFIGURATION COMPLETE message
Integrity check info	The presence of this IE is dependent on IXIT statements in TS 34.123-2. If integrity protection is indicated to be active, this IE shall be present with the values of the sub IEs as stated below. Else, this IE and the sub-IEs shall be absent.
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Uplink integrity protection activation info	Not checked
CHOICE mode	<u>FDD</u>
COUNT-C activation time	The presence of this IE depends on the following 2 factors: (a) There exists RB(s) mapped to RLC-TM and
	(b) UE is transiting to CELL_DCH state after the
CHOICE made	reconfiguration procedure. Else, this IE is absent.
CHOICE mode	Not checked
Radio bearer uplink ciphering activation time info	1 1 2 1 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2
Uplink counter synchronisation info	Not checked

Contents of RADIO BEARER RELEASE message: AM or UM (The others of speech in CS)

Information Element	Value/remark	
Message Type		
Integrity check info	The presence of this IE is dependent on IXIT statements in TS 34.123-2. If integrity protection is indicated to be active, this IE is present with the values of the sub IEs as stated below. Else, this IE and the sub-IEs are omitted.	
- message authentication code	SS calculates the value of MAC-I for this message and writes to this IE.	
- RRC message sequence number	SS provides the value of this IE, from its internal counter.	
Integrity protection mode info	Not Present	
Ciphering mode info	Not Present	
Activation time	(256+CFN-(CFN MOD 8 + 8))MOD 256	
New U-RNTI	Not Present	
New C-RNTI	Not Present	
RRC State indicator	CELL_DCH	
UTRAN DRX cycle length coefficient	Not Present	
CN information info	Not Present	
URA identity	Not Present	
RAB information to reconfigure list RBI information to release	Not Present	
RB identity	10	
RB information to be affected	(UM DCCH for RRC)	
- RB identity	1	
- RB mapping info		
- Information for each multiplexing option		
- RLC logical channel mapping indicator	Not Present	
- Number of uplink RLC logical channels	4	
- Uplink transport channel type	DCH	
- UL Transport channel identity	5	
- Logical channel identity	4	
- CHOICE RLC size list	All	
- MAC logical channel priority	4	
- Downlink RLC logical channel info - Number of downlink RLC logical channels	4	
- Downlink transport channel type	DCH	
- DL DCH Transport channel identity	10	
- DL DSCH Transport channel identity	Not Present	
- Logical channel identity	4	
RB information to be affected	(AM DCCH for RRC)	
- RB identity	2	
- RB mapping info		
- Information for each multiplexing option	N (B)	
- RLC logical channel mapping indicator	Not Present	
- Number of uplink RLC logical channels - Uplink transport channel type	1 DCH	
- UL Transport channel identity	5	
- Logical channel identity	2	
- CHOICE RLC size list	All	
- MAC logical channel priority	2	
- Downlink RLC logical channel info		
- Number of downlink RLC logical channels	4	
- Downlink transport channel type	DCH	
- DL DCH Transport channel identity	10	
- DL DSCH Transport channel identity	Not Present	
- Logical channel identity	2 (AM DOCK for NAC DT High priority)	
RB information to be affected	(AM DCCH for NAS_DT High priority)	
RB identity - RB mapping info	3	
- Information for each multiplexing option		
- RLC logical channel mapping indicator	Not Present	
. 120 logical orialities mapping indicator		

Information Element	Value/remark	
- Number of uplink RLC logical channels	4	
- Uplink transport channel type	DCH	
- UL Transport channel identity	5	
- Logical channel identity	3	
- CHOICE RI C size list	All	
- MAC logical channel priority	3	
- Downlink RLC logical channel info	9	
- Number of downlink RLC logical channels	4	
- Downlink transport channel type	DCH	
- DL DCH Transport channel identity	10	
- DL DSCH Transport channel identity	Not Present	
- Logical channel identity	2	
RB information to be affected	(AM DCCH for NAS_DT Low priority)	
	(AWI DOOR IOI NAS_DI LOW PHOHIY)	
- RB identity	4	
- RB mapping info	Not Decoret	
- RLC logical channel mapping indicator	Not Present	
- Information for each multiplexing option		
- Number of uplink RLC logical channels	4	
- Uplink transport channel type	DCH	
- UL Transport channel identity	5	
- Logical channel identity	4	
- CHOICE RLC size list	All	
- MAC logical channel priority	4	
- Downlink RLC logical channel info		
- Number of downlink RLC logical channels	4	
- Downlink transport channel type	DCH	
- DL DCH Transport channel identity	10	
- DL DSCH Transport channel identity	Not Present	
- Logical channel identity	4	
UL Transport channel information for all transport		
channels		
- Allowed Transport Format combination	0 to MaxTFCValue-1 (MaxTFCValue is refer to TS34.108	
'	clause 6.10 Parameter Set.)	
	Not Present	
- CHOICE mode	FDD	
- TFC subset	(This IE is repeated for TFC number.)	
- UL DCH TFCS	(This IE is repeated for TFC number.)	
- Normal	() in the second of the secon	
- TFCI Field 1 information		
- CHOICE CTFC representation	Addition	
- TFCS addition information		
- CHOICE CTFC Size	Number of bits used must be enough to cover all	
3.13.32 311 3 3.23	combinations of CTEC from clause 6.10.	
- CTFC information	Refer to TS34.108 clause 6.10 Parameter Set	
- Power offset information	Actor to 100 i. 100 olddog o. 10 i didillotol oot	
- CHOICE Gain Factor	Signalled Gain Factor	
- Gain factor •c		
- Gain factor •d	0	
- Reference TEC ID	Not Present	
11010101100 11 0 12	THE THE CONT	
- Power offset Pp-m	0dB	
De eted UL TrCH Information	4	
- Transport channel identity	14 TaOL reconfiguration is accounted them this is needed/or	
Added or Reconfigured UL TrCH information	If TrCH reconfiguration is executed then this is needed(e.g.	
	The rate of SRB for DCCH is changed.).	
- Uplink transport channel type	DCH	
- UL Transport channel identity	5	
- TFS		
- CHOICE Transport channel type	Dedicated transport channels	
- Dynamic Transport format information	(This IE is repeated for TFI number)	
- RLC Size	Reference to TS34.108 clause 6.10 Parameter Set	
- Number of TBs and TTI List	(This IE is repeated for TFI number.)	
· ·		

Information Element	Value/remark
- Transmission Time Interval	Not Present
- Number of Transport blocks	Reference to TS34.108 clause 6.10 Parameter Set
- CHOICE Logical Channel list	Explicit
- Semi-static Transport Format information	Ελριίοιτ
- Transmission time interval	Reference to TS34.108 clause 6.10 Parameter Set
- Type of channel coding	Reference to TS34.108 clause 6.10 Parameter Set
- Coding Rate	Reference to TS34.108 clause 6.10 Parameter Set
- Rate matching attribute	Reference to TS34.108 clause 6.10 Parameter Set
- CRC size	Reference to TS34 108 clause 6 10 Parameter Set
CPCH set ID	Not Present
DRAC static information	Not Present
DL Transport channel information common for all	THOU TOOGHE
transport channel	
SCCPCH TFCS	Not Present
- CHOICE mode	EDD
- CHOICE DL parameters	Explicit
- DL DCH TFCS	(This IE is repeated for TFC number.)
- Normal	
- TFCI Field 1 information	
- CHOICE CTFC representation	Addition
- TFCS addition information	
- CHOICE CTFC Size	Number of bits used must be enough to cover all
	combinations of CTFC from clause 6.10.
- CTFC information	Refer to TS34.108 clause 6.10 Parameter Set
- Power offset information	Not Present
Deleted DL TrCH Information	
- Transport channel identity	6
Added or Reconfigured DL TrCH information	If TrCH reconfiguration is executed then this is needed(e.g.
	The rate of SRB for DCCH is changed.).
- Downlink transport channel type	DCH
- DL Transport channel identity	10
- CHOICE DL parameters	Explicit
- TFS	
	Dedicated transport channels
- Dynamic Transport format information	(This IE is repeated for TFI number)
	Reference to TS34.108 clause 6.10 Parameter Set
- Number of TBs and TTI List	(This IE is repeated for TFI number.)
- Transmission Time Interval	Not Present
- Number of Transport blocks	Reference to TS34.108 clause 6.10 Parameter Set
- CHOICE Logical Channel list	Explicit
- Semi-static Transport Format information	
- Transmission time interval	Reference to TS34.108 clause 6.10 Parameter Set
- Type of channel coding	Reference to TS34.108 clause 6.10 Parameter Set
- Coding Rate	Reference to TS34.108 clause 6.10 Parameter Set
- Rate matching attribute	Reference to TS34.108 clause 6.10 Parameter Set
- CRC size	Reference to TS34.108 clause 6.10 Parameter Set
- DCH quality target	
BLER Quality value	-6.3 Not Present
- Transparent mode signalling info	INOUT PIESENT
Frequency Info	Reference to TS34.108 clause 6.10 Parameter Set
	Reference to TS34.108 clause 6.10 Parameter Set
Maximum allowed UL TX power	33dBm
Uplink DPCH info	oodbiii
— - Uplink DPCH power control info	
- DPCCH power offset	-6dB
PC Preamble	1 frame
- SRB delay	7 frames
Power Control Algorithm	Algorithm1
- TPC step size	1 dB
- Scrambling code type	Long
— — — — — — — — — — — — — — — — — — —	Long

Information Element	Value/remark	
- Scrambling code number	0 (0 to 16777215)	
- Number of DPDCH	Not Present(1)	
- spreading factor	SF is reference to TS34.108 clause 6.10 Parameter Set	
- TFCI existence	TRUE	
- Number of FBI bit	Not Present(0)	
	Reference to TS34.108 clause 6.10 Parameter Set	
——————————————————————————————————————	EDD	
- Downlink PDSCH information	Not Present	
Downlink information common for all radio links	NOT FIRSTIT	
- Downlink DPCH info common for all RL		
- Timing indicator	Maintain	
- CFN-targetSFN frame offset	Not Present	
- Downlink DPCH power control information	NOT FIRSTIT	
- DPC mode	0 (single)	
- CHOICE mode	FDD	
Power offset Pellot-DPDCH	TBD	
- DL rate matching restriction information	Not Present	
	Reference to TS34.108 clause 6.10 Parameter Set	
- Spreading factor - Fixed or Flexible Position	N/A	
- Fixed of Flexible Position - TFCI existence	N/A EALSE	
- Number of bits for Pilot bits(SF=128,256)	Reference to TS34.108 clause 6.10 Parameter Set	
	Reference to 1534.108 clause 5.10 Parameter Set	
- DPCH compressed mode info	4	
- TGPS Status Flag	inactive	
TGCFN	(Current CFN + (256 - TTI/10msec)) mod 256	
- Transmission gap pattern sequence configuration	(Cultonic CFN + (200 = 1 11/10(11806)) 11100 200	
parameters		
TGMP	EDD Measurement	
TGPRC	62	
- TGSN	6∠ <u>8</u>	
	10 10 10 10 10 10 10 10 10 10 10 10 10 1	
	5	
	0 15	
TGPL1	1 10 35	
- TGPL2	35	
- RPP	Mode 1	
-ITP	Mode 1	
- CHOICE UL/DL Mode	DL	
- Downlink compressed mode method	SF/2	
- Downlink frame type	\ \ \ \ \	
- DeltaSIR1	2.0	
- DeltaSIRafter1	1.0	
- DeltaSIR2	Not Present	
- DeltaSIRafter2	Not Present	
- N_Identify_abort	Not Present	
- T Reconfirm abort	Not Present	
	None	
- SSDT information	Not Present	
- Default DPCH Offset Value	0	
Downlink information for each radio link list		
Downlink information for each radio link		
	FDD	
- Primary CPICH info	100	
	100	
- PDSCH with SHO DCH info	Not Present	
- PDSCH code mapping	Not Present	
— - Downlink DPCH info for each RL	Not i loodin	
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
——————————————————————————————————————	0 chips	
- Power offset Pellot-Depoch	TBD	
- Secondary CPICH info	Not Present	
	140t i loodit	

Information Element	Value/remark
- DL channelisation code	
- Secondary scrambling code	4
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set
- Code number	SF-1(SF is reference to TS34.108 clause 6.10 Parameter
	Set)
- Scrambling code change	No change
- TPC combination index	0
- SSDT Cell Identity	-a
- Closed loop timing adjustment mode	Not Present
- SCCPCH information for FACH	Not Present
- References to system information blocks	Not Present

Contents of RADIO BEARER RELEASE message: AM or UM

Information Element		Value/remark
Message Type	A1,A2,A3,A4,A5	varas/roman
I mosaago Typo	, <u>A6</u>	
RRC transaction identifier	1	Arbitrarily selects an integer between 0 and 3
Integrity check info		The presence of this IE is dependent on IXIT
		statements in TS 34.123-2. If integrity
		protection is indicated to be active, this IE is
		present with the values of the sub IEs as
		stated below. Else, this IE and the sub-IEs
		are omitted.
- message authentication code		SS calculates the value of MAC-I for this
		message and writes to this IE.
- RRC message sequence number		SS provides the value of this IE, from its
		internal counter.
Integrity protection mode info		Not Present
Ciphering mode info		Not Present
Activation time		(256+CFN-(CFN MOD 8 + 8))MOD 256
New U-RNTI		Not Present
New C-RNTI		Not Present
RRC State indicator	A1,A2, A3, A4	CELL_DCH
RRC State indicator	A5, A6	CELL_FACH
UTRAN DRX cycle length coefficient	A1,A2,A3,A4,A5	Not Present
	<u>,A6</u>	
CN information info		Not Present
Signalling Connection release indication		Not Present
URA identity		Not Present
RAB information to reconfigure list	A 4 A 0	Not Present
RB information to release	<u>A1,</u> A2	10
- RB identity RB information to release	A2	10
- RB identity	AZ	11
RB information to release	A2	11
- RB identity	AZ	12
RB information to release	A3, A4, A5, A6	12
- RB identity	7,0,7,1,7,0,7,0	20
RB information to release	A4	
- RB identity		6
RB information to release	A4	
- RB identity		7
RB information to be affected	A1,A2,	Not Present
	A3,A4,A5, A6	
RB information to be affected	A2, A3, A4	(UM DCCH for RRC)
- RB identity		4
- RB mapping info		
- Information for each multiplexing option		
- RLC logical channel mapping indicator		Not Present
- Number of uplink RLC logical channels		4
- Uplink transport channel type		DCH
- UL Transport channel identity		5
- Logical channel identity		4
		AllConfigured
- MAC logical channel priority		4
- Downlink RLC logical channel info - Number of downlink RLC logical channels		4
- Number of downlink RLC logical channels - Downlink transport channel type		1 DCH
- DOWNWINK transport channel type - DL DCH Transport channel identity		DGR 10
- DL DSCH Transport channel identity		Not Present
- Logical channel identity		1
RB information to be affected	A2, A3, A4	(AM DCCH for RRC)
Replinionnation to be ancoted	112, 113, 114	(AINI DOOTI IOI RRO)

	Information Element		Value/remark
	- RB identity		2
	- RB mapping info		
	- Information for each multiplexing option		
	- RLC logical channel mapping indicator		Not Present
	- Number of uplink RLC logical channels		1
	- Uplink transport channel type		DCH
	- UL Transport channel identity		5
	- Logical channel identity		2
	- CHOICE RLC size list		Configured All
	- MAC logical channel priority		2
	- Downlink RLC logical channel info		-
	- Number of downlink RLC logical channels		4
	- Downlink transport channel type		DCH
	- DL DCH Transport channel identity		10
	- DL DSCH Transport channel identity		Not Present
	- Logical channel identity		2
RR	information to be affected	A2, A3, A4	(AM DCCH for NAS_DT High priority)
	- RB identity	712, 710, 714	3
	- RB mapping info		
	- Information for each multiplexing option		
	- RLC logical channel mapping indicator		Not Present
	- Number of uplink RLC logical channels		4
	- Uplink transport channel type		DCH
	- UL Transport channel identity		5
	- Logical channel identity		3
	- CHOICE RLC size list		ConfiguredAll
	- MAC logical channel priority		3
	- Downlink RLC logical channel info		· ·
	- Number of downlink RLC logical channels		4
	- Downlink transport channel type		DCH
	- DL DCH Transport channel identity		10
	- DL DSCH Transport channel identity		Not Present
	- Logical channel identity		3
RB	information to be affected	A2, A3, A4	(AM DCCH for NAS_DT Low priority)
l —	- RB identity		4
l	- RB mapping info		
l	- Information for each multiplexing option		
	- RLC logical channel mapping indicator		Not Present
	- Number of uplink RLC logical channels		4
l —	- Uplink transport channel type		DCH
l —	- UL Transport channel identity		5
l —	- Logical channel identity		4
	- CHOICE RLC size list		<u>Configured</u> All
	- MAC logical channel priority		4
	- Downlink RLC logical channel info		
	- Number of downlink RLC logical channels		1
l —	- Downlink transport channel type		DCH
I —	- DL DCH Transport channel identity		10
	- DL DSCH Transport channel identity		Not Present
	- Logical channel identity	A.F. A.C.	4 (IM DOOL 6- ** DDO)
KB	information to be affected	A5, A6	(UM DCCH for RRC)
	- RB identity		4
	- RB mapping info		
	- Information for each multiplexing option		Not Droppet
	- RLC logical channel mapping indicator		Not Present
1	- Number of uplink RLC logical channels		1 DACH
	- Uplink transport channel type		RACH Not Propert
	- UL Transport channel identity		Not Present
1	- Logical channel identity		4 Configured Explicit list
	- CHOICE RLC size list		Configured Explicit list
. —	- RLC size index	1	Reference to TS34.108 clause 6.10

Information Element		Value/remark
		Parameter Set
- MAC logical channel priority		2
- Downlink RLC logical channel info		
- Number of downlink RLC logical channels		4
- Downlink transport channel type		FACH
- DL DCH Transport channel identity		Not Present
- DL DSCH Transport channel identity		Not Present
- Logical channel identity		4
RB information to be affected	A5, A6	(AM DCCH for RRC)
- RB identity		2
- RB mapping info		
- Information for each multiplexing option		
- RLC logical channel mapping indicator		Not Present
- Number of uplink RLC logical channels		1
 Uplink transport channel type 		RACH
- UL Transport channel identity		Not Present
- Logical channel identity		2
- CHOICE RLC size list		Configured Explicit list
- RLC size index		Reference to TS34.108 clause 6.10
		Parameter Set
- MAC logical channel priority		3
- Downlink RLC logical channel info		
- Number of downlink RLC logical channels		4
- Downlink transport channel type		FACH
- DL DCH Transport channel identity		Not Present
- DL DSCH Transport channel identity		Not Present
- Logical channel identity	45.40	(AM DOOLL(MAG DTH) 1 (1)
RB information to be affected	A5, A6	(AM DCCH for NAS_DT High priority)
- RB identity		ð
- RB mapping info		
 Information for each multiplexing option RLC logical channel mapping indicator 		Not Present
- Number of uplink RLC logical channels		4
- Uplink transport channel type		RACH
- UL Transport channel identity		Not Present
- Logical channel identity		3
- CHOICE RLC size list		ConfiguredExplicit list
- RLC size index		Reference to TS34.108 clause 6.10
		Parameter Set
- MAC logical channel priority		4
- Downlink RLC logical channel info		
- Number of downlink RLC logical channels		4
- Downlink transport channel type		FACH
- DL DCH Transport channel identity		Not Present
- DL DSCH Transport channel identity		Not Present
- Logical channel identity		3
RB information to be affected	A5, A6	(AM DCCH for NAS_DT Low priority)
- RB identity		4
- RB mapping info		
- Information for each multiplexing option		
- RLC logical channel mapping indicator		Not Present
- Number of uplink RLC logical channels		4
- Uplink transport channel type		RACH
- UL Transport channel identity		Not Present
- Logical channel identity		4
- CHOICE RLC size list		Configured Explicit list
		Reference to TS34.108 clause 6.10
MAC legical shape at a visuity		Parameter Set
- MAC logical channel priority		5
- Downlink RLC logical channel info		4
- Number of downlink RLC logical channels		1

Information Element		Value/remark
- Downlink transport channel type		FACH
- DL Transport channel identity		4
- DL DCH Transport channel identity		Not Present
- DL DSCH Transport channel identity		Not Present
- Logical channel identity		4
RB information to be affected	A5, A6	(TM-BCCH for RRC)
- RB identity		6
- RB mapping info		
- Information for each multiplexing option		
- Downlink RLC logical channel info		
- Number of downlink RLC logical channels		4
- Downlink transport channel type		FACH
- Logical channel identity		5
Downlink counter synchronisation info	A1,A2,A3,A4,A5	Not Present
UL Transport channel information for all transport	<u>,A6</u> A1,A2, A4 A3,	Not Present
channels	A1,A2, A4 A5, A6	Not Flesent
- Allowed Transport Format combination		0 to MaxTFCValue-1 (MaxTFCValue is refer
		to TS34.108 clause 6.10 Parameter Set.)
- PRACH TECS		Not Present
		FDD
- TFC subset		(This IE is repeated for TFC number.)
- UL DCH TFCS		(This IE is repeated for TFC number.)
- Normal		
- TFCI Field 1 information		
- CHOICE CTFC representation		Addition
- TFCS addition information		
- CHOICE CTFC Size		Number of bits used must be enough to cover
		all combinations of CTFC from clause 6.10.
- CTFC information		Refer to TS34.108 clause 6.10 Parameter Set
- Power offset information		
- CHOICE Gain Factor		Signalled Gain Factor
- Gain factor •c		0
- Gain factor •d		0
- Reference TFC ID		Not Present
- Power offset Pp-m		0dB
UL Transport channel information for all transport	A3	
channels		
- Allowed Transport Format combination		0 to MaxTFCValue-1 (MaxTFCValue is refer
· ·		to TS34.108 clause 6.10 Parameter Set.)
- PRACH TECS		Not Present
- CHOICE mode		FDD
- TFC subset		(This IE is repeated for TFC number.)
- UL DCH TFCS		(This IE is repeated for TFC number.)
- Normal		·
- TFCI Field 1 information		
- CHOICE CTFC representation		Addition
- TFCS addition information		
- CHOICE CTFC Size		Number of bits used must be enough to cover
		all combinations of CTFC from clause 6.10.
- CTFC information		Refer to TS34.108 clause 6.10 Parameter Set
- Power offset information		Not Present
UL Transport channel information for all transport	A4	
<u>channels</u>		
PDAGU TEGO		N (B
PRACH TFCS		Not Present
- CHOICE mode		FDD
- TFC subset		Not Present
- UL DCH TFCS		
- CHOICE TFCI signalling		<u>Normal</u>
- TFCI Field 1 information		

Information Flore ant	Valua/vavavl
Information Element	Value/remark
- CHOICE TFCS representation	Complete reconfiguration
- TFCS complete reconfigure information	
- CHOICE CTFC Size	4-bit CTFC
- CTFC information	
- 4bit CTFC	<u>0</u>
- Power offset information	
- CHOICE Gain Factors	Computed Gain Factors
- Reference TFC ID	<u>Q</u>
- CHOICE mode	FDD
- Power offset P p-m	Not Present
- CTFC information	
- 4bit CTFC	₹
- Power offset information	-
- CHOICE Gain Factors	Computed Gain Factors
- Reference TFC ID	0 οπημείου σωπ τ μείοιο
- CHOICE mode	EDD
- Power offset P p-m	Not Present
- CTFC information	THOU THOUSING
4bit CTFC	1
- Power offset information	4
	Computed Gain Factors
- CHOICE Gain Factors Poforoge TEC ID	
- Reference TFC ID	
- CHOICE mode	FDD Not Brooms
- Power offset P p-m	Not Present
- CTFC information	
- 4bit CTFC	<u>6</u>
- Power offset information	
- CHOICE Gain Factors	Computed Gain Factors
- Reference TFC ID	<u> </u>
- CHOICE mode	FDD
- Power offset P p-m	Not Present
- CTFC information	
- 4bit CTFC	<u>8</u>
- Power offset information	
- CHOICE Gain Factors	Computed Gain Factors
- Reference TFC ID	<u>0</u>
- CHOICE mode	FDD
- Power offset P p-m	Not Present
- CTFC information	
- 4bit CTFC	<u>4</u>
- Power offset information	_
- CHOICE Gain Factors	Computed Gain Factors
- Reference TFC ID	0
- CHOICE mode	FDD
- Power offset P p-m	Not Present
- CTFC information	
- 4bit CTFC	<u>3</u>
- Power offset information	<u> </u>
- CHOICE Gain Factors	Computed Gain Factors
- Reference TFC ID	Quinpated Gain ractors
- CHOICE mode	FDD
Power offset P p-m	Not Present
- CTFC information	INULTICSCHI
	E
- 4bit CTFC	<u>5</u>
- Power offset information	Committee of Carlos Francis
- CHOICE Gain Factors	Computed Gain Factors
- Reference TFC ID	<u>⊕</u>
- CHOICE mode	FDD
- Power offset P p-m	Not Present
- CTFC information	
- 4bit CTFC	<u>7</u>

Information Element		Value/remark
- Power offset information		
- CHOICE Gain Factors		Computed Gain Factors
- Reference TFC ID		<u>0</u>
- CHOICE mode		FDD
- Power offset P p-m		Not Present
- CTFC information		
- 4bit CTFC		<u>9</u> <u>2</u>
1011 0 11 0		≤
- Power offset information		0: " 10 : 5 :
- CHOICE Gain Factors		Signalled Gain Factor
- CHOICE mode		FDD
- Gain factor •c		<u>0</u>
- Gain factor •d		<u>0</u>
- Reference TFC ID		<u>0</u>
- CHOICE mode		FDD
- Power offset Pp-m		Not Present
UL Transport channel information for all transport	A5, A6	
channels		
- Allowed Transport Format combination		0 to MaxTFCValue-1 (MaxTFCValue is refer
		to TS34.108 clause 6.10 Parameter Set.)
- PRACH TECS		Not Present
- CHOICE mode		FDD
- TFC subset		(This IE is repeated for TFC number.)
- UL DCH TFCS		Not Present
	A 4 A 2 A 2 A 5 4	NOT FIRSOIT
Deleted UL TrCH Information	A1,A2, A3, A54	DOLL
- Uplink transport channel type		DCH
- Transport channel identity		1
Deleted UL TrCH Information	A2	
 Uplink transport channel type 		DCH
- Transport channel identity		2
Deleted UL TrCH Information	A2	
 Uplink transport channel type 		DCH
- Transport channel identity		3
Deleted UL TrCH Information	A3A5,A6A6	Not Present e
- Uplink transport channel type		DCH
- Transport channel identity		4
Added or Reconfigured UL TrCH information	A1,A2, A3,A4	Not Present
	A5, A6	
Added or Reconfigured UL TrCH information	A2, A3, A4	If TrCH reconfiguration is executed then this
3	, -,	is needed(e.g. The rate of SRB for DCCH is
		changed.).
- Uplink transport channel type		DCH
- UL Transport channel identity		5
- TES		
- CHOICE Transport channel type		Dedicated transport channels
- Dynamic Transport format information		(This IE is repeated for TFI number)
- Dynamic Fransport format information - RLC Size		,
- REG 3128		144Reference to TS34.108 clause 6.10
Number of TDs and TTLL int		Parameter Set
- Number of TBs and TTI List		2(This IE is repeated for TFI number.)
- Transmission Time Interval		Not Present Not Present
- Number of Transport blocks		PReference to TS34.108 clause 6.10
		Parameter Set
- Transmission Time Interval		Not Present
- Number of Transport blocks		<u>±</u>
- CHOICE Logical Channel list		AllExplicit
- Semi-static Transport Format information		
- Transmission time interval		40ms Reference to TS34.108 clause 6.10
		Parameter Set
- Type of channel coding		Convolutional Reference to TS34.108 clause
1 ypo or oriention obtaining		6.10 Parameter Set
- Coding Pate		1/3Reference to TS34.108 clause 6.10
		170 NOICHCHUC 10 1004.100 GRASS 0.10

Information Element		Value/remark
		Parameter Set
- Rate matching attribute		170Reference to TS34.108 clause 6.10
		Parameter Set
		16Reference to TS34.108 clause 6.10
		Parameter Set
CHOICE mode		FDD
— CPCH set ID		Not Present
- DRAC static information		Not Present
DL Transport channel information common for all	A2, A3, A5, A6	Not Present
transport channel		
DL Transport channel information common for all	A2, A3, A4	
transport channel		N / B
SCCPCH TFCS		Not Present
- CHOICE mode		FDD For Said Course A a Lill
		ExplicitSameAsUL (This IS is reported for TEC pumber)
- DL DCH 1FGS		(This IE is repeated for TFC number.)
- TFCI Field 1 information		
CHOICE CTFC representation		Addition
- TFCS addition information		ridanion
- CHOICE CTFC Size		Number of bits used must be enough to cover
OFFICIOL OTFI O OIZE		all combinations of CTFC from clause 6.10.
- CTFC information		Refer to TS34.108 clause 6.10 Parameter Set
- Power offset information		Not Present
DL Transport channel information common for all	A5, A6	1.001.1000.10
transport channel	1.5,1.5	
- SCCPCH TFCS		(This IE is repeated for TFC number.)
- CHOICE TFCI signalling		Normal
- TFCI Field 1 information		
- CHOICE CTFC representation		Addition
- TFCS addition information		
- CHOICE CTFC Size		Number of bits used must be enough to cover
		all combinations of CTFC from clause 6.10.
- CTFC information		Refer to TS34.108 clause 6.10 Parameter Set
- Power offset information		Not Present
		FDD
- CHOICE DL parameters		Not Present
Deleted DL TrCH Information	<u>A1,</u> A2, A3 <u>,A4</u> ,	
	A5	
- Downlink transport channel type		DCH
- Transport channel identity	1	6
Deleted DL TrCH Information	A2	DOLL
- Downlink transport channel type		DCH
- Transport channel identity	100	7
Deleted DL TrCH Information	A2	DOLL
- Downlink transport channel type		DCH
- Transport channel identity	A	8 Not Present
De eted DL TrCH Information	A5,A6	Not Present
Added or Reconfigured DL TrCH information	A1,A2, A3,	Not Present
Added on December 1751 TrOUS (A4,A5, A6	If TaOL I reconfigured by the same of the second
Added or Reconfigured DL TrCH information	A2, A3, A4	If TrCH reconfiguration is executed then this
		is needed(e.g. The rate of SRB for DCCH is
		changed.).
- Downlink transport channel type		DCH
- DL Transport channel identity		10 Familia (10 a mara A a 1 1)
- CHOICE DL parameters		ExplicitSameAsUL
- Uplink transport channel type		DCH
- UL TrCH Identity	1	<u>5</u>

	Information Element		Value/remark
	—- TFS		
	- CHOICE Transport channel type		Dedicated transport channels
	- Dynamic Transport format information		(This IE is repeated for TFI number)
	- RLC Size		Reference to TS34.108 clause 6.10
			Parameter Set
	- Number of TBs and TTI List		(This IE is repeated for TFI number.)
	- Transmission Time Interval		Not Present
	- Number of Transport blocks		Reference to TS34.108 clause 6.10
	Training of training of the state of the sta		Parameter Set
	- CHOICE Logical Channel list		Explicit
	- Semi-static Transport Format information		
	- Transmission time interval		Reference to TS34.108 clause 6.10
	Transmission and transmission		Parameter Set
	- Type of channel coding		Reference to TS34.108 clause 6.10
	Type of charmer county		Parameter Set
	Coding Rate		Reference to TS34.108 clause 6.10
	Obding Nate		Parameter Set
	- Rate matching attribute		Reference to TS34.108 clause 6.10
	Tato matoning attribute		Parameter Set
	- CRC size		Reference to TS34.108 clause 6.10
	 UNU SIZU		Parameter Set
	DCH quality target		rarameter oet
	- - DCH quality target - - BLER Quality value		- 6.3
-			
	- Transparent mode signalling info	A 4 A 0 A 0 A 4 A 5	Not Present
Fre	quency info	A1,A2,A3,A4,A5	
		<u>,A6</u>	5.4
	- UARFCN uplink_(Nu)		Reference to clause 5.1 Test
			frequencies Reference to TS34.108 clause
			6.10 Parameter Set
	- UARFCN downlink_(Nd)		Reference to clause 5.1 Test
			frequenciesReference to TS34.108 clause
			6.10 Parameter Set
	ximum allowed UL TX power	<u> </u>	33dBm
	OICE channel requirement	A2, A3, A5, A6	Not Present
CH	IOICE channel requirement	A2, A2,	Uplink DPCH info
		A1,A2,A3,A4	
	- Uplink DPCH power control info		
	- DPCCH power offset		-6dB
	- PC Preamble		1 frame
	- SRB delay		7 frames
	- Power Control Algorithm		Algorithm1
	- TPC step size		1dB
	- Scrambling code type		Long
	- Scrambling code number		0 (0 to 16777215)
	- Number of DPDCH		Not Present(1)
	- spreading factor		Reference to TS34.108 clause 6.10
			Parameter Set SF is reference to TS34.108
			clause 6.10 Parameter Set 16
	- TFCI existence		Reference to TS34.108 clause 6.10
			Parameter Set TRUE
	- Number of FBI bit		Reference to TS34.108 clause 6.10
			Parameter Set Not Present(0)
	- Puncturing Limit		Reference to TS34.108 clause 6.10
	-		Parameter Set Reference to TS34.108 clause
			6.10 Parameter Set 0.96
CH	OICE Mode	A1,A2,A3,A4,A5	FDD
		, <u>A6</u>	
	- Downlink PDSCH information		Not Present
Do	wnlink information common for all radio links	A2, A3, A5, A6	Not Present
	wnlink information common for all radio links	A1,A2, A3, A4	
50	- Downlink DPCH info common for all RL		
	DOWNMIN DE CELUIO COMMICON ION AN INC	İ	I

Information Element		Value/remark
- Timing indicator		Maintain
- CFN-targetSFN frame offset		Not Present
- Downlink DPCH power control information		Not i resent
		O (single)
- DPC mode		0 (single)
- CHOICE mode		FDD
- Power offset P _{Pilot-DPDCH}		TBD0
 DL rate matching restriction information 		Not Present
- Spreading factor		Reference to TS34.108 clause 6.10
		Parameter Set Reference to TS34.108 clause
		6.10 Parameter Set 32
- Fixed or Flexible Position		Reference to TS34.108 clause 6.10
- I liked of I lexible I ostiloti		Parameter Set FlexibleN/A
TEOL suistanas		
- TFCI existence		Reference to TS34.108 clause 6.10
		Parameter Set FALSETRUE
 CHOICE SFNumber of bits for Pilot 		Reference to TS34.108 clause 6.10
bits(SF=128,256)		Parameter Set Otherwise
- DPCH compressed mode info		Not Present
- TGPSI		4
- TGPS Status Flag		inactive
- TGCFN		(Current CFN + (256 - TTI/10msec)) mod
100FIN		<i>''</i>
		256
- Transmission gap pattern sequence		
configuration parameters		
TGMP		FDD Measurement
- TGPRC		62
TGSN		8
- TGL1		10
-TGL2		5
_		
		15
- TGPL1		35
		35
- RPP		Mode 1
- ITP		Mode 1
		DL
- Downlink compressed mode method		<u>SF/2</u>
- Downlink frame type		A
- DeltaSIR1		2.0
- DeltaSIRafter1		1.0
- DeltaSIR2		Not Present
- DeltaSIRafter2		Not Present
- N_Identify_abort		Not Present
		Not Present
- TX Diversity mode		None
- SSDT information		Not Present
- Default DPCH Offset Value		Not Present
	A 4 A 0 A 0 A 4	INOU L LESCHIE
Downlink information for each radio link list	A1,A2,A3,A4	
-Downlink information for each radio link	<u>A2</u>	
- Choice mode		<u>FDD</u>
- Primary CPICH info		
- Primary scrambling code		100
- PDSCH with SHO DCH info		Not Present
- PDSCH code mapping		Not Present
- Downlink DPCH info for each RL		140t F FOODIN
		Drive and CDICLI means has the size of
- Primary CPICH usage for channel estimation		Primary CPICH may be used
- DPCH frame offset		<u>0 chips</u>
- Secondary CPICH info		Not Present
- Secondary scrambling code		
- channelisation code		
- DL channelisation code		
		2
- Secondary scrambling code		<u>3</u>

Information Element		Value/remark
- Spreading factor		Reference to TS34.108 clause 6.10
		Parameter Set 128
- Code number		0
- Scrambling code change		No change
- TPC combination index		0
- SSDT Cell Identity		Not Present
- Closed loop timing adjustment mode		Not Present
- SCCPCH information for FACH		Not Present
Downlink information for each radio link list	A2, A3, A4	
Downlink information for each radio link	<u>A4</u>	
- CHOICE mode		FDD
- Primary CPICH info		
- Primary scrambling code		100
- PDSCH with SHO DCH info		Not Present
- PDSCH code mapping		Not Present
- Downlink DPCH info for each RL		
- Primary CPICH usage for channel estimation		Primary CPICH may be used
- DPCH frame offset		0 chips
- Power offset Ppilot-DPDCH		TBD
- Secondary CPICH info		Not Present
- DL channelisation code		
- Secondary scrambling code		13
- Spreading factor		Reference to TS34.108 clause 6.10
		Parameter Set32
- Code number		SF-1(SF is reference to TS34.108 clause
		6.10 Parameter Set)0
- Scrambling code change		No change
- TPC combination index		θ
- SSDT Cell Identity		Not Present-a
- Closed loop timing adjustment mode		Not Present
- SCCPCH information for FACH		Not Present
- Downlink information for each radio link	<u>A3</u>	
- Choice mode	113	FDD
- Primary CPICH info		100
- Primary scrambling code		100
- PDSCH with SHO DCH info		Not Present
- PDSCH code mapping		Not Present
- Downlink DPCH info for each RL		NOT I 1880III
		D: ODIOLI I
- Primary CPICH usage for channel estimation		Primary CPICH may be used
- DPCH frame offset		<u>0 chips</u>
- Secondary CPICH info		Not Present
- DL channelisation code		
- Secondary scrambling code		<u>3</u>
- Spreading factor		<u>8</u>
- Code number		<u>0</u>
- Scrambling code change		No change
- TPC combination index		
		<u>Q</u>
- SSDT Cell Identity		Not Present
- Closed loop timing adjustment mode		Not Present
- SCCPCH information for FACH	A.F. A.O.	Not Present
Downlink information common for all radio links	A5, A6	
- Downlink information for each radio link	<u>A5</u>	EDD
- Choice mode		FDD
- Primary CPICH info		Set to the default value of cell 1.
- Primary scrambling code		100
- PDSCH with SHO DCH info		Not Present
- PDSCH code mapping		Not Present
- Downlink DPCH info for each RL		Not present
- SCCPCH information for FACH		Not Present

Information Element		Value/remark
- Downlink information for each radio link	<u>A6</u>	
- Choice mode		<u>FDD</u>
- Primary CPICH info		
- Primary scrambling code		<u>150</u>
- PDSCH with SHO DCH info		Not Present
- PDSCH code mapping		Not Present
 Downlink DPCH info for each RL 		Not present
- SCCPCH information for FACH		Not Present

Condition	Explanation	
<u>A1</u>	This IE need for "Non speech in CS"	
A1 A2	This IE need for "Speech in CS"	
A3	This IE need for "Packet to CELL_DCH from CELL_DCH in PS"	
A4	This IE need for "Packet to CELL_DCH from CELL_FACH in PS"	
A5	This IE need for "Packet to CELL_FACH from CELL_DCH in PS"	
A6	This IE need for "Packet to CELL FACH from CELL FACH in PS"	

Note: The radio bearer configurations used here are served as example only, test operator can choose to use other radio bearer configurations.

Contents of RADIO BEARER RELEASE FAILURE message: AM

Information Element	<u>Value/remark</u>
Message Type	
RRC transaction identitifer	Checked to see if it is set to identical value of the same IE
	in the downlink RADIO BEARER RELEASE message.
Integrity check info	The presence if this IE is dependent on IXIT statements in
	TS 34.123-2. if integrity protection is indicated to be
	active, this IE shall be present with the values of the sub
	IEs as stated below. Else, this IE and the sub-IEs shall be
	absent.
 Message authentication code 	This IE is checked to see if it is present. The value is
	compared against the XMAC-I value computed by SS.
 - RRC Message sequence number 	This IE is checked to see if it is present. The value is
	used by SS to compute the XMAC-I value.
Failure cause	Checked to see if it meets test requirement
Radio bearers for which reconfiguration would have	Not checked
succeeded	

Contents of UTRAN MOBILITY INFORMATION message: AM or UM

Information Element	Value/remark
Message Type	Value/Terriar K
Integrity check info	The presence of this IE is dependent on IXIT statements in TS 34.123-2. If integrity protection is indicated to be active, this IE is present with the values of the sub IEs as stated below. Else, this IE and the sub-IEs are omitted.
- message authentication code	SS calculates the value of MAC-I for this message and writes to this IE.
- RRC message sequence number	SS provides the value of this IE, from its internal counter.
RRC transaction identifier	Arbitrarily selects an integer between 0 and 3
Integrity protection mode info	Not Present
Ciphering mode info	Not Present
New U-RNTI	See the test content
New C-RNTI	See the test content
UE Timers and constants in connected mode	
- T301	2000 milliseconds
- N301	2
- T302	4000 milliseconds
- N302	3
- T304	1000 milliseconds
- N304	3
- T305	60 minutes
- T307	50 seconds
- T308	320 milliseconds
- T309	8 seconds
- T310	320 milliseconds
- N310	5
- T311	500 milliseconds
- T312	5 seconds
- N312	200
- T313	10 seconds
- N313	200
- T314	20 seconds
- T315	30 seconds
- N315	200
- T316	50 seconds
- T317	1800 seconds
CN information info	Not Present
URA identity	Not present
Downlink counter synchronisation info	Not Present

Contents of UTRAN MOBILITY INFORMATION CONFIRM message: AM

Information Element	Value/remark
Message Type	
RRC transaction identifier	Checked to see if it matches the value of the same IE in downlink UTRAN MOBILITY INFORMATION message
Integrity check info	The presence of this IE is dependent on IXIT statements in TS 34.123-2. If integrity protection is indicated to be active, this IE shall be present with the values of the sub IEs as stated below. Else, this IE and the sub-IEs shall be absent.
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Uplink integrity protection activation info	Not checked
COUNT-C activation time	The presence of this IE depends on the following 2
	factors: (a) There exists RB(s) mapped to RLC-TM, (b)
	UE is transiting to CELL_DCH state after the
	reconfiguration procedure. Else, this IE is absent.
Uplink integrity protection activation info	Not checked
Radio bearer uplink ciphering activation time info	Not checked
Uplink counter synchronisation info	Not checked

Contents of RRC CONNECTION REJECT message: UM

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects an integer between 0 and 3
Initial UE identity	Select the same type as in the IE "Initial UE Identity" in
	RRC CONNECTION REQUEST" message. Set to the
	UE's IMSI (GSM-MAP) or TMSI.
RRC transaction identifier	Arbitrarily selects an integer between 0 and 3
Rejection cause	Unspecified
Wait Time	0
Redirection info	Not Present

Contents of RRC CONNECTION SETUP message: UM (Transition to CELL_FACH)

Information Element	Value/remark
Message Type	
Initial UE identity	Select the same identity as in the IE "Initial UE Identity" in
	received RRC CONNECTION REQUEST"
	messageReference to TS34.108 clause 6.10 Parameter
	Set
RRC transaction identifier	Arbitrarily select a integer between 0 and 30
Activation time	Not Present (Now)(256+CFN-(CFN MOD 8 + 8))MOD 256
New U-RNTI	
- SRNC identity	0000 0000 0001B
- S-RNTI	0000 0000 0000 0000 0001B
New C-RNTI	0000 0000 0000 0001B
RRC state indicator	CELL_FACH
UTRAN DRX cycle length coefficient	5 <u>9</u> (2 to 12)
Capability update requirement	Not Present
 UE radio access capability update requirement 	FALSE
 System specific capability update requirement 	Not Present
Signalling RB information to setup	(UM DCCH for RRC)
- RB identity	1
- CHOICE RLC info type	RLC info
- CHOICE Uplink RLC mode	UM RLC

Information Element - Transmission RLC discard - SDU discard mode - Timer discardMAX_DAT - Timer_MRW - MaxMRW - CHOICE Downlink RLC mode - RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - UD Transport channel type - UL Transport channel identity Timer based no explicitMax DAT retransmissions 450 100 450 UM RLC 2 RBMuxOptions Not Present 1 DCH 5	
- SDU discard mode - Timer discardMAX_DAT - Timer_MRW - MaxMRW - CHOICE Downlink RLC mode - RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type - UL Transport channel identity Timer based no explicitMax DAT retransmissions 450 UM RLC 2 RBMuxOptions Not Present 1 DCH 5	
- Timer discardMAX_DAT - Timer_MRW - MaxMRW - CHOICE Downlink RLC mode - RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type - UL Transport channel identity 450 400 4 WRLC 2 RBMuxOptions Not Present 1 DCH 5	
Timer_MRW - MaxMRW - CHOICE Downlink RLC mode - RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type - UL Transport channel identity 100 4 UM RLC 2 RBMuxOptions Not Present 1 DCH 5	
- CHOICE Downlink RLC mode - RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type - UL Transport channel identity UM RLC 2 RBMuxOptions Not Present 1 DCH 5	
- RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type - UL Transport channel identity - RB mapping info 2 RBMuxOptions Not Present 1 DCH 5	
- Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type - UL Transport channel identity 2 RBMuxOptions Not Present 1 DCH 5	
- RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type - UL Transport channel identity - RLC logical channel indicator 1 DCH 5	
- RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type - UL Transport channel identity - RLC logical channel indicator 1 DCH 5	
- Uplink transport channel type - UL Transport channel identity 5	
- UL Transport channel identity 5	
Logical channel identity 1	
- CHOICE RLC size list Configured	
- MAC logical channel priority 1	
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels 1	
- Downlink transport channel type DCH	
- DL DCH Transport channel identity 10	
- DL DSCH Transport channel identity Not Present	
- Logical channel identity 1	
— - RB mapping info	
- Information for each multiplexing option	
- RLC logical channel mapping indicator Not Present	
- Number of uplink RLC logical channels 1	
- Uplink transport channel type RACH	
- UL Transport channel identity Not Present	
- Logical channel identity	
- CHOICE RLC size list Explicit listConfigured Defended to TOOM 400 places 0.40 Reservator Only	
- RLC size index Reference to TS34.108 clause 6.10 Parameter Set	
- MAC logical channel priority 2	
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels 1 - Downlink transport channel type FACH	
- Downlink transport channel type FACH - DL DCH Transport channel identity Not Present	
- DL DSCH Transport channel identity - DL DSCH Transport channel identity Not Present	
- Logical channel identity 1	
Signalling RB information to setup (AM DCCH for RRC)	
- RB identity 2	
- CHOICE RLC info type RLC info	
- CHOICE Uplink RLC mode AM RLC	
- Transmission RLC discard	
- SDU discard mode Max DAT retransmissions	
- MAX_DAT 4	
- Timer_MRW 100	
- MaxMRW 4	
- Transmission window size 8	
- Timer_RST 500	
- Max_RST 4	
- Polling info	
- Timer_poll_prohibit 200	
- Timer_poll 200	
- Poll_SDU 1	
- Last transmission PDU poll TRUE	
- Last retransmission PDU poll TRUE	
- Poll_Windows 99	
- CHOICE Downlink RLC mode AM RLC	
- In-sequence delivery TRUE	
- Receiving window size 8	
- Downlink RLC status info	
- Timer_status_prohibit 200	

Information Element	Value/remark
- Timer_EPC	200
- Missing PDU indicator	TRUE
- RB mapping info	
 Information for each multiplexing option 	2 RBMuxOptions
 RLC logical channel mapping indicator 	Not Present
 Number of uplink RLC logical channels 	<u>1</u>
 Uplink transport channel type 	<u>DCH</u>
 UL Transport channel identity 	<u>5</u>
 Logical channel identity 	2
- CHOICE RLC size list	Configured
- MAC logical channel priority	2
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	<u>DCH</u>
- DL DCH Transport channel identity	10
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	2
- RB mapping info	
- Information for each multiplexing option	Not Present
- RLC logical channel mapping indicator	
 Number of uplink RLC logical channels Uplink transport channel type 	1 RACH
- UL Transport channel identity	
	Not Present 2
 Logical channel identity CHOICE RLC size list 	Explicit listConfigured
- CHOICE RLC Size list	Reference to TS34.108 clause 6.10 Parameter Set
- MAC logical channel priority	3
- Downlink RLC logical channel info	3
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	2
Signalling RB information to setup	(AM DCCH for NAS_DT High priority)
- RB identity	3
- CHOICE RLC info type	RLC info
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	Max DAT retransmissions
- MAX_DAT	4
- Timer_MRW	100
- MaxMRW	4
- Transmission window size	8
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	200
- Timer_poll	200
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Windows	99
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE 8
Receiving window sizeDownlink RLC status info	O
- Downlink RLC status into - Timer_status_prohibit	200
- Timer_status_profiloit - Timer_EPC	200
- Missing PDU indicator	TRUE
- RB mapping info	INOL
- Information for each multiplexing option	2 RBMuxOptions
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Information Florant	Valua/ramark
Information Element	Value/remark
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1 2011
- Uplink transport channel type	<u>DCH</u>
- UL Transport channel identity	5 3 Configured
 Logical channel identity 	<u>3</u>
- CHOICE RLC size list	Configured
 MAC logical channel priority 	<u>3</u>
 Downlink RLC logical channel info 	
 Number of downlink RLC logical channels 	1 DCH
 Downlink transport channel type 	<u>DCH</u>
 DL DCH Transport channel identity 	<u>10</u>
 DL DSCH Transport channel identity 	Not Present
 Logical channel identity 	<u>3</u>
- Information for each multiplexing option	
 RLC logical channel mapping indicator 	Not Present
 Number of uplink RLC logical channels 	1
- Uplink transport channel type	RACH
- UL DCH Transport channel identity	Not Present
- Logical channel identity	3
- CHOICE RLC size list	Explicit listConfigured
- RLC size index	Reference to TS34.108 clause 6.10 Parameter Set
- MAC logical channel priority	4
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	3
Signalling RB information to setup	(AM DCCH for NAS_DT Low priority)
- RB identity	4
- CHOICE RLC info type	RLC info
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	7.111 1.120
- SDU discard mode	Max DAT retransmissions
- MAX_DAT	4
- Timer_MRW	100
- MaxMRW	4
- Transmission window size	8
- Timer_RST	500
- Max_RST	4
- Polling info	-
- Timer_poll_prohibit	200
- Timer_poll	200
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Windows	99
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	8
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_status_profilibit	200
- Missing PDU indicator	TRUE
- RB mapping info	THOE
- Information for each multiplexing option	2 RBMuxOptions
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Number of uplink RLC logical channels - Uplink transport channel type	DCH
- UL Transport channel identity	5
- OL Hansport Channel Identity	<u> </u>

Information Element	Value/remark
 Logical channel identity 	<u>4</u>
- CHOICE RLC size list	Configured
 MAC logical channel priority 	<u>4</u>
 - Downlink RLC logical channel info 	
 Number of downlink RLC logical channels 	<u>1</u>
 Downlink transport channel type 	<u>DCH</u>
 DL DCH Transport channel identity 	<u>10</u>
 DL DSCH Transport channel identity 	Not Present
 Logical channel identity 	<u>4</u>
- RB mapping info	
- Information for each multiplexing option	
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	4
- CHOICE RLC size list	Explicit listConfigured
- RLC size index	Reference to TS34.108 clause 6.10 Parameter Set
- MAC logical channel priority	5
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	4
UL Transport channel information for all transport	Not Present
channels	O to MayTEOValue 4 (MayTEOValue is refer to TCO4 400
- Allowed Transport Format combination	0 to MaxTFCValue-1 (MaxTFCValue is refer to TS34.108
- PRACH TECS	clause 6.10 Parameter Set.) Not Present
——————————————————————————————————————	FDD
TFC subset	(This IE is repeated for TFC number.)
- UL DCH TFCS	Not Present
Added or Reconfigured TrCH information list	TS 25.331 specifies that "Although this IE is not required
Added of Reconfigured Troff Information list	when the IE "RRC state indicator" is set to "CELL_FACH",
	need is MP to align with ASN.1"
- Added or Reconfigured UL TrCH information	Tieed is Will to diight with AOIV.1
- Uplink transport channel type	DCH
- UL Transport channel identity	155
- TFS	10 <u>0</u>
- CHOICE Transport channel type	Delicated transport channels
- Dynamic Transport format information	Delicated transport charmers
- RLC Size	Reference to TS34.108 clause 6.10 Parameter Set 0
- Number of TBs and TTI List	(This IE is repeated for TFI number.)
- Transmission Time Interval	Not Present Not Present
- Number of Transport blocks	Reference to TS34.108 clause 6.10 Parameter Set0
- CHOICE Logical Channel List	ALL
- Semi-static Transport Format information	
- Transmission time interval	Reference to TS34.108 clause 6.10 Parameter Set80
- Type of channel coding	Reference to TS34.108 clause 6.10 Parameter SetNo
71	coding
- Coding Rate	Reference to TS34.108 clause 6.10 Parameter SetNet
	Present
- Rate matching attribute	Reference to TS34.108 clause 6.10 Parameter Set1
- CRC size	Reference to TS34.108 clause 6.10 Parameter Set
DL Transport channel information common for all	Not Present(Refer to SIB type 5)
transport channel	
- SCCPCH TFCS	(This IE is repeated for TFC number.)
	Normal
- TFCI Field 1 information	
- CHOICE CTFC representation	Complete reconfiguration

Information Element	Value/remark		
- TFCS complete reconfigure information			
	Number of bits used must be enough to cover all		
	combinations of CTFC from clause 6.10.		
- CTFC information	Refer to TS34.108 clause 6.10 Parameter Set		
- Power offset information	Not Present		
	FDD		
- CHOICE DL parameters	Not Present		
Added or Reconfigured TrCH information list	TS 25.331 specifies that "Although this IE is not required		
-	when the IE "RRC state indicator" is set to "CELL_FACH",		
	need is MP to align with ASN.1"		
 Added or Reconfigured DL TrCH information 			
 Downlink transport channel type 	DCH		
- DL Transport channel identity	<u>1015</u>		
- CHOICE DL parameters	Same_Aas_UL		
 Uplink Transport channel type 	DCH		
- UL TrCH identity	45		
- DCH quality target	Not Present		
- Transparent mode signalling info	Not Present		
Frequency info			
- UARFCN uplink_(Nu)	Reference to clause 5.1 Test frequencies Reference to		
	TS34.108 clause 6.10 Parameter Set		
- UARFCN downlink_(Nd)	Reference to clause 5.1 Test frequencies Reference to		
	TS34.108 clause 6.10 Parameter Set		
Maximum allowed UL TX power	33dBm		
CHOICE channel requirement	Not Present		
Downlink information common for all radio links	Not Present		
Downlink information for each radio link list			
- Downlink information for each radio link	500		
- Choice mode	FDD		
- Primary CPICH info	Set to the default value of cell 1.		
- Primary scrambling code	Not Dropped		
- PDSCH with SHO DCH info	Not Present		
- PDSCH code mapping	Not Present		
- Downlink DPCH info for each RL	Not present		
- SCCPCH information for FACH	Not Present		

Contents of RRC STATUS message: AM

Information Element	Value/remark
Message Type	
Integrity check info	The presence of this IE is dependent on IXIT statements in TS 34.123-2. If integrity protection is indicated to be active, this IE shall be present with the values of the sub IEs as stated below. Else, this IE and the sub-IEs shall be absent.
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Identification of received message	Not PresentChecked
- Received message type	
RRC transaction identifier	
Protocol error information	
- Protocol error cause	Value will be checked. Refer to test requirement.

Contents of SECURITY MODE FAILURE message: AM

Information Element	Value/remark
Message Type	
RRC transaction identifier	Checked to see if the value is the identical to the same IE in the downlink SECURITY MODE COMMAND message.
Integrity check info	The presence of this IE is dependent on IXIT statements in TS 34.123-2. If integrity protection is indicated to be active, this IE shall be present with the values of the sub IEs as stated below. Else, this IE and the sub-IEs shall be absent.
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Failure cause	Refer to test requirement. Value will be checked

Contents of TRANSPORT CHANNEL RECONFIGURATION message: AM or UM

Information Element	Condition	Value/remark
Message Type	A1, A2, A3,	
	A4,A5,A6	
RRC transaction identifier		Arbitrarily selects an integer between 0 and 3
Integrity check info		The presence of this IE is dependent on IXIT
		statements in TS 34.123-2. If integrity
		protection is indicated to be active, this IE is
		present with the values of the sub IEs as
		stated below. Else, this IE and the sub-IEs are
		omitted.
- message authentication code		SS calculates the value of MAC-I for this
		message and writes to this IE.
- RRC message sequence number		SS provides the value of this IE, from its
·		internal counter.
Integrity protection mode info		Not Present
Ciphering mode info		Not Present
Activation time		(256+CFN-(CFN MOD 8 + 8))MOD 256
New U-RNTI		Not Present
New C-RNTI		Not Present
RRC State indicator	A1, A2, A3,	CELL_DCH
	A4	
RRC State indicator	A5, A6	CELL_ DCH <u>FACH</u>
UTRAN DRX cycle length coefficient	A1, A2, A3,	Not Present
	A4,A5,A6	
CN information info		Not Present
URA identity		Not Present
Downlink counter synchronisation info		Not Present
UL Transport channel information for all transport	<u>A1, A2,</u>	Not Present
<u>channels</u>	<u>A3,A4, A5,</u>	
	<u>A6</u>	
UL Transport channel information for all transport	A1, A2, A3,	
channels	A 4	
- Allowed Transport Format combination		0 to MaxTFCValue-1 (MaxTFCValue is refer to
		TS34.108 clause 6.10 Parameter Set.)
- PRACH TFCS		Not Present
		FDD
- TFC subset		(This IE is repeated for TFC number.)
- UL DCH TFCS		(This IE is repeated for TFC number.)
- Normal		
- TFCI Field 1 information		A Live
- CHOICE CTFC representation		Addition

Information Element	Condition	Value/remark
- TFCS addition information		
- CHOICE CTFC Size		Number of bits used must be enough to cover
		all combinations of CTFC from clause 6.10.
- CTFC information		Refer to TS34.108 clause 6.10 Parameter Set
- Power offset information		
- CHOICE Gain Factors		Signalled Gain Factors
- Gain factor +c		0
- Gain factor •d		0
- Reference TFC ID		Not Present
- Power offset Pp-m		OdB
UL Transport channel information for all transport	A5, A6	OGB
channels	710,710	
- Allowed Transport Format combination		0 to MaxTFCValue-1 (MaxTFCValue is refer to
- Allowed Harisport Format combination		TS34.108 clause 6.10 Parameter Set.)
- PRACH TECS		Not Present
		FDD
- TFC subset		(This IE is repeated for TFC number.)
- UL DCH TFCS	A4 A0 A0	Not Present
Added or Reconfigured UL TrCH information	A1, A2, A3, A4,A5, A6	Not Present
Added or Reconfigured UL TrCH information	A1, A2, A3,	
	A4	
- Uplink transport channel type		DCH
- UL Transport channel identity		5
- TFS		
- CHOICE Transport channel type		Dedicated transport channels
- Dynamic Transport format information		(This IE is repeated for TFI number)
- RLC Size		144Reference to TS34.108 clause 6.10
		Parameter Set
- Number of TBs and TTI List		2(This IE is repeated for TFI number.)
- Transmission Time Interval		Not PresentNot Present
- Number of Transport blocks		OReference to TS34.108 clause 6.10
·		Parameter Set
- Transmission Time Interval		Not Present
- Number of Transport blocks		4
- CHOICE Logical Channel List		AllALL
- Semi-static Transport Format information		_
- Transmission time interval		40ms Reference to TS34.108 clause 6.10
Transcription and training and and training and and an articular and articular and articular and a		Parameter Set
- Type of channel coding		Convolutional Reference to TS34.108 clause
. 750 0. 0		6.10 Parameter Set
- Coding Rate		1/3Reference to TS34.108 clause 6.10
Souring reactor		Parameter Set
- Rate matching attribute		170Reference to TS34.108 clause 6.10
- Nate matering attribute		Parameter Set
- CRC size		16Reference to TS34.108 clause 6.10
- GIXO 5125		Parameter Set
Added or Reconfigured UL TrCH information	A4	r arameter oct
	/\(\)	DCH
- Uplink transport channel type		
- UL Transport channel identity		4
- TFS		Dedicated transport above to
- CHOICE Transport channel type		Dedicated transport channels
- Dynamic Transport format information		(This IE is repeated for TFI number)
- RLC Size		336Reference to TS34.108 clause 6.10
N		Parameter Set
- Number of TBs and TTI List		5(This IE is repeated for TFI number.)
- Transmission Time Interval		Not Present Not Present
- Number of Transport blocks		PReference to TS34.108 clause 6.10
		Parameter Set

Information Element	Condition	Value/remark
- Transmission Time Interval		Not Present
- Number of Transport blocks		<u>4</u>
- Transmission Time Interval		Not Present
- Number of Transport blocks		2
- Transmission Time Interval		Not Present
- Number of Transport blocks		3 Not Decemb
- Transmission Time Interval		Not Present
- Number of Transport blocks		4
- CHOICE Logical Channel list - Semi-static Transport Format information		AllALL
- Transmission time interval		20Reference to TS34.108 clause 6.10
Transmission time interval		Parameter Set
- Type of channel coding		TurboReference to TS34.108 clause 6.10 Parameter Set
- Coding Rate		Not PresentReference to TS34.108 clause
- Rate matching attribute		6.10 Parameter Set 150Reference to TS34.108 clause 6.10
- CRC size		Parameter Set
		16Reference to TS34.108 clause 6.10 Parameter Set
CHOICE mode	A1,A2,A3, A4,A5,A6	FDD
- CPCH set ID		Not Present
- Added or Reconfigured TrCH		Not Present
information for DRAC list		
DRAC static information		Not Present
DL Transport channel information common for all	A1, A2, A3,	Not Present
transport channel	A4 <u>, A5,A6</u>	
DL Transport channel information common for all	<u>A4</u>	
transport channel		N . 5
- SCCPCH TFCS		Not Present
CHOICE DI parametera		FDD ExplicitSameAsUL
- CHOICE DL parameters - DL DCH TFCS		(This IE is repeated for TFC number.)
- Normal		(This IE is repeated for 11 o Hamber.)
- TFCI Field 1 information		
- CHOICE CTFC representation		Addition
- TFCS addition information		
- CHOICE CTFC Size		Number of bits used must be enough to cover
		all combinations of CTFC from clause 6.10.
- CTFC information		Refer to TS34.108 clause 6.10 Parameter Set
- Power offset information		Not Present
DL Transport channel information common for all	A5, A6	
transport channel		
- SCCPCH TFCS		(This IE is repeated for TFC number.)
- Normal		
- TFCI Field 1 information		A 1 111
- CHOICE CTFC representation		Addition
- TFCS addition information		
- CHOICE CTFC Size		Refer to TS34.108 clause 6.10 Parameter Set
- CTFC information - Power offset information		Not Present
- CHOICE mode		FDD
- CHOICE DL parameters		Not Present
Added or Reconfigured DL TrCH information	A1, A2	11011100111
- Downlink transport channel type	/ \ 1, / \ Z	DCH
- DL Transport channel identity		10
- CHOICE DL parameters		Same as UL
- Uplink transport channel type		DCH
	ı	

U. Trich Heintity DCH quality varies BLER Quality value Transparent mode signaling info Added or Reconfigured DL TrCH information Added or Reconfigured DL TrCH information Downlink fransport channel-type DL Transport channel-type DL Transport channel-type DL Transport channel-type Dynamic Transport channel-type Dynamic Transport format information RLC Size - Number of TBs and TTI List Transmission Time interval - Number of Tassport blocks - CHOICE Legical Channel-tist - Sami static Transport Format information Transmission time interval - Type of channel-coding - Coding Rate - Rate matching attribute - BLER Quality value - DL Transport channel-type DL Transport channel-type DL Transport formation Transmission Time interval - Reference to TS34.108 clause 6.10 Parameter Set Reference to TS34.108 clause 6.10 Parameter Reference	Information Element	Condition	Value/remark
## SER Quality value ## Transparent mode signalling-info ## Added or Reconfigured DL TrCH information ## Added or Reconfigured DL TrCH information ## Added or Reconfigured DL TrCH information ## Downlink transport channel type ## DL Transport channel type ## DL Transport channel type ## Dunder Transport channel type ## Dynamic Transport format information ## Reference to TS34.10s clause 6.10 Parameter ## Set ## CHOICE Lagical Channel list ## Sami-static Transport Format information ## Transmission time interval ## Reference to TS34.10s clause 6.10 Parameter ## Set ## Reference to TS34.10s clause 6.10 Parameter ## DCH ## DCH ## DCH ## DCH ## Reference to TS34.10s clause 6.10 Parameter ## Reference to TS34.10s clause 6.10			5
Added or Reconfigured DL TrCH information A1.A2.A3, A6 Added or Reconfigured DL TrCH information Downlink transport channel information Downlink transport channel information Downlink transport channel information CHOICE DL parameters TFS CHOICE Transport channel information RLC Size Number of TBe and TTL List Transmission Time Interval Number of Transport blocks CHOICE Legical Channel list Semi-static Transport Domain Information Transmission time interval Reference to TS34.108 clause 6.10 Parameter Set CHOICE Legical Channel list Added or Reconfigured DL TrCH information Transmission time interval Reference to TS34.108 clause 6.10 Parameter Set Set Reference to TS34.108 clause 6.10 Parameter Set DCH quality target Set Reference to TS34.108 clause 6.10 Parameter Set DCH quality target Set Reference to TS34.108 clause 6.10 Parameter Set DCH quality target Dut TrCH information Downlink transport channel type Ut TrCH Information Downlink transport channel type Ut TrCH Information Transmission time interval DCH Set Reference to TS34.108 clause 6.10 Parameter Set Ut TrCH Information Transmission time interval Number of TBe and TT List Transmission time interval Number of TBe and TT List Transmission time interval Number of TBe and TT List Transmission time interval Number of TBe and TT List Transmission time interval Number of TBe and TT List Transmission time interval Number of TBe and TT List Transmission time interval Reference to TS34.108 clause 6.10 Parameter Set Set Set Reference to TS34.108 clause 6.10 Parameter Set Set Reference to TS34.108 clause 6.10 Parameter Set Reference to TS34.108 clause 6.10 Parameter Set Set Reference to			
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- CRC size - DCH quality target - BLER Quality value - Transparent mode signalling into Added or Reconfigured DL TrCH information - Dewnlink transport channel type - DL Transport channel identity - CHOICE DL parameters - Uplink transport channel type - UL TrCH Identity - TFS - CHOICE Transport channel type - Dynamic Transport channel type - Dynamic Transport format information - RLC Size - Number of TBs and TTI List - Transmission Time Interval - Number of Transport blocks - CHOICE Legical Channel list - Semi-static Transport Format information - Transmission time interval - Type of channel coding - Coding Rate - Rate matching attribute - CRC size - CRC size - CAL Reference to TS34.108 clause 6.10 Parameter - Set - Reference to TS34.108 clause 6.10 Parameter - Set - Reference to TS34.108 clause 6.10 Parameter - Set - Reference to TS34.108 clause 6.10 Parameter - Set - Reference to TS34.108 clause 6.10 Parameter - Set - Reference to TS34.108 clause 6.10 Parameter	Date metalsing attribute		
- CRC size - DCH quality target - BLER Quality value - Transparent mode signalling infe Added or Reconfigured DL TrCH information - Downlink transport channel type - DL Transport channel identity - CHOICE DL parameters - Uplink transport channel type - UL TrCH information - RLC Size - Number of Tse and TTI Liet - Transmission Time Interval - Number of Transport Information - Transmission time interval - Type of channel coding - Coding Rate - Rate matching attribute - CRC size - Reference to TS34.108 clause 6.10 Parameter - Set - Reference to TS34.108 clause 6.10 Parameter - Set - Reference to TS34.108 clause 6.10 Parameter - Set - Reference to TS34.108 clause 6.10 Parameter - Set - Reference to TS34.108 clause 6.10 Parameter - Set - Reference to TS34.108 clause 6.10 Parameter - Set - Reference to TS34.108 clause 6.10 Parameter - Set - Reference to TS34.108 clause 6.10 Parameter - Set - Reference to TS34.108 clause 6.10 Parameter - Set - Reference to TS34.108 clause 6.10 Parameter - Set - Reference to TS34.108 clause 6.10 Parameter - Set - Reference to TS34.108 clause 6.10 Parameter - Set - Reference to TS34.108 clause 6.10 Parameter - Set - Reference to TS34.108 clause 6.10 Parameter - Set - Reference to TS34.108 clause 6.10 Parameter - Set - Reference to TS34.108 clause 6.10 Parameter	- Rate matching attribute		
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- Rate matching attribute - CRC size Set Reference to TS34.108 clause 6.10 Parameter Set Reference to TS34.108 clause 6.10 Parameter	- Coding Rate		
- Rate matching attribute - CRC size Reference to TS34.108 clause 6.10 Parameter Set Reference to TS34.108 clause 6.10 Parameter	3		
Set Reference to TS34.108 clause 6.10 Parameter	- Rate matching attribute		E 5 1
——————————————————————————————————————			
	- CRC size		
			Set

Information Element	Condition	Value/remark
- DCH quality target		
- BLER Quality value		-6.3
- Transparent mode signalling info		Not Present
	A 4 A 0 A 0	NOT FICSCHI
Frequency info	A1,A2,A3,	
	A4,A5,A6	
- UARFCN uplink_(Nu)		Reference to clause 5.1 Test
		frequencies Reference to TS34.108 clause
		6.10 Parameter Set
LIADECN downlink (Nd)		Reference to clause 5.1 Test
- UARFCN downlink_(Nd)		
		frequenciesReference to TS34.108 clause
		6.10 Parameter Set
Maximum allowed UL TX power	A1,A2,A3,	33dBm
·	A4,A5,A6	
CHOICE channel requirement	A1, A2, A3,	Not Present
OHOIOL charmer requirement		Not i resent
	<u>A5, A6</u>	
CHOICE channel requirement	A1, A2, A3,	Uplink DPCH info
	A4	
-Uplink DPCH power control info		
- DPCCH power offset		-6dB
- PC Preamble		1 frame
- SRB delay		7 frames
- Power Control Algorithm		Algorithm1
- TPC step size		1dB
- Scrambling code type		Long
- Scrambling code number		0 (0 to 16777215)
- Number of DPDCH		Not Present(1)
- spreading factor		SF is rReference to TS34.108 clause 6.10
		Parameter Set
- TFCI existence		Reference to TS34.108 clause 6.10 Parameter
- Troi existence		
		<u>Set</u> TRUE
- Number of FBI bit		Reference to TS34.108 clause 6.10 Parameter
		Set Not Present(0)
- Puncturing Limit		Reference to TS34.108 clause 6.10 Parameter
T directing Enrice		Set Reference to TS34.108 clause 6.10
		Parameter Set 0.96
CHOICE Mode	A1,A2,A3,	FDD
	A4,A5,A6	
- Downlink PDSCH information		Not Present
Downlink information common for all radio links	A1, A2,	Not Present
DOWNINK INFORMATION COMMON TOL AIL TAGIO IINKS		Not Fresent
	A3,A5, A6	
Downlink information common for all radio links	A1, A2, A3,	
	A4	
- Downlink DPCH info common for all RL	1	
		Maintain
- Timing indicator		Maintain
 CFN-targetSFN frame offset 		Not Present
 Downlink DPCH power control information 		
- DPC mode		0 (single)
- CHOICE mode		FDD
- Power offset P _{Pilot-DPDCH}		TBD0
 DL rate matching restriction information 		Not Present
 Spreading factor 		Reference to TS34.108 clause 6.10 Parameter
		Set 32
- Fixed or Flexible Position		Reference to TS34.108 clause 6.10 Parameter
I IAGG OF FIGAINIG F GOILLOTT		
TEOL 11		Set Flexible
- TFCI existence		Reference to TS34.108 clause 6.10 Parameter
		Set TRUE
- CHOICE SFNumber of bits for Pilot		Not PresentOtherwise
bits(SF=128,256)		The state of the s
		Not Present
- DPCH compressed mode info		Not Present
TGPSI		4
- TGPS Status Flag		

Information Element	Condition	Value/remark
TGCFN		(Current CFN + (256 - TTI/10msec)) mod 256
- Transmission gap pattern sequence configuration		
parameters		
TGMP		FDD Measurement
- TGPRC		62
- TGSN		8
- TGL1		10
-TGL2		5
TGD		15
- TGPL1		35
- TGPL2		35
- RPP		Mode 1
- ITP		Mode 1
- CHOICE UL/DL Mode		DL
- Downlink compressed mode method		SF/2
- Downlink frame type		A
- DeltaSIR1		2.0
- DeltaSIRafter1		1.0
- DeltaSIR2		Not Present
- DeltaSIRafter2		Not Present
- N_Identify_abort		Not Present
- T_Reconfirm_abort		Not Present
- TX Diversity mode		None
- SSDT information		Not Present
- Default DPCH Offset Value		Not resent
Downlink information for each radio link list	A1, A2, A3,	OIVOLT TOOCH
Downlink information for each radio link list	A4	
- Downlink information for each radio links	A1, A4	
- CHOICE mode	7(1,7(4	FDD
- Primary CPICH info		
- Primary scrambling code		100
- PDSCH with SHO DCH info		Not Present
- PDSCH code mapping		Not Present
- Downlink DPCH info for each RL		Hot i room
- Primary CPICH usage for channel estimation		Primary CPICH may be used
- DPCH frame offset		0 chips
- Power offset P _{Pilot-DPDCH}		TBD0
- Secondary CPICH info		Not Present
- DL channelisation code		
- Secondary scrambling code		44
- Spreading factor		Reference to TS34.108 clause 6.10 Parameter
Sprodaing racio.		Set
- Code number		SF-1(SF is reference to TS34.108 clause 6.10
		Parameter Set)0
- Scrambling code change		No change
- TPC combination index		0
- SSDT Cell Identity		Not Present-a
- Closed loop timing adjustment mode		Not Present
- SCCPCH information for FACH		Not Present
- GOOL OF INIOMIAMON TO FACE	L	INOLITOSCIIL

Information Element	Condition	Value/remark
-Downlink information for each radio link	A2	
- Choice mode		FDD
- Primary CPICH info		
- Primary scrambling code		100
- PDSCH with SHO DCH info		Not Present
- PDSCH code mapping		Not Present
- Downlink DPCH info for each RL		
- Primary CPICH usage for channel estimation		Primary CPICH may be used
		0 chips
- Secondary CPICH info		Not Present
- Secondary scrambling code		
- channelisation code		
- DL channelisation code - Secondary scrambling code		1
- Secondary scrampling code - Spreading factor		4 128
- Spreading lactor - Code number		1 120 0
- Scrambling code change		No change
- TPC combination index		Δ
- SSDT Cell Identity		<u>♥</u> Not Present
- Closed loop timing adjustment mode		Not Present
- SCCPCH information for FACH		Not Present
- Downlink information for each radio link	A3	
- Choice mode		FDD
- Primary CPICH info		
- Primary scrambling code		100
- PDSCH with SHO DCH info		Not Present
- PDSCH code mapping		Not Present
- Downlink DPCH info for each RL		
- Primary CPICH usage for channel estimation		Primary CPICH may be used
- DPCH frame offset		0 chips
- Secondary CPICH info		Not Present
- DL channelisation code		THE THOUSEN
- Secondary scrambling code		1
- Spreading factor		<u>4</u> <u>8</u>
- Code number		
		<u>0</u>
- Scrambling code change		No change
- TPC combination index		<u>0</u>
- SSDT Cell Identity		Not Present
- Closed loop timing adjustment mode		Not Present
- SCCPCH information for FACH	ΛΕ ΛC	Not Present
Downlink information for each radio link list - Downlink information for each radio link	A5, A6	
- Choice mode	<u>A5</u>	FDD
- Choice mode - Primary CPICH info		Set to the default value of cell 1.
- Primary scrambling code		100
- PDSCH with SHO DCH info		Not Present
- PDSCH code mapping		Not Present
- Downlink DPCH info for each RL		Not present
- SCCPCH information for FACH		Not Present
- Downlink information for each radio link	A6	
- Choice mode		<u>FDD</u>
- Primary CPICH info		
- Primary scrambling code		<u>150</u>
- PDSCH with SHO DCH info		Not Present
- PDSCH code mapping		Not Present
- Downlink DPCH info for each RL		Not present
- SCCPCH information for FACH		Not Present

Condition	Explanation
A1	This IE need for "Non speech in CS"
A2	This IE need for "Speech in CS"
A3	This IE need for "Packet to CELL_DCH from CELL_DCH in PS"
A4	This IE need for "Packet to CELL_DCH from CELL_FACH in PS"
A5	This IE need for "Packet to CELL_FACH from CELL_DCH in PS"
A6	This IE need for "Packet to CELL_FACH from CELL_FACH in PS"

Note: The radio bearer configurations used here are served as example only, test operator can choose to use other radio bearer configurations.

Contents of TRANSPORT CHANNEL RECONFIGURATION COMPLETE message: AM

Information Element	Value/remark	
Message Type		
RRC transaction identifier	Checked to see if the value is identical to the same IE in the downlink TRANSPORT CHANNEL RECONFIGURATION message	
Integrity check info	The presence of this IE is dependent on IXIT statements in TS 34.123-2. If integrity protection is indicated to be active, this IE shall be present with the values of the sub IEs as stated below. Else, this IE and the sub-IEs shall be absent.	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS.	
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.	
Uplink integrity protection activation info	Not checked	
CHOICE mode	FDD	
COUNT-C activation time	The presence of this IE depends on the following 2	
	factors: (a) There exists RB(s) mapped to RLC-TM and	
	(b) UE is transiting to CELL_DCH state after the	
	reconfiguration procedure. Else, this IE is absent.	
Radio bearer uplink ciphering activation time info	Not checked	
Uplink counter synchronisation info	Not checked	

Contents of TRANSPORT CHANNEL RECONFIGURATION FAILURE message: AM

Information Element	<u>Value/remark</u>
Message Type	
RRC transaction identitifer	Checked to see if it is set to identical value of the same IE
	in the downlink TRANSPORT CHANNEL
	RECONFIGURATION message.
Integrity check info	The presence if this IE is dependent on IXIT statements in
	TS 34.123-2. if integrity protection is indicated to be
	active, this IE shall be present with the values of the sub
	IEs as stated below. Else, this IE and the sub-IEs shall be
	absent.
 Message authentication code 	This IE is checked to see if it is present. The value is
	compared against the XMAC-I value computed by SS.
 - RRC Message sequence number 	This IE is checked to see if it is present. The value is
	used by SS to compute the XMAC-I value.
Failure cause	Checked to see if it meets test requirement

Contents of TRANSPORT FORMAT COMBINATION CONTROL message: AM or UM (in CELL_DCH)

Information Element	Value/remark	
Message Type		
RRC transaction identifier	Arbitrarily selects an integer between 0 and 3	
Integrity check info	The presence of this IE is dependent on IXIT statements in TS 34.123-2. If integrity protection is indicated to be active, this IE is present with the values of the sub IEs as stated below. Else, this IE and the sub-IEs are omitted.	
- Message authentication code	SS calculates the value of MAC-I for this message and writes to this IE.	
- RRC Message sequence number	SS provides the value of this IE, from its internal counter.	
CHOICE mode	<u>FDD</u>	
DPCH/PUSCH TFCS in Uplink		
- CHOICE Subset representation	Allowed transport format combination list	
- Allowed Transport format combination index	0 (The TFC is constructed from ALL TF0)	
Activation time for TFC subset	Not Present	
TFC Control duration	Not Present	

Contents of UE CAPABILITY ENQUIRY message: AM or UM

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects an integer between 0 and 3
Integrity check info	The presence of this IE is dependent on IXIT statements in TS 34.123-2. If integrity protection is indicated to be active, this IE is present with the values of the sub IEs as stated below. Else, this IE and the sub-IEs are omitted.
- Message authentication code	SS calculates the value of MAC-I for this message and writes to this IE.
- RRC Message sequence number Capability update requirement	SS provides the value of this IE, from its internal counter.
- UE radio access capability update requirement	TRUE

Contents of UE CAPABILITY INFORMATION message: AM

Information Element	Value/remark
Message Type	
RRC transaction identifier	Checked to see if the value is identical to the same IE in the downlink UE CAPABILITY ENQUIRY message.
Integrity check info	The presence of this IE is dependent on IXIT statements in TS 34.123-2. If integrity protection is indicated to be active, this IE shall be present with the values of the sub IEs as stated below. Else, this IE and the sub-IEs shall be absent.
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
UE radio access capability	Value will be checked. Stated capability must be compatible with 34.123-2 (ICS statements) and the user settings
- ICS Version	Source State of the State of th
- PDCP Capability	
- RLC Capability	
- Transport channel capability	
- RF Capability FDD	
- RF Capability TDD	
- Physical channel capability	
- UE multi-mode/multi-RAT capability	
- Security Capability	
- LCS Capability	
- Measurement capability	
UE radio access capability extension	Value will be checked. Stated capability must be
	compatible with 34.123-2 (ICS statements) and the user
	settings
UE system specific capability	Not Checked

Contents of UE CAPABILITY INFORMATION CONFIRM message: UM

Information Element	Value/remark
Message Type	
Integrity check info	The presence of this IE is dependent on IXIT statements in TS 34.123-2. If integrity protection is indicated to be active, this IE is present with the values of the sub IEs as stated below. Else, this IE and the sub-IEs are omitted.
- Message authentication code	SS calculates the value of MAC-I for this message and writes to this IE.
- RRC Message sequence number	SS provides the value of this IE, from its internal counter.

Contents of URA UPDATE message: TM

Information Element	Value/remark
Message Type	
U-RNTI	
- SRNC identity	0000 0000 0001B
- S-RNTI	0000 0000 0000 0000 0001B
RRC transaction identifier	Checked to see if it is absent
Integrity check info	The presence of this IE is dependent on IXIT statements
	in TS 34.123-2. If integrity protection is indicated to be
	active, this IE shall be present with the values of the sub
	IEs as stated below. Else, this IE and the sub-IEs shall be
	absent.
- Message authentication code	This IE is checked to see if it is present. The value is
	compared against the XMAC-I value computed by SS.
- RRC Message sequence number	This IE is checked to see if it is present. The value is
	used by SS to compute the XMAC-I value.
URA update cause	See the test content
Protocol error indicator	Checked to see if it is absent or set to 'FALSE'
Protocol error information	Checked to see if it is absent

Contents of URA UPDATE CONFIRM message: UM

Information Element	Value/remark
Message Type	Valuorionian
U-RNTI	If this message is sent on CCCH, use the following
	values. Else, this IE is absent.
- SRNC identity	0000 0000 0001B
- S-RNTI	0000 0000 0000 0000 0001B
RRC transaction identifier	Arbitrarily selects and integer between 0 and 3
Integrity check info	The presence of this IE is dependent on IXIT statements
	in TS 34.123-2. If integrity protection is indicated to be
	active, this IE is present with the values of the sub IEs as
	stated below. Else, this IE and the sub-IEs are omitted.
- message authentication code	SS calculates the value of MAC-I for this message and
	writes to this IE.
- RRC message sequence number	SS provides the value of this IE, from its internal counter.
Integrity protection mode info	Not Present
Ciphering mode info	Not Present
New U-RNTI	Not Present
New C-RNTI	Not Present
RRC state indicator	URA_PCH
UTRAN DRX cycle length coefficient	Not Present
CN information info	Not Present
URA identity	See the test content
Downlink counter synchronisation info	Not Present

3GPP TSG-T1 Meeting #13 Cancun, Mexico, 29th – 30th November 2001

	CHANGE REQUES	CR-Form-v4
34.	123-1 CR 122 # ev -	[♯] Current version: 4.0.0 [♯]
For <u>HELP</u> on using	ng this form, see bottom of this page or look at	t the pop-up text over the \mathbb{H} symbols.
Proposed change affe	ects: 第 (U)SIM ME/UE X Radio	Access Network Core Network
	Changes to clause 12 Elementary procedure for Management	or Packet Switched Mobility
Source: # N	Nokia	
Work item code: ₩	ΓΕΙ	Date: 第 2001-11-29
De	se one of the following categories: F (correction) A (corresponds to a correction in an earlier rele B (addition of feature), C (functional modification of feature) D (editorial modification) etailed explanations of the above categories can be found in 3GPP TR 21.900.	Release: # REL-4 Use one of the following releases: 2 (GSM Phase 2) ease) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) REL-4 (Release 4) REL-5 (Release 5)
Reason for change:	Changes are based on CRs to 51.010-1 c	clause 44 approved in GERAN WG5 #1
Summary of change:	1) G5-010077 Effected test case 12.2.1.3. In current test case implementation test so deactivated cell and activate an already a sequence. Repetition of Test Sequence compared to the sequence of the sequence of the sequence. Repetition of Test Sequence of the sequence o	ystem should deactivate still activated cell when repeating the test shanged to start from step 17. Indictivated cell when repeating the test shanged to start from step 17. Indictivated cell when step 17. Indictivated to start from step 17. Indictivated cell when repeating the test shanged to start from step 17. Indictivated cell when repeating the test shanged to start from step 17. Indictivated to start fro
	Access control class 'X' corrected to 'x'. Step 13 in Test procedure 1 changed so t of step 2. Initial conditions for the UE in changed to	

4) G5-010162

Effected test case 12.2.2.3.

In step 7 of the Expected Sequence ATTACH REQUEST should accept 'Combined PS / IMSI attached'

5) G5-010085

Effected test case 12.3.1.3.

Added 'Switch on off button' in Related ICS/IXIT statement.

Changed reference in Expected Sequence step 1.

Contraints for ATTACH REQUEST in step 21 corrected, as they do not match previous steps and core specifications. In step 4 in ATTACH ACCEPT, P-TMSI and P-TMSI signature is not included.

6) G5-010086

Effected test case 12.3.1.4.

Correction of step 16. UE should ignore the GMM Information message sent by the SS in step 15 or send a GMM Status message with cause 'Message type non-existent or not implemented'.

7) G5-010088

Effected test case 12.3.2.2.

Test step 2 in the Expected Sequence corrected.

8) G5-010090

Message names corrected throughout clause 12 to be in line with the core specification 24.008 (ROUTING AREA UPDATING REQUEST changed to ROUTING AREA UPDATE REQUEST, ROUTING AREA UPDATING ACCEPT changed to ROUTING AREA UPDATE ACCEPT, ROUTING AREA UPDATING COMPLETE changed to ROUTING AREA UPDATE COMPLETE and ROUTING AREA UPDATING REJECT changed to ROUTING AREA UPDATE REJECT). Effected test case 12.4.1.2.

Attach Type in step 17 ATTACH REQUEST changed to 'PS attach' and Attach result in step 18 ATTACH ACCEPT changed to 'PS only attached'.

Detach type = 'power switched off, PS detach' in step 21 DETACH REQUEST was missing.

9) G5-010094

Effected test case 12.4.1.6.

Change step 1 and 2 in order to guarantee correct sequence.

In step 19 cell C has to be switched off before repeating expected sequence from step 2.

10) G5-010096

Effected test case 12.4.1.8.

Message name P-TMSI REALLOCATION REQUEST changed to P-TMSI REALLOCATION COMMAND to be in line with the core specification 24.008.

11) G5-010157

Effected test case 12.4.2.2.

Expected sequence changed. Step 7 describes the transition from Cell A to Cell B as if it was a cell re-selection. The transition must be done by handover procedure and thus it is not necessary to manipulate the level of the cells.

12) G5-010098

Effected test case 12.4.2.6.

'Random' changed to 'arbitrarily chosen' in Initial Conditions 12.4.2.6.4.1 and 12.4.2.6.4.2.

Access control class 'X' corrected to 'x'.

Step numbering and references in Expected Sequences corrected.

In step 12 Mobile Identity changed to TMSI-1 in Test Procedure 2.

Initial Conditions for the SS completed and corrected in order to clarify them. Editorial corrections.

13) G5-010099 Effected test case 12.4.2.7. Step numbering and references in Expected Sequence corrected. Initial Conditions for the UE corrected to 'The UE has a valid IMSI'. 14) G5-010124 Effected test case 12.4.3.3. Update type changed in step 12 to be 'combined RA/LA updating with IMSI attach'. Consequences if Mismatch between core specification 24.008 and test specification 34.123-1. Mismatch between test specifications 51.010-1 and 34.123-1. not approved: Clauses affected: 12.1, 12.2.1.3, 12.2.1.4, 12.2.1.6, 12.2.2.3, 12.3.1.3, 12.3.1.4, 12.3.2.2, 12.4.1.1, 12.4.1.2, 12.4.1.3, 12.4.1.4a, 12.4.1.4b, 12.4.1.5, 12.4.1.6, 12.4.1.7, 12.4.1.8, 12.4.2.1, 12.4.2.2, 12.4.2.4, 12.4.2.5b, 12.4.2.6, 12.4.2.7, 12.4.2.8, 12.4.2.9, 12.4.2.10, 12.4.3.1, 12.4.3.2, 12.4.3.3, 12.4.3.4, 12.6.1.1, 12.6.1.2, 12.6.1.3.1, 12.6.1.3.2, 12.9.9 \mathfrak{R} Other specs Other core specifications \mathfrak{R} affected: Test specifications **O&M Specifications** Other comments: 署 Affects R99 and REL-4.

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at: http://www.3gpp.org/3G Specs/CRs.htm. Below is a brief summary:

- 1) Fill out the above form. The symbols above marked # contain pop-up help information about the field that they are closest to.
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- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

Expected sequence

Step	Direction	Message	Comments
	UE SS		
1	+	REQUEST PDP CONTEXT	Request the activation of a PDP context
		ACTIVATION	with the transaction identifier flag set to "1"
2	SS		Wait 30 seconds to ensure UE does not
			request context activation
3	UE		Initiate a context request
4	\rightarrow	ACTIVATE PDP CONTEXT	Activate a PDP context from the UE
_		REQUEST	<u> </u>
5	←	ACTIVATE PDP CONTEXT	Unknown IE encoded as 'comprehension
		ACCEPT	required'
6	→ SS	SM STATUS	Cause set to #96
7 8	>>>	ACTIVATE PDP CONTEXT	Wait T3380 seconds
0	7	REQUEST	Activate a PDP context from the UE (autogenerated)
9	←	ACTIVATE PDP CONTEXT	Out of sequence IE encoded as
9	`	ACCEPT	comprehension required
10	\rightarrow	SM STATUS	Cause set to #96
11	SS		Wait T3380 seconds
12	\rightarrow	ACTIVATE PDP CONTEXT	Activate a PDP context from the UE (auto-
		REQUEST	generated)
13	←	ACTIVATE PDP CONTEXT	Accept the PDP context
		ACCEPT	
40	,	DEACTIVATE DDD CONTEXT	
16	←	DEACTIVATE PDP CONTEXT	Try to deactivate the context with a different
		REQUEST	transaction identifier to that used to activate the context
17	\rightarrow	SM STATUS	Cause set to # 81
18	\leftarrow	MODIFY PDP CONTEXT	Request the modification of the PDP
10	`	REQUEST(NETWORK TO UE	context
		DIRECTION)	Comox
19	\rightarrow	SM STATUS	Cause set to # 96
20	←	MODIFY PDP CONTEXT	Request the modification of the PDP
		REQUEST(NETWORK TO UE	context
		DIRECTION)	
21	\rightarrow	SM STATUS	Cause set to # 96
22	←	MODIFY PDP CONTEXT	Request the modification of the PDP
		REQUEST(NETWORK TO UE	context
		DIRECTION)	
23	\rightarrow	SM STATUS	Cause set to # 96

11.4.1.5 Test requirements

TBD.

12 Elementary procedure for Packet Switched Mobility Management

12.1 Applicability, default conditions and default messages

All test cases for PS mobility management apply for all PS mobiles unless otherwise stated in a specific test. Within each test case, the ICS statement indicates whether the test shall be performed for mobiles that can only operate in mode - class A, only in mode - class C, or in both mode - class A and C. For some procedures, the mobile class is of no importance.

Note that only the layer 3 messages are described in the document. The mapping of the layer 3 messages to lower layers and the use of logical channels is not described in the present document.

The terms 'PS/CS mode of operation' and 'PS mode of operation' are not used in the present document with some exceptions. Instead the terms 'UE operation mode A' and 'UE operation mode C' are used.

The default conditions and default message contents not specified in this clause must be set as in "PS default conditions"

Below is a list of the RAI values and the corresponding RAC, LAC and MCC used in the test cases:

RAI-1: MCC1/MNC1/LAC1/RAC1 (Used if only one cell)

RAI-2: MCC2/MNC1/LAC1/RAC1

RAI-3: MCC1/MNC1/LAC2/RAC1

RAI-4: MCC1/MNC1/LAC1/RAC2

RAI-5: MCC1/MNC1/LAC1/RAC3

RAI-6: MCC2/MNC1/LAC2/RAC1

RAI-7: MCC2/MNC1/LAC1/RAC2

RAI-8: MCC1/MNC2/LAC1/RAC1

RAI-9: MCC1/MNC2/LAC2/RAC1

RAI10: MCC1/MNC2/LAC1/RAC2

If the User Equipment initial condition specifies that the mobile has a valid IMSI but the initial condition does not mention P-TMSI, than that shall be interpreted as that the mobile has no valid P-TMSI.

The tests are based on 3GPP TS 24.008.

12.2 PS attach procedure

This procedure is used to indicate for the network that the IMSI is available for traffic by establishment of a GMM context.

12.2.1 Normal PS attach

The normal PS attach procedure is a GMM procedure used by PS UEs of UE operation mode A or C to IMSI attach for PS services only.

12.2.1.1 PS attach / accepted

12.2.1.1.1 Definition

12.2.1.1.2 Conformance requirement

- 1) If the network accepts the PS attach procedure (signalled by an IMSI) and allocates a P-TMSI, the UE shall acknowledge the P-TMSI and continue communication with the P-TMSI.
- 2) If the network accepts the PS attach procedure (signalled by P-TMSI) and reallocates a new P-TMSI, the UE shall acknowledge the new P-TMSI and continue communication with the new P-TMSI.
- 3) If the network accepts the PS attach procedure (signalled by a P-TMSI) from the UE without reallocation of the old P-TMSI, the UE shall continue communication with the old P-TMSI.

Reference

3GPP TS 24.008 clause 4.7.3.1

12.2.1.1.3 Test purpose

To test the behaviour of the UE if the network accepts the PS attach procedure.

The following cases are identified:

- 1) P-TMSI / P-TMSI signature is allocated;
- 2) P-TMSI / P-TMSI signature is reallocated;
- 3) Old P-TMSI / P-TMSI signature is not changed.

12.2.1.1.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode A Yes/No UE operation mode C Yes/No Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

- 1) The UE sends an ATTACH REQUEST message with identity IMSI. The SS allocates a P-TMSI and returns ATTACH ACCEPT message with a P-TMSI. The UE acknowledge the P-TMSI by sending ATTACH COMPLETE message. Further communication UE SS is performed by the new P-TMSI.
- 2) The UE sends an ATTACH REQUEST message with identity P-TMSI. The SS reallocates a new P-TMSI and returns ATTACH ACCEPT message with the new P-TMSI. The UE acknowledge the P-TMSI by sending ATTACH COMPLETE message. Further communication UE SS is performed by the new P-TMSI. The UE will not answer signalling addressed to the old P-TMSI.
- 3) The UE sends an ATTACH REQUEST message with identity P-TMSI. The SS accepts the P-TMSI and returns ATTACH ACCEPT message without any P-TMSI. Further communication UE SS is performed by the old P-TMSI.

Expected Sequence

Step	Direction UE SS	Message	Comments
1	UE		The UE is set in UE operation mode C (see
			ICS). If UE operation mode C not supported,
2	UE		goto step 26. The UE is powered up or switched on and
	OL OL		initiates an attach (see ICS).
3	->	ATTACH REQUEST	Attach type = 'PS attach'
4	<-	ATTACH ACCEPT	Mobile identity = IMSI Attach result = 'PS only attached'
•		7. T.	Mobile identity = P-TMSI-2
			P-TMSI-2 signature
5	->	ATTACH COMPLETE	Routing area identity = RAI-1
6	<-	PAGING TYPE1	Mobile identity = P-TMSI-2
6a		RRC CONNECTION REQUEST	Paging order is for PS services.
6b	-> <-	RRC CONNECTION SETUP	
6c	->	RRC CONNECTION SETUP	
7	->	COMPLETE SERVICE REQUEST	Service type = "paging response"
1		SERVICE REGIOT	Dervice type = paging response
7a 7b	<-	RRC CONNECTION RELEASE	
76	->	RRC CONNECTION RELEASE COMPLETE	
8	UE		The UE is switched off or power is removed
9	->	DETACH REQUEST	(see ICS). Message not sent if power is removed.
		DETACTIVEQUEUT	Detach type = 'power switched off, PS detach'
10	UE		The UE is powered up or switched on and
11	->	ATTACH REQUEST	initiates an attach (see ICS). Attach type = 'PS attach'
			Mobile identity = P-TMSI-2
			P-TMSI-2 signature Routing area identity = RAI-1
12	<-	ATTACH ACCEPT	Attach result = 'PS only attached'
			Mobile identity = P-TMSI-1
			P-TMSI-1 signature Routing area identity = RAI-1
13	->	ATTACH COMPLETE	
14 14b	<-	GMM INFORMATION GMM STATUS	Message sent with P-TMSI-1
140	->	GWW STATUS	Message sent in case the UE does not support reception of GMM information message
			Cause #97
15	<-	PAGING TYPE1	Mobile identity = P-TMSI-2 Paging order is for PS services.
16	UE		No response from the UE to the request. This
17	UE		is checked for 10 seconds.
17	UE		The UE is switched off or power is removed (see ICS).
18	->	DETACH REQUEST	Message not sent if power is removed.
19	UE		Detach type = 'power switched off, PS detach' The UE is powered up or switched on and
			initiates an attach (see ICS).
20	->	ATTACH REQUEST	Attach type = 'PS attach'
			Mobile identity = P-TMSI-1 P-TMSI-1 signature
			Routing area identity = RAI-1
21	<-	ATTACH ACCEPT	No new mobile identity assigned. P-TMSI and P-TMSI signature not included.
			Routing area identity = RAI-1
66		DA CINIC TYPE	Attach result = 'PS only attached'
22	<-	PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.
			PAGING TYPE 1 (used for NW-mode II).
22a	->	RRC CONNECTION REQUEST	

Step	Direction	Message	Comments
	UE SS		
22b	<-	RRC CONNECTION SETUP	
22c	->	RRC CONNECTION SETUP	
		COMPLETE	
23	->	SERVICE REQUEST	Service type = "paging response"
23a	<-	RRC CONNECTION RELEASE	
23b	->	RRC CONNECTION RELEASE	
		COMPLETE	
24	UE		The UE is switched off or power is removed
			(see ICS).
25	->	DETACH REQUEST	Message not sent if power is removed.
			Detach type = 'power switched off, PS detach'
26	UE		The UE is set in UE operation mode A (see
			ICS) and the test is repeated from step 2 to
			step 25.

Specific message contents

None.

12.2.1.1.5 Test requirements

UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence when UE is powered up or switched on.
- perform the following actions depending on the Mobile identity in the ATTACH REQUEST message and on the Mobile identity in the ATTACH ACCEPT message.

Case 1) The Mobile identity in the ATTACH REQUEST is the IMSI and the Mobile identity in the ATTACH ACCEPT message is the P-TMSI.

UE shall:

- acknowledge the P-TMSI by sending ATTACH COMPLETE message. Further communication UE - SS is performed by the P-TMSI.

Case 2) The Mobile identity in the ATTACH REQUEST is the P-TMSI and the Mobile identity in the ATTACH ACCEPT message is the new P-TMSI.

UE shall:

- acknowledge the new P-TMSI by sending ATTACH COMPLETE message. Further communication UE - SS is performed by the other P-TMSI.

Case 3) The Mobile identity in the ATTACH REQUEST is the P-TMSI and the Mobile identity in the ATTACH ACCEPT message is the same P-TMSI.

UE shall:

- acknowledge the same P-TMSI by sending ATTACH COMPLETE message. Further communication UE - SS is performed by the same P-TMSI.

12.2.1.2 PS attach / rejected / IMSI invalid / illegal UE

12.2.1.2.1 Definition

12.2.1.2.2 Conformance requirement

1) If the network rejects a PS attach procedure from the User Equipment with the cause 'Illegal UE', the User Equipment shall consider USIM invalid for PS services until power is switched off or USIM is removed.

- 2) If the network rejects a PS attach procedure from the User Equipment with the cause 'Illegal UE' the User Equipment shall delete the stored RAI, PS-CKSN, P-TMSI and P-TMSI signature.
- 3) If the network rejects a PS attach procedure from the User Equipment with the cause 'Illegal UE', the User Equipment shall delete the LAI.

Reference

3GPP TS 24.008 clause 4.7.3.1.

12.2.1.2.3 Test purpose

To test the behaviour of the UE if the network rejects the PS attach procedure of the UE with the cause 'illegal UE'.

12.2.1.2.4 Method of test

Initial condition

System Simulator:

Three cells (not simultaneously activated), cell A with MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in

MCC1/MNC1/LAC2/RAC1 (RAI-3), cell C in MCC2/MNC1/LAC1/RAC1 (RAI-2).

All three cells are operating in network operation mode II (in case of UE operation mode A).

User Equipment:

The UE has a valid P-TMSI-1, P-TMSI-1 signature and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode C Yes/No

UE operation mode A Yes/No (only if mode C not supported)

Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a PS attach with the cause value 'Illegal UE'. The SS checks that the UE does not perform PS attach in the same or another PLMN.

Expected Sequence

Step	Direction	Message	Comments
	UE SS		The fellowing group and and all he
			The following messages are sent and shall be received on cell A.
1	UE		The UE is set in UE operation mode C (see
'			ICS).
2	SS		The SS is set in network operation mode II and
			activates cell A.
3	UE		The UE is powered up or switched on and
			initiates an attach (see ICS). Cell A is preferred
			by the UE.
4	->	ATTACH REQUEST	Attach type = 'PS attach'
			Mobile identity = P-TMSI-1
			P-TMSI-1 signature
_			Routing area identity = RAI-1
5	<-	ATTACH REJECT	GMM cause = 'Illegal UE'.
			The following messages are sent and shall be
6	cc		received on cell B. The SS deactivates cell A and activates cell B.
6	SS UE		Cell B is preferred by the UE.
8	UE		No ATTACH REQUEST sent to the SS
	02		(SS waits 30 seconds).
9	UE		The UE initiates an attach by MMI or by AT
	"-		command.
10	UE		No ATTACH REQUEST sent to the SS
			(SS waits 30 seconds).
			The following messages are sent and shall be
			received on cell C.
11	SS		The SS deactivates cell B and activates cell C.
12	UE		Cell C is preferred by the UE.
13	UE		No ATTACH REQUEST sent to the SS
14	UE		(SS waits 30 seconds). The UE initiates an attach by MMI or by AT
'-			command.
15	UE		No ATTACH REQUEST sent to the SS
			(SS waits 30 seconds).
16	UE		If possible (see ICS) switch off is performed.
			Otherwise the power is removed.
17	UE		The UE is powered up or switched on.
18	UE	Registration on CS	See TS 34.108
			This is applied only for UE in UE operation
			mode A.
19	UE		Parameter mobile identity is IMSI.
20	->	ATTACH REQUEST	The UE initiates an attach (see PICS). Attach type = 'PS attach'
20	-/	ATTACHTILQUEST	Mobile identity = IMSI
21	<-	ATTACH ACCEPT	Attach result = 'PS only attached'
			Mobile identity = P-TMSI-1
			P-TMSI-1 signature
			Routing area identity = RAI-2
22	->	ATTACH COMPLETE	
23	UE		The UE is switched off or power is removed
_			(see ICS).
24	->	DETACH REQUEST	Message not sent if power is removed.
			Detach type = 'power switched off, PS detach'

Specific message contents

None.

12.2.1.2.5 Test requirements

UE shall:

- initiate a PS attach procedure with the information elements specified in the above Expected Sequence when UE is powered up or switched on.
- check the GMM cause which is contained in the ATTACH REJECT message and stop timer T3310.
- set the PS update state to GU3 ROAMING NOT ALLOWD and delete stored P-TMSI, P-TMSI signature, RAI and PS ciphering key sequence number.
- not send the ATTACH REQUEST message to SS, even if there is an instruction of attach request from MMI or from AT command.

12.2.1.3 PS attach / rejected / IMSI invalid / PS services not allowed

12.2.1.3.1 Definition

12.2.1.3.2 Conformance requirement

- 1) If the network rejects a PS attach procedure from the User Equipment with the cause 'PS services not allowed', the User Equipment shall consider USIM invalid for PS services until power is switched off or USIM is removed.
- 2) If the network rejects a PS attach procedure from the User Equipment with the cause 'PS services not allowed' the User Equipment shall delete the stored RAI, PS-CKSN, P-TMSI and P-TMSI signature.

Reference

3GPP TS 24.008 clause 4.7.3.1.

12.2.1.3.3 Test purpose

To test the behaviour of the UE if the network rejects the PS attach procedure of the UE with the cause 'PS services not allowed' (no valid PS-subscription for the IMSI).

12.2.1.3.4 Method of test

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (HPLMN, RAI-1) and cell B in MCC2/MNC1/LAC1/RAC1 (RAI-2).

Both cells are operating in network operation mode II.

User Equipment:

The UE has a valid P-TMSI-1, P-TMSI-1 signature and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode C Yes/No

UE operation mode A Yes/No

USIM removal possible without powering down Yes/No

Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a normal attach with the cause value 'PS services not allowed'. The SS checks that the UE does not perform PS attach in another PLMN.

Expected Sequence

Step	Direction	Message	Comments
	UE SS	_	
1 2	SS UE		The following messages are sent and shall be received on cell A. The SS activates cell A. The UE is set in UE operation mode C (see ICS). If UE operation mode C not supported,
3	UE		goto step 4617. The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred
4	->	ATTACH REQUEST	by the UE. Attach type = 'PS attach' Mobile identity = P-TMSI-1 P-TMSI-1 signature
5	<-	ATTACH REJECT	Routing area identity = RAI-1 GMM cause = 'PS services not allowed'
6 7 8	SS UE UE		The following messages are sent and shall be received on cell B. The SS deactivates cell A and activates cell B. Cell B is preferred by the UE. No ATTACH REQUEST sent to the SS
9	UE		(SS waits 30 seconds). If possible (see ICS) USIM removal is performed. Otherwise if possible (see ICS) switch off is performed. Otherwise the power is removed.
10	UE		The UE gets the USIM replaced, is powered up or switched on and initiates an attach (see ICS).
11	->	ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = IMSI
12	<-	ATTACH ACCEPT	Attach result = 'PS only attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-2
13 14	-> UE	ATTACH COMPLETE	The UE is switched off or power is removed
15	->	DETACH REQUEST	(see ICS). Message not sent if power is removed. Detach type = 'power switched off, PS detach'
16 17	UE		The SS deactivates cell B and activates cell A. The UE is set in UE operation mode A(see ICS) and the test is repeated from step 3 to step 15.

Specific message contents

None.

12.2.1.3.5 Test requirements

UE shall:

- initiate a PS attach procedure with information elements specified in the above Expected Sequence when UE is powered up or switched on.

- check the GMM cause which is contained in the ATTACH REJECT message and stop timer T3310.
- set the PS update state to GU3 ROAMING NOT ALLOWD.
- delete stored P-TMSI, P-TMSI signature, RAI and PS ciphering key sequence number.

12.2.1.4 PS attach / rejected / PLMN not allowed

12.2.1.4.1 Definition

12.2.1.4.2 Conformance requirement

- 1) If the network rejects a PS attach procedure from the User Equipment with the cause 'PLMN not allowed' the User Equipment shall:
 - 1.1 not perform PS attach when switched on in the same routing area or location area.
 - 1.2 not perform PS attach when in the same PLMN and when that PLMN is not selected manually.
 - 1.3 delete the stored RAI, PS-CKSN, P-TMSI and P-TMSI signature.
 - 1.4 store the PLMN in the 'forbidden PLMN' list.
- 2) If the network rejects a PS attach procedure from the User Equipment with the cause 'PLMN not allowed' the User Equipment shall perform PS attach when a new PLMN is entered.
- 3) If the network rejects a PS attach procedure from the User Equipment with the cause 'PLMN not allowed' and if after that the PLMN from which this rejection was received, is manually selected, the User Equipment shall perform a PS attach procedure.

Reference

3GPP TS 24.008 clause 4.7.3.1.

12.2.1.4.3 Test purpose

To test the behaviour of the UE if the network rejects the PS attach procedure of the UE with the cause 'PLMN not allowed'.

12.2.1.4.4 Method of test

12.2.1.4.4.1 Test procedure 1

Initial condition

System Simulator:

Four cells (not simultaneously activated), cell A in MCC1/ $\underline{MNC2}$ /LAC1/RAC1 (RAI- $\underline{+8}$), cell B in MCC1/ $\underline{MNC2}$ /LAC1/RAC1 (RAI- $\underline{+8}$), cell C in MCC1/ $\underline{MNC2}$ /LAC2/RAC1 (RAI- $\underline{-39}$) and cell D in MCC2/ $\underline{MNC1}$ /LAC1/RAC1 (RAI-2).

All four cells are operating in network operation mode II (in case of UE operation mode A). The PLMN of the four cells should NOT be that of the UE Home PLMN.

User Equipment:

The UE has a valid P-TMSI-1, P-TMSI-1 signature and RAI-18. UE is Idle Updated on cell A.

Related ICS/IXIT statements

Support of PS service Yes/No UE operation mode C Yes/No

UE operation mode A Yes/No (only if mode C not supported)

Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a PS attach with the cause value 'PLMN not allowed'. The SS checks that the UE does not perform PS attach if activated in the same routing area or location area and performs PS attach only when a new PLMN is entered.

Expected Sequence

Step	Direction	Message	Comments
	UE SS		
	SS		The following messages are sent and shall be received on cell A.
1	UE		The UE is set in UE operation mode C (see ICS).
2	SS		The SS is set in network operation mode II and activates cell A.
3	UE		The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred
4	->	ATTACH REQUEST	by the UE. Attach type = 'PS attach' Mobile identity = P-TMSI-1
5 6	<- UE	ATTACH REJECT	P-TMSI-1 signature Routing area identity = RAI-48 GMM cause = 'PLMN not allowed' No ATTACH REQUEST sent to SS (SS waits 30 seconds).
7 8 9 10	UE SS UE UE UE		The following messages are sent and shall be received on cell B. The UE is switched off. The SS deactivates cell A and activates cell B. The UE is powered up or switched on. Cell B is preferred by the UE. No ATTACH REQUEST sent to SS
			(SS waits 30 seconds). The following messages are sent and shall be
12 13 14	SS UE UE		received on cell C. The SS deactivates cell B and activates cell C. Cell C is preferred by the UE. No ATTACH REQUEST sent to SS (SS waits 30 seconds).
15 16 17	SS UE UE	Registration on CS	The following messages are sent and shall be received on cell D. The SS deactivates cell C and activates cell D. Cell D is preferred by the UE. See TS 34.108 This is applied only for UE in UE operation mode A.
18	UE	ATTA OU DE OUEOT	The UE initiates an attach automatically, by MMI or by AT command.
19	->	ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = IMSI
20	<-	ATTACH ACCEPT	Attach result = 'PS only attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-2
21 22	-> UE	ATTACH COMPLETE	The UE is switched off or power is removed
23	->	DETACH REQUEST	(see ICS). Message not sent if power is removed. Detach type = 'power switched off, PS detach'

12.2.1.4.4.2 Test procedure 2

Initial condition

System Simurator:

One cell operating in network operation mode II: MCC2/MNC1/LAC1/RAC1 (RAI-2). The PLMN of the cell should NOT be that of the Mobile Station Home PLMN.

User Equipment:

The UE has a valid P-TMSI-1, P-TMSI-1 signature and RAI-12. UE is Idle Updated on cell A.

Related ICS/IXIT statements

Support of PS service Yes/No UE operation mode C Yes/No UE operation mode A Yes/No (only if mode C not supported) Switch off on button Yes/No Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a PS attach with the cause value 'PLMN not allowed'. The subscribers access rights is changed to allow PS attach. Then the PLMN from which this rejection was received is manually selected and the SS check that a PS attach is performed.

Expected Sequence

Direction	Message	Comments
UE SS		
UE		The UE is set in UE operation mode C or A (see PICS).
UE		The UE is powered up or switched on and initiates an attach (see PICS).
->	ATTACH REQUEST	Attach type = 'PS attach'
		Mobile identity = P-TMSI-1 P-TMSI-1 signature
		Routing area identity = RAI-42
<-	ATTACH REJECT	GMM cause = 'PLMN not allowed'
UE		No ATTACH REQUEST sent to SS
		(SS waits 30 seconds)
_		The current PLMN is selected manually.
UE	Registration on CS	See TS 34.108
		This is applied only for UE in UE operation mode A.
UE		The UE initiates an attach automatically, by
-		MMI or by AT command.
->	ATTACH REQUEST	Attach type = 'PS attach'
		Mobile identity = IMSI
<-	ATTACH ACCEPT	Attach result = 'PS only attached'
		Mobile identity = P-TMSI-1
		P-TMSI-1 signature
		Routing area identity = RAI-12
-	ATTACH COMPLETE	
UE		The UE is switched off or power is removed (see PICS).
->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'
	UE SS UE UE '> UE UE UE UE UE UE UE UE UE U	UE SS UE UE -> ATTACH REQUEST -> ATTACH REJECT UE UE Registration on CS UE -> ATTACH REQUEST -> ATTACH ACCEPT -> ATTACH COMPLETE UE

Specific message contents

None.

12.2.1.4.5 Test requirements

UE shall:

- initiate a PS attach procedure with information elements specified in the above Expected Sequence when UE is powered on or switched on.
- check the GMM cause which is contained in the ATTACH REJECT message and stop timer T3310.
- delete the stored RAI, PS CKSN, P-TMSI and P-TMSI signature.
- store the PLMN in the 'forbidden PLMN list'
- perform the following actions depending on the PLMN or the routing area or the location area

Case 1) UE is in the same routing area or location area when the power is switched on,

UE shall:

- not perform PS attach.

Case2) UE is in the same PLMN, and this PLMN is not selected manually

UE shall:

- not perform PS attach.

Case3) UE is in a new PLMN.

UE shall:

- perform PS attach.

Case4) UE is in the new PLMN, and this PLMN is selected manually

UE shall

- perform PS attach.

12.2.1.5a PS attach / rejected / roaming not allowed in this location area

12.2.1.5a.1 Definition

12.2.1.5a.2 Conformance requirement

- 1) If the network rejects a PS attach procedure from the User Equipment with the cause 'roaming not allowed in this location area' the User Equipment shall:
 - 1.1 not perform PS attach when in the same location area.
 - 1.2 delete the stored RAI, PS-CKSN, P-TMSI and P-TMSI signature.
 - 1.3 store the LA in the 'forbidden location areas for roaming' list.
 - 1.4 perform PS attach when a new location area is entered.
 - 1.5 Periodically search for its HPLMN.
- 2) The User Equipment shall reset the list of 'Forbidden location areas for roaming' when switched off or when the USIM is removed.
- 3) The UE shall be capable of storing at least 6 entries in the list of 'Forbidden location areas for roaming'.

Reference

3GPP TS 24.008 clause 4.7.3.1.

12.2.1.5a.3 Test purpose

Test purpose 1

To test that on receipt of a rejection using the 'roaming not allowed in this location area' cause code, the UE ceases trying to attach on that location area. Successful PS attach procedure is possible in other location areas.

Test purpose 2

To test that if the UE is switched off or the USIM is removed the list of 'forbidden location areas for roaming' is cleared.

Test purpose 3

To test that at least 6 entries can be held in the list of 'forbidden location areas for roaming' (the requirement in 3GPP TS 24.008 is to store at least 10 entries. This is not fully tested by the third procedure).

Test purpose 4

To test that if a cell of the Home PLMN is available then the UE returns to it in preference to any other available cell.

12.2.1.5a.4 Method of test

12.2.1.5a.4.1 Test procedure 1

Initial condition

System Simulator:

Three cells (not simultaneously activated), cell A in MCC2/MNC1/LAC1/RAC1 (RAI-2, Not HPLMN), cell B in

MCC2/MNC1/LAC2/RAC1 (RAI-6, Not HPLMN) and cell C in MCC2/MNC1/LAC1/RAC2 (RAI-7, Not HPLMN).

All three cells are operating in network operation mode II.

User Equipment:

The UE has a valid P-TMSI-1, P-TMSI-1 signature and RAI-2.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a PS attach with the cause value 'Roaming not allowed in this area'. A new attempt for a PS attach is not possible. Successful PS attach / detach procedures are performed in another location area. A new attempt for a PS attach is performed in the 1st location area. This attempt shall not succeed, as the LA is on the forbidden list.

Expected Sequence

Step	Direction	Message	Comments
	UE SS SS		The following messages are sent and shall be
			received on cell A.
1	UE		The UE is set in UE operation mode C (see
			ICS). If UE operation mode C not supported,
			goto step 19.
2	SS		The SS activates cell A.
3	UE		The UE is powered up or switched on and
			initiates an attach (see ICS). Cell A is preferred by the UE.
4	->	ATTACH REQUEST	Attach type = 'PS attach'
		7.1.7.6111.2.40201	Mobile identity = P-TMSI-1
			P-TMSI-1 signature
			Routing area identity = RAI-2
5	<-	ATTACH REJECT	GMM cause = 'Roaming not allowed in this
_			area'
6	UE		No ATTACH REQUEST sent to SS
			(SS waits 30 seconds).
			The following messages are sent and shall be received on cell B.
7	SS		The SS Deactivates cell A and activates cell B.
8	UE		Cell B is preferred by the UE.
9	ÜE	Registration on CS	See TS 34.108
			This is applied only for UE in UE operation
			mode A.
4.0			Parameter mobile identity is IMSI.
10	UE		The UE initiates an attach automatically, by
11	->	ATTACH REQUEST	MMI or by AT command. Attach type = 'PS attach'
'''		ATTACTIREQUEST	Mobile identity = IMSI
12	<-	ATTACH ACCEPT	Attach result = 'PS only attached'
			Mobile identity = P-TMSI-1
			P-TMSI-1 signature
			Routing area identity = RAI-6
13	->	ATTACH COMPLETE	TI UE: :::
14	UE		The UE initiates a PS detach (without power off) by MMI or by AT command.
15	->	DETACH REQUEST	Detach type = 'normal detach, PS detach'
16	<-	DETACH ACCEPT	Botaon typo – normal dotaon, i o dotaon
			The following messages are sent and shall be
			received on cell C.
17	SS		The SS deactivates cell B and activates cell C.
18	UE		Cell C is preferred by the UE.
19	UE		No ATTACH REQUEST sent to SS
			(SS waits 30 seconds). The UE is switched off or power is removed
			(see ICS)
20	UE		UE is switched off.
21	SS		The SS deactivates cell C.
22	UE		The UE is set in UE operation mode A if
			supported (see ICS) and the test is repeated
			from step 2 to step 20.

12.2.1.5a.4.2 Test procedure 2

Initial condition

System Simulator:

One cell in MCC2/MNC1/LAC1/RAC1 (RAI-2, Not HPLMN) operating in network operation mode II.

User Equipment:

TheUE has a valid P-TMSI-1, P-TMSI-1 signature and RAI-2.

Related ICS/IXIT statements

Support of PS service Yes/No UE operation mode C Yes/No

UE operation mode A Yes/No (only if mode C not supported)

Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a PS attach updating with the cause value 'Roaming not allowed in this area'. The UE is switched off for 10 s and switched on again. The SS check that a PS attach is possible on the cell on which the PS attach had been rejected.

If USIM removal is possible without switching off: The SS rejects a PS attach with the cause value 'Roaming not allowed in this area'. The USIM is removed and inserted in the UE. The SS check that a PS attach is possible on the cell on which the PS attach had been rejected.

Expected Sequence

Step	Direction	Message	Comments
	UE SS		
1	UE		If UE operation mode C is supported, the UE is set in UE operation mode C (see PICS). If UE operation mode C is not supported, the UE is set in UE operation mode A.
2	UE		The UE is powered up or switched on and initiates an attach (see ICS).
3	->	ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-2
4	<-	ATTACH REJECT	GMM cause = 'Roaming not allowed in this area'
5	UE		No ATTACH REQUEST sent to the SS (SS waits 30 seconds).
6	UE		If possible (see ICS) switch off is performed. Otherwise the power is removed.
7	UE		The UE is powered up or switched on and initiates an attach (see ICS).
8	UE	Registration on CS	See TS 34.108 This is applied only for UE in UE operation mode A. Parameter mobile identity is IMSI
9	->	ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = IMSI
10	<-	ATTACH ACCEPT	Attach result = 'PS only attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-2
11	->	ATTACH COMPLETE	Trouting area identity – IVAI-2
12	UÉ		The UE is switched off or power is removed (see ICS).
13	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'

12.2.1.5a.4.3 Test procedure 3

Initial condition

System Simulator:

Six cells (not simultaneously activated), cell A in MCC2/MNC1/LAC1/RAC1 (RAI-2, Not HPLMN), cell B in MCC2/MNC1/LAC2/RAC1 (RAI-3, Not HPLMN), cell C in MCC2/MNC1/LAC3/RAC1 (Not HPLMN), cell D in MCC2/MNC1/LAC4/RAC1 (Not HPLMN), cell E in MCC2/MNC1/LAC5/RAC1 (Not HPLMN), cell F in MCC2/MNC1/LAC6/RAC1 (Not HPLMN).

All six cells are operating in network operation mode II (in case of UE operation mode A).

User Equipment:

The UE has a valid P-TMSI-1, P-TMSI-1 signature and RAI-2.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No (only if mode C not supported)
Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a PS attach with the cause value 'Roaming not allowed in this area'. This is done for 6 different location areas. Then the SS checks that the UE does not attempt to perform an attach procedure on the non-allowed location areas.

Different types of UE may use different methods to periodically clear the list of forbidden areas (e.g. every day at 12am) for roaming. If the list is cleared while the test is being run, it may be necessary to re-run the test.

Expected Sequence

Step	Direction UE SS	Message	Comments
	SS		The following messages are sent and shall be
1	SS		received on cell A. The SS is set in network operation mode II and activates cell A.
2	UE		The UE is set in UE operation mode C (see
3	UE		The UE is powered up or switched on and
4	->	ATTACH REQUEST	initiates an attach (see ICS). Cell A is preferred by the UE. Attach type = 'PS attach' Mobile identity = P-TMSI-1 P-TMSI-1 signature
5	<-	ATTACH REJECT	Routing area identity = RAI-2 GMM cause = 'Roaming not allowed in this area'
6	UE		No ATTACH REQUEST sent to SS (SS waits 30 seconds)
7 8 9	SS UE UE	Registration on CS	The following messages are sent and shall be received on cell B. The SS deactivates cell A and activates cell B. Cell B is preferred by the UE. See TS 34.108 This is applied only in case of UE operation mode A.
10	UE		Parameter mobile identity is IMSI. The UE initiates an attach automatically, by
11	->	ATTACH REQUEST	MMI or by AT command. Attach type = 'PS attach' Mobile identity = IMSI
12	<-	ATTACH REJECT	GMM cause = 'Roaming not allowed in this area'
13	UE		No ATTACH REQUEST sent to SS (SS waits 30 seconds).
14 15 16	SS UE UE	Registration on CS	The following messages are sent and shall be received on cell C. The SS deactivates cell B and activates cell C. Cell C is preferred by the UE. See TS 34.108 This is applied only for UE in UE operation mode A.
17	UE		Parameter mobile identity is IMSI. The UE initiates an attach automatically, by MMI or by AT command.
18	->	ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = IMSI
19	<-	ATTACH REJECT	GMM cause = 'Roaming not allowed in this area'
20	UE		No ATTACH REQUEST sent to SS (SS waits 30 seconds).
21 22 23	SS UE UE	Registration on CS	The following messages are sent and shall be received on cell D. The SS deactivates cell C and activates cell D. Cell D is preferred by the UE. See TS 34.108 This is applied only for UE in UE operation mode A.
24	UE		Parameter mobile identity is IMSI. The UE initiates an attach automatically, by
25	->	ATTACH REQUEST	MMI or by AT command. Attach type = 'PS attach'
26	<-	ATTACH REJECT	Mobile identity = IMSI GMM cause = 'Roaming not allowed in this area'

Step	Direction UE SS	Message	Comments
27	UE		No ATTACH REQUEST sent to SS
			(SS waits 30 seconds).
28 29 30	SS UE UE	Registration on CS	The following messages are sent and shall be received on cell E. The SS deactivates cell D and activates cell E. Cell E is preferred by the UE. See TS 34.108 This is applied only for UE in UE operation
31	UE		mode A. Parameter mobile identity is IMSI. The UE initiates an attach automatically, by MMI or by AT command.
32	->	ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = IMSI
33	<-	ATTACH REJECT	GMM cause = 'Roaming not allowed in this area'
34	UE		No ATTACH REQUEST sent to SS (SS waits 30 seconds).
			The following messages are sent and shall be received on cell F.
35 36 37	SS UE UE		The SS deactivates cell E and activates cell F. Cell F is preferred by the UE. The UE initiates an attach automatically, by
38	->	ATTACH REQUEST	MMI or by AT command. Attach type = 'PS attach'
39	<-	ATTACH REJECT	Mobile identity = IMSI GMM cause = 'Roaming not allowed in this area'
40	UE		No ATTACH REQUEST sent to SS (SS waits 30 seconds)
41 42 43 44	SS SS UE UE		The following messages are sent and shall be received on cell E. The SS deactivates cell F and activates cell E. Cell E is preferred by the UE. The UE initiates an attach automatically, by MMI or by AT command. No ATTACH REQUEST sent to SS (SS waits 30 seconds).
45 46 47 48	SS SS UE UE		The following messages are sent and shall be received on cell C. The SS deactivates cell E and activates cell C. Cell C is preferred by the UE. The UE initiates an attach automatically, by MMI or by AT command. No ATTACH REQUEST sent to SS (SS waits 30 seconds).
49 50 51 52	SS SS UE UE		The following messages are sent and shall be received on cell A. The SS deactivates cell C and activates cell A. Cell A will be preferred by the UE. The UE initiates an attach automatically, by MMI or by AT command. No ATTACH REQUEST sent to SS (SS waits 30 seconds).

12.2.1.5a.4.4 Test procedure4

Initial condition

System Simulator:

Two cells, cell A in MCC2/MNC1/LAC1/RAC1 (not HPLMN, RAI-2) and cell B in MCC1/MNC1/LAC1/RAC1 (HPLMN, RAI-1).

Both cells are operating in network operation mode II (in case of UE operation mode A).

User Equipment:

The UE has a valid P-TMSI-1, P-TMSI-1 signature and RAI-2.

Related ICS/IXIT statements

Support of PS service Yes/No UE operation mode C Yes/No

UE operation mode A Yes/No (only if mode C not supported)

Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a PS attach with the cause value 'Roaming not allowed in this area A second cell belonging to the HPLMN is activated. It is checked that the UE returns to its HPLMN.

Expected Sequence

Step	Direction	Message	Comments
	UE SS		
	SS		The following messages are sent and shall be
			received on cell A.
1	UE		The UE is set in UE operation mode C (see
			ICS).
2	SS		The SS is set in network operation mode II and
			activates cell A.
3	UE		The UE is powered up or switched on and
			initiates an attach (see ICS). Cell A is preferred
			by the UE.
4	->	ATTACH REQUEST	Attach type = 'PS attach'
			Mobile identity = P-TMSI-1
			P-TMSI-1 signature
			Routing area identity = RAI-2
5	<-	ATTACH REJECT	GMM cause = 'Roaming not allowed in this
			area'
6	UE		No ATTACH REQUEST sent to SS
			(SS waits 30 seconds).
			The following messages are sent and shall be
			received on cell B.
7	SS		Activate cell B.
8	UE	Registration on CS	See TS 34.108
			This is applied only for UE in UE operation
			mode A.
_			Parameter mobile identity is IMSI.
9	UE		The UE initiates an attach automatically, by
			MMI or by AT command.
10	->	ATTACH REQUEST	Attach type = 'PS attach'
		ATTA OLI A GOEDT	Mobile identity = IMSI
11	<-	ATTACH ACCEPT	Attach result = 'PS only attached'
			Mobile identity = P-TMSI-1
			P-TMSI-1 signature
40		ATTACHLOCAPIETE	Routing area identity = RAI-1
12	->	ATTACH COMPLETE	The LIE is quiteled attended a superior and a
13	UE		The UE is switched off or power is removed
4.4		DETACH DECHEST	(see ICS).
14	->	DETACH REQUEST	Message not sent if power is removed.
			Detach type = 'power switched off, PS detach'

Specific message contents

None.

12.2.1.5a.5 Test requirements

UE shall:

- initiate a PS attach procedure with information elements specified in the above Expected Sequence when UE is powered up or switched on.
- check the GMM cause which is contained in the ATTACH REJECT message and stop timer T3310.
- not perform PS attach when UE is in the same location area.
- delete the stored RAI, PS-CKSN, P-TMSI and P-TMSI signature.
- store the LA in the 'forbidden location areas for roaming' list.
- perform PS attach when a new location area is entered.
- search for its HPLMN periodically.

When Switched off or when the USIM is removed,

UE shall:

- reset the 'forbidden location areas for roaming' list.

12.2.1.5b PS attach / rejected / No Suitable Cells In Location Area

12.2.1.5b.1 Definition

12.2.1.5b.2 Conformance requirement

- (1) If the network rejects a PS attach procedure from the User Equipment with the cause 'No Suitable Cells In Location Area', the User Equipment shall:
 - 1.1 not perform PS attach when in the same location area.
 - 1.2 delete the stored RAI, PS-CKSN, P-TMSI and P-TMSI signature.
 - 1.3 store the LA in the 'forbidden location areas for roaming' list.
 - 1.4 perform PS attach when a new location area is entered.

Reference

3GPP TS 24.008 clauses 4.7.3.1.

12.2.1.5b.3 Test purpose

To test the behaviour of the UE if the network rejects the PS attach procedure of the UE with the cause 'No Suitable Cells In Location Area'.

12.2.1.5b.4 Method of test

Initial condition

System Simulator:

Three cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC2/RAC1 (RAI-3), cell C in MCC2/MNC1/LAC1/RAC1 (RAI-2)

All three cells are operating in network operation mode II.

User Equipment:

The UE has a valid P-TMSI-1, P-TMSI-1 signature and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a PS attach with the cause value 'No Suitable Cells In Location Area'. The SS checks that the UE shall search for a suitable cell in a different location area on the same PLMN and shall perform PS attach procedure in that cell.

Expected Sequence

Step	Direction	Message	Comments
	UE SS		
	SS		The SS activates three cells simultaneously.
			The SS configures power level of each Cell as
			follows.
			Cell A > Cell B = Cell C
1	UE		The UE is set in UE operation mode A (see
			ICS).
2	UE		The UE is powered up or switched on and
			initiates an attach (see ICS). Cell A is preferred
			by the UE.
3	->	ATTACH REQUEST	Attach type = 'PS attach'
			Mobile identity = P-TMSI-1
			P-TMSI-1 signature
			Routing area identity = RAI-1
4	<-	ATTACH REJECT	GMM cause = 'No Suitable Cells In Location
_			Area'
5	SS		The SS initiates the RRC connection release.
			The following message are sent and shall be
			received on cell B.
6	UE	Registration on CS	See TS 34.108
7	UE		The UE initiates an attach automatically, by
		ATTACLIBECLIEGE	MMI or by AT command.
8	->	ATTACH REQUEST	Attach type = 'PS attach'
0		ATTACILACCEDT	Mobile identity = IMSI
9	<-	ATTACH ACCEPT	Attach result = 'PS only attached'
			Mobile identity = P-TMSI-1
			P-TMSI-1 signature
10		ATTACH COMPLETE	Routing area identity = RAI-2
10	-> UE	ATTACH COMPLETE	The LIE is switched off or newer is removed
''	UE		The UE is switched off or power is removed
12		DETACH REQUEST	(see ICS). Message not sent if power is removed.
12	->	DETACH REQUEST	·
			Detach type = 'power switched off, PS detach'

Specific message contents

None.

12.2.1.5b.5 Test requirements

UE shall:

- initiate a PS attach procedure with information elements specified in the above Expected Sequence when the UE is powered up or switched on.

- check the GMM cause which is contained in the ATTACH REJECT message and stop timer T3310.
- delete stored P-TMSI, P-TMSI signature, RAI and PS ciphering key sequence number.
- search for a suitable cell in a different location area on the same PLMN.

12.2.1.6 PS attach / abnormal cases / access barred due to access class control

12.2.1.6.1 Definition

12.2.1.6.2 Conformance requirement

- 1) The UE shall not perform PS attach procedure, but stays in the current serving cell and applies normal cell reselection process.
- 2) The User Equipment shall perform the PS attach procedure when:
 - 2.1 Access is granted.
 - 2.2 Cell is changed.

Reference

3GPP TS 24.008 clause 4.7.3.1.

12.2.1.6.3 Test purpose

Test purpose1

To test the behaviour of the UE in case of access class control (access is granted).

Test purpose2

To test the behaviour of the UE in case of access class control (access is granted).

12.2.1.6.4 Method of test

12.2.1.6.4.1 Test procedure1

Initial condition

 $A\underline{n}$ random-access class x (0-15) is <u>arbitrarily chosenselected</u>. The USIM is programmed with this access class x. Communication with User Equipments using access class x is initially indicated to be barred.

System Simulator:

One cell operating in network operation mode II. Access class x barred.

User Equipment:

The UE has a valid P-TMSI-1, P-TMSI-1 signature and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No

UE operation mode A Yes/No

Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS indicates access class x barred. A PS attach procedure is not performed.

The SS indicates that access class x is not barred. A PS attach procedure is performed.

Expected Sequence

Step	Direction	Message	Comments
	UE SS		
1	UE		The USIM is programmed with access class x.
2	UE		The UE is set in UE operation mode C (see ICS). If UE operation mode C not supported, goto step 12.
3	UE		The UE is powered up or switched on and attempts to initiate an attach (see ICS).
4	UE		No ATTACH REQUEST sent to SS, as access class \times is barred (SS waits 30 seconds).
5	SS		The access class x is not barred anymore.
6	UE		The UE automatically initiates a PS attach.
7	->	ATTACH REQUEST	Attach type = 'PS attach'
			Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-1
8	<-	ATTACH ACCEPT	Attach result = 'PS only attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-1
9	->	ATTACH COMPLETE	Trouting area identity = 10 ti 1
10	UÉ	ATTACH COMILETE	The UE is switched off or power is removed (see ICS).
11	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'
12	SS		The SS is set in network operation mode II.
13	UE		The UE is set in UE operation mode A(see
			ICS) and the test is repeated from step 2-3 to
			step 11.

12.2.1.6.4.2 Test procedure2

Initial condition

 $A\underline{n}$ random-access class x (0-15) is <u>arbitrarily chosenselected</u>. The USIM is programmed with this access class x. Communication with User Equipments using access class x is indicated to be barred on cell A.

System Simulator:

Two cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1) has access class x barred, cell B in MCC1/MNC1/LAC1/RAC1 (RAI-1) has access class x not barred. Both cells are operating in network operation mode II (in case of UE operation mode A).

User Equipment:

The UE has a valid P-TMSI-42, P-TMSI-2 signature and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode C Yes/No

UE operation mode A Yes/No Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS indicates access class x barred. A PS attach procedure is not performed.

A cell change is performed into a cell where access class \boldsymbol{x} is not barred. A PS attach procedure is performed.

Expected Sequence

Step	Direction	Message	Comments
	UE SS		
1	UE SS		The USIM is programmed with access class x. The following messages are sent and shall be received on cell A.
2	SS		The SS is set in network operation mode II and activates cell A.
3	UE		The UE is set in UE operation mode C (see ICS).
4	UE		The UE is powered up or switched on and attempts to initiate an attach (see ICS).
5	UE		No ATTACH REQUEST sent to SS, as access class $\times_{\mathbf{X}}$ is barred (SS waits 30 seconds).
			The following messages are sent and shall be
			received on cell B.
6	SS		Activate cell B.
7	UE		The UE automatically initiates an attach.
8	->	ATTACH REQUEST	Attach type = 'PS attach'
			Mobile identity = P-TMSI-2
			P-TMSI-2 signature
_			Routing area identity = RAI-1
9	<-	ATTACH ACCEPT	Attach result = 'PS only attached'
			Mobile identity = P-TMSI-1
			P-TMSI-1 signature
10		ATTACH COMPLETE	Routing area identity = RAI-1
10	-> UE	ATTACITOOMFLETE	The UE is switched off or power is removed
''	OE.		(see ICS).
12	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'

Specific message contents

None.

12.2.1.6.5 Test requirements

UE shall:

- perform the following actions depending on the UE access class X.

Case 1) The UE access class X is barred,

UE shall:

- not perform a PS attach procedure.
- stay in the current serving cell.
- apply normal cell reselection process.

Case 2) The UE access class X is granted or serving cell is changed,

UE shall:

- initiate PS attach procedure..

12.2.1.7 PS attach / abnormal cases / change of cell into new routing area

12.2.1.7.1 Definition

12.2.1.7.2 Conformance requirement

When a change of cell into a new routing area is performed before ATTACH ACCEPT message is received by the UE, the UE shall abort the PS attach procedure and re-initiate it immediately.

Reference

3GPP TS 24.008 clause 4.7.3.1.

12.2.1.7.3 Test purpose

To test the behaviour of the UE in case of procedure collision.

12.2.1.7.4 Method of test

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1) and cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4).

Both cells are operating in network operation mode II (in case of UE operation mode A).

User Equipment:

The UE has a valid P-TMSI-1, P-TMSI-1 signature and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode C Yes/No

UE operation mode A Yes/No (only if mode C not supported)

Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE initiates a PS attach procedure. The ATTACH ACCEPT message is delayed from the SS. The UE performs a cell reselection to a cell in a new routing area. The UE shall re-initiate a PS attach procedure in the new routing area.

Step	Direction	Message	Comments
	UE SS		
	SS		The following messages are sent and shall be
			received on cell A.
1	UE		The UE is set in UE operation mode C (see
			ICS).
2	SS		The SS is set in network operation mode II and
_			activates cell A.
3	UE		The UE is powered up or switched on and
			initiates an attach (see ICS). Cell A is preferred
			by the UE.
4	->	ATTACH REQUEST	Attach type = 'PS attach'
			Mobile identity = P-TMSI-1
			P-TMSI-1 signature
_			Routing area identity = RAI-1
5	SS		No response to the ATTACH REQUEST
			message is given by the SS.
			The following messages are sent and shall be
	00		received on cell B.
6	SS		The SS deactivates cell A and activates cell B.
7	UE		Cell B is preferred by the UE.
_ ′	UE		The UE automatically re-initiates the attach in the new cell.
8	->	ATTACH REQUEST	Attach type = 'PS attach'
0	->	ATTACITREQUEST	Mobile identity = P-TMSI-1
			P-TMSI-1 signature
			Routing area identity = RAI-1
9	<-	ATTACH ACCEPT	No new mobile identity assigned.
		THE TRUE TO THE TENT OF THE TE	P-TMSI and P-TMSI signature not included.
			Attach result = 'PS only attached'
			Routing area identity = RAI-4
10	UE		The UE is switched off or power is removed
	<u> </u>		(see ICS).
11	->	DETACH REQUEST	Message not sent if power is removed.
			Detach type = 'power switched off, PS detach'

Specific message contents

None.

12.2.1.7.5 Test requirements

UE shall:

- abort a PS attach procedure when a change of cell into a new routing area is performed before ATTACH ACCEPT or ATTACH REJECT message is received by the UE.
- re-initiate a PS attach procedure immediately with new information elements.

12.2.1.8 PS attach / abnormal cases / power off

12.2.1.8.1 Definition

12.2.1.8.2 Conformance requirement

When power is switched off before ATTACH ACCEPT message is received by the UE, the UE shall abort the PS attach procedure and perform a PS detach procedure.

Reference

3GPP TS 24.008 clause 4.7.3.

12.2.1.8.3 Test purpose

To test the behaviour of the UE in case of procedure collision.

12.2.1.8.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.

User Equipment:

The UE has a valid P-TMSI-1, P-TMSI-1 signature and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C
UE operation mode A
Switch off on button
Yes/No
Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE is switched off after initiating an attach procedure. A PS detach is automatically performed by the UE before power is switched off.

Expected Sequence

Step	Direction	Message	Comments
	UE SS		
1	UE		The UE is set in UE operation mode C (see
			ICS). If UE operation mode C not supported,
			goto step 7.
2	UE		The UE is powered up or switched on and
_			initiates an attach (see ICS).
3	->	ATTACH REQUEST	Attach type = 'PS attach'
			Mobile identity = P-TMSI-1
			P-TMSI-1 signature
_			Routing area identity = RAI-1
4	SS		No response to the ATTACH REQUEST
_			message is given by the SS.
5	UE		The UE is powered off and initiates a PS
_			detach (with power off) by
6	->	DETACH REQUEST	Detach type = 'power switched off, PS detach'
7	UE		The UE is set in UE operation mode A (see
			ICS) and the test is repeated from step 2 to
			step 6.

Specific message contents

None.

12.2.1.8.5 Test requirements

UE shall:

- initiate a PS attach procedure with information elements specified in the above Expected Sequence when UE is powered up or switched on.

When power is switched off before ATTACH ACCEPT message is received,

UE shall:

- abort the PS attach procedure and perform the PS detach procedure.

12.2.1.9 PS attach / abnormal cases / PS detach procedure collision

12.2.1.9.1 Definition

12.2.1.9.2 Conformance requirement

- When a DETACH REQUEST message is received by the UE (any cause except re-attach) while waiting for an ATTACH ACCEPT message, the UE shall terminate the PS attach procedure and continue with the PS detach procedure.
- 2) When a DETACH REQUEST message is received by the UE (cause re-attach) while waiting for an ATTACH ACCEPT message, the UE shall ignore the PS detach procedure and continue with the PS attach procedure.

Reference

3GPP TS 24.008 clause 4.7.3.1.

12.2.1.9.3 Test purpose

To test the behaviour of the UE in case of procedure collision.

12.2.1.9.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.

User Equipment:

The UE has a valid P-TMSI-1, P-TMSI-1 signature and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No UE operation mode C Yes/No

UE operation mode A Yes/No (only if mode C not supported)

Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE initiates a PS attach procedure. The SS does not answer the PS attach procedure, but initiates a PS detach procedure (any cause except re-attach). The UE shall terminate the PS attach procedure and continue with the PS detach procedure.

The UE initiates a PS attach procedure. The SS does not answer the PS attach procedure, but initiates a PS detach procedure (cause re-attach). The UE shall ignore the PS detach procedure and continue with the PS attach.

Step	Direction	Message	Comments
	UE SS]	
1	UE		The UE is set in UE operation mode C (see
			ICS).
2	UE		The UE is powered up or switched on and
			initiates an attach (see ICS).
3	->	ATTACH REQUEST	Attach type = 'PS attach'
			Mobile identity = P-TMSI-1
			P-TMSI-1 signature
			Routing area identity = RAI-1
4	SS		The SS ignores the ATTACH REQUEST
			message and initiates a detach procedure.
5	<-	DETACH REQUEST	Detach type = 're-attach not required'
6	->	DETACH ACCEPT	
7	UE		The UE initiates the attach procedure by MMI
		ATTACLIBEOLIEGE	or AT command.
8	->	ATTACH REQUEST	Attach type = 'PS attach'
			Mobile identity = P-TMSI-1
			P-TMSI-1 signature
9	SS		Routing area identity = RAI-1 The SS ignores the ATTACH REQUEST
9	33		message and initiates a detach procedure.
10		DETACH REQUEST	Detach type = 're-attach required'
11	<- UE	DETAGLIKEQUEST	The UE ignores the DETACH REQUEST
''			message and continue with the attach
			procedure.
12	<-	ATTACH ACCEPT	Attach result = 'PS only attached'
'-	`		Mobile identity = P-TMSI-2
			P-TMSI-2 signature
			Routing area identity = RAI-1
13	->	ATTACH COMPLETE	
14	UE		The UE is switched off or power is removed
			(see ICS).
15	->	DETACH REQUEST	Message not sent if power is removed.
			Detach type = 'power switched off, PS detach'

Specific message contents

None.

12.2.1.9.5 Test requirements

UE shall:

initiate a PS attach procedure with information elements specified in the above Expected Sequence when UE is powered up or switched on.

Case1) GMM cause is not re-attach

When a DETACH REQUEST message is received by the UE while waiting for an ATTACH ACCEPT message,

UE shall:

terminate the PS attach procedure and continue with the PS detach procedure.

Case2) GMM cause is re-attach

When a DETACH REQUEST message is received by the UE while waiting for an ATTACH ACCEPT message,

UE shall:

- ignore the PS detach procedure and continue with the PS attach procedure.

12.2.2 Combined PS attach

12.2.2.1 Combined PS attach / PS and non-PS attach accepted

12.2.2.1.1 Definition

12.2.2.1.2 Conformance requirement

- 1) If the network accepts the combined PS attach procedure (signalled by an IMSI) and allocates a P-TMSI, the UE shall acknowledge the P-TMSI and continue communication with the P-TMSI.
- 2) If the network accepts the combined PS attach procedure (signalled by P-TMSI) and reallocates a new P-TMSI, the UE shall acknowledge the new P-TMSI and continue communication with the new P-TMSI.
- 3) If the network accepts the combined PS attach procedure (signalled by a P-TMSI) from the UE without reallocation of the previously used P-TMSI, the UE shall continue communication with the previously used P-TMSI.
- 4) If the network accepts the combined PS attach procedure and determines that IMSI shall be used in CS operations, the UE shall continue communication with the IMSI for CS operations.
- 5) If the network accepts the combined PS attach procedure and determines that a TMSI shall be used in CS operations, the UE shall continue communication with the TMSI for CS operations.

Reference

3GPP TS 24.008 clause 4.7.3.2.

12.2.2.1.3 Test purpose

To test the behaviour of the UE if the network accepts the PS attach procedure.

The following cases are identified:

- 1) P-TMSI / P-TMSI signature is allocated;
- 2) P-TMSI / P-TMSI signature is reallocated;
- 3) Old P-TMSI / P-TMSI signature is not changed;
- 4) Mobile terminating CS call is allowed with IMSI;
- 5) Mobile terminating CS call is not allowed with TMSI.

12.2.2.1.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode I.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No UE operation mode A Yes/No Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

- 1) The UE sends an ATTACH REQUEST message with identity IMSI. The SS allocates a P-TMSI and returns ATTACH ACCEPT message with a P-TMSI. The UE acknowledge the P-TMSI by sending ATTACH COMPLETE message. Further communication UE SS is performed by the new P-TMSI. For CS calls, the IMSI is used.
- 2) The UE is CS paged in order to verify that the IMSI is used for CS calls.
- 3) The UE is PS paged in order to verify that the new P-TMSI is used for PS services.
- 4) The UE sends an ATTACH REQUEST message with identity P-TMSI. The SS allocates a new P-TMSI and returns ATTACH ACCEPT message with the new P-TMSI and a new TMSI. The UE acknowledge the P-TMSI and the TMSI by sending ATTACH COMPLETE message. Further communication UE SS is performed by the new P-TMSI. For CS calls, the new TMSI is used. The UE is CS paged in order to verify that the new TMSI is used for CS services.
- 5) The UE is PS paged in order to verify that the new P-TMSI is used for PS services. The UE will not answer signalling addressed to the old P-TMSI.
- 6) The UE sends an ATTACH REQUEST message with identity P-TMSI. The SS accepts the P-TMSI and returns ATTACH ACCEPT message without any P-TMSI. Further communication UE SS is performed by the previously used P-TMSI.
- 7) The UE is PS paged in order to verify that the previously used P-TMSI is used for PS services.

Step	Direction UE SS	Message	Comments
1	UE		The UE is set in UE operation mode A (see
2	UE		ICS). The UE is powered up or switched on and initiates an attach (see ICS).
3	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity =IMSI
4	<-	ATTACH ACCEPT	TMSI status = no valid TMSI available Attach result = 'Combined PS / IMSI attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Mobile identity =IMSI Routing area identity = RAI-1
5 6	-> <-	ATTACH COMPLETE PAGING TYPE1	Mobile identity = IMSI Paging order is for CS services.
7	->	RRC CONNECTION REQUEST	aging order to the object mosts.
8 9	<- ->	RRC CONNECTION SETUP RRC CONNECTION SETUP COMPLETE	
10	->	PAGING RESPONSE	Mobile identity = IMSI
11	<-	RRC CONNECTION RELEASE RRC CONNECTION RELEASE	After sending of this message, the SS waits for disconnection of the CS signalling link.
12	->	COMPLETE	
13	<-	PAGING TYPE1	Mobile identity = P-TMSI-1 Paging for PS services
13a 13b	-> <-	RRC CONNECTION REQUEST RRC CONNECTION SETUP	
13c	->	RRC CONNECTION SETUP	
14	->	SERVICE REQUEST	service type = "paging response"
14a 14b	<- ->	RRC CONNECTION RELEASE RRC CONNECTION RELEASE COMPLETE	
15	UE		The UE is switched off or power is removed
16	->	DETACH REQUEST	(see ICS). Message not sent if power is removed. Detach type = 'power switched off, combined PS / IMSI detach'
17	UE		The UE is powered up or switched on and
18	->	ATTACH REQUEST	initiates an attach (see ICS). Attach type = 'Combined PS / IMSI attach' Mobile identity = P-TMSI-1 P-TMSI-1 signature
19	<-	ATTACH ACCEPT	TMSI status = no valid TMSI available Routing area identity = RAI-1 Attach result = 'Combined PS / IMSI attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Mobile identity = TMSI-1
20	->	ATTACH COMPLETE	Routing area identity = RAI-1
21 21b	<-	GMM INFORMATION GMM STATUS	Mossage cont in case the LIE does not compart
210	->	GIVIIVI STATUS	Message sent in case the UE does not support reception of GMM information message Cause #97
22	<-	PAGING TYPE 1	Mobile identity = TMSI-1 Paging order is for CS services.
23	->	RRC CONNECTION REQUEST	
24 25	<- ->	RRC CONNECTION SETUP RRC CONNECTION SETUP COMPLETE	
26	->	PAGING RESPONSE	Mobile identity = TMSI-1

Step	Direction	Message	Comments
	UE SS		
27	<-	RRC CONNECTION RELEASE	After sending of this message, the SS waits for disconnection of the CS signalling link.
28	->	RRC CONNECTION RELEASE COMPLETE	
29	<-	PAGING TYPE1	Mobile identity = P-TMSI-2 Paging for PS services
29a	->	RRC CONNECTION REQUEST	l aging ion i g connece
29b	<-	RRC CONNECTION SETUP	
29c	->	RRC CONNECTION SETUP	
		COMPLETE	
30	->	SERVICE REQUEST	service type = "paging response"
30a	<-	RRC CONNECTION RELEASE	paging response
30b	->	RRC CONNECTION RELEASE	
		COMPLETE	
31	<-	PAGING TYPE1	Mobile identity = P-TMSI-1
0.	`	7.0	Paging for PS services
32	UE		No response from the UE to the request. This
02	"		is checked for 10 seconds.
33	UE		The UE is switched off or power is removed
			(see ICS).
34	->	DETACH REQUEST	Message not sent if power is removed.
54		DETROTTLEGGEGT	Detach type = 'power switched off, combined
			PS / IMSI detach'
35	UE		The UE is powered up or switched on and
			initiates an attach (see ICS).
36	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach'
		ATTAOTT REGEST	Mobile identity = P-TMSI-2
			P-TMSI-2 signature
			Routing area identity = RAI-1
			TMSI status = valid TMSI available
37	<-	ATTACH ACCEPT	No new mobile identity assigned.
		7	TMSI and P-TMSI not included.
			Attach result = 'Combined PS / IMSI attached'
			P-TMSI-3 signature
			Routing area identity = RAI-1
38	<-	PAGING TYPE1	Mobile identity = P-TMSI-2
			Paging for PS services
38a	->	RRC CONNECTION REQUEST	
38b	<-	RRC CONNECTION SETUP	
38c	->	RRC CONNECTION SETUP	
		COMPLETE	
39	->	SERVICE REQUEST	service type = "paging response"
39a	<-	RRC CONNECTION RELEASE	
39b	->	RRC CONNECTION RELEASE	
		COMPLETE	
40	UE		The UE is switched off or power is removed
			(see ICS).
41	->	DETACH REQUEST	Message not sent if power is removed.
			Detach type = 'power switched off, combined
			PS / IMSI detach'

Specific message contents

None.

12.2.2.1.5 Test requirements

UE shall:

- initiate a PS attach procedure with information elements specified in the above Expected Sequence when UE is powered up or switched on.

Case 1) SS accept the combined PS attach procedure (signalled by an IMSI) and allocates a P-TMSI.

UE shall

- acknowledge the P-TMSI and continue communication with the P-TMSI.

Case 2) SS accepts the combined PS attach procedure (signalled by P-TMSI) and reallocates a new P-TMSI.

UE shall:

- acknowledge the new P-TMSI and continue communication with the new P-TMSI.

Case 3) SS accepts the combined PS attach procedure (signalled by a P-TMSI) from the UE without reallocation of the previously used P-TMSI.

UE shall:

- continue communication with the previously used P-TMSI.

Case 4) SS accepts the combined PS attach procedure and determines that IMSI shall be used in CS operations.

UE shall:

- continue communication with the IMSI for CS operations.

Case 5) SS accepts the combined PS attach procedure and determines that a TMSI shall be used in CS operations.

UE shall:

- continue communication with the TMSI for CS operations.

12.2.2.2 Combined PS attach / PS only attach accepted

12.2.2.2.1 Definition

12.2.2.2.2 Conformance requirement

- 1) If the network accepts the combined PS attach procedure, but GMM cause code 'IMSI unknown in HLR' is sent to the UE the User Equipment shall delete the stored TMSI, LAI and CKSN. The User Equipment shall consider USIM invalid for non-PS services until power is switched off or USIM is removed.
- 2) If the network accepts the combined PS attach procedure, but GMM cause code 'MSC temporarily not reachable', 'Network failure' or 'Congestion' is sent to the UE, an UE operation mode A UE may perform an MM IMSI attach procedure.

Reference

3GPP TS 24.008 clause 4.7.3.2.

12.2.2.3 Test purpose

Test propose1

To test the behaviour of the UE if the network accepts the PS attach procedure with indication PS only, GMM cause 'IMSI unknown in HLR'.

Test porpose2

To test the behaviour of the UE if the network accepts the PS attach procedure with indication PS only, GMM cause 'MSC temporarily not reachable', 'Network failure' or 'Congestion'.

12.2.2.2.4 Method of test

12.2.2.4.1 Test porpose1

Initial condition

System Simulator:

One cell operating in network operation mode I.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE sends an ATTACH REQUEST message with identity IMSI. The SS allocates a P-TMSI and returns ATTACH ACCEPT message with a P-TMSI. GMM cause 'IMSI unknown in HLR' is indicated from SS. Further communication UE - SS is performed by the P-TMSI. CS services are not possible.

Expected Sequence

Step	Direction	Message	Comments
	UE SS		
1	UE		The UE is set in UE operation mode A.
2	UE		The UE is powered up or switched on and initiates an attach (see ICS).
3	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity =IMSI
4	<-	ATTACH ACCEPT	TMSI status = no valid TMSI available Attach result = 'PS only attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature GMM cause = 'IMSI unknown in HLR'
5	->	ATTACH COMPLETE	
6	<-	PAGING TYPE1	Mobile identity = IMSI Paging order is for CS services.
7	UE		The UE shall not initiate an RRC connection. This is checked during 3 seconds.
8	UE		The UE is switched off or power is removed
9	->	DETACH REQUEST	(see ICS). Message not sent if power is removed. Detach type = 'power switched off, PS detach'

12.2.2.2.4.2 Test porpose2

Initial condition

System Simulator:

One cell operating in network operation mode I.

User Equipment:

The UE has a valid TMSI, P-TMSI, P-TMSI signature and RAI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Automatic MM IMSI attach procedure for UE operation mode A UE Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE sends an ATTACH REQUEST message. The SS allocates a P-TMSI and returns ATTACH ACCEPT message with a P-TMSI. GMM cause 'MSC temporarily not reachable', 'Network failure' or 'Congestion' is indicated from SS. The cause code is arbitrarily chosen. This procedure is repeated four times. An UE operation mode A UE may then perform an MM IMSI attach procedure (according to the ICS statement). Further communication UE - SS is performed by the P-TMSI. The existence of a signalling channel is verified by a request for mobile identity. CS services are not possible as an IMSI attach procedure is not performed.

Expected Sequence

Dependent whether the option 'Automatic MM IMSI attach procedure for UE operation mode A UE' is supported or not, the steps 1-22 or 23-53 apply depending on manufacturer (see ICS).

Step	Direction UE SS	Message	Comments
1	UE		The UE is set in UE operation mode A and no automatic MM IMSI attach procedure is
			indicated (see ICS).
2	UE		The UE is powered up or switched on and initiates an attach (see ICS)
3	->	ATTACH REQUEST	initiates an attach (see ICS). Attach type = 'Combined PS / IMSI attach'
			Mobile identity =P-TMSI-1
			P-TMSI-1 signature Routing area identity = RAI-1
4		ATTACH ACCEPT	TMSI status = valid TMSI available
4	<-	ATTACH ACCEPT	Attach result = 'PS only attached' Mobile identity = P-TMSI-2
			P-TMSI-2 signature
			Routing area identity = RAI-1
			GMM cause = 'MSC temporarily not reachable', 'Network failure' or 'Congestion' (arbitrarily
			chosen)
5 7	-> ->	ATTACH COMPLETE ROUTING AREA UPDATE	Update type = 'Combined RA / LA updating
'		REQUEST	with IMSI attach'
			P-TMSI-2 signature Routing area identity = RAI-1
			TMSI status = no valid TMSI available
8	<-	ROUTING AREA UPDATE ACCEPT	No new mobile identity assigned. P-TMSI not included.
		7.002. 1	Update result = 'RA updated'
			P-TMSI-3 signature Routing area identity = RAI-1
			GMM cause = 'MSC temporarily not reachable',
			'Network failure' or 'Congestion' (arbitrarily chosen)
10	->	ROUTING AREA UPDATE	Update type = 'Combined RA / LA updating
		REQUEST	with IMSI attach' P-TMSI-3 signature
			Routing area identity = RAI-1
11	<-	ROUTING AREA UPDATE	TMSI status = no valid TMSI available No new mobile identity assigned.
		ACCEPT	P-TMSI not included.
			Update result = 'RA updated' P-TMSI-4 signature
			Routing area identity = RAI-1 GMM cause = 'MSC temporarily not reachable',
			'Network failure' or 'Congestion' (arbitrarily
12	SS		chosen) The SS verifies that the time between the
			requests are T3311
13	->	ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA / LA updating with IMSI attach'
			P-TMSI-4 signature
			Routing area identity = RAI-1 TMSI status = no valid TMSI available
14	<-	ROUTING AREA UPDATE	No new mobile identity assigned.
		ACCEPT	P-TMSI not included. Update result = 'RA updated'
			P-TMSI-5 signature
			Routing area identity = RAI-1 GMM cause = 'MSC temporarily not reachable',
			'Network failure' or 'Congestion' (arbitrarily
16	->	ROUTING AREA UPDATE	chosen) Update type = 'Combined RA / LA updating
		REQUEST	with IMSI attach'
			P-TMSI-5 signature Routing area identity = RAI-1
			TMSI status = no valid TMSI available

Step	Direction UE SS	Message	Comments
17	<-	ROUTING AREA UPDATE ACCEPT	No new mobile identity assigned. P-TMSI not included. Update result = 'RA updated' P-TMSI-6 signature Routing area identity = RAI-1 GMM cause = 'MSC temporarily not reachable', 'Network failure' or 'Congestion' (arbitrarily
19	<-	PAGING TYPE1	chosen) Mobile identity = IMSI
			Paging order is for CS services.
20	UE UE		The UE shall not initiate an RRC connection. This is checked during 3 seconds. The UE is switched off or power is removed
	OL		(see ICS).
22	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'. Stop the sequence.
23	UE		Automatic MM IMSI attach procedure is
24	UE		indicated (see ICS). The UE is powered up or switched on and
25	->	ATTACH REQUEST	initiates an attach (see ICS). Attach type = 'Combined PS / IMSI attach' Mobile identity = P-TMSI-1 P-TMSI-1 signature
26	<-	ATTACH ACCEPT	Routing area identity = RAI-1 TMSI status = valid TMSI available No new mobile identity assigned. P-TMSI not included. Attach result = 'PS only attached' P-TMSI-2 signature
28	->	ROUTING AREA UPDATE REQUEST	Routing area identity = RAI-1 GMM cause = 'MSC temporarily not reachable', 'Network failure' or 'Congestion' (arbitrarily chosen) Update type = 'Combined RA / LA updating with IMSI attach' P-TMSI-2 signature Routing area identity = RAI-1
29	<-	ROUTING AREA UPDATE ACCEPT	TMSI status = no valid TMSI available No new mobile identity assigned. P-TMSI not included. Update result = 'RA updated' P-TMSI-3 signature Routing area identity = RAI-1 GMM cause = 'MSC temporarily not reachable',
31	->	ROUTING AREA UPDATE REQUEST	'Network failure' or 'Congestion' (arbitrarily chosen) Update type = 'Combined RA / LA updating with IMSI attach' P-TMSI-3 signature Routing area identity = RAI-1
32	<-	ROUTING AREA UPDATE ACCEPT	TMSI status = no valid TMSI available No new mobile identity assigned. P-TMSI not included. Update result = 'RA updated' P-TMSI-4 signature
33	SS		Routing area identity = RAI-1 GMM cause = 'MSC temporarily not reachable', 'Network failure' or 'Congestion' (arbitrarily chosen) The SS verifies that the time between the requests are T3311

Step	Direction UE SS	Message	Comments
34	->	ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA / LA updating with IMSI attach' P-TMSI-4 signature Routing area identity = RAI-1 TMSI status = no valid TMSI available
35	<-	ROUTING AREA UPDATE ACCEPT	No new mobile identity assigned. P-TMSI not included. Update result = 'RA updated' P-TMSI-5 signature Routing area identity = RAI-1 GMM cause = 'MSC temporarily not reachable', 'Network failure' or 'Congestion' (arbitrarily
37	->	ROUTING AREA UPDATE REQUEST	chosen) Update type = 'Combined RA / LA updating with IMSI attach' P-TMSI-5 signature Routing area identity = RAI-1 TMSI status = no valid TMSI available
38	<-	ROUTING AREA UPDATE ACCEPT	No new mobile identity assigned. P No new mobile identity assigned. P-TMSI not included. Update result = 'RA updated' P-TMSI-6 signature Routing area identity = RAI-1 GMM cause = 'MSC temporarily not reachable', 'Network failure' or 'Congestion' (arbitrarily chosen)
39	SS		The SS verifies that the time between the requests are T3311
40	UE		An automatic MM IMSI attach procedure is initiated.
41	->	RRC CONNECTION REQUEST	
42 43	<- ->	RRC CONNECTION SETUP RRC CONNECTION SETUP COMPLETE	
44	->	LOCATION UPDATING REQ	Location updating type = IMSI attach.
45	<-	LOCATION UPDATING ACC	The SS allocates a new TMSI.
46 47	-> <-	TMSI REALLOCATION COMP RRC CONNECTION RELEASE	Location updating type = IMSI attach. After sending of this message, the SS waits for disconnection of the CS signalling link.
48	->	RRC CONNECTION RELEASE COMPLETE	
49	<-	PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services.
50	->	RRC CONNECTION REQUEST	
51 52	<- ->	RRC CONNECTION SETUP RRC CONNECTION SETUP COMPLETE	
53 54	-> <-	PAGING RESPONSE RRC CONNECTION RELEASE	Mobile identity = TMSI-1 After sending of this message, the SS waits for
55	->	RRC CONNECTION RELEASE	disconnection of the CS signalling link.
56	UE	COMPLETE	The UE is switched off or power is removed
57	->	DETACH REQUEST	(see ICS). Message not sent if power is removed. Detach type = 'power switched off, PS detach'

Specific message contents

None.

12.2.2.2.5 Test requirements

UE shall:

- initiate a Combined PS attach procedure with information elements specified in the above Expected Sequence when UE is powered up or switched on.
- check the GMM cause which is contained in the ATTACH ACCEPT message received from SS.
- perform the following actions depending on the GMM cause.

Case1) GMM cause = 'IMSI unknown in HLR'

UE shall

- delete stored TMSI, LAI, and ciphering key sequence number.
- consider USIM invalid for non-PS service until power is switching off or USIM is removed.

Case2) GMM cause = 'MSC temporarily not reachable' or 'Network failure' or 'Congestion',

UE shall:

- stop the timer T3310(if running), and shall increment the routing area update attempt counter.
- perform the following actions depending on the conditions described below.

Case 2-1) the routing area updating attempt counter is less than 5 and the stored RAI is equal to the RAI of the current serving cell and the GMM update status is equal to GU1 UPDATED:

UE shall

- keep the GMM update status GU1 UPDATED.
- change state to GMM-REGISTERED.ATTEMPTING-TO-UPDATE-MM.
- start timer T3311. When timer T3311 expires, the combined routing area update procedure indicating "combined RA/LA updating with IMSI attach" is triggered again.

Case 2-2) the routing area updating attempt counter is greater than or equal to 5

UE shall

- start timer T3302 and change state to GMM-REGISTERED.ATTEMPTING-TO-UPDATE-MM

12.2.2.3 Combined PS attach / PS attach while IMSI attach

12.2.2.3.1 Definition

12.2.2.3.2 Conformance requirement

If the PS UE is already attached for non-PS services by the MM specific attach procedure, but wants to perform an attach for PS services, the combined PS attach procedure is performed.

Reference

3GPP TS 24.008 clause 4.7.3.2.

12.2.2.3.3 Test purpose

To test the behaviour of the UE if PS attach performed while IMSI attached.

12.2.2.3.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode I. ATT flag is set.

User Equipment:

The UE has a valid TMSI-1, P-TMSI-1, P-TMSI-1 signature and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode A Yes/No Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE is forced to register for CS services but not to PS services. The SS verifies that the UE does not respond to paging messages for PS domain. Then the UE is triggered to perform the PS attach procedure and the SS verifies that it responds to PS paging messages.

Step	Direction	Message	Comments
-	UE SS	_	
1	UE		The UE is set in UE operation mode A (see
			ICS) and configured not to perform an
			automatic PS attach at switch on.
2	UE		The UE is powered up or switched on. No PS
			attach is performed (see ICS).
3		Registration on CS	See TS 34.108
			Location updating type = IMSI attach.
			The SS allocates TMSI-1
4	<-	PAGING TYPE1	Mobile identity = P-TMSI-1
_			Paging order is for PS services.
5	UE		No response from the UE to the request. This
			is checked for 10 seconds.
6	UE	ATTAGUEST	The UE is triggered to perform a PS attach.
7	->	ATTACH REQUEST	Attach type = 'PS attach while IMSI attached' <u>or</u>
			'Combined PS / IMSI attached'
			Mobile identity =P-TMSI-1
			P-TMSI-1 signature Routing area identity = RAI-1
8	<-	ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached'
0	ζ-	ATTACITACCEFT	No new mobile identity assigned. TMSI and P-
			TMSI not included
			P-TMSI-2 signature
			Routing area identity = RAI-1
9	<-	PAGING TYPE1	Mobile identity = P-TMSI-1
		TAGING TITE!	Paging order is for PS services.
10	->	RRC CONNECTION REQUEST	aging craci is for the conviction.
11	<-	RRC CONNECTION SETUP	
12	->	RRC CONNECTION SETUP	
		COMPLETE	
13	->	SERVICE REQUEST	service type = "paging response"
14	<-	RRC CONNECTION RELEASE	
15	->	RRC CONNECTION RELEASE	
		COMPLETE	
16	UE		The UE is switched off or power is removed
			(see ICS).
17	->	DETACH REQUEST	Message not sent if power is removed.
			Detach type = 'power switched off, combined
			PS / IMSI detach'

Specific message contents

None.

12.2.2.3.5 Test requirements

UE is already attached for non-PS service with the MM specific attach procedure.

UE shall:

- perform the combined PS attach procedure when UE is requested to attach for PS services.

Combined PS attach / rejected / IMSI invalid / illegal ME 12.2.2.4

12.2.2.4.1 Definition

12.2.2.4.2 Conformance requirement

- 1) If the network rejects a combined PS attach procedure from the User Equipment with the cause 'Illegal ME', the User Equipment shall consider USIM invalid for PS and non-PS services until power is switched off or USIM is removed.
- 2) If the network rejects a combined PS attach procedure from the User Equipment with the cause 'Illegal ME', the User Equipment shall delete the stored TMSI, LAI, CSKN, RAI, PS-CKSN, P-TMSI and P-TMSI signature.
- 3) The UE in the UE operation mode A shall perform an MM IMSI attach procedure.

Reference

3GPP TS 24.008 clause 4.7.3.2

12.2.2.4.3 Test purpose

To test the behaviour of the UE if the network rejects the combined PS attach procedure of the UE with the cause 'Illegal ME'.

12.2.2.4.4 Method of test

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1) and cell B in MCC2/MNC1/LAC1/RAC1 (RAI-2).

Both cells are operating in network operation mode I.

User Equipment:

The UE has a valid TMSI-1, P-TMSI-1, P-TMSI-1 signature and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No UE operation mode A Yes/No

USIM removal possible without powering down Yes/No

Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a PS attach with the cause value 'Illegal ME'. The SS checks that the UE does not perform PS attach in the same or another PLMN. PS services are not possible as the USIM is blocked for PS services. An UE operation mode A UE shall perform an MM IMSI attach.

Step	Direction UE SS	Message	Comments
1 2	SS UE		The following messages are sent and shall be received on cell A. The SS activates cell A. The UE is set in UE operation mode A (see ICS).
3	UE		The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred
4	->	ATTACH REQUEST	by the UE. Attach type = 'Combined PS / IMSI attach' Mobile identity = P-TMSI-1 P-TMSI-1 signature
5 6	<- UE	ATTACH REJECT	Routing area identity = RAI-1 GMM cause 'Illegal ME'. An automatic MM IMSI attach procedure is initiated.
7	UE	Registration on CS	See TS.34.108 Location updating type = IMSI attach. The SS allocates TMSI-2.
8	<-	PAGING TYPE1	Mobile identity = P-TMSI-1Paging order is for PS services
9	UE		No response from the UE to the request. This is checked for 10 seconds.
10	<-	PAGING TYPE1	Mobile identity = TMSI-2 Paging order is for CS services.
11 12	-> ->	RRC CONNECTION REQUEST RRC CONNECTION SETUP	
13	<-	RRC CONNECTION SETUP COMPLETE	
14 15	-> <-	PAGING RESPONSE RRC CONNECTION RELEASE	Mobile identity = TMSI-2 After sending of this message, the SS waits for disconnection of the CS signaling link.
16	->	RRC CONNECTION RELEASE COMPLETE	
17 18 19	SS UE UE		The following messages are sent and shall be received on cell B. The SS deactivates cell A and activates cell B. Cell B is preferred by the UE. Step 20 is only performed for non-auto attach UE. A location updating procedure is initiated.
20	UE	Registration on CS	See TS34.108 Location updating type = normal. The SS allocates TMSI-1.
21	UE		UE initiates an attach automatically (see PICS), by MMI or AT commands.
22		PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services.
23 24 25		RRC CONNECTION REQUEST RRC CONNECTION SETUP RRC CONNECTION SETUP COMPLETE	
26 27		PAGING RESPONSE RRC CONNECTION RELEASE	Mobile identity = TMSI-1 After sending of this message, the SS waits for disconnection of the CS signaling link.
28		RRC CONNECTION RELEASE COMPLETE	allocation of the oo signaling link.
29	<-	PAGING TYPE1	Mobile identity = IMSI Paging order is forPS services.
30	UE		The UE shall not initiate an RRC connection. This is checked during 3 seconds.

Step	Direction	Message	Comments
	UE SS	_	
31	UE		The UE gets the USIM replaced, is powered up or switched on and initiates an attach (see ICS).
32	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity = IMSI TMSI status = no valid TMSI available
33	<-	ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Mobile identity = TMSI-2 Routing area identity = RAI-2
34	->	ATTACH COMPLETE	j
35	<-	PAGING TYPE1	Mobile identity = TMSI-2 Paging order is for CS services.
36	->	RRC CONNECTION REQUEST	
37	<-	RRC CONNECTION SETUP	
38	->	RRC CONNECTION SETUP COMPLETE	
39	->	PAGING RESPONSE	Mobile identity = TMSI-2
40	<-	RRC CONNECTION RELEASE	After sending of this message, the SS waits for disconnection of the CS signalling link.
41	->	RRC CONNECTION RELEASE COMPLETE	
42	UE		The UE is switched off or power is removed (see ICS).
43	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined PS / IMSI detach'

Specific message contents

None.

12.2.2.4.5 Test requirements

UE shall:

- initiate a combined PS attach procedure with the information elements specified in the above Expected Sequence when UE is powered up or switched on.
- check the GMM cause which is contained in the ATTACH REJECT message and stop the timer T3310.
- set the PS update status to GU3 ROAMING NOT ALLOWED.
- delete the stored P-TMSI, P-TMSI signature, RAI and PS ciphering key sequence number.
- consider USIM invalid for PS and non-PS services until power is switched off or USIM is removed.
- perform an MM IMSI attach procedure, if the UE is PS class A.

12.2.2.5 Combined PS attach / rejected / PS services and non-PS services not allowed

12.2.2.5.1 Definition

12.2.2.5.2 Conformance requirement

1) If the network rejects a combined PS attach procedure from the User Equipment with the cause 'PS services and non-PS services not allowed', the User Equipment shall consider USIM invalid for PS and non-PS services until power is switched off or USIM is removed.

2) If the network rejects a combined PS attach procedure from the User Equipment with the cause 'PS services and non-PS services not allowed', the User Equipment shall delete the stored TMSI, LAI, CSKN, RAI, PS-CKSN, P-TMSI and P-TMSI signature.

Reference

3GPP TS 24.008 clause 4.7.3.2.

12.2.2.5.3 Test purpose

To test the behaviour of the UE if the network rejects the combined PS attach procedure of the UE with the cause 'PS services and non-PS services not allowed'.

12.2.2.5.4 Method of test

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1) and cell B in MCC2/MNC1/LAC1/RAC1 (RAI-2).
 Both cells are operating in network operation mode I.

User Equipment:

- The UE has a valid TMSI-1, P-TMSI-1, P-TMSI-1 signature and RAI-1.

Related ICS/IXIT statements

- Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a PS attach with the cause value 'PS services and non-PS services not allowed'. The SS checks that the UE does not perform PS attach in the same or another PLMN. CS services are not possible as the USIM is blocked for CS services. PS services are not possible as the USIM is blocked for PS services.

Step	Direction UE SS	Message	Comments
	02 00		The following messages are sent and shall be
			received on cell A.
1 2	SS UE		The SS activates cell A. The UE is set in UE operation mode A (see
	OL		ICS).
3	UE		The UE is powered up or switched on and
			initiates an attach (see ICS). Cell A is preferred
4	->	ATTACH REQUEST	by the UE. Attach type = 'Combined PS / IMSI attach'
			Mobile identity =P-TMSI-1
			P-TMSI-1 signature
5	<-	ATTACH REJECT	Routing area identity = RAI-1 GMM cause 'PS services and non-PS services
		THE TREE COLOR	not allowed'
6	UE		The SS verifies that the UE does not attempt to
			access the network.
7	<-	PAGING TYPE1	(SS waits 30 seconds). Mobile identity = IMSI
			Paging order is for CS services.
8	UE		The UE shall not initiate an RRC connection.
9	<-	PAGING TYPE1	This is checked during 3 seconds. Mobile identity = P-TMSI-1
			Paging order is for PS Paging.
10	->		No response from the UE to the request.
11	UE		This is checked for 10 seconds Cell A is deactivated and cell B is activated.
12	OL	(void)	Cell A is deadtivated and cell B is activated.
13	UE	,	The SS verifies that the UE does not attempt to
			access the network. (SS waits 30 seconds).
14	<-	PAGING TYPE1	Mobile identity = IMSI
			Paging order is for CS services.
15	UE		The UE shall not initiate an RRC connection.
16	<-	PAGING TYPE1	This is checked during 3 seconds. Mobile identity = P-TMSI-1
			Paging order is for PS services.
17	UE		No response from the UE to the request. This
18	UE		is checked for 10seconds. If possible (see ICS) switch off is performed.
10	OL.		Otherwise the power is removed.
19	UE		The UE is powered up or switched.
20	UE	Registration on CS	See TS 34.108 Location Update Procedure initiated from the
			UE. Parameter mobile identity is IMSI.
21	UE		UE initiates an attach automatically (see PICS),
22	->	ATTACH REQUEST	by MMI or AT commands. Attach type = 'Combined PS / IMSI attach'
		MIMORINEGOLOT	Mobile identity = IMSI
			TMSI status = no valid TMSI available
23	<-	ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached' Mobile identity = P-TMSI-1
			P-TMSI-1 signature
			Mobile identity = TMSI-1
24	_	ATTACH COMPLETE	Routing area identity = RAI-2
24 25	-> <-	ATTACH COMPLETE PAGING TYPE1	Mobile identity = TMSI-1
	•		Paging order is for CS services.
26	->	RRC CONNECTION REQUEST	
27 28	<- ->	RRC CONNECTION SETUP RRC CONNECTION SETUP	
		COMPLETE	
29	->	PAGING RESPONSE	Mobile identity = TMSI-1
30	<-	RRC CONNECTION RELEASE	After sending of this message, the SS waits for disconnection of the CS signalling link.
L		<u>I</u>	alcostinosion of the Oo signaling link.

Step	Direction	Message	Comments
	UE SS		
31	->	RRC CONNECTION RELEASE COMPLETE	
32	<-	PAGING TYPE1	Mobile identity = P-TMSI-1 Paging is for PS services.
33	->	RRC CONNECTION REQUEST	
34	<-	RRC CONNECTION SETUP	
35	->	RRC CONNECTION SETUP COMPLETE	
36	->	SERVICE REQUEST	Service type = "paging response"
37	<-	RRC CONNECTION RELEASE	
38	->	RRC CONNECTION RELEASE COMPLETE	
39	UE		The UE is switched off or power is removed (see ICS).
40	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined PS / IMSI detach'

Specific message contents

None.

12.2.2.5.5 Test requirements

UE shall:

- initiate a combined PS attach procedure with the information elements specified in the above Expected Sequence when UE is powered up or switched on.
- check the GMM cause which is contained in the ATTACH REJECT message and stop the timer T3310.
- set the PS update status to GU3 ROAMING NOT ALLOWED.
- delete the stored P-TMSI, P-TMSI signature, RAI and PS ciphering key sequence number.
- consider USIM invalid for PS and non-PS services until power is switched off or USIM is removed.

12.2.2.6 Combined PS attach / rejected / PS services not allowed

12.2.2.6.1 Definition

12.2.2.6.2 Conformance requirement

- If the network rejects a combined PS attach procedure from the User Equipment with the cause 'PS services not allowed', the User Equipment shall consider USIM invalid for PS services until power is switched off or USIM is removed.
- 2) If the network rejects a combined PS attach procedure from the User Equipment with the cause 'PS services not allowed' the User Equipment shall delete the stored RAI, PS-CKSN, P-TMSI and P-TMSI signature.
- 3) A PS class AUE shall perform an MM IMSI attach procedure.

Reference

3GPP TS 24.008 clause 4.7.3.2

12.2.2.6.3 Test purpose

To test the behaviour of the UE if the network rejects the PS attach procedure of the UE with the cause 'PS services not allowed'.

12.2.2.6.4 Method of test

Initial condition

System Simulator:

 $Two\ cells\ (not\ simultaneously\ activated),\ cell\ A\ in\ MCC1/MNC1/LAC1/RAC1\ (RAI-1)\ and\ cell\ B\ in\ MCC2/MNC1/LAC1/RAC1\ (RAI-2).$

Both cells are operating in network operation mode I.

User Equipment:

The UE has a valid TMSI, P-TMSI-1, P-TMSI-1 signature and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a normal attach with the cause value 'PS services not allowed'. The SS checks that the UE does not perform PS attach. PS services are not possible. An UE operation mode A UE shall perform an MM IMSI attach.

The following messages are sent and shall be received on cell A. The SS activates cell A. ATTACH REQUEST ATTACH REJECT Step	Direction UE SS	Message	Comments	
The SS activates cell A. The UE is powered up or switched on and initiates an attach (see ICS). Attach type = (Combined PS / IMSI attach' Mobile identity = P-TMSI-1 P-TMSI-1 P-TMSI-1 P-TMSI-1 signature. 4		02 00		
The UE is powered up or switched non and initiates an attach (see ICS). ATTACH REQUEST ATTACH REQUEST ATTACH REJECT ATTACH COMPLETE ATTACH COMPLET	4	cc		
ATTACH REQUEST				
ATTACH REJECT Mobile identity = PTMSI-1 P-TMSI-1 signature Routing area identity = RAI-1 GMM cause 'PS services not allowed' An automatic MM IMSI attach procedure is initiated. See TS 34.108 Location updating type = IMSI attach. The SS allocates TMSI-2. Mobile identity = TMSI-2 Paging Order is for CS services. Mobile identity = TMSI-2 Paging order is for CS services. Mobile identity = TMSI-2 Paging order is for CS services. Mobile identity = TMSI-2 Paging order is for CS services. Mobile identity = TMSI-2 Paging order is for CS services. Mobile identity = TMSI-2 Paging order is for CS services. Mobile identity = TMSI-2 Paging order is for CS services. Mobile identity = TMSI-2 Paging order is for CS services. Mobile identity = TMSI-2 Paging order is for CS services. Mobile identity = TMSI-2 Paging order is for CS services. Mobile identity = TMSI-2 Paging order is for CS services Paging or		0_		initiates an attach (see ICS).
4	3	->	ATTACH REQUEST	
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10		->		
COMPLETE	-			
11	10	->		
13		->	PAGING RESPONSE	
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20	19	->	RRC CONNECTION REQUEST	Paging order is for CS services.
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23	22	->		Mobile identity = TMSI-1
24 -> RRC CONNECTION RELEASE COMPLETE 25 <- PAGING TYPE1		<-		After sending of this message, the SS waits for
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25	24	->		
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27	20	OL		
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32 <- PAGING TYPE1 Mobile identity = TMSI-2				
				Mobile identity – TMSL 2
Trading order is for G5 services.	32	<-	I AGING LIFET	Paging order is for CS services.

Step	Direction		Message	Comments
	UE	SS		
33		->	RRC CONNECTION REQUEST	
34		<-	RRC CONNECTION SETUP	
35	-:	>	RRC CONNECTION SETUP	
			COMPLETE	
36		->	PAGING RESPONSE	Mobile identity = TMSI-2
37		<-	RRC CONNECTION RELEASE	After sending of this message, the SS waits for
				disconnection of the CS signalling link.
38	-:	>	RRC CONNECTION RELEASE	
			COMPLETE	
39	U	E		The UE is switched off or power is removed
				(see ICS).
40		->	DETACH REQUEST	Message not sent if power is removed.
				Detach type = 'power switched off, combined
				PS / IMSI detach'

Specific message contents

None.

12.2.2.6.5 Test requirements

UE shall:

- initiate a combined PS attach procedure with the information elements specified in the above Expected Sequence when UE is powered up or switched on.
- check the GMM cause which is contained in the ATTACH REJECT message and stop the timer T3310.
- set the PS update status to GU3 ROAMING NOT ALLOWED.
- delete stored P-TMSI, P-TMSI signature, RAI and PS ciphering key sequence number.
- consider USIM invalid for PS services until power is switched off or USIM is removed.
 - perform an MM IMSI attach procedure, if the UE is PS class A.

12.2.2.7a Combined PS attach / rejected / location area not allowed

12.2.2.7a.1 Definition

12.2.2.7a.2 Conformance requirement

- 1) If the network rejects a combined PS attach procedure from the User Equipment with the cause 'location area not allowed' the User Equipment shall:
 - 1.1 not perform combined PS attach when in the same location area.
 - 1.2 delete the stored LAI, CKSN, TMSI, RAI, PS-CKSN, P-TMSI and P-TMSI signature.
 - 1.3 store the LA in the 'forbidden location areas for regional provision of service'.
- 2) If the network rejects a combined PS attach procedure from the User Equipment with the cause 'location area not allowed' the User Equipment shall:
 - 2.1 perform combined PS attach when a new location area is entered.
 - 2.2 delete the list of forbidden LAs when power is switched off.

Reference

3GPP TS 24.008 clauses 4.7.3.2.

12.2.2.7a.3 Test purpose

To test the behaviour of the UE if the network rejects the combined PS attach procedure with the cause 'Location Area not allowed'.

To test that the UE deletes the list of forbidden LAs when power is switched off.

12.2.2.7a.4 Method of test

Initial condition

System Simulator:

Three cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4), cell C in MCC1/MNC1/LAC2/RAC1 (RAI-3). All cells are operating in network operation mode I.

User Equipment:

The UE has a valid TMSI, P-TMSI, P-TMSI signature and RAI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a combined PS attach with the cause value 'Location Area not allowed'. The SS checks that the UE does not perform combined PS attach while in the location area, performs PS attach when a new location area is entered and deletes the list of forbidden LAs when switched off. CS services are not possible unless an IMSI attach procedure is performed.

Different types of UE may use different methods to periodically clear the list of forbidden location areas (e.g. every day at 12am). If the list is cleared while the test is being run, it may be necessary to re-run the test.

Step	Direction UE SS	Message	Comments
	SS		The following messages are sent and shall be
			received on cell A.
1 2	SS UE		The SS activates cell A. The UE is set in UE operation mode A (see
	OL		ICS).
3	UE		The UE is powered up or switched on and
			initiates an attach (see ICS). Cell A is preferred
4	->	ATTACH REQUEST	by the UE. Attach type = 'Combined PS / IMSI attach'
		THE TREE COLOR	Mobile identity = P-TMSI-1
			P-TMSI-1 signature
5	_	ATTACH REJECT	Routing area identity = RAI-1 GMM cause 'Location Area not allowed'
6	<- UE	ATTACITIKESECT	No LOCATION UPDATING REQ with type
			'IMSI attach' is sent to the SS
_		DA CINIO TVDE4	(SS waits 30 seconds).
7	<-	PAGING TYPE1	Mobile identity = TMSI Paging order is for CS services.
8	UE		The UE shall not initiate an RRC connection.
			This is checked during 3 seconds.
9	<-	PAGING TYPE1	Mobile identity = P-TMSI-1 Paging oder is for PS services.
10	->		No response from the UE to the request.
			This is checked for 10 seconds
			The following messages are sent and shall be
11	SS		received on cell B. The SS deactivates cell A and activates cell B.
12	UE		Cell B is preferred by the UE.
13	UE		No ATTACH REQUEST sent to SS
14	UE		(SS waits 30 seconds) No LOCATION UPDATING REQ with type
14	OL		'IMSI attach' is sent to the SS
			(SS waits 30 seconds).
15	<-	PAGING TYPE1	Mobile identity = P-TMSI-1
16	UE		Paging order is for PS services. No response from the UE to the request. This
	OL.		is checked for 10seconds.
17	UE		The UE initiates an attach by MMI or AT
18			command. No attach is performed by the UE. This is
10			checked for 10 seconds.
			The following messages are sent and shall be
10	cc		received on cell C. The SS deactivates cell B and activates cell C.
19 20	SS UE		Cell C is preferred by the UE.
21	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach'
			Mobile identity = IMSI
22	<-	ATTACH ACCEPT	TMSI status = no valid TMSI available Attach result = 'Combined PS / IMSI attached'
	`	THE THEOLET	Mobile identity = P-TMSI1
			P-TMSI-1 signature
			Mobile identity = TMSI-1 Routing area identity = RAI-3
23	->	ATTACH COMPLETE	Trouting area identity – IVAI-0
24	<-	PAGING TYPE1	Mobile identity = TMSI-1
25		BBC CONNECTION BEOLIECT	Paging order is for CS services.
25 26	-> <-	RRC CONNECTION REQUEST RRC CONNECTION SETUP	
27	->	RRC CONNECTION SETUP	
		COMPLETE	NA LIL CO. TAKOLO
28 29	-> <-	PAGING RESPONSE RRC CONNECTION RELEASE	Mobile identity = TMSI-1 After sending of this message, the SS waits for
23	\-	TATO OCIVILOTION RELEASE	disconnection of the CS signalling link.
L	<u> </u>	I	also state of the object of th

Step	Direction UE SS	Message	Comments
30	->	RRC CONNECTION RELEASE	
30		COMPLETE	
31	<-	PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.
32	->	RRC CONNECTION REQUEST	aging order is for 1 of services.
33	<-	RRC CONNECTION SETUP	
34	->	RRC CONNECTION SETUP COMPLETE	
35	->	SERVICE REQUEST	Service type = "paging response"
36	<-	RRC CONNECTION RELEASE	
37	->	RRC CONNECTION RELEASE COMPLETE	
38	UE		The UE is switched off or power is removed (see ICS).
39	->	DETACH REQUEST	Message not sent if power is removed.
	·		Detach type = 'power switched off, combined PS / IMSI detach'
			The following messages are sent and shall be
40	UE		received on cell B. The SS deactivates cell C and activates cell B.
40	OE.		Cell B is preferred by the UE.
41	UE		The UE is powered up or switched on and
			initiates an attach (see ICS).
42			Step 43 is only performed for non-auto attach
43	UE	Registration on CS	UE. See TS 34.108
43	UE	Registration on CS	UE initiates an attach automatically (see PICS),
	02		by MMI or AT commands.
45	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach'
			Mobile identity = P-TMSI-1
			P-TMSI-1 signature
46	<-	ATTACH ACCEPT	Routing area identity = RAI-3 Attach result = 'Combined PS / IMSI attached'
	,		Mobile identity = P-TMSI-2
			P-TMSI-2 signature
			Mobile identity = TMSI-2
47	->	ATTACH COMPLETE	Routing area identity = RAI-4
48	<-	PAGING TYPE1	Mobile identity = TMSI-2
			Paging order is for CS services.
49	->	RRC CONNECTION REQUEST	
50 51	<-	RRC CONNECTION SETUP RRC CONNECTION SETUP	
31	->	COMPLETE	
52	->	PAGING RESPONSE	Mobile identity = TMSI-2
53	<-	RRC CONNECTION RELEASE	After sending of this message, the SS waits for
E 4	_	DDC CONNECTION DELEASE	disconnection of the CS signalling link.
54	->	RRC CONNECTION RELEASE COMPLETE	
55	<-	PAGING TYPE1	Mobile identity = P-TMSI-2
			Paging order is for PS services.
56	->	RRC CONNECTION REQUEST	
57 59	<-	RRC CONNECTION SETUP	
58	->	RRC CONNECTION SETUP COMPLETE	
59	->	SERVICE REQUEST	service type = "paging response"
60	<-	RRC CONNECTION RELEASE	
61	->	RRC CONNECTION RELEASE	
62	UE	COMPLETE	The UE is switched off or power is removed
02	J.		(see ICS).
63	->	DETACH REQUEST	Message not sent if power is removed.
			Detach type = 'power switched off, combined
			PS / IMSI detach'

Specific message contents

None.

12.2.2.7a.5 Test requirements

UE shall:

- initiate a combined PS attach procedure with the information elements specified in the above Expected Sequence when UE is powered up or switched on.
- perform the following action depending on UE location.

When in the same location area, UE shall

- check the GMM cause which is contained in the ATTACH REJECT message and stop timer T3310.
- delete any stored LAI, CKSN, TMSI, RAI, PS-CKSN, P-TMSI and P-TMSI signature.
- store the LAI or the PLMN identity in the appropriate forbidden list("forbidden location areas for regional provision of service").

When a new location area is entered, UE shall

- perform combined PS attach when UE entered a new location area.
- delete the list of forbidden LAs when power is switched off.

12.2.2.7b Combined PS attach / rejected / No Suitable Cells In Location Area

12.2.2.7b.1 Definition

12.2.2.7b.2 Conformance requirement

- 1) If the network rejects a combined PS attach procedure from the User Equipment with the cause 'No Suitable Cells In Location Area', the User Equipment shall:
 - 1.1 not perform combined PS attach when in the same location area.
 - 1.2 delete the stored LAI, CKSN, TMSI, RAI, PS-CKSN, P-TMSI and P-TMSI signature.
 - 1.3 store the LA in the 'forbidden location areas for roaming'.
- 2) If the network rejects a combined PS attach procedure from the User Equipment with the cause 'No Suitable Cells In Location Area', the User Equipment shall:
 - 2.1 search for a suitable cell in a different location area on the same PLMN.

Reference

3GPP TS 24.008 clauses 4.7.3.2.

12.2.2.7b.3 Test purpose

To test the behaviour of the UE if the network rejects the combined PS attach procedure with the cause 'No Suitable Cells In Location Area'.

12.2.2.7b.4 Method of test

Initial condition

System Simulator:

Three cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC2/RAC1 (RAI-3), cell C in MCC2/MNC1/LAC1/RAC1 (RAI-2)

User Equipment:

The UE has valid TMSI, P-TMSI, P-TMSI signature and RAI

Related ICS/IXIT statements

Support of PS service Yes/No UE operation mode A Yes/No Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a combined PS attach with the cause value 'No Suitable Cells In Location Area'. The SS checks that the UE shall search for a suitable cell in a different location area on the same PLMN and shall perform combined PS attach procedure in that cell

Step	Direction	Message	Comments
	UE SS		
	SS		The SS activates three cells simultaneously.
			The SS configures power level of each Cell as
			follows.
			Cell A > Cell B = Cell C
1	UE		The UE is set in UE operation mode A (see
			ICS).
2	UE		The UE is powered up or switched on and
			initiates an attach (see ICS). Cell A is preferred
			by the UE.
3	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach'
			Mobile identity =P-TMSI-1
			P-TMSI-1 signature
			Routing area identity = RAI-1
4	<-	ATTACH REJECT	GMM cause = 'No Suitable Cells In Location
			Area'
5	SS		The SS initiates the RRC connection release.
			The following message are sent and shall be
_			received on cell B.
6	UE		The UE initiates an attach automatically, by
_			MMI or by AT command.
7	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach'
			Mobile identity = IMSI
		ATTA 011 A 005DT	TMSI status = no valid TMSI available
8	<-	ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached'
			Mobile identity = P-TMSI-2
			P-TMSI-2 signature
			Mobile identity = TMSI-2
		ATTACH COMPLETE	Routing area identity = RAI-•
9	->	ATTACH COMPLETE	The UE is suitabled att an according
10	UE		The UE is switched off or power is removed
		DETACH DECLIECT	(see ICS).
11	->	DETACH REQUEST	Message not sent if power is removed.
			Detach type = 'power switched off, PS detach'

None.

12.2.2.7b.5 Test requirements

UE shall:

- initiate a combined PS attach procedure with the information elements specified in the above Expected sequence when the UE is powered up or switched on.
- delete any stored LAI, CKSN, TMSI, RAI, PS-CKSN, P-TMSI and P-TMSI signature.
- store the LAI or the PLMN identity in the appropriate forbidden list("forbidden location areas for roaming").
- search for a suitable cell in a different location area on the same PLMN.

12.2.2.8 Combined PS attach / abnormal cases / attempt counter check / miscellaneous reject causes

12.2.2.8.1 Definition

12.2.2.8.2 Conformance requirement

- 1) When a combined PS attach procedure is rejected with the attempt counter less than five, the User Equipment shall repeat the combined PS attach procedure after T3311 timeout.
- 2) When a combined PS attach procedure is rejected with the attempt counter five, the User Equipment shall delete the stored TMSI, LAI, CKSN, P-TMSI, P-TMSI signature, PS CKSN and RAI and start T3302.
- 3) When the T3302 expire, a new combined PS attach procedure shall be initiated.

GMM cause codes that can be selected are:

'IMSI unknown in HLR'

'IMEI not accepted'

'UE identity cannot be derived by the network'

'Network failure'

'Congestion'

'retry upon entry into a new cell'

'Semantically incorrect message'

'Invalid mandatory information'

'Message type non-existent or not implemented'

'Message type not compatible with the protocol state'

'Information element non-existent or not implemented'

'Conditional IE error'

'Message not compatible with the protocol state'

'Protocol error, unspecified'

Reference

3GPP TS 24.008 clause 4.7.3.2.

12.2.2.8.3 Test purpose

To test the behaviour of the UE with respect to the attempt counter.

12.2.2.8.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode I.

User Equipment:

The UE has a valid TMSI, P-TMSI, P-TMSI signature and RAI.

Related ICS/IXIT statements

Support of PS service Yes/No UE operation mode A Yes/No Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE initiates a combined PS attach procedure (attempt counter zero).

The SS rejects the attach with a random cause code.

The UE initiates a new combined PS attach procedure (attempt counter one) after T3311 expires.

The SS rejects the attach with a random cause code.

The UE initiates a new combined PS attach procedure (attempt counter two) after T3311 expires.

The SS rejects the attach with a random cause code.

The UE initiates a new combined PS attach procedure (attempt counter three) after T3311 expires.

The SS rejects the attach with a random cause code.

The UE initiates a new combined PS attach procedure (attempt counter four) after T3311 expires.

The SS rejects the attach with a random cause code.

The UE initiates a new combined PS attach procedure with attempt counter five (after T3311 expires).

The SS rejects the attach with a random cause code. The UE shall not perform a new successful attach procedure after 15 seconds.

The UE initiates a combined PS attach procedure with attempt counter zero after T3302 expires without P-TMSI, P-TMSI signature, PS CKSN and RAI.

T3302; set to 10 minutes.

T3311; 15 seconds.

Step	Direction UE SS	Message	Comments
1	UE		The UE is set in UE operation mode A (see
2	UE		ICS). The UE is powered up or switched on and
3	->	ATTACH REQUEST	initiates an attach (see ICS). Attach type = 'Combined PS / IMSI attach' Mobile identity =P-TMSI-1
			P-TMSI-1 signature
4	<-	ATTACH REJECT	Routing area identity = RAI-1 Arbitrary chosen GMM cause
5	SS		T3302 with value 10 min. The SS verifies that the time between the
6	->	ATTACH REQUEST	attach requests is T3311 Attach type = 'Combined PS / IMSI attach' Mobile identity = P-TMSI-1
7	<-	ATTACH REJECT	P-TMSI-1 signature Routing area identity = RAI-1 Arbitrarily chosen GMM cause
8	SS		T3302 with value 10 min. The SS verifies that the time between the
	33		attach requests is T3311
9	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity = P-TMSI-1 P-TMSI-1 signature
10		ATTACH DE IECT	Routing area identity = RAI-1
10	<-	ATTACH REJECT	Arbitrarily chosen GMM cause T3302 with value 10 min.
11	SS		The SS verifies that the time between the attach requests is T3311
12	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity = P-TMSI-1
			P-TMSI-1 signature Routing area identity = RAI-1
13	<-	ATTACH REJECT	Arbitrarily chosen GMM cause T3302 with value 10 min.
14	SS		The SS verifies that the time between the
15	->	ATTACH REQUEST	attach requests is T3311 Attach type = 'Combined PS / IMSI attach' Mobile identity =P-TMSI-1
			P-TMSI-1 signature
16	<-	ATTACH REJECT	Routing area identity = RAI-1 Arbitrarily chosen GMM cause
17	UE		T3302 with value 10 min. No LOCATION UPDATING REQ with type
''	02		'IMSI attach' is sent to the SS
18	<-	PAGING TYPE1	(SS waits 30 seconds). Mobile identity = TMSI-1
19	UE		Paging order is for CS services. The UE shall not initiate an RRC connection.
		PAGING TVPE1	This is checked during 3 seconds.
20	<-	PAGING TYPE1	Paging order is for PS services. Mobile identity = P-TMSI-1
21	UE		No response from the UE to the request. This is checked for 10seconds.
22	SS		The SS verifies that the UE does not attempt to attach for T3302.
23	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach'
			Mobile identity = IMSI TMSI status = no valid TMSI available
24	<-	ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached' Mobile identity P-TMSI-1
			P-TMSI signature Mobile identity = TMSI-1
0.5		ATTACH COMPLETE	Routing area identity = RAI-1
25	->	ATTACH COMPLETE	

Step	Direction	Message	Comments
	UE SS	-	
26	<-	PAGING TYPE1	Mobile identity = TMSI-1
			Paging order is for CS services
27	->	RRC CONNECTION REQUEST	
28	<-	RRC CONNECTION SETUP	
29	->	RRC CONNECTION SETUP	
		COMPLETE	
30	->	PAGING RESPONSE	Mobile identity = TMSI-1
31	<-	RRC CONNECTION RELEASE	After sending of this message, the SS waits for
			disconnection of the CS signalling link.
32	->	RRC CONNECTION RELEASE	
		COMPLETE	
33	<-	PAGING TYPE1	Mobile identity = P-TMSI-1
33a	->	RRC CONNECTION REQUEST	
33b	<-	RRC CONNECTION SETUP	
33c	->	RRC CONNECTION SETUP	
		COMPLETE	
34	->	SERVICE REQUEST	Service type = "paging response"
34a	<-	RRC CONNECTION RELEASE	
34b	->	RRC CONNECTION RELEASE	
0.5		COMPLETE	T. 115: ". 1 . "
35	UE		The UE is switched off or power is removed
00		DETACH DECHEOT	(see ICS).
36	->	DETACH REQUEST	Message not sent if power is removed.
			Detach type = 'power switched off, combined
			PS / IMSI detach'

None.

12.2.2.8.5 Test requirements

UE shall:

- initiate a combined PS attach procedure with the information elements specified in the above Expected Sequence when UE is powered up or switched on.
- perform the following actions depending on the conditions described below.

Case1) A combined PS attach procedure is rejected with the attempt counter less than five

UE shall:

- repeat the combine PS attach procedure after the timer T3311 timeout.

Case2) A combined PS attach procedure is rejected with the attempt counter five

UE shall:

- delete the stored TMSI, LAI, CKSN, P-TMSI, P-TMSI signature, PS CKSN and RAI and
- start the timer T3302.

Case3) The T3302 expires

UE shall:

- re-initiate a new combined PS attach procedure.

12.2.2.9 Combined PS attach / abnormal cases / PS detach procedure collision

12.2.2.9.1 Definition

12.2.2.9.2 Conformance requirement

- 1) When a DETACH REQUEST message is received by the UE (any cause except re-attach) while waiting for an ATTACH ACCEPT message or ATTACH REJECT message, the UE shall terminate the combined PS attach procedure and continue with the combined PS detach procedure.
- 2) When a DETACH REQUEST message is received by the UE (cause re-attach) while waiting for an ATTACH ACCEPT message or ATTACH REJECT message, the UE shall ignore the combined PS detach procedure and continue with the combined PS attach procedure.

Reference

3GPP TS 24.008 clause 4.7.3.2.

12.2.2.9.3 Test purpose

To test the behaviour of the UE in case of procedure collision.

12.2.2.9.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode I.

User Equipment:

The UE has valid TMSI, P-TMSI, P-TMSI signature and RAI. UE is Idle Updated.

Related ICS/IXIT statements

Support of PS service Yes/No UE operation mode A Yes/No Switch off on button Yes/No Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE initiates a combined PS attach procedure. The SS does not answer the combined PS attach procedure, but initiates a combined PS detach procedure (any cause except re-attach). The UE shall terminate the combined PS attach procedure and continue with the combined PS detach procedure.

The UE initiates a combined PS attach procedure. The SS does not answer the combined PS attach procedure, but initiates a combined PS detach procedure (cause re-attach). The UE shall ignore the combined PS detach procedure and continue with the combined PS attach. CS services are also possible.

Step	Direction UE SS	Message	Comments
1	UE		The UE is set in UE operation mode A (see
2	UE		ICS). The UE is powered up or switched on and
3	->	ATTACH REQUEST	initiates an attach (see ICS). Attach type = 'Combined PS / IMSI attach' Mobile identity = P-TMSI-1
4	SS		P-TMSI-1 signature Routing area identity = RAI-1 The SS ignores the ATTACH REQUEST message and initiates a detach procedure.
5 6 7	<- ->	DETACH REQUEST DETACH ACCEPT (void)	Detach type = 're-attach not required'
8		(void)	
9	UE ->	ATTACH REQUEST	The UE is attached by MMI or AT command Attach type = 'Combined PS / IMSI attach' Mobile identity = P-TMSI-1 P-TMSI-1 signature
11	SS		Routing area identity = RAI-1 The SS ignores the ATTACH REQUEST message and initiates a detach procedure.
12 13	<- UE	DETACH REQUEST	Detach type = 're-attach required' The UE ignores the DETACH REQUEST message and continue with the attach
14	<-	ATTACH ACCEPT	procedure Attach result = 'Combined PS / IMSI attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Mobile identity = TMSI-2
15	->	ATTACH COMPLETE	Routing area identity = RAI-1
16	<-	PAGING TYPE1	Mobile identity = TMSI-2 Paging order is for CS services.
17	->	RRC CONNECTION REQUEST	
18 19	<- ->	RRC CONNECTION SETUP RRC CONNECTION SETUP COMPLETE	
20 21	-> <-	PAGING RESPONSE RRC CONNECTION RELEASE	Mobile identity = TMSI-2 After sending of this message, the SS waits for disconnection of the CS signalling link.
22	->	RRC CONNECTION RELEASE COMPLETE	and the cooling and the coolin
23	<-	PAGING TYPE1	Paging order is for PS services. Mobile identity = P-TMSI-2
23a 23b 23c	-> <- ->	RRC CONNECTION REQUEST RRC CONNECTION SETUP RRC CONNECTION SETUP COMPLETE	mosilo idonity – 1 TWO Z
24 24a 24b	-> <- ->	SERVICE REQUEST RRC CONNECTION RELEASE RRC CONNECTION RELEASE COMPLETE	Service type = "paging response"
25	UE	OOWIT ELTE	The UE is switched off or power is removed
26	->	DETACH REQUEST	(see ICS). Message not sent if power is removed. Detach type = 'power switched off, combined PS / IMSI detach'

Specific message contents

None.

12.2.2.9.5 Test requirements

UE shall:

- initiate a combined PS attach procedure with the information elements specified in the above Expected Sequence when UE is powered up or switched on.
- perform the following actions depending on the Detach type described below.

Case1) Detach type is not re-attach

UE shall:

- terminate the combined PS attach procedure.
- continue with the combined PS detach procedure.

Case2) Detach type is re-attach

UE shall:

- ignore the combined PS detach procedure.
- continue with the combined PS attach procedure.

12.3 PS detach procedure

12.3.1 UE initiated PS detach procedure

12.3.1.1 PS detach / power off / accepted

12.3.1.1.1 Definition

12.3.1.1.2 Conformance requirement

The UE detaches the IMSI for PS services if the UE is switched off.

Reference

3GPP TS 24.008 clause 4.7.4.1

12.3.1.1.3 Test purpose

To test the behaviour of the UE for the detach procedure.

12.3.1.1.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.

User Equipment:

The UE has a valid P-TMSI-1, P-TMSI-1 signature and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No UE operation mode C Yes/No UE operation mode A Yes/No

Switch off on button Yes/No Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE performs a PS attach procedure.

The UE sends a DETACH REQUEST message to the SS.

Expected Sequence

Step	Direction	Message	Comments
	UE SS		
1	UE		The UE is set in UE operation mode C (see ICS). If UE operation mode C not supported, goto step 8.
2	UE		The UE is powered up or switched on and initiates an attach (see ICS).
3	->	ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1 P-TMSI-1 signature
4	<-	ATTACH ACCEPT	Routing area identity = RAI-1 Attach result = 'PS only attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-1
5	->	ATTACH COMPLETE	
6	UE		The UE is switched off (see ICS).
7	->	DETACH REQUEST	Detach type = 'power switched off, PS detach'
8	UE		The UE is set in UE operation mode A(see ICS) and the test is repeated from step 2 to step 7.

Specific message contents

None.

12.3.1.1.5 Test requirements

UE shall:

- initiate a PS attach procedure with the information elements specified in the above Expected Sequence when UE is powered up or switched on.

After the PS attach procedure is completed, UE shall:

- send the DETACH REQUEST message to SS with the Detach type = 'power switched off, PS detach'.

12.3.1.2 PS detach / accepted

12.3.1.2.1 Definition

12.3.1.2.2 Conformance requirement

The UE detaches the IMSI for PS services if the UE is ordered to do so with MMI or AT commands.

Reference

3GPP TS 24.008 clause 4.7.4.1.

12.3.1.2.3 Test purpose

To test the behaviour of the UE for the detach procedure.

12.3.1.2.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.

User Equipment:

The UE has a valid P-TMSI-1, P-TMSI-1 signature and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C
UE operation mode A
Switch off on button
Yes/No
Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE performs a PS attach procedure and activates a PDP context.

The UE sends a DETACH REQUEST message to the SS.

The SS signal to the UE, but no response is received, as the signalling link is disconnected.

Step	Direction	Message	Comments
	UE SS		
1	UE		The UE is set in UE operation mode C (see ICS). If UE operation mode C not supported, goto step 11.
2	UE		The UE is powered up or switched on and initiates an attach (see ICS).
3	->	ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-1
4	<-	ATTACH ACCEPT	No new mobile identity assigned. P-TMSI and P-TMSI signature not included. Attach result = 'PS only attached' Routing area identity = RAI-1
5		(void)	
6	UE	((3.3)	The UE initiates a PS detach (without power off) by MMI or AT command.
7	->	DETACH REQUEST	Detach type = 'normal detach, PS detach'
8	<-	DETACH ACCEPT	
9	<-	PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.
10	UE		No response from the UE to the request. This is checked for 10 seconds.
11		(void)	
12	UE		The UE is set in UE operation mode A (see ICS) and the test is repeated from step 2 to step 10.

None.

12.3.1.2.5 Test requirements

UE shall:

- initiate a PS attach procedure with the information elements specified in the above Expected Sequence when UE is powered up or switched on.

After the PS attach procedure is completed, UE shall:

- sends the DETACH REQUEST message(without power off) to SS.
- start timer T3321.

When UE receives the DETACH ACCEPT message from SS before the timer T3321 is not expired, UE shall:

- stop timer T3321.

12.3.1.3 PS detach / abnormal cases / attempt counter check / procedure timeout

12.3.1.3.1 Definition

12.3.1.3.2 Conformance requirement

- 1) When a T3321 timeout has occurred during a PS detach procedure with the attempt counter less than five, the User Equipment shall repeat the PS detach procedure.
- 2) When a T3321 timeout has occurred during a PS detach procedure with the attempt counter five, the User Equipment shall not repeat the procedure.

Reference

3GPP TS 24.008 clause 4.7.4.1.

12.3.1.3.3 Test purpose

To test the behaviour of the UE with respect to the attempt counter.

12.3.1.3.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.

User Equipment:

The UE has a valid P-TMSI-1, P-TMSI-1 signature and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C
UE operation mode A
Switch off on button
Yes/No
Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE performs a PS attach procedure.

The UE initiates a PS detach procedure (attempt counter zero). The SS does not answer with DETACH ACCEPT message before T3321 timeout.

The UE initiates a new PS detach procedure (attempt counter one) after T3321 expires. The SS does not answer with DETACH ACCEPT message before T3321 timeout.

The UE initiates a new PS detach procedure (attempt counter two) after T3321expires. The SS does not answer with DETACH ACCEPT message before T3321 timeout.

The UE initiates a new PS detach procedure (attempt counter three) after T3321 expires. The SS does not answer with DETACH ACCEPT message before T3321 timeout.

The UE initiates a new PS detach procedure (attempt counter four) after T3321 expires. The SS does not answer with DETACH ACCEPT message before T3321 timeout.

The UE initiates a new PS detach procedure with attempt counter five (after T3321expires). The SS does not answer with DETACH ACCEPT message before T3321 timeout.

At T3321 timeout in the UE, the UE then deletes the logical link since the retransmissions have been repeated four times.

The UE performs a new PS attach procedure.

T3321; 15 seconds.

Step	Direction UE SS	Message	Comments
1	UE		The UE is set in UE operation mode C (see
'	02		ICS). If UE operation mode C not supported,
			goto step 2225.
2	UE		The UE is powered up or switched on and
	l or		initiates an attach (see ICS).
3	->	ATTACH REQUEST	Attach type = 'PS attach'
		ATTACTINEQUEST	Mobile identity = P-TMSI-1
			P-TMSI-1 signature
			Routing area identity = RAI-1
4	<-	ATTACH ACCEPT	No new mobile identity assigned.
4	ζ-	ATTACITACCEFT	P-TMSI and P-TMSI signature not included.
			Attach result = 'PS only attached'
_	UE		Routing area identity = RAI-1
5	00		The UE initiates a PS detach (without power
		DETACH BEOLIEST	off) by MMI or AT command.
6	->	DETACH REQUEST	Detach type = 'normal detach, PS detach'
7	SS		No response is given from the SS.
8	SS		The SS verifies that the time between the
		DETACH DECHECT	detach requests is 15 seconds
9	->	DETACH REQUEST	Detach type = 'normal detach, PS detach'
10	SS		No response is given from the SS.
11	SS		The SS verifies that the time between the
4.0		DETACH DECLIEST	detach requests is 15 seconds
12	->	DETACH REQUEST	Detach type = 'normal detach, PS detach'
13	SS		No response is given from the SS.
14	SS		The SS verifies that the time between the
			detach requests is 15 seconds
15	->	DETACH REQUEST	Detach type = 'normal detach, PS detach'
16	SS		No response is given from the SS.
17	SS		The SS verifies that the time between the
			detach requests is 15 seconds
18	->	DETACH REQUEST	Detach type = 'normal detach, PS detach'
19	SS		No response is given from the SS within 40
			seconds and SS verifies that the UE will not
			send a DETACH REQUEST again.
20	UE		Initialte a PS attach
21	->	ATTACH REQUEST	Attach type = 'PS attach'
			Mobile identity = P-TMSI-1
			P-TMSI-1 signature
			Routing area identity = RAI-1
22	<-	ATTACH ACCEPT	No new mobile identity assigned.
			P-TMSI and P-TMSI signature not included.
			Attach result = 'PS only attached'
			Routing area identity = RAI-1
23			UE is switched off or power is removed (see
			ICS)
24	->	DETACH REQUEST	Message not sent if power is removed.
			Detach type = 'power switched off, PS detach'
25	UE		The UE is set in UE operation mode A (see
			ICS) and the test is repeated from step 2 to
			step 24.

Specific message contents

None.

12.3.1.3.5 Test requirements

UE shall:

- initiate a PS attaché procedure with the information elements specified in the above Expected Sequence when the UE is powered up or switched on.

After the PS attach procedure is completed, UE shall:

- initiate a PS detach procedure(without power off).
- start timer T3321.

When a T3221 expires with the attempt counter less than five, UE shall:

- initiate a new PS detach procedure.
- increment the attempt counter.
- re-start timer T3321.

When a T3221 expires with the attempt counter five, UE shall:

- not repeat the procedure.

12.3.1.4 PS detach / abnormal cases / GMM common procedure collision

12.3.1.4.1 Definition

12.3.1.4.2 Conformance requirement

When any of the GMM common messages P-TMSI REALLOCATION COMMAND, GMM STATUS or GMM INFORMATION is received by the UE while waiting for a DETACH ACCEPT message with detach cause different from "power off", the UE shall ignore the GMM common message.

Reference

3GPP TS 24.008 clause 4.7.4.1.

12.3.1.4.3 Test purpose

To test the behaviour of the UE in case of procedure collision.

12.3.1.4.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No UE operation mode C Yes/No

UE operation mode A Yes/No (only if mode C not supported)

Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE performs a PS attach.

The UE initiates a PS detach. The SS initiates a P-TMSI REALLOCATION COMMAND message, a GMM STATUS message and a GMM INFORMATION message. The UE shall ignore the GMM common messages and continue with the PS detach procedure.

The SS signal to the UE, but no response is received, as the signalling link is disconnected.

Expected Sequence

Step	Direction	Message	Comments
	UE SS		
1	UE		The UE is set in UE operation mode C (see
			ICS).
2	UE		The UE is powered up or switched on and
			initiates an attach (see ICS).
3	->	ATTACH REQUEST	Attach type = 'PS attach'
		ATTACHLAGOEDT	Mobile identity = IMSI
4	<-	ATTACH ACCEPT	Attach result = 'PS only attached'
			Mobile identity = P-TMSI-1
			P-TMSI-1 signature
5		ATTACH COMPLETE	Routing area identity = RAI-1
6	-> UE	ATTACITCOMPLETE	The UE initiates a detach (without power off) by
"			MMI or AT command.
7	->	DETACH REQUEST	Detach type = 'normal detach, PS detach'
8	ss	DE MONTRE QUE OT	The SS sends a P-TMSI REALLOCATION
			COMMAND message
9	<-	P-TMSI REALLOCATION	3 3 3 3 3
		COMMAND	
10	UE		The UE ignores the message.
11	SS		The SS sends a GMM STATUS message
12	<-	GMM STATUS	
13	UE		The UE ignores the message.
14	SS		The SS sends a GMM INFORMATION
			message
15	<-	GMM INFORMATION	TI 115: (1 (C) 414
16	UE		The UE ignores the message or if GMM
			INFORMATION message not implemented.
			sends a GMM STATUS with GMM Cause
			'Message type non-existent or not implemented'.
17	<-	DETACH ACCEPT	The SS responds to the DETACH REQUEST
18	<-	PAGING TYPE1	Mobile identity = P-TMSI-1
]		Paging order is for PS services.
19	UE		No response from the UE to the request. This
			is checked for 10 seconds.

Specific message contents

None.

12.3.1.4.5 Test requirements

UE shall:

- initiate a PS attaché procedure with the information elements specified in the above Expected Sequence when the UE is powered up or switched on.

After the PS attach procedure is completed, UE shall:

- initiate a PS detach procedure(without power off).

When any of the GMM common messages P-TMSI REALLOCATION COMMAND, GMM STATUS or GMM INFORMATION is received by the UE while waiting for a DETACH ACCEPT message with detach cause different from "power off, UE shall: .

- ignore any of the GMM common.

12.3.1.5 PS detach / power off / accepted

12.3.1.5.1 Definition

12.3.1.5.2 Conformance requirement

The UE detach the IMSI for PS and non-PS services.

Reference

3GPP TS 24.008 clause 4.7.4.1.

12.3.1.5.3 Test purpose

To test the behaviour of the UE for the detach procedure.

12.3.1.5.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode I.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A
Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE performs a combined PS attach procedure (for PS and non-PS services).

The UE sends a DETACH REQUEST message to the SS. The UE then deletes the logical link.

Step	Direction	Message	Comments
	UE SS		
1	UE		The UE is set in UE operation mode A (see ICS).
2	UE		The UE is powered up or switched on and
			initiates an attach (see ICS).
3	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach'
			Mobile identity = IMSI
			TMSI status = no valid TMSI available
4	<-	ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached'
			Mobile identity = P-TMSI-1
			P-TMSI-1 signature
			Routing area identity = RAI-1
5	->	ATTACH COMPLETE	
6	UE		The UE is switched off (see ICS).
7	->	DETACH REQUEST	Detach type = 'power switched off, combined PS / IMSI detach'

None.

12.3.1.5.5 Test requirements

UE shall:

- initiate a combined PS attach procedure with the information elements specified in the above Expected Sequence when UE is powered up or switched on.

After the PS attach procedure is completed, UE shall:

- send the DETACH REQUEST message to SS with the Detach type = 'power switched off, combined PS / IMSI detach' after the PS attach procedure is completed.

12.3.1.6 PS detach / accepted / PS/IMSI detach

12.3.1.6.1 Definition

12.3.1.6.2 Conformance requirement

The UE detach the IMSI for PS and non-PS services.

Reference

3GPP TS 24.008 clause 4.7.4.1.

12.3.1.6.3 Test purpose

To test the behaviour of the UE for the detach procedure.

12.3.1.6.4 Method of test

Initial condition

System Simulator:

- One cell operating in network operation mode I.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

- Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE performs a combined PS attach procedure (for PS and non-PS services).

The UE sends a DETACH REQUEST message to the SS. When the UE receives the DETACH ACCEPT, the UE then deletes the logical link.

The SS signal to the UE, but no response is received, as the signalling link is disconnected.

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Specific message contents

None.

12.3.1.6.5 Test requirements

UE shall:

- initiate a combined PS attach procedure with the information elements specified in the above Expected Sequence when UE is powered up or switched on.

After the combined PS attach procedure is completed, UE shall:

- sends the DETACH REQUEST message(UE not switched off) to SS.
- shall start timer T3321.

When the UE receive the DETACH ACCEPT message from SS before the timer T3321 is not expired, the UE shall:

- stop timer T3321.

12.3.1.7 PS detach / accepted / IMSI detach

12.3.1.7.1 Definition

12.3.1.7.2 Conformance requirement

The UE shall detach for CS services.

Reference

3GPP TS 24.008 clause 4.7.4.1.

12.3.1.7.3 Test purpose

To test the behaviour of the UE for the detach procedure.

12.3.1.7.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode I.

User Equipment:

- The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No
MMI controlled attach / detach procedures for non-PS services Yes/No

Test procedure

The UE performs a combined PS attach procedure (for PS and non-PS services).

The UE performs an PS detach (for non-PS services).

CS services are not possible.

The UE attach for non-PS services by a routing area update procedure and CS services are again possible.

Step	Direction UE SS	Message	Comments
1	UE		The UE is set in UE operation mode A (see
2	UE		ICS). The UE is powered up or switched on and
			initiates an attach (see ICS).
3	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity = IMSI
			TMSI status = no valid TMSI available
4	<-	ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached' Mobile identity = P-TMSI-1
			P-TMSI-1 signature
			Mobile identity = TMSI-1 Routing area identity = RAI-1
5	->	ATTACH COMPLETE	
6	UE		The UE initiates a detach for non-PS services (without power off) (see ICS).
7	->	DETACH REQUEST	Detach type = 'normal detach, IMSI detach'
<u>8</u> 9	<- <-	PAGING TYPE1	Mobile identity = P-TMSI-1
9	ζ-	PAGING TIPET	Paging order is for PS services.
9a 9b	->	RRC CONNECTION REQUEST RRC CONNECTION SETUP	
9b	<- ->	RRC CONNECTION SETUP	
10		COMPLETE SERVICE REQUEST	service type = "paging response"
10	->	SERVICE REQUEST	service type = paging response
10a	<-	RRC CONNECTION RELEASE RRC CONNECTION RELEASE	
10b	->	COMPLETE	
11	<-	PAGING TYPE1	Mobile identity = TMSI-1
			Paging order is for CS services. Paging order is for RRC connection.
12	UE		The UE shall not initiate an RRC connection.
13	UE		This is checked during 3 seconds. The UE initiates an attach for non-PS services
4.4			by a RA update procedure (see ICS).
14	->	ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating' P-TMSI-1 signature
4.5		DOLITING ADEA LIDDATE	Routing area identity = RAI-1
15	<-	ROUTING AREA UPDATE ACCEPT	Update result = 'Combined RA/LA updated" Mobile identity = P-TMSI-2
			P-TMSI-2 signature
			Mobile identity = TMSI-1 Routing area identity = RAI-1
16	->	ROUTING AREA UPDATE COMPLETE	
17	<-	PAGING TYPE1	Mobile identity = TMSI-1
10		DDC CONNECTION DECLICET	Paging order is for CS services.
18 19	-> <-	RRC CONNECTION REQUEST RRC CONNECTION SETUP	
20	->	RRC CONNECTION SETUP	
21	->	COMPLETE PAGING RESPONSE	Mobile identity = TMSI-1
22	<-	RRC CONNECTION RELEASE	After sending of this message, the SS waits for
23	->	RRC CONNECTION RELEASE	disconnection of the CS signalling link.
24	UE	COMPLETE	The LIE is quitabled off or newer is removed
24	UE		The UE is switched off or power is removed (see ICS).
25	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined
			PS / IMSI detach'

None.

12.3.1.7.5 Test requirements

UE shall:

- initiate a combined PS attach procedure with the information elements specified in the above Expected Sequence when UE is powered up or switched on.

After the combined PS attach procedure is completed, UE shall:

- sends the DETACH REQUEST message(UE not switched off) to SS.
- start timer T3321.

When the UE receives the DETACH ACCEPT message from SS before the timer T3321 is not expired, the UE shall:

- stop timer T3321.

12.3.1.8 PS detach / abnormal cases / change of cell into new routing area

12.3.1.8.1 Definition

12.3.1.8.2 Conformance requirement

When a change of cell into a new routing area is performed before DETACH ACCEPT message is received by the UE, the UE shall abort the PS detach procedure and re-initiate it after the routing area update procedure.

Reference

3GPP TS 24.008 clause 4.7.4.1.

12.3.1.8.3 Test purpose

To test the behaviour of the UE in case of procedure collision.

12.3.1.8.4 Method of test

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1) and cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4).

Both cells are operating in network operation mode I.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No UE operation mode A Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE performs a combined PS attach procedure (for PS and non-PS services).

The UE initiates a PS detach procedure. The DETACH ACCEPT message is delayed from the SS.

The UE performs a cell update into a new routing area.

The UE shall re-initiate a PS detach procedure when the routing area update procedure is finished.

The UE deletes the logical link.

Expected Sequence

Step	Direction	Message	Comments
Olop	UE SS	Message	Comments
	SS		The following messages are sent and shall be
	00		received on cell A.
1	SS		The SS activates cell A.
2	UE		The UE is set in UE operation mode A (see
_			ICS).
3	UE		The UE is powered up or switched on and
			initiates an attach (see ICS). Cell A is preferred by the UE.
4	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach'
4	->	ATTACITREQUEST	Mobile identity = IMSI
			TMSI status = no valid TMSI available
5	<-	ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached'
		ATTACITACCETT	Mobile identity = P-TMSI-1
			P-TMSI-1 signature
			Mobile identity = TMSI-1
			Routing area identity = RAI-1
6	->	ATTACH COMPLETE	
7	UE		The UE initiates a PS detach (without power
			off) by MMI or AT command.
8	->	DETACH REQUEST	Detach type = 'normal detach, combined PS /
			IMSI detach'
9	SS		No response to the DETACH REQUEST
			message is given by the SS
			The following messages are sent and shall be
			received on cell B.
10	SS		The SS deactivates cell A and activates cell B.
44			Cell B is preferred by the UE.
11 12	UE	DOLITING ADEA LIDDATE	The UE performs a RA update in the new cell.
12	->	ROUTING AREA UPDATE	Update type = 'Combined RA/LA updating'
		REQUEST	Mobile identity = P-TMSI-1 P-TMSI-1 signature
			Routing area identity = RAI-1
			TMSI status = valid TMSI available
13	<-	ROUTING AREA UPDATE	Update result = 'Combined RA/LA updated'
		ACCEPT	opadio rodai: - Combined ravez rapation
		7.002.	Mobile identity = P-TMSI-2
			P-TMSI-2 signature
			Routing area identity = RAI-4
14	->	ROUTING AREA UPDATE	,
		COMPLETE	
15	->	DETACH REQUEST	The detach is automatically re-attempted.
			Detach type = 'normal detach, combined PS /
			IMSI detach'
16	->	DETACH ACCEPT	

Specific message contents

None.

12.3.1.8.5 Test requirements

UE shall:

- initiate a combined PS attach procedure with the information elements specified in the above Expected Sequence when UE is powered up or switched on.

After the combined PS attach procedure is completed, UE shall:

- initiate a PS detach.

When a change of cell into a new routing area is performed before DETACH ACCEPT message by the UE, UE shall:

- abort a PS detach procedure.
- re-initiate a PS detach procedure after successfully performing a routing area updating procedure.

12.3.1.9 PS detach / abnormal cases / PS detach procedure collision

12.3.1.9.1 Definition

12.3.1.9.2 Conformance requirement

When a DETACH REQUEST is received by the UE while waiting for a DETACH ACCEPT message, the UE shall answer the network initiated PS detach procedure.

Reference

3GPP TS 24.008 clause 4.7.4.1.

12.3.1.9.3 Test purpose

To test the behaviour of the UE in case of procedure collision.

12.3.1.9.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode I.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No UE operation mode A Yes/No Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE performs a combined PS attach procedure (for PS and non-PS services).

The UE initiates a PS detach. The SS does not answer the detach procedure, but initiates a detach procedure (cause reattach not required). The UE shall continue with the network initiated detach procedure.

The UE deletes the logical link.

PS and CS services are not possible.

Step	Direction	Message	Comments
	UE SS		
1	UE		The UE is set in UE operation mode A(see ICS).
2	UE		The UE is powered up or switched on and initiates an attach (see ICS).
3	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity = IMSI TMSI status = no valid TMSI available
4	<-	ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Mobile identity = TMSI-1 Routing area identity = RAI-1
5	->	ATTACH COMPLETE	
6	UE		The UE initiates a PS detach (without power off) by MMI or AT command.
7	->	DETACH REQUEST	Detach type = 'normal detach, combined PS / IMSI detach'
8	<-	DETACH REQUEST	Detach type = 're-attach not required'
9	->	DETACH ACCEPT	The UE answers the network initiated detach.
10	<-	DETACH ACCEPT	The SS answers the UE initiated detach.
11	<-	PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.
12	UE		No response from the UE to the request. This is checked for 10 seconds.
13	<-	PAGING TYPE 1	Mobile identity = TMSI-1 Paging order is for CS services.
14	UE		The UE shall not initiate an RRC connection. This is checked during 3 seconds.

Specific message contents

None.

12.3.1.9.5 Test requirements

UE shall:

- initiate a combined PS attach procedure with the information elements specified in the above Expected Sequence when UE is powered up or switched on.

After the combined PS attach procedure is completed, UE shall:

- initiate a PS detach procedure.

When the UE receive DETACH REQUEST message from SS before UE initiated PS detach procedure has been completed, UE shall:

- send the DETACH ACCEPT message to SS

12.3.2 Network initiated PS detach procedure

12.3.2.1 PS detach / re-attach not required / accepted

12.3.2.1.1 Definition

12.3.2.1.2 Conformance requirement

The UE detach the IMSI for PS services.

Reference

3GPP TS 24.008 clause 4.7.4.2.

12.3.2.1.3 Test purpose

To test the behaviour of the UE for the detach procedure.

12.3.2.1.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II (in case of UE operation mode A).

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No UE operation mode C Yes/No

UE operation mode A Yes/No (only if mode C not supported)

Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE performs a PS attach procedure.

The SS sends a DETACH REQUEST message to the UE. The UE then deletes the logical link.

The SS signal to the UE, but no response is received, as the signalling link is disconnected.

Step	Direction	Message	Comments
	UE SS		
1	SS		The SS is set in network operation mode II.
2	UE		The UE is set in UE operation mode A or C
			(see ICS).
3	UE		The UE is powered up or switched on and
			initiates an attach (see ICS).
4	->	ATTACH REQUEST	Attach type = 'PS attach'
			Mobile identity = IMSI
5	<-	ATTACH ACCEPT	Attach result = 'PS only attached'
			Mobile identity = P-TMSI-1
			P-TMSI-1 signature
_			Routing area identity = RAI-1
6	->	ATTACH COMPLETE	
7	UE		The UE initiates a PS detach (without power
			off) by MMI or AT command.
8	<-	DETACH REQUEST	Detach type = 're-attach not required'
9	->	DETACH ACCEPT	
10	<-	PAGING TYPE1	Mobile identity = P-TMSI-1
			Paging order is for PS services.
			PAGING TYPE1 (used for NW-mode II).
11	UE		No response from the UE to the request. This
			is checked for 10 seconds.

None.

12.3.2.1.5 Test requirements

UE shall:

- initiate PS attach procedure with the information elements specified in the above Expected Sequence when UE is powered up or switched on.

When UE receives the DETACH REQUEST message from SS and the detach type IE indicates 're-attach not required', the UE shall

- deactivate the PDP context and the logical link(s).
- send DETACH ACCEPT message to SS.

12.3.2.2 PS detach / rejected / IMSI invalid / PS services not allowed

12.3.2.2.1 Definition

12.3.2.2.2 Conformance requirement

- 1) If the network performs a PS detach procedure with the cause 'PS services not allowed', the User Equipment shall consider USIM invalid for PS services until power is switched off or USIM is removed.
- 2) If the network performs a PS detach procedure with the cause 'PS services not allowed' the User Equipment shall delete the stored RAI, PS-CKSN, P-TMSI and P-TMSI signature.

Reference

3GPP TS 24.008 clause 4.7.4.2.

12.3.2.2.3 Test purpose

To test the behaviour of the UE if the network orders a PS detach procedure with the cause 'PS services not allowed' (no valid PS-subscription for the IMSI).

12.3.2.2.4 Method of test

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (HPLMN, RAI-1) and cell B in MCC2/MNC1/LAC1/RAC1 (RAI-2).

Both cells are operating in network operation mode II.

User Equipment:

The UE has a valid P-TMSI-1, P-TMSI-1 signature and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No

USIM removal possible without powering down Yes/No

Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS performs a detach with the cause value 'PS services not allowed'. The SS checks that the UE does not perform PS attach in another PLMN.

Step	Direction UE SS	Message	Comments
1 2	SS UE		The following messages are sent and shall be received on cell A. The SS activates cell A. The UE is set in UE operation mode C (see ICS). If UE operation mode C not supported,
3	UE		goto step <u>1922</u> . The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred
4	->	ATTACH REQUEST	by the UE. Attach type = 'PS attach' Mobile identity = P-TMSI-1 P-TMSI-1 signature
5	<-	ATTACH ACCEPT	Routing area identity = RAI-1 Attach result = 'PS only attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature
6 7	-> <-	ATTACH COMPLETE DETACH REQUEST	Routing area identity = RAI-1 Detach type = 're-attach not required'
8	->	DETACH ACCEPT	Cause = 'PS services not allowed'
9 10	SS UE		The following messages are sent and shall be received on cell B. The SS deactivates cell A and activates cell B. Cell B is preferred by the UE. Step 11 is only performed for UE Operation
11	UE	Registration on CS	Mode A. See TS 34.108 This is applied only for UE in UE operation mode A.
12			Parameter mobile identity is IMSI. The UE initiates an attach automatically (see PICS), by MMI or AT commands.
13	UE		No ATTACH REQUEST sent to the SS (SS waits 30 seconds).
14	UE		If possible (see ICS) USIM removal is performed. Otherwise if possible (see ICS) switch off is performed. Otherwise the power is removed.
15	UE		The UE gets the USIM replaced, is powered up or switched on and initiates an attach (see
16	->	ATTACH REQUEST	ICS). Attach type = 'PS attach' Mobile identity = IMSI
17	<-	ATTACH ACCEPT	Attach result = 'PS only attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature
18 19	-> UE	ATTACH COMPLETE	Routing area identity = RAI-2 The UE is switched off or power is removed
20	->	DETACH REQUEST	(see ICS). Message not sent if power is removed. Detach type = 'power switched off, PS detach'
21 22	UE		The SS deactivates cell B and activates cell A. The UE is set in UE operation mode A (see ICS) and the test is repeated from step 3 to step 18.

None.

12.3.2.2.5 Test requirements

UE shall:

- initiate a PS attach procedure with the information elements specified in the above Expected Sequence when UE is powered up or switched on.

After the completion of the PS attach procedure, and when UE receives the DETACH REQUEST message (Detach type = 're-attach not required', Cause = 'PS services not allowed') from SS, UE shall:

- delete the stored P-TMSI, P-TMSI signature, RAI and PS ciphering key sequence number.
- consider the USIM as invalid for PS service until power is switched off or USIM is removed.

12.3.2.3 PS detach / IMSI detach / accepted

12.3.2.3.1 Definition

12.3.2.3.2 Conformance requirement

The UE detach the IMSI for PS services.

Reference

3GPP TS 24.008 clause 4.7.4.2.

12.3.2.3.3 Test purpose

To test the behaviour of the UE for the detach procedure.

12.3.2.3.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode I.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A
Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE performs a combined PS attach procedure (for PS and non-PS services).

The SS sends a DETACH REQUEST message to the UE. The UE then performs an IMSI detach (detach for non-PS services).

The SS signal to the UE, but no response is received, as the signalling link is disconnected.

The UE attach for non-PS services by a routing area update procedure. Both PS and CS services are possible.

Expected Sequence

Step	Direction	Message	Comments
_	UE SS		
1	UE		The UE is set in UE operation mode A (see
			ICS).
2	UE		The UE is powered up or switched on and
			initiates an attach (see ICS).
3	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach'
			Mobile identity = IMSI
4		ATTACH ACCEPT	TMSI status = no valid TMSI available Attach result = 'Combined PS / IMSI attached'
4	<-	ATTACH ACCEPT	Mobile identity = P-TMSI-1
			P-TMSI-1 signature
			Mobile identity = IMSI
			Routing area identity = RAI-1
5	->	ATTACH COMPLETE	g area and
6	SS		The SS initiates a detach for non-PS services.
7	<-	DETACH REQUEST	Detach type = 'IMSI detach'
8	->	DETACH ACCEPT	
9	UE		The UE initiates an attach for non-PS services
40		DOLITING ADEA LIDDATE	(see ICS).
10	->	ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating with IMSI attach'
		REQUEST	P-TMSI-1 signature
			Routing area identity = RAI-1
			TMSI status = no valid TMSI available
11	<-	ROUTING AREA UPDATE	Update result = 'Combined RA/LA updating'
		ACCEPT	Mobile identity = P-TMSI-2
			P-TMSI-2 signature
			Mobile identity = TMSI-1
40		DOLITING ADEA LIBBATE	Routing area identity = RAI-1
12	->	ROUTING AREA UPDATE	
13	<-	COMPLETE PAGING TYPE1	Mobile identity = TMSI-1
13		TAGING TITE!	Paging order is for CS services.
14	->	RRC CONNECTION REQUEST	- agg - ac. 10 101 00 001 110001
15	<-	RRC CONNECTION SETUP	
16	->	RRC CONNECTION SETUP	
		COMPLETE	
17	->	PAGING RESPONSE	Mobile identity = TMSI-1
18	<-	RRC CONNECTION RELEASE	After sending of this message, the SS waits for
10		DDC CONNECTION DELEASE	disconnection of the CS signalling link.
19	->	RRC CONNECTION RELEASE COMPLETE	
20	UE	OOWII LETE	The UE is switched off or power is removed
			(see ICS).
21	->	DETACH REQUEST	Message not sent if power is removed.
			Detach type = 'power switched off, combined
			PS / IMSI detach'

Specific message contents

None.

12.3.2.3.5 Test requirements

UE shall:

- initiate a combined PS attach procedure with the information elements specified in the above Expected Sequence when UE is powered up or switched on.

After the completion of the PS attach procedure, UE shall:

- receive DETACH REQUEST message(Detach type = 'IMSI detach') from SS.
- not deactivate the PDP context.
- and send the DETACH ACCEPT message to SS.

12.3.2.4 PS detach / re-attach requested / accepted

12.3.2.4.1 Definition

12.3.2.4.2 Conformance requirement

The UE shall deactivate the logical link and re-activate it.

Reference

3GPP TS 24.008 clause 4.7.4.2.

12.3.2.4.3 Test purpose

To test the behaviour of the UE for the detach procedure in case automatic re-attach.

12.3.2.4.4 Method of test

Initial condition

System Simulator:

One cell in operating in network operation mode I.

User Equipment:

The UE has a valid TMSI, P-TMSI, P-TMSI signature and RAI.

Related ICS/IXIT statements

Support of PS service Yes/No UE operation mode A Yes/No Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE performs a combined PS attach procedure (for PS and non-PS services).

The SS sends a DETACH REQUEST message to the UE with cause re-attach. The UE then detaches for PS services. The UE automatically performs a new combined PS attach procedure (for PS and non-PS services) and PS and CS services are possible.

Step	Direction UE SS	Message	Comments
1	UE		The UE is set in UE operation mode A (see
2	UE		ICS). The UE is powered up or switched on and
3	->	ATTACH REQUEST	initiates an attach (see ICS). Attach type = 'Combined PS / IMSI attach' Mobile identity = P-TMSI-1 P-TMSI-1 signature
4	<-	ATTACH ACCEPT	Routing area identity = RAI-1 Attach result = 'Combined PS / IMSI attached' Mobile identity = TMSI-1 Routing area identity = RAI-1 No new P-TMSI and P-TMSI signature assigned
5	->	ATTACH COMPLETE	assigned
6 7	SS <-	DETACH REQUEST	The SS initiates a detach with re-attach. Detach type = 're-attach required'
9	->	DETACH ACCEPT ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach'
10	<-	ATTACH ACCEPT	Mobile identity = P-TMSI-1 P-TMSI-1 signature Mobile identity = TMSI-1 Routing area identity = RAI-1 Attach result = 'Combined PS / IMSI attached' Mobile identity = TMSI-1 Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-1
11 12	-> <-	ATTACH COMPLETE PAGING TYPE1	Mobile identity = P-TMSI-2 Paging order is for PS services.
12a	->	RRC CONNECTION REQUEST	raging order is for F3 services.
12b 12c	<- ->	RRC CONNECTION SETUP RRC CONNECTION SETUP COMPLETE	
13	->	SERVICE REQUEST	service type = "paging response"
13a 13b	<- ->	RRC CONNECTION RELEASE	
14	<-	COMPLETE PAGING TYPE1	Mobile identity = TMSI-1
15	->	RRC CONNECTION REQUEST	Paging order is for CS services.
16 17	<- ->	RRC CONNECTION SETUP RRC CONNECTION SETUP COMPLETE	
18 19	-> <-	PAGING RESPONSE RRC CONNECTION RELEASE	Mobile identity = TMSI-1 After sending of this message, the SS waits for
20	->	RRC CONNECTION RELEASE COMPLETE	disconnection of the CS signalling link.
21	UE		The UE is switched off or power is removed (see ICS).
22	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined PS / IMSI detach'

Specific message contents

None.

12.3.2.4.5 Test requirements

UE shall:

- initiate a combined PS attach procedure with the information elements specified in the above Expected Sequence when UE is powered up or switched on.

After the completion of the combined PS attach procedure, UE shall:

- deactivate the PDP context and the logical link(s).
- send DETACH ACCEPT message to SS.

After UE completed PS detach procedure, UE shall:

- initiate a combined PS attach procedure.

12.3.2.5 PS detach / rejected / location area not allowed

12.3.2.5.1 Definition

12.3.2.5.2 Conformance requirement

- 1) If the network performs a PS detach procedure with the cause 'location area not allowed' the User Equipment shall:
 - 1.1 not perform combined PS attach when in the same location area.
 - 1.2 delete the stored LAI, CKSN, TMSI, RAI, PS-CKSN, P-TMSI and P-TMSI signature.
 - 1.3 store the LA in the 'forbidden location areas for regional provision of service'.
- 2) If the network performs a PS detach procedure with the cause 'location area not allowed' the User Equipment shall:
 - 2.1 perform combined PS attach when a new location area is entered.
 - 2.2 delete the list of forbidden LAs when power is switched off.

Reference

3GPP TS 24.008 clauses 4.7.4.2.

12.3.2.5.3 Test purpose

To test the behaviour of the UE if the network orders the PS detach procedure with the cause 'Location Area not allowed'.

To test that the UE deletes the list of forbidden LAs when power is switched off.

12.3.2.5.4 Method of test

Initial condition

System Simulator:

Three cells (not simultaneously activated), cell A in MCC2/MNC1/LAC1/RAC2 (RAI-2, Not HPLMN), cell B in MCC2/MNC1/LAC1/RAC2 (RAI-7, Not HPLMN), cell C in MCC2/MNC1/LAC2/RAC1 (RAI-6, Not HPLMN).

All cells are operating in network operation mode I.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS orders a PS detach with the cause value 'Location Area not allowed'. The SS checks that the UE does not perform combined PS attach while in the location area, performs PS attach when a new location area is entered and deletes the list of forbidden LAs when switched off. CS services are not possible unless an IMSI attach procedure is performed.

Different types of UE may use different methods to periodically clear the list of forbidden location areas (e.g. every day at 12am). If the list is cleared while the test is being run, it may be necessary to re-run the test.

Step	Direction UE SS	Message	Comments
	SS		The following messages are sent and shall be
			received on cell A.
1	SS		The SS activates cell A.
2	UE		The UE is set in UE operation mode A (see
3	UE		ICS). The UE is powered up or switched on and
	0_		initiates an attach (see ICS). Cell A is preferred
			by the UE.
4	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity = IMSI
			TMSI status = no valid TMSI available
5	<-	ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached'
			Mobile identity = P-TMSI-1
			P-TMSI-1 signature
			Mobile identity = TMSI-1 Routing area identity = RAI-2
6	->	ATTACH COMPLETE	Routing area identity = IVAI-2
7	<-	DETACH REQUEST	Detach type = 're-attach not required'
		DETA 011 0014D1 ETE	Cause 'Location Area not allowed'
<u>8</u> 9	-> UE	DETACH COMPLETE	No LOCATION LIDDATING DEC with time
9	UE		No LOCATION UPDATING REQ with type 'IMSI attach' is sent to the SS
			(SS waits 30 seconds).
10	<-	PAGING TYPE1	Mobile identity = IMSI
			Paging order is for CS services.
11	UE		The UE shall not initiate an RRC connection. This is checked during 3 seconds.
12	<-	PAGING TYPE1	Mobile identity = P-TMSI-1
'-	,		Paging order is for PS services.
13	->		No response from the UE to the request.
			This is checked for 10 seconds
			The following messages are sent and shall be received on cell B.
14	SS		The SS deactivates cell A and activates cell B.
15	UE		Cell B is preferred by the UE.
16	UE		The UE initiates an attach automatically, by
17	UE		MMI or by AT command. No ATTACH REQUEST sent to SS
1,7	OL.		(SS waits 30 seconds)
18	UE		No LOCATION UPDATING REQ with type
			'IMSI attach' is sent to the SS
19	<-	PAGING TYPE1	(SS waits 30 seconds). Mobile identity = IMSI
19	ζ-		Paging order is for CS services.
20	UE		The UE shall not initiate an RRC connection.
		=	This is checked during 3 seconds.
21	<-	PAGING TYPE1	Mobile identity = P-TMSI-1
22			Paging order is for PS services. No response from the UE to the request.
			This is checked for 10 seconds
			The following messages are sent and shall be
25	22		received on cell C.
23 24	SS UE		The SS deactivates cell B and activates cell C.
24	UE		Cell C is preferred by the UE. Step 25 is only performed for non-auto attach
			UE.
25	UE	Registration on CS	See TS34.108
			Parameter mobile identity is IMSI.
26	UE		The UE initiates an attach automatically (See ICS), by MMI or AT command.
27	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach'
			Mobile identity = IMSI
			TMSI status = no valid TMSI available

Step	Direction UE SS	Message	Comments
28	<-	ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached'
			Mobile identity = P-TMSI1
			P-TMSI-1 signature Mobile identity = TMSI-1
			Routing area identity = RAI-6
29	->	ATTACH COMPLETE	
30	<-	PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services.
31	->	RRC CONNECTION REQUEST	aging craci is for the delivition.
32	<-	RRC CONNECTION SETUP	
33	->	RRC CONNECTION SETUP COMPLETE	
34	->	PAGING RESPONSE	Mobile identity = TMSI-1
35	<-	RRC CONNECTION RELEASE	After sending of this message, the SS waits for
36	->	RRC CONNECTION RELEASE	disconnection of the CS signalling link.
		COMPLETE	
37	<-	PAGING TYPE1	Mobile identity = P-TMSI-1
38	->	RRC CONNECTION REQUEST	Paging order is for PS services.
39	<-	RRC CONNECTION SETUP	
40	->	RRC CONNECTION SETUP	
41	->	COMPLETE SERVICE REQUEST	service type = "paging response"
42	<-	RRC CONNECTION RELEASE	paging responds
43	->	RRC CONNECTION RELEASE	
44	UE	COMPLETE	The UE is switched off or power is removed
			(see ICS).
45	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined
			PS / IMSI detach'
			The following messages are sent and shall be
46	UE		received on cell B. The SS deactivates cell C and activates cell B.
70	OL		Cell B is preferred by the UE.
47	UE		The UE is powered up or switched on and
			initiates an attach (see ICS). Step 48 is only performed for non-auto attach
			UE.
48	UE	Registration on CS	See TS34.108
49	UE		Parameter mobile identity is TMSI-1 UE initiates an attach automatically (see PICS),
			by MMI or AT commands.
50	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity = P-TMSI-1
			P-TMSI-1 signature
			Routing area identity = RAI-6
51	<-	ATTACH ACCEPT	TMSI status = valid TMSI available Attach result = 'Combined PS / IMSI attached'
31	~-	ATAOTAGGETT	Mobile identity = P-TMSI-2
			P-TMSI-2 signature
			Mobile identity = TMSI-2 Routing area identity = RAI-7
52	->	ATTACH COMPLETE	Troubling area identity = TAI-7
53	<-	PAGING TYPE1	Mobile identity = TMSI-2
54	->	RRC CONNECTION REQUEST	Paging order is for CS services.
55	<-	RRC CONNECTION SETUP	
56	->	RRC CONNECTION SETUP	
57	->	COMPLETE PAGING RESPONSE	Mobile identity = TMSI-2
58	<-	RRC CONNECTION RELEASE	After sending of this message, the SS waits for
F0		DDC CONNECTION DELEASE	disconnection of the CS signalling link.
59	->	RRC CONNECTION RELEASE COMPLETE	
			1

Step	Direction		Message	Comments
	UE	SS		
60		<-	PAGING TYPE1	Mobile identity = P-TMSI-2
				Paging order is for PS services.
61	-:	>	RRC CONNECTION REQUEST	
62	<	:-	RRC CONNECTION SETUP	
63	-:	>	RRC CONNECTION SETUP	
			COMPLETE	
64		·>	SERVICE REQUEST	service type = "paging response"
65	<	:-	RRC CONNECTION RELEASE	
66	-:	>	RRC CONNECTION RELEASE	
			COMPLETE	
67	U	E		The UE is switched off or power is removed
				(see ICS).
68		·>	DETACH REQUEST	Message not sent if power is removed.
				Detach type = 'power switched off, combined
				PS / IMSI detach'

None.

12.3.2.5.5 Test requirements

UE shall:

- initiate a PS attach procedure with the information elements specified in the above Expected Sequence when UE is powered up or switched on.

After the completion of the PS attach procedure, and when UE receive the DETACH REQUEST message (Detach type = 're-attach not required', Cause = 'Location Area not allowed') from SS, UE shall:.

- perform the following action depending on UE location.

When in the same location area, UE shall:

- not perform combined PS attach.
- delete the stored RAI or LAI, P-TMSI, P-TMSI signature and PS ciphering key sequence number
- store the LA in the 'forbidden location areas for regional provision of service'.

When a new location area is entered, UE shall:

- perform combined PS attach.
- delete the list of forbidden LAs when power is switched off.

12.3.2.6 PS detach / rejected / No Suitable Cells In Location Area

12.3.2.6.1 Definition

12.3.2.6.2 Conformance requirement

- 1. If the network performs a PS detach procedure with the cause 'No Suitable Cells In Location Area', the User Equipment shall:
 - 1.1 delete the stored LAI, CKSN, TMSI, RAI, PS-CKSN, P-TMSI and P-TMSI signature.
 - 1.2 store the LA in the 'forbidden location areas for roaming'.

Reference

3GPP TS 24.008 clauses 4.7.4.2.

12.3.2.6.3 Test purpose

To test the behaviour of the UE if the network sends the DETACH REQUEST message with the cause 'No Suitable Cells In Location Area'.

12.3.2.6.4 Method of test

Initial condition

System Simulator:

Three cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC2/RAC1 (RAI-3), cell C in MCC2/MNC1/LAC1/RAC1 (RAI-2)

Yes/No

All three cells are operating in network operation mode II.

User Equipment:

The UE has valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on

Test procedure

The SS sends a DETACH REQUEST message with the cause value 'No Suitable Cells In Location Area'. The SS checks that the UE shall not perform combined PS attach while in the same location area on the same PLMN. The SS checks that the UE shall perform PS attach when the UE enters a suitable cell in a different location area on the same PLMN.

Step	Direction	Message	Comments
_	UE SS		
	SS		The SS activates three cells simultaneously.
			The SS configures power level of each Cell as
			follows.
_			Cell A > Cell B = Cell C
1	UE		The UE is set in UE operation mode A (see ICS).
2	UE		The UE is powered up or switched on and
			initiates an attach (see ICS). Cell A is preferred
			by the UE.
3	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach'
			Mobile identity = IMSI
			TMSI status = no valid TMSI available
4	<-	ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached'
			Mobile identity = P-TMSI-1
			P-TMSI-1 signature
			Mobile identity = TMSI-1 Routing area identity = RAI-1
5	->	ATTACH COMPLETE	Routing area identity = RAI-1
6	<-	DETACH REQUEST	Detach type = 're-attach not required'
		DETROTTREGGEOT	Cause 'No Suitable Cells In Location Area'
7	->	DETACH COMPLETE	Cades No Canada Cono III Escanoli / Il ca
			The following message are sent and shall be
			received on cell B.
8	UE		The UE initiates an attach automatically, by
			MMI or by AT command.
9	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach'
			Mobile identity = IMSI
4.0		ATTAGU AGGERT	TMSI status = no valid TMSI available
10	<-	ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached'
			Mobile identity = P-TMSI-2
			P-TMSI-2 signature Mobile identity = TMSI-2
			Routing area identity = RAI-•
11	->	ATTACH COMPLETE	Trouting area identity – ItAI
12	UÉ		The UE is switched off or power is removed
'-	02		(see ICS).
13	->	DETACH REQUEST	Message not sent if power is removed.
1			Detach type = 'power switched off, PS detach'

Specific message contents

None.

12.3.2.6.5 Test requirements

UE shall:

- initiate a PS attach procedure with the information elements specified in the above Expected Sequence when the UE is powered up or switched on.

After the completion of the PS attach procedure, and when the UE receives the DETACH REQUEST message (Detach type = 're-attach not required', Cause = 'No Suitable Cells In Location Area') from SS, UE shall:

- delete the stored RAI or LAI, P-TMSI, P-TMSI signature and PS ciphering key sequence number.
- store the LA or the PLMN identity in the 'forbidden location areas for roaming'.

When the UE enters a suitable cell in a different location area on the same PLMN, UE shall:

- perform the PS attach.

12.4 Routing area updating procedure

This procedure is used to update the actual routing area of an UE in the network.

12.4.1 Normal routing area updating

The routing area updating procedure is a GMM procedure used by PS UEs of UE operation mode A or C that are IMSI attached for PS services only.

12.4.1.1 Routing area updating / accepted

12.4.1.1.1 Definition

12.4.1.1.2 Conformance requirement

- 1) If the network accepts the routing area updating procedure and reallocates a P-TMSI, the UE shall acknowledge the new P-TMSI and continue communication with the new P-TMSI.
- 2) If the network accepts the routing area updating procedure from the UE without reallocation of the old P-TMSI, the UE shall continue communication with the old P-TMSI.

Reference

3GPP TS 24.008 clause 4.7.5.1.

12.4.1.1.3 Test purpose

To test the behaviour of the UE if the network accepts the routing area updating procedure.

The following cases are identified:

- 1) P-TMSI / P-TMSI signature is reallocated.
- 2) Old P-TMSI / P-TMSI signature is not changed.

12.4.1.1.4 Method of test

Initial condition

System Simulator:

Two cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4). Both cells are operating in network operation mode II.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A
UE operation mode C
Switch off on button
Yes/No
Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

- 1) The UE sends a ROUTING AREA UPDATE REQUEST message. The SS reallocates the P-TMSI and returns ROUTING AREA UPDATE ACCEPT message with a new P-TMSI. The UE acknowledge the new P-TMSI by sending ROUTING AREA <u>UPDATINGUPDATE</u> COMPLETE message. Further communication UE SS is performed by the new P-TMSI. The UE will not answer signalling addressed to the old P-TMSI.
- 2) The UE sends a ROUTING AREA <u>UPDATING UPDATE</u> REQUEST message. The SS accepts the P-TMSI and returns ROUTING AREA <u>UPDATING UPDATE</u> ACCEPT message without any P-TMSI. Further communication UE SS is performed by the P-TMSI.

Expected Sequence

Step	Direction	Message	Comments
	UE SS		
1 2	SS UE		The following messages are sent and shall be received on cell A. The SS activates cell A. The UE is set in UE operation mode C (see ICS). If UE operation mode C not supported,
3	UE		goto step 22. The UE is powered up or switched on and initiates an attach (see ICS).
4	->	ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = IMSI
5	<-	ATTACH ACCEPT	Attach result = 'PS only attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-1
6	->	ATTACH COMPLETE	The same grant and sa
7	SS		The following messages are sent and shall be received on cell B. Activate cell B with a lower signal strength than cell A The RF level of cell A is lowered until cell B is preferred by the UE.
8	->	ROUTING AREA UPDATINGUPDATE REQUEST	Update type = 'RA updating' P-TMSI-2 signature Routing area identity = RAI-1
9	<-	ROUTING AREA <u>UPDATINGUPDATE</u> ACCEPT	Update result = 'RA updated' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-4
10	->	ROUTING AREA UPDATINGUPDATE COMPLETE	Trouting area identity = 17/11 4
11	<-	GMM INFORMATION	Message sent with P-TMSI-1
11b	->	GMM STATUS	Message sent in case the UE does not support reception of GMM information message Cause #97
12	<-	PAGING TYPE1	Mobile identity = P-TMSI-2 PAGING TYPE1 (used for NW-mode II).
13	UE		Paging order is for PS services. No response from the UE to the request. This is checked for 10 seconds.
14	SS		The following messages are sent and shall be received on cell A. Set the signal strength of cell A to a lower signal strength than cell B The RF level of cell B is lowered until cell A is preferred by the UE.
15 16	UE ->	ROUTING AREA <u>UPDATINGUPDATE</u> REQUEST	Cell A is preferred by the UE. Update type = 'RA updating' P-TMSI-1 signature
17	<-	ROUTING AREA UPDATINGUPDATE ACCEPT	Routing area identity = RAI-4 No new mobile identity assigned. P-TMSI not included. Update result = 'RA updated' P-TMSI-2 signature Routing area identity = RAI-1

Step	Direction	Message	Comments
	UE SS		
18	<-	PAGING TYPE1	Mobile identity = P-TMSI-1
			Paging order is for PS services.
			PAGING TYPE 1 (used for NW-mode II).
18a	->	RRC CONNECTION REQUEST	
18b	<-	RRC CONNECTION SETUP	
18c	->	RRC CONNECTION SETUP	
		COMPLETE	
19	->	SERVICE REQUEST	service type = "paging response"
19a	<-	RRC CONNECTION RELEASE	
19b	->	RRC CONNECTION RELEASE	
		COMPLETE	
20	UE		The UE is switched off or power is removed
			(see ICS).
21	->	DETACH REQUEST	Message not sent if power is removed.
			Detach type = 'power switched off, PS detach'
22	UE		The UE is set in UE operation mode A (see
			ICS) and the test is repeated from step 3 to
			step 21.

Specific message contents

None.

12.4.1.1.5 Test requirements

UE shall:

- initiate a PS attach procedure with the information elements specified in the above Expected Sequence when UE is powered up or switched on.

After completing the PS attach procedure, UE shall:,

- initiate a routing area updating procedure with the information elements specified in the above Expected Sequence when the RF level of the attached cell is lower than the RF level of the new cell.
- use the P-TMSI which is included in the ROUTING AREA UPDATING ACCEPT message.
- acknowledge the new P-TMSI and continue communication with the new P-TMSI.
- continue communication with the old P-TMSI.

12.4.1.2 Routing area updating / rejected / IMSI invalid / illegal ME

12.4.1.2.1 Definition

12.4.1.2.2 Conformance requirement

- 1) If the network rejects a routing area updating procedure from the User Equipment with the cause 'Illegal ME', the User Equipment shall consider USIM invalid for PS services until power is switched off or USIM is removed.
- 2) If the network rejects a routing area updating procedure from the User Equipment with the cause 'Illegal ME', the User Equipment shall delete the stored RAI, PS-CKSN, P-TMSI and P-TMSI signature.

Reference

3GPP TS 24.008 clause 4.7.5.1.

12.4.1.2.3 Test purpose

To test the behaviour of the UE if the network rejects the routing area updating procedure of the UE with the cause 'Illegal ME'.

12.4.1.2.4 Method of test

Initial condition

System Simulator:

Three cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4), cell C in MCC2/MNC1/LAC1/RAC1 (RAI-2). All three cells are operating in network operation mode II (in case of UE operation mode A)

User Equipment:

The UE has a valid P-TMSI-1, P-TMSI-1 signature and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No (only if mode C not supported)
USIM removal possible without powering down Yes/No
Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a routing area updating with the cause value 'Illegal ME'. The SS checks that the UE does not perform PS attach in the same or another PLMN.

Step	Direction	Message	Comments
	UE SS		
	<u> </u>		The following messages are sent and shall be
			received on cell A.
1	UE		The UE is set in UE operation mode C (see
			ICS).
2	SS		The SS is set in network operation mode II and
			activates cell A.
3	UE		The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred
			by the UE.
4	->	ATTACH REQUEST	Attach type = 'PS attach'
		7.1.7.1.1.1.2.2.2.2.1	Mobile identity = P-TMSI-1
			P-TMSI-1 signature
			Routing area identity = RAI-1
5	<-	ATTACH ACCEPT	No new mobile identity assigned.P-TMSI and
			P-TMSI signature not included.Attach result =
			'PS only attached'
			Routing area identity = RAI-1
			The following messages are sent and shall be received on cell B.
6	SS		The SS deactivates cell A and activates cell B.
7	UE		Cell B is preferred by the UE.
8	->	ROUTING AREA	Update type = 'RA updating'
		UPDATINGUPDATE REQUEST	
			Routing area identity = RAI-1
9	<-	ROUTING AREA	GMM cause = 'Illegal ME'
40	_	UPDATING UPDATE REJECT	Mahila idantitu D TMCI 4
10	<-	PAGING TYPE1	Mobile identity = P-TMSI-1 PAGING TYPE1 (used for NW-mode II).
			Paging order is for PS services.
11	UE		No response from the UE to the request. This
			is checked for 10 seconds.
			The following messages are sent and shall be
			received on cell C.
12	SS		The SS deactivates cell B and activates cell C.
13	UE		Cell C is preferred by the UE.
14	UE		No ATTACH REQUEST sent to the SS
15	UE		(SS waits 30 seconds). If possible (see ICS) USIM removal is
13	OL.		performed. Otherwise if possible (see ICS)
			switch off is performed. Otherwise the power is
			removed.
16	UE		The UE gets the USIM replaced, is powered up
1			or switched on and initiates an attach (see
47		ATTACLIBEOLIEST	ICS).
17	->	ATTACH REQUEST	Attach type = 'PS enly-attached' Mobile identity = IMSI
18	<-	ATTACH ACCEPT	Attach result = 'PS only attached'
			Mobile identity = P-TMSI-1
			P-TMSI-1 signature
			Routing area identity = RAI-2
19	->	ATTACH COMPLETE	
20	UE		The UE is switched off or power is removed
6.1		DETACH DECLIEST	(see ICS).
21	->	DETACH REQUEST	Message not sent if power is removed. Detach
			type = 'power switched off, PS detach'

Specific message contents

None.

12.4.1.2.5 Test requirements

UE shall:

- initiate a PS attach procedure with the information elements specified in the above Expected Sequence when UE is powered up or switched on.

After completing the PS attach procedure, UE shall:

- initiate a routing area updating procedure with the information elements specified in the above Expected Sequence.
- delete the stored P-TMSI, P-TMSI signature, RAI and PS ciphering key sequence number .
- consider the USIM as invalid for PS services until the UE is switched off or the USIM is removed.

12.4.1.3 Routing area updating / rejected / UE identity cannot be derived by the network

12.4.1.3.1 Definition

12.4.1.3.2 Conformance requirement

If the network rejects a routing area updating procedure from the User Equipment with the cause 'UE identity cannot be derived by the network', the User Equipment shall delete the stored RAI, PS-CKSN, P-TMSI and P-TMSI signature.

Depending on the manufacturer the UE may or may not perform a PS attach procedure.

Reference

3GPP TS 24.008 clause 4.7.5.1.

12.4.1.3.3 Test purpose

To test the behaviour of the UE if the network rejects the routing area updating procedure of the UE with the cause 'UE identity cannot be derived by the network'.

12.4.1.3.4 Method of test

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4).

Both cells are operating in network operation mode II (in case of UE operation mode A).

User Equipment:

The UE has a valid P-TMSI-1, P-TMSI-1 signature and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No UE operation mode C Yes/No

UE operation mode A Yes/No (only if mode C not supported)

Automatic attach procedure when UE identity cannot be derived by the network Yes/No

Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a normal routing area updating with the cause value 'UE identity cannot be derived by the network'. The UE detach locally. A new PS attach may be performed.

Expected Sequence

ving messages are sent and shall be
on cell A.
set in network operation mode II and cell A.
set in UE operation mode C (see
oot in or operation mode o (occ
powered up or switched on and
n attach (see ICS). Cell A is preferred
be = 'PS attach'
entity =P-TMSI-1
signature rea identity = RAI-1
sult = 'PS only attached'
entity = P-TMSI-2
signature
rea identity = RAI-1
•
ving messages are sent and shall be
on cell B.
eactivates cell A and activates cell B.
preferred by the UE.
pe = 'RA updating' signature
rea identity = RAI-1
se = 'UE identity cannot be derived
work'
matic attach procedure by the UE is
ole when the UE identity cannot be
the network (see ICS) goto step 19.
atic PS attach procedure is initiated
e = 'PS attach'
entity = IMSI sult = 'PS only attached'
entity = P-TMSI-1
signature
rea identity = RAI-4
,
switched off or power is removed
not sent if power is removed.
pe = 'power switched off, PS detach'
sequence
entity = P-TMSI-2 TYPE1 (used for NW-mode II).
der is for PS services.
nse from the UE to the request, as the
etached locally. This is checked for 10
, , , , , , , , , , , , , , , , , , , ,

Specific message contents

None.

12.4.1.3.5 Test requirements

UE shall:

- initiate a PS attach procedure with the information elements specified in the above Expected Sequence when UE is powered up or switched on.

After completing the PS attach procedure, UE shall:

- initiate a routing area updating procedure with the information elements specified in the above Expected Sequence.
- delete stored P-TMSI, P-TMSI signature, RAI and PS ciphering key sequence number.

12.4.1.4a Routing area updating / rejected / location area not allowed

12.4.1.4a.1 Definition

12.4.1.4a.2 Conformance requirement

- 1) If the network rejects a routing area updating procedure from the User Equipment with the cause 'location area not allowed' the User Equipment shall:
 - 1.1 not perform PS attach when in the same location area.
 - 1.2 delete the stored RAI, PS-CKSN, P-TMSI and P-TMSI signature.
 - 1.3 store the LA in the 'forbidden location areas for regional provision of service'.
- 2) If the network rejects a routing area updating procedure from the User Equipment with the cause 'location area not allowed' the User Equipment shall:
 - 2.1 perform PS attach when a new location area is entered.
 - 2.2 delete the list of forbidden LAs after switch off (power off).

Reference

3GPP TS 24.008 clauses 4.7.5.1.

12.4.1.4a.3 Test purpose

To test the behaviour of the UE if the network rejects the routing area updating procedure of the UE with the cause 'Location Area not allowed'.

To test that the UE deletes the list of forbidden LAs when power is switched off.

12.4.1.4a.4 Method of test

Initial condition

System Simulator:

Three cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4), cell C in MCC1/MNC1/LAC2/RAC1 (RAI-3). All cells are operating in network operation mode II.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No UE operation mode A Yes/No UE operation mode C Yes/No USIM removal possible without powering down Yes/No

Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a routing area updating with the cause value 'Location Area not allowed'. The SS checks that the UE does not perform PS attach while in the location area, performs PS attach when a new location area is entered and deletes the list of forbidden LAs when switched off.

Different types of UE may use different methods to periodically clear the list of forbidden location areas (e.g. every day at 12am). If the list is cleared while the test is being run, it may be necessary to re-run the test.

Step	Direction UE SS	Message	Comments
	SS		The following messages are sent and shall be
			received on cell C.
1	SS		The SS activates cell C.
2	UE		The UE is set in UE operation mode C (see ICS). If UE operation mode C not supported,
			goto step 33.
3	UE		The UE is powered up or switched on and
			initiates an attach (see ICS). Cell C is preferred
4		ATTACH REQUEST	by the UE. Attach type = 'PS attach'
4	->	ATTACH REQUEST	Mobile identity = IMSI
5	<-	ATTACH ACCEPT	Attach result = 'PS only attached'
			Mobile identity = P-TMSI-1
			P-TMSI-1 signature Routing area identity = RAI-3
6	->	ATTACH COMPLETE	Routing area identity = RAI-3
	-		The following messages are sent and shall be
			received on cell B.
7	00		The SS deactivates cell C and activates cell B.
8 9	SS ->	ROUTING AREA	Cell B is preferred by the UE. Update type = 'RA updating'
		UPDATINGUPDATE REQUEST	P-TMSI-1 signature
			Routing area identity = RAI-3
10	<-	ROUTING AREA	GMM cause = 'Location Area not allowed'
11	<-	UPDATINGUPDATE REJECT PAGING TYPE1	Mobile identity = P-TMSI-1
''	`	TAGING THE	PAGING TYPE1 (used for NW-mode II).
			Paging order is for PS services.
12	UE		No response from the UE to the request. This
			is checked for 10 seconds. The following messages are sent and shall be
			received on cell A.
13	SS		The SS deactivates cell B and activates cell A.
14 15	UE UE		Cell A is preferred by the UE. No ATTACH REQUEST sent to SS
15	UE		(SS waits 30 seconds)
			The following messages are sent and shall be
			received on cell C.
16 17	SS UE		The SS deactivates cell B and activates cell C.
18	->	ATTACH REQUEST	Cell C is preferred by the UE. Attach type = 'PS attach'
			Mobile identity = IMSI
19	<-	ATTACH ACCEPT	Attach result = 'PS only attached'
			Mobile identity = P-TMSI-2 P-TMSI-2 signature
			Routing area identity = RAI-3
20	->	ATTACH COMPLETE	
21	UE		If possible (see ICS) USIM removal is
			performed. Otherwise if possible (see ICS) switch off is performed. Otherwise the power is
			removed.
22	->	DETACH REQUEST	Message not sent if power is removed.
- 00			Detach type = 'power switched off, PS detach'
23	UE		The UE gets the USIM replaced, is powered up or switched on and initiates an attach (see
			ICS).
24	->	ATTACH REQUEST	Attach type = 'PS attach'
			Mobile identity = P-TMSI-2
			P-TMSI-2 signature Routing area identity = RAI-3
25	<-	ATTACH ACCEPT	Attach result = 'PS only attached'
			Mobile identity = P-TMSI-1
			P-TMSI-1 signature
	I	I	Routing area identity = RAI-3

Direction	Message	Comments
UE SS		
->	ATTACH COMPLETE	
SS		The following messages are sent and shall be received on cell A.
		The SS deactivates cell C and activates cell A.
		Cell A is preferred by the UE.
->	ROUTING AREA	Update type = 'RA updating'
	UPDATINGUPDATE REQUEST	P-TMSI-1 signature
		Routing area identity = RAI-3
<-	ROUTING AREA	No new mobile identity assigned.P-TMSI and
	UPDATING UPDATE ACCEPT	P-TMSI signature not included.Update result = 'RA updated'
		IVA upualeu
		Routing area identity = RAI-1
HE		The UE is switched off or power is removed
OL.		(see ICS).
->	DETACH REQUEST	Message not sent if power is removed.
		Detach type = 'power switched off, PS detach'
SS		The SS is set in network operation mode II.
UE		The UE is set in UE operation mode A (see
		ICS), cell A is switched off and the test is
		repeated from step 2 to step 32.
	UE	UE SS -> ATTACH COMPLETE SS -> ROUTING AREA UPDATINGUPDATE REQUEST ROUTING AREA UPDATINGUPDATE ACCEPT UE > DETACH REQUEST SS

Specific message contents

None.

12.4.1.4a.5 Test requirements

UE shall:

- initiate a PS attach procedure with the information elements specified in the above Expected Sequence when UE is powered up or switched on.

After completing the PS attach procedure, UE shall:

- initiate a routing area updating procedure with the information elements specified in the above Expected Sequence.

When in the same location area, UE shall

- not perform PS attach..
- store the LA in the 'forbidden location areas for regional provision of service'.

When a new location area is entered, UE shall

- perform PS attach.
- delete the list of forbidden LAs when power is switched off.

12.4.1.4b Routing area updating / rejected / No Suitable Cells In Location Area

12.4.1.4b.1 Definition

12.4.1.4b.2 Conformance requirement

- 1) If the network rejects a routing area updating procedure from the User Equipment with the cause 'No Suitable Cells In Location Area', the User Equipment shall:
 - 1.1 delete the stored RAI, PS-CKSN, P-TMSI and P-TMSI signature.
 - 1.2 store the LA or the PLMN identity in the 'forbidden location areas for roaming'.

1.3 search for a suitable cell in a different location area on the same PLMN.

Reference

3GPP TS 24.008 clauses 4.7.5.1.

12.4.1.4b.3 Test purpose

To test the behaviour of the UE if the network rejects the routing area updating procedure with the cause 'No Suitable Cells In Location Area'.

To test that the UE deletes the list of forbidden LAs when power is switched off'.

12.4.1.4b.4 Method of test

Initial condition

System Simulator:

Four cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC2/RAC1 (RAI-3), cell C in MCC2/MNC1/LAC1/RAC1 (RAI-2), cell D in MCC1/MNC1/LAC1/RAC2 (RAI-4),

All three cells are operating in network operation mode II.

User Equipment:

The UE has valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
USIM removal possible without powering down Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a routing area updating with the cause value 'No Suitable Cells In Location Area'. The SS checks that the UE shall perform PS attach procedure when the UE enters a suitable cell in a different location area on the same PLMN.

Step	Direction	Message	Comments
	UE SS		
	SS		The following message are sent and shall be
			received on cell D.
1	SS		The SS activates cell D.
2	UE		The UE is powered up or switched on and
			initiates an attach (see ICS). Cell D is preferred
			by the UE.
3	->	ATTACH REQUEST	Attach type = 'PS attach'
			Mobile identity = IMSI
4	<-	ATTACH ACCEPT	Attach result = 'PS only attached'
			Mobile identity = P-TMSI-1
			P-TMSI-1 signature
_		ATTA OLI OOMBU ETE	Routing area identity = RAI-4
5	->	ATTACH COMPLETE	
6	SS		The SS deactivates Cell D and activates Cell A,
			Cell B and Cell C.
			The SS configures power level of each Cell as
			follows. Cell A > Cell B = Cell C
7	->	ROUTING AREA	Cell A is preferred by the UE. Update type = 'RA updating'
_ ′	->	UPDATING AREA	P-TMSI-1 signature
		OF BATHOOF BATE REQUEST	Routing area identity = RAI-4
8	<-	ROUTING AREA	GMM cause = 'No Suitable Cells In Location
		UPDATING UPDATE REJECT	Area'
		or briting or britis	The following message are sent and shall be
			received on cell D.
9	->	ATTACH REQUEST	Attach type = 'PS attach'
			Mobile identity = IMSI
10	<-	ATTACH ACCEPT	Attach result = 'PS only attached'
			Mobile identity = P-TMSI-2
			P-TMSI-2 signature
			Routing area identity = RAI-3
11	->	ATTACH COMPLETE	
12	->	DETACH REQUEST	Message not sent if power is removed.
			Detach type = 'power switched off, PS detach'

Specific message contents

None.

12.4.1.4b.5 Test requirements

UE shall:

- initiate a PS attach procedure with the information elements specified in the above Expected Sequence when the UE is powered up or switched on.

After rejecting the PS attach procedure with the cause 'No Suitable Cells In Location Area, UE shall:

- delete the stored RAI, PS-CKSN, P-TMSI and P-TMSI signature.
- store the LA or the PLMN identity in the 'forbidden location areas for roaming'.

When the UE enters a suitable cell in a different location area on the same PLMN, UE shall:

perform PS attach.

12.4.1.5 Routing area updating / abnormal cases / attempt counter check / miscellaneous reject causes

12.4.1.5.1 Definition

12.4.1.5.2 Conformance requirement

When a routing area updating procedure is rejected with the attempt counter less than five, the UE shall repeat the routing area updating procedure after T3330 timeout.

When a T3330 timeout has occurred during a routing area updating procedure with the attempt counter five, the UE shall start timer T3302.

When the T3302 expire, a new routing area updating procedure shall be initiated.

GMM cause codes that can be selected are:

'IMSI unknown in HLR'

'IMEI not accepted'

'Illegal ME'

'UE identity cannot be derived by the network'

'Network failure'

'Congestion'

'retry upon entry into a new cell'

'Semantically incorrect message'

'Invalid mandatory information'

'Message type non-existent or not implemented'

'Message type not compatible with the protocol state'

'Information element non-existent or not implemented'

'Conditional IE error'

'Message not compatible with the protocol state'

'Protocol error, unspecified'

Reference

3GPP TS 24.008 clause 4.7.5.1.

12.4.1.5.3 Test purpose

To test the behaviour of the UE with respect to the attempt counter.

12.4.1.5.4 Method of test

Initial condition

System Simulator:

 $Two\ cells\ (not\ simultaneously\ activated),\ cell\ A\ in\ MCC1/MNC1/LAC1/RAC1\ (RAI-1),\ cell\ B\ in\ MCC1/MNC1/LAC1/RAC2\ (RAI-4).$

Both cells are operating in network operation mode II (in case of UE operation mode A).

User Equipment:

The UE has a valid P-TMSI-1, P-TMSI-1 signature and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No UE operation mode C Yes/No

UE operation mode A Yes/No (only if mode C not supported)

Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE initiates a routing area updating procedure (attempt counter zero).

The SS rejects the routing area updating procedure with a random cause code.

The UE initiates a new routing area updating procedure (attempt counter one) after T3311 expires.

The SS rejects the routing area updating procedure with a random cause code.

The UE initiates a new routing area updating procedure (attempt counter two) after T3311 expires.

The SS rejects the routing area updating procedure with a random cause code.

The UE initiates a new routing area updating procedure (attempt counter three) after T3311 expires.

The SS rejects the routing area updating procedure with a random cause code.

The UE initiates a new routing area updating procedure (attempt counter four) after T3311 expires.

The SS rejects the routing area updating procedure with a random cause code.

The UE initiates a new routing area updating procedure with attempt counter five (after T3311 expires).

The SS rejects the routing area updating procedure with a random cause code.

The UE shall not perform a new successful routing area updating procedure after T3311 seconds.

The UE initiates a routing area updating procedure with attempt counter zero after T3302 expires with the stored P-TMSI, P-TMSI signature, PS CKSN and RAI.

T3302; set to 10 minutes.

T3330; 15 seconds.

Step	Direction UE SS	Message	Comments
	SS		The following messages are sent and shall be received on cell A.
1	UE		The UE is set in UE operation mode C (see ICS).
2	SS		The SS is set in network operation mode II and activates cell A.
3	UE		The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred
4	->	ATTACH REQUEST	by the UE. Attach type = 'PS attach' Mobile identity = P-TMSI-1 P-TMSI-1 signature
5	<-	ATTACH ACCEPT	Routing area identity = RAI-1 No new mobile identity assigned. P-TMSI not included. Attach result = 'PS only attached' P-TMSI-2 signature Routing area identity = RAI-1
			The following messages are sent and shall be received on cell B.
6 7	SS SS		The SS deactivates cell A and activates cell B. Cell B is preferred by the UE.
8	->	ROUTING AREA UPDATING UPDATE REQUEST	Update type = 'RA updating' P-TMSI-2 signature
9	<-	ROUTING AREA	Routing area identity = RAI-1 Random GMM cause
10	SS	<u>UPDATINGUPDATE</u> REJECT	The SS verifies that the time between the
11	->	ROUTING AREA UPDATING UPDATE REQUEST	routing area updating requests is 15 seconds Update type = 'RA updating'
			P-TMSI-2 signature Routing area identity = RAI-1
12	<-	ROUTING AREA UPDATING UPDATE REJECT	Random GMM cause
13	SS		The SS verifies that the time between the routing area updating requests is 15 seconds
14	->	ROUTING AREA UPDATING UPDATE REQUEST	Update type = 'RA updating'
			P-TMSI-2 signature Routing area identity = RAI-1
15	<-	ROUTING AREA <u>UPDATINGUPDATE</u> REJECT	Random GMM cause
16	SS	O. SATING OF BATE INCOLOR	The SS verifies that the time between the
17	->	ROUTING AREA UPDATING <u>UPDATE</u> REQUEST	routing area updating requests is 15 seconds Update type = 'RA updating' P-TMSI-2 signature
18	<-	ROUTING AREA	Routing area identity = RAI-1 Random GMM cause
19	SS	UPDATINGUPDATE REJECT	The SS verifies that the time between the
20	->	ROUTING AREA UPDATING UPDATE REQUEST	routing area updating requests is 15 seconds Update type = 'RA updating'
			P-TMSI-2 signature Routing area identity = RAI-1
21	<-	ROUTING AREA <u>UPDATINGUPDATE</u> REJECT	Random GMM cause
22	SS		The SS verifies that the UE does not attempt to attach for 10 minutes .
23	SS		The SS shall release the PS signalling connection.

Step	Direction	Message	Comments
	UE SS		
24	->	ROUTING AREA	Update type = 'RA updating'
		UPDATINGUPDATE REQUEST	
			P-TMSI-2 signature
			Routing area identity = RAI-1
25	<-	ROUTING AREA	Update result = 'RA updated'
		UPDATINGUPDATE ACCEPT	Mobile identity = P-TMSI-2
			P-TMSI-3 signature
			Routing area identity = RAI-4
26	->	ROUTING AREA	
		UPDATINGUPDATE COMPLETE	
27	UE		The UE is switched off or power is removed
			(see ICS).
28	->	DETACH REQUEST	Message not sent if power is removed.
			Detach type = 'power switched off, PS detach'

Specific message contents

None.

12.4.1.5.5 Test requirements

UE shall:

- initiate a PS attach procedure with the information elements specified in the above Expected Sequence when UE is powered up or switched on.

After completing the PS attach procedure, UE shall:

- perform the following actions depending on the conditions described below.

Case 1) A routing area updating procedure is rejected from SS with the attempt counter less than five

UE shall:

- repeat the routing area updating procedure after T3330 timeout

Case2) A timer T3330 timeout has occurred during a routing area updating procedure with the attempt counter five

UE shall:

start timer T3302

Case3) The T3302 expires

UE shall:

- initiate a new routing area updating procedure

12.4.1.6 Routing area updating / abnormal cases / change of cell into new routing area

12.4.1.6.1 Definition

12.4.1.6.2 Conformance requirement

When a change of cell into a new routing area is performed before the routing area updating procedure is finished, the UE shall abort the routing area updating procedure and re-initiate it in the new routing area.

Reference

3GPP TS 24.008 clause 4.7.5.1.

12.4.1.6.3 Test purpose

To test the behaviour of the UE in case of procedure collision.

12.4.1.6.4 Method of test

Initial condition

System Simulator:

Three cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4) and cell C In MCC1/MNC1/LAC1/RAC3 (RAI-5). All cells are operating in network operation mode II (in case of UE operation mode A).

User Equipment:

The UE has a valid P-TMSI-1, P-TMSI-1 signature and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No UE operation mode C Yes/No

UE operation mode A Yes/No (only if mode C not supported)

Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE initiates a routing area updating procedure. The ROUTING AREA UPDATE ACCEPT message is delayed from the SS. The UE performs a cell update into a new routing area. The UE shall re-initiate a routing area updating procedure in the new routing area.

Step	Direction	Message	Comments
	UE SS		
	SS		The following messages are sent and shall be
04			received on cell A.
2 1	UE		The UE is set in UE operation mode C (see ICS). If UE operation mode C not supported,
			goto step 18.
2	SS		The SS activates cell A.
<u>2</u> 3	<u>SS</u> UE		The UE is powered up or switched on and
			initiates an attach (see ICS). Cell A is preferred
			by the UE.
4	->	ATTACH REQUEST	Attach type = 'PS attach'
			Mobile identity = P-TMSI-1
			P-TMSI-1 signature
_		ATTAOU A005DT	Routing area identity = RAI-1
5	<-	ATTACH ACCEPT	Attach result = 'PS only attached'
			Mobile identity = P-TMSI-2 P-TMSI-2 signature
			Routing area identity = RAI-1
6	->	ATTACH COMPLETE	Trouting area identity = Train
		71171011 001111 2212	The following messages are sent and shall be
			received on cell B.
7	SS		The SS deactivates cell A and activates cell B.
8	SS		Cell B is preferred by the UE.
9	->	ROUTING AREA	Update type = 'RA updating'
		UPDATING UPDATE REQUEST	P-TMSI-2 signature
40			Routing area identity = RAI-1
10	SS		No response to the ROUTING AREA UPDATINGUPDATE REQUEST message is
			given by the SS
			The following messages are sent and shall be
			received on cell C.
11	SS		The SS deactivates cell B and activates cell C.
12	SS		Cell C is preferred by the UE.
13	->	ROUTING AREA	Update type = 'RA updating'
		UPDATING UPDATE REQUEST	P-TMSI-2 signature
		DOLITING ADEA	Routing area identity = RAI-1
14	<-	ROUTING AREA UPDATINGUPDATE ACCEPT	Update result = 'RA updated' Mobile identity = P-TMSI-2
		OF DATING OF DATE ACCEPT	P-TMSI-3 signature
			Routing area identity = RAI-5
15	->	ROUTING AREA	
		UPDATINGUPDATE COMPLETE	
16	UE		The UE is switched off or power is removed
			(see ICS).
17	->	DETACH REQUEST	Message not sent if power is removed.
			Detach type = 'power switched off, PS detach'
18	SS		The SS is set in network operation mode II.
19	UE		The UE is set in UE operation mode A(see
			ICS), cell C is deactivated and the test is repeated from step 3-2 to step 17.
			repeated noin step & L to step 17.

Specific message contents

None.

12.4.1.6.5 Test requirements

UE shall:

- initiate a PS attach procedure with the information elements specified in the above Expected Sequence when UE is powered up or switched on.

After completing the PS attach procedure, UE shall:

- initiate the routing area update procedure.

When change of cell into a new routing area is performed before the routing area updating procedure is finished, UE shall:

- abort the routing area updating procedure.
- re-initiate new routing area updating procedure in the new routing area.

12.4.1.7 Routing area updating / abnormal cases / change of cell during routing area updating procedure

12.4.1.7.1 Definition

12.4.1.7.2 Conformance requirement

When a change of cell within a new routing area is performed before the routing area updating procedure is finished, the UE shall perform the cell update before the routing area updating procedure is finished.

Reference

3GPP TS 24.008 clause 4.7.5.1.

12.4.1.7.3 Test purpose

To test the behaviour of the UE in case of procedure collision.

12.4.1.7.4 Method of test

Initial condition

System Simulator:

Three cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4) and cell C in MCC1/MNC1/LAC1/RAC2 (RAI-4). All three cells are operating in network operation mode II.

User Equipment:

The UE has a valid P-TMSI-1, P-TMSI-1 signature and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No UE operation mode C Yes/No UE operation mode A Yes/No Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE initiates a routing area updating procedure. The ROUTING AREA UPDATE ACCEPT message is delayed from the SS. The UE performs a cell update within the routing area. The UE then waits for the ROUTING AREA UPDATE ACCEPT message.

Step	Direction	Message	Comments
	UE SS		
	SS		The following messages are sent and shall be
			received on cell A.
1	UE		The UE is set in UE operation mode C (see ICS).
2	SS		The SS is set in network operation mode II and
	00		activates cell A.
3	UE		The UE is powered up or switched on and
			initiates an attach (see ICS). Cell A is preferred
			by the UE.
4	->	ATTACH REQUEST	Attach result = 'PS attach'
			Mobile identity = P-TMSI-1
			P-TMSI-1 signature Routing area identity = RAI-1
5	<-	ATTACH ACCEPT	No new mobile identity assigned.
		/ / / / / / / / / / / / / / / / / / /	P-TMSI not included.
			Attach result = 'PS only attached'
			P-TMSI-2 signature
			Routing area identity = RAI-1
			The following messages are sent and shall be
	00		received on cell B.
6 7	SS SS		The SS deactivates cell A and activates cell B. Cell B is preferred by the UE.
8	->	ROUTING AREA	Update type = 'RA updating'
	-/	UPDATING AREA UPDATE REQUEST	P-TMSI-2 signature
			Routing area identity = RAI-1
9	SS		No response to the ROUTING AREA
			UPDATING UPDATE REQUEST message is
			given by the SS
			The following messages are sent and shall be
40	SS		received on cell C.
10 11	SS		The SS deactivates cell B and activates cell C. Cell C is preferred by the UE.
12a	->	CELL UPDATE	Cell update cause = 'cell reselection'
	•		3
12b	<-	CELL UPDATE CONFIRM	
13	<-	ROUTING AREA	Update result = 'RA updated'
		UPDATING UPDATE ACCEPT	Mobile identity = P-TMSI-2
			P-TMSI-3 signature
14	->	ROUTING AREA	Routing area identity = RAI-4
14	->	UPDATING UPDATE COMPLETE	
15	UE	S. S. T. III S. S. T. T. CON LETE	The UE is switched off or power is removed
			(see ICS).
16	->	DETACH REQUEST	Message not sent if power is removed.
			Detach type = 'power switched off, PS detach'

Specific message contents

None.

12.4.1.7.5 Test requirements

UE shall:

- initiate a PS attach procedure with the information elements specified in the above Expected Sequence when UE is powered up or switched on.

After completing the PS attach procedure, UE shall:

- initiate routing area update procedure.

When a change of cell within a new routing area is performed, UE shall:

- perform the cell update before the routing area updating procedure is finished.

12.4.1.8 Routing area updating / abnormal cases / P-TMSI reallocation procedure collision

12.4.1.8.1 Definition

12.4.1.8.2 Conformance requirement

When a P-TMSI REALLOCATION REQUESTCOMMAND message is received by the UE while waiting for a ROUTING AREA UPDATE ACCEPT message, the UE shall ignore the P-TMSI reallocation procedure and continue with the routing area updating procedure.

Reference

3GPP TS 24.008 clause 4.7.5.1.

12.4.1.8.3 Test purpose

To test the behaviour of the UE in case of procedure collision.

12.4.1.8.4 Method of test

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1) and cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4).

Both cells are operating in network operation mode II (in case of UE operation mode A).

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No UE operation mode C Yes/No

UE operation mode A Yes/No (only if mode C not supported)

Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE initiates a routing area updating procedure. The SS does not answer the routing area updating procedure, but initiates a P-TMSI reallocation procedure. The UE shall ignore the P-TMSI reallocation procedure and continue with the routing area updating procedure.

Step	Direction	Message	Comments
	UE SS		
	SS		The following messages are sent and shall be received on cell A.
1	UE		The UE is set in UE operation mode C (see ICS).
2	SS		The SS is set in network operation mode II and activates cell A.
3	UE		The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
4	->	ATTACH REQUEST	Attach result = 'PS attach' Mobile identity = IMSI
5	<-	ATTACH ACCEPT	Attach result = 'PS only attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature
6	->	ATTACH COMPLETE	Routing area identity = RAI-1
			The following messages are sent and shall be received on cell B.
7	SS		The SS deactivates cell A and activates cell B.
8	SS		Cell B is preferred by the UE.
9	->	ROUTING AREA UPDATINGUPDATE REQUEST	Update type = 'RA updating' P-TMSI-1 signature
10	<-	P-TMSI REALLOCATION REQUESTCOMMAND	Routing area identity = RAI-1 Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-1
11	UE		The UE ignores the P-TMSI reallocation requestcommand.
12	<-	ROUTING AREA <u>UPDATINGUPDATE</u> ACCEPT	Update result = 'RA updated' Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-4
13	->	ROUTING AREA UPDATINGUPDATE COMPLETE	Nouting area lucitury = IVAI-4
14	UE	5. 2	The UE is switched off or power is removed (see ICS).
15	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'

Specific message contents

None.

12.4.1.8.5 Test requirements

UE shall:

- initiate a PS attach procedure with the information elements specified in the above Expected Sequence when UE is powered up or switched on.

After completing the PS attach procedure, UE shall:

- initiate the routing area updating procedure.

When a P-TMSI REALLOCATION REQUEST message is received from SS while waiting for a ROUTING AREA UPDATE ACCEPT message, UE shall:

- ignore the P-TMSI reallocation procedure.
- continue with the routing area updating procedure.

12.4.2 Combined routing area updating

The combined routing area updating procedure is a GMM procedure used by PS UEs of UE operation mode A that are IMSI attached for PS and non-PS services. In order to use the combined routing area updating procedure, the network must operate in network operation mode I.

12.4.2.1 Combined routing area updating / combined RA/LA accepted

12.4.2.1.1 Definition

12.4.2.1.2 Conformance requirement

- 1) If the network accepts the combined routing area updating procedure and reallocates a P-TMSI, the UE shall acknowledge the new P-TMSI and continue communication with the new P-TMSI.
- 2) If the network accepts the combined routing area updating procedure from the UE without reallocation of the old P-TMSI, the UE shall continue communication with the old P-TMSI.

Reference

3GPP TS 24.008 clause 4.7.5.2.

12.4.2.1.3 Test purpose

To test the behaviour of the UE if the network accepts the combined routing area updating procedure.

The following cases are identified:

- 1) P-TMSI / P-TMSI signature is reallocated.
- 2) Old P-TMSI / P-TMSI signature is not changed.
- 3) Mobile terminating CS call is allowed with IMSI.
- 4) Mobile terminating CS call is allowed with TMSI.

12.4.2.1.4 Method of test

Initial condition

System Simulator:

Two cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4). Both cells operating in network operation mode I.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No UE operation mode A Yes/No Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

- A combined PS attach procedure is performed. The UE sends a ROUTING AREA UPDATE REQUEST
 message. The SS reallocates the P-TMSI, unassigns the TMSI and returns ROUTING AREA UPDATE
 ACCEPT message with a new P-TMSI and IMSI. The UE acknowledge the new P-TMSI by sending ROUTING
 AREA <u>UPDATINGUPDATE</u> COMPLETE message. Further communication UE SS is performed by the new
 P-TMSI. For CS calls, the IMSI is used
- 2) The UE is CS paged in order to verify that the IMSI is used for CS calls.
- 3) A combined PS attach procedure is performed. The UE sends an ROUTING AREA <u>UPDATINGUPDATE</u> REQUEST message. The SS accepts the P-TMSI signature and returns ROUTING AREA <u>UPDATINGUPDATE</u> ACCEPT message without any P-TMSI and with a new TMSI. The UE acknowledge the new TMSI by sending ROUTING AREA <u>UPDATINGUPDATE</u> COMPLETE message. Further communication UE-SS is performed by the old P-TMSI. For CS calls, the new TMSI is used.
- 4) The UE is CS paged in order to verify that the TMSI is used for CS calls.

Expected Sequence

Step	Direction	Message	Comments
	UE SS		
1	UE		The UE is set in UE operation mode A (see
			ICS).
2	UE		The UE is powered up or switched on and initiates an attach (see ICS).
3	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach'
		, mindinkedozon	Mobile identity =IMSI
			TMSI status = no valid TMSI available
4	<-	ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached'
			Mobile identity = P-TMSI-2
			P-TMSI-2 signature Routing area identity = RAI-1
5	->	ATTACH COMPLETE	Routing area identity = IVAI-1
			The following messages are sent and shall be
			received on cell B.
6	SS		Activate cell B with a lower signal strength than
			cell A The RF level of cell A is lowered until cell B is preferred by the UE.
7	->	ROUTING AREA	Update type = 'Combined RA/LA updating'
		UPDATINGUPDATE REQUEST	P-TMSI-2 signature
			Routing area identity = RAI-1
			TMSI status = no valid TMSI available
8	<-	ROUTING AREA	Update result = 'Combined RA/LA updated'
		UPDATING UPDATE ACCEPT	Mobile identity = P-TMSI-1 P-TMSI-1 signature
			Mobile identity = IMSI
			Routing area identity = RAI-4
9	->	ROUTING AREA	
10	_	UPDATINGUPDATE COMPLETE PAGING TYPE1	Mobile identity = P-TMSI-1
10	<-	PAGING TIPET	Paging order is for PS services.
10a	->	RRC CONNECTION REQUEST	aging order is for 1 5 convices.
10b	<-	RRC CONNECTION SETUP	
10c	->	RRC CONNECTION SETUP	
11	->	COMPLETE SERVICE REQUEST	service type = "paging response"
''	->	SERVICE REQUEST	Service type – paging response
11a	<-	RRC CONNECTION RELEASE	
11b	->	RRC CONNECTION RELEASE	
1		COMPLETE	
12	<-	PAGING TYPE1	Mobile identity = IMSI Paging order is for CS services.
13	->	RRC CONNECTION REQUEST	raying order is for C5 services.
14	<-	RRC CONNECTION SETUP	
15	->	RRC CONNECTION SETUP	
		COMPLETE	

Step	Direction	Message	Comments
	UE SS	1	
16 17	-> <-	PAGING RESPONSE RRC CONNECTION RELEASE	Mobile identity = IMSI After sending of this message, the SS waits for disconnection of the CS signalling link.
18	->	RRC CONNECTION RELEASE COMPLETE	disconnection of the C3 signaling link.
19	SS		The following messages are sent and shall be received on cell A. The RF level of cell A is increased and the RF level of cell B is lowered until cell A is preferred by the UE.
20	->	ROUTING AREA <u>UPDATINGUPDATE</u> REQUEST	Update type = 'Combined RA/LA updating' P-TMSI-1 signature Routing area identity = RAI-4 TMSI status = no valid TMSI available
21	<-	ROUTING AREA UPDATINGUPDATE ACCEPT	Update result = 'Combined RA/LA updated' Mobile identity = P-TMSI-2 P-TMSI-2 signature Mobile identity = TMSI-1 Routing area identity = RAI-1
22	->	ROUTING AREA UPDATINGUPDATE COMPLETE	
23	<-	PAGING TYPE1	Mobile identity = P-TMSI-2 Paging order is for PS services.
23a 23b 23c	-> <- ->	RRC CONNECTION REQUEST RRC CONNECTION SETUP RRC CONNECTION SETUP COMPLETE	aging crack to for the convictor.
24	->	SERVICE REQUEST	service type = "paging response"
24a 24b	<- ->	RRC CONNECTION RELEASE RRC CONNECTION RELEASE COMPLETE	
25	<-	PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services.
26 27 28	-> <- ->	RRC CONNECTION REQUEST RRC CONNECTION SETUP RRC CONNECTION SETUP COMPLETE	
29 30	-> <-	PAGING RESPONSE RRC CONNECTION RELEASE	Mobile identity = TMSI-1 After sending of this message, the SS waits for disconnection of the CS signalling link.
31	->	RRC CONNECTION RELEASE COMPLETE	
32	UE		The UE is switched off or power is removed (see ICS).
33	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined PS / IMSI detach'

Specific message contents

None.

12.4.2.1.5 Test requirements

UE shall:

- initiate a combined PS attach procedure with information elements specified in the above Expected Sequence when UE is powered up or switched on.

After completing the PS attach procedure, UE shall:

- initiate a combined routing area update procedure(Update type = 'Combined RA/LA updating') with the information elements specified above Expected Sequence when RF level of the attached cell is lower than the RF level of the new cell.
- acknowledge the new P-TMSI.
- continue communication with the new P-TMSI If SS reallocates a P-TMSI.
- continue communication with the old P-TMSI If SS does not reallocate the old P-TMSI.

12.4.2.2 Combined routing area updating / UE in CS operation at change of RA

12.4.2.2.1 Definition

12.4.2.2.2 Conformance requirement

PS UE in UE operation mode A that is in an ongoing CS transaction at change of routing area shall initiate the normal routing area updating procedure.

Reference

3GPP TS 24.008 clause 4.7.5.2.

12.4.2.2.3 Test purpose

To test the behaviour of the UE if the routing area is changed during an ongoing circuit switched transmission.

12.4.2.2.4 Method of test

Initial condition

System Simulator:

Two cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4). Both cells operating in network operation mode I.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No UE operation mode A Yes/No Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

A combined PS attach procedure is performed. The UE in UE operation mode A initiates a CS call. The routing area change. The UE will perform the normal routing area updating procedure during the ongoing circuit-switched transaction.

Step	Direction	Message	Comments
	UE SS	j	
1	ÜE		The UE is set in UE operation mode A (see
			ICS).
2	UE		The UE is powered up or switched on and
			initiates an attach (see ICS).
3	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach'
			Mobile identity =IMSI
		ATTACILACOERT	TMSI status = no valid TMSI available
4	<-	ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached' Mobile identity = P-TMSI-2
			P-TMSI-2 signature
			Routing area identity = RAI-1
5	->	ATTACH COMPLETE	Trouting area identity = IVAI-1
6	UÉ	TATTAGIT GOIWII EETE	A CS call is initiated.
7	SS		Activate cell B with the same signal strength as
<u> </u>			cell A.
8	<-		Handover commanded by SS on to DCH of cell
_	_		В
			The following messages are sent and shall be
			received on cell B.
7	SS		Activate cell B with a lower signal strength than
			cell A The RF level of cell A is lowered until cell
			B is preferred by the UE.
8 9	->	ROUTING AREA	Update type = 'RA updating'
		UPDATING UPDATE REQUEST	P-TMSI-2 signature
			Routing area identity = RAI-1 TMSI status = no valid TMSI available
9 10	<-	ROUTING AREA	Update result = 'RA updated'
9 10	ζ-	UPDATING UPDATE ACCEPT	Mobile identity = P-TMSI-1
		OF BATING OF BATE ACCEL T	P-TMSI-1 signature
			Mobile identity = IMSI
			Routing area identity = RAI-4
10 11	->	ROUTING AREA	g area area,
_		UPDATING UPDATE COMPLETE	
11 12	<-	PAGING TYPE2	Mobile identity = P-TMSI-1
			Paging order is for PS services.
12 13	->	SERVICE REQUEST	service type = "paging response"
13 14	SS		The SS initiates the RRC connection release.
14 15	UE		The UE is switched off or power is removed
1516	_	DETACH BEOLIEST	(see ICS).
15 16	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined
			PS / IMSI detach'
			1 0 / INOI detacti

Specific message contents

None.

12.4.2.2.5 Test requirements

UE shall:

- initiate a combined PS attach procedure with information elements specified in the above Expected Sequence when UE is powered up or switched on.

After completing the PS attach procedure, UE shall:

- initiate a CS call. at change of routing area.
- initiate a normal routing area updating procedureduring the CS connection.

12.4.2.3 Combined routing area updating / RA only accepted

12.4.2.3.1 Definition

12.4.2.3.2 Conformance requirement

- 1) If the network accepts the combined PS attach procedure, but GMM cause code 'IMSI unknown in HLR' is sent to the UE the User Equipment shall delete the stored TMSI, LAI and CKSN. The User Equipment shall consider USIM invalid for non-PS services until power is switched off or USIM is removed.
- 2) If the network accepts the combined PS attach procedure, but GMM cause code 'MSC temporarily not reachable', 'Network failure' or 'Congestion' is sent to the UE, an UE operation mode A UE may perform an MM IMSI attach procedure.

Reference

3GPP TS 24.008 clause 4.7.3.2.

12.4.2.3.3 Test purpose

Test porpose1

To test the behaviour of the UE if the network accepts the routing area updating procedure with indication RA only, GMM cause 'IMSI unknown in HLR'.

Test porpose2

To test the behaviour of the UE if the network accepts the routing area updating procedure with indication RA only, GMM cause 'MSC temporarily not reachable', 'Network failure' or 'Congestion'.

12.4.2.3.4 Method of test

Test Procedure1

Initial condition

System Simulator:

 $Two\ cells\ (not\ simultaneously\ activated),\ cell\ A\ in\ MCC1/MNC1/LAC1/RAC1\ (RAI-1),\ cell\ B\ in\ MCC1/MNC1/LAC1/RAC2\ (RAI-4).$

Both cells operating in network operation mode I.

User Equipment:

The UE has a valid ITMSI.

Related ICS/IXIT statements

Support of PS service Yes/No UE operation mode A Yes/No Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

After attach, the UE sends an ROUTING AREA UPDATE REQUEST message. The SS allocates a P-TMSI and returns ROUTING AREA UPDATE ACCEPT message with a P-TMSI. GMM cause 'IMSI unknown in HLR' is indicated from SS. Further communication UE - SS is performed by the P-TMSI. CS services are not possible.

Step	Direction	Message	Comments
_	UE SS		
1	UE		The UE is set in UE operation mode A (see
			ICS).
2	UE		The UE is powered up or switched on and
3	->	ATTACH REQUEST	initiates an attach (see ICS). Attach type = 'Combined PS / IMSI attach'
3		ATTACTINEQUEST	Mobile identity =IMSI
			TMSI status = no valid TMSI available
4	<-	ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached'
			Mobile identity = P-TMSI-2
			P-TMSI-2 signature
_		ATTACH COMPLETE	Routing area identity = RAI-1
5	->	ATTACH COMPLETE	The following messages are sent and shall be
			received on cell B.
6	SS		The SS deactivates cell A and activates cell B.
7	->	ROUTING AREA UPDATING	Update type = 'Combined RA/LA updating'
		REQUEST	P-TMSI-2 signature
			Routing area identity = RAI-1
8	_	ROUTING AREA UPDATING	TMSI status = no valid TMSI available Update result = 'RA updated'
0	<-	ACCEPT	Mobile identity = P-TMSI-1
		/ COLI I	P-TMSI-1 signature
			Routing area identity = RAI-4
			GMM cause = 'IMSI unknown in HLR'
9	->	ROUTING AREA UPDATING	
10	_	COMPLETE	Mobile identity D.TMCI 1
10	<-	PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.
10a	->	RRC CONNECTION REQUEST	aging order is for 1 of services.
10b	< -	RRC CONNECTION SETUP	
10c	->	RRC CONNECTION SETUP	
		COMPLETE	
11	->	SERVICE REQUEST	service type = "paging response"
11a		RRC CONNECTION RELEASE	
11b	<- ->	RRC CONNECTION RELEASE	
		COMPLETE	
12	<-	PAGING TYPE1	Mobile identity = IMSI
1			Paging order is for CS services.
13	UE		The UE shall not initiate an RRC connection.
14	ПЕ		This is checked during 3 seconds.
14	UE		The UE is switched off or power is removed (see ICS).
15	->	DETACH REQUEST	Message not sent if power is removed.
			Detach type = 'power switched off, PS detach'

Test Procedure2

Initial condition

System Simulator:

 $Two\ cells\ (not\ simultaneously\ activated),\ cell\ A\ in\ MCC1/MNC1/LAC1/RAC1\ (RAI-1),\ cell\ B\ in\ MCC1/MNC1/LAC1/RAC2\ (RAI-4).$

Both cells operating in network operation mode I.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No UE operation mode A Yes/No

Automatic MM IMSI attach procedure for UE operation mode A UE Yes/No

Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

After attach, the UE sends an ROUTING AREA UPDATE REQUEST message . The SS allocates a new P-TMSI signature and returns ROUTING AREA UPDATE ACCEPT message. GMM cause 'MSC temporarily not reachable', 'Network failure' or 'Congestion' is indicated from SS. The cause code is arbitrarily chosen. An UE operation mode A UE may perform an MM IMSI attach procedure (according to the ICS statement). Further communication UE - SS is performed by the P-TMSI. The existence of a signalling channel is verified by a request for mobile identity. CS services are not possible unless an IMSI attach procedure is performed.

Expected Sequence

Dependent whether the option 'Automatic MM IMSI attach procedure for UE operation mode A UE' is not supported or not, the steps 1-13 or 14-35 apply depending on manufacturer (see ICS).

Step	Direction	Message	Comments
	UE SS		
1	UE		The following messages are sent and shall be received on cell A The UE is set in UE operation mode A and no automatic MM IMSI attach procedure is indicated (see ICS).
2	UE		The UE is powered up or switched on and initiates an attach (see ICS).
3	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity =IMSI TMSI status = no valid TMSI available
4	<-	ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-1
5	->	ATTACH COMPLETE	
6 7 8	SS -> ->	ROUTING AREA UPDATING REQUEST ROUTING AREA UPDATING	The following messages are sent and shall be received on cell B. The SS deactivates cell A and activates cell B. Update type = 'Combined RA/LA updating' P-TMSI-2 signature Routing area identity = RAI-1 TMSI status = no valid TMSI available Update result = 'RA updated'
9	->	ROUTING AREA UPDATING	Mobile identity = P-TMSI-1P-TMSI-1 signature Routing area identity = RAI-4 GMM cause = 'MSC temporarily not reachable', 'Network failure' or 'Congestion' (arbitrarily chosen)
9	->	COMPLETE	
10	<-	PAGING TYPE1	Mobile identity = IMSI Paging order is for CS services.
11	UE		The UE shall not initiate an RRC connection. This is checked during 3 seconds.
12	UE		The UE is switched off or power is removed (see ICS).
13	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach' Stop the sequence.
			The following messages are sent and shall be received on cell B

Step	Direction UE SS	Message	Comments
14	UE 33		Automatic MM IMSI attach procedure is
14			indicated (see ICS).
15	UE		The UE is powered up or switched on and
			initiates an attach (see ICS).
16	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach'
			Mobile identity = IMSI TMSI status = no valid TMSI available
17	<-	ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached'
			Mobile identity = P-TMSI-2
			P-TMSI-2 signature
			Routing area identity = RAI-4
18	->	ATTACH COMPLETE	
			The following messages are sent and shall be
19	SS		received on cell A. The SS deactivates cell B and activates cell A.
20	->	ROUTING AREA UPDATING	Update type = 'Combined RA/LA updating'
		REQUEST	P-TMSI-2 signature
			Routing area identity = RAI-4
21	<-	ROUTING AREA UPDATING	TMSI status = no valid TMSI available Update result = 'RA updated'
21		ACCEPT	Mobile identity = P-TMSI-1
			P-TMSI-1 signature
			Routing area identity = RAI-1
			GMM cause = 'MSC temporarily not reachable', 'Network failure' or 'Congestion' (arbitrarily
			chosen)
22	->	ROUTING AREA UPDATING	
23		COMPLETE RRC CONNECTION REQUEST	
24	-> <-	RRC CONNECTION SETUP	
25	->	RRC CONNECTION SETUP	
		COMPLETE	
26 27	->	LOCATION UPDATING REQ LOCATION UPDATING ACC	Location updating type = IMSI attach. The SS allocates a new TMSI.
28	<- ->	TMSI REALLOCATION COMP	Location updating type = IMSI attach.
29	<-	RRC CONNECTION RELEASE	After sending of this message, the SS waits for
			disconnection of the CS signalling link.
30	->	RRC CONNECTION RELEASE COMPLETE	
31	<-	PAGING TYPE1	Mobile identity = TMSI-1
	,		Paging order is for CS services.
32	->	RRC CONNECTION REQUEST	
33	<-	RRC CONNECTION SETUP	
34	->	RRC CONNECTION SETUP COMPLETE	
35	->	PAGING RESPONSE	Mobile identity = TMSI-1
36	<-	RRC CONNECTION RELEASE	After sending of this message, the SS waits for
07		DDC CONNECTION DELEACE	disconnection of the CS signalling link.
37	->	RRC CONNECTION RELEASE COMPLETE	
38	UE		The UE is switched off or power is removed
			(see ICS).
39	->	DETACH REQUEST	Message not sent if power is removed.
			Detach type = 'power switched off, PS detach'

Specific message contents

None.

12.4.2.3.5 Test requirements

UE shall:

- initiate a combined PS attach procedure with information elements specified in the above Expected Sequence when UE is powered up or switched on.

After completing the PS attach procedure, UE shall:

- initiate a combined routing area updating procedure.
- perform the following actions depending on the GMM cause.

Case 1) GMM cause = 'IMSI unknown in HLR'.

UE shall:

- delete the stored TMSI, LAI and CKSN.
- consider USIM invalid for non-PS services until power is switched off or USIM is removed.

Case 2) GMM cause = 'MSC temporarily not reachable', 'Network failure' or 'Congestion'.

UE shall:

- perform an MM IMSI attach procedure. (only applied UE operation mode A)

12.4.2.4 Combined routing area updating / rejected / PLMN not allowed

12.4.2.4.1 Definition

12.4.2.4.2 Conformance requirement

- 1) If the network rejects a combined routing area updating procedure from the User Equipment with the cause 'PLMN not allowed' the User Equipment shall:
 - 1.1 not perform combined GPRA attach when switched on in the same location area or PLMN.
 - 1.2 delete the stored RAI, PS-CKSN, P-TMSI, P-TMSI signature, TMSI CKSN andLAI.
 - 1.3 store the PLMN in the 'forbidden PLMN list'.

Reference

3GPP TS 24.008 clause 4.7.5.2.

12.4.2.4.3 Test purpose

To test the behaviour of the UE if the network rejects the combined routing area updating procedure of the UE with the cause 'PLMN not allowed'.

12.4.2.4.4 Method of test

Initial condition

System Simulator:

Four cells (not simultaneously activated), cell A in MCC1/MNC1/MNC2/LAC1/RAC1 (RAI-18), cell B in MCC1/MNC1/MNC2/LAC1/RAC2 (RAI-10), cell C in MCC1/MNC1/MNC2/LAC2/RAC1 (RAI-39) and cell D in MCC2/MNC1/LAC1/RAC1 (RAI-2).

All four cells are operating in network operation mode I

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a combined routing area updating with the cause value 'PLMN not allowed'. The SS checks that the UE does not perform PS attach if activated in the same PLMN. The SS checks that the UE does not perform IMSI attach if activated in the same PLMN.

The following messages are sent and shall be received on cell A. The SS activates cell A. The SS activates cell A. The SS activates cell A. The UE is powered up or switched on and initiates an attach (see ICS. Attach type = Combined PS / IMSI attach' Mobile identity = IMSI TMSI status = no valid TMSI available Attached' Mobile identity = TMSI-2 signature Routing area identity = RAI-4-9. Mobile identity = TMSI-1 The SS deactivates cell A and activates cell B. Cell B is preferred by the UE. UE ROUTING AREA UPDATINGUPDATE REJECT The UE initiates an attach by MMI or AT command. No ATTACH REQUEST sent to SS (SS waits 30 seconds). The UE initiates an attach by MMI or by AT command. No ATTACH REQUEST sent to SS (SS waits 30 seconds). The Ioliowing messages are sent and shall be received on cell B. The SS deactivates cell B and activates cell B. Cell B is preferred by the UE. UE The UE initiates an attach by MMI or AT command. No ATTACH REQUEST sent to SS (SS waits 30 seconds). The Ioliowing messages are sent and shall be received on cell C. The SS deactivates cell B and activates cell C. Cell C is preferred by the UE. The UE initiates an attach by MMI or by AT command. No ATTACH REQUEST sent to SS (SS waits 30 seconds). The Ioliowing messages are sent and shall be received on cell C. The SS deactivates cell C and activates cell C. Cell C is preferred by the UE. The UE initiates an attach by MMI or by AT command. No ATTACH REQUEST sent to SS (SS waits 30 seconds). The Ioliowing messages are sent and shall be received on cell C. The UE and Interpreted by the UE. The UE initiates an attach by MMI or by AT command. No ATTACH PEQUEST sent to SS (SS waits 30 seconds). The Ioliowing messages are sent and shall be received on cell A. The SS deactivates cell C to the request. This is checked for 10 seconds. The Ioliowing messages are sent and shall be received on cell A. The SS deactivates cell C to the request. This is checked for 10 seconds. The Ioliowing messages are sent and shall be received on cell D. The SS deactivates	Step	Direction UE SS	Message	Comments
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The UE initiates an attach by MMI or AT command. 12 UE	10	<-		GMM cause = 'PLMN not allowed'
command. No ATTACH REQUEST sent to SS (SS waits 30 seconds). Mobile identity = P-TMSI-2 Paging order is for PS services. No response from the UE to the request. This is checked for 10 seconds. The following messages are sent and shall be received on cell C. Cell C is preferred by the UE. The UE initiates an attach by MMI or by AT command. No ATTACH REQUEST sent to SS (SS waits 30 seconds). PAGING TYPE1 ASS PAGING TYPE1 PAGING TYPE1 Region order is for CS services. The UE shall not initiate an RRC connection. This is checked during 3 seconds. The Sol deactivates cell C and activates cell A. Cell A is preferred by the UE. The UE initiates an attach by MMI or by AT command. No ATTACH REQUEST sent to SS (SS waits 30 seconds). The following messages are sent and shall be received on cell A. The SS deactivates cell C and activates cell A. Cell A is preferred by the UE. The UE initiates an attach by MMI or by AT command. No ATTACH REQUEST sent to SS (SS waits 30 seconds). Mobile identity = P-TMSI-2 Paging order is for PS services. No response from the UE to the request. This is checked for 10 seconds. The following messages are sent and shall be received on cell D. The SS deactivates cell A and activates cell D. Cell D is preferred by the UE. The UE initiates an attach automatically, by	11	HE	UPDATINGUPDATE REJECT	The LIE initiates an attach by MMI or AT
(SS waits 30 seconds). Mobile identity = P-TMSI-2 Paging order is for PS services. No response from the UE to the request. This is checked for 10 seconds. The following messages are sent and shall be received on cell C. The SS deactivates cell B and activates cell C. Cell C is preferred by the UE. The UE initiates an attach by MMI or by AT command. No ATTACH REQUEST sent to SS (SS waits 30 seconds). Mobile identity = TMSI-1 Paging order is for CS services. The UE shall not initiate an RRC connection. This is checked during 3 seconds. The SS deactivates cell C and activates cell A. Cell A is preferred by the UE. The UE initiates an attach by MMI or by AT command. No ATTACH REQUEST sent to SS (SS waits 30 seconds). A The SS deactivates cell C and activates cell A. Cell A is preferred by the UE. The UE initiates an attach by MMI or by AT command. No ATTACH REQUEST sent to SS (SS waits 30 seconds). A Cell A is preferred by the UE. The UE initiates an attach by MMI or by AT command. No ATTACH REQUEST sent to SS (SS waits 30 seconds). Mobile identity = P-TMSI-2 Paging order is for PS services. No response from the UE to the request. This is checked for 10 seconds. The following messages are sent and shall be received on cell D. The SS deactivates cell A and activates cell D. Cell D is preferred by the UE.	''	OL		
13 C	12	UE		
Paging order is for PS services. No response from the UE to the request. This is checked for 10 seconds. The following messages are sent and shall be received on cell C. The SS deactivates cell B and activates cell C. Cell C is preferred by the UE. The UE initiates an attach by MMI or by AT command. No ATTACH REQUEST sent to SS (SS waits 30 seconds). PAGING TYPE1 Paging order is for CS services. The UE shall not initiate an RRC connection. This is checked during 3 seconds. The SD deactivates cell C and activates cell A. Cell A is preferred by the UE. The UE initiates an attach by MMI or by AT command. Value PAGING TYPE1 PAGING TYPE1 Paging order is for PS services. The UE initiates an attach by MMI or by AT command. No ATTACH REQUEST sent to SS (SS waits 30 seconds). PAGING TYPE1 Paging order is for PS services. No ATTACH REQUEST sent to SS (SS waits 30 seconds). The following messages are sent and shall be received on cell A. Cell A is preferred by the UE. The UE initiates an attach by MMI or by AT command. No ATTACH REQUEST sent to SS (SS waits 30 seconds). The following messages are sent and shall be received on cell D. The SS deactivates cell A and activates cell D. Cell D is preferred by the UE. The UE initiates an attach automatically, by	12	_	DAGING TYPE1	
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The following messages are sent and shall be received on cell C. The SS deactivates cell B and activates cell C. The SS deactivates cell B and activates cell C. Cell C is preferred by the UE. The UE initiates an attach by MMI or by AT command. No ATTACH REQUEST sent to SS (SS waits 30 seconds). Mobile identity = TMSI-1 Paging order is for CS services. The UE shall not initiate an RRC connection. This is checked during 3 seconds. The following messages are sent and shall be received on cell A. The SS deactivates cell C and activates cell A. Cell A is preferred by the UE. The UE initiates an attach by MMI or by AT command. No ATTACH REQUEST sent to SS (SS waits 30 seconds). Mobile identity = P-TMSI-2 Paging order is for PS services. No response from the UE to the request. This is checked for 10 seconds. The following messages are sent and shall be received on cell D. The SS deactivates cell A and activates cell D. Cell D is preferred by the UE.	14	UE		No response from the UE to the request. This
received on cell C. The SS deactivates cell B and activates cell C. Cell C is preferred by the UE. The UE initiates an attach by MMI or by AT command. No ATTACH REQUEST sent to SS (SS waits 30 seconds). PAGING TYPE1 Mobile identity = TMSI-1 Paging order is for CS services. The UE shall not initiate an RRC connection. This is checked during 3 seconds. The following messages are sent and shall be received on cell A. The SS deactivates cell C and activates cell A. Cell A is preferred by the UE. The UE initiates an attach by MMI or by AT command. No ATTACH REQUEST sent to SS (SS waits 30 seconds). VER DESTRUCTION OF SERVICES. PAGING TYPE1 Mobile identity = P-TMSI-2 Paging order is for PS services. No response from the UE to the request. This is checked for 10 seconds. The following messages are sent and shall be received on cell D. The SS deactivates cell A and activates cell D. Cell D is preferred by the UE. The SS deactivates cell A and activates cell D. Cell D is preferred by the UE.				
Cell C is preferred by the UE.				
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Paging order is for CS services. The UE shall not initiate an RRC connection. This is checked during 3 seconds. The following messages are sent and shall be received on cell A. The SS deactivates cell C and activates cell A. Cell A is preferred by the UE. The UE initiates an attach by MMI or by AT command. VA UE VA UE PAGING TYPE1	10	_	DAGING TYPE1	i
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The following messages are sent and shall be received on cell A. 21 SS 22 UE 23 UE 24 UE 25 VE 26 VE 27 SS 28 UE 28 The JE initiates an attach by MMI or by AT command. 29 No ATTACH REQUEST sent to SS (SS waits 30 seconds). 20 Mobile identity = P-TMSI-2 Paging order is for PS services. No response from the UE to the request. This is checked for 10 seconds. The following messages are sent and shall be received on cell D. 27 SS 28 UE 29 UE The following messages are sent and activates cell D. Cell D is preferred by the UE. The UE initiates an attach automatically, by	20	UE		
received on cell A. The SS deactivates cell C and activates cell A. Cell A is preferred by the UE. The UE initiates an attach by MMI or by AT command. No ATTACH REQUEST sent to SS (SS waits 30 seconds). PAGING TYPE1 PAGING TYPE1 PAGING TYPE1 Request. This is checked for 10 seconds. The following messages are sent and shall be received on cell D. The SS deactivates cell A and activates cell D. Cell D is preferred by the UE. The UE initiates an attach automatically, by				
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25 <- PAGING TYPE1 Mobile identity = P-TMSI-2 Paging order is for PS services. No response from the UE to the request. This is checked for 10 seconds. The following messages are sent and shall be received on cell D. 27 SS 28 UE 29 UE The UE initiates an attach automatically, by	24	UE		
Paging order is for PS services. No response from the UE to the request. This is checked for 10 seconds. The following messages are sent and shall be received on cell D. SS The SS deactivates cell A and activates cell D. Cell D is preferred by the UE. The UE initiates an attach automatically, by	25	/-	PAGING TYPE1	1 '
26 UE No response from the UE to the request. This is checked for 10 seconds. The following messages are sent and shall be received on cell D. 27 SS The SS deactivates cell A and activates cell D. 28 UE 29 UE The UE initiates an attach automatically, by				
The following messages are sent and shall be received on cell D. 27 SS The SS deactivates cell A and activates cell D. 28 UE Cell D is preferred by the UE. 29 UE The UE initiates an attach automatically, by	26	UE		No response from the UE to the request. This
received on cell D. 27 SS The SS deactivates cell A and activates cell D. 28 UE Cell D is preferred by the UE. 29 UE The UE initiates an attach automatically, by	<u> </u>			
28 UE Cell D is preferred by the UE. 29 UE The UE initiates an attach automatically, by				
29 UE The UE initiates an attach automatically, by				
	23	OL		MMI or by AT command.

Step	Direction	Message	Comments
	UE SS		
30	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity =IMSI TMSI status = no valid TMSI available
31	<-	ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-2 Mobile identity = IMSI
32	->	ATTACH COMPLETE	
33	UE		The UE is switched off or power is removed (see ICS).
34	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined PS / IMSI detach'

Specific message contents

None.

12.4.2.4.5 Test requirements

UE shall:

- initiate a combined PS attach procedure with information elements specified in the above Expected Sequence when UE is powered up or switched on.

After completing the PS attach procedure, UE shall:

- initiate a combined routing area update procedure(Update type = 'Combined RA/LA updating') with the information elements specified above Expected Sequence
- delete the stored P-TMSI, P-TMSI signature, TMSI, RAI, LAI, ciphering key sequence number PS ciphering key sequence number.
- reset the location update attempt counter when UE receive the ROUTING AREA UPDATING REJECT message(GMM cause = 'PLMN not allowed') from SS.
- store the PLMN identity in the 'forbidden PLMN list'.
- not perform combined PS attach procedure when the UE is switched on in the same PLMN.

12.4.2.5a Combined routing area updating / rejected / roaming not allowed in this location area

12.4.2.5a.1 Definition

12.4.2.5a.2 Conformance requirement

- 1) If the network rejects a combined routing area updating procedure from the User Equipment with the cause 'roaming not allowed in this location area' the User Equipment shall:
 - 1.1 not perform combined PS attach when in the same location area.
 - 1.2 delete the stored RAI, PS-CKSN, P-TMSI P-TMSI signature, TMSI, CKSN and LAI.
 - 1.3 store the LA in the 'forbidden location areas for roaming'.
 - 1.4 perform combined PS attach when a new location area is entered.
- 2) The User Equipment shall reset the list of 'Forbidden location areas for roaming' when switched off or when the USIM is removed.

Reference

3GPP TS 24.008 clause 4.7.5.2.

12.4.2.5a.3 Test purpose

Test purpose1

To test that on receipt of a rejection using the 'Roaming not allowed in this area' cause code, the UE ceases trying a routing area updating procedure on that location area. Successful combined routing area updating procedure is possible in other location areas.

Test purpose2

To test that if the UE is switched off or the USIM is removed the list of 'forbidden location areas for roaming' is cleared.

12.4.2.5a.4 Method of test

12.4.2.5a.4.1 Test procesure1

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC2/RAC1 (RAI-3). Both cells are operating in network operation mode I.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No UE operation mode A Yes/No Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a combined routing area updating with the cause value 'Roaming not allowed in this area'. A new attempt for a combined PS attach is not possible. Successful combined PS attach procedure is performed in another location area. The UE is mobed back to the 1st location area. A combined routing area updating shall not be performed, as the LA is on the forbidden list.

Step	Direction UE SS	Message	Comments
	SS		The following messages are sent and shall be
			received on cell A.
1 2	SS		The SS activates cell A.
2	UE		The UE is powered up or switched on and initiates an attach (see ICS.
3	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach'
			Mobile identity =IMSI
4	<-	ATTACH ACCEPT	TMSI status = no valid TMSI available Attach result = 'Combined PS / IMSI attached'
4	ζ-	ATTACITACCEFT	Mobile identity = P-TMSI-2
			P-TMSI-2 signature
			Routing area identity = RAI-1
5	->	ATTACH COMPLETE	Mobile identity = IMSI
		ATTACK GOWN ZETE	The following messages are sent and shall be
			received on cell B.
7 8	SS UE		The SS deactivates cell A and activates cell B. Cell B is preferred by the UE.
9	->	ROUTING AREA UPDATING	Update type = 'Combined RA/LA updating'
	•	REQUEST	P-TMSI-2 signature
			Routing area identity = RAI-1
10	<-	ROUTING AREA UPDATING	TMSI status = no valid TMSI available GMM cause = 'Roaming not allowed in this
		REJECT	area'
11	UE		The UE initiates an attach by MMI or by AT
12	UE		command. No ATTACH REQUEST sent to SS
12	OL		(SS waits 30 seconds).
13	<-	PAGING TYPE1	Mobile identity = P-TMSI-2
14	UE		Paging order is for PS services. No response from the UE to the request. This
14	OL		is checked for 10 seconds.
15	<-	PAGING TYPE1	Mobile identity = IMSI
16	UE		Paging order is for CS services. The UE shall not initiate an RRC connection.
10	OL		This is checked during 3 seconds.
			The following messages are sent and shall be
17	SS		received on cell A. The SS deactivates cell B and activates cell A.
18	UE		Cell A is preferred by the UE.
19	UE		The UE initiates an attach automatically, by
20		ATTACH DECLICET	MMI or by AT command. Attach type = 'Combined PS / IMSI attach'
20	->	ATTACH REQUEST	Mobile identity =IMSI
			TMSI status = no valid TMSI available
21	<-	ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached'
			Mobile identity = P-TMSI-1 P-TMSI-1 signature
			Routing area identity = RAI-1
00		ATTA OLI OCNEDI ETE	Mobile identity = TMSI-1
22 23	-> <-	ATTACH COMPLETE PAGING TYPE1	Mobile identity = TMSI-1
			Paging order is for CS services.
24	->	RRC CONNECTION REQUEST	
25 26	<- ->	RRC CONNECTION SETUP	
20	->	COMPLETE	
27	->	PAGING RESPONSE	Mobile identity = TMSI-1
28	<-	RRC CONNECTION RELEASE	After sending of this message, the SS waits for
29	->	RRC CONNECTION RELEASE	disconnection of the CS signalling link.
		COMPLETE	
30	<-	PAGING TYPE1	Mobile identity = P-TMSI-1
			Paging order is for PS services.

Step	Direction	Message	Comments
	UE SS		
30a	->	RRC CONNECTION REQUEST	
30b	<-	RRC CONNECTION SETUP	
30c	->	RRC CONNECTION SETUP	
		COMPLETE	
31	->	SERVICE REQUEST	service type = "paging response"
31a	<-	RRC CONNECTION RELEASE	
31b	->	RRC CONNECTION RELEASE	
		COMPLETE	
			The following messages are sent and shall be
			received on cell B.
32	SS		The SS deactivates cell A and activates cell B.
33	UE		No ROUTING AREA UPDATING REQUEST
			sent to SS
0.4		DACING TYPE4	(SS waits 30 seconds).
34	<-	PAGING TYPE1	Mobile identity = P-TMSI-2
25	UE		Paging order is for PS services.
35	UE		No response from the UE to the request. This is checked for 10 seconds.
36	<-	PAGING TYPE1	Mobile identity = IMSI
30		I AGING I II LI	Paging order is for CS services.
37	UE		The UE shall not initiate an RRC connection.
31			This is checked during 3 seconds.
			This is checked during 3 seconds.

12.4.2.5a.4.2 Test procesure2

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC/LAC2/RAC1 (RAI-3).

Both cells are operating in network operation mode I.

User Equipment:

The UE has a valid P-TMSI-1, P-TMSI-1 signature and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No UE operation mode A Yes/No

USIM removal possible without powering down Yes/No

Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a combined routing area updating with the cause value 'Roaming not allowed in this area'. The UE is switched off for 10 seconds and switched on again. The SS checks that a combined PS attach is possible on the cell on which the previous combined routing area updating had been rejected.

If USIM removal is possible without switching off:

The SS rejects a routing area updating with the cause value 'Roaming not allowed in this area'. The USIM is removed and inserted in the UE. The SS checks that a PS attach procedure and routing area updating procedure is possible on the cell on which the routing area updating had previously been rejected.

Step	Direction UE SS	Message	Comments
	SS		The following messages are sent and shall be
			received on cell A.
1 2	SS UE		The SS activates cell A. The UE is powered up or switched on and
	OE		initiates an attach (see ICS.
3	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach'
			Mobile identity =IMSI TMSI status = no valid TMSI available
4	<-	ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached'
			Mobile identity = P-TMSI-2
			P-TMSI-2 signature Routing area identity = RAI-1
			Mobile identity = IMSI
5	->	ATTACH COMPLETE	•
			The following messages are sent and shall be received on cell B.
7	SS		The SS deactivates cell A and activates cell B.
8	UE		Cell B is preferred by the UE.
9	->	ROUTING AREA UPDATING	Update type = 'Combined RA/LA updating' P-TMSI-2 signature
		REQUEST	Routing area identity = RAI-1
			TMSI status = no valid TMSI available
10	<-	ROUTING AREA UPDATING REJECT	GMM cause = 'Roaming not allowed in this
11	UE	REJECT	area' The UE initiates an attach by MMI or by AT
			command.
12	UE		No ATTACH REQUEST sent to SS
13	<-	PAGING TYPE1	(SS waits 30 seconds). Mobile identity = P-TMSI-2
			Paging order is for PS services.
14	UE		No response from the UE to the request. This is checked for 10 seconds.
15	<-	PAGING TYPE1	Mobile identity = IMSI
			Paging order is for CS services.
16	UE		The UE shall not initiate an RRC connection. This is checked during 3 seconds.
17	UE		If possible (see ICS) USIM removal is
			performed. Otherwise if possible (see ICS)
			switch off is performed. Otherwise the power is removed.
18	UE		The UE gets the USIM replaced, is powered up
			or switched on and initiates an attach (see
19	UE		ICS). The UE initiates an attach by MMI or AT
	<u> </u>		command.
20	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach'
			Mobile identity =IMSI TMSI status = no valid TMSI available
21	<-	ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached'
			Mobile identity = P-TMSI-1
			P-TMSI-1 signature Routing area identity = RAI-1
			Mobile identity = TMSI-1
22 23	-> <-	ATTACH COMPLETE PAGING TYPE1	Mobile identity = TMSI-1
23		TAGING THE	Paging order is for CS services.
24	->	RRC CONNECTION REQUEST	
25 26	<- ->	RRC CONNECTION SETUP RRC CONNECTION SETUP	
		COMPLETE	
27	->	PAGING RESPONSE	Mobile identity = TMSI-1
28	<-	RRC CONNECTION RELEASE	After sending of this message, the SS waits for disconnection of the CS signalling link.
I	I	I	accommodation the oo dignaming min.

Step	Direction	Message	Comments
	UE SS		
29	->	RRC CONNECTION RELEASE	
		COMPLETE	
30	<-	PAGING TYPE1	Mobile identity = P-TMSI-1
30a	->	RRC CONNECTION REQUEST	
30b	<-	RRC CONNECTION SETUP	
30c	->	RRC CONNECTION SETUP	
		COMPLETE	
31	->	SERVICE REQUEST	service type = "paging response"
31a	<-	RRC CONNECTION RELEASE	
31b	->	RRC CONNECTION RELEASE	
		COMPLETE	
32	UE		The UE is switched off or power is removed
			(see ICS).
33	->	DETACH REQUEST	Message not sent if power is removed.
			Detach type = 'power switched off, combined
			PS/IMSI detach'

Specific message contents

None.

12.4.2.5a.5 Test requirements

UE shall:

- initiate a combined PS attach procedure with information elements specified in the above Expected Sequence when UE is powered up or switched on.

After completing the PS attach procedure, UE shall:

- initiate a combined routing area update procedure(Update type = 'Combined RA/LA updating') with the information elements specified above Expected Sequence
- delete the stored P-TMSI, P-TMSI signature, TMSI, RAI, LAI, ciphering key sequence number PS ciphering key sequence number.
- reset the location update attempt counter when UE receive the ROUTING AREA UPDATING REJECT message(GMM cause = 'Roaming not allowed in this area') from SS.
- store the LAI in the 'forbidden location areas for roaming'.
- not perform combined PS attach procedure when the UE is switched on in the same location area.
- perform combined PS attach procedure when a new location area is entered.

12.4.2.5b Combined routing area updating / rejected / No Suitable Cells In Location Area.

12.4.2.5b.1 Definition

12.4.2.5b.2 Conformance requirement

- 1) If the network rejects a combined routing area updating procedure from the User Equipment with the cause 'No Suitable Cells In Location Area', the User Equipment shall:
 - 1.1 delete the stored RAI, PS-CKSN, P-TMSI and P-TMSI signature.
 - 1.2 store the LA or the PLMN identity in the 'forbidden location areas for roaming'.

1.3 search for a suitable cell in a different location area on the same PLMN.

Reference

3GPP TS 24.008 clauses 4.7.5.2.

12.4.2.5b.3 Test purpose

To test the behaviour of the UE if the network rejects a combined routing area updating procedure of the UE with the cause 'No Suitable Cells In Location Area'.

To test that the UE deletes the list of forbidden LAs when power is switched off'.

12.4.2.5b.4 Method of test

Initial condition

System Simulator:

Four cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC2/RAC1 (RAI-3), cell C in MCC2/MNC1/LAC1/RAC1 (RAI-2), cell D in MCC1/MNC1/LAC1/RAC2 (RAI-4),

All three cells are operating in network operation mode II.

User Equipment:

The UE has valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
USIM removal possible without powering down Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a combined routing area updating with the cause value 'No Suitable Cells In Location Area'. The SS checks that the UE shall perform PS attach procedure when the UE enters a suitable cell in a different location area on the same PLMN.

Step	Direction	Message	Comments
-	UE SS		
	SS		The following message are sent and shall be
			received on cell D.
1	SS		The SS activates cell D.
2	UE		The UE is powered up or switched on and
			initiates an attach (see ICS). Cell D is preferred
		ATTA OLI DEGLIEGE	by the UE.
3	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach'
			Mobile identity = IMSI TMSI status = no valid TMSI available
4		ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached'
4	<-	ATTACH ACCEPT	Mobile identity = P-TMSI-1
			P-TMSI-1 signature
			Routing area identity = RAI-4
			Mobile identity = IMSI
5	->	ATTACH COMPLETE	Institute its institute in the second in t
6	SS		The SS deactivates Cell D and activates Cell A,
			Cell B and Cell C.
			The SS configures power level of each Cell as
			follows.
			Cell A > Cell B = Cell C
_			Cell A is preferred by the UE.
7	->	ROUTING AREA	Update type = 'Combined RA/LA updating'
		UPDATING UPDATE REQUEST	P-TMSI-1 signature
8		ROUTING AREA	Routing area identity = RAI-4 GMM cause = 'No Suitable Cells In Location
0	<-	UPDATING UPDATE REJECT	Area'
		OF DATING OF DATE RESECT	The following message are sent and shall be
			received on cell B.
9	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attached'
-			Mobile identity = IMSI
10	<-	ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached'
			Mobile identity = P-TMSI-2
			P-TMSI-2 signature
			Routing area identity = RAI-3
11	->	ATTACH COMPLETE	
12	->	DETACH REQUEST	Message not sent if power is removed.
			Detach type = 'power switched off, PS detach'

Specific message contents

None.

12.4.2.5b.5 Test requirements

UE shall:

- initiate a Combined PS attach procedure with the information elements specified in the above Expected Sequence when the UE is powered up or switched on.

After rejecting the Combined PS attach procedure with the cause 'No Suitable Cells In Location Area, UE shall:

- delete the stored RAI, PS-CKSN, P-TMSI and P-TMSI signature.
- store the LA or the PLMN identity in the 'forbidden location areas for roaming'.

When the UE enters a suitable cell in a different location area on the same PLMN, UE shall:

- perform PS attach.

12.4.2.6 Combined routing area updating / abnormal cases / access barred due to access class control

12.4.2.6.1 Definition

12.4.2.6.2 Conformance requirement

- 1) The UE shall not perform combined routing area updating procedure, but stays in the current serving cell and applies normal cell reselection process.
- 2) The User Equipment shall perform the combined routing area updating procedure when:
 - 2.1 Access is granted.
 - 2.2 Cell is changed.

Reference

3GPP TS 24.008 clause 4.7.5.2.

12.4.2.6.3 Test purpose

Test porpose1

To test the behaviour of the UE in case of access class control (access is granted).

Test porpose2purpose2

To test the behaviour of the UE in case of access class control (cell is changed).

12.4.2.6.4 Method of test

12.4.2.6.4.1 Test procedure1

Initial condition

An random-access class x (0-15) is arbitrarily chosenselected. The USIM is programmed with this access class x. Communication with User Equipments using access class x is initially indicated to be barred on Cell B.

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1) has Access Class x not barred, cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4) has Access Class x barred.

Both cells are operating in network operation mode I.

Access class x barred.

User Equipment:

The UE has valid IMSI. UE is Idle Updated on cell A.

Related ICS/IXIT statements

Support of PS service Yes/No UE operation mode A Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

A PS attach procedure is performed. The routing area is changed. The SS indicates access class x barred. A routing area updating procedure is not performed.

The SS indicates that access class x is not barred. A routing area updating procedure is performed.

Expected Sequence

Step	Direction	Message	Comments
	UE SS		
	SS		The following messages are sent and shall be
1 2	SS UE		received on cell A. The SS activates cell A. The UE is powered up or switched on and
3	->	ATTACH REQUEST	initiates an attach (see ICS). Attach type = 'Combined PS / IMSI attach' Mobile identity =IMSI
4	<-	ATTACH ACCEPT	TMSI status = no valid TMSI available Attach result = 'Combined PS / IMSI attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-1
			Mobile identity = IMSI
5	->	ATTACH COMPLETE	
7 <u>6</u> 8 <u>7</u> 9 <u>8</u>	SS UE UE		The following messages are sent and shall be received on cell B. The SS deactivates cell A and activates cell B. Cell B is preferred by the UE. No ROUTING AREA UPDATE REQUEST sent to SS, as access class <u>Xx</u> is barred
10 9	SS		(SS waits 30 seconds). The access class x is not barred anymore.
11 10	->	ROUTING AREA UPDATINGUPDATE REQUEST	Update type = 'Combined RA/LA updating' P-TMSI-2 signature
12 11	<-	ROUTING AREA UPDATINGUPDATE ACCEPT	Routing area identity = RAI-1 TMSI status = no valid TMSI available Update result = 'Combined RA/LA updated' Mobile identity = P-TMSI-1 P-TMSI-1 signature Mobile identity = TMSI-1 Routing area identity = RAI-4
13 12	->	ROUTING AREA UPDATINGUPDATE COMPLETE	Trouting area identity = 10 ii 4
44 <u>13</u>	UE	<u> </u>	The UE is switched off or power is removed (see ICS).
15 14	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined PS/IMSI detach'

Specific message contents

None.

12.4.2.6.4.2 Test procedure2

Initial condition

An random-access class x (0-15) is arbitrarily chosen selected. The USIM is programmed with this access class x. Communication with User Equipments using access class x is indicated to be barred on cell $A\underline{B}$.

System Simulator:

Three cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1) has access class x not barred, cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4) has access class x barred, cell C in MCC1/MNC1/LAC1/RAC2 (RAI-4) has access class x not barred. All three cells are operating in network operation mode I.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No UE operation mode A Yes/No Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

A PS attach procedure is performed. The routing area is changed. The SS indicates access class x barred. A routing area updating procedure is not performed.

A cell change is performed into a cell where access class x is not barred. A routing area updating procedure is performed.

Expected Sequence

Step	Direction	Message	Comments
	UE SS		
1 2	SS SS UE		The following messages are sent and shall be received on cell A. The SS activates cell A. The UE is powered up or switched on and
3	->	ATTACH REQUEST	initiates an attach (see ICS). Attach type = 'Combined PS / IMSI attach' Mobile identity =IMSI
4	<-	ATTACH ACCEPT	TMSI status = no valid TMSI available Attach result = 'Combined PS / IMSI attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-1
5	->	ATTACH COMPLETE	Mobile identity = IMSI
7 <u>6</u> 8 <u>7</u> 9 <u>8</u>	SS UE UE		The following messages are sent and shall be received on cell B. The SS deactivates cell A and activates cell B. Cell B is preferred by the UE. No ROUTING AREA UPDATINGUPDATE REQUEST sent to SS, as access class Xx is barred (SS waits 30 seconds).
10 <u>9</u> 1110 1211	SS UE ->	ROUTING AREA <u>UPDATINGUPDATE</u> REQUEST	The following messages are sent and shall be received on cell C. The SS deactivates cell B and activates cell C. Cell C is preferred by the UE. Update type = 'Combined RA/LA updating' P-TMSI-2 signature Routing area identity = RAI-1 TMSI status = no valid TMSI available
13 12	<-	ROUTING AREA <u>UPDATINGUPDATE</u> ACCEPT	Update result = 'Combined RA/LA updated' Mobile identity = P-TMSI-1 P-TMSI-1 signature Mobile identity = TMSI-1
14 <u>13</u>	->	ROUTING AREA UPDATINGUPDATE COMPLETE	Routing area identity = RAI-4
15 14	UE	3. 30 <u>3. 3</u> 33 EETE	The UE is switched off or power is removed (see ICS).
16 15	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined PS/IMSI detach'

Specific message contents

None.

12.4.2.6.5 Test requirements

UE shall:

- initiate a combined PS attach procedure with information elements specified in the above Expected Sequence when UE is powered up or switched on.

After completing the PS attach procedure, UE shall:

- not perform the combined routing area updating procedure.
- stay in the current serving cell.
- apply the normal cell reselection process.(as access class X is barred)
- perform the combined routing area updating procedure when the barred state is removed or because of a cell change.

12.4.2.7 Combined routing area updating / abnormal cases / attempt counter check / procedure timeout

12.4.2.7.1 Definition

12.4.2.7.2 Conformance requirement

- 1) When a T3330 timeout has occurred during a routing area updating procedure, the UE shall repeat the routing area updating procedure after T3330 timeout until the procedure is repeated five times.
- 2) When a routing area updating procedure is repeated five times, the routing area updating attempt counter is incremented and five more routing area updating procedures are performed. This procedure is repeated until the routing area updating attempt counter is five, the UEshall then start timer T3302.
- 3) When the T3302 expire, a new routing area updating procedure shall be initiated.

Reference

3GPP TS 24.008 clause 4.7.5.2.

12.4.2.7.3 Test purpose

To test the behaviour of the UE with respect to the attempt counter.

12.4.2.7.4 Method of test

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4). Both cells are operating in network operation mode I.

User Equipment:

The UE has a valid <u>IMSITMSI</u>, P TMSI, P TMSI signature and RAI.

Related ICS/IXIT statements

Support of PS service Yes/No UE operation mode A Yes/No Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE initiates a routing area updating procedure (routing area updating attempt counter zero). The SS does not answer with ROUTING AREA UPDATE ACCEPT message before T3330 timeout. The UE restarts the routing area updating procedure four times. The SS never answers with ROUTING AREA UPDATE ACCEPT message before T3330 timeout. After five consecutive routing area update procedures, the routing area updating attempt counter is incremented and T3311 is started.

The UE initiates a new routing area updating procedure (routing area updating attempt counter one) after T3311 expires. The SS does not answer with ROUTING AREA UPDATE ACCEPT message before T3330 timeout. The UE restarts the routing area updating procedure four times. The SS never answers with ROUTING AREA UPDATE ACCEPT message before T3330 timeout. After five consecutive routing area update procedures, the routing area updating attempt counter is incremented and T3311 is started.

The UE initiates a new routing area updating procedure (routing area updating attempt counter two) after T3311 expires. The SS does not answer with ROUTING AREA UPDATE ACCEPT message before T3330 timeout. The UE restarts the routing area updating procedure four times. The SS never answers with ROUTING AREA UPDATE ACCEPT message before T3330 timeout. After five consecutive routing area update procedures, the routing area updating attempt counter is incremented and T3311 is started.

The UE initiates a new routing area updating procedure (routing area updating attempt counter three) after T3311 expires. The SS does not answer with ROUTING AREA UPDATE ACCEPT message before T3330 timeout. The UE restarts the routing area updating procedure four times. The SS never answers with ROUTING AREA UPDATE ACCEPT message before T3330 timeout. After five consecutive routing area update procedures, the routing area updating attempt counter is incremented and T3311 is started.

The UE initiates a new routing area updating procedure (routing area updating attempt counter four) after T3311 expires. The SS does not answer with ROUTING AREA UPDATE ACCEPT message before T3330 timeout. The UE restarts the routing area updating procedure four times. The SS never answers with ROUTING AREA UPDATE ACCEPT message before T3330 timeout. After five consecutive routing area update procedures, the routing area updating attempt counter is incremented and as the routing area updating attempt counter is five. T3302 is started.

The UE initiates a routing area updating procedure with routing area updating attempt counter zero after T3302 expires with the stored P-TMSI, P-TMSI signature, PS CKSN and RAI.

T3302; set to 12 minutes.

T3311; 15 seconds.

T3330; 15 seconds.

Step	Direction UE SS	Message	Comments
	SS		The following messages are sent and shall be
1	SS		received on cell A. The SS activates cell A.
2	ÜE		The UE is powered up or switched on and
		ATTACH DECLICA	initiates an attach (see ICS).
3	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity =IMSI
			TMSI status = no valid TMSI available
4	<-	ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached' Mobile identity = P-TMSI-2
			P-TMSI-2 signature
			Routing area identity = RAI-1
5	->	ATTACH COMPLETE	Mobile identity = IMSI
		71171011 00111 1212	The following messages are sent and shall be
70	00		received on cell B.
7 <u>6</u> 8 7	SS UE		The SS deactivates cell A and activates cell B. Cell B is preferred by the UE.
			K = 1.
9 8	->	ROUTING AREA <u>UPDATINGUPDATE</u> REQUEST	Update type = 'Combined RA/LA updating' P-TMSI-2 signature
		NEQUEST	Routing area identity = RAI-1
			TMSI status = no valid TMSI available
			Routing area updating attempt counter = k (k is not visible. It is only used for clarifying the
			sequence.)
10 9	SS		Retransmission counter = 0 No response is given from the SS.
10 9 11 10	SS		The SS verifies that the time between the RA
			update requests is T3330seconds
12 11	->	ROUTING AREA UPDATINGUPDATE REQUEST	Update type = 'Combined RA/LA updating' P-TMSI-2 signature
		101 5/11110 <u>51 5/1/2</u> 112 3 02 5 1	Routing area identity = RAI-1
			TMSI status = no valid TMSI available Routing area updating attempt counter = k
			Retransmission counter = 1
13 12	SS		No response is given from the SS.
14 13	SS		The SS verifies that the time between the RA update requests is T3330seconds
15 14	->	ROUTING AREA	Update type = 'Combined RA/LA updating'
		UPDATINGUPDATE REQUEST	P-TMSI-2 signature Routing area identity = RAI-1
			TMSI status = no valid TMSI available
			Routing area updating attempt counter = k
16 15	SS		Retransmission counter = 2 No response is given from the SS.
17 16	SS		The SS verifies that the time between the RA
18 17	->	ROUTING AREA	update requests is T3330seconds Update type = 'Combined RA/LA updating'
		UPDATINGUPDATE REQUEST	P-TMSI-2 signature
			Routing area identity = RAI-1 TMSI status = no valid TMSI available
			Routing area updating attempt counter = k
1010	00		Retransmission counter = 3
19 18 20 19	SS SS		No response is given from the SS. The SS verifies that the time between the RA
		DOUTING ASS	update requests is T3330seconds
21 20	->	ROUTING AREA <u>UPDATINGUPDATE</u> REQUEST	Update type = 'Combined RA/LA updating' P-TMSI-2 signature
		<u> </u>	Routing area identity = RAI-1
			TMSI status = no valid TMSI available Routing area updating attempt counter = k
			Retransmission counter = 4
22 21	SS		No response is given from the SS.

Step	Direction	Message	Comments
	UE SS		
23 22	SS		The SS verifies that the time between the RA update requests is T3311 + T3330 seconds.
2 4 <u>23</u>	SS		Step $9 - 238 - 22$ is repeated four times with k = 2, k = 3, k = 4 and k = 5
23 24	SS		The SS verifies that the time between the RA update requests is T3302 + T3330 seconds
24 <u>25</u>	->	ROUTING AREA UPDATINGUPDATE REQUEST	Update type = 'Combined RA/LA updating' P-TMSI-2 signature Routing area identity = RAI-1
25 26	<-	ROUTING AREA UPDATINGUPDATE ACCEPT	TMSI status = no valid TMSI available Update result = 'Combined RA/LA updated' Mobile identity = P-TMSI-1 P-TMSI-1 signature Mobile identity = IMSI Routing area identity = RAI-4
26 27	->	ROUTING AREA UPDATINGUPDATE COMPLETE	Trouting area identity – roll 1
27 28	UE		The UE is switched off or power is removed (see ICS).
28 <u>29</u>	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined PS/IMSI detach'

Specific message contents

None.

12.4.2.7.5 Test requirements

UE shall:

- initiate a combined PS attach procedure with information elements specified in the above Expected Sequence when UE is powered up or switched on.

After completing the PS attach procedure, UE shall:

- initiate a combined routing area updating procedure with information elements specified in the above Expected Sequence when UE is powered up or switched on.
- perform the following actions depending on the conditions described below.

Case 1) A timer T3330 timeout has occurred during a combined routing area updating procedure with the Routing area attempt counter less than five and the Retransmission counter less than five

UE shall:

- repeat the combined routing area updating procedure after the timer T3330 timeout

Case2) A timer T3330 timeout has occurred during a combined routing area updating procedure with the Routing area attempt counter less than five and the Retansmission counter five

UE shall:

- start the timer T3311

Case 3) A timer T3311 timeout has occoured

UE shall:

- reset the Retransmission counter and increase the Routing area attempt counter
- repeat the combined routing area updating procedure

Case 4) A timer T3330 timeout has occurred during a combined routing area updating procedure with the Routing area attempt counter five and the Retansmission counter five.

UE shall:

- start the timer T3302

Case5) The timer T3302 expires

UE shall:

- initiate a new routing area updating procedure

12.4.2.8 Combined routing area updating / abnormal cases / change of cell into new routing area

12.4.2.8.1 Definition

12.4.2.8.2 Conformance requirement

When a change of cell into a new routing area is performed before the routing area updating procedure is finished, the UE shall abort the routing area updating procedure and re-initiate it in the new routing area.

Reference

3GPP TS 24.008 clause 4.7.5.2.

12.4.2.8.3 Test purpose

To test the behaviour of the UE in case of procedure collision.

12.4.2.8.4 Method of test

Initial condition

System Simulator:

Three cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4), cell C in MCC1/MNC1/LAC1/RAC3 (RAI-5).

All three cells are operating in network operation mode I.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No UE operation mode A Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE initiates a routing area updating procedure. The ROUTING AREA UPDATE ACCEPT message is delayed from the SS. The UE performs a cell update into a new routing area. The UE shall re-initiate a routing area updating procedure in the new routing area. The UE shall not increment the attempt counter.

Step	Direction	Message	Comments
	UE SS		T. ()
	SS		The following messages are sent and shall be received on cell A.
1	SS		The SS activates cell A.
2	UE		The UE is powered up or switched on and
		4.TT4.011.DE011E0T	initiates an attach (see ICS.
3	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach'
			Mobile identity =IMSI TMSI status = no valid TMSI available
4	<-	ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached'
		THE TRUE TO THE TENT OF THE TE	Mobile identity = P-TMSI-2
			P-TMSI-2 signature
			Routing area identity = RAI-1
			Mobile identity = IMSI
5	->	ATTACH COMPLETE	
			The following messages are sent and shall be
6	SS		received on cell B. The SS deactivates cell A and activates cell B.
7	UE		Cell B is preferred by the UE.
8	->	ROUTING AREA	Update type = 'Combined RA/LA updating'
		UPDATINGUPDATE REQUEST	P-TMSI-2 signature
			Routing area identity = RAI-1
			TMSI status = no valid TMSI available
9	SS		No response id given from the SS.
			The following messages are sent and shall be
10	SS		received on cell C. Activate cell C with a lower signal strength than
10	33		cell B.
11	UE		The RF level of cell B is lowered, and the RF
			level of cell C is increased, until cell C is
4.0		DOLUTING AREA	preferred by the UE.
12	->	ROUTING AREA UPDATINGUPDATE REQUEST	Update type = 'Combined RA/LA updating' P-TMSI-2 signature
		OF DATING OF DATE REQUEST	Routing area identity = RAI-1
			TMSI status = no valid TMSI available
13	<-	ROUTING AREA	Update result = 'Combined RA/LA updated'
		UPDATINGUPDATE ACCEPT	Mobile identity = P-TMSI-1
			P-TMSI-1 signature
			Mobile identity = IMSI
4.4	_	DOLITING ADEA	Routing area identity = RAI-5
14	->	ROUTING AREA <u>UPDATINGUPDATE</u> COMPLETE	
15	UE	OF DATING OF DATE CONFLETE	The UE is switched off or power is removed
			(see ICS).
16	->	DETACH REQUEST	Message not sent if power is removed.
			Detach type = 'power switched off, combined
			PS/IMSI detach'

Specific message contents

None.

12.4.2.8.5 Test requirements

UE shall:

- initiate a combined PS attach procedure with the information elements specified in the above Expected Sequence when UE is powered up or switched on.

After completing the PS attach procedure, UE shall:

- initiate the routing area update procedure.

When change of cell into new routing area is performed before the routing area updating procedure is finished, UE shall:

- abort the routing area updating procedure.
- re-initiate new routing area updating procedure in the new routing area.

12.4.2.9 Combined routing area updating / abnormal cases / change of cell during routing area updating procedure

12.4.2.9.1 Definition

12.4.2.9.2 Conformance requirement

When a change of cell within new routing area is performed before the routing area updating procedure is finished, the UE shall perform the cell update before the routing area updating procedure is finished.

Reference

3GPP TS 24.008 clause 4.7.5.2.

12.4.2.9.3 Test purpose

To test the behaviour of the UE in case of procedure collision.

12.4.2.9.4 Method of test

Initial condition

System Simulator:

Three cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4), cell C in MCC1/MNC1/LAC1/RAC2 (RAI-4).

All three cells are operating in network operation mode I.

User Equipment:

The UE has a valid IMSI. UE is Idle Updated on cell A.

Related ICS/IXIT statements

Support of PS service Yes/No UE operation mode A Yes/No Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE initiates a routing area updating procedure. The ROUTING AREA UPDATE ACCEPT message is delayed from the SS. The UE performs a cell update within the routing area. The UE then waits for the ROUTING AREA UPDATE ACCEPT message.

Step	Direction	Message	Comments
	UE SS		
	SS		The following messages are sent and shall be received on cell A.
1	SS		The SS activates cell A.
2	UE		The UE is powered up or switched on and
			initiates an attach (see ICS.
3	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach'
			Mobile identity =IMSI TMSI status = no valid TMSI available
4	<-	ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached'
	,	7.1.7.6.1.7.6.6.2.	Mobile identity = P-TMSI-2
			P-TMSI-2 signature
			Routing area identity = RAI-1
5	->	ATTACH COMPLETE	Mobile identity = IMSI
	-/	ATTACIT COMIT LETE	The following messages are sent and shall be
			received on cell B.
6	SS		The SS deactivates cell A and activates cell B.
7 8	UE	ROUTING AREA	Cell B is preferred by the UE.
0	->	UPDATING UPDATE REQUEST	Update type = 'Combined RA/LA updating' P-TMSI-2 signature
		or brainio <u>or braini</u> ne que e	Routing area identity = RAI-1
			TMSI status = no valid TMSI available
9	SS		No response id given from the SS.
			The following messages are sent and shall be received on cell C.
10	SS		Activate cell C with a lower signal strength than
			cell B.
11	UE		The RF level of cell B is lowered until cell C is
10-	_	CELL LIDDATE	preferred by the UE.
12a 12b	-> <-	CELL UPDATE CELL UPDATE CONFIRM	Cell update cause = 'cell reselection'
13	<-	ROUTING AREA	Update result = 'Combined RA/LA updated'
		UPDATING UPDATE ACCEPT	Mobile identity = P-TMSI-1
			P-TMSI-1 signature
			Mobile identity = IMSI Routing area identity = RAI-4
14	->	ROUTING AREA	Trouting area lucinity – ITAI-4
	•	UPDATINGUPDATE COMPLETE	
15	UE		The UE is switched off or power is removed
16		DETACH DECHEST	(see ICS).
16	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined
			PS/IMSI detach'

Specific message contents

None.

12.4.2.9.5 Test requirements

UE shall:

- initiate a combined PS attach procedure with the information elements specified in the above Expected Sequence when UE is powered up or switched on.

After completing the PS attach procedure, UE shall:

- initiate routing area update procedure.

When a change of cell within a new routing area is performed before the routing area updating procedure is finished, UE shall:

- perform the cell update.

12.4.2.10 Combined routing area updating / abnormal cases / PS detach procedure collision

12.4.2.10.1 Definition

12.4.2.10.2 Conformance requirement

- 1) When a detach request is received with cause 'PS detach' or 'combined PS/IMSI detach' by the UE while waiting for a ROUTING AREA UPDATE ACCEPT message, the UE shall terminate the routing area updating procedure and continue with the PS detach procedure.
- 2) When a detach request is received with cause 'IMSI detach' by the UE while waiting for a ROUTING AREA UPDATE ACCEPT message, the UE shall ignore the detach request and continue with the routing area updating procedure.

Reference

3GPP TS 24.008 clause 4.7.5.2.

12.4.2.10.3 Test purpose

To test the behaviour of the UE in case of procedure collision.

12.4.2.10.4 Method of test

12.4.2.10.4.1 Test procedure1

Initial condition

System Simulator:

Two cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4). Both cells are operating in network operation mode I.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No UE operation mode A Yes/No Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE initiates a routing area updating procedure. The SS does not answer the routing area updating procedure, but initiates a PS detach procedure with cause 'PS detach' or 'combined PS/IMSI detach'. The UE shall terminate the routing area updating procedure and continue with the PS detach procedure.

Step	Direction	Message	Comments
	UE SS		
	SS		The following messages are sent and shall be
			received on cell A.
1	SS		The SS activates cell A.
2	UE		The UE is powered up or switched on and
			initiates an attach (see ICS.
3	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach'
			Mobile identity =IMSI
			TMSI status = no valid TMSI available
4	<-	ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached'
			Mobile identity = P-TMSI-2
			P-TMSI-2 signature
			Routing area identity = RAI-1
_		ATTA OLI OOMBI ETE	Mobile identity = IMSI
5	->	ATTACH COMPLETE	
			The following messages are sent and shall be
	00		received on cell B.
6	SS		The SS deactivates cell A and activates cell B.
7	UE	DOLITING AREA	Cell B is preferred by the UE.
8	->	ROUTING AREA	Update type = 'Combined RA/LA updating'
		UPDATING UPDATE REQUEST	P-TMSI-2 signature
			Routing area identity = RAI-1
	00		TMSI status = no valid TMSI available
9	SS		The SS ignores the ROUTING AREA
			UPDATINGUPDATE REQUEST message and
10	<-	DETACH REQUEST	initiates a detach procedure. Detach type = 're-attach not required'
11	->	DETACH ACCEPT	Detaon type = 16-attaon not required

Specific message contents

None.

12.4.2.10.4.2 Test procedure2

Initial condition

System Simulator:

 $Two \ cells, cell \ A \ in \ MCC1/MNC1/LAC1/RAC1 \ (RAI-1), cell \ B \ in \ MCC1/MNC1/LAC1/RAC2 \ (RAI-4).$ Both cells are operating in network operation mode I.

User Equipment:

The UE has a valid P-TMSI, P-TMSI signature and RAI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE initiates a routing area updating procedure. The SS does not answer the routing area updating procedure, but initiates a PS detach procedure with cause 'IMSI detach'. The UE shall ignore the detach procedure and continue with the routing area updating procedure.

Step	Direction	Message	Comments
	UE SS	<u> </u>	
1 2	SS SS UE		The following messages are sent and shall be received on cell A. The SS activates cell A. The UE is powered up or switched on and
3	->	ATTACH REQUEST	initiates an attach (see ICS. Attach type = 'Combined PS / IMSI attach' Mobile identity =IMSI
4	<-	ATTACH ACCEPT	TMSI status = no valid TMSI available Attach result = 'Combined PS / IMSI attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-1
5	->	ATTACH COMPLETE	Mobile identity = IMSI
6 7 8	SS UE ->	ROUTING AREA <u>UPDATINGUPDATE</u> REQUEST	The following messages are sent and shall be received on cell B. The SS deactivates cell A and activates cell B. Cell B is preferred by the UE. Update type = 'Combined RA/LA updating' P-TMSI-2 signature Routing area identity = RAI-1 TMSI status = no valid TMSI available
10	SS <- UE	DETACH REQUEST	The SS ignores the ROUTING AREA UPDATINGUPDATE REQUEST message and initiates a detach procedure. Detach type = 'IMSI detach' The UE ignores the DETACH REQUEST
12	<- <-	ROUTING AREA <u>UPDATINGUPDATE</u> ACCEPT	message and continue the routing area updating procedure. Update result = 'Combined RA/LA updated' Mobile identity = P-TMSI-1 P-TMSI-1 signature Mobile identity = IMSI
13	->	ROUTING AREA UPDATINGUPDATE COMPLETE	Routing area identity = RAI-4
14	UE	o. Dittito <u>or Bitte</u> oomi EETE	The UE is switched off or power is removed
15	->	DETACH REQUEST	(see ICS). Message not sent if power is removed. Detach type = 'power switched off, combined PS/IMSI detach'

Specific message contents

None.

12.4.2.10.5 Test requirements

UE shall:

- initiate a combined PS attach procedure with the information elements specified in the above Expected Sequence when UE is powered up or switched on.

After completing the PS attach procedure, UE shall:

- initiate routing area update procedure.
- perform the follow actions depending on the conditions described below.

Case 1) UE receives a DETACH REQUEST message with cause 'PS detach' or 'combined PS/IMSI detach' from SS while waiting for a ROUTING AREA UPDATE ACCEPT message, UE shall:

- terminate the routing area updating procedure
- continue with the PS detach procedure.

Case 2) UE receives a DETACH REQUEST message with cause 'IMSI detach' from SS while waiting for a ROUTING AREA UPDATING ACCEPT message, UE shall:

- ignore the detach request.
- continue with the routing area updating procedure.

12.4.3 Periodic routing area updating

12.4.3.1 Periodic routing area updating / accepted

12.4.3.1.1 Definition

12.4.3.1.2 Conformance requirement

The User Equipment shall perform a periodic routing area update procedure after a T3312 timeout.

Reference

3GPP TS 24.008 clauses 4.7.2.2 and 4.7.5.1.

12.4.3.1.3 Test purpose

To test the behaviour of the UE with respect to the periodic routing area updating procedure.

12.4.3.1.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II (in case of UE operation mode A).

User Equipment:

The UE has a valid P-TMSI-1, P-TMSI-1 signature and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No
USIM removal possible without powering down Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE initiates a PS attach procedure with identity P-TMSI. The SS reallocates the P-TMSI and returns ATTACH ACCEPT message with a new P-TMSI and timer T3312. The UE acknowledge the new P-TMSI by sending ATTACH COMPLETE message. A routing area updating procedure is performed at T3312 timeout.

T3312; set to 6 minutes.

Step	Direction	Message	Comments
	UE SS		
1	SS		The UE is set in UE operation mode C (see
			ICS). If UE operation mode C not supported,
			goto step 11.
2	UE		The UE is powered up or switched on and
			initiates an attach (see ICS).
3	->	ATTACH REQUEST	Attach type = 'PS attach'
			Mobile identity = P-TMSI-1
			P-TMSI-1 signature
			Routing area identity = RAI-1
4	<-	ATTACH ACCEPT	Attach result = 'PS only attached'
			Mobile identity = P-TMSI-2
			P-TMSI-2 signature
			Routing area identity = RAI-1
_		ATTA OLI OOMBI ETE	T3312 = 6 minutes
5	->	ATTACH COMPLETE	11. 1
6	->	ROUTING AREA	Update type = 'Periodic updating'
		UPDATING UPDATE REQUEST	P-TMSI-2 signature Routing area identity = RAI-1
7	SS		The SS verifies that the time between the
/	33		
8	_	ROUTING AREA	attach and the periodic RA updating is T3312 No new mobile identity assigned.
0	<-	UPDATING AREA UPDATINGUPDATE ACCEPT	P-TMSI not included.
		OF BATHAGOT BATE ACCEL T	Update result = 'RA updated'
			P-TMSI-3 signature
			Routing area identity = RAI-1
9	UE		The UE is switched off or power is removed
			(see ICS).
10	->	DETACH REQUEST	Message not sent if power is removed.
	-		Detach type = 'power switched off, PS detach'
11			The SS is set in network operation mode II.
12	UE		The UE is set in UE operation mode A(see
			ICS) and the test is repeated from step 3 to
			step 10.

Specific message contents

None.

12.4.3.1.5 Test requirements

UE shall:

- initiate a PS attach procedure with the information elements specified in the above Expected Sequence when UE is powered up or switched on.
- set and start the timer T3312 when the ATTACH ACCEPT message and ROUTING AREA UPDATING
 ACCEPT message from SS. The value of the timer T3312 is sent by SS to UE in ATTACH ACCEPT message
 and ROUTING AREA UPDATING ACCEPT message.
- initiate a routing area updating procedure with Update type = 'Periodic updating' when the timer T3312 is expired.

12.4.3.2 Periodic routing area updating / accepted / T3312 default value

12.4.3.2.1 Definition

12.4.3.2.2 Conformance requirement

The User Equipment shall perform a periodic routing area update procedure after a T3312 timeout.

Reference

3GPP TS 24.008 clauses 4.7.2.2 and 4.7.5.2.

12.4.3.2.3 Test purpose

To test the behaviour of the UE with respect to the periodic routing area updating procedure.

12.4.3.2.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode I.

User Equipment:

The UE has a valid P-TMSI-1, P-TMSI-1 signature and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE initiates a combined PS attach procedure. The SS reallocates the P-TMSI and returns ATTACH ACCEPT message with a new P-TMSI and timer T3312 is omitted. The UE acknowledge the new P-TMSI by sending ATTACH COMPLETE message. After 54 minutes, a periodic routing area updating procedure is initiated by the UE.

T3312; default value 54 minutes.

Step	Direction	Message	Comments
	UE SS		
1	UE		The UE is powered up or switched on and initiates an attach (see ICS).
2	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity = P-TMSI-1
			P-TMSI-1 signature Routing area identity = RAI-1
3	<-	ATTACH ACCEPT	Attach result = 'Combined PS /IMSI attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature
			Mobile identity = TMSI-1 Routing area identity = RAI-1
			T3312 = 54 min
4	->	ATTACH COMPLETE	
5	->	ROUTING AREA	Update type = 'Periodic updating'
		UPDATINGUPDATE REQUEST	P-TMSI-2 signature Routing area identity = RAI-1
			TMSI status = valid TMSI available
6	SS		The SS verifies that the time between the
			attach request and the periodic RA updating is T3312
7	<-	ROUTING AREA	No new mobile identity assigned.
		UPDATING UPDATE ACCEPT	P-TMSI and TMSI not included.
			Update result = 'RAupdated' P-TMSI-3 signature
			Routing area identity = RAI-1
8	UE		The UE is switched off or power is removed
			(see ICS).
9	->	DETACH REQUEST	Message not sent if power is removed.
			Detach type = 'power switched off, combined PS/IMSI detach'

Specific message contents

None.

12.4.3.2.5 Test requirements

UE shall:

- initiate a PS attach procedure with the information elements specified in the above Expected Sequence when UE is powered up or switched on.
- set and start the timer T3312 when the ATTACH ACCEPT message and ROUTING AREA UPDATING ACCEPT message from SS.
- initiate a routing area updating procedure with Update type = 'Periodic updating' when the timer T3312 is expired.

12.4.3.3 Periodic routing area updating / no cell available / network mode I

12.4.3.3.1 Definition

12.4.3.3.2 Conformance requirement

If the UE is both IMSI attached for PS and non-PS services, and if the UE lost coverage of the registered PLMN and timer T3312 expires; if the UE returns to coverage in a cell that supports PS and the network is in network operation mode I, then the UE shall perform a combined routing area update procedure.

Reference

3GPP TS 24.008 clauses 4.7.2.2 and 4.7.5.1.

12.4.3.3.3 Test purpose

To test the behaviour of the UE with respect to the periodic routing area updating procedure.

12.4.3.3.4 Method of test

Initial condition

System Simulator:

Two cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4). Cell A is operating in network operation mode II and cell B is in network operation mode I.

User Equipment:

The UE has a valid P-TMSI-1, P-TMSI-1 signature and RAI-1.

Idle updated on Cell A

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE initiates a PS attach procedure. The SS reallocates the P-TMSI and returns ATTACH ACCEPT message with a new P-TMSI and timer T3312. The UE acknowledge the new P-TMSI by sending ATTACH COMPLETE message. PS radio contact is distorted before T3312 timeout. PS radio contact is established again (after T3312 timeout), and a routing area updating procedure is performed immediately.

T3312; set to 6 minutes.

Step	Direction	Message	Comments
Step	UE SS	iwessage	Comments
	SS		The following messages are sent and shall be
			received on cell A.
1	SS		The SS activates cell A.
2	SS		The UE is set in UE operation mode A (see
			ICS).
3	UE		The UE is powered up or switched on and
			initiates an attach (see ICS).
4	->	ATTACH REQUEST	Attach type = 'PS attach'
			Mobile identity = P-TMSI-1
			P-TMSI-1 signature
_		ATTACILACOEDT	Routing area identity = RAI-1
5	<-	ATTACH ACCEPT	Attach result = 'PS only attached'
			Mobile identity = P-TMSI-2 P-TMSI-2 signature
			Routing area identity = RAI-1
			T3312 = 6 minutes
6	->	ATTACH COMPLETE	13312 = 0 minutes
7	SS	ATTACITCOMITEETE	After 5 minutes, the signal strength is lowered
'	00		until the UE have lost contact with the SS.
8	SS		Wait 2 minutes.
			The following messages are sent and shall be
			received on cell B.
9	SS		The SS deactivates cell A and activates cell B.
10	UE		Cell B is preferred by the UE.
11	UE		The UE immediately start a combined RA
			updating procedure
12	->	ROUTING AREA	Update type = 'Combined RA/LA updating with
		UPDATING UPDATE REQUEST	IMSI attach'
			P-TMSI-2 signature
			Routing area identity = RAI-1
40	_	DOLITING ADEA	TMSI status = valid TMSI available
13	<-	ROUTING AREA UPDATINGUPDATE ACCEPT	Update result = 'Combined RA/LA updated' Mobile identity = P-TMSI-3
		OFDATING OFDATE ACCEPT	P-TMSI-3 signature
			Mobile identity = TMSI-2
			Routing area identity = RAI-4
14	->	ROUTING AREA UPDATE	Trouting area monthly = 10 ti 4
''		COMPLETE	
15	UE		The UE is switched off or power is removed
			(see ICS).
16	->	DETACH REQUEST	Message not sent if power is removed.
			Detach type = 'power switched off, combined
			PS / IMSI detach'

Specific message contents

None.

12.4.3.3.5 Test requirements

UE shall:

- initiate a PS attach procedure with the information elements specified in the above Expected Sequence when UE is powered up or switched on.

When the UE is both IMSI attached for PS and non-PS service, and if the UE lost coverage of the reiterated PLMN and the timer T3312 expires, if the UE returns to coverage in a cell that supports PS and the network is in network oration mode I, UE shall:

- perform the combined routing area update procedure indicating "combined RA/LA updating with IMSI attach".

12.4.3.4 Combined periodic routing area updating / no cell available

12.4.3.4.1 Definition

12.4.3.4.2 Conformance requirement

If the UE is both IMSI attached for PS and non-PS services, and if the UE lost coverage of the registered PLMN and timer T3312 expires; if the UE returns to coverage in a cell that supports PS and the network is in network operation mode II, then the UE shall perform a periodic routing area update procedure and a periodic location update procedure.

Reference

3GPP TS 24.008 clauses 4.7.2.2 and 4.7.5.2.

12.4.3.4.3 Test purpose

To test the behaviour of the UE with respect to the periodic routing area updating procedure.

12.4.3.4.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.

User Equipment:

The UE has a valid P-TMSI-1, P-TMSI-1 signature and RAI-1.

Idle updated on Cell A

Related ICS/IXIT statements

Support of PS service Yes/No UE operation mode A Yes/No Switch off on button Yes/No Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE initiates a PS attach procedure. The SS reallocates the P-TMSI and returns ATTACH ACCEPT message with a new P-TMSI and timer T3312. The UE acknowledge the new P-TMSI by sending ATTACH COMPLETE message. PS radio contact is distorted before T3312 timeout. PS radio contact is established again (after T3312 timeout), and a periodic routing area updating procedure and a periodic location update procedure is performed immediately.

T3312; set to 6 minutes.

Step	Direction	Message	Comments
	UE SS		
1	UE		The UE is powered up or switched on and
			initiates an attach (see ICS).
2	->	ATTACH REQUEST	Attach type = 'PS attach'
			Mobile identity = P-TMSI-1
			P-TMSI-1 signature
			Routing area identity = RAI-1
3	<-	ATTACH ACCEPT	Attach result = 'PS only attached'
			Mobile identity = P-TMSI-2
			P-TMSI-2 signature
			Routing area identity = RAI-1
			T3312 = 6 minutes
4	->	ATTACH COMPLETE	
5-12		(void)	
13	SS		After 5 minutes, the signal strength is lowered
	00		until the UE have lost contact with the SS.
14	SS		After 2 minutes, the signal strength is increased
45			until the UE have got contact with the SS.
15	UE		The UE immediately start the periodic RA
40		DOLITING ADEA	updating procedure
16	->	ROUTING AREA	Update type = 'Periodic updating'
		UPDATING UPDATE REQUEST	P-TMSI-2 signature
17	_	ROUTING AREA	Routing area identity = RAI-1 No new mobile identity assigned.
17	<-	UPDATING UPDATE ACCEPT	P-TMSI not included.
		OF DATING OF DATE ACCEPT	Update result = 'RAupdated'
			P-TMSI-3 signature
			Routing area identity = RAI-1
18	->	RRC CONNECTION REQUEST	Trouting area identity = Train
19	<-	RRC CONNECTION SETUP	
20	->	RRC CONNECTION SETUP	
		COMPLETE	
21	->	LOCATION UPDATING REQ	Location updating type = Periodic LA updating.
22	<-	LOCATION UPDATING ACC	1 2 3 37 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
23	<-	RRC CONNECTION RELEASE	After sending of this message, the SS waits for
			disconnection of the CS signalling link.
24	->	RRC CONNECTION RELEASE	
		COMPLETE	
25	UE		The UE is switched off or power is removed
			(see ICS).
26	->	DETACH REQUEST	Message not sent if power is removed.
			Detach type = 'power switched off, PS detach'

Specific message contents

None.

12.4.3.4.5 Test requirements

UE shall:

- initiate a combined PS attach procedure with the information elements specified in the above Expected Sequence when UE is powered up or switched on.

When the UE is both IMSI attached for PS and non-PS service, and if the UE lost coverage of the reiterated PLMN and the timer T3312 expires, if the UE returns to coverage in a cell in the same RA that supports PS and that indicates that the network is in network operation mode II, UE shall:

- perform the periodic routing area updating procedure indicating "Periodic updating".
- perform the periodic location updating procedure.

12.5 P-TMSI reallocation

12.5.1 Definition

12.5.2 Conformance requirement

- 1) A User Equipment shall acknowledge a new P-TMSI when explicitly allocated.
- 2) The P-TMSI shall be updated on the USIM when the User Equipment is correctly deactivated in accordance with the manufacturer's instructions.
- 3) A User Equipment shall use the given P-TMSI in further communication with the network.

Reference

3GPP TS 24.008 clause 4.7.6.

12.5.3 Test purpose

To verify that the UE is able to receive and acknowledge a new P-TMSI by means of an explicit P-TMSI reallocation procedure.

To verify that the UE has stored the P-TMSI in a non-volatile memory.

The implicit reallocation procedure is tested in the attach procedure.

12.5.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
UE operation mode C Yes/No (only if mode A not supported)
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

An explicit P-TMSI reallocation procedure is performed (P-TMSI reallocation command sent from the SS and acknowledged from the UE by P-TMSI reallocation complete). The UE is PS detached and switched off. Its power supply is interrupted for 10 seconds. The power supply is resumed and then the UE is switched on. A PS attach procedure is performed with the given P-TMSI as identity.

Step	Direction	Message	Comments
	UE SS		
1	UE		The UE is set in UE operation mode A (see ICS). If UE operation mode A not supported set the UE in operation mode C.
2	UE		The UE is powered up or switched on and initiates an attach (see ICS).
3	->	ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = IMSI
4	<-	ATTACH ACCEPT	Attach result = 'PS only attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature
5	->	ATTACH COMPLETE	Routing area identity = RAI-1
6	<-	P-TMSI REALLOCATION COMMAND	Mobile identity = P-TMSI-2 P-TMSI-2 signature
7	->	P-TMSI REALLOCATION COMPLETE	Routing area identity = RAI-1
8	UE	COMPLETE	The UE is switched off or power is removed (see ICS).
9	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'
10	UE		Ensure the power is removed from the UE for at least 10 seconds
11	UE		The UE is powered up or switched on and initiates an attach (see ICS).
12	->	ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-2
13	<-	ATTACH ACCEPT	P-TMSI-2 signature Routing area identity = RAI-1 No new mobile identity assigned. P-TMSI not included. Attach result = 'PS only attached' P-TMSI-3 signature Routing area identity = RAI-1
14	<-	PAGING TYPE1	Mobile identity = P-TMSI-2 Paging order is for PS services.
15	->	RRC CONNECTION REQUEST	aging order is for the services.
16	<-	RRC CONNECTION SETUP	
17	->	RRC CONNECTION SETUP	
18	->	SERVICE REQUEST	service type = "paging response"
19 20	<- ->	RRC CONNECTION RELEASE RRC CONNECTION RELEASE COMPLETE	
21	UE		The UE is switched off or power is removed (see ICS).
22	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'

Specific message contents

None.

12.5.5 Test requirements

UE shall:

- initiate a PS attach procedure with the information elements specified in the above Expected Sequence when UE is powered up or switched on.

After completing the PS attach procedure, and when UE receive of the P-TMSI REALLOCATION COMMAND message, UE shall:

- store the allocated Routing Area Identifier(RAI) and the allocated P-TMSI.
- acknowledge a new P-TMSI.
- send the P-TMSI and a P-TMSI REALLOCATION COMPLETE message to SS.
- update P-TMSI on the USIM when UE is correctly deactivated in accordance with the manufacturer's instructions.
- use the given P-TMSI in further communication with SS.

12.6 PS authentication and ciphering

12.6.1 Test of authentication

The purpose of this procedure is to verify the user identity. A correct response is essential to guarantee the establishment of the connection. If not, the connection will drop.

12.6.1.1 Authentication accepted

12.6.1.1.1 Definition

12.6.1.1.2 Conformance requirement

A User Equipment shall correctly respond in an authentication and ciphering procedure by sending a response with the RES information field set to the same value as the one produced by the authentication and ciphering algorithm in the network.

Reference

3GPP TS 24.008 clause 4.7.7.

12.6.1.1.3 Test purpose

To test the behaviour of the UE if the network accepts the authentication and ciphering procedure.

12.6.1.1.4 Method of test

Initial condition

System Simulator:

 $Two\ cells\ (not\ simultaneously\ activated),\ cell\ A\ in\ MCC1/MNC1/LAC1/RAC1\ (RAI-1),\ cell\ B\ in\ MCC1/MNC1/LAC1/RAC2\ (RAI-4).$

Both cells are operating in network operation mode II.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
UE operation mode C Yes/No
Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

A PS attach is performed, and the SS initiates an authentication and ciphering procedure.

The SS checks the value RES sent by the UE in the AUTHENTICATION AND CIPHERING RESPONSE message.

The UE initiates a routing area updating procedure and the SS checks the value of the PS Ciphering Key Sequence Number sent by the UE in the ROUTING AREA REQUEST message.

Expected Sequence

Step	Direction	Message	Comments
	UE SS		
			The following messages are sent and shall be
			received on cell A.
1	SS		The SS activates cell A.
2	UE		The UE is set in UE operation mode C (see
			ICS). If UE operation mode C not supported,
			goto step 17.
3	UE		The UE is powered up or switched on and
			initiates an attach (see ICS).
4	->	ATTACH REQUEST	Attach type = 'PS attach'
_			Mobile identity = IMSI
5	<-	AUTHENTICATION AND	Request authentication.
		CIPHERING REQUEST	Set PS-CKSN-1
6	->	AUTHENTICATION AND	RES
_	00	CIPHERING RESPONSE	The OO sheets the DEC
7	SS	ATTACILACOERT	The SS checks the RES value.
8	<-	ATTACH ACCEPT	Attach result = 'PS only attached'
			Mobile identity = P-TMSI-2
			P-TMSI-2 signature
9		ATTACH COMPLETE	Routing area identity = RAI-1
9	->	ATTACITCOMFLETE	The following messages are sent and shall be
			received on cell B.
10	SS		Activate cell B with a lower signal strength than
			cell A The RF level of cell A is lowered until cell
			B is preferred by the UE.
11	->	ROUTING AREA	Update type = 'RA updating'
		UPDATINGUPDATE REQUEST	P-TMSI-2 signature
			Routing area identity = RAI-1
			PS-CKSN-1
12	SS		The value of PS-CKSN is checked
13	<-	ROUTING AREA	Update result = 'RA updated'
		UPDATING UPDATE ACCEPT	Mobile identity = P-TMSI-1
			P-TMSI-1 signature
			Routing area identity = RAI-4
14	->	ROUTING AREA	
		UPDATINGUPDATE COMPLETE	
15	UE		The UE is switched off or power is removed
1			(see ICS).
16	->	DETACH REQUEST	Message not sent if power is removed.
47	00		Detach type = 'power switched off, PS detach'
17	SS		Reset the RF level of cell A to default state.
40			Deactivate cell B.
18	UE		The UE is set in UE operation mode A (see
			ICS) and the test is repeated from step 3 to
			step 16.

Specific message contents

None.

12.6.1.1.5 Test requirements

UE shall:

- initiate a PS attach procedure with information elements specified in the above Expected Sequence when UE is powered on or switched on.

When the UE receives the AUTHENTICATION AND CIPHERING REQUEST message form SS, UE shall:

- send the AUTHENTICATION AND CIPHERING RESPONSE message with the RES information field set to the same value as the one produced by the authentication and ciphering algorithm in the network.

12.6.1.2 Authentication rejected by the network

12.6.1.2.1 Definition

12.6.1.2.2 Conformance requirement

- 1) After reception of an Authentication Reject message the UE shall:
 - 1.1 not perform normal routing area updating
 - 1.2 not perform periodic routing area updating
 - 1.3 not perform PS detach if switched off
- 2) The UE shall delete the stored RAI, PS-CKSN P-TMSI and P-TMSI signature. USIM shall be considered invalid until power is switched off or USIM is removed.

Reference

3GPP TS 24.008 clauses 4.7.7.

12.6.1.2.3 Test purpose

To test the behaviour of the UE if the network rejects the authentication and ciphering procedure.

12.6.1.2.4 Method of test

Initial condition

System Simulator:

 $Two \ cells \ (not \ simultaneously \ activated), \ cell \ A \ in \ MCC1/MNC1/LAC1/RAC1 \ (RAI-1), \ cell \ B \ in \ MCC1/MNC1/LAC1/RAC2 \ (RAI-4).$

Both cells are operating in network operation mode II.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
UE operation mode C Yes/No
Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

A PS attach is performed, and the SS rejects the authentication and ciphering procedure.

The SS checks that the UE does not perform normal routing area updating, does not perform periodic routing area updating and does not perform PS detach if switched off.

T3312; set to 10 minutes.

Expected Sequence

Step	Direction	Message	Comments
	UE SS		
1 2	SS UE		The following messages are sent and shall be received on cell A. The SS activates cell A. The UE is set in UE operation mode C (see ICS). If UE operation mode C not supported,
3	UE		goto step 14. The UE is powered up or switched on and initiates an attach (see ICS).
4	->	ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = IMSI
5	<-	AUTHENTICATION AND CIPHERING REQUEST	Request authentication. Set PS-CKSN-1
6	->	AUTHENTICATION AND CIPHERING RESPONSE	RES
7	<-	AUTHENTICATION AND CIPHERING REJECT	
8	<-	PAGING TYPE1	Mobile identity = IMSI Paging order is for PS services.
9	UE		No response from the UE to the request. This is checked for 10 seconds.
10	SS		The following messages are sent and shall be received on cell B. Activate cell B with a lower signal strength than cell A The RF level of cell A is lowered until cell B is preferred by the UE.
11	UE		No ROUTING AREA UPDATING UPDATE REQUEST sent to the SS (SS waits 30 seconds).
12	UE		No periodic ROUTING AREA <u>UPDATINGUPDATE</u> REQUEST sent to the SS (SS waits T3310.
13	UE		The UE is switched off (see ICS).
14	SS		No DETACH REQUEST sent to the SS (SS waits 30 seconds).
15	UE		The UE is set in UE operation mode A (see ICS) and the test is repeated from step 1 to step 13.

Specific message contents

None.

12.6.1.2.5 Test requirements

UE shall:

- initiate a PS attach procedure with information elements specified in the above Expected Sequence when UE is powered on or switched on.

After UE receives the AUTHENTICATION AND CIPHERING REJECT message, UE shall:

- not perform normal routing area updating when the RF level of the attached cell is lower than the RF level of the new cell.
- not perform a periodic routing area updating when the timer T3312 expires.

- not perform PS detach when UE is switched off.
- delete the stored RAI, PS-CKSN, P-TMSI and P-TMSI signature.
- consider the USIM as invalid until power is switched off or USIM is removed.

12.6.1.3 Authentication rejected by the UE

12.6.1.3.1 GMM cause 'MAC failure'

12.6.1.3.1.1 Definition

12.6.1.3.1.2 Conformance requirement

If the UE considers the MAC code (supplied by the core network in the AUTN parameter) to be invalid, the UE shall send AUTHENTICATION AND CIPHERING FAILURE message with the reject cause 'MAC failure' to the System Simulator.

Reference

3GPP TS 24.008 clause 4.7.7.

12.6.1.3.1.3 Test purpose

To test the behaviors of the UE, when the UE considers the MAC code (supplied by the core network in the AUTN parameter) to be invalid.

12.6.1.3.1.4 Method of test

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4).

Both cells are operating in network operation mode II.

The MAC (Message Authentication Code) code, which is included in AUTHENTICATION AND CIPHERING REQUEST, is invalid value.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A
UE operation mode C
Switch off on button
Yes/No
Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

A PS attach is performed, and the SS initiates an authentication and ciphering procedure.

The UE sends AUTHENTICATION AND CIPHERING FAILURE message with reject cause 'MAC failure' to the SS and starts timer T3214.

The SS initiates an identification procedure, upon receipt of a failure message with reject cause 'MAC failure'.

After the identification procedure is complete, the SS re-initiates an authentication and ciphering procedure.

T3360; set to 6 seconds.

T3318; set to 5 seconds.

Expected Sequence

Ston	Direction	Mossaga	Comments
Step	Direction UE SS	Message	Comments
1 2	SS UE		The following messages are sent and shall be received on cell A. The SS activates cell A. The UE is set in UE operation mode C (see ICS). If UE operation mode C is not supported,
3 4	UE		goto step 25. The following messages are sent and shall be
5	UE		received on cell A. The UE is powered up or switched on and initiates an attach (see ICS).
6	->	ATTACH REQUEST	Attach type = 'PS attach' Mobility identity = IMSI
7	<-	AUTHENTICATION AND CIPHERING REQUEST	Request authentication. Invalid Message Authentication Code (MAC).
9	->	AUTHENTICATION AND CIPHERING FAILURE	GMM cause='MAC failure'
10 11	<- -> SS	IDENTITY REQUEST IDENTITY RESPONSE	Identity type = IMSI Mobile identity = IMSI
13	<-	AUTHENTICATION AND CIPHERING REQUEST	Request authentication. Including PS-CSKN-1
14	->	AUTHENTICATION AND CIPHERING RESPONSE	RES
15 16	SS <-	ATTACH ACCEPT	The SS checks the RES value. Attach result = 'PS only attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature
17	->	ATTACH COMPLETE	Routing area identity = RAI-1
18 19	SS ->	ROUTING AREA <u>UPDATINGUPDATE</u> REQUEST	The following messages are sent and shall be received on cell B. Cell B is activated and cell A is deactivated. Update type = 'RA updating' P-TMSI-2 signature Routing area identity = RAI-1 PS-CKSN-1
20 21	SS <-	ROUTING AREA <u>UPDATINGUPDATE</u> ACCEPT	The value of PS-CKSN is checked Update result = 'RA updated' Mobile identity = P-TMSI-1 P-TMSI-1 signature
22	->	ROUTING AREA UPDATINGUPDATE COMPLETE	Routing area identity = RAI-2
23	UE	S. SATING SI BATE COM LETE	The UE is switched off or power is removed (see ICS).
24	->	DETACH REQUEST	Message is not sent if power is removed. Detach type = 'power switched off, PS detach'
25	UE		The UE is set in UE operation mode A (see ICS) and the test is repeated from step 1 to step 24.

Specific message contents

None.

12.6.1.3.1.5 Test requirements

UE shall:

- initiate a PS attach procedure with information element specified in the above Expected Sequence when UE is powered on or switched on.
- send an AUTHENTICATION AND CIPHERING FAILURE message with GMM cause 'MAC failure' to the SS
- start timer T3318.

After UE receives the IDENTITY REQUEST message from SS, UE shall:

- send the IDENTITY RESPONSE message to SS

After UE receives the second AUTHENTICATION AND CIPHERING REQUEST message (containing a valid MAC) from SS, UE shall:

- stop timer T3318, if running
- send the AUTHENTICATION AND CIPHERING RESPONSE message to SS

12.6.1.3.2 GMM cause 'Synch failure'

12.6.1.3.2.1 Definition

12.6.1.3.2.2 Conformance requirement

If the UE considers the SQN (supplied by the core network in the AUTN parameter) to be out of range, the UE shall send AUTHENTICATION AND CIPHERING FAILURE message with the reject cause 'Synch failure' to the System Simulator.

Reference

3GPP TS 24.008 clause 4.7.7.

12.6.1.3.2.3 Test purpose

To test the behaviors of the UE, when the UE considers the SQN (supplied by the core network in the AUTN parameter) to be out of range.

12.6.1.3.2.4 Method of test

Initial condition

System Simulator:

 $Two\ cells\ (not\ simultaneously\ activated),\ cell\ A\ in\ MCC1/MNC1/LAC1/RAC1\ (RAI-1),\ cell\ B\ in\ MCC1/MNC1/LAC1/RAC2\ (RAI-4).$

Both cells are operating in network operation mode II.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No UE operation mode A UE operation mode C Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

A PS attach is performed, and the SS initiates an authentication and ciphering procedure.

UE sends AUTHENTICATION AND CIPHERING FAILURE message with reject cause 'synch failure' to the SS and starts timer T3214.

SS re-initiates an authentication and ciphering procedure.

T3360; set to 6 seconds.

T3320; set to 15 seconds.

Expected Sequence

Step	Direction	Message	Comments
Otop	UE SS		
1 2	SS UE		The following messages are sent and shall be received on cell A. The SS activates cell A. The UE is set in UE operation mode C (see ICS). If UE operation mode C is not supported, goto step 21. The following messages are sent and shall be
3	UE		received on cell A. The UE is powered up or switched on and
4	->	ATTACH REQUEST	initiates an attach (see ICS). Attach type = 'PS attach' Mobility identity = IMSI
5	<-	AUTHENTICATION AND CIPHERING REQUEST	Request authentication. SQN is out of range.
6	SS		The SS starts the timer T3360
7	->	AUTHENTICATION AND CIPHERING FAILURE	GMM cause = 'Synch failure' AUTS parameter
8	SS		set new authentication vectors. (resynchronisation)
9	<-	AUTHENTICATION AND CIPHERING REQUEST	Request authentication. Including PS-CKSN-1
10	->	AUTHENTICATION AND CIPHERING RESPONSE	RES
11 12 13	SS <-	ATTACH ACCEPT ATTACH COMPLETE	The SS checks the RES value. Attach result = 'PS only attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-1
13	->	ATTACIT COMIT LETE	The following messages are sent and shall be
14	SS		The following messages are sent and shall be received on cell B. Cell B is activated, cell A is deactivated.
15	->	ROUTING AREA <u>UPDATINGUPDATE</u> REQUEST	Update type = 'RA updating' P-TMSI-2 signature Routing area identity = RAI-1 PS-CKSN-1
16 17	SS <-	ROUTING AREA <u>UPDATINGUPDATE</u> ACCEPT	The value of PS-CKSN is checked Update result = 'RA updated' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-2
18	->	ROUTING AREA UPDATINGUPDATE COMPLETE	,
19	UE		The UE is switched off or power is removed (see ICS).
20	^	DETACH REQUEST	Message is not sent if power is removed. Detach type = 'power switched off, PS detach'

Step	Dire	ction	Message	Comments
	UE	SS		
21	U	E		The UE is set in UE operation mode A (see ICS) and the test is repeated from step 1 to step 20.

Specific message contents

None.

12.6.1.3.2.5 Test requirements

UE shall:

- initiate a PS attach procedure with information element specified in the above Expected Sequence when UE is powered on or switched on.
- send AUTHENTICATION AND CIPHERING FAILURE message with GMM cause 'synch failure' to the SS
- start timer T3320.

After UE receives the second AUTHENTICATION AND CIPHERING REQUEST message from SS, UE shall:

- stop timer T3320, if running.
- send AUTHENTICATION AND CIPHERING RESPONSE message to SS.

12.6.1.3.3 Authentication rejected by the UE / fraudulent network

12.6.1.3.3.1 Definition

12.6.1.3.3.2 Conformance requirement

It can be assumed that the source of the authentication challenge is not genuine (authentication not accepted by the UE) if any of the following occur:

- After sending the AUTHENTICATION & CIPHERING FAILURE message with GMM cause 'MAC failure' the timer T3318 expires;
- Upon receipt of the second AUTHENTICATION & CIPHERING REQUEST message from the network while the T3318 is running and the MAC value cannot be resolved.

If the UE deems that the network has failed in the authentication check, then the UE shall treat the cell where the AUTHENTICATION & CIPERHERING REQUEST message was received as barred, until System Information is refreshed.

Reference

3GPP TS 24.008 clause 4.7.7.6.1.

12.6.1.3.3.3 Test purpose

To test UE treating a cell as barred:

- 1. when the network sends the second AUTHENTICATION & CIPHERING REQUEST message with invalid MAC code during the timer T3318 is running.
- 2. when the timer T3318 has expired.

12.6.1.3.3.4 Method of test

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1(RAI-1), cell B in MCC1/MNC1/LAC1/RAC2(RAI-2). Both cells are operating in network operation mode II.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
UE operation mode C Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

Two cells are configured. Cell A transmits with higher power so that the UE attempts an attach procedure to cell A.

During the attach procedure, the SS initiates an authentication and ciphering procedure but it sends an incorrect Message Authentication Code (MAC) value in its AUTHENTICATION AND CIPHERING REQUEST message.

The UE sends AUTHENTICATION AND CIPHERING FAILURE message to the SS indicating authentication failure.

The SS repeats a second time the authentication procedure, which fails again. Next, the UE shall attempt to attach to cell B, which again fails. In this case T3318 expires after the second attempt.

The UE shall treat now both cells as barred and shall not attempt to access the network, even if the user triggers the UE to perform an attach procedure.

Step	Direction	Message	Comments
	UE SS	_	
1	SS		The SS is configures two cells A and B. Cell A transmits with higher power levels, so that the UE selects cell A for attaching. The following messages are sent and shall be
2	UE		received on cell A. The UE is powered up or switched on and
3	->	ATTACH REQUEST	initiates an attach procedure. Attach type = 'PS attach' Mobility identity = IMSI
4	<-	AUTHENTICATION AND CIPHERING REQUEST	Request for authentication. Invalid Message Authentication Code (MAC).
5	->	AUTHENTICATION AND CIPHERING FAILURE	GMM cause='MAC failure'
6	<-	AUTHENTICATION AND CIPHERING REQUEST	Request for authentication. Invalid Message Authentication Code (MAC).
7	->	AUTHENTICATION AND CIPHERING FAILURE	GMM cause='MAC failure'
8	SS	OII FIERING FAILURE	SS verifies that the UE does not attempt to access the network for 30s.
9	SS		The SS deactivates cell A and activates cell B.
10	UE		UE shall attempt an attach on cell B. The following messages are sent and shall be received on cell B. The UE initiates an attach by MMI or AT
11	->	ATTACH REQUEST	command. Attach type = 'PS attach'
12	<-	AUTHENTICATION AND	Mobility identity = IMSI Request for authentication.
13	->	CIPHERING REQUEST AUTHENTICATION AND CIPHERING FAILURE	Invalid Message Authentication Code (MAC). GMM cause='MAC failure'
14	SS		SS waits T3318 (20s)
15	SS		SS verifies that the UE does not attempt to access the network for 30s.
16	UE		The UE initiates an attach by MMI or AT command.
17	SS		SS verifies that the UE does not attempt to access the network for 30s.

Specific message contents

None.

12.6.1.3.3.5 Test requirements

UE shall:

- initiate a PS attach procedure with information elements specified in the above Expected Sequence when UE is powered on or switched on.

After UE receives the AUTHENTICATION AND CIPHERING REQUEST message with invalid Message Authentication Code (MAC), UE shall:

- send an AUTHENTICATION AND CIPHERING FAILURE message with GMM cause 'MAC failure' to the SS.

After UE receives the second AUTHENTICATION AND CIPHERING REQUEST message with invalid Message Authentication Code (MAC) from the network during a timer T3318 is running, UE shall:

- send an AUTHENTICATION AND CIPHERING FAILURE message with GMM cause 'MAC failure' to the SS.

After the activated cell is changed from cell A to cell B, UE shall:

- initiate a PS attach procedure with information elements specified in the above Expected Sequence.

After UE receives the AUTHENTICATION AND CIPHERING REQUEST message with invalid Message Authentication Code (MAC), UE shall:

- send an AUTHENTICATION AND CIPHERING FAILURE message with GMM cause 'MAC failure' to the SS.

After a timer T3318 is expired, UE shall:

- not attempt to access the network.

12.6.2 Void

12.7 Identification procedure

The purpose of this procedure is to check that the UE gives its identity as requested by the network. If this procedure does not work, it will not be possible for the network to rely on the identity claimed by the UE.

12.7.1 General Identification

12.7.1.1 Definition

12.7.1.2 Conformance requirement

- 1) When requested by the network the User Equipment shall send its IMSI.
- 2) When requested by the network the User Equipment shall send its IMEI as stored in the Mobile Equipment.
- 3) When requested by the network the User Equipment shall send its IMEISV as stored in the Mobile Equipment.

Reference

3GPP TS 24.008 clauses 4.7.8

12.7.1.3 Test purpose

To verify that the UE sends identity information as requested by the system. The following identities can be requested: IMSI, IMEI and IMEISV.

12.7.1.4 Method of test

Initial condition

System Simulator:

One cell operating in network mode II.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No UE operation mode A Yes/No UE operation mode C Yes/No Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS requests identity information from the UE:

- IMSI
- IMEI
- IMEISV

Expected Sequence

Step	Direction	Message	Comments
	UE SS		
1	SS		The UE is set in UE operation mode C (see ICS). If UE operation mode C not supported, goto step 14.
2	UE		The UE is powered up or switched on and initiates an attach (see ICS).
3	->	ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = IMSI
4	<-	ATTACH ACCEPT	Attach result = 'PS only attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-1
5	->	ATTACH COMPLETE	Trouting aroa lability = 10 ti 1
6	<-	IDENTITY REQUEST	Identity type = IMSI
7	->	IDENTITY RESPONSE	Mobile identity = IMSI
8	<-	IDENTITY REQUEST	Identity type = IMEI
9	->	IDENTITY RESPONSE	Mobile identity = IMEI
10	<-	IDENTITY REQUEST	Identity type = IMEISV
11	->	IDENTITY RESPONSE	Mobile identity = IMEISV
12	UE		The UE is switched off or power is removed (see ICS).
13	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'
14	UE		The UE is set in UE operation mode A (see ICS) and the test is repeated from step 2 to step 13.

Specific message contents

None.

12.7.1.5 Test requirements

UE shall:

- initiate a PS attach procedure with information elements specified in the above Expected Sequence when UE is powered on or switched on.

When SS requests an IMSI with the IDENTITY REQUEST message, UE shall:

- send the IDENTITY RESPONSE message with the Mobile identity = IMSI.

When SS requests an IMEI with the IDENTITY REQUEST message, UE shall:

- send the IDENTITY RESPONSE message with the Mobile identity = IMEI.

When SS requests an IMEISV with the IDENTITY REQUEST message, UE shall:

- send the IDENTITY RESPONSE message with the Mobile identity = IMEISV.

12.8 GMM READY timer handling

The READY timer is not applicable for UMTS.

12.8.1 Definition

12.8.2 Conformance requirement

If a READY timer value is received by an UE capable of both UMTS and GSM in the ATTACH ACCEPT or the ROUTING AREA UPDATE ACCEPT messages, then the received value shall be stored by the UE in order to be used at an intersystem change from UMTS to GSM.

Reference

3GPP TS 24.008 clause 4.7.2.1

12.8.3 Test purpose

To verify the functionality of the READY timer.

12.8.4 Method of test

12.8.4.1 Test procedure1

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC1 (RAI-1).

Both cells are operating in network operation mode II.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

An attach is performed.

T3314; set to 60 seconds

Step	Direction	Message	Comments
	UE SS	_	
			The following messages are sent and shall be
			received on cell A.
1	SS		The SS activates cell A.
2	UE		The UE is set in UE operation mode A (see
			ICS). If UE operation mode A not supported set
			the UE in operation mode C.
			The UE is powered up or switched on and
			initiates an attach (see ICS).
3	->	ATTACH REQUEST	Attach type = 'PS attach'
			Mobile identity = IMSI
4	<-	ATTACH ACCEPT	Attach result = 'PS only attached'
			Mobile identity = P-TMSI-2
			P-TMSI-2 signature
			Routing area identity = RAI-1
			T3314 = 60 seconds
5	->	ATTACH COMPLETE	
6	UE		The UE is switched off or power is removed
			(see ICS).
7	->	DETACH REQUEST	Message not sent if power is removed.
			Detach type = 'power switched off, PS detach'

Specific message contents

None.

12.8.5 Test requirements

When UE receives the ATTACH ACCEPT or the ROUTING AREA UPDATE ACCEPT messages, UE shall:

- store the received READY timer value.

12.9 Service Request procedure (UMTS Only)

12.9.1 Service Request Initiated by UE Procedure

12.9.1.1 Definition

12.9.1.2 Conformance requirement

UE shall send the Service Request message to the network in order to establish the PS signalling connection for the upper layer signalling or for the resource reservation for active PDP context(s).

Reference

TS 24.008 clauses 4.7.13

TS 23.060 clauses 6.12.1

12.9.1.3 Test purpose

To test the behaviour of the UE if the UE initiates the CM layer service (e.g. SM or SMS) procedure.

12.9.1.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.

User Equipment:

The UE has a valid IMSI

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode A Yes/No UE operation mode C Yes/No

Switch off on button Yes/No

Test procedure

- a) The UE in PMM-IDLE state sends a SERVICE REQUEST message to the SS in order to establish the PS signalling connection for the upper layer signalling.
- b) After the SS receives the SERVICE REQUEST message, the SS performs authentication procedure.

Expected Sequence

Step	Direction	Message	Comments
	UE SS		
1	UE		The UE is set in UE operation mode C(see ICS). If UE operation mode C not supported, goto step 12.
2	UE		The UE is powered up or switched on and initiates an attach (see ICS).
3	->	ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = IMSI
4	<-	ATTACH ACCEPT	Attach result = 'PS only attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-1
5	->	ATTACH COMPLETE	l l l l l l l l l l l l l l l l l l l
6	UE		The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
7	->	SERVICE REQUEST	Service type = "signalling",
8	<-	AUTHENTICATION AND CIPHERING REQUEST	
9	->	AUTHENTICATION AND CIPHERING RESPONSE	
10	UE		The UE is switched off or power is removed (see ICS).
11	->	DETACH REQUEST	Detach type = 'power switched off, PS detach'
12	UE		The UE is set in UE operation mode A (see ICS) and the test is repeated from step 2 to step 11.

Specific message contents

None.

12.9.1.5 Test requirements

When the UE has any signalling message (e.g. for SM or SMS) that requires security protection, the UE shall:

- send the SERVICE REQUEST message with service type indicated "signalling".

12.9.2 Service Request Initiated by Network Procedure

12.9.2.1 Definition

12.9.2.2 Conformance requirement

When the UE receives a paging request for PS domain from the network in PMM-IDLE mode, the UE shall send the SERVICE REQUEST message to the network.

Reference

TS 24.008 clauses 4.7.13

TS 23.060 clauses 6.12.2

12.9.2.3 Test purpose

To test the behavior of the UE if the UE receives the paging request for PS domain service from the network.

12.9.2.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.

User Equipment:

The UE has a valid IMSI

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode A Yes/No UE operation mode C Yes/No

Switch off on button Yes/No

Test procedure

- a) The UE is in PMM-IDLE state. The SS pages the UE by sending a Paging message to the UE.
- b) The UE sends a SERVICE REQUEST message to the SS. Service Type specifies Paging Response. The Service Request is carried over the radio in an RRC Direct Transfer message.
- c) After the SS receives the SERVICE REQUEST message from the UE, SS initiates an authentication procedure.

Step	Direction	Message	Comments
	UE SS		
1	ÜE		The UE is set in UE operation mode C(see ICS). If UE operation mode C not supported, goto step 12.
2	UE		The UE is powered up or switched in and initiates an attach (see ICS).
3	->	ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = IMSI
4	<-	ATTACH ACCEPT	Attach result = 'PS only attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-1
5	->	ATTACH COMPLETE	
6	<-	PAGING TYPE1	
7	->	SERVICE REQUEST	Service type = "Paging response"
8	<-	AUTHENTICATION AND CIPHERING REQUEST	
9	->	AUTHENTICATION AND CIPHERING RESPONSE	
10	UE		The UE is switched off or power is removed (see ICS).
11	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'
12	UE		The UE is set in UE operation mode A (see ICS) and the test is repeated from step 2 to step 11.

Specific message contents

None.

12.9.2.5 Test requirements

When the UE receives a paging request for PS domain from the network in PMM-IDLE mode, the UE shall:

- send the SERVICE REQUEST message with service type indicated "paging response".

12.9.3 Service Request / rejected / Illegal MS

12.9.31 Definition

12.9.3.2 Conformance requirement

If the network rejects a service request procedure from the UE with the cause "Illegal MS", the UE shall:

- $1) \ \ set the \ GPRS \ update \ status \ to \ GU3 \ ROAMING \ NOT \ ALLOWED \ and \ enter \ state \ GMM \ DEREGISTRATED.$
- 2) delete any P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number.
- 3) consider the USIM as invalid for PS service until switched off or the USIM is removed.

Reference

TS 24.008 clauses 4.7.13.4

12.9.3.3 Test purpose

To test the behaviour of the UE if the network rejects the service request procedure with the cause "Illegal MS".

12.9.3.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.

User Equipment:

The UE has a valid P-TMSI-1, P-TMSI-1 signature, RAI-1 and IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode A Yes/No UE operation mode C Yes/No

Switch off on button Yes/No

Test procedure

- a) The UE sends a SERVICE REQUEST message to the SS in order to establish the PS signalling connection for the upper layer signalling.
- b) After the SS receiving the SERVICE REQUEST message, the SS sends a SERVICE REJECT message with the cause value #3(Illegal MS).
- c) After the UE receives the SERVICE REJECT message with the cause value #3(Illegal MS), the UE deletes any P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number.
- d) The SS checks that the UE does not initiate an upper-layer signalling until the power of the UE is switched off.
- e) The SS checks that the UE does not initiate an upper-layer signalling until the USIM is removed from the UE.

Step	Direction UE SS	Message	Comments
	1		The following message are sent and shall be
1	UE		received on cell A. The UE is set in UE operation mode C (see ICS).
2	SS		The SS is set in network operation mode II and activates cell A.
3	UE		The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred
4	->	ATTACH REQUEST	by the UE. Attach type = 'PS attach' Mobile identity = P-TMSI-1 P-TMSI-1 signature
5	<-	ATTACH ACCEPT	Routing area identity = RAI-1 No new mobile identity assigned. P-TMSI and P-TMSI signature not included. Routing area identity = RAI-1
6		ATTACH COMPLETE	Attach result = 'PS only attached'
7	-> UE	ATTACH COMPLETE	The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT
8 9 10	-> <- UE	SERVICE REQUEST SERVICE REJECT	command. Service type = "signalling" Reject cause = "Illegal MS" The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT
11	SS		command. The SS verifies that the UE does not attempt to access the network.
12 13	UE ->	DETACH REQUEST	(SS waits 30 seconds) The UE is switched off. Detach type = 'power switched off, PS detach'
14	UE		
14	UE		The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred
15	->	ATTACH REQUEST	by the UE. Attach type = 'PS attach'
16	<-	ATTACH ACCEPT	Mobile identity = IMSI Attach result = 'PS only attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature
			Routing area identity = RAI-1
17 18	-> UE	ATTACH COMPLETE	
10	UE		The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
19 20	-> <-	SERVICE REQUEST SERVICE REJECT	Service type = "signalling" Reject cause = "Illegal MS"
21	UE	OLIVIOL NEGEOT	The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT
22	SS		command. The SS verifies that the UE does not attempt to
25			access the network. (SS waits 30 seconds)
23 24	UE ->	DETACH REQUEST	USIM is removed.
	UE		USIM is inserted.
25	UE		The UE initiates a PS attach, by MMI or by AT command.
26	->	ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = IMSI
27	<-	ATTACH ACCEPT	Attach result = 'PS only attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature
			Routing area identity = RAI-1

Step	Direction	Message	Comments
	UE SS		
28	->	ATTACH COMPLETE	
29	UE		The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT
30	->	SERVICE REQUEST	command. Service type = "signalling"

Specific message contents

None.

12.9.3.5 Test requirements

When the UE receives the SERVICE REJECT message with cause "Illegal MS" UE shall:

- delete any P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number.
- consider the USIM as invalid for PS services until the UE is switched off.
- consider the USIM as invalid for PS service until USIM is removed.

12.9.4 Service Request / rejected / PS services not allowed

12.9.41 Definition

12.9.4.2 Conformance requirement

If the network rejects a service request procedure from the UE with the cause "PS services not allowed", the UE shall:

- 1) set the GPRS update state to GU3 ROAMING NOT ALLOWED.
- 2) delete any P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number.
- 3) consider the USIM as invalid for PS service until the UE is switched off or until the USIM is removed.

Reference

TS 24.008 clauses 4.7.13.4

12.9.4.3 Test purpose

To test the behaviour of the UE if the network rejects the service request procedure with the cause "PS service not allowed".

12.9.4.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.

User Equipment:

The UE has a valid P-TMSI-1, P-TMSI-1 signature and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode A Yes/No UE operation mode C Yes/No

Switch off on button Yes/No

Test procedure

- a) The UE sends a SERVICE REQUEST message to the SS in order to establish the PS signalling connection for the upper layer signalling.
- b) After the SS receiving the SERVICE REQUEST message, the SS sends a SERVICE REJECT message with the cause value #7(PS services not allowed).
- c) After the UE receives the SERVICE REJECT message with the cause value #7(PS services not allowed), the UE deletes any P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number.
- d) The SS checks that the UE does not initiate an upper-layer signalling until the UE is switched off.
- e) The SS checks that the UE does not initiate an upper-layer signalling until the USIM is removed from the UE.

Step	Direction UE SS	Message	Comments
	UE 33		The following message are sent and shall be
			received on cell A.
1	UE		The UE is set in UE operation mode C (see
	00		ICS).
2	SS		The SS is set in network operation mode II and activates cell A.
3	UE		The UE is powered up or switched on and
			initiates an attach (see ICS). Cell A is preferred
		4.TT4.011.DE011E0T	by the UE.
4	->	ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1
			P-TMSI-1 signature
			Routing area identity = RAI-1
5	<-	ATTACH ACCEPT	No new mobile identity assigned.
			P-TMSI and P-TMSI signature not included.
			Routing area identity = RAI-1 Attach result = 'PS only attached'
6	->	ATTACH COMPLETE	Attach result = P3 only attached
7	ÚÉ	711710110011111111111111111111111111111	The UE initiates an upper-layer signalling, e.g.,
			Active PDP Context request, by MMI or by AT
		055) 405 550 4507	command.
8 9	->	SERVICE REQUEST SERVICE REJECT	Service type = "signalling" Reject cause = "PS services not allowed"
10	<- UE	SERVICE REJECT	The UE initiates an upper-layer signalling, e.g.,
	02		Active PDP Context request, by MMI or by AT
			command.
11	SS		The SS verifies that the UE does not attempt to
			access the network.
12	UE		(SS wait 30seconds) The UE is switched off.
13	->	DETACH REQUEST	Detach type = 'power switched off, PS detach'
14	UE		The UE is powered up or switched on and
			initiates an attach (see ICS). Cell A is preferred
15	->	ATTACH REQUEST	by the UE. Attach type = 'PS attach'
15	->	ATTACIT REQUEST	Mobile identity = IMSI
16	<-	ATTACH ACCEPT	Attach result = 'PS only attached'
			Mobile identity = P-TMSI-1
			P-TMSI-1 signature
17		ATTACH COMPLETE	Routing area identity = RAI-2
18	UE	ATTACH COMPLETE	The UE initiates an upper-layer signalling, e.g.,
	0_		Active PDP Context request, by MMI or by AT
			command.
19	->	SERVICE REQUEST	Service type = "signalling"
20 21	<- UE	SERVICE REJECT	Reject cause = "PS services not allowed" The UE initiates an upper-layer signalling, e.g.,
	OL.		Active PDP Context request, by MMI or by AT
			command.
22	SS		The SS verifies that the UE does not attempt to
			access the network.
23	UE		(SS wait 30seconds) USIM is removed.
24	->	DETACH REQUEST	Solivi is folloved.
	UE		USIM is inserted.
25	UE		The UE initiates a PS attach, by MMI or by AT
200		ATTACH DECUECT	command.
26	->	ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = IMSI
27	<-	ATTACH ACCEPT	Attach result = 'PS only attached'
			Mobile identity = P-TMSI-1
			P-TMSI-1 signature
00		ATTACH COMPLETE	Routing area identity = RAI-3
28	->	ATTACH COMPLETE	

Step	Direction		Message	Comments
	UE	SS		
29	U	E		The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
30	-;	>	SERVICE REQUEST	Service type = "signalling"

Specific message contents

12.9.4.5 Test requirements

When the UE receives the SERVICE REJECT message with cause "PS services not allowed" UE shall:

- delete any P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number
- consider the USIM as invalid for PS services until the UE is switched off.
- consider the USIM as invalid for PS services until USIM is removed.

12.9.5 Service Request / rejected / MS identity cannot be derived by the network

12.9.5.1 Definition

12.9.5.2 Conformance requirement

If the network rejects a service request procedure from the UE with the cause "MS identity cannot be derived by the network", the UE shall:

- 1) set the GPRS update states to GU2 NOT UPDATED.
- 2) delete any P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number.
- 3) initiate the PS attach procedure automatically.

Reference

TS 24.008 clauses 4.7.13.4

12.9.5.3 Test purpose

To test the behaviour of the UE if the network rejects the service request procedure with the cause "MS identity cannot be derived by the network".

12.9.5.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.

User Equipment:

The UE has a valid P-TMSI-1, P-TMSI-1 signature and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode A Yes/No UE operation mode C Yes/No

Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

- a) The UE sends a SERVICE REQUEST message to the SS in order to establish the PS signalling connection for the upper layer signalling.
- b) After the SS receiving the SERVICE REQUEST message, the SS sends a SERVICE REJECT message with the cause value #9 (MS identity cannot be derived by the network).

Expected Sequence

Step	Direction	Message	Comments
-	UE SS]	
			The following message are sent and shall be
			received on cell A.
1	UE		The UE is set in UE operation mode C (see
			ICS).
2	SS		The SS is set in network operation mode II and
			activates cell A.
3	UE		The UE is powered up or switched on and
			initiates an attach (see ICS). Cell A is preferred
			by the UE.
4	->	ATTACH REQUEST	Attach type = 'PS attach'
			Mobile identity = P-TMSI-1
			P-TMSI-1 signature
_		ATTAOU AGGERT	Routing area identity = RAI-1
5	<-	ATTACH ACCEPT	No new mobile identity assigned.
			P-TMSI and P-TMSI signature not included.
			Routing area identity = RAI-1
	_	ATTACH COMPLETE	Attach result = 'PS only attached'
6 7	-> UE	ATTACH COMPLETE	The LIC initiates an upper lover signalling a g
'	UE.		The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT
			command.
8	->	SERVICE REQUEST	Service type = "signalling"
9	<-	SERVICE REJECT	Reject cause = "MS identity cannot be derived
		02.11.02.11.2020.	by the network"
10	UE		The UE automatically initiates the PS attach
			procedure.
11	->	ATTACH REQUEST	Attach type = 'PS attach'
			Mobile identity = IMSI
12	<-	ATTACH ACCEPT	Attach result = 'PS only attached'
			Mobile identity = P-TMSI-2
			P-TMSI-2 signature
13	->	ATTACH COMPLETE	
14	UE		The UE initiates an upper-layer signalling, e.g.,
			Active PDP Context request, by MMI or by AT
			command.
15	->	SERVICE REQUEST	Service type = "signalling"
16	UE		The UE is switched off or power is removed
. –			(see ICS).
17	->	DETACH REQUEST	Message not sent if power is removed.
			Detach type = 'power switched off, PS detach'

Specific message contents

None.

12.9.5.5 Test requirements

When the UE receives the SERVICE REJECT message with cause "MS identity cannot be derived by the network" UE shall:

- delete any P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number.

After the UE deletes any P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number, UE shall:

- initiate PS attach procedure automatically.

12.9.6 Service Request / rejected / PLMN not allowed

12.9.6.1 Definition

12.9.6.2 Conformance requirement

If the network rejects a service request procedure from the UE with the cause "PLMN not allowed", the UE shall:

- 1) delete any RAI, P-TMSI, P-TMSI signature and GPRS ciphering key sequence number.
- 2) set the GPRS update status to GU3 ROAMING NOT ALLOWED.
- 3) store the LAI or the PLMN identity in the appropriate forbidden list.

Reference

TS 24.008 clauses 4.7.13.4

12.9.6.3 Test purpose

To test the behaviour of the UE if the network rejects the service request procedure with the cause "PLMN not allowed".

12.9.6.4 Method of test

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 cell B in MCC2/MNC1/LAC1/RAC1.

All two cells are operating in network operation mode II.

User Equipment:

The UE has a valid P-TMSI-1, P-TMSI-1 signature and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode A Yes/No UE operation mode C Yes/No

Switch off on button Yes/No

Test procedure

a) The UE sends a SERVICE REQUEST message to the SS in order to establish the PS signalling connection for the upper layer signalling.

- b) After the SS receiving the SERVICE REQUEST message, the SS sends a SERVICE REJECT message with the cause value #11 (PLMN not allowed).
- c) The SS checks that the UE does not initiate an upper-layer signalling until the UE is switched off.
- d) The SS checks that the UE does not answer a Page from the SS until the power of the UE is switched off.

Step	Direction	Message	Comments
	UE SS		
			The following message are sent and shall be
_			received on cell A.
1	UE		The UE is set in UE operation mode C (see
2	SS		ICS). The SS is set in network operation mode II and
2	33		activates cell A.
3	UE		The UE is powered up or switched on and
	"-		initiates an attach (see ICS). Cell A is preferred
			by the UE.
4	->	ATTACH REQUEST	Attach type = 'PS attach'
			Mobile identity = P-TMSI-1
			P-TMSI-1 signature
_		ATTAGU AGGERT	Routing area identity = RAI-1
5	<-	ATTACH ACCEPT	No new mobile identity assigned.
			P-TMSI and P-TMSI signature not included.
			Routing area identity = RAI-1 Attach result = 'PS only attached'
6	->	ATTACH COMPLETE	Attach result = 1.3 only attached
7	UÉ	ATTACH COMIT ELTE	The UE initiates an upper-layer signalling, e.g.,
-			Active PDP Context request, by MMI or by AT
			command.
8	->	SERVICE REQUEST	Service type = "signalling"
9	<-	SERVICE REJECT	Reject cause = "PLMN not allowed"
10	UE		The UE stores the LAI or the PLMN identity in
4.4			the "forbidden PLMN list".
11	UE		The UE initiates an upper-layer signalling, e.g.,
			Active PDP Context request, by MMI or by AT command.
12	SS		The SS verifies that the UE does not attempt to
			access the network.
			(SS wait 30second)
13	<-	PAGING TYPE1	Paging order is for PS service
14	UE		No response from the UE to the request. This
			is checked for 10 seconds.
			The following messages shall be sent and shall
15	SS		be received on cell B. The SS deactivates cell A and activates cell B.
16	UE		Cell D is preferred by the UE.
17	UE		The UE initiates an attach automatically, by
''			MMI or by AT command.
18	->	ATTACH REQUEST	Attach type = 'PS attach'
			Mobile identity = IMSI
19	<-	ATTACH ACCEPT	Mobile identity = P-TMSI-2
			P-TMSI-2 signature
			Routing area identity = RAI-2
20	_	ATTACH COMPLETE	Attach result = 'PS only attached'
20 21	-> UE	ATTACH COMPLETE	The UE is switched off or power is removed
Z I	J 0E		(see ICS).
22	->	DETACH REQUEST	(333.33).

Specific message contents

None.

12.9.6.5 Test requirements

When the UE receives the SERVICE REJECT message with cause "PLMN not allowed", UE shall:

- delete any RAI, P-TMSI, P-TMSI signature and GPRS ciphering key sequence number.
- store the LAI or the PLMN identity in the appropriate forbidden list, i.e. in the "forbidden PLMN list".

After the UE stores the LAI or the PLMN identity in the appropriate forbidden list, UE shall:

- not perform a PS attach procedure in the same PLMN.

12.9.7a Service Request / rejected / No PDP context activated

12.9.7a.1 Definition

12.9.7a.2 Conformance requirement

If the network rejects a service request procedure with the cause "No PDP context activated", the UE shall:

- deactivate all active PDP contexts.

After the UE deactivates all active PDP contexts, UE shall:

- perform PDP context(s) activation.

Reference

TS 24.008 clauses 4.7.13.4

12.9.7a.3 Test purpose

To test the behaviour of the UE if the network rejects the service request procedure with the cause "No PDP context activated".

12.9.7a.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.

User Equipment:

The UE has a valid P-TMSI-1, P-TMSI-1 signature and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode A Yes/No

UE operation mode C Yes/No

Switch off on button Yes/No

Test procedure

- a) The UE sends a SERVICE REQUEST message to the SS in order to establish the PS signalling connection for the upper layer signalling.
- b) After the SS receiving the SERVICE REQUEST message, the SS sends a SERVICE REJECT message with the cause value #40 (No PDP context activated).

c) After the UE receives the SERVICE REJECT message, the UE shall send the ACTIVATE PDP CONTEXT REQUEST message.

Expected Sequence

Step	Direction	Message	Comments
	UE SS		
			The following message are sent and shall be
			received on cell A.
1			The UE is set in UE operation mode C (see
			ICS).
2			The SS is set in network operation mode II and
			activates cell A.
3			The UE is powered up or switched on and
			initiates an attach (see ICS). Cell A is preferred
			by the UE.
4	->	ATTACH REQUEST	
5	<-	ATTACH ACCEPT	
6	->	ATTACH COMPLETE	
7	UE		The UE initiates a PS call, by MMI or by AT
		050,405 050,4507	command.
8	->	SERVICE REQUEST	Service type = "signalling"
9	<- -	SERVICE REJECT	Reject cause = "No PDP context activated"
10	UE		The UE shall deactivate locally all active PDP
			contexts.
11	UE		The UE initiates a PS call, by MMI or by AT
40		A CTIVATE DDD CONTEXT	command.
12	->	ACTIVATE PDP CONTEXT	Request a PDP context activation
13	<-	REQUEST ACTIVATE PDP CONTEXT	Accept the DDD contact activation
13	<-	ACCEPT	Accept the PDP context activation
14	UE	ACCEPT	The UE initiates Deactivate PDP Context
14	OL.		request, by MMI or by AT command.
15	->	DEACTIVE PDP CONTEXT	Deactivate PDP context deactivation
13		REQUEST	Deactivate i Di Context deactivation
16	<-	DEACTIVE PDP CONTEXT	Accept PDP context deactivation
10		ACCEPT	Accept 1 B1 context deadtivation
17	UE		The UE is switched off or power is removed
	0_		(see ICS).
18	UE		The UE initiates Detach request, by MMI or by
			AT command.
19	->	DETACH REQUEST	Message not sent if power is removed.
			Detach type = 'power switched off, PS detach'

Specific message contents

None.

12.9.7a.5 Test requirements

When the UE receives a SERVICE REJECT message with the cause "No PDP context activated", UE shall:

- deactivate all active PDP context.
- perform PDP context(s) activation.

12.9.7b Service Request / rejected / No Suitable Cells In Location Area

12.9.7b.1 Definition

12.9.7b.2 Conformance requirement

If the network rejects a service request procedure from the UE with the cause "No Suitable Cells In Location Area", the UE shall:

- 1) delete any RAI, P-TMSI, P-TMSI signature and GPRS ciphering key sequence number.
- 2) set the GPRS update status to GU3 ROAMING NOT ALLOWED.
- 3) store the LAI or the PLMN identity in the list of 'forbidden location areas for roaming'.
- 4) search for a suitable cell in a different location area on the same PLMN.

Reference

TS 24.008 clauses 4.7.13.4

12.9.7b.3 Test purpose

To test the behaviour of the UE if the network rejects the service request procedure with the cause "No Suitable Cells In Location Area".

12.9.7b.4 Method of test

Initial condition

System Simulator:

Three cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC2/RAC1 (RAI-3), cell C in MCC2/MNC1/LAC1/RAC1 (RAI-2)

All three cells are operating in network operation mode II.

User Equipment:

The UE has valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No UE operation mode A Yes/No Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a Service request with the cause value 'No Suitable Cells In Location Area'. The SS checks that the UE shall perform PS attach procedure when the UE enters a suitable cell in a different location area on the same PLMN.

Step	Direction	Message	Comments
	UE SS	_	
	SS		The SS activates three cells simultaneously.
			The SS configures power level of each Cell as
			follows.
			Cell A > Cell B = Cell C
1	UE		The UE is set in UE operation mode A (see
2	UE		ICS). The UE is powered up or switched on and
2	00		initiates an attach (see ICS). Cell A is preferred
			by the UE.
3	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach'
		ATTACTINEQUEST	Mobile identity = IMSI
			TMSI status = no valid TMSI available
4	<-	ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached'
	1	71171017100211	Mobile identity = P-TMSI-1
			P-TMSI-1 signature
			Mobile identity = TMSI-1
			Routing area identity = RAI-1
5	->	ATTACH COMPLETE	
6	SS		The SS initiates the RRC connection release.
7	UE		The UE initiates a PS call, by MMI or by AT
			command.
8	->	SERVICE REQUEST	Service type = "signalling"
9	<-	SERVICE REJECT	Reject cause = "No Suitable Cells In Location Area"
			1
			The following message are sent and shall be received on cell B.
10	->	ATTACH REQUEST	Attach type = 'PS attach'
10		ATTAOTTREGOEST	Mobile identity = IMSI
11	<-	ATTACH ACCEPT	Mobile identity = P-TMSI-2
	1	71171017100211	P-TMSI-2 signature
			Routing area identity = RAI-2
			Attach result = 'PS only attached'
12	->	ATTACH COMPLETE	<u> </u>
13	UE		The UE is switched off or power is removed
			(see ICS).
14	->	DETACH REQUEST	

Specific message contents

None.

12.9.7b.5 Test requirements

When the UE receives the SERVICE REJECT message with the cause "No Suitable Cells In Location Area", UE shall:

- delete any RAI, P-TMSI, P-TMSI signature and GPRS ciphering key sequence number.
- store the LAI or the PLMN identity in the appropriate forbidden list, i.e. in the " forbidden location areas for roaming ".
- search for a suitable cell in a different location area on the same PLMN.

12.9.8 Service Request / Abnormal cases / Access barred due to access class control

12.9.8.1 Definition

12.9.8.2 Conformance requirement

If the UE access class X is barred, the UE shall:

- 1) not start Service Request procedure.
- 2) stay in the current serving cell.
- 3) applie normal cell reselection process.

If the UE access class X is granted or serving cell is changed, the UE shall:

1) start Service Request procedure.

Reference

TS 24.008 clauses 4.7.13.5.

12.9.8.3 Test purpose

To test the behavior of the UE in case of access class control (access is granted).

12.9.8.4 Method of test

Initial condition

A random access class X (0-15) is selected. The USIM is programmed with this access class X.

Initially, an access class X is barred.

System Simulator:

One cell operating in network operation mode II.

Access class x barred.

User Equipment:

The UE has a valid P-TMSI-1, P-TMSI-1 signature and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode C Yes/No

UE operation mode A Yes/No

Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS initiates access class X barred. A service request procedure is not performed.

The SS initiates that access class X is not barred. A service request procedure is performed.

Step	Direction	Message	Comments
	UE SS		
1 2	UE UE		The USIM is set up Access class x. The access class x is barred in cell A. The UE is powered up or switched on and attempt to initiate an ATTACH. No SERVICE REQUEST sent to SS, as access
	-		class X is barred. (SS waits 30 seconds)
3	SS		The access class x is not barred anymore.
4	UE		The UE automatically initiates an attach.
5	->	ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-1
6	<-	ATTACH ACCEPT	Attach result = 'PS only attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-1
7	->	ATTACH COMPLETE	
8	UE		The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
9	->	SERVICE REQUEST	Service Type = "signalling".
10	<-	AUTHENTICATION AND CIPHERING REQUEST	
11	->	AUTHENTICATION AND CIPHERING RESPONSE	
12	UE		The UE is switched off or power is removed (see ICS).
13	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'

Specific message contents

None.

12.9.8.5 Test requirements

UE shall perform the following actions depending on the UE access class X.

Case 1) The UE access class X is barred,

UE shall:

- not start Service Request procedure.
- stay in the current serving cell.
- apply normal cell reselection process.

Case 2) The UE access class X is granted or serving cell is changed,

UE shall:

- start Service Request procedure.

12.9.9 Service Request / Abnormal cases / Routing area update procedure is triggered

12.9.9.1 Definition

12.9.9.2 Conformance requirement

If a cell change into a new routing area occurs and the necessity of routing area update procedure is determined before the security mode control procedure is completed, the UE shall:

- abort Service request procedure.
- start routing area update procedure immediately.

Reference

TS 24.008 clause 4.7.13.5

12.9.9.3 Test purpose

To test the behavior of the UE in case of collision between Routing area update procedure and Service request procedure.

12.9.9.4 Method of test

Initial condition

System Simulator:

Two cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4). Both cells are operating in network operation mode II.

User Equipment:

The UE has a valid P-TMSI-1, P-TMSI-1 signature and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode A Yes/No

UE operation mode C Yes/No

Switch off on button Yes/No

Test procedure

- a) The UE sends a SERVICE REQUEST message to the SS in order to establish the PS signalling connection for the upper layer signalling.
- b) The UE initiates the routing area update procedure.
- c) The UE aborts Service request procedure and performs Routing area updating procedure.

Step	Direction	Message	Comments
	UE SS		
			The following message are sent and shall be
			received on cell A.
1	UE		The UE is set in UE operation mode C (see
_			ICS).
2	SS		The SS is set in network operation mode II and
_			activates cell A.
3	UE		The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred
			by the UE.
4	->	ATTACH REQUEST	Attach type = 'PS attach'
7		ATTAOTTREGGEST	Mobile identity = P-TMSI-1
			P-TMSI-1 signature
			Routing area identity = RAI-1
5	<-	ATTACH ACCEPT	No new mobile identity assigned.
			P-TMSI and P-TMSI signature not included.
			Routing area identity = RAI-1
			Attach result = 'PS only attached'
6	->	ATTACH COMPLETE	
	UE		The UE initiates an upper-layer signalling, e.g.,
			Active PDP Context request, by MMI or by AT
_		OFD. (IOF DECLIFOR	command.
7 8	-> SS	SERVICE REQUEST	Service type = "signalling"
8	55		Activate cell B with a lower signal strength than cell A The RF level of cell A is lowered until cell
			B is preferred by the UE.
9	UE		The UE aborts Service request procedure.
	OL		The following message are sent and shall be
			received on cell B.
10	->	ROUTING AREA	Update type = 'RA updating'
		UPDATINGUPDATE REQUEST	P-TMSI-2 signature
11	<-	ROUTING AREA	Update result = 'RA updated'
		UPDATINGUPDATE ACCEPT	Mobile identity = P-TMSI-1
			P-TMSI-1 signature
40		DOLITING ADEA	Routing area identity = RAI-4
12	->	ROUTING AREA	
10	UE	UPDATING UPDATE COMPLETE	The LIE initiates an upper layer signalling a s
13	UE		The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT
			command.
14	->	SERVICE REQUEST	Service type = "signalling"
15	UÉ		The UE is switched off or power is removed
'			(see ICS).
16	->	DETACH REQUEST	Message not sent if power is removed.
			Detach type = 'power switched off, PS detach'

Specific message contents

None.

12.9.9.5 Test requirements

When the routing area update procedure is initiated before the security mode control procedure is completed, UE shall;

- abort a Service request procedure

After the UE aborts the Service request procedure, UE shall;

- perform the routing area updating procedure.

After the UE completes the routing area updating procedure, UE shall;

- restart the Service Request procedure.

12.9.10 Service Request / Abnormal cases / Power off

12.9.10.1 Definition

12.9.10.2 Conformance requirement

When the UE in GMM-SERVICE-REQUEST-INITIATED state is switched off, UE shall:

- perform PS detach procedure.

Reference

TS 24.008 clauses 4.7.13.5

12.9.10.3 Test purpose

To test the behavior of the UE in case of collision between Service request procedure and "powered off".

12.9.10.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.

User Equipment:

The UE has a valid P-TMSI-1, P-TMSI-1 signature and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode A Yes/No UE operation mode C Yes/No

Switch off on button Yes/No

Test procedure

The UE is switched off after initiating a Service request procedure. A PS detach is automatically performed by the UE before power is switched off.

Step	Direction	Message	Comments
	UE SS		
			The following message are sent and shall be received on cell A.
1	UE		The UE is set in UE operation mode C (see ICS).
2	SS		The SS is set in network operation mode II and activates cell A.
3	UE		The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
4	->	ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-1
5	<-	ATTACH ACCEPT	No new mobile identity assigned. P-TMSI and P-TMSI signature not included. Routing area identity = RAI-1
6	UE		Attach result = 'PS only attached' The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
7 8	-> UE	SERVICE REQUEST	Service type = "signalling" The UE is powered off and initiates a PS detach (with power off) by MMI or by AT command.
9	->	DETACH REQUEST	Detach type = 'power switched off, PS detach'

Specific message contents

None.

12.9.10.5 Test requirements

When the UE is switched off during the Service Request procedure, UE shall;

- abort the Service request procedure.

After the UE aborts the Service request procedure, UE shall;

- perform the PS detach procedure.

12.9.11 Service Request / Abnormal cases / Service request procedure collision

12.9.11.1 Definition

12.9.11.2 Conformance requirement

When the UE in GMM-SERVICE-REQUEST-INITIATED state receives a DETACH REQUEST message from the network, UE shall:

- perform the PS detach procedure.
- abort Service request procedure.

Reference

TS 24.008 clauses 4.7.13.5

12.9.11.3 Test purpose

To test the behaviour of the UE in case of collision between Service request procedure and PS detach procedure.

12.9.11.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.

User Equipment:

The UE has a valid P-TMSI-1, P-TMSI-1 signature and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode A Yes/No UE operation mode C Yes/No

Switch off on button Yes/No

Test procedure

- a) The UE sends a SERVICE REQUEST message to the SS in order to establish the PS signalling connection for the upper layer signalling.
- b) The SS sends a DETACH REQUEST message to the UE, before the security procedure is not started.
- c) After the UE receives the DETACH REQUEST message, the UE aborts the Service request procedure.

Comments
message are sent and shall be
cell A.
t in UE operation mode C (see
t in network operation mode II and
A.
wered up or switched on and
tach (see ICS). Cell A is preferred
: 'PS attach'
ty = P-TMSI-1
nature
identity = RAI-1
le identity assigned.
P-TMSI signature not included.
identity = RAI-1
= 'PS only attached'
tes an upper-layer signalling, e.g.,
Context request, by MMI or by AT
= "signalling"
not respond to SERVICE
essage.
= "reattach request"
'PS attach'
ty = P-TMSI-1
nature identity = RAI-1
le identity assigned.
P-TMSI signature not included.
identity = RAI-1 = 'PS only attached'
= F3 only allached
ritched off or power is removed
ittoried oil of power is removed
sent if power is removed.
= 'power switched off, PS detach'
>t t 'n : h h h h h h h

Specific message contents

None.

12.9.11.5 Test requirements

When the UE receives a DETACH REQUEST message from the network before the Service request procedure completes, UE shall;

- abort the Service request procedure.

After the UE aborts the Service request procedure, UE shall;

- perform the PS detach procedure.

3GPP TSG-T1 Meeting #13 Cancun, Mexico, 29–30 November 2001

CR-Form-v			
	CHANGE REQUEST		
ж 3	4.123-1 CR 123		
For <u>HELP</u> on u	sing this form, see bottom of this page or look at the pop-up text over the % symbols.		
Proposed change	affects:		
Title: ♯	Modifications and Corrections of GMM test case		
Source: #	SONY		
Work item code: ₩	TEI Date: 29 November 2001		
	F Use one of the following categories: F (correction) A (corresponds to a correction in an earlier release) B (addition of feature), C (functional modification) C (editorial modification) Detailed explanations of the above categories can be found in 3GPP TR 21.900. Release: REL-4 Use one of the following releases: 2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) REL-4 (Release 4) REL-5 (Release 5)		
Danas familians	The formation Test and the second is in a second to the formation of the second to the		
Reason for change	 # - The format for Test requirement is inconsistent with the format for other sections in TS34.123-1. - It is necessary to change each test case, based on the changes in TS51.010-1 clause 44. - It is necessary to correct and modify some test cases. - It is necessary to correct some editorial mistakes. 		
Summary of change	ge: 1. Change of the format for Test requirement.		
Cammary or onans	The format for Test requirement is changed in order to keep consistency with the format for other sections in TS34.123-1(for example. MM, CC).		
	2. Modifications and corrections for each test case.		
	2.1 For subclause 12.3.2.5 "PS detach / rejected / location area not allowed"		
	- "Mobile identity = IMSI" is replaced with "Mobile identity = TMSI-1".		
	- "DETACH COMPLETE" is replaced with "DETACH ACCEPT".		
	- "->" is replaced with "UE".		
	 2.2 For subclause 12.4.1.4a "Routing area updating / rejected / location area not allowed" New steps for MM location updating procedure are inserted next to step 8, 17 and 28 of the Expected sequence. 		
	- "Cell B" is replaced with "Cell A".		

- $2.3\ {\rm For\ subclause\ }12.4.3.2$ "Periodic routing area updating / accepted / T3312 default value"
- The comment in step5 of the Expected sequence is modified.
- 2.4 For subclause 12.6.1.2 "Authentication rejected by the network"
- The comment in step12 of the Expected sequence is corrected.
- In order to clarify the scenario, the comment in step15 of the Expected sequence is corrected.
- 2.5 For subclause 12.2.2.6 "Combined PS attach / rejected / PS services not allowed"
- "TMSI status= no valid TMSI available" is removed from step 29 of the Expected sequence.
- The comments in step3 and 29 of the Expected sequence are corrected.
- MM location update procedure and IMSI detach procedure are inserted into the Expected sequence.
- "ATT flag set to 1 " is added to the initial condition for SS.
- 2.6 For subclause 12.4.1.2 "Routing area updating / rejected / IMSI invalid / illegal ME"
- MM location updating procedure is inserted into the Expected sequence.
- 2.7 For subclause 12.4.1.5 "Routing area updating / abnormal cases / attempt counter check / miscellaneous reject causes"
- GMM cause table is removed from the conformance requirement.
- The comments in spep9, 12, 15, 18 and 21 are corrected.
- MM location updating procedure is inserted into the Expected sequence.
- Timer value is corrected.
- Initial condition for SS is corrected.
- 2.8 For subclause 12.4.2.3 "Combined routing area updating / RA only accepted"
- The reference document is corrected.

Test procedure1

- "ITMSI" is replaced with "IMSI".
- "UPDATING" is replaced with "UPDATE".

Test procedure2

- "Test procedure" and "Expected sequence" are corrected because there are misinterpretations of the core specification.
- 2.9 For subclause 12.4.3.4 "Combined periodic routing area updating / no cell available"

- The title of this test case is corrected.
- In order to clarify the test scenario, Specific message contents are added.
- MM location updating procedure is removed from the Expected sequence,

2.10 For subclause 12.2.2.2Combined PS attach / PS only attach accepted"

Test procedure1

- The comment in step4 of the Expected sequence is modified.

Test procedure2

- Test procedure is corrected.
- CS paging procedure in step19 and 20 are removed from the Expected sequence.
- "TMSI status= no valid TMSI available" is removed from step 7, 10, 13, 16, 28, 31, 34 and 37 of the Expected sequence.
- The comments in step3 and 25 of the Expected sequence are corrected.
- "Step12" and "Step13" in the Expected sequence is exchanged each other.
- "Step33" and "Step34" in the Expected sequence is exchanged each other.
- "Step38" and "Step39" in the Expected sequence is exchanged each other.
- 2.11 For subclause 12.4.2.5a "Combined routing area updating / rejected / roaming not allowed in this location area"
- Conformance requirement is corrected.
- "Test procesure1" is replaced with "Test procedure1".
- "Test procesure2" is replaced with "Test procedure2".

Test Procedure 1

- Initial condition for SS is corrected.
- RAI in step 4, 9 and 21 of the Expected sequence are corrected.
- "TMSI status= no valid TMSI available" is removed from step 9 of the Expected sequence.
- MM location updating procedure is inserted after step 18 of the Expected sequence.
- CS paging procedure is removed from the Expected sequence.
- "Mobile identity = IMSI" is replaced with "Mobile identity = TMSI-1".
- "Mobed" is replaced with "moved".
- "UPDATING" is replaced with "UPDATE".

Test Procedure 2

- The Initial condition is corrected.
- RAI in step 4, 9 and 21 of the Expected sequence are corrected.
- "TMSI status= no valid TMSI available" is removed from step 9 of the Expected sequence.

- MM location updating procedure is inserted after step 18 of the Expected sequence.
- "Mobile identity = IMSI" is replaced with "Mobile identity = TMSI-1".
- "UPDATING" is replaced with "UPDATE".
- 2.12 For subclause 12.3.2.4 "PS detach / re-attach requested / accepted"
- P-TMSI signature is removed from step9 of the expected sequence.
- "Mobile identity = TMSI-1" is removed from step9 of the Expected sequence.
- 2.13 For subclause 12.2.2.5 "Combined PS attach / rejected / PS services and non-PS services not allowed"
- Directions of the step10 and 11 the Expected sequence are corrected.
- The comments in step4, 20 and 22 of the Expected sequence are modified.
- 2.14 For subclause 12.2.2.8 Combined PS attach / abnormal cases / attempt counter check / miscellaneous reject causes"
- 'IMEI not accepted' is removed from the GMM cause codes in the Conformance requirement.
- "Switch of on button YES/NO" is added to the Related ICS/IXIT statements.
- Test procedure is corrected.
- In order to clarify the test scenario, comments in step5, 8, 11 and 14 of the Expected sequence are modified.
- MM location updating procedure is inserted after step16 of the Expected sequence.
- CS paging procedure is removed from step18 and 19 of the Expected sequence.
- The comment in step23 of the Expected sequence is modified.
- 2.15 For subclause 12.3.1.2 "PS detach / accepted"
- Test procedure is corrected.
- "Step11" should be replaced with "step12".
- 2.16 For subclause 12.3.1.8 "PS detach / abnormal cases / change of cell into new routing area"
- The comment in step12 of the Expected sequence is corrected.
- Direction for step16 of the Expected sequence is corrected.
- 2.17 For subclause 12.4.2.4 "Combined routing area updating / rejected / PLMN not allowed"
- MM location updating procedure is inserted after step28 of the Expected sequence.
- 2.18 For subclause 12.2.2.4 "Combined PS attach / rejected / IMSI invalid / illegal ME"
- "Conformance requirement", "Test procedure", "Expected sequence" and "Test

	specification.
	2.19 For subclause 12.2.1.6 "PS attach / abnormal cases / access barred due to access class control"
	- The purpose of Test purpose2 is corrected.
	2.20 For subclause 12.4.1.5 "Routing area updating / abnormal cases / attempt counter check / miscellaneous reject causes"
	- "T3330; 15 seconds" is replaced with "T3330; set to 15 seconds".
	- "T3311; set to 15 seconds" is added to the Test procedure.
	2.21 For subclause 12.4.2.1 "Combined routing area updating / combined RA/LA accepted"
	- "Mobile identity = P-TMSI-2" is replaced with "No P-TMSI".
	- "P-TMSI-2" is replaced with "P-TMSI-1".
	2.22 For subclause 12.4.2.7 "Combined routing area updating / abnormal cases / attempt counter check / procedure timeout"
	- "step23" is replaced with "step24a".
	- "step24" is replaced with "step24b".
	- Step numbering is corrected.
	2.23 For subclause 12.9.7a "Service Request / rejected / No PDP context activated"
	- After Step 11 of the Expected sequence, Service request procedure is inserted.
	2.24 For subclause 12.2.2.7a "Combined PS attach / rejected / location area not allowed"
	 In order to clarify the test scenario, step13 and 14 of the Expected sequence is corrected.
	- The comment in step45 of the Expected sequence should be corrected.
Consequences if # not approved:	Inconsistencies with the core specification and editorial mistakes are left.
Clauses affected: #	12
Other specs #	Other care an editioning 99
Other specs # affected:	Other core specifications Test specifications O&M Specifications
Other comments: #	Affects R99 and REL-4.
How to create CRs usin Comprehensive information	g this form: and tips about how to create CRs can be found at: http://www.3gpp.org/3G Specs/CRs.htm.

requirement" are corrected because there are misinterpretations of the core

Comprehensive information and tips about how to create CRs can be found at: http://www.3gpp.org/3G Specs/CRs.htm.

Below is a brief summary:

1) Fill out the above form. The symbols above marked \$\mathbb{X}\$ contain pop-up help information about the field that they are closest to.

- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

12 Elementary procedure for Packet Switched Mobility Management

12.1 Applicability, default conditions and default messages

All test cases for PS mobility management apply for all PS mobiles unless otherwise stated in a specific test. Within each test case, the ICS statement indicates whether the test shall be performed for mobiles that can only operate in mode - class A, only in mode - class C, or in both mode - class A and C. For some procedures, the mobile class is of no importance.

Note that only the layer 3 messages are described in the document. The mapping of the layer 3 messages to lower layers and the use of logical channels is not described in the present document.

The terms 'PS/CS mode of operation' and 'PS mode of operation' are not used in the present document with some exceptions. Instead the terms 'UE operation mode A' and 'UE operation mode C' are used.

The default conditions and default message contents not specified in this clause must be set as in "PS default conditions"

Below is a list of the RAI values and the corresponding RAC, LAC and MCC used in the test cases:

RAI-1: MCC1/MNC1/LAC1/RAC1 (Used if only one cell)

RAI-2: MCC2/MNC1/LAC1/RAC1

RAI-3: MCC1/MNC1/LAC2/RAC1

RAI-4: MCC1/MNC1/LAC1/RAC2

RAI-5: MCC1/MNC1/LAC1/RAC3

RAI-6: MCC2/MNC1/LAC2/RAC1

RAI-7: MCC2/MNC1/LAC1/RAC2

If the User Equipment initial condition specifies that the mobile has a valid IMSI but the initial condition does not mention P-TMSI, than that shall be interpreted as that the mobile has no valid P-TMSI.

The tests are based on 3GPP TS 24.008.

12.2 PS attach procedure

This procedure is used to indicate for the network that the IMSI is available for traffic by establishment of a GMM context.

12.2.1 Normal PS attach

The normal PS attach procedure is a GMM procedure used by PS UEs of UE operation mode A or C to IMSI attach for PS services only.

12.2.1.1 PS attach / accepted

12.2.1.1.1 Definition

12.2.1.1.2 Conformance requirement

1) If the network accepts the PS attach procedure (signalled by an IMSI) and allocates a P-TMSI, the UE shall acknowledge the P-TMSI and continue communication with the P-TMSI.

- 2) If the network accepts the PS attach procedure (signalled by P-TMSI) and reallocates a new P-TMSI, the UE shall acknowledge the new P-TMSI and continue communication with the new P-TMSI.
- 3) If the network accepts the PS attach procedure (signalled by a P-TMSI) from the UE without reallocation of the old P-TMSI, the UE shall continue communication with the old P-TMSI.

Reference

3GPP TS 24.008 clause 4.7.3.1

12.2.1.1.3 Test purpose

To test the behaviour of the UE if the network accepts the PS attach procedure.

The following cases are identified:

- 1) P-TMSI / P-TMSI signature is allocated;
- 2) P-TMSI / P-TMSI signature is reallocated;
- 3) Old P-TMSI / P-TMSI signature is not changed.

12.2.1.1.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode A Yes/No UE operation mode C Yes/No Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

- 1) The UE sends an ATTACH REQUEST message with identity IMSI. The SS allocates a P-TMSI and returns ATTACH ACCEPT message with a P-TMSI. The UE acknowledge the P-TMSI by sending ATTACH COMPLETE message. Further communication UE SS is performed by the new P-TMSI.
- 2) The UE sends an ATTACH REQUEST message with identity P-TMSI. The SS reallocates a new P-TMSI and returns ATTACH ACCEPT message with the new P-TMSI. The UE acknowledge the P-TMSI by sending ATTACH COMPLETE message. Further communication UE SS is performed by the new P-TMSI. The UE will not answer signalling addressed to the old P-TMSI.
- 3) The UE sends an ATTACH REQUEST message with identity P-TMSI. The SS accepts the P-TMSI and returns ATTACH ACCEPT message without any P-TMSI. Further communication UE SS is performed by the old P-TMSI.

Expected Sequence

Step	Direction UE SS	Message	Comments
1	UE SS		The UE is set in UE operation mode C (see
'	OL		ICS). If UE operation mode C not supported, goto step 26.
2	UE		The UE is powered up or switched on and initiates an attach (see ICS).
3	->	ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = IMSI
4	<-	ATTACH ACCEPT	Attach result = 'PS only attached' Mobile identity = P-TMSI-2
			P-TMSI-2 signature Routing area identity = RAI-1
5	->	ATTACH COMPLETE	
6	<-	PAGING TYPE1	Mobile identity = P-TMSI-2 Paging order is for PS services.
6a 6b	-> <-	RRC CONNECTION REQUEST RRC CONNECTION SETUP	
6c	->	RRC CONNECTION SETUP	
7	->	SERVICE REQUEST	Service type = "paging response"
7a 7b	<- ->	RRC CONNECTION RELEASE	
8	UE	COMPLETE	The UE is switched off or power is removed
9	->	DETACH REQUEST	(see ICS). Message not sent if power is removed. Detach type = 'power switched off, PS detach'
10	UE		The UE is powered up or switched on and
11	->	ATTACH REQUEST	initiates an attach (see ICS). Attach type = 'PS attach' Mobile identity = P-TMSI-2
12	<-	ATTACH ACCEPT	P-TMSI-2 signature Routing area identity = RAI-1 Attach result = 'PS only attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature
13	->	ATTACH COMPLETE	Routing area identity = RAI-1
14	<-	GMM INFORMATION	Message sent with P-TMSI-1
14b	->	GMM STATUS	Message sent in case the UE does not support reception of GMM information message Cause #97
15	<-	PAGING TYPE1	Mobile identity = P-TMSI-2 Paging order is for PS services.
16	UE		No response from the UE to the request. This is checked for 10 seconds.
17	UE		The UE is switched off or power is removed (see ICS).
18	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'
19	UE		The UE is powered up or switched on and initiates an attach (see ICS).
20	->	ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1
21	<-	ATTACH ACCEPT	P-TMSI-1 signature Routing area identity = RAI-1 No new mobile identity assigned. P-TMSI and P-TMSI signature not included. Routing area identity = RAI-1 Attach result = 'PS only attached'
22	<-	PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services. PAGING TYPE 1 (used for NW-mode II).
22a	->	RRC CONNECTION REQUEST	(**************************************

Step	Direction	Message	Comments
	UE SS		
22b	<-	RRC CONNECTION SETUP	
22c	->	RRC CONNECTION SETUP	
		COMPLETE	
23	->	SERVICE REQUEST	Service type = "paging response"
23a	<-	RRC CONNECTION RELEASE	
23b	->	RRC CONNECTION RELEASE	
		COMPLETE	
24	UE		The UE is switched off or power is removed
			(see ICS).
25	->	DETACH REQUEST	Message not sent if power is removed.
			Detach type = 'power switched off, PS detach'
26	UE		The UE is set in UE operation mode A (see
			ICS) and the test is repeated from step 2 to
			step 25.

Specific message contents

None.

12.2.1.1.5 Test requirements

At step3, 11 and 20, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence when UE is powered up or switched on.
- —<u>UE shall</u> perform the following actions depending on the Mobile identity in the ATTACH REQUEST message and on the Mobile identity in the ATTACH ACCEPT message.
 - Case 1) The Mobile identity in the ATTACH REQUEST <u>message</u> is the IMSI and the Mobile identity in the ATTACH ACCEPT message is the P-TMSI.

At step5, UE shall:

- acknowledge the P-TMSI by sending the ATTACH COMPLETE message. Further communication UE—SS is performed by the P-TMSI.

Case 2) The Mobile identity in the ATTACH REQUEST <u>message</u> is the P-TMSI and the Mobile identity in the ATTACH ACCEPT message is the new P-TMSI.

At step13, UE shall:

- acknowledge the new P-TMSI by sending the ATTACH COMPLETE message. Further communication UE—SS is performed by the other P TMSI.
- Case 3) The Mobile identity in the ATTACH REQUEST is the P TMSI and the Mobile identity in the ATTACH ACCEPT message is the same P TMSI.

—<u>At step23, UE shall:</u>

acknowledge the same P TMSI by sending ATTACH COMPLETE message. Further communication UE
 SS is performed by the same P TMSI.respond to the paging message for PS domain by sending the SERVICE REQUEST message.

12.2.1.2 PS attach / rejected / IMSI invalid / illegal UE

12.2.1.2.1 Definition

12.2.1.2.2 Conformance requirement

- 1) If the network rejects a PS attach procedure from the User Equipment with the cause 'Illegal UE', the User Equipment shall consider USIM invalid for PS services until power is switched off or USIM is removed.
- 2) If the network rejects a PS attach procedure from the User Equipment with the cause 'Illegal UE' the User Equipment shall delete the stored RAI, PS-CKSN, P-TMSI and P-TMSI signature.
- 3) If the network rejects a PS attach procedure from the User Equipment with the cause 'Illegal UE', the User Equipment shall delete the LAI.

Reference

3GPP TS 24.008 clause 4.7.3.1.

12.2.1.2.3 Test purpose

To test the behaviour of the UE if the network rejects the PS attach procedure of the UE with the cause 'illegal UE'.

12.2.1.2.4 Method of test

Initial condition

System Simulator:

Three cells (not simultaneously activated), cell A with MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in

MCC1/MNC1/LAC2/RAC1 (RAI-3), cell C in MCC2/MNC1/LAC1/RAC1 (RAI-2).

All three cells are operating in network operation mode II (in case of UE operation mode A).

User Equipment:

The UE has a valid P-TMSI-1, P-TMSI-1 signature and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode C Yes/No

UE operation mode A Yes/No (only if mode C not supported)

Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a PS attach with the cause value 'Illegal UE'. The SS checks that the UE does not perform PS attach in the same or another PLMN.

Expected Sequence

Step	Direction UE SS	Message	Comments
	OL 33		The following messages are sent and shall be
			received on cell A.
1	UE		The UE is set in UE operation mode C (see ICS).
2	SS		The SS is set in network operation mode II and
			activates cell A.
3	UE		The UE is powered up or switched on and
			initiates an attach (see ICS). Cell A is preferred by the UE.
4	->	ATTACH REQUEST	Attach type = 'PS attach'
			Mobile identity = P-TMSI-1
			P-TMSI-1 signature
_		ATTACH DE IECT	Routing area identity = RAI-1
5	<-	ATTACH REJECT	GMM cause = 'Illegal UE'. The following messages are sent and shall be
			received on cell B.
6	SS		The SS deactivates cell A and activates cell B.
7	UE		Cell B is preferred by the UE.
8	UE		No ATTACH REQUEST sent to the SS
			(SS waits 30 seconds).
9	UE		The UE initiates an attach by MMI or by AT
			command.
10	UE		No ATTACH REQUEST sent to the SS
			(SS waits 30 seconds).
			The following messages are sent and shall be received on cell C.
11	ss		The SS deactivates cell B and activates cell C.
12	UE		Cell C is preferred by the UE.
13	UE		No ATTACH REQUEST sent to the SS
			(SS waits 30 seconds).
14	UE		The UE initiates an attach by MMI or by AT command.
15	UE		No ATTACH REQUEST sent to the SS
			(SS waits 30 seconds).
16	UE		If possible (see ICS) switch off is performed.
			Otherwise the power is removed.
17	UE		The UE is powered up or switched on.
18	UE	Registration on CS	See TS 34.108
			This is applied only for UE in UE operation mode A.
			Parameter mobile identity is IMSI.
19	UE		The UE initiates an attach (see PICS).
20	->	ATTACH REQUEST	Attach type = 'PS attach'
			Mobile identity = IMSI
21	<-	ATTACH ACCEPT	Attach result = 'PS only attached'
			Mobile identity = P-TMSI-1
			P-TMSI-1 signature
22	_~	ATTACH COMPLETE	Routing area identity = RAI-2
23	-> UE	ATTAOTIOOMI LETE	The UE is switched off or power is removed
-0			(see ICS).
24	->	DETACH REQUEST	Message not sent if power is removed.
			Detach type = 'power switched off, PS detach'

Specific message contents

None.

12.2.1.2.5 Test requirements

At step4, when the UE is powered up or switched on, UE shall:

- initiate <u>a-the PS</u> attach procedure with the information elements specified in the above Expected Sequence when UE is powered up or switched on.
- check the GMM cause which is contained in the ATTACH REJECT message and stop timer T3310.

— set the PS update state to GU3 ROAMING NOT ALLOWD and delete stored P-TMSI, P-TMSI signature, RAI and PS ciphering key sequence number. At step8, 10, 13 and 15, UE shall:

—not send the ATTACH REQUEST message to SS, even if there is an instruction of attach request from MMI or from AT command.

At srep20, UE shall:

initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

12.2.1.3 PS attach / rejected / IMSI invalid / PS services not allowed

12.2.1.3.1 Definition

12.2.1.3.2 Conformance requirement

- 1) If the network rejects a PS attach procedure from the User Equipment with the cause 'PS services not allowed', the User Equipment shall consider USIM invalid for PS services until power is switched off or USIM is removed.
- 2) If the network rejects a PS attach procedure from the User Equipment with the cause 'PS services not allowed' the User Equipment shall delete the stored RAI, PS-CKSN, P-TMSI and P-TMSI signature.

Reference

3GPP TS 24.008 clause 4.7.3.1.

12.2.1.3.3 Test purpose

To test the behaviour of the UE if the network rejects the PS attach procedure of the UE with the cause 'PS services not allowed' (no valid PS-subscription for the IMSI).

12.2.1.3.4 Method of test

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (HPLMN, RAI-1) and cell B in MCC2/MNC1/LAC1/RAC1 (RAI-2).

Both cells are operating in network operation mode II.

User Equipment:

The UE has a valid P-TMSI-1, P-TMSI-1 signature and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode C Yes/No

UE operation mode A Yes/No

USIM removal possible without powering down Yes/No

Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a normal attach with the cause value 'PS services not allowed'. The SS checks that the UE does not perform PS attach in another PLMN.

Expected Sequence

Step	Direction	Message	Comments
	UE SS		
			The following messages are sent and shall be
			received on cell A.
1	SS		The SS activates cell A.
2	UE		The UE is set in UE operation mode C (see
			ICS). If UE operation mode C not supported,
			goto step 16.
3	UE		The UE is powered up or switched on and
			initiates an attach (see ICS). Cell A is preferred
			by the UE.
4	->	ATTACH REQUEST	Attach type = 'PS attach'
			Mobile identity = P-TMSI-1
			P-TMSI-1 signature
5		ATTACH DE IECT	Routing area identity = RAI-1
5	<-	ATTACH REJECT	GMM cause = 'PS services not allowed'
			The following messages are sent and shall be received on cell B.
6	SS		The SS deactivates cell A and activates cell B.
6 7	UE		Cell B is preferred by the UE.
8	UE		No ATTACH REQUEST sent to the SS
"	l OL		(SS waits 30 seconds).
9	UE		If possible (see ICS) USIM removal is
			performed. Otherwise if possible (see ICS)
			switch off is performed. Otherwise the power is
			removed.
10	UE		The UE gets the USIM replaced, is powered up
			or switched on and initiates an attach (see
			ICS).
11	->	ATTACH REQUEST	Attach type = 'PS attach'
			Mobile identity = IMSI
12	<-	ATTACH ACCEPT	Attach result = 'PS only attached'
			Mobile identity = P-TMSI-1
			P-TMSI-1 signature
40		ATTACH COMPLETE	Routing area identity = RAI-2
13	->	ATTACH COMPLETE	The LIC is emitted and aff are accounting and a
14	UE		The UE is switched off or power is removed
15		DETACH REQUEST	(see ICS). Message not sent if power is removed.
10	->	DETACH REQUEST	Detach type = 'power switched off, PS detach'
16			The SS deactivates cell B and activates cell A.
17	UE		The UE is set in UE operation mode A(see
''			ICS) and the test is repeated from step 3 to
			step 15.
			OLOP 10.

Specific message contents

None.

12.2.1.3.5 Test requirements

At step4, when the UE is powered up or switched on, UE shall:

- initiate a-the PS attach procedure with information elements specified in the above Expected Sequence when UE is powered up or switched on.
- check the GMM cause which is contained in the ATTACH REJECT message and stop timer T3310.
- set the PS update state to GU3 ROAMING NOT ALLOWD.
- delete stored P TMSI, P TMSI signature, RAI and PS ciphering key sequence number. At step8, UE shall:
- not perform a PS attach procedure.

At step11, after the UE is switched on or a USIM is replaced, UE shall:

- perform the PS attach procedure.

12.2.1.4 PS attach / rejected / PLMN not allowed

12.2.1.4.1 Definition

12.2.1.4.2 Conformance requirement

- 1) If the network rejects a PS attach procedure from the User Equipment with the cause 'PLMN not allowed' the User Equipment shall:
 - 1.1 not perform PS attach when switched on in the same routing area or location area.
 - 1.2 not perform PS attach when in the same PLMN and when that PLMN is not selected manually.
 - 1.3 delete the stored RAI, PS-CKSN, P-TMSI and P-TMSI signature.
 - 1.4 store the PLMN in the 'forbidden PLMN' list.
- 2) If the network rejects a PS attach procedure from the User Equipment with the cause 'PLMN not allowed' the User Equipment shall perform PS attach when a new PLMN is entered.
- 3) If the network rejects a PS attach procedure from the User Equipment with the cause 'PLMN not allowed' and if after that the PLMN from which this rejection was received, is manually selected, the User Equipment shall perform a PS attach procedure.

Reference

3GPP TS 24.008 clause 4.7.3.1.

12.2.1.4.3 Test purpose

To test the behaviour of the UE if the network rejects the PS attach procedure of the UE with the cause 'PLMN not allowed'.

12.2.1.4.4 Method of test

12.2.1.4.4.1 Test procedure 1

Initial condition

System Simulator:

Four cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell C in MCC1/MNC1/LAC2/RAC1 (RAI-3) and cell D in MCC2/MNC1/LAC1/RAC1 (RAI-2).

All four cells are operating in network operation mode II (in case of UE operation mode A). The PLMN of the four cells should NOT be that of the UE Home PLMN.

User Equipment:

The UE has a valid P-TMSI-1, P-TMSI-1 signature and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No (only if mode C not supported)
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a PS attach with the cause value 'PLMN not allowed'. The SS checks that the UE does not perform PS attach if activated in the same routing area or location area and performs PS attach only when a new PLMN is entered.

Expected Sequence

Step	Direction	Message	Comments
	UE SS		
	SS		The following messages are sent and shall be
			received on cell A.
1	UE		The UE is set in UE operation mode C (see
			ICS).
2	SS		The SS is set in network operation mode II and
			activates cell A.
3	UE		The UE is powered up or switched on and
			initiates an attach (see ICS). Cell A is preferred
		ATTA 011 DE01150T	by the UE.
4	->	ATTACH REQUEST	Attach type = 'PS attach'
			Mobile identity = P-TMSI-1
			P-TMSI-1 signature
_		ATTACLIBEIEGT	Routing area identity = RAI-1
5	<- -	ATTACH REJECT	GMM cause = 'PLMN not allowed'
6	UE		No ATTACH REQUEST sent to SS
			(SS waits 30 seconds).
			The following messages are sent and shall be
7	UE		received on cell B. The UF is switched off.
7	SS		The SS deactivates cell A and activates cell B.
8 9	UE		
10	UE		The UE is powered up or switched on.
11	UE		Cell B is preferred by the UE. No ATTACH REQUEST sent to SS
''	UE		(SS waits 30 seconds).
			,
			The following messages are sent and shall be received on cell C.
12	SS		The SS deactivates cell B and activates cell C.
13	UE		Cell C is preferred by the UE.
14	UE		No ATTACH REQUEST sent to SS
''	02		(SS waits 30 seconds).
			The following messages are sent and shall be
			received on cell D.
15	SS		The SS deactivates cell C and activates cell D.
16	UE		Cell D is preferred by the UE.
17	UE	Registration on CS	See TS 34.108
		-	This is applied only for UE in UE operation
			mode A.
18	UE		The UE initiates an attach automatically, by
			MMI or by AT command.
19	->	ATTACH REQUEST	Attach type = 'PS attach'
			Mobile identity = IMSI
20	<-	ATTACH ACCEPT	Attach result = 'PS only attached'
			Mobile identity = P-TMSI-1
			P-TMSI-1 signature
			Routing area identity = RAI-2
21	->	ATTACH COMPLETE	
22	UE		The UE is switched off or power is removed
60		DETAOU DEQUEST	(see ICS).
23	->	DETACH REQUEST	Message not sent if power is removed.
			Detach type = 'power switched off, PS detach'

12.2.1.4.4.2 Test procedure 2

Initial condition

System Simurator:

One cell operating in network operation mode II. The PLMN of the cell should NOT be that of the Mobile Station Home PLMN.

User Equipment:

The UE has a valid P-TMSI-1, P-TMSI-1 signature and RAI-1. UE is Idle Updated.

Related ICS/IXIT statements

Support of PS service Yes/No UE operation mode C Yes/No UE operation mode A Yes/No (only if mode C not supported) Switch off on button Yes/No Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a PS attach with the cause value 'PLMN not allowed'. The subscribers access rights is changed to allow PS attach. Then the PLMN from which this rejection was received is manually selected and the SS check that a PS attach is performed.

Expected Sequence

Step	Direction	Message	Comments
	UE SS		
1	UE		The UE is set in UE operation mode C or A
			(see PICS).
2	UE		The UE is powered up or switched on and
0		ATTACLIBEOLIEGE	initiates an attach (see PICS).
3	->	ATTACH REQUEST	Attach type = 'PS attach'
			Mobile identity = P-TMSI-1
			P-TMSI-1 signature Routing area identity = RAI-1
4	<-	ATTACH REJECT	GMM cause = 'PLMN not allowed'
5	ÜE	ATTAOTTRESECT	No ATTACH REQUEST sent to SS
	02		(SS waits 30 seconds)
6	UE		The current PLMN is selected manually.
7	UE	Registration on CS	See TS 34.108
			This is applied only for UE in UE operation
			mode A.
8	UE		The UE initiates an attach automatically, by
_			MMI or by AT command.
9	->	ATTACH REQUEST	Attach type = 'PS attach'
40		ATTACHACCERT	Mobile identity = IMSI
10	<-	ATTACH ACCEPT	Attach result = 'PS only attached' Mobile identity = P-TMSI-1
			P-TMSI-1 signature
			Routing area identity = RAI-1
11	->	ATTACH COMPLETE	
12	ÚÉ		The UE is switched off or power is removed
			(see PICS).
13	->	DETACH REQUEST	Message not sent if power is removed.
			Detach type = 'power switched off, PS detach'

Specific message contents

None.

12.2.1.4.5 Test requirements

Test requirements for test procedure 1

At step4, when the UE is powered on or switched on, UE shall:

- initiate a the PS attach procedure with information elements specified in the above Expected Sequence when UE is powered on or switched on.
- check the GMM cause which is contained in the ATTACH REJECT message and stop timer T3310.

- delete the stored RAI, PS CKSN, P TMSI and P TMSI signature.
- store the PLMN in the 'forbidden PLMNAt step6, UE shall:
- not perform PS attach procedure.

UE shall -list'

—perform the following actions depending on the PLMN or the routing area or the location area

Case 1) UE is in the same routing area or location area when the power is switched on,

At step11, UE shall:

- not perform PS attach_procedure.

Case2) UE is in the same PLMN, and this PLMN is not selected manually

At step14, UE shall:

- not perform PS attach_procedure.

Case3) UE is in a new PLMN.

At step19, UE shall:

- perform the PS attach procedure.

Test requirements for test procedure 2

At step3, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step5, UE shall:

- not perform PS attach procedure.

At step9, when the UE is in the new PLMN, and this PLMN is selected manually, UE shall

- perform the PS attach procedure. Case4) UE is in the new PLMN, and this PLMN is selected manually
 - UE shall
 - perform PS attach.

12.2.1.5a PS attach / rejected / roaming not allowed in this location area

12.2.1.5a.1 Definition

12.2.1.5a.2 Conformance requirement

- 1) If the network rejects a PS attach procedure from the User Equipment with the cause 'roaming not allowed in this location area' the User Equipment shall:
 - 1.1 not perform PS attach when in the same location area.
 - 1.2 delete the stored RAI, PS-CKSN, P-TMSI and P-TMSI signature.
 - 1.3 store the LA in the 'forbidden location areas for roaming' list.
 - 1.4 perform PS attach when a new location area is entered.
 - 1.5 Periodically search for its HPLMN.

- 2) The User Equipment shall reset the list of 'Forbidden location areas for roaming' when switched off or when the USIM is removed.
- 3) The UE shall be capable of storing at least 6 entries in the list of 'Forbidden location areas for roaming'.

Reference

3GPP TS 24.008 clause 4.7.3.1.

12.2.1.5a.3 Test purpose

Test purpose 1

To test that on receipt of a rejection using the 'roaming not allowed in this location area' cause code, the UE ceases trying to attach on that location area. Successful PS attach procedure is possible in other location areas.

Test purpose 2

To test that if the UE is switched off or the USIM is removed the list of 'forbidden location areas for roaming' is cleared.

Test purpose 3

To test that at least 6 entries can be held in the list of 'forbidden location areas for roaming' (the requirement in 3GPP TS 24.008 is to store at least 10 entries. This is not fully tested by the third procedure).

Test purpose 4

To test that if a cell of the Home PLMN is available then the UE returns to it in preference to any other available cell.

12.2.1.5a.4 Method of test

12.2.1.5a.4.1 Test procedure 1

Initial condition

System Simulator:

Three cells (not simultaneously activated), cell A in MCC2/MNC1/LAC1/RAC1 (RAI-2, Not HPLMN), cell B in

MCC2/MNC1/LAC2/RAC1 (RAI-6, Not HPLMN) and cell C in MCC2/MNC1/LAC1/RAC2 (RAI-7, Not HPLMN).

All three cells are operating in network operation mode II.

User Equipment:

The UE has a valid P-TMSI-1, P-TMSI-1 signature and RAI-2.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C
UE operation mode A
Yes/No
Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a PS attach with the cause value 'Roaming not allowed in this area'. A new attempt for a PS attach is not possible. Successful PS attach / detach procedures are performed in another location area. A new attempt for a PS attach is performed in the 1st location area. This attempt shall not succeed, as the LA is on the forbidden list.

Expected Sequence

Step	Direction	Message	Comments
	UE SS		
	SS		The following messages are sent and shall be
,			received on cell A.
1	UE		The UE is set in UE operation mode C (see
			ICS). If UE operation mode C not supported,
2	SS		goto step 19. The SS activates cell A.
3	UE		The UE is powered up or switched on and
3	OL		initiates an attach (see ICS). Cell A is preferred
			by the UE.
4	->	ATTACH REQUEST	Attach type = 'PS attach'
		- THE WOLOT	Mobile identity = P-TMSI-1
			P-TMSI-1 signature
			Routing area identity = RAI-2
5	<-	ATTACH REJECT	GMM cause = 'Roaming not allowed in this
			area'
6	UE		No ATTACH REQUEST sent to SS
			(SS waits 30 seconds).
			The following messages are sent and shall be
			received on cell B.
7	SS		The SS Deactivates cell A and activates cell B.
8	UE		Cell B is preferred by the UE.
9	UE	Registration on CS	See TS 34.108
			This is applied only for UE in UE operation
			mode A.
			Parameter mobile identity is IMSI.
10	UE		The UE initiates an attach automatically, by
44		ATTACLIBEOLIECT	MMI or by AT command.
11	->	ATTACH REQUEST	Attach type = 'PS attach'
12	_	ATTACH ACCEPT	Mobile identity = IMSI Attach result = 'PS only attached'
12	<-	ATTACH ACCEPT	Mobile identity = P-TMSI-1
			P-TMSI-1 signature
			Routing area identity = RAI-6
13	->	ATTACH COMPLETE	
14	UÉ		The UE initiates a PS detach (without power
			off) by MMI or by AT command.
15	->	DETACH REQUEST	Detach type = 'normal detach, PS detach'
16	<-	DETACH ACCEPT	
			The following messages are sent and shall be
			received on cell C.
17	SS		The SS deactivates cell B and activates cell C.
18	UE		Cell C is preferred by the UE.
19	UE		No ATTACH REQUEST sent to SS
			(SS waits 30 seconds).
			The UE is switched off or power is removed
20	115		(see ICS) UE is switched off.
20 21	UE SS		The SS deactivates cell C.
22	UE		The UE is set in UE operation mode A if
22	UE UE		supported (see ICS) and the test is repeated
			from step 2 to step 20.
L	l		mom step z to step zo.

12.2.1.5a.4.2 Test procedure 2

Initial condition

System Simulator:

One cell in MCC2/MNC1/LAC1/RAC1 (RAI-2, Not HPLMN) operating in network operation mode II.

User Equipment:

TheUE has a valid P-TMSI-1, P-TMSI-1 signature and RAI-2.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No (only if mode C not supported)
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a PS attach updating with the cause value 'Roaming not allowed in this area'. The UE is switched off for 10 s and switched on again. The SS check that a PS attach is possible on the cell on which the PS attach had been rejected.

If USIM removal is possible without switching off: The SS rejects a PS attach with the cause value 'Roaming not allowed in this area'. The USIM is removed and inserted in the UE. The SS check that a PS attach is possible on the cell on which the PS attach had been rejected.

Expected Sequence

Step	Direction	Message	Comments
	UE SS		
1	UE		If UE operation mode C is supported, the UE is set in UE operation mode C (see PICS). If UE operation mode C is not supported, the UE is set in UE operation mode A.
2	UE		The UE is powered up or switched on and initiates an attach (see ICS).
3	->	ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-2
4	<-	ATTACH REJECT	GMM cause = 'Roaming not allowed in this area'
5	UE		No ATTACH REQUEST sent to the SS (SS waits 30 seconds).
6	UE		If possible (see ICS) switch off is performed. Otherwise the power is removed.
7	UE		The UE is powered up or switched on and initiates an attach (see ICS).
8	UE	Registration on CS	See TS 34.108 This is applied only for UE in UE operation mode A. Parameter mobile identity is IMSI
9	->	ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = IMSI
10	<-	ATTACH ACCEPT	Attach result = 'PS only attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-2
11	->	ATTACH COMPLETE	
12	UÉ		The UE is switched off or power is removed (see ICS).
13	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'

12.2.1.5a.4.3 Test procedure 3

Initial condition

System Simulator:

Six cells (not simultaneously activated), cell A in MCC2/MNC1/LAC1/RAC1 (RAI-2, Not HPLMN), cell B in MCC2/MNC1/LAC2/RAC1 (RAI-3, Not HPLMN), cell C in MCC2/MNC1/LAC3/RAC1 (Not HPLMN), cell D in MCC2/MNC1/LAC4/RAC1 (Not HPLMN), cell E in MCC2/MNC1/LAC5/RAC1 (Not HPLMN), cell F in MCC2/MNC1/LAC6/RAC1 (Not HPLMN).

All six cells are operating in network operation mode II (in case of UE operation mode A).

User Equipment:

The UE has a valid P-TMSI-1, P-TMSI-1 signature and RAI-2.

Related ICS/IXIT statements

Support of PS service Yes/No UE operation mode C Yes/No

UE operation mode A Yes/No (only if mode C not supported)

Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a PS attach with the cause value 'Roaming not allowed in this area'. This is done for 6 different location areas. Then the SS checks that the UE does not attempt to perform an attach procedure on the non-allowed location areas.

Different types of UE may use different methods to periodically clear the list of forbidden areas (e.g. every day at 12am) for roaming. If the list is cleared while the test is being run, it may be necessary to re-run the test.

Expected Sequence

Step	Direction UE SS	Message	Comments
	SS		The following messages are sent and shall be
1	SS		received on cell A. The SS is set in network operation mode II and
'	33		activates cell A.
2	UE		The UE is set in UE operation mode C (see
3	UE		ICS). The UE is powered up or switched on and
			initiates an attach (see ICS). Cell A is preferred
4		ATTACH DECHEST	by the UE.
4	->	ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1
			P-TMSI-1 signature
5	<-	ATTACH REJECT	Routing area identity = RAI-2 GMM cause = 'Roaming not allowed in this
			area'
6	UE		No ATTACH REQUEST sent to SS (SS waits 30 seconds)
			The following messages are sent and shall be
7	SS		received on cell B. The SS deactivates cell A and activates cell B.
7 8	UE		Cell B is preferred by the UE.
9	UE	Registration on CS	See TS 34.108
			This is applied only in case of UE operation mode A.
			Parameter mobile identity is IMSI.
10	UE		The UE initiates an attach automatically, by MMI or by AT command.
11	->	ATTACH REQUEST	Attach type = 'PS attach'
40		ATTACLIBEIECT	Mobile identity = IMSI
12	<-	ATTACH REJECT	GMM cause = 'Roaming not allowed in this area'
13	UE		No ATTACH REQUEST sent to SS
			(SS waits 30 seconds). The following messages are sent and shall be
			received on cell C.
14 15	SS UE		The SS deactivates cell B and activates cell C. Cell C is preferred by the UE.
16	UE	Registration on CS	See TS 34.108
			This is applied only for UE in UE operation mode A.
			Parameter mobile identity is IMSI.
17	UE		The UE initiates an attach automatically, by
18	->	ATTACH REQUEST	MMI or by AT command. Attach type = 'PS attach'
4.0		ATTAOLIBEISOT	Mobile identity = IMSI
19	<-	ATTACH REJECT	GMM cause = 'Roaming not allowed in this area'
20	UE		No ATTACH REQUEST sent to SS
			(SS waits 30 seconds). The following messages are sent and shall be
_			received on cell D.
21 22	SS UE		The SS deactivates cell C and activates cell D. Cell D is preferred by the UE.
23	UE	Registration on CS	See TS 34.108
			This is applied only for UE in UE operation mode A.
			Parameter mobile identity is IMSI.
24	UE		The UE initiates an attach automatically, by
25	->	ATTACH REQUEST	MMI or by AT command. Attach type = 'PS attach'
		·	Mobile identity = IMSI
26	<-	ATTACH REJECT	GMM cause = 'Roaming not allowed in this area'

Step	Direction UE SS	Message	Comments
27	UE		No ATTACH REQUEST sent to SS (SS waits 30 seconds).
28 29 30	SS UE UE	Registration on CS	The following messages are sent and shall be received on cell E. The SS deactivates cell D and activates cell E. Cell E is preferred by the UE. See TS 34.108 This is applied only for UE in UE operation mode A.
31	UE		Parameter mobile identity is IMSI. The UE initiates an attach automatically, by MMI or by AT command.
32	->	ATTACH REQUEST	Attach type = 'PS attach'
33	<-	ATTACH REJECT	Mobile identity = IMSI GMM cause = 'Roaming not allowed in this area'
34	UE		No ATTACH REQUEST sent to SS (SS waits 30 seconds).
35 36 <u>37</u>	SS UE <u>UE</u>	Registration on CS	The following messages are sent and shall be received on cell F. The SS deactivates cell E and activates cell F. Cell F is preferred by the UE. See TS 34.108
37 38	UE		This is applied only for UE in UE operation mode A. The UE initiates an attach automatically, by MMI or by AT command.
38 <u>39</u>	->	ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = IMSI
39 40	<-	ATTACH REJECT	GMM cause = 'Roaming not allowed in this area'
40 <u>41</u>	UE		No ATTACH REQUEST sent to SS (SS waits 30 seconds)
41 <u>42</u> 42 <u>43</u> 43 <u>44</u> 44 <u>45</u>	SS SS UE UE		The following messages are sent and shall be received on cell E. The SS deactivates cell F and activates cell E. Cell E is preferred by the UE. The UE initiates an attach automatically, by MMI or by AT command. No ATTACH REQUEST sent to SS (SS waits 30 seconds).
45 <u>46</u> 46 <u>47</u> 47 <u>48</u> 48 <u>49</u>	SS SS UE UE		The following messages are sent and shall be received on cell C. The SS deactivates cell E and activates cell C. Cell C is preferred by the UE. The UE initiates an attach automatically, by MMI or by AT command. No ATTACH REQUEST sent to SS (SS waits 30 seconds).
49 <u>50</u> 50 <u>51</u> 51 <u>52</u> 52 <u>53</u>	SS SS UE UE		The following messages are sent and shall be received on cell A. The SS deactivates cell C and activates cell A. Cell A will be preferred by the UE. The UE initiates an attach automatically, by MMI or by AT command. No ATTACH REQUEST sent to SS (SS waits 30 seconds).

12.2.1.5a.4.4 Test procedure4

Initial condition

System Simulator:

Two cells, cell A in MCC2/MNC1/LAC1/RAC1 (not HPLMN, RAI-2) and cell B in MCC1/MNC1/LAC1/RAC1 (HPLMN, RAI-1).

Both cells are operating in network operation mode II (in case of UE operation mode A).

User Equipment:

The UE has a valid P-TMSI-1, P-TMSI-1 signature and RAI-2.

Related ICS/IXIT statements

Support of PS service Yes/No UE operation mode C Yes/No

UE operation mode A Yes/No (only if mode C not supported)

Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a PS attach with the cause value 'Roaming not allowed in this area A second cell belonging to the HPLMN is activated. It is checked that the UE returns to its HPLMN.

Expected Sequence

Step	Direction	Message	Comments
	UE SS		
	SS		The following messages are sent and shall be
			received on cell A.
1	UE		The UE is set in UE operation mode C (see
			ICS).
2	SS		The SS is set in network operation mode II and
			activates cell A.
3	UE		The UE is powered up or switched on and
			initiates an attach (see ICS). Cell A is preferred
			by the UE.
4	->	ATTACH REQUEST	Attach type = 'PS attach'
			Mobile identity = P-TMSI-1
			P-TMSI-1 signature
			Routing area identity = RAI-2
5	<-	ATTACH REJECT	GMM cause = 'Roaming not allowed in this
			area'
6	UE		No ATTACH REQUEST sent to SS
			(SS waits 30 seconds).
			The following messages are sent and shall be
			received on cell B.
7	SS		Activate cell B.
8	UE	Registration on CS	See TS 34.108
			This is applied only for UE in UE operation
			mode A.
			Parameter mobile identity is IMSI.
9	UE		The UE initiates an attach automatically, by
			MMI or by AT command.
10	->	ATTACH REQUEST	Attach type = 'PS attach'
			Mobile identity = IMSI
11	<-	ATTACH ACCEPT	Attach result = 'PS only attached'
			Mobile identity = P-TMSI-1
			P-TMSI-1 signature
40		ATTACH COMPLETE	Routing area identity = RAI-1
12	->	ATTACH COMPLETE	The LIC is quitabled off or neuron is not record
13	UE		The UE is switched off or power is removed
1 4	_	DETACH BEOLIEST	(see ICS).
14	->	DETACH REQUEST	Message not sent if power is removed.
			Detach type = 'power switched off, PS detach'

Specific message contents

None.

12.2.1.5a.5 Test requirements

Test requirements for Test procedure1

At step4, when the UE is powered up or switched on, UE shall:

- initiate <u>a-the PS</u> attach procedure with information elements specified in the above Expected Sequence—when UE is powered up or switched on.
- check the GMM cause which is contained in the ATTACH REJECT message and stop timer T3310.

At step6, when the UE receives the ATTACH REJECT message with GMM cause = 'Roaming not allowed in this area', UE shall:

- not perform the PS attach procedure when UE is in the same location area.
- delete the stored RAI, PS CKSN, P TMSI and P TMSI signature.
- store the LA in the 'forbidden location areas for roaming' list.

At step11, when the new location area is entered, UE shall:

- perform the PS attach when a new location area is entered procedure.

At step19, when the rejected location area is entered, UE shall

- not perform PS attach procedure.
- search for its HPLMN periodically.

When Switched off or when the USIM is removed,

UE shall:

reset the 'forbidden location areas for roaming' list.

Test requirements for Test procedure2

At step3, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step5, after the UE receives the ATTACH REJECT message with GMM cause = 'Roaming not allowed in this area', UE shall:

- not perform PS attach procedure.

At step9, when the UE is switched off or USIM is replaced, UE shall:

- perform the PS attach procedure.

Test requirements for Test procedure3

At step4, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step6, 13, 20, 27, 34 and 41, after the UE receives the ATTACH REJECT message with GMM cause = 'Roaming not allowed in this area', UE shall:

not perform PS attach procedure.

At step11, 18, 25, 32 and 39, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step45, 49 and 53, UE shall:

- not perform PS attach procedure.

Test requirements for Test procedure4

At step4, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step6, when the UE receives the ATTACH REJECT message with GMM cause = 'Roaming not allowed in this area', UE shall:

- not perform PS attach procedure.

At step10, when a new location area is entered, UE shall:

- perform the PS attach procedure.

12.2.1.5b PS attach / rejected / No Suitable Cells In Location Area

12.2.1.5b.1 Definition

12.2.1.5b.2 Conformance requirement

- (1) If the network rejects a PS attach procedure from the User Equipment with the cause 'No Suitable Cells In Location Area', the User Equipment shall:
 - 1.1 not perform PS attach when in the same location area.
 - 1.2 delete the stored RAI, PS-CKSN, P-TMSI and P-TMSI signature.
 - 1.3 store the LA in the 'forbidden location areas for roaming' list.
 - 1.4 perform PS attach when a new location area is entered.

Reference

3GPP TS 24.008 clauses 4.7.3.1.

12.2.1.5b.3 Test purpose

To test the behaviour of the UE if the network rejects the PS attach procedure of the UE with the cause 'No Suitable Cells In Location Area'.

12.2.1.5b.4 Method of test

Initial condition

System Simulator:

Three cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC2/RAC1 (RAI-3), cell C in MCC2/MNC1/LAC1/RAC1 (RAI-2)

All three cells are operating in network operation mode II.

User Equipment:

The UE has a valid P-TMSI-1, P-TMSI-1 signature and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a PS attach with the cause value 'No Suitable Cells In Location Area'. The SS checks that the UE shall search for a suitable cell in a different location area on the same PLMN and shall perform PS attach procedure in that cell.

Expected Sequence

Step	Direction	Message	Comments
	UE SS		
	SS		The SS activates three cells simultaneously.
			The SS configures power level of each Cell as
			follows.
			Cell A > Cell B = Cell C
1	UE		The UE is set in UE operation mode A (see
			ICS).
2	UE		The UE is powered up or switched on and
			initiates an attach (see ICS). Cell A is preferred
			by the UE.
3	->	ATTACH REQUEST	Attach type = 'PS attach'
			Mobile identity = P-TMSI-1
			P-TMSI-1 signature
			Routing area identity = RAI-1
4	<-	ATTACH REJECT	GMM cause = 'No Suitable Cells In Location
			Area'
5	SS		The SS initiates the RRC connection release.
			The following message are sent and shall be
			received on cell B.
6	UE	Registration on CS	See TS 34.108
7	UE		The UE initiates an attach automatically, by
			MMI or by AT command.
8	->	ATTACH REQUEST	Attach type = 'PS attach'
			Mobile identity = IMSI
9	<-	ATTACH ACCEPT	Attach result = 'PS only attached'
			Mobile identity = P-TMSI-1
			P-TMSI-1 signature
			Routing area identity = RAI-2
10	->	ATTACH COMPLETE	
11	UE		The UE is switched off or power is removed
			(see ICS).
12	->	DETACH REQUEST	Message not sent if power is removed.
			Detach type = 'power switched off, PS detach'

Specific message contents

None.

12.2.1.5b.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate a-the PS attach procedure with information elements specified in the above Expected Sequence when the UE is powered up or switched on.
- check the GMM cause which is contained in the ATTACH REJECT message and stop timer T3310.
- delete stored P-TMSI, P-TMSI signature, RAI and PS ciphering key sequence number.

— search for a suitable cell in a different location area on the same PLMN. At step8, when the UE enters a suitable cell in a different location area on the same PLMN, UE shall:

- perform the PS attach procedure.

12.2.1.6 PS attach / abnormal cases / access barred due to access class control

12.2.1.6.1 Definition

12.2.1.6.2 Conformance requirement

- 1) The UE shall not perform PS attach procedure, but stays in the current serving cell and applies normal cell reselection process.
- 2) The User Equipment shall perform the PS attach procedure when:
 - 2.1 Access is granted.
 - 2.2 Cell is changed.

Reference

3GPP TS 24.008 clause 4.7.3.1.

12.2.1.6.3 Test purpose

Test purpose1

To test the behaviour of the UE in case of access class control (access is granted).

Test purpose2

To test the behaviour of the UE in case of access class control (access is granted Cell is changed).

12.2.1.6.4 Method of test

12.2.1.6.4.1 Test procedure1

Initial condition

A random access class x (0-15) is selected. The USIM is programmed with this access class x. Communication with User Equipments using access class x is initially indicated to be barred.

System Simulator:

One cell operating in network operation mode II. Access class x barred.

User Equipment:

The UE has a valid P-TMSI-1, P-TMSI-1 signature and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode C Yes/No

UE operation mode A Yes/No

Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS indicates access class x barred. A PS attach procedure is not performed.

The SS indicates that access class x is not barred. A PS attach procedure is performed.

Expected Sequence

Step	Direction	Message	Comments
	UE SS		
1	UE		The USIM is programmed with access class x.
2	UE		The UE is set in UE operation mode C (see
			ICS). If UE operation mode C not supported,
			goto step 12.
3	UE		The UE is powered up or switched on and
4	UE		attempts to initiate an attach (see ICS). No ATTACH REQUEST sent to SS, as access
4	UE		class X is barred
			(SS waits 30 seconds).
5	SS		The access class x is not barred anymore.
6	UE		The UE automatically initiates a PS attach.
7	->	ATTACH REQUEST	Attach type = 'PS attach'
			Mobile identity = P-TMSI-1
			P-TMSI-1 signature
			Routing area identity = RAI-1
8	<-	ATTACH ACCEPT	Attach result = 'PS only attached'
			Mobile identity = P-TMSI-2
			P-TMSI-2 signature Routing area identity = RAI-1
9	->	ATTACH COMPLETE	Trouting area identity = IVAI-1
10	UÉ	71171011 001111 2212	The UE is switched off or power is removed
			(see ICS).
11	->	DETACH REQUEST	Message not sent if power is removed.
			Detach type = 'power switched off, PS detach'
12	SS		The SS is set in network operation mode II.
13	UE		The UE is set in UE operation mode A(see
			ICS) and the test is repeated from step 2 to
			step 11.

12.2.1.6.4.2 Test procedure2

Initial condition

A random access class x (0-15) is selected. The USIM is programmed with this access class x. Communication with User Equipments using access class x is indicated to be barred on cell A.

System Simulator:

Two cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1) has access class x barred, cell B in MCC1/MNC1/LAC1/RAC1 (RAI-1) has access class x not barred. Both cells are operating in network operation mode II (in case of UE operation mode A).

User Equipment:

The UE has a valid P-TMSI-1, P-TMSI-2 signature and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode C Yes/No

UE operation mode A Yes/No Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS indicates access class x barred. A PS attach procedure is not performed.

A cell change is performed into a cell where access class x is not barred. A PS attach procedure is performed.

Expected Sequence

Step	Direction	Message	Comments
	UE SS		
1	UE		The USIM is programmed with access class x.
	SS		The following messages are sent and shall be
			received on cell A.
2	SS		The SS is set in network operation mode II and activates cell A.
3	UE		The UE is set in UE operation mode C (see
3	OL		ICS).
4	UE		The UE is powered up or switched on and
			attempts to initiate an attach (see ICS).
5	UE		No ATTACH REQUEST sent to SS, as access
			class X is barred
			(SS waits 30 seconds).
			The following messages are sent and shall be
	00		received on cell B.
6	SS UE		Activate cell B.
8	->	ATTACH REQUEST	The UE automatically initiates an attach. Attach type = 'PS attach'
		MINORINEGOLOT	Mobile identity = P-TMSI-2
			P-TMSI-2 signature
			Routing area identity = RAI-1
9	<-	ATTACH ACCEPT	Attach result = 'PS only attached'
			Mobile identity = P-TMSI-1
			P-TMSI-1 signature
40		ATTACH COMPLETE	Routing area identity = RAI-1
10 11	-> UE	ATTACH COMPLETE	The LIE is awitched off or newer is removed
11	UE		The UE is switched off or power is removed (see ICS).
12	->	DETACH REQUEST	Message not sent if power is removed.
			Detach type = 'power switched off, PS detach'

Specific message contents

None.

12.2.1.6.5 Test requirements

Test requirements for Test procedure1

At step4, when the UE access class x is barred, UE shall:

Case 1) The UE access class X is barred,

UE shall:

- not perform a PS attach procedure.

- stay in the current serving cell.

- apply normal cell reselection process.

At step7, when Case 2) Tthe UE access class X-x is granted or serving cell is changed,

UE shall:

-____-initiate the PS attach procedure.

Test requirements for Test procedure2

At step5, when the UE access class x is barred, UE shall:

- not perform a PS attach procedure.

At step8, when the serving cell is changed, UE shall:

- initiate the PS attach procedure.

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12.2.1.7 PS attach / abnormal cases / change of cell into new routing area

12.2.1.7.1 Definition

12.2.1.7.2 Conformance requirement

When a change of cell into a new routing area is performed before ATTACH ACCEPT message is received by the UE, the UE shall abort the PS attach procedure and re-initiate it immediately.

Reference

3GPP TS 24.008 clause 4.7.3.1.

12.2.1.7.3 Test purpose

To test the behaviour of the UE in case of procedure collision.

12.2.1.7.4 Method of test

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1) and cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4).

Both cells are operating in network operation mode II (in case of UE operation mode A).

User Equipment:

The UE has a valid P-TMSI-1, P-TMSI-1 signature and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode C Yes/No

UE operation mode A Yes/No (only if mode C not supported)

Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE initiates a PS attach procedure. The ATTACH ACCEPT message is delayed from the SS. The UE performs a cell reselection to a cell in a new routing area. The UE shall re-initiate a PS attach procedure in the new routing area.

Expected Sequence

Step	Direction	Message	Comments
	UE SS		
	SS		The following messages are sent and shall be
			received on cell A.
1	UE		The UE is set in UE operation mode C (see
			ICS).
2	SS		The SS is set in network operation mode II and
_			activates cell A.
3	UE		The UE is powered up or switched on and
			initiates an attach (see ICS). Cell A is preferred
		ATTA 011 DE01150T	by the UE.
4	->	ATTACH REQUEST	Attach type = 'PS attach'
			Mobile identity = P-TMSI-1
			P-TMSI-1 signature
5	SS		Routing area identity = RAI-1
5	33		No response to the ATTACH REQUEST
			message is given by the SS.
			The following messages are sent and shall be received on cell B.
6	SS		The SS deactivates cell A and activates cell B.
	33		Cell B is preferred by the UE.
7	UE		The UE automatically re-initiates the attach in
'	OL.		the new cell.
8	->	ATTACH REQUEST	Attach type = 'PS attach'
			Mobile identity = P-TMSI-1
			P-TMSI-1 signature
			Routing area identity = RAI-1
9	<-	ATTACH ACCEPT	No new mobile identity assigned.
			P-TMSI and P-TMSI signature not included.
			Attach result = 'PS only attached'
			Routing area identity = RAI-4
10	UE		The UE is switched off or power is removed
			(see ICS).
11	->	DETACH REQUEST	Message not sent if power is removed.
			Detach type = 'power switched off, PS detach'

Specific message contents

None.

12.2.1.7.5 Test requirements

At step4, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected sequence.

At step8, when a change of cell into a new routing area is performed before ATTACH ACCEPT message or ATTACH REJECT message is received by the UE, UE shall:

- abort a-the PS attach procedure and re-initiate the PS attach procedure immediately with new information elements, when a change of cell into a new routing area is performed before ATTACH ACCEPT or ATTACH REJECT message is received by the UE.

re initiate a PS attach procedure immediately with new information elements.

12.2.1.8 PS attach / abnormal cases / power off

12.2.1.8.1 Definition

12.2.1.8.2 Conformance requirement

When power is switched off before ATTACH ACCEPT message is received by the UE, the UE shall abort the PS attach procedure and perform a PS detach procedure.

Reference

3GPP TS 24.008 clause 4.7.3.

12.2.1.8.3 Test purpose

To test the behaviour of the UE in case of procedure collision.

12.2.1.8.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.

User Equipment:

The UE has a valid P-TMSI-1, P-TMSI-1 signature and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C
UE operation mode A
Switch off on button
Yes/No
Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE is switched off after initiating an attach procedure. A PS detach is automatically performed by the UE before power is switched off.

Step	Direction	Message	Comments
	UE SS		
1	UE		The UE is set in UE operation mode C (see
			ICS). If UE operation mode C not supported,
			goto step 7.
2	UE		The UE is powered up or switched on and
			initiates an attach (see ICS).
3	->	ATTACH REQUEST	Attach type = 'PS attach'
			Mobile identity = P-TMSI-1
			P-TMSI-1 signature
			Routing area identity = RAI-1
4	SS		No response to the ATTACH REQUEST
			message is given by the SS.
5	UE		The UE is powered off and initiates a PS
			detach (with power off) by
6	->	DETACH REQUEST	Detach type = 'power switched off, PS detach'
7	UE		The UE is set in UE operation mode A (see
			ICS) and the test is repeated from step 2 to
			step 6.

Specific message contents

None.

12.2.1.8.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate <u>a the PS</u> attach procedure with information elements specified in the above Expected Sequence when UE is powered up or switched on.

At step6, When when power is switched off before ATTACH ACCEPT message is received,

UE shall:

- abort the PS attach procedure and perform the PS detach procedure.

12.2.1.9 PS attach / abnormal cases / PS detach procedure collision

12.2.1.9.1 Definition

12.2.1.9.2 Conformance requirement

- 1) When a DETACH REQUEST message is received by the UE (any cause except re-attach) while waiting for an ATTACH ACCEPT message, the UE shall terminate the PS attach procedure and continue with the PS detach procedure.
- 2) When a DETACH REQUEST message is received by the UE (cause re-attach) while waiting for an ATTACH ACCEPT message, the UE shall ignore the PS detach procedure and continue with the PS attach procedure.

Reference

3GPP TS 24.008 clause 4.7.3.1.

12.2.1.9.3 Test purpose

To test the behaviour of the UE in case of procedure collision.

12.2.1.9.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.

User Equipment:

The UE has a valid P-TMSI-1, P-TMSI-1 signature and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No (only if mode C not supported)
Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE initiates a PS attach procedure. The SS does not answer the PS attach procedure, but initiates a PS detach procedure (any cause except re-attach). The UE shall terminate the PS attach procedure and continue with the PS detach procedure.

The UE initiates a PS attach procedure. The SS does not answer the PS attach procedure, but initiates a PS detach procedure (cause re-attach). The UE shall ignore the PS detach procedure and continue with the PS attach.

Step	Direction	Message	Comments
	UE SS	_	
1	UE		The UE is set in UE operation mode C (see
			ICS).
2	UE		The UE is powered up or switched on and
			initiates an attach (see ICS).
3	->	ATTACH REQUEST	Attach type = 'PS attach'
			Mobile identity = P-TMSI-1
			P-TMSI-1 signature
			Routing area identity = RAI-1
4	SS		The SS ignores the ATTACH REQUEST
			message and initiates a detach procedure.
5	<-	DETACH REQUEST	Detach type = 're-attach not required'
6	->	DETACH ACCEPT	
7	UE		The UE initiates the attach procedure by MMI
		ATTAGU DEGUEGT	or AT command.
8	->	ATTACH REQUEST	Attach type = 'PS attach'
			Mobile identity = P-TMSI-1
			P-TMSI-1 signature
	00		Routing area identity = RAI-1
9	SS		The SS ignores the ATTACH REQUEST
40		DETACH DECHECT	message and initiates a detach procedure.
10 11	<- UE	DETACH REQUEST	Detach type = 're-attach required'
11	UE		The UE ignores the DETACH REQUEST
			message and continue with the attach
12	_	ATTACH ACCEPT	procedure.
12	<-	ATTACH ACCEPT	Attach result = 'PS only attached'
			Mobile identity = P-TMSI-2 P-TMSI-2 signature
			Routing area identity = RAI-1
13	->	ATTACH COMPLETE	Nouting area identity = NAI-1
14	UE	ATTAOTT COMIT LETE	The UE is switched off or power is removed
14	OL		(see ICS).
15	->	DETACH REQUEST	Message not sent if power is removed.
15	-/	DE INOTTRE QUEUT	Detach type = 'power switched off, PS detach'

Specific message contents

None.

12.2.1.9.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

initiate a the PS attach procedure with information elements specified in the above Expected Sequence when UE is powered up or switched on.

<u>UE shall perform the following actions depending on the Detach type in the DETACH REQUEST message.</u>

Case1) Detach type = 're-attach not required' GMM cause is not re attach

At step6, When when a the DETACH REQUEST message is received by the UE while waiting for an ATTACH ACCEPT message,

UE shall:

- terminate the PS attach procedure and continue with the PS detach procedure.

Case2) Detach type = 're-attach required' GMM cause is re attach

At step11, When when a the DETACH REQUEST message is received by the UE while waiting for an ATTACH ACCEPT message,

UE shall:

- ignore the PS detach procedure and continue with the PS attach procedure.

12.2.2 Combined PS attach

12.2.2.1 Combined PS attach / PS and non-PS attach accepted

12.2.2.1.1 Definition

12.2.2.1.2 Conformance requirement

- 1) If the network accepts the combined PS attach procedure (signalled by an IMSI) and allocates a P-TMSI, the UE shall acknowledge the P-TMSI and continue communication with the P-TMSI.
- 2) If the network accepts the combined PS attach procedure (signalled by P-TMSI) and reallocates a new P-TMSI, the UE shall acknowledge the new P-TMSI and continue communication with the new P-TMSI.
- 3) If the network accepts the combined PS attach procedure (signalled by a P-TMSI) from the UE without reallocation of the previously used P-TMSI, the UE shall continue communication with the previously used P-TMSI.
- 4) If the network accepts the combined PS attach procedure and determines that IMSI shall be used in CS operations, the UE shall continue communication with the IMSI for CS operations.
- 5) If the network accepts the combined PS attach procedure and determines that a TMSI shall be used in CS operations, the UE shall continue communication with the TMSI for CS operations.

Reference

3GPP TS 24.008 clause 4.7.3.2.

12.2.2.1.3 Test purpose

To test the behaviour of the UE if the network accepts the PS attach procedure.

The following cases are identified:

- 1) P-TMSI / P-TMSI signature is allocated;
- 2) P-TMSI / P-TMSI signature is reallocated;
- 3) Old P-TMSI / P-TMSI signature is not changed;
- 4) Mobile terminating CS call is allowed with IMSI;
- 5) Mobile terminating CS call is not allowed with TMSI.

12.2.2.1.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode I.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No UE operation mode A Yes/No

Switch off on button Yes/No Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

- 1) The UE sends an ATTACH REQUEST message with identity IMSI. The SS allocates a P-TMSI and returns ATTACH ACCEPT message with a P-TMSI. The UE acknowledge the P-TMSI by sending ATTACH COMPLETE message. Further communication UE SS is performed by the new P-TMSI. For CS calls, the IMSI is used.
- 2) The UE is CS paged in order to verify that the IMSI is used for CS calls.
- 3) The UE is PS paged in order to verify that the new P-TMSI is used for PS services.
- 4) The UE sends an ATTACH REQUEST message with identity P-TMSI. The SS allocates a new P-TMSI and returns ATTACH ACCEPT message with the new P-TMSI and a new TMSI. The UE acknowledge the P-TMSI and the TMSI by sending ATTACH COMPLETE message. Further communication UE SS is performed by the new P-TMSI. For CS calls, the new TMSI is used. The UE is CS paged in order to verify that the new TMSI is used for CS services.
- 5) The UE is PS paged in order to verify that the new P-TMSI is used for PS services. The UE will not answer signalling addressed to the old P-TMSI.
- 6) The UE sends an ATTACH REQUEST message with identity P-TMSI. The SS accepts the P-TMSI and returns ATTACH ACCEPT message without any P-TMSI. Further communication UE SS is performed by the previously used P-TMSI.
- 7) The UE is PS paged in order to verify that the previously used P-TMSI is used for PS services.

Step	Direction UE SS	Message	Comments
1	UE		The UE is set in UE operation mode A (see ICS).
2	UE		The UE is powered up or switched on and initiates an attach (see ICS).
3	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity =IMSI TMSI status = no valid TMSI available
4	<-	ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Mobile identity =IMSI Routing area identity = RAI-1
5	->	ATTACH COMPLETE	
6	<-	PAGING TYPE1	Mobile identity = IMSI Paging order is for CS services.
7 8	-> <-	RRC CONNECTION REQUEST RRC CONNECTION SETUP	
9	->	RRC CONNECTION SETUP COMPLETE	
10	->	PAGING RESPONSE	Mobile identity = IMSI
11	<-	RRC CONNECTION RELEASE	After sending of this message, the SS waits for disconnection of the CS signalling link.
12	->	RRC CONNECTION RELEASE COMPLETE	
13	<-	PAGING TYPE1	Mobile identity = P-TMSI-1 Paging for PS services
13a	->	RRC CONNECTION REQUEST	
13b 13c	<- ->	RRC CONNECTION SETUP RRC CONNECTION SETUP COMPLETE	
14	->	SERVICE REQUEST	service type = "paging response"
14a 14b	<- ->	RRC CONNECTION RELEASE RRC CONNECTION RELEASE COMPLETE	
15	UE		The UE is switched off or power is removed (see ICS).
16	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined PS / IMSI detach'
17	UE		The UE is powered up or switched on and
18	->	ATTACH REQUEST	initiates an attach (see ICS). Attach type = 'Combined PS / IMSI attach' Mobile identity = P-TMSI-1 P-TMSI-1 signature
19	<-	ATTACH ACCEPT	TMSI status = no valid TMSI available Routing area identity = RAI-1 Attach result = 'Combined PS / IMSI attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Mobile identity = TMSI-1 Routing area identity = RAI-1
20	->	ATTACH COMPLETE	
21 21b	<- ->	GMM INFORMATION GMM STATUS	Message sent in case the UE does not support
210		GIVIIVI OTATOO	reception of GMM information message Cause #97
22	<-	PAGING TYPE 1	Mobile identity = TMSI-1 Paging order is for CS services.
23	->	RRC CONNECTION REQUEST	
24 25	<- ->	RRC CONNECTION SETUP RRC CONNECTION SETUP	
26	->	COMPLETE PAGING RESPONSE	Mobile identity = TMSI-1

Step	Direction	Message	Comments
	UE SS		
27	<-	RRC CONNECTION RELEASE	After sending of this message, the SS waits for disconnection of the CS signalling link.
28	->	RRC CONNECTION RELEASE COMPLETE	
29	<-	PAGING TYPE1	Mobile identity = P-TMSI-2 Paging for PS services
29a	->	RRC CONNECTION REQUEST RRC CONNECTION SETUP	
29b 29c	<- ->	RRC CONNECTION SETUP	
30	->	COMPLETE SERVICE REQUEST	service type = "paging response"
30a	<-	RRC CONNECTION RELEASE	paging responds
30b	->	RRC CONNECTION RELEASE COMPLETE	
31	<-	PAGING TYPE1	Mobile identity = P-TMSI-1
32	UE		Paging for PS services No response from the UE to the request. This
33	UE		is checked for 10 seconds. The UE is switched off or power is removed
34	->	DETACH REQUEST	(see ICS). Message not sent if power is removed.
			Detach type = 'power switched off, combined PS / IMSI detach'
35	UE		The UE is powered up or switched on and initiates an attach (see ICS).
36	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach'
			Mobile identity = P-TMSI-2 P-TMSI-2 signature
			Routing area identity = RAI-1 TMSI status = valid TMSI available
37	<-	ATTACH ACCEPT	No new mobile identity assigned.
			TMSI and P-TMSI not included. Attach result = 'Combined PS / IMSI attached'
			P-TMSI-3 signature
38	<-	PAGING TYPE1	Routing area identity = RAI-1 Mobile identity = P-TMSI-2
38a	->	RRC CONNECTION REQUEST	Paging for PS services
38b	-> <-	RRC CONNECTION REQUEST	
38c	->	RRC CONNECTION SETUP	
39	->	SERVICE REQUEST	service type = "paging response"
39a 39b	<- ->	RRC CONNECTION RELEASE RRC CONNECTION RELEASE COMPLETE	
40	UE		The UE is switched off or power is removed (see ICS).
41	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined PS / IMSI detach'

Specific message contents

None.

12.2.2.1.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate <u>a the PS</u> attach procedure with information elements specified in the above Expected Sequence when UE is powered up or switched on.

Case 1) SS accept the combined PS attach procedure (signalled by an IMSI) and allocates a P-TMSI.

At step5, UE shall

- acknowledge the P TMSI send the ATTACH COMPLETE message and continue communication with the P TMSI.
- At step10, when the UE receives the paging message for CS domain with Mobile identity = IMSI, UE shall;
 - respond to the paging message for CS domain by sending the PAGING RESPONSE message.
- At step14, when the UE receives the paging message for PS domain with Mobile identity = P-TMSI-1, UE shall:
 - respond to the paging message for PS domain by sending the SERVICE REQUEST message.

Case 2) SS accepts the combined PS attach procedure (signalled by P-TMSI) and reallocates a new P-TMSI and TMSI.. At step20, UE shall:

- acknowledge the new P TMSI send the ATTACH COMPLETE message and continue communication with the new P TMSI.
- At step26, when the UE receives the paging message for CS domain with Mobile identity = TMSI, UE shall;
 - respond to the paging message for CS domain by sending the PAGING RESPONSE message.
- At step30, when the UE receives the paging message for PS domain with Mobile identity = P-TMSI-2, UE shall:
 - respond to the paging message for PS domain by sending the SERVICE REQUEST message.

Case 3) SS accepts the combined PS attach procedure (signalled by a P-TMSI) from the UE without reallocation of the previously used P-TMSI.

At step39, when the UE receives the paging message for PS domain with Mobile identity = P-TMSI-2, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

UE shall:

— continue communication with the previously used P TMSI.

Case 4) SS accepts the combined PS attach procedure and determines that IMSI shall be used in CS operations.

UE shall:

continue communication with the IMSI for CS operations.

Case 5) SS accepts the combined PS attach procedure and determines that a TMSI shall be used in CS operations.

UE shall:

— continue communication with the TMSI for CS operations.

12.2.2.2 Combined PS attach / PS only attach accepted

12.2.2.2.1 Definition

12.2.2.2.2 Conformance requirement

- 1) If the network accepts the combined PS attach procedure, but GMM cause code 'IMSI unknown in HLR' is sent to the UE the User Equipment shall delete the stored TMSI, LAI and CKSN. The User Equipment shall consider USIM invalid for non-PS services until power is switched off or USIM is removed.
- 2) If the network accepts the combined PS attach procedure, but GMM cause code 'MSC temporarily not reachable', 'Network failure' or 'Congestion' is sent to the UE, an UE operation mode A UE may perform an MM IMSI attach procedure.

Reference

3GPP TS 24.008 clause 4.7.3.2.

12.2.2.3 Test purpose

Test propose1

To test the behaviour of the UE if the network accepts the PS attach procedure with indication PS only, GMM cause 'IMSI unknown in HLR'.

Test porpose2

To test the behaviour of the UE if the network accepts the PS attach procedure with indication PS only, GMM cause 'MSC temporarily not reachable', 'Network failure' or 'Congestion'.

12.2.2.2.4 Method of test

12.2.2.4.1 Test porpose1

Initial condition

System Simulator:

One cell operating in network operation mode I.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE sends an ATTACH REQUEST message with identity IMSI. The SS allocates a P-TMSI and returns ATTACH ACCEPT message with a P-TMSI. GMM cause 'IMSI unknown in HLR' is indicated from SS. Further communication UE - SS is performed by the P-TMSI. CS services are not possible.

Step	Direction	Message	Comments
	UE SS		
1	UE		The UE is set in UE operation mode A.
2	UE		The UE is powered up or switched on and initiates an attach (see ICS).
3	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity =IMSI
4	<-	ATTACH ACCEPT	TMSI status = no valid TMSI available Attach result = 'PS only attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature GMM cause = 'IMSI unknown in HLR' Routing area identity = RAI-1
5	->	ATTACH COMPLETE	Troubling area ractility = 17/11-1
6	<-	PAGING TYPE1	Mobile identity = IMSI
7	UE		Paging order is for CS services. The UE shall not initiate an RRC connection. This is checked during 3 seconds.
8	UE		The UE is switched off or power is removed (see ICS).
9	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'

12.2.2.4.2 Test porpose2

Initial condition

System Simulator:

One cell operating in network operation mode I.

User Equipment:

The UE has a valid TMSI, P-TMSI, P-TMSI signature and RAI.

Related ICS/IXIT statements

Support of PS service Yes/No UE operation mode A Yes/No

Automatic MM IMSI attach procedure for UE operation mode A UE Yes/No

Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE sends an ATTACH REQUEST message. The SS allocates a P-TMSI and returns ATTACH ACCEPT message with a P-TMSI. GMM cause 'MSC temporarily not reachable', 'Network failure' or 'Congestion' is indicated from SS. The cause code is arbitrarily chosen. The UE sends a ROUTING AREA UPDATE REQUEST message. The SS returns a ROUTING AREA UPDATE ACCEPT message. GMM cause 'MSC temporarily not reachable', 'Network failure' or 'Congestion' is indicated from SS. The cause code is arbitrarily chosen. The ROUTING AREA UPDATE This procedure is repeated four times. An UE operation mode A UE may then perform an MM IMSI attach procedure (according to the ICS statement). Further communication UE - SS is performed by the P-TMSI. The existence of a signalling channel is verified by a request for mobile identity. CS services are not possible as an IMSI attach procedure is not performed.

Expected Sequence

Dependent whether the option 'Automatic MM IMSI attach procedure for UE operation mode A UE' is supported or not, the steps 1-22 or 23-53 apply depending on manufacturer (see ICS).

Step	Direction UE SS	Message	Comments
1	UE		The UE is set in UE operation mode A and no automatic MM IMSI attach procedure is indicated (see ICS).
2	UE		The UE is powered up or switched on and initiates an attach (see ICS).
3	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity =P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-1 TMSI status = valid TMSI available or IE is
4	<-	ATTACH ACCEPT	omitted Attach result = 'PS only attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature
5		ATTACH COMPLETE	Routing area identity = RAI-1 GMM cause = 'MSC temporarily not reachable', 'Network failure' or 'Congestion' (arbitrarily chosen)
5 7	->	ATTACH COMPLETE ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA / LA updating with IMSI attach' P-TMSI-2 signature Routing area identity = RAI-1
8	<-	ROUTING AREA UPDATE ACCEPT	TMSI status = no valid TMSI available No new mobile identity assigned. P-TMSI not included. Update result = 'RA updated' P-TMSI-3 signature Routing area identity = RAI-1 GMM cause = 'MSC temporarily not reachable', 'Network failure' or 'Congestion' (arbitrarily
10	->	ROUTING AREA UPDATE REQUEST	chosen) Update type = 'Combined RA / LA updating with IMSI attach' P-TMSI-3 signature Routing area identity = RAI-1
11	<-	ROUTING AREA UPDATE ACCEPT	TMSI status = no valid TMSI available No new mobile identity assigned. P-TMSI not included. Update result = 'RA updated' P-TMSI-4 signature Routing area identity = RAI-1 GMM cause = 'MSC temporarily not reachable', 'Network failure' or 'Congestion' (arbitrarily chosen)
12	SS ->	ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA / LA updating with IMSI attach' P-TMSI-4 signature Routing area identity = RAI-1The SS verifies that the time between the requests are T3311
13	<u>-≻-SS</u>	ROUTING AREA UPDATE REQUEST	The SS verifies that the time between the previous routing area update accept and routing area update request is T3311. Update type = 'Combined RA / LA updating with IMSI attach' P-TMSI-4 signature Routing area identity = RAI-1 TMSI status = no valid TMSI available

	Step	Direction	Message	Comments
	14	UE SS	ROUTING AREA UPDATE	No new mobile identity assigned.
	14	ζ-	ACCEPT	P-TMSI not included.
			7.0021	Update result = 'RA updated'
				P-TMSI-5 signature
				Routing area identity = RAI-1
				GMM cause = 'MSC temporarily not reachable',
				'Network failure' or 'Congestion' (arbitrarily
				chosen)
	16	->	ROUTING AREA UPDATE	Update type = 'Combined RA / LA updating
			REQUEST	with IMSI attach'
				P-TMSI-5 signature
1				Routing area identity = RAI-1
	17	<-	ROUTING AREA UPDATE	TMSI status = no valid TMSI available No new mobile identity assigned.
	17	<-	ACCEPT	P-TMSI not included.
			ACCEPT	Update result = 'RA updated'
				P-TMSI-6 signature
				Routing area identity = RAI-1
				GMM cause = 'MSC temporarily not reachable',
				'Network failure' or 'Congestion' (arbitrarily
				chosen)
	<u> 18-</u>	<u>(void)</u> ←	PAGING TYPE1	Mobile identity = IMSI
	<u>20</u> 19			Paging order is for CS services.
	20	UE		The UE shall not initiate an RRC connection.
	0.4			This is checked during 3 seconds.
	21	UE		The UE is switched off or power is removed
	22	_	DETACH BEOLIEST	(see ICS).
	22	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'.
				Stop the sequence.
	23	UE		Automatic MM IMSI attach procedure is
		0_		indicated (see ICS).
	24	UE		The UE is powered up or switched on and
				initiates an attach (see ICS).
	25	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach'
				Mobile identity = P-TMSI-1
				P-TMSI-1 signature
1				Routing area identity = RAI-1
				TMSI status = valid TMSI available or IE is
	26	<-	ATTACH ACCEPT	omitted No new mobile identity assigned.
	20	ζ-	ATTACITACCEFT	P-TMSI not included.
				Attach result = 'PS only attached'
				P-TMSI-2 signature
				Routing area identity = RAI-1
				GMM cause = 'MSC temporarily not reachable',
				'Network failure' or 'Congestion' (arbitrarily
				chosen)
	28	->	ROUTING AREA UPDATE	Update type = 'Combined RA / LA updating
			REQUEST	with IMSI attach
				P-TMSI-2 signature Routing area identity = RAI-1
				TMSI status = no valid TMSI available
ļ	29	<-	ROUTING AREA UPDATE	No new mobile identity assigned.
		•	ACCEPT	P-TMSI not included.
				Update result = 'RA updated'
				P-TMSI-3 signature
				Routing area identity = RAI-1
				GMM cause = 'MSC temporarily not reachable',
				'Network failure' or 'Congestion' (arbitrarily
	0.4		DOLITING ADEA LIDEATE	chosen)
	31	->	ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA / LA updating with IMSI attach'
			INLQUEST	P-TMSI-3 signature
				Routing area identity = RAI-1
				TMSI status = no valid TMSI available
1		ı	ı	

Seconting Area update No new mobile identity assigned.	Step	Direction	Message	Comments
ACCEPT P-TMSI H signature Routing area identity = RAI-1 GMM cause = "MSC temporarily not reachable", Network failure" or 'Congestion' (arbitrarily chosen) ROUTING AREA UPDATE REQUEST ROUTING AREA UPDATE ACCEPT ROUTING AREA UPDATE REQUEST ROUTING AREA UPDATE ACCEPT ROUTING AREA UPDATE REQUEST ROUTING AREA UPDATE ROUTING A	22	UE SS	POLITING AREA LIPPATE	No new mobile identity assigned
Update result = RA updated' P-TMSI-4 signature Routing area identity = RAI-1 GMM cause = MSC temporarily not reachable', Network failure' or 'Congestion' (arbitrarily chosen) Update type = Combined RA / LA updating with IMSI attach' P-TMSI-4 signature REQUEST 34 →SS ROUTING AREA UPDATE REQUEST 35 ← ROUTING AREA UPDATE REQUEST 36 ← ROUTING AREA UPDATE ACCEPT 37 → ROUTING AREA UPDATE ACCEPT 38 ← ROUTING AREA UPDATE ACCEPT 39 ← ROUTING AREA UPDATE REQUEST 39 ← ROUTING AREA UPDATE ACCEPT 40 ← ROUTING AREA UPDATE ACCEPT 41 ← ROUTING AREA UPDATE ACCEPT 42 ← ROUTING AREA UPDATE ACCEPT 44 ← ROUTING AREA UPDATE ACCEPT 45 ← ROUTING AREA UPDATE ACCEPT 46 ← ROUTING AREA UPDATE ACCEPT 47 ← ROUTING AREA UPDATE ACCEPT 48 ← ROUTING AREA UPDATE ACCEPT 49 ← ROUTING AREA UPDATE ACCEPT 40 ← ROUTING AREA UPDATE ACCEPT 40 ← ROUTING AREA UPDATE ACCEPT 40 ← ROUTING AREA UPDATE ACCEPT 41 ← ROUTING AREA UPDATE ACCEPT 42 ← ROUTING AREA UPDATE ACCEPT 44 ← ROUTING AREA UPDATE ACCEPT 45 ← ROUTING AREA UPDATE ACCEPT 46 ← ROUTING AREA UPDATE ACCEPT 47 ← ROUTING AREA UPDATE ACCEPT 48 ← ROUTING AREA UPDATE ACCEPT 49 ← ROUTING AREA UPDATE ACCEPT 40 ← ROUTING AREA UPDATE ACCEPT 40 ← ROUTING AREA UPDATE ACCEPT 40 ← ROUTING AREA UPDATE ACCEPT 41 ← ROUTING AREA UPDATE ACCEPT 42 ← ROUTING AREA UPDATE ACCEPT 44 ← ROUTING AREA UPDATE ACCEPT 45 ← ROUTING AREA UPDATE ACCEP	32	<-		
P.TMSI-4 signature Routing area identity = RAI-1 GMM cause = MSC temporarily not reachable', Network failure' or 'Congestion' (arbitrarily chosen) Update type = Combined RA / LA updating with IMSI attach' P.TMSI-4 signature ReQUEST ROUTING AREA UPDATE REQUEST ROUTING AREA UPDATE REQUEST ROUTING AREA UPDATE REQUEST ROUTING AREA UPDATE ACCEPT ROUTING AREA UPDATE REQUEST ROUTING AREA UPDATE ACCEPT ROUTING AREA UPDATE REQUEST ROUTING AREA UPDATE ACCEPT ROUTIN			/ COLI I	
Routing area identity = RAI-1				
SS				
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42- (void) RRC CONNECTION SETUP			CONNECTION REQUEST	
42- (void) RRC CONNECTION SETUP				
	12	(void) -	RRC CONNECTION SETUD	Parameter mobile identity is TMSI
46 42	48 42	(volu)— <-	THE CONTROL TOWARD TOP	

Step	Direction	Message	Comments
	UE SS		
43	->	RRC CONNECTION SETUP	
		COMPLETE	
44	->	LOCATION UPDATING REQ	Location updating type = IMSI attach.
45		LOCATION UPDATING ACC	The SS allocates a new TMSI.
46	>	TMSI REALLOCATION COMP	Location updating type = IMSI attach.
47	-<-	RRC CONNECTION RELEASE	After sending of this message, the SS waits for
			disconnection of the CS signalling link.
48	->	RRC CONNECTION RELEASE	
		COMPLETE	
49	<-	PAGING TYPE1	Mobile identity = TMSI-1
			Paging order is for CS services.
50	->	RRC CONNECTION REQUEST	
51	<-	RRC CONNECTION SETUP	
52	->	RRC CONNECTION SETUP	
		COMPLETE	
53	->	PAGING RESPONSE	Mobile identity = TMSI-1
54	<-	RRC CONNECTION RELEASE	After sending of this message, the SS waits for
			disconnection of the CS signalling link.
55	->	RRC CONNECTION RELEASE	
		COMPLETE	
56	UE		The UE is switched off or power is removed
			(see ICS).
57	->	DETACH REQUEST	Message not sent if power is removed.
			Detach type = 'power switched off, PS detach'

Specific message contents

None.

12.2.2.5 Test requirements

Test requirements for Test porpose1

UE shall

At step3, when the UE is powered up or switched on, UE shall:

- initiate <u>a-the</u> Combined PS attach procedure with information elements specified in the above Expected Sequence-when UE is powered up or switched on.

At step7, when the UE receives the paging message for CS domain, UE shall:

- keep the GMM update status GU1 UPDATED.

=	not respond to the paging message for CS domain.
	Case1) GMM-cause = 'IMSI unknown in HLR'
_	—UE shall
	delete stored TMSI, LAI, and ciphering key sequence number.
	— consider USIM invalid for non PS service until power is switching off or USIM is removed.
	Case2) GMM cause = 'MSC temporarily not reachable' or 'Network failure' or 'Congestion',
	UE shall:
	stop the timer T3310(if running), and shall increment the routing area update attempt counter.
	— perform the following actions depending on the conditions described below.

of the current serving cell and the GMM update status is equal to GU1 UPDATED:

Case 2 1) the routing area updating attempt counter is less than 5 and the stored RAI is equal to the RAI

- change state to GMM REGISTERED.ATTEMPTING TO UPDATE MM.
- start timer T3311. When timer T3311 expires, the combined routing area update procedure indicating "combined RA/LA updating with IMSI attach" is triggered again.
- Case 2 2) the routing area updating attempt counter is greater than or equal to 5
- UE shall
 - start timer T3302 and change state to GMM-REGISTERED.ATTEMPTING-TO-UPDATE-MM

Test requirements for Test porpose2

Case 1) UE does not support Automatic MM IMSI attach procedure.

At step3, when the UE is powered up or switched on, UE shall:

- initiate the Combined PS attach procedure with information elements specified in the above Expected Sequence.

At step7, 10, 12 and 16, when the routing area updating attempt counter is less than 5 and the stored RAI is equal to the RAI of the current serving cell, UE shall:

- perform the combined routing area update procedure indicating "combined RA/LA updating with IMSI attach".

Case 2) UE supports Automatic MM IMSI attach procedure.

At step25, when the UE is powered up or switched on, UE shall:

- initiate the Combined PS attach procedure with information elements specified in the above Expected Sequence.

At step28, 31, 33 and 37, when the routing area updating attempt counter is less than 5 and the stored RAI is equal to the RAI of the current serving cell, UE shall:

- perform the combined routing area update procedure indicating "combined RA/LA updating with IMSI attach".

At step41, UE shall:

- perform MM location updating procedure.

At step53, UE shall:

- respond to the paging message for CS domain by sending the PAGING RESPONSE message.

12.2.2.3 Combined PS attach / PS attach while IMSI attach

12.2.2.3.1 Definition

12.2.2.3.2 Conformance requirement

If the PS UE is already attached for non-PS services by the MM specific attach procedure, but wants to perform an attach for PS services, the combined PS attach procedure is performed.

Reference

3GPP TS 24.008 clause 4.7.3.2.

12.2.2.3.3 Test purpose

To test the behaviour of the UE if PS attach performed while IMSI attached.

12.2.2.3.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode I. ATT flag is set.

User Equipment:

The UE has a valid TMSI-1, P-TMSI-1, P-TMSI-1 signature and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode A Yes/No Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE is forced to register for CS services but not to PS services. The SS verifies that the UE does not respond to paging messages for PS domain. Then the UE is triggered to perform the PS attach procedure and the SS verifies that it responds to PS paging messages.

Step	Direction	Message	Comments
	UE SS		
1	UE		The UE is set in UE operation mode A (see
			ICS) and configured not to perform an
			automatic PS attach at switch on.
2	UE		The UE is powered up or switched on. No PS
			attach is performed (see ICS).
3		Registration on CS	See TS 34.108
		3	Location updating type = IMSI attach.
			The SS allocates TMSI-1
4	<-	PAGING TYPE1	Mobile identity = P-TMSI-1
			Paging order is for PS services.
5	UE		No response from the UE to the request. This
			is checked for 10 seconds.
6	UE		The UE is triggered to perform a PS attach.
7	->	ATTACH REQUEST	Attach type = 'PS attach while IMSI attached'
			Mobile identity =P-TMSI-1
			P-TMSI-1 signature
			Routing area identity = RAI-1
8	<-	ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached'
			No new mobile identity assigned. TMSI and P-
			TMSI not included
			P-TMSI-2 signature
			Routing area identity = RAI-1
9	<-	PAGING TYPE1	Mobile identity = P-TMSI-1
			Paging order is for PS services.
10	->	RRC CONNECTION REQUEST	
11	<-	RRC CONNECTION SETUP	
12	->	RRC CONNECTION SETUP	
		COMPLETE	
13	->	SERVICE REQUEST	service type = "paging response"
			7
14	<-	RRC CONNECTION RELEASE	
15	->	RRC CONNECTION RELEASE	
		COMPLETE	
16	UE		The UE is switched off or power is removed
			(see ICS).
17	->	DETACH REQUEST	Message not sent if power is removed.
			Detach type = 'power switched off, combined
			PS / IMSI detach'

Specific message contents

None.

12.2.2.3.5 Test requirements

UE is already attached for non-PS service with the MM specific attach procedure.

At step5, UE shall:

- not respond to the paging message for PS domain.

At step7, when the UE is requested to attach for PS services, UE shall:

-___-perform the combined PS attach procedure when UE is requested to attach for PS services.

At step13, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

12.2.2.4 Combined PS attach / rejected / IMSI invalid / illegal ME

12.2.2.4.1 Definition

12.2.2.4.2 Conformance requirement

- 1) If the network rejects a combined PS attach procedure from the User Equipment with the cause 'Illegal ME', the User Equipment shall consider USIM invalid for PS and non-PS services until power is switched off or USIM is removed.
- 2) If the network rejects a combined PS attach procedure from the User Equipment with the cause 'Illegal ME', the User Equipment shall delete the stored TMSI, LAI, CSKN, RAI, PS-CKSN, P-TMSI and P-TMSI signature.
- 3) The UE in the UE operation mode A shall perform an MM IMSI attach procedure.

Reference

3GPP TS 24.008 clause 4.7.3.2

12.2.2.4.3 Test purpose

To test the behaviour of the UE if the network rejects the combined PS attach procedure of the UE with the cause 'Illegal ME'.

12.2.2.4.4 Method of test

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1) and cell B in MCC2/MNC1/LAC1/RAC1 (RAI-2).

Both cells are operating in network operation mode I.

User Equipment:

The UE has a valid TMSI-1, P-TMSI-1, P-TMSI-1 signature and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No UE operation mode A Yes/No

USIM removal possible without powering down Yes/No

Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a PS attach with the cause value 'Illegal ME'. The SS checks that the UE does not perform PS attach in the same or another PLMN. <u>CS services are not possible as the USIM is blocked for CS services.</u> PS services are not possible as the USIM is blocked for PS services. An UE operation mode A UE shall perform an MM IMSI attach.

Step	Direction UE SS	Message	Comments
	02 00		The following messages are sent and shall be received on cell A.
1 2	SS UE		The SS activates cell A. The UE is set in UE operation mode A (see
3	UE		ICS). The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred
4	->	ATTACH REQUEST	by the UE. Attach type = 'Combined PS / IMSI attach' or 'GPRS attach while IMSI attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-1 TMSI status = valid TMSI available or IE is
5 6	<- UE	ATTACH REJECT PAGING TYPE1	omitted GMM cause 'Illegal ME'. Mobile identity = TMSI-1Paging order is for CS services. An automatic MM IMSI attach procedure is initiated.
7	UE	Registration on CS	The UE shall not initiate an RRC connection. This is checked during 3 seconds. See TS.34.108 Location updating type = IMSI attach. The SS allocates TMSI-2.
8	<-	PAGING TYPE1	Mobile identity = P-TMSI-1 MSI Paging order is for PS-CS services
9	UE		The UE shall not initiate an RRC connection. This is checked during 3 seconds. No response from the UE to the request. This is checked for 10 seconds.
10	<-	PAGING TYPE1	Mobile identity = \underline{P} -TMSI- $\underline{1}$ 2 Paging order is for \underline{CS} - \underline{PS} services.
11	-> <u>UE</u>	RRC CONNECTION REQUEST	No response from the UE to the request. This is checked for 10 seconds.
12 13	-> ←	RRC CONNECTION SETUP RRC CONNECTION SETUP COMPLETE	
14 15	-> ←	PAGING RESPONSE RRC CONNECTION RELEASE	Mobile identity = TMSI-2 After sending of this message, the SS waits for disconnection of the CS signaling link.
16	→	RRC CONNECTION RELEASE COMPLETE	aloosimoston of the oo dignaming lime.
12 13 14	SS UE UE		The following messages are sent and shall be received on cell B. The SS deactivates cell A and activates cell B. Cell B is preferred by the UE. No ATTACH REQUEST sent to the SS (SS waits 30 seconds).
<u>15</u>	<u><-</u>	PAGING TYPE1	Mobile identity = IMSI Paging order is for CS
<u>16</u>	<u>UE</u>		services The UE shall not initiate an RRC connection. This is checked during 3 seconds.
17	SS		The following messages are sent and shall be received on cell <u>BC</u> . The SS deactivates cell <u>A-C</u> and activates cell
18	UE		BC. Cell B-C is preferred by the UE.
<u>19</u>	<u>UE</u>		No ATTACH REQUEST sent to the SS (SS waits 30 seconds).
<u>20</u>	<u><-</u>	PAGING TYPE1	Mobile identity = IMSI Paging order is for PS services

Step	Direction	Message	Comments
24	UE SS		No response from the LIE to the request. This
<u>21</u> <u>22</u>	<u>UE</u> <u>UE</u>		No response from the UE to the request. This is checked for 10 seconds. If possible (see PICS) USIM removal is performed. Otherwise if possible (see PICS) switch off is performed. Otherwise the power is
19	₩E		removed. Step 20 is only performed for non-auto attach UE.
20	UE	Registration on CS	A location updating procedure is initiated. See TS34.108 Location updating type = normal. The SS allocates TMSL4.
21	UE		The SS allocates TMSI-1. UE initiates an attach automatically (see PICS), by MMI or AT commands.
22		PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services.
23 24 25		RRC CONNECTION REQUEST RRC CONNECTION SETUP RRC CONNECTION SETUP COMPLETE	
26 27		PAGING RESPONSE RRC CONNECTION RELEASE	Mobile identity = TMSI-1 After sending of this message, the SS waits for
28		RRC CONNECTION RELEASE COMPLETE	disconnection of the CS signaling link.
29		PAGING TYPE1	Mobile identity = IMSI Paging order is forPS services.
30	UE		The UE shall not initiate an RRC connection. This is checked during 3 seconds.
31 23	UE		The UE gets the USIM replaced, is powered up or switched on and initiates an attach (see
<u>24</u>	<u>UE</u>		ICS). Step 25 is only performed for non-auto attach UE. A location updating procedure is initiated.
<u>25</u>	<u>UE</u>	Registration on CS	See TS34.108 Parameter Mobile identity is IMSI.
<u>26</u>	<u>UE</u>		UE initiates an attach automatically (see PICS), by MMI or AT commands.
32 27	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' or 'GPRS attach while IMSI attached' Mobile identity = IMSI
33 28	<-	ATTACH ACCEPT	TMSI status = no valid TMSI available Attach result = 'Combined PS / IMSI attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Mobile identity = TMSI-12 Routing area identity = RAI-2
34 <u>29</u> 35 <u>30</u>	-> <-	ATTACH COMPLETE PAGING TYPE1	Mobile identity = TMSI-12 Paging order is for CS services.
36 <u>31</u> 37 <u>32</u> 38 <u>33</u>	-> <- ->	RRC CONNECTION REQUEST RRC CONNECTION SETUP RRC CONNECTION SETUP COMPLETE	T aging order to for our services.
39 <u>34</u> 40 <u>35</u>	-> <-	PAGING RESPONSE RRC CONNECTION RELEASE	Mobile identity = TMSI-2 After sending of this message, the SS waits for disconnection of the CS signalling link.
41 <u>36</u>	->	RRC CONNECTION RELEASE	alsoon rection of the GO signaling link.
4 2 37	UE		The UE is switched off or power is removed
43 38	->	DETACH REQUEST	(see ICS). Message not sent if power is removed. Detach type = 'power switched off, combined PS / IMSI detach'

| | |

Specific message contents

None.

12.2.2.4.5 Test requirements

At step4, when the UE is powered up or switched on, UE shall:

- initiate a-the combined PS attach procedure with the information elements specified in the above Expected Sequence when UE is powered up or switched on.
- check the GMM cause which is contained in the ATTACH REJECT message and stop the timer T3310.
- set the PS update status to GU3 ROAMING NOT ALLOWED.
- delete the stored P TMSI, P TMSI signature, RAI and PS ciphering key sequence number.
- consider USIM invalid for PS and non PS services until power is switched off or USIM is removed.

At step7, 9 and 16, when the UE receives the paging message for CS domain, UE shall,

- not respond to the paging message for CS domain.

At step11 and 21, when the UE receives the paging message for PS domain, UE shall,

- not respond to the paging message for PS domain.

At step27, when the USIM is replaced, UE shall:

- perform the combined PS attach procedure.

At step34, when the UE receives the paging message for CS domain, UE shall,

- respond to the paging message for CS domain by sending the RAGING RESPONSE message.
 - perform an MM IMSI attach procedure, if the UE is PS class A.

12.2.2.5 Combined PS attach / rejected / PS services and non-PS services not allowed

12.2.2.5.1 Definition

12.2.2.5.2 Conformance requirement

- 1) If the network rejects a combined PS attach procedure from the User Equipment with the cause 'PS services and non-PS services not allowed', the User Equipment shall consider USIM invalid for PS and non-PS services until power is switched off or USIM is removed.
- 2) If the network rejects a combined PS attach procedure from the User Equipment with the cause 'PS services and non-PS services not allowed', the User Equipment shall delete the stored TMSI, LAI, CSKN, RAI, PS-CKSN, P-TMSI and P-TMSI signature.

Reference

3GPP TS 24.008 clause 4.7.3.2.

12.2.2.5.3 Test purpose

To test the behaviour of the UE if the network rejects the combined PS attach procedure of the UE with the cause 'PS services and non-PS services not allowed'.

12.2.2.5.4 Method of test

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1) and cell B in MCC2/MNC1/LAC1/RAC1 (RAI-2).
 Both cells are operating in network operation mode I.

User Equipment:

- The UE has a valid TMSI-1, P-TMSI-1, P-TMSI-1 signature and RAI-1.

Related ICS/IXIT statements

- Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a PS attach with the cause value 'PS services and non-PS services not allowed'. The SS checks that the UE does not perform PS attach in the same or another PLMN. CS services are not possible as the USIM is blocked for CS services. PS services are not possible as the USIM is blocked for PS services.

Step	Direction UE SS	Message	Comments
	1		The following messages are sent and shall be
4	99		received on cell A. The SS activates cell A.
1 2	SS UE		The UE is set in UE operation mode A (see
_	<u> </u>		ICS).
3	UE		The UE is powered up or switched on and
			initiates an attach (see ICS). Cell A is preferred by the UE.
4	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' or
			'GPRS attach while IMSI attached'
			Mobile identity =P-TMSI-1
			P-TMSI-1 signature Routing area identity = RAI-1
5	<-	ATTACH REJECT	GMM cause 'PS services and non-PS services
			not allowed'
6	UE		The SS verifies that the UE does not attempt to access the network.
			(SS waits 30 seconds).
7	<-	PAGING TYPE1	Mobile identity = IMSI
			Paging order is for CS services.
8	UE		The UE shall not initiate an RRC connection. This is checked during 3 seconds.
9	<-	PAGING TYPE1	Mobile identity = P-TMSI-1
			Paging order is for PS Paging.
10	<u>>UE</u>		No response from the UE to the request.
11	UE SS		This is checked for 10 seconds Cell A is deactivated and cell B is activated.
12	0 2 <u>00</u>	(void)	Con 7 is deactivated and con 5 is activated.
13	UE		The SS verifies that the UE does not attempt to
			access the network. (SS waits 30 seconds).
14	<-	PAGING TYPE1	Mobile identity = IMSI
			Paging order is for CS services.
15	UE		The UE shall not initiate an RRC connection.
16	<-	PAGING TYPE1	This is checked during 3 seconds. Mobile identity = P-TMSI-1
		7.70.10	Paging order is for PS services.
17	UE		No response from the UE to the request. This
18	UE		is checked for 10seconds. If possible (see ICS) switch off is performed.
10	UE		Otherwise the power is removed.
19	UE		The UE is powered up or switched.
20	UE	Registration on CS	See TS 34.108
			This step is applied only for non-auto attach UE.
			Location Update Procedure initiated from the
24			UE. Parameter mobile identity is IMSI.
21	UE		UE initiates an attach automatically (see PICS), by MMI or AT commands.
22	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' <u>or</u>
			'GPRS attach while IMSI attached'
			Mobile identity = IMSI TMSI status = no valid TMSI available
23	<-	ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached'
			Mobile identity = P-TMSI-1
			P-TMSI-1 signature
			Mobile identity = TMSI-1 Routing area identity = RAI-2
24	->	ATTACH COMPLETE	Trouting aroundermity - IVAI-2
25	<-	PAGING TYPE1	Mobile identity = TMSI-1
26		PRC CONNECTION REQUEST	Paging order is for CS services.
26 27	-> <-	RRC CONNECTION REQUEST RRC CONNECTION SETUP	
	1	1	ı

Step	Direction	Message	Comments
	UE SS		
28	->	RRC CONNECTION SETUP COMPLETE	
29	->	PAGING RESPONSE	Mobile identity = TMSI-1
30	<-	RRC CONNECTION RELEASE	After sending of this message, the SS waits for disconnection of the CS signalling link.
31	->	RRC CONNECTION RELEASE COMPLETE	
32	<-	PAGING TYPE1	Mobile identity = P-TMSI-1 Paging is for PS services.
33	->	RRC CONNECTION REQUEST	
34	<-	RRC CONNECTION SETUP	
35	->	RRC CONNECTION SETUP COMPLETE	
36	->	SERVICE REQUEST	Service type = "paging response"
37	<-	RRC CONNECTION RELEASE	
38	->	RRC CONNECTION RELEASE COMPLETE	
39	UE		The UE is switched off or power is removed (see ICS).
40	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined PS / IMSI detach'

Specific message contents

None.

12.2.2.5.5 Test requirements

At step4, when the UE is powered up or switched on, UE shall:

- initiate a-the combined PS attach procedure with the information elements specified in the above Expected Sequence—when UE is powered up or switched on.
- check the GMM cause which is contained in the ATTACH REJECT message and stop the timer T3310.
- set the PS update status to GU3 ROAMING NOT ALLOWED.
- delete the stored P TMSI, P TMSI signature, RAI and PS ciphering key sequence number.
- consider USIM invalid for PS and non PS services until power is switched off or USIM is removed. At step8 and 14, when the UE receives the paging message for CS domain, UE shall:
 - not respond to the paging message for CS domain.
- At step10 and 17, when the UE receives the paging message for PS domain, UE shall:
 - not respond to the paging message for PS domain.
- At step22, when the UE is powered up or switched on, UE shall:
 - initiate the combined PS attach procedure.
- At step29, when the UE receives the paging message for CS domain, UE shall:
- respond to the paging message for CS domain by sending the PAGING RESPONSE message.
- At step36, when the UE receives the paging message for PS domain, UE shall:
 - respond to the paging message for PS domain by sending the SERVICE REQUEST message.

12.2.2.6 Combined PS attach / rejected / PS services not allowed

12.2.2.6.1 Definition

12.2.2.6.2 Conformance requirement

- If the network rejects a combined PS attach procedure from the User Equipment with the cause 'PS services not allowed', the User Equipment shall consider USIM invalid for PS services until power is switched off or USIM is removed.
- 2) If the network rejects a combined PS attach procedure from the User Equipment with the cause 'PS services not allowed' the User Equipment shall delete the stored RAI, PS-CKSN, P-TMSI and P-TMSI signature.
- 3) A PS class AUE shall perform an MM IMSI attach procedure.

Reference

3GPP TS 24.008 clause 4.7.3.2

12.2.2.6.3 Test purpose

To test the behaviour of the UE if the network rejects the PS attach procedure of the UE with the cause 'PS services not allowed'.

12.2.2.6.4 Method of test

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1) and cell B in MCC2/MNC1/LAC1/RAC1 (RAI-2).

Both cells are operating in network operation mode I.

ATT flag set to 1

User Equipment:

The UE has a valid TMSI, P-TMSI-1, P-TMSI-1 signature and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No UE operation mode A Yes/No Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a normal attach with the cause value 'PS services not allowed'. The SS checks that the UE does not perform PS attach. PS services are not possible. An UE operation mode A UE shall perform an MM IMSI attach.

Step	Direction UE SS	Message	Comments
1 2	SS UE		The following messages are sent and shall be received on cell A. The SS activates cell A. The UE is powered up or switched on-and
<u>2a</u>	<u>UE</u>	Registration on CS	initiates an attach (see ICS). See TS 34.108 This step is applied only for non-auto attach
<u>2b</u> 3	<u>UE</u> ->	ATTACH REQUEST	UE. Location Update Procedure initiated from the UE. Parameter mobile identity is TMSI-1. UE initiates an attach automatically (see PICS), via MMI or AT commands. Attach type = 'Combined PS / IMSI attach'_or 'GPRS attach while IMSI attached' Mobile identity =P-TMSI-1 P-TMSI-1 signature
4 5	<- UE	ATTACH REJECT	Routing area identity = RAI-1 GMM cause 'PS services not allowed' An automatic MM IMSI attach procedure is initiated.
6	UE	Registration on CS	See TS 34.108 Location updating type = IMSI attach.
7	<-	PAGING TYPE1	The SS allocates TMSI-2. Mobile identity = TMSI-2 Paging order is for CS services.
8 9 10	-> <- ->	RRC CONNECTION REQUEST RRC CONNECTION SETUP RRC CONNECTION SETUP COMPLETE	
11 12	-> <-	PAGING RESPONSE RRC CONNECTION RELEASE	Mobile identity = TMSI-2 After sending of this message, the SS waits for disconnection of the CS signaling link.
13	->	RRC CONNECTION RELEASE COMPLETE	
14 15 16 17	SS UE UE UE	Registration on CS	The following messages are sent and shall be received on cell B. The SS deactivates cell A and activates cell B. Cell B is preferred by the UE. A location updating procedure is initiated. See TS 34.108 Location updating type = normal. The SS allocates TMSI-1.
18	<-	PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services.
19 20 21	-> <- ->	RRC CONNECTION REQUEST RRC CONNECTION SETUP RRC CONNECTION SETUP COMPLETE	
22 23	-> <-	PAGING RESPONSE RRC CONNECTION RELEASE	Mobile identity = TMSI-1 After sending of this message, the SS waits for disconnection of the CS signalling link.
24	->	RRC CONNECTION RELEASE COMPLETE	
25	<-	PAGING TYPE1	Mobile identity = P-TMSI-1 Paging is for PS services
26	UE		No response from the UE to the request. This is checked for 10seconds.
27	UE		If possible (see ICS) switch off is performed. Otherwise the power is removed.
<u>27a</u>	<u>UE</u>		If switch off is performed then UE performs IMSI detach procedure.
28	UE		The UE is powered up or switched on and initiates an attach (see ICS).

Step	Direction	Message	Comments
	UE SS		
<u>28a</u>	<u>UE</u>	Registration on CS	See TS 34.108
			This step is applied only for non-auto attach
			UE.
			Location Update Procedure initiated from the
			UE. Parameter mobile identity is TMSI-1.
<u>28b</u>	<u>UE</u>		UE initiates an attach automatically (see PICS),
			via MMI or AT commands.
29	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' <u>or</u>
			'GPRS attach while IMSI attached'
			Mobile identity = IMSI
			TMSI status = no valid TMSI available
30	<-	ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached'
			Mobile identity = P-TMSI-1
			P-TMSI-1 signature
			Mobile identity = TMSI-2
			Routing area identity = RAI-2
31	->	ATTACH COMPLETE	
32	<-	PAGING TYPE1	Mobile identity = TMSI-2
			Paging order is for CS services.
33	->	RRC CONNECTION REQUEST	
34	<-	RRC CONNECTION SETUP	
35	->	RRC CONNECTION SETUP	
		COMPLETE	
36	->	PAGING RESPONSE	Mobile identity = TMSI-2
37	<-	RRC CONNECTION RELEASE	After sending of this message, the SS waits for
			disconnection of the CS signalling link.
38	->	RRC CONNECTION RELEASE	
		COMPLETE	
39	UE		The UE is switched off or power is removed
			(see ICS).
40	->	DETACH REQUEST	Message not sent if power is removed.
			Detach type = 'power switched off, combined
			PS / IMSI detach'

Specific message contents

None.

12.2.2.6.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate <u>a-the</u> combined PS attach procedure with the information elements specified in the above Expected Sequence—when UE is powered up or switched on.
- check the GMM cause which is contained in the ATTACH REJECT message and stop the timer T3310.
- set the PS update status to GU3 ROAMING NOT ALLOWED.
- delete stored P TMSI, P TMSI signature, RAI and PS ciphering key sequence number.
- consider USIM invalid for PS services until power is switched off or USIM is removed. At step6, if the UE is PS class A, UE shall:
 - -___-perform an the MM IMSI attach procedure, if the UE is PS class A.

At step11, 22 and 36, when the UE receives the paging message for CS domain, UE shall:

- respond to the paging message for CS domain by sending the PAGING RESPONSE message.

At step26, when the UE receives the paging message for PS domain, UE shall:

- not respond to the paging message for PS domain.

At step29, UE shall:

- perform the PS attach procedure.

12.2.2.7a Combined PS attach / rejected / location area not allowed

12.2.2.7a.1 Definition

12.2.2.7a.2 Conformance requirement

- 1) If the network rejects a combined PS attach procedure from the User Equipment with the cause 'location area not allowed' the User Equipment shall:
 - 1.1 not perform combined PS attach when in the same location area.
 - 1.2 delete the stored LAI, CKSN, TMSI, RAI, PS-CKSN, P-TMSI and P-TMSI signature.
 - 1.3 store the LA in the 'forbidden location areas for regional provision of service'.
- 2) If the network rejects a combined PS attach procedure from the User Equipment with the cause 'location area not allowed' the User Equipment shall:
 - 2.1 perform combined PS attach when a new location area is entered.
 - 2.2 delete the list of forbidden LAs when power is switched off.

Reference

3GPP TS 24.008 clauses 4.7.3.2.

12.2.2.7a.3 Test purpose

To test the behaviour of the UE if the network rejects the combined PS attach procedure with the cause 'Location Area not allowed'.

To test that the UE deletes the list of forbidden LAs when power is switched off.

12.2.2.7a.4 Method of test

Initial condition

System Simulator:

Three cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4), cell C in MCC1/MNC1/LAC2/RAC1 (RAI-3). All cells are operating in network operation mode I.

User Equipment:

The UE has a valid TMSI, P-TMSI, P-TMSI signature and RAI.

Related ICS/IXIT statements

Support of PS service Yes/No UE operation mode A Yes/No Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a combined PS attach with the cause value 'Location Area not allowed'. The SS checks that the UE does not perform combined PS attach while in the location area, performs PS attach when a new location area is entered and deletes the list of forbidden LAs when switched off. CS services are not possible unless an IMSI attach procedure is performed.

Different types of UE may use different methods to periodically clear the list of forbidden location areas (e.g. every day at 12am). If the list is cleared while the test is being run, it may be necessary to re-run the test.

Step	Direction UE SS	Message	Comments
	SS		The following messages are sent and shall be
			received on cell A.
1 2	SS UE		The SS activates cell A. The UE is set in UE operation mode A (see
	OL		ICS).
3	UE		The UE is powered up or switched on and
			initiates an attach (see ICS). Cell A is preferred
4	->	ATTACH REQUEST	by the UE. Attach type = 'Combined PS / IMSI attach' or
			"PS Attach while IMSI attached"
			Mobile identity = P-TMSI-1
			P-TMSI-1 signature Routing area identity = RAI-1
5	<-	ATTACH REJECT	GMM cause 'Location Area not allowed'
6	UE		No LOCATION UPDATING REQ with type
			'IMSI attach' is sent to the SS (SS waits 30 seconds).
7	<-	PAGING TYPE1	Mobile identity = TMSI
			Paging order is for CS services.
8	UE		The UE shall not initiate an RRC connection.
9	<-	PAGING TYPE1	This is checked during 3 seconds. Mobile identity = P-TMSI-1
	,		Paging oder is for PS services.
10	->		No response from the UE to the request.
			This is checked for 10 seconds The following messages are sent and shall be
			received on cell B.
11	SS		The SS deactivates cell A and activates cell B.
12 13	UE UE		Cell B is preferred by the UE. No ATTACH REQUEST or LOCATION
13	OE OE		UPDATING REQ is sent to SS
			(SS waits 30-60 seconds)
14	₩E		No LOCATION UPDATING REQ with type
			'IMSI attach' is sent to the SS (SS waits 30 seconds).
15	<-	PAGING TYPE1	Mobile identity = P-TMSI-1
40			Paging order is for PS services.
16	UE		No response from the UE to the request. This is checked for 10seconds.
17	UE		The UE initiates an attach by MMI or AT
40			command.
18			No attach is performed by the UE. This is checked for 10 seconds.
			The following messages are sent and shall be
10			received on cell C.
19 20	SS UE		The SS deactivates cell B and activates cell C. Cell C is preferred by the UE.
21	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach'
			Mobile identity = IMSI
22	<-	ATTACH ACCEPT	TMSI status = no valid TMSI available Attach result = 'Combined PS / IMSI attached'
		MIAGITAGELLI	Mobile identity = P-TMSI1
			P-TMSI-1 signature
			Mobile identity = TMSI-1
23	->	ATTACH COMPLETE	Routing area identity = RAI-3
24	<-	PAGING TYPE1	Mobile identity = TMSI-1
05		DDC CONNECTION DECLIEST	Paging order is for CS services.
25 26	-> <-	RRC CONNECTION REQUEST RRC CONNECTION SETUP	
27	->	RRC CONNECTION SETUP	
		COMPLETE	Mahilla idantita. TMOL4
28	->	PAGING RESPONSE	Mobile identity = TMSI-1

Step	Direction UE SS	Message	Comments
29	<-	RRC CONNECTION RELEASE	After sending of this message, the SS waits for disconnection of the CS signalling link.
30	->	RRC CONNECTION RELEASE COMPLETE	
31	<-	PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.
32 33	-> <-	RRC CONNECTION REQUEST RRC CONNECTION SETUP	
34	->	RRC CONNECTION SETUP COMPLETE	
35 36 37	-> <- ->	SERVICE REQUEST RRC CONNECTION RELEASE RRC CONNECTION RELEASE COMPLETE	Service type = "paging response"
38	UE		The UE is switched off or power is removed (see ICS).
39	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined PS / IMSI detach'
			The following messages are sent and shall be received on cell B.
40	UE		The SS deactivates cell C and activates cell B. Cell B is preferred by the UE.
41	UE		The UE is powered up or switched on and initiates an attach (see ICS).
42			Step 43 is only performed for non-auto attach UE.
43 44	UE UE	Registration on CS	See TS 34.108 UE initiates an attach automatically (see PICS), by MMI or AT commands.
45	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' or "PS Attach while IMSI attached" Mobile identity = P-TMSI-1 P-TMSI-1 signature
46	<-	ATTACH ACCEPT	Routing area identity = RAI-3 Attach result = 'Combined PS / IMSI attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Mobile identity = TMSI-2 Routing area identity = RAI-4
47 48	-> <-	ATTACH COMPLETE PAGING TYPE1	Mobile identity = TMSI-2
49	->	RRC CONNECTION REQUEST	Paging order is for CS services.
50 51	<- ->	RRC CONNECTION SETUP RRC CONNECTION SETUP COMPLETE	
52 53	-> <-	PAGING RESPONSE RRC CONNECTION RELEASE	Mobile identity = TMSI-2 After sending of this message, the SS waits for
54	->	RRC CONNECTION RELEASE	disconnection of the CS signalling link.
55	<-	COMPLETE PAGING TYPE1	Mobile identity = P-TMSI-2
56 57 58	-> <- ->	RRC CONNECTION REQUEST RRC CONNECTION SETUP RRC CONNECTION SETUP COMPLETE	Paging order is for PS services.
59 60 61	-> <- ->	SERVICE REQUEST RRC CONNECTION RELEASE RRC CONNECTION RELEASE COMPLETE	service type = "paging response"
62	UE		The UE is switched off or power is removed (see ICS).

Step	Direction		Message	Comments
	UE	SS		
63		->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined PS / IMSI detach'

Specific message contents

None.

12.2.2.7a.5 Test requirements

At step4, when the UE is powered up or switched on, UE shall:

- initiate a-the combined PS attach procedure with the information elements specified in the above Expected Sequence-when UE is powered up or switched on.
- perform the following action depending on UE location.

When in the same location area, UE shall

- check the GMM cause which is contained in the ATTACH REJECT message and stop timer T3310.
- delete any stored LAI, CKSN, TMSI, RAI, PS CKSN, P TMSI and P TMSI signature.
- store the LAI or the PLMN identity in the appropriate forbidden list("forbidden location areas for regional provision of service").

At step6, when the UE receives the ATTACH REJECT message with GMM cause = 'Location Area not allowed', UE shall:

not initiate MM location updating procedure.

At step8, when the UE receives the paging message for CS domain, UE shall:

- not respond to the paging message for CS domain.

At step10 and 16, when the UE receives the paging message for PS domain, UE shall:

- not respond to the paging message for PS domain.

At step13 and 18, when the UE is in the same location area, UE shall:

not perform PS attach procedure.

At step21, When when the UE enters a new location area is entered, UE shall

- perform the combined PS attach-when UE entered a new location area procedure.
- delete the list of forbidden LAs when power is switched off.

At step28 and 52, when the UE receives the paging message for CS domain, UE shall:

- respond to the paging message for CS domain by sending the PAGING RESPONSE message.

At step35 and 59, when the UE receives the paging message for PS domain, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

At step45, when the UE is powered up or switched on, UE shall:

- perform the combined PS attach procedure.

12.2.2.7b Combined PS attach / rejected / No Suitable Cells In Location Area

12.2.2.7b.1 Definition

12.2.2.7b.2 Conformance requirement

- 1) If the network rejects a combined PS attach procedure from the User Equipment with the cause 'No Suitable Cells In Location Area', the User Equipment shall:
 - 1.1 not perform combined PS attach when in the same location area.
 - 1.2 delete the stored LAI, CKSN, TMSI, RAI, PS-CKSN, P-TMSI and P-TMSI signature.
 - 1.3 store the LA in the 'forbidden location areas for roaming'.
- 2) If the network rejects a combined PS attach procedure from the User Equipment with the cause 'No Suitable Cells In Location Area', the User Equipment shall:
 - 2.1 search for a suitable cell in a different location area on the same PLMN.

Reference

3GPP TS 24.008 clauses 4.7.3.2.

12.2.2.7b.3 Test purpose

To test the behaviour of the UE if the network rejects the combined PS attach procedure with the cause 'No Suitable Cells In Location Area'.

12.2.2.7b.4 Method of test

Initial condition

System Simulator:

Three cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC2/RAC1 (RAI-3), cell C in MCC2/MNC1/LAC1/RAC1 (RAI-2)

User Equipment:

The UE has valid TMSI, P-TMSI, P-TMSI signature and RAI

Related ICS/IXIT statements

Support of PS service Yes/No UE operation mode A Yes/No Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a combined PS attach with the cause value 'No Suitable Cells In Location Area'. The SS checks that the UE shall search for a suitable cell in a different location area on the same PLMN and shall perform combined PS attach procedure in that cell

Step	Direction	Message	Comments
-	UE SS		
	SS		The SS activates three cells simultaneously.
			The SS configures power level of each Cell as
			follows.
			Cell A > Cell B = Cell C
1	UE		The UE is set in UE operation mode A (see
			ICS).
2	UE		The UE is powered up or switched on and
			initiates an attach (see ICS). Cell A is preferred
			by the UE.
3	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach'
			Mobile identity =P-TMSI-1
			P-TMSI-1 signature
			Routing area identity = RAI-1
4	<-	ATTACH REJECT	GMM cause = 'No Suitable Cells In Location
			Area'
5	SS		The SS initiates the RRC connection release.
			The following message are sent and shall be
			received on cell B.
6	UE		The UE initiates an attach automatically, by
			MMI or by AT command.
7	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach'
			Mobile identity = IMSI
			TMSI status = no valid TMSI available
8	<-	ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached'
			Mobile identity = P-TMSI-2
			P-TMSI-2 signature
			Mobile identity = TMSI-2
_			Routing area identity = RAI-•
9	->	ATTACH COMPLETE	
10	UE		The UE is switched off or power is removed
			(see ICS).
11	->	DETACH REQUEST	Message not sent if power is removed.
			Detach type = 'power switched off, PS detach'

Specific message contents

None.

12.2.2.7b.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate <u>a-the</u> combined PS attach procedure with the information elements specified in the above Expected sequence when the UE is powered up or switched on.
- delete any stored LAI, CKSN, TMSI, RAI, PS CKSN, P TMSI and P TMSI signature.
- store the LAI or the PLMN identity in the appropriate forbidden list("forbidden location areas for roaming ").
- search for a suitable cell in a different location area on the same PLMN. At step7, when the UE enters a suitable cell in a different location area on the same PLMN, UE shall:
 - initiate the combined PS attach procedure.

12.2.2.8 Combined PS attach / abnormal cases / attempt counter check / miscellaneous reject causes

12.2.2.8.1 Definition

12.2.2.8.2 Conformance requirement

- 1) When a combined PS attach procedure is rejected with the attempt counter less than five, the User Equipment shall repeat the combined PS attach procedure after T3311 timeout.
- 2) When a combined PS attach procedure is rejected with the attempt counter five, the User Equipment shall delete the stored TMSI, LAI, CKSN, P-TMSI, P-TMSI signature, PS CKSN and RAI and start T3302.
- 3) When the T3302 expire, a new combined PS attach procedure shall be initiated.

GMM cause codes that can be selected are:

'IMSI unknown in HLR'

'IMEI not accepted'

'UE identity cannot be derived by the network'

'Network failure'

'Congestion'

'retry upon entry into a new cell'

'Semantically incorrect message'

'Invalid mandatory information'

'Message type non-existent or not implemented'

'Message type not compatible with the protocol state'

'Information element non-existent or not implemented'

'Conditional IE error'

'Message not compatible with the protocol state'

'Protocol error, unspecified'

Reference

3GPP TS 24.008 clause 4.7.3.2.

12.2.2.8.3 Test purpose

To test the behaviour of the UE with respect to the attempt counter.

12.2.2.8.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode I.

User Equipment:

The UE has a valid TMSI, P-TMSI, P-TMSI signature and RAI.

Related ICS/IXIT statements

Support of PS service Yes/No UE operation mode A Yes/No Automatic PS attach procedure at switch on or power on Yes/No

Switch off on button Yes/No

Test procedure

The UE initiates a combined PS attach procedure (attempt counter zero).

The SS rejects the attach with an <u>arbitrarily chosen random</u> cause code.

The UE initiates a new combined PS attach procedure (attempt counter one) after T3311 expires.

The SS rejects the attach with an <u>arbitrarily chosenrandom</u> cause code.

The UE initiates a new combined PS attach procedure (attempt counter two) after T3311 expires.

The SS rejects the attach with an arbitrarily chosenrandom cause code.

The UE initiates a new combined PS attach procedure (attempt counter three) after T3311 expires.

The SS rejects the attach with an <u>arbitrarily chosen random</u> cause code.

The UE initiates a new combined PS attach procedure (attempt counter four) after T3311 expires.

The SS rejects the attach with an <u>arbitrarily chosenrandom</u> cause code.

The UE initiates a new combined PS attach procedure with attempt counter five (after T3311 expires).

The SS rejects the attach with a random cause code. The UE shall not perform a new successful attach procedure after 15 seconds.

The UE initiates a combined PS attach procedure with attempt counter zero after T3302 expires without P-TMSI, P-TMSI signature, PS CKSN and RAI.

T3302; set to 10 minutes.

T3311; 15 seconds.

Step	Direction UE SS	Message	Comments
1	UE		The UE is set in UE operation mode A (see
2	UE		ICS). The UE is powered up or switched on and
_	02		initiates an attach (see ICS).
3	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach'
			Mobile identity =P-TMSI-1 P-TMSI-1 signature
			Routing area identity = RAI-1
4	<-	ATTACH REJECT	Arbitrary chosen GMM cause
5	SS		T3302 with value 10 min. The SS verifies that the time between the
	33		attach reject and attach requests is T3311
6	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach'
			Mobile identity = P-TMSI-1 P-TMSI-1 signature
			Routing area identity = RAI-1
7	<-	ATTACH REJECT	Arbitrarily chosen GMM cause
	00		T3302 with value 10 min.
8	SS		The SS verifies that the time between the attach reject and attach requests is T3311
9	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach'
			Mobile identity = P-TMSI-1
			P-TMSI-1 signature Routing area identity = RAI-1
10	<-	ATTACH REJECT	Arbitrarily chosen GMM cause
	00		T3302 with value 10 min.
11	SS		The SS verifies that the time between the attach reject and attach requests is T3311
12	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach'
			Mobile identity = P-TMSI-1
			P-TMSI-1 signature Routing area identity = RAI-1
13	<-	ATTACH REJECT	Arbitrarily chosen GMM cause
			T3302 with value 10 min.
14	SS		The SS verifies that the time between the attach reject and attach requests is T3311
15	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach'
			Mobile identity =P-TMSI-1
			P-TMSI-1 signature Routing area identity = RAI-1
16	<-	ATTACH REJECT	Arbitrarily chosen GMM cause
			T3302 with value 10 min.
17	UE	Registration on CS	No LOCATION UPDATING REQ with type 'IMSI attach' is sent to the SS
			(SS waits 30 seconds). See TS 34.108
			This is applied only for UE in UE operation
			mode A. Parameter mobile identity is IMSI.
18		PAGING TYPE1	Mobile identity = TMSI-1
			Paging order is for CS services.
19	UE		The UE shall not initiate an RRC connection. This is checked during 3 seconds.
20	<-	PAGING TYPE1	Paging order is for PS services.
			Mobile identity = P-TMSI-1
21	UE		No response from the UE to the request. This is checked for 10seconds.
22	SS		The SS verifies that the UE does not attempt to
			attach for T3302.
23	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach'
			'GPRS attach while IMSI attached' Mobile identity = IMSI
			TMSI status = no valid TMSI available

Step	Direction	Message	Comments
	UE SS		
24	<-	ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached'
			Mobile identity P-TMSI-1
			P-TMSI signature
			Mobile identity = TMSI-1
			Routing area identity = RAI-1
25	->	ATTACH COMPLETE	
26	<-	PAGING TYPE1	Mobile identity = TMSI-1
			Paging order is for CS services
27	->	RRC CONNECTION REQUEST	
28	<-	RRC CONNECTION SETUP	
29	->	RRC CONNECTION SETUP	
		COMPLETE	
30	->	PAGING RESPONSE	Mobile identity = TMSI-1
31	<-	RRC CONNECTION RELEASE	After sending of this message, the SS waits for
			disconnection of the CS signalling link.
32	->	RRC CONNECTION RELEASE	
		COMPLETE	
33	<-	PAGING TYPE1	Mobile identity = P-TMSI-1
33a	->	RRC CONNECTION REQUEST	
33b	<-	RRC CONNECTION SETUP	
33c	->	RRC CONNECTION SETUP	
		COMPLETE	
34	->	SERVICE REQUEST	Service type = "paging response"
34a	<-	RRC CONNECTION RELEASE	
34b	->	RRC CONNECTION RELEASE	
		COMPLETE	
35	UE		The UE is switched off or power is removed
			(see ICS).
36	->	DETACH REQUEST	Message not sent if power is removed.
			Detach type = 'power switched off, combined
			PS / IMSI detach'

Specific message contents

None.

12.2.2.8.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate <u>a-the</u> combined PS attach procedure with the information elements specified in the above Expected Sequence when UE is powered up or switched on.

<u>UE shall</u> –perform the following actions depending on the conditions described below.

Case1) A combined PS attach procedure is rejected with the attempt counter less than five

At step6, 9, 12 and 15, when the timer T3311 timeout has occurred, UE shall:

- repeat the combine PS attach procedure after the timer T3311 timeout.

Case2) A combined PS attach procedure is rejected with the attempt counter five

UE shall:

At step21, when the UE receives the paging message for PS domain, UE shall:

- not respond to the paging message for PS domain.
- delete the stored TMSI, LAI, CKSN, P TMSI, P TMSI signature, PS CKSN and RAI and
- start the timer T3302.

Case3) The T3302 expires

At step23, UE shall:

- re-initiate a-the new combined PS attach procedure.

At step30, when the UE receives the paging message for CS domain, UE shall:

- respond to the paging message for CS domain by sending the PAGING RESPONSE message.

At step34, when the UE receives the paging message for PS domain, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

12.2.2.9 Combined PS attach / abnormal cases / PS detach procedure collision

12.2.2.9.1 Definition

12.2.2.9.2 Conformance requirement

- 1) When a DETACH REQUEST message is received by the UE (any cause except re-attach) while waiting for an ATTACH ACCEPT message or ATTACH REJECT message, the UE shall terminate the combined PS attach procedure and continue with the combined PS detach procedure.
- 2) When a DETACH REQUEST message is received by the UE (cause re-attach) while waiting for an ATTACH ACCEPT message or ATTACH REJECT message, the UE shall ignore the combined PS detach procedure and continue with the combined PS attach procedure.

Reference

3GPP TS 24.008 clause 4.7.3.2.

12.2.2.9.3 Test purpose

To test the behaviour of the UE in case of procedure collision.

12.2.2.9.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode I.

User Equipment:

The UE has valid TMSI, P-TMSI, P-TMSI signature and RAI. UE is Idle Updated.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE initiates a combined PS attach procedure. The SS does not answer the combined PS attach procedure, but initiates a combined PS detach procedure (any cause except re-attach). The UE shall terminate the combined PS attach procedure and continue with the combined PS detach procedure.

The UE initiates a combined PS attach procedure. The SS does not answer the combined PS attach procedure, but initiates a combined PS detach procedure (cause re-attach). The UE shall ignore the combined PS detach procedure and continue with the combined PS attach. CS services are also possible.

Expected Sequence

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Specific message contents

None.

12.2.2.9.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate a-the combined PS attach procedure with the information elements specified in the above Expected Sequence-when UE is powered up or switched on.

<u>UE shall</u> –perform the following actions depending on the Detach type described below.

Case1) Detach type is not re-attach

At step6, UE shall:

- respond to DETACH REQUEST message by sending DETACH ACCEPT message.
 - terminate the combined PS attach procedure.
 - continue with the combined PS detach procedure.

Case2) Detach type is re-attach

At step13, UE shall:

-___-ignore the combined-PS detach procedure.

- continue with the combined PS attach procedure At step 15, UE shall:
- send the ATTACH COMPLETE message.

At step20, when the UE receives the paging message for CS domain, UE shall:

- respond to the paging message for CS domain by sending the PAGING RESPONSE message.

At step24, when the UE receives the paging message for PS domain, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.-

12.3 PS detach procedure

12.3.1 UE initiated PS detach procedure

12.3.1.1 PS detach / power off / accepted

12.3.1.1.1 Definition

12.3.1.1.2 Conformance requirement

The UE detaches the IMSI for PS services if the UE is switched off.

Reference

3GPP TS 24.008 clause 4.7.4.1

12.3.1.1.3 Test purpose

To test the behaviour of the UE for the detach procedure.

12.3.1.1.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.

User Equipment:

The UE has a valid P-TMSI-1, P-TMSI-1 signature and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C
UE operation mode A
Switch off on button
Yes/No
Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE performs a PS attach procedure.

The UE sends a DETACH REQUEST message to the SS.

Expected Sequence

Step	Direction	Message	Comments
	UE SS		
1	UE		The UE is set in UE operation mode C (see
			ICS). If UE operation mode C not supported,
			goto step 8.
2	UE		The UE is powered up or switched on and
			initiates an attach (see ICS).
3	->	ATTACH REQUEST	Attach type = 'PS attach'
			Mobile identity = P-TMSI-1
			P-TMSI-1 signature
			Routing area identity = RAI-1
4	<-	ATTACH ACCEPT	Attach result = 'PS only attached'
			Mobile identity = P-TMSI-2
			P-TMSI-2 signature
_			Routing area identity = RAI-1
5	->	ATTACH COMPLETE	
6	UE		The UE is switched off (see ICS).
7	->	DETACH REQUEST	Detach type = 'power switched off, PS detach'
8	UE		The UE is set in UE operation mode A(see
			ICS) and the test is repeated from step 2 to
			step 7.

Specific message contents

None.

12.3.1.1.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate a-the PS attach procedure with the information elements specified in the above Expected Sequence when UE is powered up or switched on.

At step7, when the UE is switched off, After the PS attach procedure is completed, UE shall:

send the DETACH REQUEST message to SS with the Detach type = 'power switched off, PS detach'.

12.3.1.2 PS detach / accepted

12.3.1.2.1 Definition

12.3.1.2.2 Conformance requirement

The UE detaches the IMSI for PS services if the UE is ordered to do so with MMI or AT commands.

Reference

3GPP TS 24.008 clause 4.7.4.1.

12.3.1.2.3 Test purpose

To test the behaviour of the UE for the detach procedure.

12.3.1.2.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.

User Equipment:

The UE has a valid P-TMSI-1, P-TMSI-1 signature and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE performs a PS attach procedure and activates a PDP context.

The UE sends a DETACH REQUEST message to the SS.

The SS signal to the UE, but no response is received, as the signalling link is disconnected.

Step	Direction	Message	Comments
	UE SS		
1	UE		The UE is set in UE operation mode C (see ICS). If UE operation mode C not supported, goto step 4412.
2	UE		The UE is powered up or switched on and initiates an attach (see ICS).
3	->	ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-1
4	<-	ATTACH ACCEPT	No new mobile identity assigned. P-TMSI and P-TMSI signature not included. Attach result = 'PS only attached' Routing area identity = RAI-1
5		(void)	
6	UE		The UE initiates a PS detach (without power off) by MMI or AT command.
7	->	DETACH REQUEST	Detach type = 'normal detach, PS detach'
8	<-	DETACH ACCEPT	
9	<-	PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.
10	UE		No response from the UE to the request. This is checked for 10 seconds.
11 12	UE	(void)	The UE is set in UE operation mode A (see ICS) and the test is repeated from step 2 to step 10.

Specific message contents

None.

12.3.1.2.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate <u>a-the</u> PS attach procedure with the information elements specified in the above Expected Sequence when UE is powered up or switched on.

At step7, After the PS attach procedure is completed, UE shall:

- sends the DETACH REQUEST message(without power off) to SS.
- start timer T3321.

When UE receives the DETACH ACCEPT message from SS before the timer T3321 is not expired, UE shall:

- stop timer T3321. At step10, when the UE receives the paging message for PS domain, UE shall:
- not respond to the paging message for PS domain.
- 12.3.1.3 PS detach / abnormal cases / attempt counter check / procedure timeout
- 12.3.1.3.1 Definition
- 12.3.1.3.2 Conformance requirement
 - 1) When a T3321 timeout has occurred during a PS detach procedure with the attempt counter less than five, the User Equipment shall repeat the PS detach procedure.

2) When a T3321 timeout has occurred during a PS detach procedure with the attempt counter five, the User Equipment shall not repeat the procedure.

Reference

3GPP TS 24.008 clause 4.7.4.1.

12.3.1.3.3 Test purpose

To test the behaviour of the UE with respect to the attempt counter.

12.3.1.3.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.

User Equipment:

The UE has a valid P-TMSI-1, P-TMSI-1 signature and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No
Automatic PS attach procedure at switch on or power on

Test procedure

The UE performs a PS attach procedure.

The UE initiates a PS detach procedure (attempt counter zero). The SS does not answer with DETACH ACCEPT message before T3321 timeout.

The UE initiates a new PS detach procedure (attempt counter one) after T3321 expires. The SS does not answer with DETACH ACCEPT message before T3321 timeout.

The UE initiates a new PS detach procedure (attempt counter two) after T3321expires. The SS does not answer with DETACH ACCEPT message before T3321 timeout.

The UE initiates a new PS detach procedure (attempt counter three) after T3321 expires. The SS does not answer with DETACH ACCEPT message before T3321 timeout.

The UE initiates a new PS detach procedure (attempt counter four) after T3321 expires. The SS does not answer with DETACH ACCEPT message before T3321 timeout.

The UE initiates a new PS detach procedure with attempt counter five (after T3321expires). The SS does not answer with DETACH ACCEPT message before T3321 timeout.

At T3321 timeout in the UE, the UE then deletes the logical link since the retransmissions have been repeated four times.

The UE performs a new PS attach procedure.

T3321; 15 seconds.

Step	Direction UE SS	Message	Comments
1	UE		The UE is set in UE operation mode C (see
	<u> </u>		ICS). If UE operation mode C not supported,
			goto step 22.
2	UE		The UE is powered up or switched on and
			initiates an attach (see ICS).
3	->	ATTACH REQUEST	Attach type = 'PS attach'
			Mobile identity = P-TMSI-1
			P-TMSI-1 signature
			Routing area identity = RAI-1
4	<-	ATTACH ACCEPT	No new mobile identity assigned.
			P-TMSI and P-TMSI signature not included.
			Attach result = 'PS only attached'
			Routing area identity = RAI-1
5	UE		The UE initiates a PS detach (without power
			off) by MMI or AT command.
6	->	DETACH REQUEST	Detach type = 'normal detach, PS detach'
7	SS		No response is given from the SS.
8	SS		The SS verifies that the time between the
		DETACH DECLIEST	detach requests is 15 seconds
9	->	DETACH REQUEST	Detach type = 'normal detach, PS detach'
10	SS SS		No response is given from the SS.
11	55		The SS verifies that the time between the
12		DETACH REQUEST	detach requests is 15 seconds
13	-> SS	DETACH REQUEST	Detach type = 'normal detach, PS detach' No response is given from the SS.
14	SS		The SS verifies that the time between the
14	33		detach requests is 15 seconds
15	->	DETACH REQUEST	Detach type = 'normal detach, PS detach'
16	sś	DETROTTREGGEST	No response is given from the SS.
17	SS		The SS verifies that the time between the
			detach requests is 15 seconds
18	->	DETACH REQUEST	Detach type = 'normal detach, PS detach'
19	SS		No response is given from the SS within 40
			seconds and SS verifies that the UE will not
			send a DETACH REQUEST again.
20	UE		Initialte a PS attach
21	->	ATTACH REQUEST	Attach type = 'PS attach'
			Mobile identity = P-TMSI-1
			P-TMSI-1 signature
			Routing area identity = RAI-1
22	<-	ATTACH ACCEPT	No new mobile identity assigned.
			P-TMSI and P-TMSI signature not included.
			Attach result = 'PS only attached'
			Routing area identity = RAI-1
23			UE is switched off or power is removed (see
6.4		DETACH DECLIEST	ICS)
24	->	DETACH REQUEST	Message not sent if power is removed.
25			Detach type = 'power switched off, PS detach'
25	UE		The UE is set in UE operation mode A (see ICS) and the test is repeated from step 2 to
L			step 24.

Specific message contents

None.

12.3.1.3.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate <u>a-the PS</u> attaché procedure with the information elements specified in the above Expected Sequence when the UE is powered up or switched on.

After the PS attach procedure is completed, UE shall:

- initiate a PS detach procedure(without power off).
- start timer T3321.

At step9, 12, 15 and 18, When-when a T3221 T3321 expires with the attempt counter less than five, UE shall:

- initiate a-the new PS detach procedure.
- increment the attempt counter.
- re start timer T3321.

At step19, When when a T3221 expires with the attempt counter is greater than or equal to five, UE shall:

- not repeat the <u>PS detach</u> procedure.

At step20, UE shall:

- initiate the PS attaché procedure.

12.3.1.4 PS detach / abnormal cases / GMM common procedure collision

12.3.1.4.1 Definition

12.3.1.4.2 Conformance requirement

When any of the GMM common messages P-TMSI REALLOCATION COMMAND, GMM STATUS or GMM INFORMATION is received by the UE while waiting for a DETACH ACCEPT message with detach cause different from "power off", the UE shall ignore the GMM common message.

Reference

3GPP TS 24.008 clause 4.7.4.1.

12.3.1.4.3 Test purpose

To test the behaviour of the UE in case of procedure collision.

12.3.1.4.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No UE operation mode C Yes/No

UE operation mode A Yes/No (only if mode C not supported)

Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE performs a PS attach.

The UE initiates a PS detach. The SS initiates a P-TMSI REALLOCATION COMMAND message, a GMM STATUS message and a GMM INFORMATION message. The UE shall ignore the GMM common messages and continue with the PS detach procedure.

The SS signal to the UE, but no response is received, as the signalling link is disconnected.

Expected Sequence

Step	Direction	Message	Comments
	UE SS		
1	UE		The UE is set in UE operation mode C (see ICS).
2	UE		The UE is powered up or switched on and initiates an attach (see ICS).
3	->	ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = IMSI
4	<-	ATTACH ACCEPT	Attach result = 'PS only attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-1
5	->	ATTACH COMPLETE	
6	UE		The UE initiates a detach (without power off) by MMI or AT command.
7	->	DETACH REQUEST	Detach type = 'normal detach, PS detach'
8	SS		The SS sends a P-TMSI REALLOCATION COMMAND message
9	<-	P-TMSI REALLOCATION COMMAND	
10	UE		The UE ignores the message.
11	SS		The SS sends a GMM STATUS message
12	<-	GMM STATUS	
13	UE		The UE ignores the message.
14	SS		The SS sends a GMM INFORMATION
			message
15	<- · · · -	GMM INFORMATION	
16	UE	DETACH ACCEPT	The UE ignores the message.
17	<-	DETACH ACCEPT	The SS responds to the DETACH REQUEST
18	<-	PAGING TYPE1	Mobile identity = P-TMSI-1
19	UE		Paging order is for PS services. No response from the UE to the request. This is checked for 10 seconds.

Specific message contents

None.

12.3.1.4.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate <u>a-the PS</u> attaché procedure with the information elements specified in the above Expected Sequence when the UE is powered up or switched on.

After the PS attach procedure is completed, UE shall:

initiate a PS detach procedure(without power off).

At step 10, 13, 16 and 19, When-when any of the GMM common messages P-TMSI REALLOCATION COMMAND, GMM STATUS or GMM INFORMATION is received by the UE while waiting for a DETACH ACCEPT message with detach cause different from "power off, UE shall: .

- ignore any of the GMM common messages.

12.3.1.5 PS detach / power off / accepted

12.3.1.5.1 Definition

12.3.1.5.2 Conformance requirement

The UE detach the IMSI for PS and non-PS services.

Reference

3GPP TS 24.008 clause 4.7.4.1.

12.3.1.5.3 Test purpose

To test the behaviour of the UE for the detach procedure.

12.3.1.5.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode I.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No UE operation mode A Yes/No Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE performs a combined PS attach procedure (for PS and non-PS services).

The UE sends a DETACH REQUEST message to the SS. The UE then deletes the logical link.

Step	Direction	Message	Comments
	UE SS		
1	UE		The UE is set in UE operation mode A (see ICS).
2	UE		The UE is powered up or switched on and initiates an attach (see ICS).
3	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity = IMSI TMSI status = no valid TMSI available
4	<-	ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-1
5	->	ATTACH COMPLETE	,
6	UE		The UE is switched off (see ICS).
7	->	DETACH REQUEST	Detach type = 'power switched off, combined PS / IMSI detach'

Specific message contents

None.

12.3.1.5.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate <u>a the</u> combined PS attach procedure with the information elements specified in the above Expected Sequence when UE is powered up or switched on.

At step7, when the UE is switched offAfter the PS attach procedure is completed, UE shall:

- send the DETACH REQUEST message to SS with the Detach type = 'power switched off, combined PS / IMSI detach' after the PS attach procedure is completed.

12.3.1.6 PS detach / accepted / PS/IMSI detach

12.3.1.6.1 Definition

12.3.1.6.2 Conformance requirement

The UE detach the IMSI for PS and non-PS services.

Reference

3GPP TS 24.008 clause 4.7.4.1.

12.3.1.6.3 Test purpose

To test the behaviour of the UE for the detach procedure.

12.3.1.6.4 Method of test

Initial condition

System Simulator:

- One cell operating in network operation mode I.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

- Support of PS service Yes/No UE operation mode A Yes/No Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE performs a combined PS attach procedure (for PS and non-PS services).

The UE sends a DETACH REQUEST message to the SS. When the UE receives the DETACH ACCEPT, the UE then deletes the logical link.

The SS signal to the UE, but no response is received, as the signalling link is disconnected.

Expected Sequence

Step	Direction	Message	Comments
	UE SS	_	
1	UE		The UE is set in UE operation mode A(see ICS).
2	UE		The UE is powered up or switched on and initiates an attach (see ICS).
3	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity = IMSI
4	<-	ATTACH ACCEPT	TMSI status = no valid TMSI available Attach result = 'Combined PS / IMSI attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Mobile identity = TMSI-1
			Routing area identity = RAI-1
5	->	ATTACH COMPLETE	
6	UE		The UE initiates a detach (without power off) by MMI or AT command.
7	->	DETACH REQUEST	Detach type = 'normal detach, combined PS / IMSI detach'
8	<-	DETACH ACCEPT	
9	<-	PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.
10	UE		No response from the UE to the request. This is checked for 10 seconds.
11	<-	PAGING TYPE1	Mobile identity = IMSI
12	UE		Paging order is for CS services. The UE shall not initiate an RRC connection. This is checked during 3 seconds.

Specific message contents

None.

12.3.1.6.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate <u>a-the</u> combined PS attach procedure with the information elements specified in the above Expected Sequence—when UE is powered up or switched on.

After the combined PS attach procedure is completed, UE shall:

sends the DETACH REQUEST message(UE not switched off) to SS.

shall start timer T3321.

When the UE receive the DETACH ACCEPT message from SS before the timer T3321 is not expired, the UE shall:

stop timer T3321.

At step10, when the UE receives the paging message for PS domain, UE shall:

- not respond to the paging message for PS domain.

At step12, when the UE receives the paging message for CS domain, UE shall:

- not respond to the paging message for CS domain.

12.3.1.7 PS detach / accepted / IMSI detach

12.3.1.7.1 Definition

12.3.1.7.2 Conformance requirement

The UE shall detach for CS services.

Reference

3GPP TS 24.008 clause 4.7.4.1.

12.3.1.7.3 Test purpose

To test the behaviour of the UE for the detach procedure.

12.3.1.7.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode I.

User Equipment:

- The UE has a valid IMSI.

Related ICS/IXIT statements

- Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No
MMI controlled attach / detach procedures for non-PS services Yes/No

Test procedure

The UE performs a combined PS attach procedure (for PS and non-PS services).

The UE performs an PS detach (for non-PS services).

CS services are not possible.

The UE attach for non-PS services by a routing area update procedure and CS services are again possible.

Step	Direction UE SS	Message	Comments
1	UE		The UE is set in UE operation mode A (see
2	UE		ICS). The UE is powered up or switched on and initiates an attach (see ICS).
3	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity = IMSI
4	<-	ATTACH ACCEPT	TMSI status = no valid TMSI available Attach result = 'Combined PS / IMSI attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Mobile identity = TMSI-1
5	->	ATTACH COMPLETE	Routing area identity = RAI-1
6	UE		The UE initiates a detach for non-PS services (without power off) (see ICS).
7 8	-> <-	DETACH REQUEST DETACH ACCEPT	Detach type = 'normal detach, IMSI detach'
9	<-	PAGING TYPE1	Mobile identity = P-TMSI-1
9a	->	RRC CONNECTION REQUEST	Paging order is for PS services.
9b	<-	RRC CONNECTION SETUP	
9c	->	RRC CONNECTION SETUP	
10	->	SERVICE REQUEST	service type = "paging response"
10a 10b	<- ->	RRC CONNECTION RELEASE RRC CONNECTION RELEASE COMPLETE	
11	<-	PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services.
12	UE		Paging order is for RRC connection. The UE shall not initiate an RRC connection. This is checked during 3 seconds.
13	UE		The UE initiates an attach for non-PS services by a RA update procedure (see ICS).
14	->	ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating' P-TMSI-1 signature
15	<-	ROUTING AREA UPDATE ACCEPT	Routing area identity = RAI-1 Update result = 'Combined RA/LA updated'' Mobile identity = P-TMSI-2 P-TMSI-2 signature Mobile identity = TMSI-1 Routing area identity = RAI-1
16	->	ROUTING AREA UPDATE COMPLETE	Routing area identity = RAI-1
17	<-	PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services.
18 19 20	-> <- ->	RRC CONNECTION REQUEST RRC CONNECTION SETUP RRC CONNECTION SETUP COMPLETE	
21 22	-> <-	PAGING RESPONSE RRC CONNECTION RELEASE	Mobile identity = TMSI-1 After sending of this message, the SS waits for disconnection of the CS signalling link.
23	->	RRC CONNECTION RELEASE COMPLETE	and the state of t
24	UE		The UE is switched off or power is removed
25	->	DETACH REQUEST	(see ICS). Message not sent if power is removed. Detach type = 'power switched off, combined PS / IMSI detach'

Specific message contents

None.

12.3.1.7.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate <u>a-the</u> combined PS attach procedure with the information elements specified in the above Expected Sequence when UE is powered up or switched on.

After the combined PS attach procedure is completed, UE shall:

- sends the DETACH REQUEST message(UE not switched off) to SS.
- start timer T3321.

When the UE receives the DETACH ACCEPT message from SS before the timer T3321 is not expired, the UE shall:

— stop timer T3321. At step10, after the detach procedure (Detach type = 'normal detach, IMSI detach') is completed, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

At step12, after the detach procedure (Detach type = 'normal detach, IMSI detach') is completed, UE shall:

not respond to the paging message for CS.

At step21, after the routing area updating procedure (Update type = 'Combined RA/LA updating') is completed, UE shall:

- respond to the paging message for CS domain by sending the PAGING RESPONSE message.

12.3.1.8 PS detach / abnormal cases / change of cell into new routing area

12.3.1.8.1 Definition

12.3.1.8.2 Conformance requirement

When a change of cell into a new routing area is performed before DETACH ACCEPT message is received by the UE, the UE shall abort the PS detach procedure and re-initiate it after the routing area update procedure.

Reference

3GPP TS 24.008 clause 4.7.4.1.

12.3.1.8.3 Test purpose

To test the behaviour of the UE in case of procedure collision.

12.3.1.8.4 Method of test

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1) and cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4).

Both cells are operating in network operation mode I.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE performs a combined PS attach procedure (for PS and non-PS services).

The UE initiates a PS detach procedure. The DETACH ACCEPT message is delayed from the SS.

The UE performs a cell update into a new routing area.

The UE shall re-initiate a PS detach procedure when the routing area update procedure is finished.

The UE deletes the logical link.

Step	Direction	Message	Comments
	UE SS		The following managers are cent and shall be
	SS		The following messages are sent and shall be received on cell A.
1	SS		The SS activates cell A.
2	UE		The UE is set in UE operation mode A (see
_	02		ICS).
3	UE		The UE is powered up or switched on and
			initiates an attach (see ICS). Cell A is preferred
			by the UE.
4	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach'
			Mobile identity = IMSI
			TMSI status = no valid TMSI available
5	<-	ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached'
			Mobile identity = P-TMSI-1
			P-TMSI-1 signature
			Mobile identity = TMSI-1
		ATTA OLI OOMBI ETE	Routing area identity = RAI-1
6	->	ATTACH COMPLETE	TI 115: 33 4 BO 1 4 1 / 31 4
7	UE		The UE initiates a PS detach (without power
		DETACH BEOLIEST	off) by MMI or AT command. Detach type = 'normal detach, combined PS /
8	->	DETACH REQUEST	IMSI detach'
9	SS		No response to the DETACH REQUEST
			message is given by the SS
			The following messages are sent and shall be
			received on cell B.
10	SS		The SS deactivates cell A and activates cell B.
			Cell B is preferred by the UE.
11	UE		The UE performs a RA update in the new cell.
12	->	ROUTING AREA UPDATE	Update type = 'Combined RA/LA updating'
		REQUEST	Mobile identity = P-TMSI-1
			P-TMSI-1 signature
			Routing area identity = RAI-1
			TMSI status = valid TMSI available or IE
13		ROUTING AREA UPDATE	Omitted
13	<-	ACCEPT	Update result = 'Combined RA/LA updated'
		ACCEPT	Mobile identity = P-TMSI-2
			P-TMSI-2 signature
			Routing area identity = RAI-4
14	->	ROUTING AREA UPDATE	100
		COMPLETE	
15	->	DETACH REQUEST	The detach is automatically re-attempted.
			Detach type = 'normal detach, combined PS /
			IMSI detach'
16	-><-	DETACH ACCEPT	

Specific message contents

None.

12.3.1.8.5 Test requirements

At step4, when the UE is powered up or switched on, UE shall:

- initiate <u>a-the</u> combined PS attach procedure with the information elements specified in the above Expected Sequence-when UE is powered up or switched on.

After the combined PS attach procedure is completed, UE shall:

- initiate a PS detach.

At step12, When when a change of cell into a new routing area is performed before DETACH ACCEPT message is received by the UE, UE shall:

- -___-abort a PS detach procedure.
- perform routing area updating procedure.

At step15, when the UE completes a routing area updating procedure, UE shall:

- re-initiate a-the PS detach procedure after successfully performing a routing area updating procedure.

12.3.1.9 PS detach / abnormal cases / PS detach procedure collision

12.3.1.9.1 Definition

12.3.1.9.2 Conformance requirement

When a DETACH REQUEST is received by the UE while waiting for a DETACH ACCEPT message, the UE shall answer the network initiated PS detach procedure.

Reference

3GPP TS 24.008 clause 4.7.4.1.

12.3.1.9.3 Test purpose

To test the behaviour of the UE in case of procedure collision.

12.3.1.9.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode I.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No UE operation mode A Yes/No Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE performs a combined PS attach procedure (for PS and non-PS services).

The UE initiates a PS detach. The SS does not answer the detach procedure, but initiates a detach procedure (cause reattach not required). The UE shall continue with the network initiated detach procedure.

The UE deletes the logical link.

PS and CS services are not possible.

Step	Direction	Message	Comments
	UE SS		
1	UE		The UE is set in UE operation mode A(see ICS).
2	UE		The UE is powered up or switched on and initiates an attach (see ICS).
3	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity = IMSI TMSI status = no valid TMSI available
4	<-	ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Mobile identity = TMSI-1 Routing area identity = RAI-1
5	->	ATTACH COMPLETE	The same of the sa
6	UE		The UE initiates a PS detach (without power off) by MMI or AT command.
7	->	DETACH REQUEST	Detach type = 'normal detach, combined PS / IMSI detach'
8	<-	DETACH REQUEST	Detach type = 're-attach not required'
9	->	DETACH ACCEPT	The UE answers the network initiated detach.
10	<-	DETACH ACCEPT	The SS answers the UE initiated detach.
11	<-	PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.
12	UE		No response from the UE to the request. This is checked for 10 seconds.
13	<-	PAGING TYPE 1	Mobile identity = TMSI-1 Paging order is for CS services.
14	UE		The UE shall not initiate an RRC connection. This is checked during 3 seconds.

Specific message contents

None.

12.3.1.9.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate <u>a-the</u> combined PS attach procedure with the information elements specified in the above Expected Sequence when UE is powered up or switched on.

After the combined PS attach procedure is completed, UE shall:

- initiate a PS detach procedure.

At step9, When when the UE receives DETACH REQUEST message from SS before UE initiated PS detach procedure has been completed, UE shall:

-___-send the DETACH ACCEPT message to SS.

At step12, when the UE receives the paging message for PS domain, UE shall:

- not respond to the paging message for PS domain.

At step14, -when the UE receives the paging message for CS domain, UE shall:

- not respond to the paging message for CS domain.

12.3.2 Network initiated PS detach procedure

12.3.2.1 PS detach / re-attach not required / accepted

12.3.2.1.1 Definition

12.3.2.1.2 Conformance requirement

The UE detach the IMSI for PS services.

Reference

3GPP TS 24.008 clause 4.7.4.2.

12.3.2.1.3 Test purpose

To test the behaviour of the UE for the detach procedure.

12.3.2.1.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II (in case of UE operation mode A).

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No UE operation mode C Yes/No

UE operation mode A Yes/No (only if mode C not supported)

Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE performs a PS attach procedure.

The SS sends a DETACH REQUEST message to the UE. The UE then deletes the logical link.

The SS signal to the UE, but no response is received, as the signalling link is disconnected.

Step	Direction	Message	Comments
-	UE SS		
1	SS		The SS is set in network operation mode II.
2	UE		The UE is set in UE operation mode A or C
			(see ICS).
3	UE		The UE is powered up or switched on and
			initiates an attach (see ICS).
4	->	ATTACH REQUEST	Attach type = 'PS attach'
			Mobile identity = IMSI
5	<-	ATTACH ACCEPT	Attach result = 'PS only attached'
			Mobile identity = P-TMSI-1
			P-TMSI-1 signature
			Routing area identity = RAI-1
6	->	ATTACH COMPLETE	
7	UE		The UE initiates a PS detach (without power
			off) by MMI or AT command.
8	<-	DETACH REQUEST	Detach type = 're-attach not required'
9	->	DETACH ACCEPT	
10	<-	PAGING TYPE1	Mobile identity = P-TMSI-1
			Paging order is for PS services.
			PAGING TYPE1 (used for NW-mode II).
11	UE		No response from the UE to the request. This
			is checked for 10 seconds.

Specific message contents

None.

12.3.2.1.5 Test requirements

At step4, when the UE is powered up or switched on, UE shall:

- initiate <u>the PS</u> attach procedure with the information elements specified in the above Expected Sequence when UE is powered up or switched on.

At step9, When when the UE receives the DETACH REQUEST message from SS and the detach type IE indicates 'reattach not required', the UE shall:

- deactivate the PDP context and the logical link(s).
 - -___-send DETACH ACCEPT message to SS.

At step11, when the UE receives the paging message for PS domain, UE shall:

- not respond to the paging message for PS domain.

12.3.2.2 PS detach / rejected / IMSI invalid / PS services not allowed

12.3.2.2.1 Definition

12.3.2.2.2 Conformance requirement

- 1) If the network performs a PS detach procedure with the cause 'PS services not allowed', the User Equipment shall consider USIM invalid for PS services until power is switched off or USIM is removed.
- 2) If the network performs a PS detach procedure with the cause 'PS services not allowed' the User Equipment shall delete the stored RAI, PS-CKSN, P-TMSI and P-TMSI signature.

Reference

3GPP TS 24.008 clause 4.7.4.2.

12.3.2.2.3 Test purpose

To test the behaviour of the UE if the network order a PS detach procedure with the cause 'PS services not allowed' (no valid PS-subscription for the IMSI).

12.3.2.2.4 Method of test

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (HPLMN, RAI-1) and cell B in MCC2/MNC1/LAC1/RAC1 (RAI-2).

Both cells are operating in network operation mode II.

User Equipment:

The UE has a valid P-TMSI-1, P-TMSI-1 signature and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No UE operation mode C Yes/No UE operation mode A Yes/No

USIM removal possible without powering down Yes/No

Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS performs a detach with the cause value 'PS services not allowed'. The SS checks that the UE does not perform PS attach in another PLMN.

Step	Direction UE SS	Message	Comments
	UE 33		The following messages are sent and shall be
			received on cell A.
1	SS		The SS activates cell A.
2	UE		The UE is set in UE operation mode C (see
			ICS). If UE operation mode C not supported,
			goto step 19.
3	UE		The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred
			by the UE.
4	->	ATTACH REQUEST	Attach type = 'PS attach'
			Mobile identity = P-TMSI-1
			P-TMSI-1 signature
			Routing area identity = RAI-1
5	<-	ATTACH ACCEPT	Attach result = 'PS only attached'
			Mobile identity = P-TMSI-2
			P-TMSI-2 signature Routing area identity = RAI-1
6	->	ATTACH COMPLETE	Trouting area identity = ITAI-1
7	<-	DETACH REQUEST	Detach type = 're-attach not required'
			Cause = 'PS services not allowed'
8	->	DETACH ACCEPT	
			The following messages are sent and shall be
	00		received on cell B.
9	SS		The SS deactivates cell A and activates cell B.
10	UE		Cell B is preferred by the UE. Step 11 is only performed for UE Operation
			Mode A.
11	UE	Registration on CS	See TS 34.108
		The grant and the same of the	This is applied only for UE in UE operation
			mode A.
			Parameter mobile identity is IMSI.
12			The UE initiates an attach automatically (see
13	UE		PICS), by MMI or AT commands. No ATTACH REQUEST sent to the SS
13	l or		(SS waits 30 seconds).
14	UE		If possible (see ICS) USIM removal is
			performed. Otherwise if possible (see ICS)
			switch off is performed. Otherwise the power is
			removed.
15	UE		The UE gets the USIM replaced, is powered up
			or switched on and initiates an attach (see
16	->	ATTACH REQUEST	ICS). Attach type = 'PS attach'
'0		,, OITREGOLOT	Mobile identity = IMSI
17	<-	ATTACH ACCEPT	Attach result = 'PS only attached'
			Mobile identity = P-TMSI-1
			P-TMSI-1 signature
, -			Routing area identity = RAI-2
18	-> !!E	ATTACH COMPLETE	The LIE is awitched off or newer is removed
19	UE		The UE is switched off or power is removed (see ICS).
20	->	DETACH REQUEST	Message not sent if power is removed.
		DE COTTILE COLOT	Detach type = 'power switched off, PS detach'
21			The SS deactivates cell B and activates cell A.
22	UE		The UE is set in UE operation mode A (see
			ICS) and the test is repeated from step 3 to
			step 18.

Specific message contents

None.

12.3.2.2.5 Test requirements

At step4 and 15, when the UE is powered up or switched on, UE shall:

- initiate <u>a-the PS</u> attach procedure with the information elements specified in the above Expected Sequence when UE is powered up or switched on.

<u>At step8, when After the completion of the PS attach procedure, and when the UE receives the DETACH REQUEST message (Detach type = 're-attach not required', Cause = 'PS services not allowed') from SS, UE shall:</u>

- delete the stored P TMSI, P TMSI signature, RAI and PS ciphering key sequence number.
 - -____-consider the USIM as invalid for PS service until power is switched off or USIM is removed.send DETACH ACCEPT message.

At step13, UE shall:

- not perform PS attach procedure.

12.3.2.3 PS detach / IMSI detach / accepted

12.3.2.3.1 Definition

12.3.2.3.2 Conformance requirement

The UE detach the IMSI for PS services.

Reference

3GPP TS 24.008 clause 4.7.4.2.

12.3.2.3.3 Test purpose

To test the behaviour of the UE for the detach procedure.

12.3.2.3.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode I.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No UE operation mode A Yes/No Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE performs a combined PS attach procedure (for PS and non-PS services).

The SS sends a DETACH REQUEST message to the UE. The UE then performs an IMSI detach (detach for non-PS services).

The SS signal to the UE, but no response is received, as the signalling link is disconnected.

The UE attach for non-PS services by a routing area update procedure. Both PS and CS services are possible.

Expected Sequence

Step	Direction	Message	Comments
	UE SS		
1	UE		The UE is set in UE operation mode A (see
			ICS).
2	UE		The UE is powered up or switched on and
		ATTACLIBECLIEST	initiates an attach (see ICS).
3	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach'
			Mobile identity = IMSI TMSI status = no valid TMSI available
4		ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached'
4	<-	ATTACITACCEFT	Mobile identity = P-TMSI-1
			P-TMSI-1 signature
			Mobile identity = IMSI
			Routing area identity = RAI-1
5	->	ATTACH COMPLETE	
6	SS	/ · · · · · · · · · · · · · · · · · · ·	The SS initiates a detach for non-PS services.
7	<-	DETACH REQUEST	Detach type = 'IMSI detach'
8	->	DETACH ACCEPT	,,
9	UE		The UE initiates an attach for non-PS services
			(see ICS).
10	->	ROUTING AREA UPDATE	Update type = 'Combined RA/LA updating with
		REQUEST	IMSI attach'
			P-TMSI-1 signature
			Routing area identity = RAI-1
		DOUTING ADEALIDDATE	TMSI status = no valid TMSI available
11	<-	ROUTING AREA UPDATE	Update result = 'Combined RA/LA updating'
		ACCEPT	Mobile identity = P-TMSI-2
			P-TMSI-2 signature Mobile identity = TMSI-1
			Routing area identity = RAI-1
12	->	ROUTING AREA UPDATE	reduing area identity = real r
		COMPLETE	
13	<-	PAGING TYPE1	Mobile identity = TMSI-1
			Paging order is for CS services.
14	->	RRC CONNECTION REQUEST	
15	<-	RRC CONNECTION SETUP	
16	->	RRC CONNECTION SETUP	
		COMPLETE	
17	->	PAGING RESPONSE	Mobile identity = TMSI-1
18	<-	RRC CONNECTION RELEASE	After sending of this message, the SS waits for
		DDG GONNEGTION DELETION	disconnection of the CS signalling link.
19	->	RRC CONNECTION RELEASE	
20	UE	COMPLETE	The UE is switched off or power is removed
20	UE		(see ICS).
21	->	DETACH REQUEST	Message not sent if power is removed.
		DE MONTRE GOLOT	Detach type = 'power switched off, combined
			PS / IMSI detach'

Specific message contents

None.

12.3.2.3.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate a-the combined PS attach procedure with the information elements specified in the above Expected Sequence when UE is powered up or switched on.

After the completion of the PS attach procedure, UE shall:

receive DETACH REQUEST message(Detach type = 'IMSI detach') from SS.

— not deactivate the PDP context. At step8, when the UE receives the DETACH REQUEST message with Detach type = 'IMSI detach', UE shall;

- and send the DETACH ACCEPT message to SS.

At step10, after the completion of the detach procedure, UE shall;

- perform combined routing area updating procedure.

At step17, when the UE receives the paging message for CS domain, UE shall:

- respond to the paging message for CS domain by sending the PAGING RESPONSE message.

12.3.2.4 PS detach / re-attach requested / accepted

12.3.2.4.1 Definition

12.3.2.4.2 Conformance requirement

The UE shall deactivate the logical link and re-activate it.

Reference

3GPP TS 24.008 clause 4.7.4.2.

12.3.2.4.3 Test purpose

To test the behaviour of the UE for the detach procedure in case automatic re-attach.

12.3.2.4.4 Method of test

Initial condition

System Simulator:

One cell in operating in network operation mode I.

User Equipment:

The UE has a valid TMSI, P-TMSI, P-TMSI signature and RAI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A
Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE performs a combined PS attach procedure (for PS and non-PS services).

The SS sends a DETACH REQUEST message to the UE with cause re-attach. The UE then detaches for PS services. The UE automatically performs a new combined PS attach procedure (for PS and non-PS services) and PS and CS services are possible.

Step	Direction UE SS	Message	Comments
1	UE		The UE is set in UE operation mode A (see
			ICS).
2	UE		The UE is powered up or switched on and initiates an attach (see ICS).
3	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach'
	,		Mobile identity = P-TMSI-1
			P-TMSI-1 signature
4	<-	ATTACH ACCEPT	Routing area identity = RAI-1 Attach result = 'Combined PS / IMSI attached'
'	`	7. T.	Mobile identity = TMSI-1
			Routing area identity = RAI-1
			No new P-TMSI and P-TMSI signature assigned
5	->	ATTACH COMPLETE	assigned
6	SS		The SS initiates a detach with re-attach.
7	<-	DETACH REQUEST	Detach type = 're-attach required'
<u>8</u> 9	->	DETACH ACCEPT ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach'
	->	ATTACTIVEQUEST	Mobile identity = P-TMSI-1
			P-TMSI-1 signature
			Mobile identity = TMSI-1 Routing area identity = RAI-1
10	<-	ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached'
			Mobile identity = TMSI-1
			Mobile identity = P-TMSI-2
			P-TMSI-2 signature Routing area identity = RAI-1
11	->	ATTACH COMPLETE	
12	<-	PAGING TYPE1	Mobile identity = P-TMSI-2
12a	->	RRC CONNECTION REQUEST	Paging order is for PS services.
12b	<-	RRC CONNECTION SETUP	
12c	->	RRC CONNECTION SETUP	
13	->	COMPLETE SERVICE REQUEST	service type = "paging response"
		OERVIOE REGOLOT	Service type = paging response
13a	<-	RRC CONNECTION RELEASE	
13b	->	RRC CONNECTION RELEASE COMPLETE	
14	<-	PAGING TYPE1	Mobile identity = TMSI-1
			Paging order is for CS services.
15 16	->	RRC CONNECTION REQUEST RRC CONNECTION SETUP	
17	<- ->	RRC CONNECTION SETUP	
	•	COMPLETE	
18	->	PAGING RESPONSE	Mobile identity = TMSI-1
19	<-	RRC CONNECTION RELEASE	After sending of this message, the SS waits for disconnection of the CS signalling link.
20	->	RRC CONNECTION RELEASE	and the state of t
6.1		COMPLETE	
21	UE		The UE is switched off or power is removed (see ICS).
22	->	DETACH REQUEST	Message not sent if power is removed.
			Detach type = 'power switched off, combined
			PS / IMSI detach'

Specific message contents

None.

12.3.2.4.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate <u>a-the</u> combined PS attach procedure with the information elements specified in the above Expected Sequence—when UE is powered up or switched on.

After the completion of the combined PS attach procedure, UE shall:

- deactivate the PDP context and the logical link(s).

At step8, when the UE receives DETACH REQUEST message with Detach type = 're-attach required', UE shall;

- send DETACH ACCEPT message to SS.

At step9, After after UE completed PS detach procedure with Detach type = 're-attach required', UE shall:

- initiate a-the combined PS attach procedure.

At step13, when the UE receives the paging message for PS domain, UE shall;

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

At step18, when the UE receives the paging message for CS domain, UE shall:

- respond to the paging message for CS domain by sending the PAGING RESPONSE message.

12.3.2.5 PS detach / rejected / location area not allowed

12.3.2.5.1 Definition

12.3.2.5.2 Conformance requirement

- 1) If the network performs a PS detach procedure with the cause 'location area not allowed' the User Equipment shall:
 - 1.1 not perform combined PS attach when in the same location area.
 - 1.2 delete the stored LAI, CKSN, TMSI, RAI, PS-CKSN, P-TMSI and P-TMSI signature.
 - 1.3 store the LA in the 'forbidden location areas for regional provision of service'.
- 2) If the network performs a PS detach procedure with the cause 'location area not allowed' the User Equipment shall:
 - 2.1 perform combined PS attach when a new location area is entered.
 - 2.2 delete the list of forbidden LAs when power is switched off.

Reference

3GPP TS 24.008 clauses 4.7.4.2.

12.3.2.5.3 Test purpose

To test the behaviour of the UE if the network orders the PS detach procedure with the cause 'Location Area not allowed'.

To test that the UE deletes the list of forbidden LAs when power is switched off.

12.3.2.5.4 Method of test

Initial condition

System Simulator:

Three cells (not simultaneously activated), cell A in MCC2/MNC1/LAC1/RAC2 (RAI-2, Not HPLMN), cell B in MCC2/MNC1/LAC1/RAC2 (RAI-7, Not HPLMN), cell C in MCC2/MNC1/LAC2/RAC1 (RAI-6, Not HPLMN).

All cells are operating in network operation mode I.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS orders a PS detach with the cause value 'Location Area not allowed'. The SS checks that the UE does not perform combined PS attach while in the location area, performs PS attach when a new location area is entered and deletes the list of forbidden LAs when switched off. CS services are not possible unless an IMSI attach procedure is performed.

Different types of UE may use different methods to periodically clear the list of forbidden location areas (e.g. every day at 12am). If the list is cleared while the test is being run, it may be necessary to re-run the test.

Step	Direction	Message	Comments
	UE SS		T. ()
	SS		The following messages are sent and shall be received on cell A.
1	SS		The SS activates cell A.
2	UE		The UE is set in UE operation mode A (see
			ICS).
3	UE		The UE is powered up or switched on and
			initiates an attach (see ICS). Cell A is preferred by the UE.
4	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach'
			Mobile identity = IMSI
_		ATTA OLI A COEDT	TMSI status = no valid TMSI available
5	<-	ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached' Mobile identity = P-TMSI-1
			P-TMSI-1 signature
			Mobile identity = TMSI-1
•			Routing area identity = RAI-2
6 7	-> <-	ATTACH COMPLETE DETACH REQUEST	Detach type = 're-attach not required'
,	ζ-	DETACTIVEQUEST	Cause 'Location Area not allowed'
8	->	DETACH COMPLETE ACCEPT	
9	UE		No LOCATION UPDATING REQ with type
			'IMSI attach' is sent to the SS (SS waits 30 seconds).
10	<-	PAGING TYPE1	Mobile identity = IMSITMSI-1
			Paging order is for CS services.
11	UE		The UE shall not initiate an RRC connection.
12		PAGING TYPE1	This is checked during 3 seconds.
12	<-	PAGING TYPET	Mobile identity = P-TMSI-1 Paging order is for PS services.
13	<u>>UE</u>		No response from the UE to the request.
			This is checked for 10 seconds
			The following messages are sent and shall be received on cell B.
14	SS		The SS deactivates cell A and activates cell B.
15	ÜE		Cell B is preferred by the UE.
16	UE		The UE initiates an attach automatically, by
17	UE		MMI or by AT command. No ATTACH REQUEST sent to SS
17	OL		(SS waits 30 seconds)
18	UE		No LOCATION UPDATING REQ with type
			'IMSI attach' is sent to the SS
19		PAGING TYPE1	(SS waits 30 seconds). Mobile identity = IMSITMSI-1
19	<-	FAGING TIFET	Paging order is for CS services.
20	UE		The UE shall not initiate an RRC connection.
		DAGING TVD5	This is checked during 3 seconds.
21	<-	PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.
22			No response from the UE to the request.
			This is checked for 10 seconds
			The following messages are sent and shall be
23	SS		received on cell C. The SS deactivates cell B and activates cell C.
23 24	UE		Cell C is preferred by the UE.
	<u> </u>		Step 25 is only performed for non-auto attach
		D	UE.
25	UE	Registration on CS	See TS34.108
26	UE		Parameter mobile identity is IMSI. The UE initiates an attach automatically (See
23	0.2		ICS), by MMI or AT command.
27	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach'
			Mobile identity = IMSI
			TMSI status = no valid TMSI available

Step	Direction UE SS	Message	Comments
28	<- <-	ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached' Mobile identity = P-TMSI1 P-TMSI-1 signature Mobile identity = TMSI-1
29	->	ATTACH COMPLETE	Routing area identity = RAI-6
30	<-	PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services.
31 32 33	-> <- ->	RRC CONNECTION REQUEST RRC CONNECTION SETUP RRC CONNECTION SETUP COMPLETE	
34 35	-> <-	PAGING RESPONSE RRC CONNECTION RELEASE	Mobile identity = TMSI-1 After sending of this message, the SS waits for disconnection of the CS signalling link.
36	->	RRC CONNECTION RELEASE	and the coordinate of the coordinate with
37	<-	COMPLETE PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.
38 39 40	-> <- ->	RRC CONNECTION REQUEST RRC CONNECTION SETUP RRC CONNECTION SETUP	
41 42	-> <-	COMPLETE SERVICE REQUEST RRC CONNECTION RELEASE	service type = "paging response"
43	->	RRC CONNECTION RELEASE COMPLETE	
44	UE		The UE is switched off or power is removed (see ICS).
45	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined PS / IMSI detach'
46	UE		The following messages are sent and shall be received on cell B. The SS deactivates cell C and activates cell B. Cell B is preferred by the UE.
47	UE		The UE is powered up or switched on and initiates an attach (see ICS). Step 48 is only performed for non-auto attach
48	UE	Registration on CS	UE. See TS34.108 Parameter mobile identity is TMSI-1
49	UE		UE initiates an attach automatically (see PICS),
50	->	ATTACH REQUEST	by MMI or AT commands. Attach type = 'Combined PS / IMSI attach' Mobile identity = P-TMSI-1 P-TMSI-1 signature
51	<-	ATTACH ACCEPT	Routing area identity = RAI-6 TMSI status = valid TMSI available Attach result = 'Combined PS / IMSI attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Mobile identity = TMSI-2 Routing area identity = RAI-7
52 53	-> <-	ATTACH COMPLETE PAGING TYPE1	Mobile identity = TMSI-2
54 55 56	-> <- ->	RRC CONNECTION REQUEST RRC CONNECTION SETUP RRC CONNECTION SETUP COMPLETE	Paging order is for CS services.
57 58	-> <-	PAGING RESPONSE RRC CONNECTION RELEASE	Mobile identity = TMSI-2 After sending of this message, the SS waits for disconnection of the CS signalling link.
59	->	RRC CONNECTION RELEASE COMPLETE	aloosimoodon of the GO algraning link.

Step	Direction		Message	Comments
	UE	SS		
60	<	<-	PAGING TYPE1	Mobile identity = P-TMSI-2
				Paging order is for PS services.
61	-:	>	RRC CONNECTION REQUEST	
62	<	-	RRC CONNECTION SETUP	
63	->	>	RRC CONNECTION SETUP	
			COMPLETE	
64	-	>	SERVICE REQUEST	service type = "paging response"
65	<	-	RRC CONNECTION RELEASE	
66	->	>	RRC CONNECTION RELEASE	
			COMPLETE	
67	U	E		The UE is switched off or power is removed
				(see ICS).
68	-	>	DETACH REQUEST	Message not sent if power is removed.
				Detach type = 'power switched off, combined
				PS / IMSI detach'

Specific message contents

None.

12.3.2.5.5 Test requirements

At step4, when the UE is powered up or switched on, UE shall:

- initiate <u>a the PS</u> attach procedure with the information elements specified in the above Expected Sequence when UE is powered up or switched on.

After the completion of the PS attach procedure, and At step 8, when the UE receive the DETACH REQUEST message (Detach type = 're-attach not required', Cause = 'Location Area not allowed') from SS, UE shall:.

- send the DETACH ACCEPT message.

<u>UE shall</u> perform the following action depending on UE location.

1) UE is in the same location area.

At step9 and 18 When in the same location area, UE shall:

-____-not perform combined PS attachlocation updating procedure.

At step11 and 20, when the UE receives the paging message for CS domain, UE shall:

- not respond to the paging message for PS domain.

At step13 and 22, when the UE receives the paging message for PS domain, UE shall:

- not respond to the paging message for PS domain.

At step17, UE shall;

- not perform PS attach procedure.

2) UE is in the new location area.

At step27, UE shall;

- perform the combined PS attach procedure.

At step34, when the UE receives the paging message for CS domain with Mobile identity = IMSI, UE shall;

- respond to the paging message for CS domain by sending the PAGING RESPONSE message.

At step41, when the UE receives the paging message for PS domain with Mobile identity = P-TMSI-1, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

At step50, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence

At step57, when the UE receives the paging message for CS domain with Mobile identity = IMSI, UE shall;

- respond to the paging message for CS domain by sending the PAGING RESPONSE message.

At step64, when the UE receives the paging message for PS domain with Mobile identity = P-TMSI-1, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.
 - delete the stored RAI or LAI, P TMSI, P TMSI signature and PS ciphering key sequence number
 - store the LA in the 'forbidden location areas for regional provision of service'.

When a new location area is entered, UE shall:

- perform combined PS attach.
- delete the list of forbidden LAs when power is switched off.

12.3.2.6 PS detach / rejected / No Suitable Cells In Location Area

12.3.2.6.1 Definition

12.3.2.6.2 Conformance requirement

- 1. If the network performs a PS detach procedure with the cause 'No Suitable Cells In Location Area', the User Equipment shall:
 - 1.1 delete the stored LAI, CKSN, TMSI, RAI, PS-CKSN, P-TMSI and P-TMSI signature.
 - 1.2 store the LA in the 'forbidden location areas for roaming'.

Reference

3GPP TS 24.008 clauses 4.7.4.2.

12.3.2.6.3 Test purpose

To test the behaviour of the UE if the network sends the DETACH REQUEST message with the cause 'No Suitable Cells In Location Area'.

12.3.2.6.4 Method of test

Initial condition

System Simulator:

Three cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC2/RAC1 (RAI-3), cell C in MCC2/MNC1/LAC1/RAC1 (RAI-2)

All three cells are operating in network operation mode II.

User Equipment:

The UE has valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No UE operation mode A Yes/No Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS sends a DETACH REQUEST message with the cause value 'No Suitable Cells In Location Area'. The SS checks that the UE shall not perform combined PS attach while in the same location area on the same PLMN. The SS checks that the UE shall perform PS attach when the UE enters a suitable cell in a different location area on the same PLMN.

Expected Sequence

The SS activates three cells simultaneously. The SS activates three cells simultaneously. The SS configures power level of each Cell as follows. Cell A > Cell B = Cell C The UE is set in UE operation mode A (see ICS). The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE. ATTACH REQUEST ATTACH ACCEPT ATTACH ACCEPT ATTACH COMPLETE DETACH REQUEST The following message are sent and shall be received on cell B. The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE. Attach result = 'Combined PS / IMSI attach' Mobile identity = IMSI TMSI status = no valid TMSI available Attach result = 'Combined PS / IMSI attached' Mobile identity = P-TMSI-1 Routing area identity = P-TMSI-1 Routing area identity = RAI-1 Detach type = 're-attach not required' Cause 'No Suitable Cells In Location Area' The following message are sent and shall be received on cell B. The UE initiates an attach automatically, by MMI or by AT command. Attach type = 'Combined PS / IMSI attach' Mobile identity = IMSI TMSI status = no valid TMSI available Attach result = 'Combined PS / IMSI attached' Mobile identity = IMSI-2 Routing area identity = P-TMSI-2 Routing area identity = P-TMSI-2 Routing area identity = RAI-• The UE is switched off or power is removed (see ICS). Message not sent if power is removed.	Step	Direction	n	Message	Comments
The SS configures power level of each Cell as follows. Cell A > Cell B = Cell C The UE is set in UE operation mode A (see ICS). The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE. ATTACH REQUEST ATTACH ACCEPT ATTACH ACCEPT ATTACH COMPLETE C		UE S	S		
follows. Cell A > Cell B = Cell C The UE is set in UE operation mode A (see ICS). The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE. ATTACH REQUEST ATTACH ACCEPT ATTACH ACCEPT ATTACH COMPLETE Cause 'No Suitable Cells In Location Area' ATTACH COMPLETE BETACH COMPLETE BUE ATTACH REQUEST ATTACH COMPLETE Cause 'No Suitable Cells In Location Area' ATTACH COMPLETE The UE initiates an attach automatically, by MMI or by AT command. Attach type = 'Combined PS / IMSI attach' Mobile identity = RAI-1 ATTACH COMPLETE The following message are sent and shall be received on cell B. The UE initiates an attach automatically, by MMI or by AT command. Attach type = 'Combined PS / IMSI attach' Mobile identity = IMSI TMSI status = no valid TMSI available Attach type = 'Combined PS / IMSI attach' Mobile identity = IMSI TMSI status = no valid TMSI available Attach result = 'Combined PS / IMSI attached' Mobile identity = TMSI-2 P-TMSI-2 signature Mobile identity = TMSI-2 Routing area identity = RAI-• The UE is switched off or power is removed (see ICS). Message not sent if power is removed.		SS			
Cell A > Cell B = Cell C The UE is set in UE operation mode A (see ICS). 1 UE 2 UE ATTACH REQUEST ATTACH REQUEST ATTACH ACCEPT ATTACH COMPLETE 6					
The UE is set in UE operation mode A (see ICS). The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE. ATTACH REQUEST ATTACH ACCEPT ATTACH ACCEPT ATTACH COMPLETE C- DETACH COMPLETE B UE ATTACH REQUEST ATTACH COMPLETE The following message are sent and shall be received on cell B. The UE initiates an attach automatically, by MMI or by AT command. Attach type = 'Combined PS / IMSI attach' Mobile identity = IMSI TMSI status = no valid TMSI available Attach result = 'Combined PS / IMSI attach' Mobile identity = PTMSI-2 P-TMSI-2 signature Mobile identity = PTMSI-2 P-TMSI-2 signature Mobile identity = TMSI-2 Routing area identity = RAI-• The UE is switched off or power is removed (see ICS). Message not sent if power is removed.					10.00
CS). The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE. ATTACH REQUEST Attach type = 'Combined PS / IMSI attach' Mobile identity = IMSI TMSI status = no valid TMSI available Attach result = 'Combined PS / IMSI attached' Mobile identity = TMSI-1 P-TMSI-1 P-TMSI-1 P-TMSI-1 Routing area identity = RAI-1	1	UE			
initiates an attach (see ICS). Cell A is preferred by the UE. ATTACH REQUEST ATTACH ACCEPT ATTACH ACCEPT ATTACH ACCEPT ATTACH ACCEPT ATTACH COMPLETE ATTACH COMPLETE C-DETACH COMPLETE BUE ATTACH REQUEST ATTACH COMPLETE The following message are sent and shall be received on cell B. The UE initiates an attach automatically, by MMI or by AT command. ATTACH REQUEST ATTACH REQUEST ATTACH COMPLETE ATTACH COMPLETE The following message are sent and shall be received on cell B. The UE initiates an attach automatically, by MMI or by AT command. Attach type = 'Combined PS / IMSI attach' Mobile identity = IMSI TMSI status = no valid TMSI available Attach result = 'Combined PS / IMSI attached' Mobile identity = P-TMSI-2 Routing area identity = TMSI-2 Routing area identity = RAI-• The UE is switched off or power is removed (see ICS). ATTACH REQUEST Message not sent if power is removed.					ICS).
by the UE. Attach type = 'Combined PS / IMSI attach' Mobile identity = IMSI TMSI status = no valid TMSI available Attach result = 'Combined PS / IMSI attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Mobile identity = TMSI-1 Routing area identity = RAI-1 5 -> ATTACH COMPLETE 6 <- DETACH REQUEST DETACH REQUEST The following message are sent and shall be received on cell B. The UE initiates an attach automatically, by MMI or by AT command. Attach type = 'Combined PS / IMSI attach' Mobile identity = IMSI TMSI status = no valid TMSI available Attach type = 'Combined PS / IMSI attach' Mobile identity = IMSI TMSI status = no valid TMSI available Attach result = 'Combined PS / IMSI attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Mobile identity = TMSI-2 Routing area identity = RAI-• The UE is switched off or power is removed (see ICS). Message not sent if power is removed.	2	UE			
Attach type = 'Combined PS / IMSI attach' Mobile identity = IMSI TMSI status = no valid TMSI available Attach result = 'Combined PS / IMSI attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Mobile identity = RAI-1 ATTACH COMPLETE DETACH REQUEST DETACH REQUEST DETACH COMPLETE The following message are sent and shall be received on cell B. The UE initiates an attach automatically, by MMI or by AT command. Attach type = 'Combined PS / IMSI attached' Mobile identity = RAI-1 The following message are sent and shall be received on cell B. The UE initiates an attach automatically, by MMI or by AT command. Attach type = 'Combined PS / IMSI attach' Mobile identity = IMSI TMSI status = no valid TMSI available Attach result = 'Combined PS / IMSI attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Mobile identity = TMSI-2 Routing area identity = RAI-• The UE is switched off or power is removed (see ICS). Message not sent if power is removed.					, , ,
Mobile identity = IMSI TMSI status = no valid TMSI available Attach result = 'Combined PS / IMSI attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Mobile identity = RAI-1 Routing area identity = RAI-1 Detach type = 're-attach not required' Cause 'No Suitable Cells In Location Area' The following message are sent and shall be received on cell B. The UE initiates an attach automatically, by MMI or by AT command. Attach type = 'Combined PS / IMSI attach' Mobile identity = IMSI TMSI status = no valid TMSI available Attach result = 'Combined PS / IMSI attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Mobile identity = TMSI-2 Routing area identity = RAI-• The UE is switched off or power is removed (see ICS). Message not sent if power is removed.	2		ATTACH DE	OUEST	
TMSI status = no valid TMSI available Attach result = 'Combined PS / IMSI attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Mobile identity = RAI-1 The following message are sent and shall be received on cell B. The UE initiates an attach automatically, by MMI or by AT command. Attach result = 'Combined PS / IMSI attach' Mobile identity = TMSI-1 Routing area identity = RAI-1 The following message are sent and shall be received on cell B. The UE initiates an attach automatically, by MMI or by AT command. Attach type = 'Combined PS / IMSI attach' Mobile identity = IMSI TMSI status = no valid TMSI available Attach result = 'Combined PS / IMSI attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Mobile identity = TMSI-2 Routing area identity = RAI-• The UE is switched off or power is removed (see ICS). Message not sent if power is removed.	3	->	ATTACH KE	QUEST	
Attach result = 'Combined PS / IMSI attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Mobile identity = TMSI-1 Routing area identity = RAI-1 5 -> ATTACH COMPLETE 6 <- DETACH REQUEST Detach type = 're-attach not required' Cause 'No Suitable Cells In Location Area' The following message are sent and shall be received on cell B. The UE initiates an attach automatically, by MMI or by AT command. Attach type = 'Combined PS / IMSI attach' Mobile identity = IMSI TMSI status = no valid TMSI available Attach result = 'Combined PS / IMSI attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Mobile identity = TMSI-2 Routing area identity = RAI-• The UE is switched off or power is removed (see ICS). Message not sent if power is removed.					
P-TMSI-1 signature Mobile identity = TMSI-1 Routing area identity = RAI-1 5 -> ATTACH COMPLETE DETACH REQUEST Detach type = 're-attach not required' Cause 'No Suitable Cells In Location Area' The following message are sent and shall be received on cell B. The UE initiates an attach automatically, by MMI or by AT command. Attach type = 'Combined PS / IMSI attach' Mobile identity = IMSI TMSI status = no valid TMSI available Attach result = 'Combined PS / IMSI attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Mobile identity = TMSI-2 Routing area identity = RAI-• The UE is switched off or power is removed (see ICS). Message not sent if power is removed.	4	<-	ATTACH AC	CEPT	
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Routing area identity = RAI-1 S -> ATTACH COMPLETE DETACH REQUEST Detach type = 're-attach not required' Cause 'No Suitable Cells In Location Area' The following message are sent and shall be received on cell B. The UE initiates an attach automatically, by MMI or by AT command. Attach type = 'Combined PS / IMSI attach' Mobile identity = IMSI TMSI status = no valid TMSI available Attach result = 'Combined PS / IMSI attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Mobile identity = TMSI-2 Routing area identity = RAI-• The UE is switched off or power is removed (see ICS). Message not sent if power is removed.					
5 -> ATTACH COMPLETE 6 DETACH REQUEST 7 -> DETACH COMPLETE 8 UE 8 UE 8 The following message are sent and shall be received on cell B. The UE initiates an attach automatically, by MMI or by AT command. Attach type = 'Combined PS / IMSI attach' Mobile identity = IMSI TMSI status = no valid TMSI available ATTACH ACCEPT ATTACH ACCEPT ATTACH ACCEPT ATTACH COMPLETE 11 -> ATTACH COMPLETE 12 UE 13 -> DETACH REQUEST Detach type = 're-attach not required' Cause 'No Suitable Cells In Location Area' The following message are sent and shall be received on cell B. The UE initiates an attach automatically, by MMI or by AT command. Attach type = 'Combined PS / IMSI attach' Mobile identity = IMSI TMSI status = no valid TMSI available Attach result = 'Combined PS / IMSI attached' Mobile identity = P-TMSI-2 Routing area identity = TMSI-2 Routing area identity = RAI-• The UE is switched off or power is removed (see ICS). Message not sent if power is removed.					
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The following message are sent and shall be received on cell B. The UE initiates an attach automatically, by MMI or by AT command. Attach type = 'Combined PS / IMSI attach' Mobile identity = IMSI TMSI status = no valid TMSI available Attach result = 'Combined PS / IMSI attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Mobile identity = TMSI-2 Routing area identity = RAI-• The UE is switched off or power is removed (see ICS). Message not sent if power is removed.	0	ζ-	DETACTIVE	QUEST	
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received on cell B. The UE initiates an attach automatically, by MMI or by AT command. Attach type = 'Combined PS / IMSI attach' Mobile identity = IMSI TMSI status = no valid TMSI available Attach result = 'Combined PS / IMSI attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Mobile identity = TMSI-2 Routing area identity = RAI-• The UE is switched off or power is removed (see ICS). The UE is switched off power is removed.					The following message are sent and shall be
MMI or by AT command. Attach type = 'Combined PS / IMSI attach' Mobile identity = IMSI TMSI status = no valid TMSI available Attach result = 'Combined PS / IMSI attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Mobile identity = TMSI-2 Routing area identity = RAI-• The UE is switched off or power is removed (see ICS). DETACH REQUEST MMI or by AT command. Attach type = 'Combined PS / IMSI attache' Mobile identity = TMSI attached' Mobile identity = TMSI-2 Routing area identity = RAI-• The UE is switched off or power is removed.					received on cell B.
ATTACH REQUEST Attach type = 'Combined PS / IMSI attach' Mobile identity = IMSI TMSI status = no valid TMSI available Attach result = 'Combined PS / IMSI attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Mobile identity = TMSI-2 Routing area identity = RAI-• The UE is switched off or power is removed (see ICS). DETACH REQUEST Attach type = 'Combined PS / IMSI attach' Mobile identity = TMSI attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Mobile identity = TMSI-2 Routing area identity = RAI-• The UE is switched off or power is removed.	8	UE			
Mobile identity = IMSI TMSI status = no valid TMSI available Attach result = 'Combined PS / IMSI attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Mobile identity = TMSI-2 Routing area identity = RAI-• The UE is switched off or power is removed (see ICS). DETACH REQUEST Mobile identity = IMSI TMSI status = no valid TMSI available Attach result = 'Combined PS / IMSI attached' Mobile identity = P-TMSI-2 Routing area identity = RAI-• The UE is switched off or power is removed.			ATTACH DE	OUEOT	
TMSI status = no valid TMSI available Attach result = 'Combined PS / IMSI attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Mobile identity = TMSI-2 Routing area identity = RAI-• TMSI status = no valid TMSI available Attach result = 'Combined PS / IMSI attached' Mobile identity = TMSI-2 Routing area identity = RAI-• The UE is switched off or power is removed (see ICS). The UE is switched off or power is removed.	9	->	ATTACH RE	QUEST	
ATTACH ACCEPT Attach result = 'Combined PS / IMSI attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Mobile identity = TMSI-2 Routing area identity = RAI-• The UE is switched off or power is removed (see ICS). DETACH REQUEST Attach result = 'Combined PS / IMSI attached' Mobile identity = P-TMSI-2 Routing area identity = RAI-• The UE is switched off or power is removed.					
P-TMSI-2 signature Mobile identity = TMSI-2 Routing area identity = RAI-• 11 -> ATTACH COMPLETE The UE is switched off or power is removed (see ICS). 13 -> DETACH REQUEST Message not sent if power is removed.	10	<-	ATTACH AC	CEPT	
Mobile identity = TMSI-2 Routing area identity = RAI-◆ 11 -> ATTACH COMPLETE The UE is switched off or power is removed (see ICS). 13 -> DETACH REQUEST Mobile identity = TMSI-2 Routing area identity = RAI-◆ The UE is switched off or power is removed.					Mobile identity = P-TMSI-2
Routing area identity = RAI-• 11					P-TMSI-2 signature
11 -> ATTACH COMPLETE 12 UE The UE is switched off or power is removed (see ICS). 13 -> DETACH REQUEST Message not sent if power is removed.					
12 UE The UE is switched off or power is removed (see ICS). 13 -> DETACH REQUEST Message not sent if power is removed.	 			NO. ETC	Routing area identity = RAI-•
(see ICS). 13 -> DETACH REQUEST Message not sent if power is removed.			ATTACH CO	MPLETE	The LIE is switched off or a survey is seen a
13 -> DETACH REQUEST Message not sent if power is removed.	12	UE			
	13		DETACH RE	OUEST	
I Detach type = 'power switched off PS detach'	13		DETACTIVE	.QOLOT	Detach type = 'power switched off, PS detach'

Specific message contents

None.

12.3.2.6.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

-initiate <u>a the PS</u> attach procedure with the information elements specified in the above Expected Sequence when the UE is powered up or switched on.

After the completion of the PS attach procedure, and when the UE receives the DETACH REQUEST message (Detach type = 're attach not required', Cause = 'No Suitable Cells In Location Area') from SS, UE shall:

-delete the stored RAI or LAI, P TMSI, P TMSI signature and PS ciphering key sequence number.

- store the LA or the PLMN identity in the 'forbidden location areas for roaming'.

At step9, When when the UE enters a suitable cell in a different location area on the same PLMN, UE shall:

perform the PS attach <u>procedure</u>.

12.4 Routing area updating procedure

This procedure is used to update the actual routing area of an UE in the network.

12.4.1 Normal routing area updating

The routing area updating procedure is a GMM procedure used by PS UEs of UE operation mode A or C that are IMSI attached for PS services only.

12.4.1.1 Routing area updating / accepted

12.4.1.1.1 Definition

12.4.1.1.2 Conformance requirement

- 1) If the network accepts the routing area updating procedure and reallocates a P-TMSI, the UE shall acknowledge the new P-TMSI and continue communication with the new P-TMSI.
- 2) If the network accepts the routing area updating procedure from the UE without reallocation of the old P-TMSI, the UE shall continue communication with the old P-TMSI.

Reference

3GPP TS 24.008 clause 4.7.5.1.

12.4.1.1.3 Test purpose

To test the behaviour of the UE if the network accepts the routing area updating procedure.

The following cases are identified:

- 1) P-TMSI / P-TMSI signature is reallocated.
- 2) Old P-TMSI / P-TMSI signature is not changed.

12.4.1.1.4 Method of test

Initial condition

System Simulator:

Two cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4). Both cells are operating in network operation mode II.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No UE operation mode A UE operation mode C Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

- 1) The UE sends a ROUTING AREA UPDATE REQUEST message. The SS reallocates the P-TMSI and returns ROUTING AREA UPDATE ACCEPT message with a new P-TMSI. The UE acknowledge the new P-TMSI by sending ROUTING AREA UPDATING COMPLETE message. Further communication UE SS is performed by the new P-TMSI. The UE will not answer signalling addressed to the old P-TMSI.
- 2) The UE sends a ROUTING AREA UPDATING REQUEST message. The SS accepts the P-TMSI and returns ROUTING AREA UPDATING ACCEPT message without any P-TMSI. Further communication UE SS is performed by the P-TMSI.

Expected Sequence

The following messages are sent and shall be received on cell A. 1 SS 2 UE 3 UE 4 -> ATTACH REQUEST The following messages are sent and shall be received on cell A. The SS activates cell A. The UE is set in UE operation mode C (see ICS). If UE operation mode C not supported, goto step 22. The UE is powered up or switched on and initiates an attach (see ICS). Attach type = 'PS attach'
received on cell A. The SS activates cell A. The UE is set in UE operation mode C (see ICS). If UE operation mode C not supported, goto step 22. The UE is powered up or switched on and initiates an attach (see ICS). ATTACH REQUEST ATTACH REQUEST ATTACH REQUEST
received on cell A. The SS activates cell A. The UE is set in UE operation mode C (see ICS). If UE operation mode C not supported, goto step 22. The UE is powered up or switched on and initiates an attach (see ICS). ATTACH REQUEST ATTACH REQUEST ATTACH REQUEST
The UE is set in UE operation mode C (see ICS). If UE operation mode C not supported, goto step 22. The UE is powered up or switched on and initiates an attach (see ICS). ATTACH REQUEST Attach type = 'PS attach'
ICS). If UE operation mode C not supported, goto step 22. The UE is powered up or switched on and initiates an attach (see ICS). ATTACH REQUEST Attach type = 'PS attach'
ICS). If UE operation mode C not supported, goto step 22. The UE is powered up or switched on and initiates an attach (see ICS). ATTACH REQUEST Attach type = 'PS attach'
goto step 22. The UE is powered up or switched on and initiates an attach (see ICS). ATTACH REQUEST Attach type = 'PS attach'
initiates an attach (see ICS). 4 -> ATTACH REQUEST Attach type = 'PS attach'
4 -> ATTACH REQUEST Attach type = 'PS attach'
Mobile identity = IMSI
5 <- ATTACH ACCEPT Attach result = 'PS only attached'
Mobile identity = P-TMSI-2
P-TMSI-2 signature
Routing area identity = RAI-1
6 -> ATTACH COMPLETE
The following messages are sent and shall be
received on cell B.
7 SS Activate cell B with a lower signal strength than
cell A The RF level of cell A is lowered until cel
B is preferred by the UE.
8 -> ROUTING AREA UPDATING Update type = 'RA updating'
REQUEST P-TMSI-2 signature
Routing area identity = RAI-1
9 <- ROUTING AREA UPDATING Update result = 'RA updated'
ACCEPT Mobile identity = P-TMSI-1 P-TMSI-1 signature
Routing area identity = RAI-4
10 -> ROUTING AREA UPDATING
COMPLETE
11 <- GMM INFORMATION Message sent with P-TMSI-1
11b -> GMM STATUS Message sent in case the UE does not support
reception of GMM information message
Cause #97
12 <- PAGING TYPE1 Mobile identity = P-TMSI-2
PAGING TYPE1 (used for NW-mode II).
Paging order is for PS services.
13 UE No response from the UE to the request. This
is checked for 10 seconds.
The following messages are sent and shall be
received on cell A.
14 SS Set the signal strength of cell A to a lower
signal strength than cell B The RF level of cell
B is lowered until cell A is preferred by the UE.

Step	Direction	Message	Comments
	UE SS		
15	UE		Cell A is preferred by the UE.
16	->	ROUTING AREA UPDATING	Update type = 'RA updating'
		REQUEST	P-TMSI-1 signature
			Routing area identity = RAI-4
17	<-	ROUTING AREA UPDATING	No new mobile identity assigned.
		ACCEPT	P-TMSI not included.
			Update result = 'RA updated'
			P-TMSI-2 signature
40		PAGING TYPE1	Routing area identity = RAI-1
18	<-	PAGING TYPET	Mobile identity = P-TMSI-1 Paging order is for PS services.
			PAGING TYPE 1 (used for NW-mode II).
18a	->	RRC CONNECTION REQUEST	PAGING TIPE I (used for NVV-IIIode II).
18b	> <-	RRC CONNECTION SETUP	
18c	->	RRC CONNECTION SETUP	
100		COMPLETE	
19	->	SERVICE REQUEST	service type = "paging response"
			paging responds
19a	<-	RRC CONNECTION RELEASE	
19b	->	RRC CONNECTION RELEASE	
		COMPLETE	
20	UE		The UE is switched off or power is removed
			(see ICS).
21	->	DETACH REQUEST	Message not sent if power is removed.
			Detach type = 'power switched off, PS detach'
22	UE		The UE is set in UE operation mode A (see
			ICS) and the test is repeated from step 3 to
			step 21.

Specific message contents

None.

12.4.1.1.5 Test requirements

At step4, when the UE is powered up or switched on, UE shall:

- initiate <u>a-the PS</u> attach procedure with the information elements specified in the above Expected Sequence when UE is powered up or switched on.

After completing the PS attach procedure, UE shall:,

- initiate a routing area updating procedure with the information elements specified in the above Expected Sequence when the RF level of the attached cell is lower than the RF level of the new cell.
- use the P-TMSI which is included in the ROUTING AREA UPDATING ACCEPT message.
- acknowledge the new P TMSI and continue communication with the new P TMSI.
- continue communication with the old P TMSI.

At step8, UE shall;

- initiate the routing area updating procedure with the information elements specified in the above Expected Sequence.

At step13, when the UE receives the paging message for PS domain with Mobile identity = P-TMSI-2, UE shall:

- not respond to the paging message for PS domain.

At step16, UE shall;

- initiate the routing area updating procedure with the information elements specified in the above Expected Sequence.

At step19, when the UE receives the paging message for PS domain with Mobile identity = P-TMSI-1, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

12.4.1.2 Routing area updating / rejected / IMSI invalid / illegal ME

12.4.1.2.1 Definition

12.4.1.2.2 Conformance requirement

- 1) If the network rejects a routing area updating procedure from the User Equipment with the cause 'Illegal ME', the User Equipment shall consider USIM invalid for PS services until power is switched off or USIM is removed.
- 2) If the network rejects a routing area updating procedure from the User Equipment with the cause 'Illegal ME', the User Equipment shall delete the stored RAI, PS-CKSN, P-TMSI and P-TMSI signature.

Reference

3GPP TS 24.008 clause 4.7.5.1.

12.4.1.2.3 Test purpose

To test the behaviour of the UE if the network rejects the routing area updating procedure of the UE with the cause 'Illegal ME'.

12.4.1.2.4 Method of test

Initial condition

System Simulator:

Three cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4), cell C in MCC2/MNC1/LAC1/RAC1 (RAI-2). All three cells are operating in network operation mode II (in case of UE operation mode A)

User Equipment:

The UE has a valid P-TMSI-1, P-TMSI-1 signature and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No UE operation mode C Yes/No

UE operation mode A Yes/No (only if mode C not supported)

USIM removal possible without powering down Yes/No

Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a routing area updating with the cause value 'Illegal ME'. The SS checks that the UE does not perform PS attach in the same or another PLMN.

Step	Direction UE SS	Message	Comments
	02 00		The following messages are sent and shall be
			received on cell A.
1	UE		The UE is set in UE operation mode C (see ICS).
2	SS		The SS is set in network operation mode II and
			activates cell A.
3	UE		The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred
			by the UE.
4	->	ATTACH REQUEST	Attach type = 'PS attach'
			Mobile identity = P-TMSI-1
			P-TMSI-1 signature Routing area identity = RAI-1
5	<-	ATTACH ACCEPT	No new mobile identity assigned.P-TMSI and
			P-TMSI signature not included.Attach result =
			'PS only attached' Routing area identity = RAI-1
			The following messages are sent and shall be
			received on cell B.
6	SS		The SS deactivates cell A and activates cell B.
7 8	UE ->	ROUTING AREA UPDATING	Cell B is preferred by the UE. Update type = 'RA updating'
		REQUEST	opadic type = 101 apading
			Routing area identity = RAI-1
9	<-	ROUTING AREA UPDATING REJECT	GMM cause = 'Illegal ME'
10	<-	PAGING TYPE1	Mobile identity = P-TMSI-1
			PAGING TYPE1 (used for NW-mode II).
11	UE		Paging order is for PS services. No response from the UE to the request. This
''	OL		is checked for 10 seconds.
			The following messages are sent and shall be
12	SS		received on cell C. The SS deactivates cell B and activates cell C.
13	UE		Cell C is preferred by the UE.
14	UE		No ATTACH REQUEST sent to the SS
4.5			(SS waits 30 seconds).
15	UE		If possible (see ICS) USIM removal is performed. Otherwise if possible (see ICS)
			switch off is performed. Otherwise the power is
40			removed.
16	UE		The UE gets the USIM replaced, is powered up or switched on and initiates an attach (see
			ICS).
<u>16a</u>			Step 16b is only performed by UE in operation
16b	<u>UE</u>	Registration on CS	mode A See TS 34.108
100	<u>51</u>	- togionanon on oo	Parameter mobile identity is IMSI.
17	->	ATTACH REQUEST	Attach type = 'PS only attached'
18	<-	ATTACH ACCEPT	Mobile identity = IMSI Attach result = 'PS attach'
10	\-	MIMOTIAGOLIT	Mobile identity = P-TMSI-1
			P-TMSI-1 signature
19		ATTACH COMPLETE	Routing area identity = RAI-2
20	-> UE	ATTACITOOWIFLETE	The UE is switched off or power is removed
	- -		(see ICS).
21	->	DETACH REQUEST	Message not sent if power is removed.

Specific message contents

None.

12.4.1.2.5 Test requirements

At step4, when the UE is powered up or switched on, UE shall:

- initiate <u>a the PS</u> attach procedure with the information elements specified in the above Expected Sequence when UE is powered up or switched on.

At step8, UE shall;

- initiate the routing area updating procedure with the information elements specified in the above Expected Sequence.

At step11, after the routing area updating procedure is rejected with GMM cause = 'Illegal ME', UE shall;

- not respond to the paging message for PS domain.

After completing the PS attach procedure, UE shall:

- initiate a routing area updating procedure with the information elements specified in the above Expected Sequence.
- delete the stored P TMSI, P TMSI signature, RAI and PS ciphering key sequence number .
- consider the USIM as invalid for PS services until the UE is switched off or the USIM is removed. At step14, UE shall,
- not initiate PS attach procedure.

At step17, after the UE is powered up or USIM is replaced, UE shall;

initiate the PS attach procedure.

12.4.1.3 Routing area updating / rejected / UE identity cannot be derived by the network

12.4.1.3.1 Definition

12.4.1.3.2 Conformance requirement

If the network rejects a routing area updating procedure from the User Equipment with the cause 'UE identity cannot be derived by the network', the User Equipment shall delete the stored RAI, PS-CKSN, P-TMSI and P-TMSI signature.

Depending on the manufacturer the UE may or may not perform a PS attach procedure.

Reference

3GPP TS 24.008 clause 4.7.5.1.

12.4.1.3.3 Test purpose

To test the behaviour of the UE if the network rejects the routing area updating procedure of the UE with the cause 'UE identity cannot be derived by the network'.

12.4.1.3.4 Method of test

Initial condition

System Simulator:

 $Two\ cells\ (not\ simultaneously\ activated),\ cell\ A\ in\ MCC1/MNC1/LAC1/RAC1\ (RAI-1),\ cell\ B\ in\ MCC1/MNC1/LAC1/RAC2\ (RAI-4).$

Both cells are operating in network operation mode II (in case of UE operation mode A).

User Equipment:

The UE has a valid P-TMSI-1, P-TMSI-1 signature and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No UE operation mode C Yes/No

UE operation mode A Yes/No (only if mode C not supported)

Automatic attach procedure when UE identity cannot be derived by the network Yes/No

Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a normal routing area updating with the cause value 'UE identity cannot be derived by the network'. The UE detach locally. A new PS attach may be performed.

Step	Direction UE SS	Message	Comments
	JL 33		The following messages are sent and shall be
			received on cell A.
1	SS		The SS is set in network operation mode II and
			activates cell A.
2	UE		The UE is set in UE operation mode C (see
			ICS).
3	UE		The UE is powered up or switched on and
			initiates an attach (see ICS). Cell A is preferred
4	->	ATTACH REQUEST	by the UE. Attach type = 'PS attach'
		ATTAOTTREGOEST	Mobile identity =P-TMSI-1
			P-TMSI-1 signature
			Routing area identity = RAI-1
5	<-	ATTACH ACCEPT	Attach result = 'PS only attached'
			Mobile identity = P-TMSI-2
			P-TMSI-2 signature
			Routing area identity = RAI-1
6	->	ATTACH COMPLETE	The following respondence are sent and shall be
			The following messages are sent and shall be received on cell B.
7	SS		The SS deactivates cell A and activates cell B.
8	UE		Cell B is preferred by the UE.
9	->	ROUTING AREA UPDATING	Update type = 'RA updating'
		REQUEST	P-TMSI-2 signature
			Routing area identity = RAI-1
10	<-	ROUTING AREA UPDATING	GMM cause = 'UE identity cannot be derived
		REJECT	by the network'
11	UE		If an automatic attach procedure by the UE is
			not possible when the UE identity cannot be derived by the network (see ICS) goto step 19.
12	UE		An Automatic PS attach procedure is initiated
12	OL.		(see ICS).
13	->	ATTACH REQUEST	Attach type = 'PS attach'
			Mobile identity = IMSI
14	<-	ATTACH ACCEPT	Attach result = 'PS only attached'
			Mobile identity = P-TMSI-1
			P-TMSI-1 signature
15		ATTACH COMPLETE	Routing area identity = RAI-4
15 16	-> UE	ATTACH COMPLETE	The UE is switched off or power is removed
10	OL.		(see ICS).
17	->	DETACH REQUEST	Message not sent if power is removed.
			Detach type = 'power switched off, PS detach'
18			Stop the sequence
19	<-	PAGING TYPE1	Mobile identity = P-TMSI-2
			PAGING TYPE1 (used for NW-mode II).
60			Paging order is for PS services.
20	UE		No response from the UE to the request, as the
			UE has detached locally. This is checked for 10
L			seconds.

Specific message contents

None.

12.4.1.3.5 Test requirements

At step4, when the UE is powered up or switched on, UE shall:

- initiate a-the PS attach procedure with the information elements specified in the above Expected Sequence when UE is powered up or switched on.

At step9, UE shall;

 initiate the routing area updating procedure with the information elements specified in the above Expected Sequence.

UE shall perform the following actions depending on the implementation of the UE.

Case 1) UE supports an Automatic PS attach procedure.

- At step13, UE shall;
- initiate the PS attach procedure.

Case 2) UE does not support an Automatic PS attach procedure.

At step20, when the UE receives the paging message for PS domain, UE shall:

- not respond to the paging message for PS domain.

After completing the PS attach procedure, UE shall:

- initiate a routing area updating procedure with the information elements specified in the above Expected Sequence.
- delete stored P TMSI, P TMSI signature, RAI and PS ciphering key sequence number.

12.4.1.4a Routing area updating / rejected / location area not allowed

12.4.1.4a.1 Definition

12.4.1.4a.2 Conformance requirement

- 1) If the network rejects a routing area updating procedure from the User Equipment with the cause 'location area not allowed' the User Equipment shall:
 - 1.1 not perform PS attach when in the same location area.
 - 1.2 delete the stored RAI, PS-CKSN, P-TMSI and P-TMSI signature.
 - 1.3 store the LA in the 'forbidden location areas for regional provision of service'.
- 2) If the network rejects a routing area updating procedure from the User Equipment with the cause 'location area not allowed' the User Equipment shall:
 - 2.1 perform PS attach when a new location area is entered.
 - 2.2 delete the list of forbidden LAs after switch off (power off).

Reference

3GPP TS 24.008 clauses 4.7.5.1.

12.4.1.4a.3 Test purpose

To test the behaviour of the UE if the network rejects the routing area updating procedure of the UE with the cause 'Location Area not allowed'.

To test that the UE deletes the list of forbidden LAs when power is switched off.

12.4.1.4a.4 Method of test

Initial condition

System Simulator:

Three cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1) , cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4), cell C in MCC1/MNC1/LAC2/RAC1 (RAI-3). All cells are operating in network operation mode II.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No UE operation mode A Yes/No UE operation mode C Yes/No

USIM removal possible without powering down Yes/No

Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a routing area updating with the cause value 'Location Area not allowed'. The SS checks that the UE does not perform PS attach while in the location area, performs PS attach when a new location area is entered and deletes the list of forbidden LAs when switched off.

Different types of UE may use different methods to periodically clear the list of forbidden location areas (e.g. every day at 12am). If the list is cleared while the test is being run, it may be necessary to re-run the test.

Step	Direction UE SS	Message	Comments
	SS		The following messages are sent and shall be
			received on cell C.
1	SS		The SS activates cell C.
2	UE		The UE is set in UE operation mode C (see ICS). If UE operation mode C not supported,
			goto step 33.
3	UE		The UE is powered up or switched on and
			initiates an attach (see ICS). Cell C is preferred
4		ATTACH BEOLIEST	by the UE.
4	->	ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = IMSI
5	<-	ATTACH ACCEPT	Attach result = 'PS only attached'
			Mobile identity = P-TMSI-1
			P-TMSI-1 signature
6	->	ATTACH COMPLETE	Routing area identity = RAI-3
	-/	ATTACITOOMILLIL	The following messages are sent and shall be
			received on cell B.
7	<u>SS</u> SS		The SS deactivates cell C and activates cell B.
8	SS		Cell B is preferred by the UE.
<u>8a</u>			The following step is only performed for UE Operation Mode A.
<u>8b</u>	<u>UE</u>	Registration on CS	See TS34.108
			Parameter mobile identity is IMSI
9	->	ROUTING AREA UPDATING	Update type = 'RA updating'
		REQUEST	P-TMSI-1 signature Routing area identity = RAI-3
10	<-	ROUTING AREA UPDATING	GMM cause = 'Location Area not allowed'
		REJECT	
11	<-	PAGING TYPE1	Mobile identity = P-TMSI-1
			PAGING TYPE1 (used for NW-mode II). Paging order is for PS services.
12	UE		No response from the UE to the request. This
			is checked for 10 seconds.
			The following messages are sent and shall be
13	SS		received on cell A. The SS deactivates cell B and activates cell A.
14	UE		Cell A is preferred by the UE.
15	UE		No ATTACH REQUEST sent to SS
1			(SS waits 30 seconds)
			The following messages are sent and shall be received on cell C.
16	SS		The SS deactivates cell B-A and activates cell
			C. —
17	UE		Cell C is preferred by the UE.
<u>17a</u>			The following step is only performed for UE Operation Mode A.
<u>17b</u>	<u>UE</u>	Registration on CS	See TS34.108
			Parameter mobile identity is IMSI
18	->	ATTACH REQUEST	Attach type = 'PS attach'
19	<-	ATTACH ACCEPT	Mobile identity = IMSI Attach result = 'PS only attached'
13		MIMORAGOLII	Mobile identity = P-TMSI-2
1			P-TMSI-2 signature
		ATTACH COMBUSTS	Routing area identity = RAI-3
20 21	-> UE	ATTACH COMPLETE	If possible (see ICS) USIM removal is
"	J JE		performed. Otherwise if possible (see ICS)
			switch off is performed. Otherwise the power is
		DETA OU DECUEST	removed.
22	->	DETACH REQUEST	Message not sent if power is removed.
			Detach type = 'power switched off, PS detach'

Step	Direction	Message	Comments
	UE SS		
23	UE		The UE gets the USIM replaced, is powered up or switched on and initiates an attach (see ICS).
24	->	ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-2 P-TMSI-2 signature
25	<-	ATTACH ACCEPT	Routing area identity = RAI-3 Attach result = 'PS only attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature
26	->	ATTACH COMPLETE	Routing area identity = RAI-3
	SS		The following messages are sent and shall be received on cell A.
27 28			The SS deactivates cell C and activates cell A. Cell A is preferred by the UE.
<u>28a</u>			The following step is only performed for UE Operation Mode A.
<u>28b</u>	<u>UE</u>	Registration on CS	See TS34.108 Parameter mobile identity is IMSI
29	->	ROUTING AREA UPDATING REQUEST	Update type = 'RA updating' P-TMSI-1 signature Routing area identity = RAI-3
30	<-	ROUTING AREA UPDATING ACCEPT	No new mobile identity = NAIS No new mobile identity assigned.P-TMSI and P-TMSI signature not included.Update result = 'RA updated'
31	UE		Routing area identity = RAI-1 The UE is switched off or power is removed
	<u> </u>		(see ICS).
32	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'
33 34	SS UE		The SS is set in network operation mode II. The UE is set in UE operation mode A (see ICS), cell A is switched off and the test is repeated from step 2 to step 32.

Specific message contents

None.

12.4.1.4a.5 Test requirements

At step4, when the UE is powered up or switched on, UE shall:

- initiate <u>a the PS</u> attach procedure with the information elements specified in the above Expected Sequence when UE is powered up or switched on.

After completing the PS attach procedure At step9, UE shall:

- initiate <u>a-the</u> routing area updating procedure with the information elements specified in the above Expected Sequence.

At step12, when the UE receives the paging message for PS domain, UE shall:

- not respond to the paging message for PS domain.

At step12 and 15, When when in the same location area, UE shall

- not perform PS attach_procedure-.

- store the LA in the 'forbidden location areas for regional provision of service'.

At step18, When when a new location area is entered, UE shall

- perform the PS attach procedure.
- delete the list of forbidden LAs when power is switched off.

At step24, when the USIM is replaced, UE shall;

- perform the PS attach procedure.

At step29, UE shall;

 initiate the routing area updating procedure with the information elements specified in the above Expected Sequence.

12.4.1.4b Routing area updating / rejected / No Suitable Cells In Location Area

12.4.1.4b.1 Definition

12.4.1.4b.2 Conformance requirement

- 1) If the network rejects a routing area updating procedure from the User Equipment with the cause 'No Suitable Cells In Location Area', the User Equipment shall:
 - 1.1 delete the stored RAI, PS-CKSN, P-TMSI and P-TMSI signature.
 - 1.2 store the LA or the PLMN identity in the 'forbidden location areas for roaming'.
 - 1.3 search for a suitable cell in a different location area on the same PLMN.

Reference

3GPP TS 24.008 clauses 4.7.5.1.

12.4.1.4b.3 Test purpose

To test the behaviour of the UE if the network rejects the routing area updating procedure with the cause 'No Suitable Cells In Location Area'.

To test that the UE deletes the list of forbidden LAs when power is switched off'.

12.4.1.4b.4 Method of test

Initial condition

System Simulator:

Four cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC2/RAC1 (RAI-3), cell C in MCC2/MNC1/LAC1/RAC1 (RAI-2), cell D in MCC1/MNC1/LAC1/RAC2 (RAI-4),

All three cells are operating in network operation mode II.

User Equipment:

The UE has valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
USIM removal possible without powering down Yes/No
Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a routing area updating with the cause value 'No Suitable Cells In Location Area'. The SS checks that the UE shall perform PS attach procedure when the UE enters a suitable cell in a different location area on the same PLMN.

Expected Sequence

Step	Direction	Message	Comments
	UE SS		
	SS		The following message are sent and shall be
			received on cell D.
1	SS		The SS activates cell D.
2	UE		The UE is powered up or switched on and
			initiates an attach (see ICS). Cell D is preferred
_			by the UE.
3	->	ATTACH REQUEST	Attach type = 'PS attach'
			Mobile identity = IMSI
4	<-	ATTACH ACCEPT	Attach result = 'PS only attached'
			Mobile identity = P-TMSI-1
			P-TMSI-1 signature
_		ATTACLLOCADLETE	Routing area identity = RAI-4
5 6	-> SS	ATTACH COMPLETE	The CC desertivates Call D and activates Call A
ь	55		The SS deactivates Cell D and activates Cell A,
			Cell B and Cell C. The SS configures power level of each Cell as
			follows.
			Cell A > Cell B = Cell C
			Cell A is preferred by the UE.
7	->	ROUTING AREA UPDATING	Update type = 'RA updating'
,		REQUEST	P-TMSI-1 signature
		The Gold I	Routing area identity = RAI-4
8	<-	ROUTING AREA UPDATING	GMM cause = 'No Suitable Cells In Location
		REJECT	Area'
			The following message are sent and shall be
			received on cell D.
9	->	ATTACH REQUEST	Attach type = 'PS attach'
			Mobile identity = IMSI
10	<-	ATTACH ACCEPT	Attach result = 'PS only attached'
			Mobile identity = P-TMSI-2
			P-TMSI-2 signature
			Routing area identity = RAI-3
11	->	ATTACH COMPLETE	
12	->	DETACH REQUEST	Message not sent if power is removed.
			Detach type = 'power switched off, PS detach'

Specific message contents

None.

12.4.1.4b.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate a-the PS attach procedure with the information elements specified in the above Expected Sequence—when the UE is powered up or switched on.

At step7, UE shall;

initiate the routing area updating procedure.

At step9, when the UE enters a suitable cell in a different location area on the same PLMN, UE shall:

perform the PS attach procedure. After rejecting the PS attach procedure with the cause 'No Suitable Cells In Location Area, UE shall:

-delete the stored RAI, PS CKSN, P TMSI and P TMSI signature.

-store the LA or the PLMN identity in the 'forbidden location areas for roaming'.

When the UE enters a suitable cell in a different location area on the same PLMN, UE shall:

perform PS attach.

12.4.1.5 Routing area updating / abnormal cases / attempt counter check / miscellaneous reject causes

12.4.1.5.1 Definition

12.4.1.5.2 Conformance requirement

When a routing area updating procedure is rejected with the attempt counter less than five, the UE shall repeat the routing area updating procedure after T3330 timeout.

When a T3330 timeout has occurred during a routing area updating procedure with the attempt counter five, the UE shall start timer T3302.

When the T3302 expire, a new routing area updating procedure shall be initiated.

GMM cause codes that can be selected are: 'IMSI unknown in HLR' 'IMEI not accepted' 'Illegal ME' 'UE identity cannot be derived by the network' 'Network failure' 'Congestion' 'retry upon entry into a new cell' 'Semantically incorrect message' 'Invalid mandatory information' 'Message type non existent or not implemented' 'Message type not compatible with the protocol state' 'Information element non existent or not implemented' 'Conditional IE error' 'Message not compatible with the protocol state' 'Protocol error, unspecified'

Reference

3GPP TS 24.008 clause 4.7.5.1.

12.4.1.5.3 Test purpose

To test the behaviour of the UE with respect to the attempt counter.

12.4.1.5.4 Method of test

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4). The ATT-flag shall indicate that the MS should use IMSI attach/detach procedures.

Both cells are operating in network operation mode II (in case of UE operation mode A).

User Equipment:

The UE has a valid P-TMSI-1, P-TMSI-1 signature and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No UE operation mode C Yes/No

UE operation mode A Yes/No (only if mode C not supported)

Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE initiates a routing area updating procedure (attempt counter zero).

The SS rejects the routing area updating procedure with a random cause code.

The UE initiates a new routing area updating procedure (attempt counter one) after T3311 expires.

The SS rejects the routing area updating procedure with a random cause code.

The UE initiates a new routing area updating procedure (attempt counter two) after T3311 expires.

The SS rejects the routing area updating procedure with a random cause code.

The UE initiates a new routing area updating procedure (attempt counter three) after T3311 expires.

The SS rejects the routing area updating procedure with a random cause code.

The UE initiates a new routing area updating procedure (attempt counter four) after T3311 expires.

The SS rejects the routing area updating procedure with a random cause code.

The UE initiates a new routing area updating procedure with attempt counter five (after T3311 expires).

The SS rejects the routing area updating procedure with a random cause code.

The UE shall not perform a new successful routing area updating procedure after T3311 seconds.

The UE initiates a routing area updating procedure with attempt counter zero after T3302 expires with the stored P-TMSI, P-TMSI signature, PS CKSN and RAI.

T3302; set to 10-<u>12</u> minutes.

T3330; set to 15 seconds.

T3311; set to 15 seconds.

Step	Direction UE SS	Message	Comments
	SS		The following messages are sent and shall be
			received on cell A.
1	UE		The UE is set in UE operation mode C (see
2	SS		ICS). The SS is set in network operation mode II and
_	00		activates cell A.
<u>2a</u>	<u>UE</u>	Registration on CS	See TS 34.108
			This step is applied only for UE in UE operation
			mode A. Parameter mobile identity is TMSI.
3	UE		The UE is powered up or switched on and
			initiates an attach (see ICS). Cell A is preferred
4		ATTACLIBEOLIECT	by the UE.
4	->	ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1
			P-TMSI-1 signature
			Routing area identity = RAI-1
5	<-	ATTACH ACCEPT	No new mobile identity assigned.
			P-TMSI not included.
			Attach result = 'PS only attached' P-TMSI-2 signature
			Routing area identity = RAI-1
			The following messages are sent and shall be
	00		received on cell B.
6 7	SS SS		The SS deactivates cell A and activates cell B. Cell B is preferred by the UE.
8	->	ROUTING AREA UPDATING	Update type = 'RA updating'
		REQUEST	P-TMSI-2 signature
			Routing area identity = RAI-1
9	<-	ROUTING AREA UPDATING REJECT	GMM cause = 'Congestion' Random GMM cause
10	SS	REJECT	The SS verifies that the time between the
			routing area updating requests is 15 seconds
11	->	ROUTING AREA UPDATING	Update type = 'RA updating'
		REQUEST	P-TMSI-2 signature
			Routing area identity = RAI-1
12	<-	ROUTING AREA UPDATING	GMM cause = 'Congestion'Random GMM
		REJECT	cause
13	SS		The SS verifies that the time between the routing area updating requests is 15 seconds
14	->	ROUTING AREA UPDATING	Update type = 'RA updating'
		REQUEST	opadio typo Turi apadiing
			P-TMSI-2 signature
15	<-	ROUTING AREA UPDATING	Routing area identity = RAI-1 GMM cause = 'Congestion' Random GMM
13	ζ-	REJECT	cause = Congestion Random GWW
16	SS		The SS verifies that the time between the
4-7		DOLITING ADEA LIDE ATTIC	routing area updating requests is 15 seconds
17	->	ROUTING AREA UPDATING REQUEST	Update type = 'RA updating' P-TMSI-2 signature
		INLEGOLOT	Routing area identity = RAI-1
18	<-	ROUTING AREA UPDATING	GMM cause = 'Congestion'Random GMM
4.0	00	REJECT	cause
19	SS		The SS verifies that the time between the routing area updating requests is 15 seconds
20	->	ROUTING AREA UPDATING	Update type = 'RA updating'
		REQUEST	
			P-TMSI-2 signature
21	_	ROUTING AREA UPDATING	Routing area identity = RAI-1
	<-	REJECT	GMM cause = 'Congestion' Random GMM cause
22	SS		The SS verifies that the UE does not attempt to
			attach for 10 minutes .

Step	Direction	Message	Comments
	UE SS		
23	SS		The SS shall release the PS signalling
			connection.
<u>23a</u>	<u>UE</u>	Registration on CS	See TS 34.108
			This step is applied only for UE in UE operation
			mode A.
			Parameter mobile identity is TMSI.
24	->	ROUTING AREA UPDATING REQUEST	Update type = 'RA updating'
			P-TMSI-2 signature
			Routing area identity = RAI-1
25	<-	ROUTING AREA UPDATING	Update result = 'RA updated'
		ACCEPT	Mobile identity = P-TMSI-2
			P-TMSI-3 signature
			Routing area identity = RAI-4
26	->	ROUTING AREA UPDATING	
		COMPLETE	
27	UE		The UE is switched off or power is removed
			(see ICS).
28	->	DETACH REQUEST	Message not sent if power is removed.
			Detach type = 'power switched off, PS detach'
<u>29</u>	<u>-></u>	IMSI DETACH INDICATION	This step is only performed for UE Operation
			Mode A.
			MS establish a RRC connection on lower
			layers to perform an IMSI detach.
L			Message not sent if power is removed.

Specific message contents

None.

12.4.1.5.5 Test requirements

At step4, when the UE is powered up or switched on, UE shall:

- initiate <u>a-the PS</u> attach procedure with the information elements specified in the above Expected Sequence when UE is powered up or switched on.

At step8, UE shall:

- perform the routing area updating procedure.

After completing the PS attach procedure, UE shall :

—perform the following actions depending on the conditions described below.

Case 1) At step11, 14, 17 and 20, aA routing area updating procedure is rejected from SS with the attempt counter less than five.

UE shall:

- repeat the routing area updating procedure after T3330 timeout

Case2) At step22 a routing area updating procedure is rejected from SS with the attempt counter five T3330 timeout has occurred during a routing area updating procedure with the attempt counter five

At step22, UE shall:

- not initiate a routing area updating procedure. start timer T3302

Case3) At step24, The the T3302 expires

UE shall:

- initiate a-the new routing area updating procedure

12.4.1.6 Routing area updating / abnormal cases / change of cell into new routing area

12.4.1.6.1 Definition

12.4.1.6.2 Conformance requirement

When a change of cell into a new routing area is performed before the routing area updating procedure is finished, the UE shall abort the routing area updating procedure and re-initiate it in the new routing area.

Reference

3GPP TS 24.008 clause 4.7.5.1.

12.4.1.6.3 Test purpose

To test the behaviour of the UE in case of procedure collision.

12.4.1.6.4 Method of test

Initial condition

System Simulator:

Three cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4) and cell C In MCC1/MNC1/LAC1/RAC3 (RAI-5). All cells are operating in network operation mode II (in case of UE operation mode A).

User Equipment:

The UE has a valid P-TMSI-1, P-TMSI-1 signature and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No UE operation mode C Yes/No

UE operation mode A Yes/No (only if mode C not supported)

Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE initiates a routing area updating procedure. The ROUTING AREA UPDATE ACCEPT message is delayed from the SS. The UE performs a cell update into a new routing area. The UE shall re-initiate a routing area updating procedure in the new routing area.

Step	Direction UE SS	Message	Comments
	SS		The following messages are sent and shall be
			received on cell A.
1	SS		The SS activates cell A.
2	UE		The UE is set in UE operation mode C (see
			ICS). If UE operation mode C not supported,
			goto step 18.
3	UE		The UE is powered up or switched on and
			initiates an attach (see ICS). Cell A is preferred
4		ATTACH REQUEST	by the UE.
4	->	ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1
			P-TMSI-1 signature
			Routing area identity = RAI-1
5	<-	ATTACH ACCEPT	Attach result = 'PS only attached'
			Mobile identity = P-TMSI-2
			P-TMSI-2 signature
			Routing area identity = RAI-1
6	->	ATTACH COMPLETE	7. ()
			The following messages are sent and shall be received on cell B.
7	SS		The SS deactivates cell A and activates cell B.
8	SS		Cell B is preferred by the UE.
9	->	ROUTING AREA UPDATING	Update type = 'RA updating'
		REQUEST	P-TMSI-2 signature
			Routing area identity = RAI-1
10	SS		No response to the ROUTING AREA
			UPDATING REQUEST message is given by
			the SS
			The following messages are sent and shall be received on cell C.
11	SS		The SS deactivates cell B and activates cell C.
12	SS		Cell C is preferred by the UE.
13	->	ROUTING AREA UPDATING	Update type = 'RA updating'
		REQUEST	P-TMSI-2 signature
			Routing area identity = RAI-1
14	<-	ROUTING AREA UPDATING	Update result = 'RA updated'
		ACCEPT	Mobile identity = P-TMSI-2
			P-TMSI-3 signature
15	->	ROUTING AREA UPDATING	Routing area identity = RAI-5
13	-	COMPLETE	
16	UE		The UE is switched off or power is removed
			(see ICS).
17	->	DETACH REQUEST	Message not sent if power is removed.
			Detach type = 'power switched off, PS detach'
18	SS		The SS is set in network operation mode II.
19	UE		The UE is set in UE operation mode A(see
			ICS) and the test is repeated from step 3 to
			step 17.

Specific message contents

None.

12.4.1.6.5 Test requirements

At step4, when the UE is powered up or switched on, UE shall:

- initiate <u>a the PS</u> attach procedure with the information elements specified in the above Expected Sequence when UE is powered up or switched on.

At step9, After completing the PS attach procedure, UE shall:

- initiate the routing area update procedure.

At step13, When when change of cell into a new routing area is performed before the routing area updating procedure is finished, UE shall:

- abort the routing area updating procedure.
- re-initiate new routing area updating procedure in the new routing area.

12.4.1.7 Routing area updating / abnormal cases / change of cell during routing area updating procedure

12.4.1.7.1 Definition

12.4.1.7.2 Conformance requirement

When a change of cell within a new routing area is performed before the routing area updating procedure is finished, the UE shall perform the cell update before the routing area updating procedure is finished.

Reference

3GPP TS 24.008 clause 4.7.5.1.

12.4.1.7.3 Test purpose

To test the behaviour of the UE in case of procedure collision.

12.4.1.7.4 Method of test

Initial condition

System Simulator:

Three cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4) and cell C in MCC1/MNC1/LAC1/RAC2 (RAI-4). All three cells are operating in network operation mode II.

User Equipment:

The UE has a valid P-TMSI-1, P-TMSI-1 signature and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C
UE operation mode A
Switch off on button
Yes/No
Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE initiates a routing area updating procedure. The ROUTING AREA UPDATE ACCEPT message is delayed from the SS. The UE performs a cell update within the routing area. The UE then waits for the ROUTING AREA UPDATE ACCEPT message.

Step	Direction	Message	Comments
	UE SS	_	
	SS		The following messages are sent and shall be
			received on cell A.
1	UE		The UE is set in UE operation mode C (see ICS).
2	SS		The SS is set in network operation mode II and
			activates cell A.
3	UE		The UE is powered up or switched on and
			initiates an attach (see ICS). Cell A is preferred
4		ATTACH BEOLIEST	by the UE. Attach result = 'PS attach'
4	->	ATTACH REQUEST	Mobile identity = P-TMSI-1
			P-TMSI-1 signature
			Routing area identity = RAI-1
5	<-	ATTACH ACCEPT	No new mobile identity assigned.
			P-TMSI not included.
			Attach result = 'PS only attached'
			P-TMSI-2 signature
			Routing area identity = RAI-1
			The following messages are sent and shall be received on cell B.
6	SS		The SS deactivates cell A and activates cell B.
7	SS		Cell B is preferred by the UE.
8	->	ROUTING AREA UPDATING	Update type = 'RA updating'
		REQUEST	P-TMSI-2 signature
			Routing area identity = RAI-1
9	SS		No response to the ROUTING AREA
			UPDATING REQUEST message is given by
-			the SS The following messages are sent and shall be
			received on cell C.
10	SS		The SS deactivates cell B and activates cell C.
11	SS		Cell C is preferred by the UE.
12a	->	CELL UPDATE	Cell update cause = 'cell reselection'
12b	<-	CELL UPDATE CONFIRM	
13	<- <-	ROUTING AREA UPDATING	Update result = 'RA updated'
'	`	ACCEPT	Mobile identity = P-TMSI-2
1			P-TMSI-3 signature
			Routing area identity = RAI-4
14	->	ROUTING AREA UPDATING	
4-		COMPLETE	
15	UE		The UE is switched off or power is removed
16	->	DETACH REQUEST	(see ICS). Message not sent if power is removed.
10		DE INCITILE QUEUT	Detach type = 'power switched off, PS detach'

Specific message contents

None.

12.4.1.7.5 Test requirements

At step4, when the UE is powered up or switched on, UE shall:

- initiate a the PS attach procedure with the information elements specified in the above Expected Sequence when UE is powered up or switched on.

After completing the PS attach procedure At step 8, UE shall:

- initiate routing area update procedure.

At step12a, When when a change of cell within a new routing area is performed, UE shall:

- perform the cell update before the routing area updating procedure is finished.

12.4.1.8 Routing area updating / abnormal cases / P-TMSI reallocation procedure collision

12.4.1.8.1 Definition

12.4.1.8.2 Conformance requirement

When a P-TMSI REALLOCATION REQUEST message is received by the UE while waiting for a ROUTING AREA UPDATE ACCEPT message, the UE shall ignore the P-TMSI reallocation procedure and continue with the routing area updating procedure.

Reference

3GPP TS 24.008 clause 4.7.5.1.

12.4.1.8.3 Test purpose

To test the behaviour of the UE in case of procedure collision.

12.4.1.8.4 Method of test

Initial condition

System Simulator:

 $Two\ cells\ (not\ simultaneously\ activated),\ cell\ A\ in\ MCC1/MNC1/LAC1/RAC1\ (RAI-1)\ and\ cell\ B\ in\ MCC1/MNC1/LAC1/RAC2\ (RAI-4).$

Both cells are operating in network operation mode II (in case of UE operation mode A).

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No UE operation mode C Yes/No

UE operation mode A Yes/No (only if mode C not supported)

Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE initiates a routing area updating procedure. The SS does not answer the routing area updating procedure, but initiates a P-TMSI reallocation procedure. The UE shall ignore the P-TMSI reallocation procedure and continue with the routing area updating procedure.

Step	Direction	Message	Comments
	UE SS		
	SS		The following messages are sent and shall be
1			received on cell A.
1	UE		The UE is set in UE operation mode C (see ICS).
2	SS		The SS is set in network operation mode II and
_			activates cell A.
3	UE		The UE is powered up or switched on and
			initiates an attach (see ICS). Cell A is preferred
			by the UE.
4	->	ATTACH REQUEST	Attach result = 'PS attach'
			Mobile identity = IMSI
5	<-	ATTACH ACCEPT	Attach result = 'PS only attached'
		71171017100211	Mobile identity = P-TMSI-1
			P-TMSI-1 signature
			Routing area identity = RAI-1
6	->	ATTACH COMPLETE	
			The following messages are sent and shall be
_	00		received on cell B.
7 8	SS SS		The SS deactivates cell A and activates cell B. Cell B is preferred by the UE.
9	->	ROUTING AREA UPDATING	Update type = 'RA updating'
9	-7	REQUEST	P-TMSI-1 signature
		TREGOES!	Routing area identity = RAI-1
10	<-	P-TMSI REALLOCATION	Mobile identity = P-TMSI-1
		REQUEST	P-TMSI-1 signature
			Routing area identity = RAI-1
11	UE		The UE ignores the P-TMSI reallocation
40		DOLITING ADEA LIBRATING	request.
12	<-	ROUTING AREA UPDATING ACCEPT	Update result = 'RA updated' Mobile identity = P-TMSI-2
		ACCEPT	P-TMSI-2 signature
			Routing area identity = RAI-4
13	->	ROUTING AREA UPDATING	
		COMPLETE	
14	UE		The UE is switched off or power is removed
			(see ICS).
15	->	DETACH REQUEST	Message not sent if power is removed.
			Detach type = 'power switched off, PS detach'

Specific message contents

None.

12.4.1.8.5 Test requirements

At step4, when the UE is powered up or switched on, UE shall:

- initiate <u>a-the PS</u> attach procedure with the information elements specified in the above Expected Sequence when UE is powered up or switched on.

At step9, After completing the PS attach procedure, UE shall:

- initiate the routing area updating procedure.

<u>At step11, When-when</u> a P-TMSI REALLOCATION <u>REQUEST_COMMAND</u> message is received from SS while waiting for a ROUTING AREA UPDATE ACCEPT message, UE shall:

- ignore the P-TMSI reallocation procedure.
- continue with the routing area updating procedure.

12.4.2 Combined routing area updating

The combined routing area updating procedure is a GMM procedure used by PS UEs of UE operation mode A that are IMSI attached for PS and non-PS services. In order to use the combined routing area updating procedure, the network must operate in network operation mode I.

12.4.2.1 Combined routing area updating / combined RA/LA accepted

12.4.2.1.1 Definition

12.4.2.1.2 Conformance requirement

- 1) If the network accepts the combined routing area updating procedure and reallocates a P-TMSI, the UE shall acknowledge the new P-TMSI and continue communication with the new P-TMSI.
- 2) If the network accepts the combined routing area updating procedure from the UE without reallocation of the old P-TMSI, the UE shall continue communication with the old P-TMSI.

Reference

3GPP TS 24.008 clause 4.7.5.2.

12.4.2.1.3 Test purpose

To test the behaviour of the UE if the network accepts the combined routing area updating procedure.

The following cases are identified:

- 1) P-TMSI / P-TMSI signature is reallocated.
- 2) Old P-TMSI / P-TMSI signature is not changed.
- 3) Mobile terminating CS call is allowed with IMSI.
- 4) Mobile terminating CS call is allowed with TMSI.

12.4.2.1.4 Method of test

Initial condition

System Simulator:

Two cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4). Both cells operating in network operation mode I.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A
Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

- 1) A combined PS attach procedure is performed. The UE sends a ROUTING AREA UPDATE REQUEST message. The SS reallocates the P-TMSI, unassigns the TMSI and returns ROUTING AREA UPDATE ACCEPT message with a new P-TMSI and IMSI. The UE acknowledge the new P-TMSI by sending ROUTING AREA UPDATING COMPLETE message. Further communication UE SS is performed by the new P-TMSI. For CS calls, the IMSI is used
- 2) The UE is CS paged in order to verify that the IMSI is used for CS calls.
- 3) A combined PS attach procedure is performed. The UE sends an ROUTING AREA UPDATING REQUEST message. The SS accepts the P-TMSI signature and returns ROUTING AREA UPDATING ACCEPT message without any P-TMSI and with a new TMSI. The UE acknowledge the new TMSI by sending ROUTING AREA UPDATING COMPLETE message. Further communication UE-SS is performed by the old P-TMSI. For CS calls, the new TMSI is used.
- 4) The UE is CS paged in order to verify that the TMSI is used for CS calls.

Expected Sequence

Step	Direction	Message	Comments
	UE SS		
1	UE		The UE is set in UE operation mode A (see
2	UE		ICS). The UE is powered up or switched on and
	UE		initiates an attach (see ICS).
3	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach'
			Mobile identity =IMSI
		ATTACHAGOERT	TMSI status = no valid TMSI available
4	<-	ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached' Mobile identity = P-TMSI-2
			P-TMSI-2 signature
			Routing area identity = RAI-1
5	->	ATTACH COMPLETE	
			The following messages are sent and shall be received on cell B.
6	SS		Activate cell B with a lower signal strength than
			cell A The RF level of cell A is lowered until cell
			B is preferred by the UE.
7	->	ROUTING AREA UPDATING	Update type = 'Combined RA/LA updating'
		REQUEST	P-TMSI-2 signature Routing area identity = RAI-1
			TMSI status = no valid TMSI available
8	<-	ROUTING AREA UPDATING	Update result = 'Combined RA/LA updated'
		ACCEPT	Mobile identity = P-TMSI-1
			P-TMSI-1 signature Mobile identity = IMSI
			Routing area identity = RAI-4
9	->	ROUTING AREA UPDATING	Training area receiving
		COMPLETE	
10	<-	PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.
10a	->	RRC CONNECTION REQUEST	raying order is for Fo services.
10b	<-	RRC CONNECTION SETUP	
10c	->	RRC CONNECTION SETUP	
1.1	_	COMPLETE	convice type - "paging recovers"
11	->	SERVICE REQUEST	service type = "paging response"
11a	<-	RRC CONNECTION RELEASE	
11b	->	RRC CONNECTION RELEASE	
10		COMPLETE	Mobile identity, IMCI
12	<-	PAGING TYPE1	Mobile identity = IMSI Paging order is for CS services.
13	->	RRC CONNECTION REQUEST	. 499 01401 10 101 00 001 11000.
14	<-	RRC CONNECTION SETUP	
15	->	RRC CONNECTION SETUP	
		COMPLETE	

Step	Direction UE SS	Message	Comments
16	->	PAGING RESPONSE	Mobile identity = IMSI
17	<-	RRC CONNECTION RELEASE	After sending of this message, the SS waits for disconnection of the CS signalling link.
18	->	RRC CONNECTION RELEASE COMPLETE	
			The following messages are sent and shall be
4.0			received on cell A.
19	SS		The RF level of cell A is increased and the RF
			level of cell B is lowered until cell A is preferred by the UE.
20	->	ROUTING AREA UPDATING	Update type = 'Combined RA/LA updating'
20		REQUEST	P-TMSI-1 signature
			Routing area identity = RAI-4
			TMSI status = no valid TMSI available
21	<-	ROUTING AREA UPDATING	Update result = 'Combined RA/LA updated'
		ACCEPT	Mobile identity = P-TMSI-2No P-TMSI
			P-TMSI-2 signature
			Mobile identity = TMSI-1
22	->	ROUTING AREA UPDATING	Routing area identity = RAI-1
		COMPLETE	
23	<-	PAGING TYPE1	Mobile identity = P-TMSI-21
			Paging order is for PS services.
23a	->	RRC CONNECTION REQUEST	
23b	<-	RRC CONNECTION SETUP	
23c	->	RRC CONNECTION SETUP	
24		COMPLETE SERVICE REQUEST	service type = "paging response"
24	->	SERVICE REQUEST	service type = paging response
24a	<-	RRC CONNECTION RELEASE	
24b	->	RRC CONNECTION RELEASE	
		COMPLETE	
25	<-	PAGING TYPE1	Mobile identity = TMSI-1
00		DDC CONNECTION DECLICAT	Paging order is for CS services.
26 27	->	RRC CONNECTION REQUEST RRC CONNECTION SETUP	
28	<- ->	RRC CONNECTION SETUP	
20		COMPLETE	
29	->	PAGING RESPONSE	Mobile identity = TMSI-1
30	<-	RRC CONNECTION RELEASE	After sending of this message, the SS waits for
			disconnection of the CS signalling link.
31	->	RRC CONNECTION RELEASE	
00		COMPLETE	The LIE is quitabled off or a second in second
32	UE		The UE is switched off or power is removed (see ICS).
33	->	DETACH REQUEST	Message not sent if power is removed.
33		DE INCITIL QUEUT	Detach type = 'power switched off, combined
			PS / IMSI detach'

Specific message contents

None.

12.4.2.1.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate <u>a-the</u> combined PS attach procedure with information elements specified in the above Expected Sequence when UE is powered up or switched on.

At step7, when the RF level of the attached cell is lower than the RF level of the new cell, After completing the PS attach procedure, UE shall:

- ____initiate a-the combined routing area update procedure(Update type = 'Combined RA/LA updating') with the information elements specified above Expected Sequence-when RF level of the attached cell is lower than the RF level of the new cell.

At step9, UE shall:

—acknowledge the new P-TMSI by sending the ROUTING AREA UPDATE COMPLETE message.

At step11, when the UE receives the paging message for PS domain, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

At step16, when the UE receives the paging message for CS domain, UE shall;

- respond to the paging message for CS domain by sending the PAGING RESPONSE message.

At step20, when the RF level of the attached cell is lower than the RF level of the new cell, UE shall:

- initiate the combined routing area update procedure(Update type = 'Combined RA/LA updating') with the information elements specified above Expected Sequence.

At step22, UE shall:

acknowledge the new TMSI by sending the ROUTING AREA UPDATE COMPLETE message.

At step24, when the UE receives the paging message for PS domain, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

At step29, when the UE receives the paging message for CS domain, UE shall;

- respond to the paging message for CS domain by sending the PAGING RESPONSE message.
 - continue communication with the new P TMSI If SS reallocates a P TMSI.
 - continue communication with the old P TMSI If SS does not reallocate the old P TMSI.

12.4.2.2 Combined routing area updating / UE in CS operation at change of RA

12.4.2.2.1 Definition

12.4.2.2.2 Conformance requirement

PS UE in UE operation mode A that is in an ongoing CS transaction at change of routing area shall initiate the normal routing area updating procedure.

Reference

3GPP TS 24.008 clause 4.7.5.2.

12.4.2.2.3 Test purpose

To test the behaviour of the UE if the routing area is changed during an ongoing circuit switched transmission.

12.4.2.2.4 Method of test

Initial condition

System Simulator:

Two cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4). Both cells operating in network operation mode I.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No UE operation mode A Yes/No Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

A combined PS attach procedure is performed. The UE in UE operation mode A initiates a CS call. The routing area change. The UE will perform the normal routing area updating procedure durng the ongoing circuit-switched transaction.

Expected Sequence

Step	Direction	Message	Comments
	UE SS		
1	UE		The UE is set in UE operation mode A (see
			ICS).
2	UE		The UE is powered up or switched on and
_			initiates an attach (see ICS).
3	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach'
			Mobile identity =IMSI
	_	ATTACHACCEDT	TMSI status = no valid TMSI available
4	<-	ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached'
			Mobile identity = P-TMSI-2 P-TMSI-2 signature
			Routing area identity = RAI-1
5	->	ATTACH COMPLETE	Routing area identity = RAI-1
6	-> UE	ATTACITOOMILLIL	A CS call is initiated.
	OL.		The following messages are sent and shall be
			received on cell B.
7	SS		Activate cell B with a lower signal strength than
			cell A The RF level of cell A is lowered until cell
			B is preferred by the UE.
8	->	ROUTING AREA UPDATING	Update type = 'RA updating'
		REQUEST	P-TMSI-2 signature
			Routing area identity = RAI-1
			TMSI status = no valid TMSI available
9	<-	ROUTING AREA UPDATING	Update result = 'RA updated'
		ACCEPT	Mobile identity = P-TMSI-1
			P-TMSI-1 signature
			Mobile identity = IMSI
10	->	ROUTING AREA UPDATING	Routing area identity = RAI-4
10		COMPLETE	
11	<-	PAGING TYPE2	Mobile identity = P-TMSI-1
''			Paging order is for PS services.
12	->	SERVICE REQUEST	service type = "paging response"
			7, 1 1 3 3 1 1 1 1
13	SS		The SS initiates the RRC connection release.
14	UE		The UE is switched off or power is removed
			(see ICS).
15	->	DETACH REQUEST	Message not sent if power is removed.
			Detach type = 'power switched off, combined
			PS / IMSI detach'

Specific message contents

None.

12.4.2.2.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate a-the combined PS attach procedure with information elements specified in the above Expected Sequence when UE is powered up or switched on.

At step9, when the RF level of the attached cell is lower than the RF level of the new cell during the CS connection, After completing the PS attach procedure, UE shall:

- initiate a CS call. at change of routing area.
- initiate a-the normal routing area updating procedureduring the CS connection.

12.4.2.3 Combined routing area updating / RA only accepted

12.4.2.3.1 Definition

12.4.2.3.2 Conformance requirement

- 1) If the network accepts the combined PS attach procedure, but GMM cause code 'IMSI unknown in HLR' is sent to the UE the User Equipment shall delete the stored TMSI, LAI and CKSN. The User Equipment shall consider USIM invalid for non-PS services until power is switched off or USIM is removed.
- 2) If the network accepts the combined PS attach procedure, but GMM cause code 'MSC temporarily not reachable', 'Network failure' or 'Congestion' is sent to the UE, an UE operation mode A UE may perform an MM IMSI attach procedure.

Reference

3GPP TS 24.008 clause 4.7.<u>5</u>3.2.

12.4.2.3.3 Test purpose

Test porpose1

To test the behaviour of the UE if the network accepts the routing area updating procedure with indication RA only, GMM cause 'IMSI unknown in HLR'.

Test porpose2

To test the behaviour of the UE if the network accepts the routing area updating procedure with indication RA only, GMM cause 'MSC temporarily not reachable', 'Network failure' or 'Congestion'.

12.4.2.3.4 Method of test

Test Procedure1

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4). Both cells operating in network operation mode I.

User Equipment:

The UE has a valid ITMSI MSI.

Related ICS/IXIT statements

Support of PS service Yes/No UE operation mode A Yes/No Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

After attach, the UE sends an ROUTING AREA UPDATE REQUEST message. The SS allocates a P-TMSI and returns ROUTING AREA UPDATE ACCEPT message with a P-TMSI. GMM cause 'IMSI unknown in HLR' is indicated from SS. Further communication UE - SS is performed by the P-TMSI. CS services are not possible.

Expected Sequence

Step	Direction	Message	Comments
	UE SS		
1	UE		The UE is set in UE operation mode A (see
2	UE		ICS). The UE is powered up or switched on and
	UE		initiates an attach (see ICS).
3	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach'
			Mobile identity =IMSI
			TMSI status = no valid TMSI available
4	<-	ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached'
			Mobile identity = P-TMSI-2
			P-TMSI-2 signature Routing area identity = RAI-1
5	->	ATTACH COMPLETE	Routing area identity = RAI-1
		71171011 COMM ELTE	The following messages are sent and shall be
			received on cell B.
6	SS		The SS deactivates cell A and activates cell B.
7	->	ROUTING AREA UPDATING	Update type = 'Combined RA/LA updating'
		<u>UPDATE</u> REQUEST	P-TMSI-2 signature Routing area identity = RAI-1
			TMSI status = no valid TMSI available
8	<-	ROUTING AREA	Update result = 'RA updated'
		<u>UPDATEUPDATING</u> ACCEPT	Mobile identity = P-TMSI-1
			P-TMSI-1 signature
			Routing area identity = RAI-4
		DOLITING ADEA	GMM cause = 'IMSI unknown in HLR'
9	->	ROUTING AREA UPDATEUPDATING COMPLETE	
10	<-	PAGING TYPE1	Mobile identity = P-TMSI-1
	,		Paging order is for PS services.
10a	->	RRC CONNECTION REQUEST	
10b	<-	RRC CONNECTION SETUP	
10c	->	RRC CONNECTION SETUP	
11	->	COMPLETE SERVICE REQUEST	 service type = "paging response"
''		OLIVIOL NEGOLOT	Solvioc type – paging response
11a	<-	RRC CONNECTION RELEASE	
11b	->	RRC CONNECTION RELEASE	
		COMPLETE	
12	<-	PAGING TYPE1	Mobile identity = IMSI
13	UE		Paging order is for CS services. The UE shall not initiate an RRC connection.
13	J DE		This is checked during 3 seconds.
14	UE		The UE is switched off or power is removed
			(see ICS).
15	->	DETACH REQUEST	Message not sent if power is removed.
			Detach type = 'power switched off, PS detach'

Test Procedure2

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4).

Both cells operating in network operation mode I.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Automatic MM IMSI attach procedure for UE operation mode A UE Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

After attach, the UE sends an ROUTING AREA UPDATE REQUEST message . The SS allocates a new P-TMSI signature and returns ROUTING AREA UPDATE ACCEPT message. GMM cause 'MSC temporarily not reachable', 'Network failure' or 'Congestion' is indicated from SS. The cause code is arbitrarily chosen. This procedure is repeated until the routing area updating attempt counter is equal to five. An UE operation mode A UE may perform an MM IMSI attach procedure (according to the ICS statement). Further communication UE - SS is performed by the P-TMSI. The existence of a signalling channel is verified by a request for mobile identity. It is further verified that the UE after a successful IMSI attach procedure can perform CS services. CS services are not possible unless an IMSI attach procedure is performed.

Expected Sequence

Dependent whether the option 'Automatic MM IMSI attach procedure for UE operation mode A UE' is not supported or not, the steps 1-13 or 14-35 apply depending on manufacturer (see ICS).

Step	Direction	Message	Comments
	UE SS		
1	UE		The following messages are sent and shall be received on cell A The UE is set in UE operation mode A and no automatic MM IMSI attach procedure is
2	UE		indicated (see ICS). The UE is powered up or switched on and
3	->	ATTACH REQUEST	initiates an attach (see ICS). Attach type = 'Combined PS / IMSI attach' Mobile identity =IMSI
4	<-	ATTACH ACCEPT	TMSI status = no valid TMSI available Attach result = 'Combined PS / IMSI attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-1
5	->	ATTACH COMPLETE	
6 7	SS ->	ROUTING AREA <u>UPDATEUPDATING</u> REQUEST	The following messages are sent and shall be received on cell B. The SS deactivates cell A and activates cell B. Update type = 'Combined RA/LA updating' P-TMSI-2 signature Routing area identity = RAI-1 TMSI status = no valid TMSI available

Step	Direction	Message	Comments
8	UE SS	ROUTING AREA	Update result = 'RA updated'
°	<-	UPDATE UPDATING ACCEPT	Mobile identity = P-TMSI-1P-TMSI-1 signature
		<u> </u>	Routing area identity = RAI-4
			GMM cause = 'MSC temporarily not reachable',
			'Network failure' or 'Congestion' (arbitrarily
9	->	ROUTING AREA	chosen)
9		UPDATEUPDATING COMPLETE	
<u>10</u>			The routing area updating attempt counter =1.
			The combined routing area updating procedure
<u>11</u>		ROUTING AREA UPDATE	is reinitialised at the expiry of T3311 Update type = 'Combined RA/LA updating•
111	<u>-></u>	REQUEST	with IMSI attach'
			P-TMSI-1 signature
			Routing area identity = RAI-4
<u>12</u>		ROUTING AREA UPDATE	TMSI status = no valid TMSI available Update result = 'RA updated'
12	<u><-</u>	ACCEPT	Mobile identity = P-TMSI-1
			P-TMSI-1 signature
			Routing area identity = RAI-4
			GMM cause = 'MSC temporarily not reachable', 'Network failure' or 'Congestion' (arbitrarily
			chosen)
<u>13</u>	<u>-></u>	ROUTING AREA UPDATE	
		COMPLETE	
<u>14</u>			The routing area updating attempt counter =2. The combined routing area updating procedure
			is reinitialised at the expiry of T3311
<u>15</u>	<u>-></u>	ROUTING AREA UPDATE	Update type = 'Combined RA/LA updating•
		REQUEST	with IMSI attach'
			P-TMSI-1 signature
			Routing area identity = RAI-4 TMSI status = no valid TMSI available
<u>16</u>	<u><-</u>	ROUTING AREA UPDATE	Update result = 'RA updated'
		ACCEPT	Mobile identity = P-TMSI-1
			P-TMSI-1 signature Routing area identity = RAI-4
			GMM cause = 'MSC temporarily not reachable',
			'Network failure' or 'Congestion' (arbitrarily
47		DOLITING AREA LIRRATE	<u>chosen)</u>
<u>17</u>	<u>-></u>	ROUTING AREA UPDATE COMPLETE	
<u>18</u>		OOWN ELTE	The routing area updating attempt counter =3.
			The combined routing area updating procedure
40		DOLITING ADEA LIDDATE	is reinitialised at the expiry of T3311
<u>19</u>	<u>-></u>	ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating∙ with IMSI attach'
			P-TMSI-1 signature
			Routing area identity = RAI-4
00		DOLITING AREA LIRRATE	TMSI status = no valid TMSI available
<u>20</u>	<u><-</u>	ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' Mobile identity = P-TMSI-1
		100211	P-TMSI-1 signature
			Routing area identity = RAI-4
1			GMM cause = 'MSC temporarily not reachable',
			'Network failure' or 'Congestion' (arbitrarily chosen)
21	<u>-></u>	ROUTING AREA UPDATE	<u>onoscrij</u>
		COMPLETE	
<u>22</u>			The routing area updating attempt counter =4.
			The combined routing area updating procedure is reinitialised at the expiry of T3311
I	I	I	10 TOTHINGHOOD ACTIO ONDITY OF TOOTT

Step	Direction UE SS	Message	Comments
<u>23</u>	-≥	ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating∙ with IMSI attach' P-TMSI-1 signature Routing area identity = RAI-4
<u>24</u>	<u><-</u>	ROUTING AREA UPDATE ACCEPT	TMSI status = no valid TMSI available Update result = 'RA updated' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-4 GMM cause = 'MSC temporarily not reachable', 'Network failure' or 'Congestion' (arbitrarily
<u>25</u>	<u>-></u>	ROUTING AREA UPDATE COMPLETE	chosen)
<u>26</u>		COMPLETE	The routing area updating attempt counter =5. The combined routing area updating procedure
10	-<-	PAGING TYPE1	is reinitialised at the expiry of T3311 Mobile identity = IMSI Design and rein for CC and in a
11	UE		Paging order is for CS services. The UE shall not initiate an RRC connection.
<u>27</u> 12	UE		This is checked during 3 seconds. The UE is switched off or power is removed
<u>28</u> 13	->	DETACH REQUEST	(see ICS). Message not sent if power is removed. Detach type = 'power switched off, PS detach' Stop the sequence.
14 29	UE		The following messages are sent and shall be received on cell B The UE is set in UE operation mode A and Automatic automatic MM IMSI attach
<u>30</u> 15	UE		procedure is indicated (see ICS). The UE is powered up or switched on and initiated an attack (see ICS).
<u>31</u> 16	->	ATTACH REQUEST	initiates an attach (see ICS). Attach type = 'Combined PS / IMSI attach' Mobile identity = IMSI
<u>32</u> 17	<-	ATTACH ACCEPT	TMSI status = no valid TMSI available Attach result = 'Combined PS / IMSI attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-4
<u>33</u> 18	->	ATTACH COMPLETE	
3419 3520	SS ->	ROUTING AREA <u>UPDATEUPDATING</u> REQUEST	The following messages are sent and shall be received on cell A. The SS deactivates cell B and activates cell A. Update type = 'Combined RA/LA updating' P-TMSI-2 signature Routing area identity = RAI-4
21 36	<-	ROUTING AREA <u>UPDATEUPDATING</u> ACCEPT	TMSI status = no valid TMSI available Update result = 'RA updated' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-1 GMM cause = 'MSC temporarily not reachable', 'Network failure' or 'Congestion' (arbitrarily
22 37	->	ROUTING AREA UPDATEUPDATING COMPLETE	chosen)
<u>38</u>			The routing area updating attempt counter =1. The combined routing area updating procedure is reinitialised at the expiry of T3311
<u>39</u>	≥	ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating with IMSI attach' P-TMSI-1 signature Routing area identity = RAI-1 TMSI status = no valid TMSI available

Step	Direction UE SS	Message	Comments
<u>40</u>	<u><-</u>	ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-1 GMM cause = 'MSC temporarily not reachable',
44		DOUTING AREA LIBRATE	'Network failure' or 'Congestion' (arbitrarily chosen)
41	<u>-></u>	COMPLETE	
42			The routing area updating attempt counter =2. The combined routing area updating procedure is reinitialised at the expiry of T3311
<u>43</u>	<u>-></u>	ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating● with IMSI attach' P-TMSI-1 signature Routing area identity = RAI-1 TMSI status = no valid TMSI available
44	<u><-</u>	ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-1 GMM cause = 'MSC temporarily not reachable', 'Network failure' or 'Congestion' (arbitrarily chosen)
<u>45</u>	<u>-></u>	ROUTING AREA UPDATE COMPLETE	<u>chosen</u>
<u>46</u>			The routing area updating attempt counter =3. The combined routing area updating procedure is reinitialised at the expiry of T3311
<u>47</u>	->	ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating with IMSI attach' P-TMSI-1 signature Routing area identity = RAI-1 TMSI status area identity = RAI-1
<u>48</u>	≤-	ROUTING AREA UPDATE ACCEPT	TMSI status = no valid TMSI available Update result = 'RA updated' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-1 GMM cause = 'MSC temporarily not reachable', 'Network failure' or 'Congestion' (arbitrarily chosen)
<u>49</u>	<u>-></u>	ROUTING AREA UPDATE COMPLETE	<u>chosen</u>
<u>50</u>			The routing area updating attempt counter =4. The combined routing area updating procedure is reinitialised at the expiry of T3311
<u>51</u>	≥	ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating•with IMSI attach' P-TMSI-1 signature Routing area identity = RAI-1 TMSI status = no valid TMSI available
<u>52</u>	<u><-</u>	ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-1 GMM cause = 'MSC temporarily not reachable', 'Network failure' or 'Congestion' (arbitrarily chosen)
<u>53</u>	<u>-></u>	ROUTING AREA UPDATE COMPLETE	
<u>54</u> 22	→	ROUTING AREA UPDATING COMPLETE	The routing area updating attempt counter =5.

Step	Direction	Message	Comments
	UE SS	1	
23 55	<u>->-UE</u>	RRC CONNECTION	See TS 34.108
		REQUESTRegistration on CS	This is applied only for UE in UE operation
			mode A.
			Parameter mobile identity is TMSI-1.
24		RRC CONNECTION SETUP	
25	->	RRC CONNECTION SETUP	
		COMPLETE	
26	->	LOCATION UPDATING REQ	Location updating type = IMSI attach.
27		LOCATION UPDATING ACC	The SS allocates a new TMSI.
28	->	TMSI REALLOCATION COMP	Location updating type = IMSI attach.
29	-<-	RRC CONNECTION RELEASE	After sending of this message, the SS waits for
			disconnection of the CS signalling link.
30	->	RRC CONNECTION RELEASE	
		COMPLETE	
<u>56</u> 31	<-	PAGING TYPE1	Mobile identity = TMSI-1
			Paging order is for CS services.
<u>57</u> 32	->	RRC CONNECTION REQUEST	
<u>58</u> 33	<-	RRC CONNECTION SETUP	
<u>59</u> 34	->	RRC CONNECTION SETUP	
		COMPLETE	
<u>60</u> 35	->	PAGING RESPONSE	Mobile identity = TMSI-1
<u>61</u> 36	<-	RRC CONNECTION RELEASE	After sending of this message, the SS waits for
			disconnection of the CS signalling link.
<u>62</u> 37	->	RRC CONNECTION RELEASE	
		COMPLETE	
<u>63</u> 38	UE		The UE is switched off or power is removed
			(see ICS).
<u>64</u> 39	->	DETACH REQUEST	Message not sent if power is removed.
			Detach type = 'power switched off, PS detach'

Specific message contents

None.

12.4.2.3.5 Test requirements

Test requirements for Test Procedure1

At step3, when the UE is powered up or switched on, UE shall:

- initiate <u>a-the</u> combined PS attach procedure with information elements specified in the above Expected Sequence when UE is powered up or switched on.

After completing the PS attach procedure At step7, when the RF level of the attached cell is lower than the RF level of the new cell, UE shall:

- initiate a-the combined routing area updating procedure.
- perform the following actions depending on the GMM cause. At step9, UE shall:
- acknowledge the new P-TMSI by sending the ROUTING AREA UPDATE COMPLETE message.

At step11, when the UE receives the paging message for PS domain, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

At step13, when the UE receives the paging message for CS domain, UE shall:

- not respond to the paging message for CS domain.
 - Case 1) GMM cause = 'IMSI unknown in HLR'.
 - UE shall:

- delete the stored TMSI, LAI and CKSN.
- consider USIM invalid for non PS services until power is switched off or USIM is removed.
- Case 2) GMM cause = 'MSC temporarily not reachable', 'Network failure' or 'Congestion'.
- UE shall:
- perform an MM IMSI attach procedure. (only applied UE operation mode A)

Test requirements for Test Procedure2

At step3 and 31, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with information elements specified in the above Expected Sequence.

At step6 and 35, when the RF level of the attached cell is lower than the RF level of the new cell, UE shall:

- initiate the combined routing area updating procedure.

At step11, 15, 19 and 23, UE shall:

- re-initiate the combined routing area updating procedure.

At step39, 43, 47 and 51, UE shall:

- re-initiate the combined routing area updating procedure.

At step55, UE shall:

perform MM location updating procedure.

At step60, when the UE receives the paging message for CS domain, UE shall:

- not respond to the paging message for CS domain.

12.4.2.4 Combined routing area updating / rejected / PLMN not allowed

12.4.2.4.1 Definition

12.4.2.4.2 Conformance requirement

- 1) If the network rejects a combined routing area updating procedure from the User Equipment with the cause 'PLMN not allowed' the User Equipment shall:
 - 1.1 not perform combined GPRA attach when switched on in the same location area or PLMN.
 - $1.2 \quad \text{delete the stored RAI, PS-CKSN, P-TMSI, P-TMSI signature, TMSI CKSN and LAI.} \\$
 - 1.3 store the PLMN in the 'forbidden PLMN list'.

Reference

3GPP TS 24.008 clause 4.7.5.2.

12.4.2.4.3 Test purpose

To test the behaviour of the UE if the network rejects the combined routing area updating procedure of the UE with the cause 'PLMN not allowed'.

12.4.2.4.4 Method of test

Initial condition

System Simulator:

Four cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4), cell C in MCC1/MNC1/LAC2/RAC1 (RAI-3) and cell D in MCC2/MNC1/LAC1/RAC1 (RAI-2).

All four cells are operating in network operation mode I

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a combined routing area updating with the cause value 'PLMN not allowed'. The SS checks that the UE does not perform PS attach if activated in the same PLMN. The SS checks that the UE does not perform IMSI attach if activated in the same PLMN.

Step	Direction UE SS	Message	Comments
	SS		The following messages are sent and shall be
1	SS		received on cell A. The SS activates cell A.
1 2	UE		The UE is powered up or switched on and
_	0-		initiates an attach (see ICS.
3	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach'
			Mobile identity =IMSI TMSI status = no valid TMSI available
4	<-	ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached'
			Mobile identity = P-TMSI-2
			P-TMSI-2 signature Routing area identity = RAI-1
			Mobile identity = TMSI-1
5	->	ATTACH COMPLETE	·
			The following messages are sent and shall be received on cell B.
7	SS		The SS deactivates cell A and activates cell B.
8	UE		Cell B is preferred by the UE.
9	->	ROUTING AREA UPDATING	Update type = 'Combined RA/LA updating' P-TMSI-2 signature
		REQUEST	Routing area identity = RAI-1
			TMSI status = valid TMSI available
10	<-	ROUTING AREA UPDATING	GMM cause = 'PLMN not allowed'
11	UE	REJECT	The UE initiates an attach by MMI or AT
			command.
12	UE		No ATTACH REQUEST sent to SS
13	<-	PAGING TYPE1	(SS waits 30 seconds). Mobile identity = P-TMSI-2
			Paging order is for PS services.
14	UE		No response from the UE to the request. This is checked for 10 seconds.
			The following messages are sent and shall be
			received on cell C.
15 16	SS UE		The SS deactivates cell B and activates cell C. Cell C is preferred by the UE.
17	UE		The UE initiates an attach by MMI or by AT
			command.
18	UE		No ATTACH REQUEST sent to SS (SS waits 30 seconds).
19	<-	PAGING TYPE1	Mobile identity = TMSI-1
00			Paging order is for CS services.
20	UE		The UE shall not initiate an RRC connection. This is checked during 3 seconds.
			The following messages are sent and shall be
04	00		received on cell A.
21 22	SS UE		The SS deactivates cell C and activates cell A. Cell A is preferred by the UE.
23	UE		The UE initiates an attach by MMI or by AT
0.4			command.
24	UE		No ATTACH REQUEST sent to SS (SS waits 30 seconds).
25	<-	PAGING TYPE1	Mobile identity = P-TMSI-2
200	115		Paging order is for PS services.
26	UE		No response from the UE to the request. This is checked for 10 seconds.
			The following messages are sent and shall be
27	99		received on cell D.
27 28	SS UE		The SS deactivates cell A and activates cell D. Cell D is preferred by the UE.
	- -	ı	1

Step	Direction	Message	Comments
	UE SS		
<u>28a</u>	<u>UE</u>	Registration on CS	See TS 34.108
			This step is applied only for non-auto attach
			<u>UE.</u>
			Location Update Procedure initiated from the
			<u>UE.</u>
29	UE		The UE initiates an attach automatically(see
			PICS), by MMI or by AT command.
30	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach'
			Mobile identity =IMSI
l			TMSI status = no valid TMSI available
31	<-	ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached'
			Mobile identity = P-TMSI-1
			P-TMSI-1 signature
			Routing area identity = RAI-2
22		ATTACH COMPLETE	Mobile identity = IMSI
32 33	-> UE	ATTACH COMPLETE	The LIE is quitabed off or newer is removed
ు	UE		The UE is switched off or power is removed
34		DETACH REQUEST	(see ICS).
34	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined
			PS / IMSI detach'
			ro/iivioi detacii

Specific message contents

None.

12.4.2.4.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate <u>a-the</u> combined PS attach procedure with information elements specified in the above Expected Sequence when UE is powered up or switched on.

At step9, when the RF level of the attached cell is lower than the RF level of the new cellAfter completing the PS attach procedure, UE shall:

- _ -initiate a-the combined routing area update procedure(Update type = 'Combined RA/LA updating') with the information elements specified above Expected Sequence.

At step12, 18 and 24, UE shall:

- not initiate a PS attach procedure.

At step14, 20 and 26, when the UE receives the paging message for PS domain, UE shall:

- not respond to the paging message for PS domain.

At step20, when the UE receives the paging message for CS domain, UE shall:

- not respond to the paging message for CS domain.

At step30, UE shall:

- perform the PS attach procedure.
 - delete the stored P TMSI, P TMSI signature, TMSI, RAI, LAI, ciphering key sequence number PS ciphering key sequence number.
 - reset the location update attempt counter when UE receive the ROUTING AREA UPDATING REJECT message(GMM cause = 'PLMN not allowed') from SS.
 - store the PLMN identity in the 'forbidden PLMN list'.

— not perform combined PS attach procedure when the UE is switched on in the same PLMN.

12.4.2.5a Combined routing area updating / rejected / roaming not allowed in this location area

12.4.2.5a.1 Definition

12.4.2.5a.2 Conformance requirement

- 1) If the network rejects a combined routing area updating procedure from the User Equipment with the cause 'roaming not allowed in this location area' the User Equipment shall:
 - 1.1 <u>shall</u> not perform combined PS attach when in the same location area.
 - 1.2 <u>shall</u> delete the stored RAI, PS-CKSN, P-TMSI P-TMSI signature, TMSI, CKSN and LAI.
 - 1.3 <u>shall</u> store the LA in the 'forbidden location areas for roaming'.
 - 1.4 <u>may perform combined PS attach when a new location area is entered.</u>
- 2) The User Equipment shall reset the list of 'Forbidden location areas for roaming' when switched off or when the USIM is removed.

Reference

3GPP TS 24.008 clause 4.7.5.2.

12.4.2.5a.3 Test purpose

Test purpose1

To test that on receipt of a rejection using the 'Roaming not allowed in this area' cause code, the UE ceases trying a routing area updating procedure on that location area. Successful combined routing area updating procedure is possible in other location areas.

Test purpose2

To test that if the UE is switched off or the USIM is removed the list of 'forbidden location areas for roaming' is cleared.

12.4.2.5a.4 Method of test

12.4.2.5a.4.1 Test procedure1

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC $\underline{2}$ 4/MNC1/LAC1/RAC1 (RAI- $\underline{2}$ 4), cell B in MCC $\underline{2}$ 4/MNC1/LAC2/RAC1 (RAI- $\underline{6}$ 3).

Both cells are operating in network operation mode I.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No UE operation mode A Yes/No Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a combined routing area updating with the cause value 'Roaming not allowed in this area'. A new attempt for a combined PS attach is not possible. Successful combined PS attach procedure is performed in another location area. The UE is moved-moved-back to the 1st location area. A combined routing area updating shall not be performed, as the LA is on the forbidden list.

Step	Direction	Message	Comments
Осер	UE SS		Comments
	SS		The following messages are sent and shall be
	00		received on cell A.
1 2	SS UE		The SS activates cell A. The UE is powered up or switched on and
	OL		initiates an attach (see ICS.
3	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach'
			Mobile identity =IMSI
4	<-	ATTACH ACCEPT	TMSI status = no valid TMSI available Attach result = 'Combined PS / IMSI attached'
7		ATTACITACCETT	Mobile identity = P-TMSI-2
			P-TMSI-2 signature
			Routing area identity = RAI-24
5		ATTACH COMPLETE	Mobile identity = IMSI TMSI-1
- 3	->	ATTACITCOMFLETE	The following messages are sent and shall be
			received on cell B.
7	SS		The SS deactivates cell A and activates cell B.
8	UE	ROUTING AREA	Cell B is preferred by the UE. Update type = 'Combined RA/LA updating'
9	->	UPDATEUPDATING-REQUEST	P-TMSI-2 signature
		<u> </u>	Routing area identity = RAI-24
			TMSI status = no valid TMSI available
10	<-	ROUTING AREA UPDATEUPDATING-REJECT	GMM cause = 'Roaming not allowed in this area'
11	UE	OF DATE OF DATING RESECT	The UE initiates an attach by MMI or by AT
			command.
12	UE		No ATTACH REQUEST sent to SS
13	<-	PAGING TYPE1	(SS waits 30 seconds). Mobile identity = P-TMSI-2
10		. 7.0	Paging order is for PS services.
14	UE		No response from the UE to the request. This
15	<-	PAGING TYPE1	is checked for 10 seconds. Mobile identity = IMSITMSI-1
10		THE THE	Paging order is for CS services.
16	UE		The UE shall not initiate an RRC connection.
			This is checked during 3 seconds.
			The following messages are sent and shall be received on cell A.
17	SS		The SS deactivates cell B and activates cell A.
18	UE		Cell A is preferred by the UE.
<u>18a</u>	<u>UE</u>	Registration on CS	See TS 34.108 This step is applied only for non-auto attach
			UE.
			Location Update Procedure initiated from the
19	UE		UE.
19	UE		The UE initiates an attach automatically(see ICS), by MMI or by AT command.
20	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach'
			Mobile identity =IMSI
21	<-	ATTACH ACCEPT	TMSI status = no valid TMSI available Attach result = 'Combined PS / IMSI attached'
		, ,	Mobile identity = P-TMSI-1
			P-TMSI-1 signature
			Routing area identity = RAI-64
22	->	ATTACH COMPLETE	Mobile identity = TMSI-1
23	<-	PAGING TYPE1	Mobile identity = TMSI-1
		DD0 001NF071011	Paging order is for CS services.
24 25	-> <-	RRC CONNECTION REQUEST RRC CONNECTION SETUP	
26	->	RRC CONNECTION SETUP	
		COMPLETE	
27	->	PAGING RESPONSE	Mobile identity = TMSI-1

Step	Direction	Message	Comments
	UE SS	_	
28	<-	RRC CONNECTION RELEASE	After sending of this message, the SS waits for disconnection of the CS signalling link.
29	->	RRC CONNECTION RELEASE COMPLETE	
30	<-	PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.
30a	->	RRC CONNECTION REQUEST	
30b	<-	RRC CONNECTION SETUP	
30c	->	RRC CONNECTION SETUP COMPLETE	
31	->	SERVICE REQUEST	service type = "paging response"
31a	<-	RRC CONNECTION RELEASE	
31b	->	RRC CONNECTION RELEASE COMPLETE	
			The following messages are sent and shall be received on cell B.
32	SS		The SS deactivates cell A and activates cell B.
33	UE		No ROUTING AREA <u>UPDATE</u>
			REQUEST sent to SS
			(SS waits 30 seconds).
34	<-	PAGING TYPE1	Mobile identity = P-TMSI-2
35	UE		Paging order is for PS services.
35	UE		No response from the UE to the request. This is checked for 10 seconds.
36		PAGING TYPE1	Mobile identity = IMSI
00		THE THE	Paging order is for CS services.
37	UE		The UE shall not initiate an RRC connection.
			This is checked during 3 seconds.

12.4.2.5a.4.2 Test procesure2procedure2

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC $\underline{2}$ 4/MNC1/LAC1/RAC1 (RAI- $\underline{2}$ 4), cell B in MCC $\underline{2}$ 4/MNC1/LAC2/RAC1 (RAI- $\underline{6}$ 3).

Both cells are operating in network operation mode I.

User Equipment:

The UE has a valid P TMSI 1, P TMSI 1 signature and RAI 1 MSI. UE is Idle Updated on cell A.

Related ICS/IXIT statements

Support of PS service Yes/No UE operation mode A Yes/No

USIM removal possible without powering down $\,$ Yes/No $\,$

Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a combined routing area updating with the cause value 'Roaming not allowed in this area'. The UE is switched off for 10 seconds and switched on again. The SS checks that a combined PS attach is possible on the cell on which the previous combined routing area updating had been rejected.

If USIM removal is possible without switching off:

The SS rejects a routing area updating with the cause value 'Roaming not allowed in this area'. The USIM is removed and inserted in the UE. The SS checks that a PS attach procedure and routing area updating procedure is possible on the cell on which the routing area updating had previously been rejected.

Step	Direction UE SS	Message	Comments
	SS		The following messages are sent and shall be
1	SS		received on cell A. The SS activates cell A.
2	UE		The UE is powered up or switched on and
	_	ATTACH DECHEST	initiates an attach (see ICS.
3	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity =IMSI
			TMSI status = no valid TMSI available
4	<-	ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached' Mobile identity = P-TMSI-2
			P-TMSI-2 signature
			Routing area identity = RAI- <u>2</u> 4 Mobile identity = <u>IMSITMSI-1</u>
5	->	ATTACH COMPLETE	INIODITE IDENTITY = INIOT INIOT I
			The following messages are sent and shall be
7	SS		received on cell B. The SS deactivates cell A and activates cell B.
8	UE		Cell B is preferred by the UE.
9	->	ROUTING AREA <u>UPDATEUPDATING</u> REQUEST	Update type = 'Combined RA/LA updating' P-TMSI-2 signature
		OF DATE OF DATING REQUEST	Routing area identity = RAI- <u>2</u> 4
40		DOUTING ADEA	TMSI status = no valid TMSI available
10	<-	ROUTING AREA UPDATE UPDATING -REJECT	GMM cause = 'Roaming not allowed in this area'
11	UE		The UE initiates an attach by MMI or by AT
12	UE		command. No ATTACH REQUEST sent to SS
12	OL		(SS waits 30 seconds).
13	<-	PAGING TYPE1	Mobile identity = P-TMSI-2
14	UE		Paging order is for PS services. No response from the UE to the request. This
			is checked for 10 seconds.
15	<-	PAGING TYPE1	Mobile identity = TMSI-1HMSI Paging order is for CS services.
16	UE		The UE shall not initiate an RRC connection.
17	UE		This is checked during 3 seconds. If possible (see ICS) USIM removal is
''	OL		performed. Otherwise if possible (see ICS)
			switch off is performed. Otherwise the power is
18	UE		removed. The UE gets the USIM replaced, is powered up
			or switched on and initiates an attach (see
18a	<u>UE</u>	Registration on CS	I CS) . See TS 34.108
	_		This step is applied only for non-auto attach
			UE. Location Update Procedure initiated from the
			UE.
19	UE		The UE initiates an attach <u>automatically (see PICS)</u> by MMI or AT command.
20	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach'
			Mobile identity =IMSI
21	<-	ATTACH ACCEPT	TMSI status = no valid TMSI available Attach result = 'Combined PS / IMSI attached'
			Mobile identity = P-TMSI-1
			P-TMSI-1 signature Routing area identity = RAI- <u>6</u> 1
			Mobile identity = TMSI-1
22 23	-> <-	ATTACH COMPLETE PAGING TYPE1	Mobile identity = TMSI-1
23	ζ-	I AGING THE	Paging order is for CS services.
24	->	RRC CONNECTION REQUEST	
25	<-	RRC CONNECTION SETUP	I

Step	Direction	Message	Comments
	UE SS		
26	->	RRC CONNECTION SETUP	
		COMPLETE	
27	->	PAGING RESPONSE	Mobile identity = TMSI-1
28	<-	RRC CONNECTION RELEASE	After sending of this message, the SS waits for disconnection of the CS signalling link.
29	->	RRC CONNECTION RELEASE COMPLETE	
30	<-	PAGING TYPE1	Mobile identity = P-TMSI-1
30a	->	RRC CONNECTION REQUEST	
30b	<-	RRC CONNECTION SETUP	
30c	->	RRC CONNECTION SETUP	
		COMPLETE	
31	->	SERVICE REQUEST	service type = "paging response"
31a	<-	RRC CONNECTION RELEASE	
31b	->	RRC CONNECTION RELEASE	
		COMPLETE	
32	UE		The UE is switched off or power is removed (see ICS).
33	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined PS/IMSI detach'

Specific message contents

None.

12.4.2.5a.5 Test requirements

Test requirements for Test procedure1

At step3, when the UE is powered up or switched on, UE shall:

- initiate <u>a-the</u> combined PS attach procedure with information elements specified in the above Expected Sequence when UE is powered up or switched on.

At step9, when the RF level of the attached cell is lower than the RF level of the new cellAfter completing the PS attach procedure, UE shall:

—initiate <u>a-the</u> combined routing area update procedure(Update type = 'Combined RA/LA updating') with the information elements specified above Expected Sequence

At step12, when the SS rejects the combined routing area update procedure with GMM cause = 'Roaming not allowed in this area', UE shall:

- not initiate a PS attach procedure.

At step14, when the UE receives the paging message for PS domain, UE shall;

- not respond to the paging message for PS domain.

At step16, when the UE receives the paging message for CS domain, UE shall:

- not respond to the paging message for CS domain.

At step20, UE shall:

- initiate the combined PS attach procedure.

At step27, when the UE receives the paging message for CS domain, UE shall;

- respond to the paging message for CS domain by sending the PAGING RESPONSE message.

At step31, when the UE receives the paging message for PS domain, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

At step35, when the UE receives the paging message for PS domain, UE shall;

- not respond to the paging message for PS domain.

Test requirements for Test procedure2

At step3, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with information elements specified in the above Expected Sequence.

At step9, UE shall:

- initiate the combined routing area update procedure(Update type = 'Combined RA/LA updating') with the information elements specified above Expected Sequence.

At step14, when the UE receives the paging message for PS domain, UE shall;

- not respond to the paging message for PS domain.

At step16, when the UE receives the paging message for CS domain, UE shall:

- not respond to the paging message for CS domain.

At step20, UE shall:

- initiate the combined PS attach procedure.

At step27, when the UE receives the paging message for CS domain, UE shall;

- respond to the paging message for CS domain by sending the PAGING RESPONSE message.

At step31, when the UE receives the paging message for PS domain, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.
 - delete the stored P TMSI, P TMSI signature, TMSI, RAI, LAI, ciphering key sequence number PS ciphering key sequence number.
 - reset the location update attempt counter when UE receive the ROUTING AREA UPDATING REJECT message(GMM cause = 'Roaming not allowed in this area') from SS.
 - store the LAI in the 'forbidden location areas for roaming'.
 - not perform combined PS attach procedure when the UE is switched on in the same location area.
 - perform combined PS attach procedure when a new location area is entered.

12.4.2.5b Combined routing area updating / rejected / No Suitable Cells In Location Area.

12.4.2.5b.1 Definition

12.4.2.5b.2 Conformance requirement

- 1) If the network rejects a combined routing area updating procedure from the User Equipment with the cause 'No Suitable Cells In Location Area', the User Equipment shall:
 - 1.1 delete the stored RAI, PS-CKSN, P-TMSI and P-TMSI signature.
 - 1.2 store the LA or the PLMN identity in the 'forbidden location areas for roaming'.

1.3 search for a suitable cell in a different location area on the same PLMN.

Reference

3GPP TS 24.008 clauses 4.7.5.2.

12.4.2.5b.3 Test purpose

To test the behaviour of the UE if the network rejects a combined routing area updating procedure of the UE with the cause 'No Suitable Cells In Location Area'.

To test that the UE deletes the list of forbidden LAs when power is switched off'.

12.4.2.5b.4 Method of test

Initial condition

System Simulator:

Four cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC2/RAC1 (RAI-3), cell C in MCC2/MNC1/LAC1/RAC1 (RAI-2), cell D in MCC1/MNC1/LAC1/RAC2 (RAI-4),

All three cells are operating in network operation mode II.

User Equipment:

The UE has valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
USIM removal possible without powering down Yes/No
Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a combined routing area updating with the cause value 'No Suitable Cells In Location Area'. The SS checks that the UE shall perform PS attach procedure when the UE enters a suitable cell in a different location area on the same PLMN.

Step	Direction	Message	Comments
	UE SS	1	
	SS		The following message are sent and shall be
			received on cell D.
1	SS		The SS activates cell D.
2	UE		The UE is powered up or switched on and
			initiates an attach (see ICS). Cell D is preferred
			by the UE.
3	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach'
			Mobile identity = IMSI
			TMSI status = no valid TMSI available
4	<-	ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached'
			Mobile identity = P-TMSI-1
			P-TMSI-1 signature
			Routing area identity = RAI-4
			Mobile identity = IMSI
5	->	ATTACH COMPLETE	
6	SS		The SS deactivates Cell D and activates Cell A,
			Cell B and Cell C.
			The SS configures power level of each Cell as
			follows.
			Cell A > Cell B = Cell C
_		DOLUTING ADEA LIBRATING	Cell A is preferred by the UE.
7	->	ROUTING AREA UPDATING	Update type = 'Combined RA/LA updating'
		REQUEST	P-TMSI-1 signature
		DOLUTING ADEA LIBRATING	Routing area identity = RAI-4
8	<-	ROUTING AREA UPDATING	GMM cause = 'No Suitable Cells In Location Area'
		REJECT	1
			The following message are sent and shall be received on cell B.
9	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attached'
9	->	ATTAOTTREQUEST	Mobile identity = IMSI
10	<-	ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached'
10		ATTACHACCEFT	Mobile identity = P-TMSI-2
			P-TMSI-2 signature
			Routing area identity = RAI-3
11	->	ATTACH COMPLETE	Trouble area ractility = 10 tr 5
12	->	DETACH REQUEST	Message not sent if power is removed.
\ '-			Detach type = 'power switched off, PS detach'

Specific message contents

None.

12.4.2.5b.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate <u>a-the</u> Combined PS attach procedure with the information elements specified in the above Expected Sequence when the UE is powered up or switched on.

At step7, when the RF level of the attached cell is lower than the RF level of the new cell. After rejecting the Combined PS attach procedure with the cause 'No Suitable Cells In Location Area, UE shall:

- initiate the combined routing area update procedure.
 - delete the stored RAI, PS CKSN, P TMSI and P TMSI signature.
 - store the LA or the PLMN identity in the 'forbidden location areas for roaming'.

At step9, When when the UE enters a suitable cell in a different location area on the same PLMN, UE shall:

- perform the PS attach procedure.

12.4.2.6 Combined routing area updating / abnormal cases / access barred due to access class control

12.4.2.6.1 Definition

12.4.2.6.2 Conformance requirement

- 1) The UE shall not perform combined routing area updating procedure, but stays in the current serving cell and applies normal cell reselection process.
- 2) The User Equipment shall perform the combined routing area updating procedure when:
 - 2.1 Access is granted.
 - 2.2 Cell is changed.

Reference

3GPP TS 24.008 clause 4.7.5.2.

12.4.2.6.3 Test purpose

Test porpose1

To test the behaviour of the UE in case of access class control (access is granted).

Test porpose2

To test the behaviour of the UE in case of access class control (cell is changed).

12.4.2.6.4 Method of test

12.4.2.6.4.1 Test procedure1

Initial condition

A random access class x (0-15) is selected. The USIM is programmed with this access class x. Communication with User Equipments using access class x is initially indicated to be barred.

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4).

Both cells are operating in network operation mode I.

Access class x barred.

User Equipment:

The UE has valid IMSI. UE is Idle Updated on cell A.

Related ICS/IXIT statements

Support of PS service Yes/No UE operation mode A Yes/No Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

A PS attach procedure is performed. The routing area is changed. The SS indicates access class x barred. A routing area updating procedure is not performed.

The SS indicates that access class x is not barred. A routing area updating procedure is performed.

Expected Sequence

Step	Direction	Message	Comments
	UE SS		
	SS		The following messages are sent and shall be
			received on cell A.
1	SS		The SS activates cell A.
2	UE		The UE is powered up or switched on and
		ATTA OLI DEGLISOT	initiates an attach (see ICS.
3	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach'
			Mobile identity =IMSI TMSI status = no valid TMSI available
4	<-	ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached'
4	<-	ATTACH ACCEPT	Mobile identity = P-TMSI-2
			P-TMSI-2 signature
			Routing area identity = RAI-1
			Mobile identity = IMSI
5	->	ATTACH COMPLETE	
			The following messages are sent and shall be
			received on cell B.
7	SS		The SS deactivates cell A and activates cell B.
8	UE		Cell B is preferred by the UE.
9	UE		No ROUTING AREA UPDATE REQUEST sent
			to SS, as access class X is barred
10	SS		(SS waits 30 seconds).
10	->	ROUTING AREA UPDATING	The access class x is not barred anymore. Update type = 'Combined RA/LA updating'
11	->	REQUEST	P-TMSI-2 signature
		NEGOEO1	Routing area identity = RAI-1
			TMSI status = no valid TMSI available
12	<-	ROUTING AREA UPDATING	Update result = 'Combined RA/LA updated'
		ACCEPT	Mobile identity = P-TMSI-1
			P-TMSI-1 signature
			Mobile identity = TMSI-1
			Routing area identity = RAI-4
13	->	ROUTING AREA UPDATING	
4.4		COMPLETE	The LIE is switched att as a sure is asset to
14	UE		The UE is switched off or power is removed
15	->	DETACH REQUEST	(see ICS). Message not sent if power is removed.
10	->	DETAGITREQUEST	Detach type = 'power switched off, combined
			PS/IMSI detach'
			1 O/IIVIOI GELACIT

Specific message contents

None.

12.4.2.6.4.2 Test procedure2

Initial condition

A random access class x (0-15) is selected. The USIM is programmed with this access class x. Communication with User Equipments using access class x is indicated to be barred on cell A.

System Simulator:

Three cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1) has access class x not barred, cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4) has access class x barred, cell C in MCC1/MNC1/LAC1/RAC2 (RAI-4)

has access class x not barred. All three cells are operating in network operation mode I.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No UE operation mode A Yes/No Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

A PS attach procedure is performed. The routing area is changed. The SS indicates access class x barred. A routing area updating procedure is not performed.

A cell change is performed into a cell where access class x is not barred. A routing area updating procedure is performed.

Step	Direction	Message	Comments
	UE SS		The following recognized are contained at the little
1 2	SS SS UE		The following messages are sent and shall be received on cell A. The SS activates cell A. The UE is powered up or switched on and
3	->	ATTACH REQUEST	initiates an attach (see ICS. Attach type = 'Combined PS / IMSI attach' Mobile identity =IMSI
4	<-	ATTACH ACCEPT	TMSI status = no valid TMSI available Attach result = 'Combined PS / IMSI attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-1
5	->	ATTACH COMPLETE	Mobile identity = IMSI
7 8 9	SS UE UE		The following messages are sent and shall be received on cell B. The SS deactivates cell A and activates cell B. Cell B is preferred by the UE. No ROUTING AREA UPDATING REQUEST sent to SS, as access class X is barred (SS waits 30 seconds).
10 11 12	SS UE ->	ROUTING AREA UPDATING REQUEST	The following messages are sent and shall be received on cell C. The SS deactivates cell B and activates cell C. Cell C is preferred by the UE. Update type = 'Combined RA/LA updating' P-TMSI-2 signature Routing area identity = RAI-1 TMSI status = no valid TMSI available
13	<-	ROUTING AREA UPDATING ACCEPT	Update result = 'Combined RA/LA updated' Mobile identity = P-TMSI-1 P-TMSI-1 signature Mobile identity = IMSI Routing area identity = RAI-4
14	->	ROUTING AREA UPDATING COMPLETE	Nouting area luctritity = IVAI-4
15	UE		The UE is switched off or power is removed (see ICS).
16	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined PS/IMSI detach'

Specific message contents

None.

12.4.2.6.5 Test requirements

Test requirements for Test procedure1

At step3, when the UE is powered up or switched on, UE shall:

- initiate <u>a-the</u> combined PS attach procedure with information elements specified in the above Expected Sequence when UE is powered up or switched on.

At step8, when the access class x is barred After completing the PS attach procedure, UE shall:

- not perform the combined routing area updating procedure.

- stay in the current serving cell.

apply the normal cell reselection process.(as access class X is barred)

— perform the combined routing area updating procedure when the barred state is removed or because of a cell change. At step 10, when the access class x is not barred, UE shall:

- perform the combined routing area updating procedure.

Test requirements for Test procedure2

At step3, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with information elements specified in the above Expected Sequence.

At step8, when the access class x is barred UE shall:

- not perform the combined routing area updating procedure.

At step11, when the serving cell is changed, UE shall:

- perform the combined routing area updating procedure.

12.4.2.7 Combined routing area updating / abnormal cases / attempt counter check / procedure timeout

12.4.2.7.1 Definition

12.4.2.7.2 Conformance requirement

- 1) When a T3330 timeout has occurred during a routing area updating procedure, the UE shall repeat the routing area updating procedure after T3330 timeout until the procedure is repeated five times.
- 2) When a routing area updating procedure is repeated five times, the routing area updating attempt counter is incremented and five more routing area updating procedures are performed. This procedure is repeated until the routing area updating attempt counter is five, the UEshall then start timer T3302.
- 3) When the T3302 expire, a new routing area updating procedure shall be initiated.

Reference

3GPP TS 24.008 clause 4.7.5.2.

12.4.2.7.3 Test purpose

To test the behaviour of the UE with respect to the attempt counter.

12.4.2.7.4 Method of test

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4).

Both cells are operating in network operation mode I.

User Equipment:

The UE has a valid TMSI, P-TMSI, P-TMSI signature and RAI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE initiates a routing area updating procedure (routing area updating attempt counter zero). The SS does not answer with ROUTING AREA UPDATE ACCEPT message before T3330 timeout. The UE restarts the routing area updating procedure four times. The SS never answers with ROUTING AREA UPDATE ACCEPT message before T3330 timeout. After five consecutive routing area update procedures, the routing area updating attempt counter is incremented and T3311 is started.

The UE initiates a new routing area updating procedure (routing area updating attempt counter one) after T3311 expires. The SS does not answer with ROUTING AREA UPDATE ACCEPT message before T3330 timeout. The UE restarts the routing area updating procedure four times. The SS never answers with ROUTING AREA UPDATE ACCEPT message before T3330 timeout. After five consecutive routing area update procedures, the routing area updating attempt counter is incremented and T3311 is started.

The UE initiates a new routing area updating procedure (routing area updating attempt counter two) after T3311 expires. The SS does not answer with ROUTING AREA UPDATE ACCEPT message before T3330 timeout. The UE restarts the routing area updating procedure four times. The SS never answers with ROUTING AREA UPDATE ACCEPT message before T3330 timeout. After five consecutive routing area update procedures, the routing area updating attempt counter is incremented and T3311 is started.

The UE initiates a new routing area updating procedure (routing area updating attempt counter three) after T3311 expires. The SS does not answer with ROUTING AREA UPDATE ACCEPT message before T3330 timeout. The UE restarts the routing area updating procedure four times. The SS never answers with ROUTING AREA UPDATE ACCEPT message before T3330 timeout. After five consecutive routing area update procedures, the routing area updating attempt counter is incremented and T3311 is started.

The UE initiates a new routing area updating procedure (routing area updating attempt counter four) after T3311 expires. The SS does not answer with ROUTING AREA UPDATE ACCEPT message before T3330 timeout. The UE restarts the routing area updating procedure four times. The SS never answers with ROUTING AREA UPDATE ACCEPT message before T3330 timeout. After five consecutive routing area update procedures, the routing area updating attempt counter is incremented and as the routing area updating attempt counter is five. T3302 is started.

The UE initiates a routing area updating procedure with routing area updating attempt counter zero after T3302 expires with the stored P-TMSI, P-TMSI signature, PS CKSN and RAI.

T3302; set to 12 minutes.

T3311; 15 seconds.

T3330; 15 seconds.

Step	Direction UE SS	Message	Comments
1 2	SS SS UE		The following messages are sent and shall be received on cell A. The SS activates cell A.
3	->	ATTACH REQUEST	The UE is powered up or switched on and initiates an attach (see ICS. Attach type = 'Combined PS / IMSI attach' Mobile identity =IMSI
4	<-	ATTACH ACCEPT	TMSI status = no valid TMSI available Attach result = 'Combined PS / IMSI attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature
_		ATTACH COMPLETE	Routing area identity = RAI-1 Mobile identity = IMSI
5	->	ATTACH COMPLETE	The following messages are sent and shall be
<u>6</u> 7 <u>7</u> 8	SS UE		received on cell B. The SS deactivates cell A and activates cell B. Cell B is preferred by the UE. K = 1.
<u>8</u> 9	->	ROUTING AREA UPDATING REQUEST	Update type = 'Combined RA/LA updating' P-TMSI-2 signature Routing area identity = RAI-1 TMSI status = no valid TMSI available Routing area updating attempt counter = k (k is
<u>9</u> 10 1011	SS SS		not visible. It is only used for clarifying the sequence.) Retransmission counter = 0 No response is given from the SS. The SS verifies that the time between the RA update requests is T3330seconds
<u>1112</u>	->	ROUTING AREA UPDATING REQUEST	Update type = 'Combined RA/LA updating' P-TMSI-2 signature Routing area identity = RAI-1 TMSI status = no valid TMSI available
<u>12</u> 13 <u>13</u> 14	SS SS		Routing area updating attempt counter = k Retransmission counter = 1 No response is given from the SS. The SS verifies that the time between the RA
<u>14</u> 15	->	ROUTING AREA UPDATING REQUEST	update requests is T3330seconds Update type = 'Combined RA/LA updating' P-TMSI-2 signature Routing area identity = RAI-1
15 16 16 17	SS SS		TMSI status = no valid TMSI available Routing area updating attempt counter = k Retransmission counter = 2 No response is given from the SS. The SS verifies that the time between the RA
<u>17</u> 18	->	ROUTING AREA UPDATING REQUEST	update requests is T3330seconds Update type = 'Combined RA/LA updating' P-TMSI-2 signature Routing area identity = RAI-1 TMSI status - payelid TMSI sycilable
<u>18</u> 19 1920	SS SS		TMSI status = no valid TMSI available Routing area updating attempt counter = k Retransmission counter = 3 No response is given from the SS. The SS verifies that the time between the RA
<u>20</u> 21	->	ROUTING AREA UPDATING REQUEST	update requests is T3330seconds Update type = 'Combined RA/LA updating' P-TMSI-2 signature Routing area identity = RAI-1 TMSI status = no valid TMSI available
<u>21</u> 22	SS		TMSI status = no valid TMSI available Routing area updating attempt counter = k Retransmission counter = 4 No response is given from the SS.

Step	Direction	Message	Comments
	UE SS		
<u>22</u> 23	SS		The SS verifies that the time between the RA update requests is T3311 + T3330 seconds.
<u>23</u> 24	SS		Step 9 – 23 is repeated four times with k = 2, k = 3, k = 4 and k = 5
<u>24</u> 23	SS		The SS verifies that the time between the RA update requests is T3302 + T3330 seconds
<u>25</u> 24	->	ROUTING AREA UPDATING REQUEST	Update type = 'Combined RA/LA updating' P-TMSI-2 signature
<u>26</u> 25	<-	ROUTING AREA UPDATING	Routing area identity = RAI-1 TMSI status = no valid TMSI available Update result = 'Combined RA/LA updated'
		ACCEPT	Mobile identity = P-TMSI-1 P-TMSI-1 signature Mobile identity = IMSI
			Routing area identity = RAI-4
<u>27</u> 26	->	ROUTING AREA UPDATING COMPLETE	
<u>28</u> 27	UE		The UE is switched off or power is removed (see ICS).
<u>29</u> 28	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined PS/IMSI detach'

Specific message contents

None.

12.4.2.7.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

——initiate <u>a-the</u> combined PS attach procedure with information elements specified in the above Expected Sequence when UE is powered up or switched on.

At step8, when the RF level of the attached cell is lower than the RF level of the new cell,

After completing the PS attach procedure, UE shall:

- initiate a the combined routing area updating procedure with information elements specified in the above Expected Sequence when UE is powered up or switched on.
- —<u>UE shall</u> perform the following actions depending on the conditions described below.

Case 1) A timer T3330 timeout has occurred during a combined routing area updating procedure with the Routing area attempt counter less than five and the Retransmission counter less than five

At step11, 14, 17 and 20, UE shall:

- repeat the combined routing area updating procedure after the timer T3330 timeout

Case2) A timer T3330 timeout has occurred during a combined routing area updating procedure with the Routing area attempt counter less than five and the Retansmission counter five

At step22, UE shall:

- start the timer T3311not repeat the combined routing area updating procedure.

Case 3) A timer T3311 timeout has occurred and the Routing area attempt counter is less than five occoured

At step23, UE shall:

- reset the Retransmission counter and increase the Routing area attempt counter

- repeat the combined routing area updating procedure

Case 4) A timer T3330 timeout has occurred during a combined routing area updating procedure with the Routing area attempt counter five and the Retansmission counter five.

At step24, UE shall:

- not initiate a routing area updating procedure. start the timer T3302

Case5) The timer T3302 expires

At step25, UE shall:

- initiate a-the new routing area updating procedure

12.4.2.8 Combined routing area updating / abnormal cases / change of cell into new routing area

12.4.2.8.1 Definition

12.4.2.8.2 Conformance requirement

When a change of cell into a new routing area is performed before the routing area updating procedure is finished, the UE shall abort the routing area updating procedure and re-initiate it in the new routing area.

Reference

3GPP TS 24.008 clause 4.7.5.2.

12.4.2.8.3 Test purpose

To test the behaviour of the UE in case of procedure collision.

12.4.2.8.4 Method of test

Initial condition

System Simulator:

Three cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4), cell C in MCC1/MNC1/LAC1/RAC3 (RAI-5).

All three cells are operating in network operation mode I.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No UE operation mode A Yes/No Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE initiates a routing area updating procedure. The ROUTING AREA UPDATE ACCEPT message is delayed from the SS. The UE performs a cell update into a new routing area. The UE shall re-initiate a routing area updating procedure in the new routing area. The UE shall not increment the attempt counter.

Step	Direction	Message	Comments
	UE SS		The fellowing process and an I I I I I
	SS		The following messages are sent and shall be received on cell A.
1	SS		The SS activates cell A.
2	UE		The UE is powered up or switched on and
_	"-		initiates an attach (see ICS.
3	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach'
			Mobile identity =IMSI
			TMSI status = no valid TMSI available
4	<-	ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached'
			Mobile identity = P-TMSI-2
			P-TMSI-2 signature Routing area identity = RAI-1
			Mobile identity = IMSI
5	->	ATTACH COMPLETE	Woolie Identity = IWO
			The following messages are sent and shall be
			received on cell B.
6	SS		The SS deactivates cell A and activates cell B.
7	UE		Cell B is preferred by the UE.
8	->	ROUTING AREA UPDATING	Update type = 'Combined RA/LA updating'
		REQUEST	P-TMSI-2 signature Routing area identity = RAI-1
			TMSI status = no valid TMSI available
9	SS		No response id given from the SS.
	- 55		The following messages are sent and shall be
			received on cell C.
10	SS		Activate cell C with a lower signal strength than
			cell B.
11	UE		The RF level of cell B is lowered, and the RF
			level of cell C is increased, until cell C is preferred by the UE.
12	->	ROUTING AREA UPDATING	Update type = 'Combined RA/LA updating'
12		REQUEST	P-TMSI-2 signature
			Routing area identity = RAI-1
			TMSI status = no valid TMSI available
13	<-	ROUTING AREA UPDATING	Update result = 'Combined RA/LA updated'
		ACCEPT	Mobile identity = P-TMSI-1
1			P-TMSI-1 signature
1			Mobile identity = IMSI Routing area identity = RAI-5
14	->	ROUTING AREA UPDATING	Trouting area lucitity – Italia
		COMPLETE	
15	UE		The UE is switched off or power is removed
			(see ICS).
16	->	DETACH REQUEST	Message not sent if power is removed.
			Detach type = 'power switched off, combined PS/IMSI detach'

Specific message contents

None.

12.4.2.8.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate <u>a-the</u> combined PS attach procedure with the information elements specified in the above Expected Sequence when UE is powered up or switched on.

At step8, when the RF level of the attached cell is lower than the RF level of the new cellAfter completing the PS attach procedure, UE shall:

- initiate the routing area update procedure.

At step12, When when change of cell into new routing area is performed before the routing area updating procedure is finished. UE shall:

- abort the routing area updating procedure.
- re-initiate new routing area updating procedure in the new routing area.

12.4.2.9 Combined routing area updating / abnormal cases / change of cell during routing area updating procedure

12.4.2.9.1 Definition

12.4.2.9.2 Conformance requirement

When a change of cell within new routing area is performed before the routing area updating procedure is finished, the UE shall perform the cell update before the routing area updating procedure is finished.

Reference

3GPP TS 24.008 clause 4.7.5.2.

12.4.2.9.3 Test purpose

To test the behaviour of the UE in case of procedure collision.

12.4.2.9.4 Method of test

Initial condition

System Simulator:

Three cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4), cell C in MCC1/MNC1/LAC1/RAC2 (RAI-4).

All three cells are operating in network operation mode I.

User Equipment:

The UE has a valid IMSI. UE is Idle Updated on cell A.

Related ICS/IXIT statements

Support of PS service Yes/No UE operation mode A Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE initiates a routing area updating procedure. The ROUTING AREA UPDATE ACCEPT message is delayed from the SS. The UE performs a cell update within the routing area. The UE then waits for the ROUTING AREA UPDATE ACCEPT message.

Step	Direction	Message	Comments
	UE SS		
	SS		The following messages are sent and shall be received on cell A.
1	SS		The SS activates cell A.
2	UE		The UE is powered up or switched on and
			initiates an attach (see ICS.
3	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach'
			Mobile identity =IMSI
4		ATTACILACCEDT	TMSI status = no valid TMSI available
4	<-	ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached' Mobile identity = P-TMSI-2
			P-TMSI-2 signature
			Routing area identity = RAI-1
			Mobile identity = IMSI
5	->	ATTACH COMPLETE	
			The following messages are sent and shall be
6	SS		received on cell B. The SS deactivates cell A and activates cell B.
7	UE		Cell B is preferred by the UE.
8	->	ROUTING AREA UPDATING	Update type = 'Combined RA/LA updating'
		REQUEST	P-TMSI-2 signature
			Routing area identity = RAI-1
			TMSI status = no valid TMSI available
9	SS		No response id given from the SS.
			The following messages are sent and shall be received on cell C.
10	SS		Activate cell C with a lower signal strength than
			cell B.
11	UE		The RF level of cell B is lowered until cell C is
4.0		0511 1155 175	preferred by the UE.
12a 12b	->	CELL UPDATE CELL UPDATE CONFIRM	Cell update cause = 'cell reselection'
13	<- <-	ROUTING AREA UPDATING	Update result = 'Combined RA/LA updated'
10		ACCEPT	Mobile identity = P-TMSI-1
			P-TMSI-1 signature
			Mobile identity = IMSI
		DOLUTING ADDA :::-	Routing area identity = RAI-4
14	->	ROUTING AREA UPDATING	
15	UE	COMPLETE	The UE is switched off or power is removed
13	UE		(see ICS).
16	->	DETACH REQUEST	Message not sent if power is removed.
			Detach type = 'power switched off, combined
			PS/IMSI detach'

Specific message contents

None.

12.4.2.9.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate <u>a the</u> combined PS attach procedure with the information elements specified in the above Expected Sequence when UE is powered up or switched on.

At step8, when the RF level of the attached cell is lower than the RF level of the new cellAfter completing the PS attach procedure, UE shall:

- initiate routing area update procedure.

At step12a, When when a change of cell within a new routing area is performed before the routing area updating procedure is finished, UE shall:

- perform the cell update.

12.4.2.10 Combined routing area updating / abnormal cases / PS detach procedure collision

12.4.2.10.1 Definition

12.4.2.10.2 Conformance requirement

- 1) When a detach request is received with cause 'PS detach' or 'combined PS/IMSI detach' by the UE while waiting for a ROUTING AREA UPDATE ACCEPT message, the UE shall terminate the routing area updating procedure and continue with the PS detach procedure.
- 2) When a detach request is received with cause 'IMSI detach' by the UE while waiting for a ROUTING AREA UPDATE ACCEPT message, the UE shall ignore the detach request and continue with the routing area updating procedure.

Reference

3GPP TS 24.008 clause 4.7.5.2.

12.4.2.10.3 Test purpose

To test the behaviour of the UE in case of procedure collision.

12.4.2.10.4 Method of test

12.4.2.10.4.1 Test procedure1

Initial condition

System Simulator:

Two cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4). Both cells are operating in network operation mode I.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No UE operation mode A Yes/No Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE initiates a routing area updating procedure. The SS does not answer the routing area updating procedure, but initiates a PS detach procedure with cause 'PS detach' or 'combined PS/IMSI detach'. The UE shall terminate the routing area updating procedure and continue with the PS detach procedure.

Step	Direction	on Message	Comments
-	UE S	S	
	SS		The following messages are sent and shall be received on cell A.
1	SS		The SS activates cell A.
2	UE		The UE is powered up or switched on and
			initiates an attach (see ICS.
3	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach'
			Mobile identity =IMSI
			TMSI status = no valid TMSI available
4	<-	ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached'
			Mobile identity = P-TMSI-2
			P-TMSI-2 signature
			Routing area identity = RAI-1
_			Mobile identity = IMSI
5	->	ATTACH COMPLETE	
			The following messages are sent and shall be
	-00		received on cell B.
6	SS		The SS deactivates cell A and activates cell B.
7 8	UE	DOLITING ADEA LIDDATING	Cell B is preferred by the UE.
8	->	ROUTING AREA UPDATING	Update type = 'Combined RA/LA updating'
		REQUEST	P-TMSI-2 signature
			Routing area identity = RAI-1 TMSI status = no valid TMSI available
9	SS		The SS ignores the ROUTING AREA
9	33		UPDATING REQUEST message and initiates a
			detach procedure.
10	<-	DETACH REQUEST	Detach type = 're-attach not required'
11	->	DETACH ACCEPT	

Specific message contents

None.

12.4.2.10.4.2 Test procedure2

Initial condition

System Simulator:

 $Two \ cells, cell \ A \ in \ MCC1/MNC1/LAC1/RAC1 \ (RAI-1), cell \ B \ in \ MCC1/MNC1/LAC1/RAC2 \ (RAI-4).$ Both cells are operating in network operation mode I.

User Equipment:

The UE has a valid P-TMSI, P-TMSI signature and RAI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE initiates a routing area updating procedure. The SS does not answer the routing area updating procedure, but initiates a PS detach procedure with cause 'IMSI detach'. The UE shall ignore the detach procedure and continue with the routing area updating procedure.

Step	Direction	Message	Comments
	UE SS		
	SS		The following messages are sent and shall be
			received on cell A.
1	SS		The SS activates cell A.
2	UE		The UE is powered up or switched on and
_		ATTACLIBEOLIECT	initiates an attach (see ICS.
3	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach'
			Mobile identity =IMSI TMSI status = no valid TMSI available
4	<-	ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached'
-	\-	ATTACITACCETT	Mobile identity = P-TMSI-2
			P-TMSI-2 signature
			Routing area identity = RAI-1
			Mobile identity = IMSI
5	->	ATTACH COMPLETE	
			The following messages are sent and shall be
			received on cell B.
6	SS		The SS deactivates cell A and activates cell B.
7	UE	DOLITING ADEA LIBRATING	Cell B is preferred by the UE.
8	->	ROUTING AREA UPDATING	Update type = 'Combined RA/LA updating'
		REQUEST	P-TMSI-2 signature Routing area identity = RAI-1
			TMSI status = no valid TMSI available
9	SS		The SS ignores the ROUTING AREA
			UPDATING REQUEST message and initiates a
			detach procedure.
10	<-	DETACH REQUEST	Detach type = 'IMSI detach'
11	UE		The UE ignores the DETACH REQUEST
			message and continue the routing area
			updating procedure.
12	<-	ROUTING AREA UPDATING	Update result = 'Combined RA/LA updated'
		ACCEPT	Mobile identity = P-TMSI-1
			P-TMSI-1 signature
			Mobile identity = IMSI Routing area identity = RAI-4
13	->	ROUTING AREA UPDATING	Trouting area luctility - ITAI-4
		COMPLETE	
14	UE		The UE is switched off or power is removed
			(see ICS).
15	->	DETACH REQUEST	Message not sent if power is removed.
			Detach type = 'power switched off, combined
			PS/IMSI detach'

Specific message contents

None.

12.4.2.10.5 Test requirements

Test requirements for Test procedure1

At step3, when the UE is powered up or switched on, UE shall:

- initiate <u>a-the</u> combined PS attach procedure with the information elements specified in the above Expected Sequence—when UE is powered up or switched on.

At step8, when the RF level of the attached cell is lower than the RF level of the new cellAfter completing the PS attach procedure, UE shall:

- initiate routing area update procedure.

perform the follow actions depending on the conditions described below.

At step11, when the

— Case 1) UE receives a DETACH REQUEST message with cause 'PS detach' or 'combined PS/IMSI detach' from SS while waiting for a ROUTING AREA UPDATE ACCEPT message, UE shall:

-____terminate the routing area updating procedure

____continue with the PS detach procedure.

Test requirements for Test procedure2

At step3, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with the information elements specified in the above Expected Sequence.

At step8, when the RF level of the attached cell is lower than the RF level of the new cell, UE shall:

- initiate routing area update procedure.

At step11, the UE receives a DETACH REQUEST message with cause 'IMSI detach' from SS while waiting for a ROUTING AREA UPDATE ACCEPT message, UE shall:

- ignore the detach request procedure.
- continue with the routing area updating procedure.

— Case 2) UE receives a DETACH REQUEST message with cause 'IMSI detach' from SS while waiting for a ROUTING AREA UPDATING ACCEPT message, UE shall:

- ignore the detach request.
- continue with the routing area updating procedure.

12.4.3 Periodic routing area updating

12.4.3.1 Periodic routing area updating / accepted

12.4.3.1.1 Definition

12.4.3.1.2 Conformance requirement

The User Equipment shall perform a periodic routing area update procedure after a T3312 timeout.

Reference

3GPP TS 24.008 clauses 4.7.2.2 and 4.7.5.1.

12.4.3.1.3 Test purpose

To test the behaviour of the UE with respect to the periodic routing area updating procedure.

12.4.3.1.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II (in case of UE operation mode A).

User Equipment:

The UE has a valid P-TMSI-1, P-TMSI-1 signature and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No
USIM removal possible without powering down Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE initiates a PS attach procedure with identity P-TMSI. The SS reallocates the P-TMSI and returns ATTACH ACCEPT message with a new P-TMSI and timer T3312. The UE acknowledge the new P-TMSI by sending ATTACH COMPLETE message. A routing area updating procedure is performed at T3312 timeout.

T3312; set to 6 minutes.

Expected Sequence

Step	Direction	Message	Comments
	UE SS		
1	SS		The UE is set in UE operation mode C (see
			ICS). If UE operation mode C not supported,
			goto step 11.
2	UE		The UE is powered up or switched on and
			initiates an attach (see ICS).
3	->	ATTACH REQUEST	Attach type = 'PS attach'
			Mobile identity = P-TMSI-1
			P-TMSI-1 signature
			Routing area identity = RAI-1
4	<-	ATTACH ACCEPT	Attach result = 'PS only attached'
			Mobile identity = P-TMSI-2
			P-TMSI-2 signature
			Routing area identity = RAI-1
			T3312 = 6 minutes
5	->	ATTACH COMPLETE	
6	->	ROUTING AREA UPDATING	Update type = 'Periodic updating'
		REQUEST	P-TMSI-2 signature
_	00		Routing area identity = RAI-1
7	SS		The SS verifies that the time between the
		DOLITING ADEA LIBRATING	attach and the periodic RA updating is T3312
8	<-	ROUTING AREA UPDATING	No new mobile identity assigned.
		ACCEPT	P-TMSI not included.
			Update result = 'RA updated' P-TMSI-3 signature
			Routing area identity = RAI-1
9	UE		The UE is switched off or power is removed
9	OL.		(see ICS).
10	->	DETACH REQUEST	Message not sent if power is removed.
10	-	DETACTIVEQUEST	Detach type = 'power switched off, PS detach'
11			The SS is set in network operation mode II.
12	UE		The UE is set in UE operation mode A(see
'-			ICS) and the test is repeated from step 3 to
			step 10.
			Total 10.

Specific message contents

None.

12.4.3.1.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

— initiate <u>a-the PS</u> attach procedure with the information elements specified in the above Expected Sequence when UE is powered up or switched on.

At step6, when the timer T3312 is expired, UE shall:

- set and start the timer T3312 when the ATTACH ACCEPT message and ROUTING AREA UPDATING ACCEPT message from SS. The value of the timer T3312 is sent by SS to UE in ATTACH ACCEPT message and ROUTING AREA UPDATING ACCEPT message.
- initiate <u>a-the</u> routing area updating procedure with Update type = 'Periodic updating' when the timer T3312 is expired.

12.4.3.2 Periodic routing area updating / accepted / T3312 default value

12.4.3.2.1 Definition

12.4.3.2.2 Conformance requirement

The User Equipment shall perform a periodic routing area update procedure after a T3312 timeout.

Reference

3GPP TS 24.008 clauses 4.7.2.2 and 4.7.5.2.

12.4.3.2.3 Test purpose

To test the behaviour of the UE with respect to the periodic routing area updating procedure.

12.4.3.2.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode I.

User Equipment:

The UE has a valid P-TMSI-1, P-TMSI-1 signature and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE initiates a combined PS attach procedure. The SS reallocates the P-TMSI and returns ATTACH ACCEPT message with a new P-TMSI and timer T3312 is omitted. The UE acknowledge the new P-TMSI by sending ATTACH COMPLETE message. After 54 minutes, a periodic routing area updating procedure is initiated by the UE.

T3312; default value 54 minutes.

Step	Direction	Message	Comments
	UE SS		
1	UE		The UE is powered up or switched on and initiates an attach (see ICS).
2	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-1
3	<-	ATTACH ACCEPT	Attach result = 'Combined PS /IMSI attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Mobile identity = TMSI-1 Routing area identity = RAI-1 T3312 = 54 min
4	->	ATTACH COMPLETE	
5	->	ROUTING AREA UPDATING REQUEST	Update type = 'Periodic updating' P-TMSI-2 signature Routing area identity = RAI-1 TMSI status = valid TMSI available or IE not present.
6	SS		The SS verifies that the time between the attach request and the periodic RA updating is T3312
7	< -	ROUTING AREA UPDATING ACCEPT	No new mobile identity assigned. P-TMSI and TMSI not included. Update result = 'RAupdated' P-TMSI-3 signature Routing area identity = RAI-1
8	UE		The UE is switched off or power is removed (see ICS).
9	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined PS/IMSI detach'

Specific message contents

None.

12.4.3.2.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

—initiate a-the PS attach procedure with the information elements specified in the above Expected Sequence when UE is powered up or switched on.

set and start the timer T3312 when the ATTACH ACCEPT message and ROUTING AREA UPDATING ACCEPT message from SS.

At step5, when the timer T3312 is expired, UE shall:

- initiate <u>a-the</u> routing area updating procedure with Update type = 'Periodic updating' when the timer T3312 is expired.

12.4.3.3 Periodic routing area updating / no cell available / network mode I

12.4.3.3.1 Definition

12.4.3.3.2 Conformance requirement

If the UE is both IMSI attached for PS and non-PS services, and if the UE lost coverage of the registered PLMN and timer T3312 expires; if the UE returns to coverage in a cell that supports PS and the network is in network operation mode I, then the UE shall perform a combined routing area update procedure.

Reference

3GPP TS 24.008 clauses 4.7.2.2 and 4.7.5.1.

12.4.3.3.3 Test purpose

To test the behaviour of the UE with respect to the periodic routing area updating procedure.

12.4.3.3.4 Method of test

Initial condition

System Simulator:

Two cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4). Cell A is operating in network operation mode II and cell B is in network operation mode I.

User Equipment:

The UE has a valid P-TMSI-1, P-TMSI-1 signature and RAI-1.

Idle updated on Cell A

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE initiates a PS attach procedure. The SS reallocates the P-TMSI and returns ATTACH ACCEPT message with a new P-TMSI and timer T3312. The UE acknowledge the new P-TMSI by sending ATTACH COMPLETE message. PS radio contact is distorted before T3312 timeout. PS radio contact is established again (after T3312 timeout), and a routing area updating procedure is performed immediately.

T3312; set to 6 minutes.

Step	Direction	Message	Comments
	UE SS		
	SS		The following messages are sent and shall be
	00		received on cell A.
1 2	SS SS		The SS activates cell A.
2	55		The UE is set in UE operation mode A (see ICS).
3	UE		The UE is powered up or switched on and
			initiates an attach (see ICS).
4	->	ATTACH REQUEST	Attach type = 'PS attach'
			Mobile identity = P-TMSI-1
			P-TMSI-1 signature
_		ATTAOU AGOEST	Routing area identity = RAI-1
5	<-	ATTACH ACCEPT	Attach result = 'PS only attached'
			Mobile identity = P-TMSI-2
			P-TMSI-2 signature Routing area identity = RAI-1
			T3312 = 6 minutes
6	->	ATTACH COMPLETE	10012 - O Minutes
7	SŚ		After 5 minutes, the signal strength is lowered
			until the UE have lost contact with the SS.
8	SS		Wait 2 minutes.
			The following messages are sent and shall be
_	00		received on cell B.
9	SS UE		The SS deactivates cell A and activates cell B.
11	UE		Cell B is preferred by the UE. The UE immediately start a combined RA
''	J JL		updating procedure
12	->	ROUTING AREA UPDATING	Update type = 'Combined RA/LA updating'
		REQUEST	P-TMSI-2 signature
			Routing area identity = RAI-1
			TMSI status = valid TMSI available
13	<-	ROUTING AREA UPDATING	Update result = 'Combined RA/LA updated'
		ACCEPT	Mobile identity = P-TMSI-3
			P-TMSI-3 signature Mobile identity = TMSI-2
			Routing area identity = RAI-4
14	->	ROUTING AREA UPDATE	Trouble district in the second
		COMPLETE	
15	UE		The UE is switched off or power is removed
			(see ICS).
16	->	DETACH REQUEST	Message not sent if power is removed.
			Detach type = 'power switched off, combined
			PS / IMSI detach'

Specific message contents

None.

12.4.3.3.5 Test requirements

At step4, when the UE is powered up or switched on, UE shall:

- initiate a-the PS attach procedure with the information elements specified in the above Expected Sequence—when UE is powered up or switched on.

At step12, When when the UE is both IMSI attached for PS and non-PS service, and if the UE lost coverage of the reiterated PLMN and the timer T3312 expires, if the UE returns to coverage in a cell that supports PS and the network is in network oration mode I, UE shall:

- perform the combined routing area update procedure indicating "combined RA/LA updating with IMSI attach".

12.4.3.4 Combined pPeriodic routing area updating / no cell available

12.4.3.4.1 Definition

12.4.3.4.2 Conformance requirement

If the UE is both IMSI attached for PS and non-PS services, and if the UE lost coverage of the registered PLMN and timer T3312 expires; if the UE returns to coverage in a cell that supports PS and the network is in network operation mode II, then the UE shall perform a periodic routing area update procedure and a periodic location update procedure.

Reference

3GPP TS 24.008 clauses 4.7.2.2 and 4.7.5.2.

12.4.3.4.3 Test purpose

To test the behaviour of the UE with respect to the periodic routing area updating procedure.

12.4.3.4.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.

User Equipment:

The UE has a valid P-TMSI-1, P-TMSI-1 signature and RAI-1.

Idle updated on Cell A

Related ICS/IXIT statements

Support of PS service Yes/No UE operation mode A Yes/No Switch off on button Yes/No Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE initiates a PS attach procedure. The SS reallocates the P-TMSI and returns ATTACH ACCEPT message with a new P-TMSI and timer T3312. The UE acknowledge the new P-TMSI by sending ATTACH COMPLETE message. PS radio contact is distorted before T3312 timeout. PS radio contact is established again (after T3312 timeout), and a periodic routing area updating procedure and a periodic location update procedure is performed immediately.

T3312; set to 6 minutes.

Step	Direction	Message	Comments
	UE SS		
1	UE		The UE is powered up or switched on and
		ATTACLIBEOLIECT	initiates an attach (see ICS).
2	->	ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1
			P-TMSI-1 signature
			Routing area identity = RAI-1
3	<-	ATTACH ACCEPT	Attach result = 'PS only attached'
		ATTAOTTAGGET T	Mobile identity = P-TMSI-2
			P-TMSI-2 signature
			Routing area identity = RAI-1
			T3312 = 6 minutes
4	->	ATTACH COMPLETE	
5-12		(void)	
13	SS		After 5 minutes, the signal strength is lowered
			until the UE have lost contact with the SS.
14	SS		After 2 minutes, the signal strength is increased
4.5			until the UE have got contact with the SS.
15	UE		The UE immediately start the periodic RA
16	->	ROUTING AREA UPDATING	updating procedure Update type = 'Periodic updating'
10	-/	REQUEST	P-TMSI-2 signature
		NEGOEO!	Routing area identity = RAI-1
17	<-	ROUTING AREA UPDATING	No new mobile identity assigned.
		ACCEPT	P-TMSI not included.
			Update result = 'RAupdated'
			P-TMSI-3 signature
			Routing area identity = RAI-1
18	>	RRC CONNECTION REQUEST	
19	-<-	RRC CONNECTION SETUP	
20	->	RRC CONNECTION SETUP COMPLETE	
21	>	LOCATION UPDATING REQ	Location updating type = Periodic LA updating.
22		LOCATION UPDATING ACC	Ecoditor apadimy type = 1 oriodic EA apadimy.
23		RRC CONNECTION RELEASE	After sending of this message, the SS waits for
			disconnection of the CS signalling link.
24	→	RRC CONNECTION RELEASE	ů ů
1		COMPLETE	
25 18	UE		The UE is switched off or power is removed
1			(see ICS).
26 19	->	DETACH REQUEST	Message not sent if power is removed.
			Detach type = 'power switched off, PS detach'

Specific message contents

None.

RRC System information block type 1

Information element	Comment Value
T3212 (Periodical Location updating)	<u>Infinity</u>

12.4.3.4.5 Test requirements

At step2, when the UE is powered up or switched on, UE shall:

- initiate <u>a-the</u> combined PS attach procedure with the information elements specified in the above Expected Sequence when UE is powered up or switched on.

At step16, When the UE is both IMSI attached for PS and non-PS service, and if the UE lost coverage of the reiterated PLMN and the timer T3312 expires, if the UE returns to coverage in a cell in the same RA that supports PS and that indicates that the network is in network operation mode II, UE shall:

____perform the periodic routing area updating procedure indicating "Periodic updating".

perform the periodic location updating procedure.

12.5 P-TMSI reallocation

12.5.1 Definition

12.5.2 Conformance requirement

- 1) A User Equipment shall acknowledge a new P-TMSI when explicitly allocated.
- 2) The P-TMSI shall be updated on the USIM when the User Equipment is correctly deactivated in accordance with the manufacturer's instructions.
- 3) A User Equipment shall use the given P-TMSI in further communication with the network.

Reference

3GPP TS 24.008 clause 4.7.6.

12.5.3 Test purpose

To verify that the UE is able to receive and acknowledge a new P-TMSI by means of an explicit P-TMSI reallocation procedure.

To verify that the UE has stored the P-TMSI in a non-volatile memory.

The implicit reallocation procedure is tested in the attach procedure.

12.5.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
UE operation mode C Yes/No (only if mode A not supported)
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

An explicit P-TMSI reallocation procedure is performed (P-TMSI reallocation command sent from the SS and acknowledged from the UE by P-TMSI reallocation complete). The UE is PS detached and switched off. Its power supply is interrupted for 10 seconds. The power supply is resumed and then the UE is switched on. A PS attach procedure is performed with the given P-TMSI as identity.

Step	Direction UE SS	Message	Comments
1	UE		The UE is set in UE operation mode A (see
	02		ICS). If UE operation mode A not supported set
			the UE in operation mode C.
2	UE		The UE is powered up or switched on and
_			initiates an attach (see ICS).
3	->	ATTACH REQUEST	Attach type = 'PS attach'
4	_	ATTACH ACCEPT	Mobile identity = IMSI
4	<-	ATTACH ACCEPT	Attach result = 'PS only attached' Mobile identity = P-TMSI-1
			P-TMSI-1 signature
			Routing area identity = RAI-1
5	->	ATTACH COMPLETE	
6	<-	P-TMSI REALLOCATION	Mobile identity = P-TMSI-2
		COMMAND	P-TMSI-2 signature
_		D TMOLDEALL COATION	Routing area identity = RAI-1
7	->	P-TMSI REALLOCATION COMPLETE	
8	UE	COMPLETE	The UE is switched off or power is removed
	OL.		(see ICS).
9	->	DETACH REQUEST	Message not sent if power is removed.
			Detach type = 'power switched off, PS detach'
10	UE		Ensure the power is removed from the UE for
			at least 10 seconds
11	UE		The UE is powered up or switched on and
12	->	ATTACH REQUEST	initiates an attach (see ICS). Attach type = 'PS attach'
12	->	ATTACTI REQUEST	Mobile identity = P-TMSI-2
			P-TMSI-2 signature
			Routing area identity = RAI-1
13	<-	ATTACH ACCEPT	No new mobile identity assigned.
			P-TMSI not included.
			Attach result = 'PS only attached'
			P-TMSI-3 signature Routing area identity = RAI-1
14	<-	PAGING TYPE1	Mobile identity = P-TMSI-2
		7.10.11.0	Paging order is for PS services.
15	->	RRC CONNECTION REQUEST	
16	<-	RRC CONNECTION SETUP	
17	->	RRC CONNECTION SETUP	
40		COMPLETE	
18	->	SERVICE REQUEST	service type = "paging response"
19	<-	RRC CONNECTION RELEASE	
20	->	RRC CONNECTION RELEASE	
		COMPLETE	
21	UE		The UE is switched off or power is removed
		DETA 011 DE 01150	(see ICS).
22	->	DETACH REQUEST	Message not sent if power is removed.
			Detach type = 'power switched off, PS detach'

Specific message contents

None.

12.5.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate <u>a-the</u> PS attach procedure with the information elements specified in the above Expected Sequence when UE is powered up or switched on.

After completing the PS attach procedure, and when UE receive of the P TMSI REALLOCATION COMMAND message, UE shall:

— store the allocated Routing Area Identifier(RAI) and the allocated P TMSI.

At step7, when the UE receives P-TMSI REALLOCATION COMMAND message from SS, UE shall:

- —acknowledge a-the_new P-TMSI by sending P-TMSI REALLOCATION COMPLETE message.

At step12, when the UE is powered up or switched on, UE shall:

initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step18, when the UE receives the paging message for PS domain with Mobile identity = P-TMSI-2, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.
- send the P TMSI and a P TMSI REALLOCATION COMPLETE message to SS.
- update P TMSI on the USIM when UE is correctly deactivated in accordance with the manufacturer's instructions.
- use the given P TMSI in further communication with SS.

12.6 PS authentication and ciphering

12.6.1 Test of authentication

The purpose of this procedure is to verify the user identity. A correct response is essential to guarantee the establishment of the connection. If not, the connection will drop.

12.6.1.1 Authentication accepted

12.6.1.1.1 Definition

12.6.1.1.2 Conformance requirement

A User Equipment shall correctly respond in an authentication and ciphering procedure by sending a response with the RES information field set to the same value as the one produced by the authentication and ciphering algorithm in the network.

Reference

3GPP TS 24.008 clause 4.7.7.

12.6.1.1.3 Test purpose

To test the behaviour of the UE if the network accepts the authentication and ciphering procedure.

12.6.1.1.4 Method of test

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4).

Both cells are operating in network operation mode II.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
UE operation mode C Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

A PS attach is performed, and the SS initiates an authentication and ciphering procedure.

The SS checks the value RES sent by the UE in the AUTHENTICATION AND CIPHERING RESPONSE message.

The UE initiates a routing area updating procedure and the SS checks the value of the PS Ciphering Key Sequence Number sent by the UE in the ROUTING AREA REQUEST message.

Step	Direction	Message	Comments
Otop	UE SS	_	Comments
	02 00		The following messages are sent and shall be
			received on cell A.
1	SS		The SS activates cell A.
2	ÜE		The UE is set in UE operation mode C (see
			ICS). If UE operation mode C not supported,
			goto step 17.
3	UE		The UE is powered up or switched on and
			initiates an attach (see ICS).
4	->	ATTACH REQUEST	Attach type = 'PS attach'
			Mobile identity = IMSI
5	<-	AUTHENTICATION AND	Request authentication.
		CIPHERING REQUEST	Set PS-CKSN-1
6	->	AUTHENTICATION AND	RES
		CIPHERING RESPONSE	
7	SS		The SS checks the RES value.
8	<-	ATTACH ACCEPT	Attach result = 'PS only attached'
			Mobile identity = P-TMSI-2
			P-TMSI-2 signature
		ATTACLLCOMPLETE	Routing area identity = RAI-1
9	->	ATTACH COMPLETE	The following messages are sent and shall be
			received on cell B.
10	SS		Activate cell B with a lower signal strength than
'0			cell A The RF level of cell A is lowered until cell
			B is preferred by the UE.
11	->	ROUTING AREA UPDATING	Update type = 'RA updating'
		REQUEST	P-TMSI-2 signature
			Routing area identity = RAI-1
			PS-CKSN-1
12	SS		The value of PS-CKSN is checked
13	<-	ROUTING AREA UPDATING	Update result = 'RA updated'
		ACCEPT	Mobile identity = P-TMSI-1
			P-TMSI-1 signature
			Routing area identity = RAI-4
14	->	ROUTING AREA UPDATING	
4-		COMPLETE	The LIE is excitated off
15	UE		The UE is switched off or power is removed
16		DETACH BEOLIEST	(see ICS).
16	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'
17	SS		Reset the RF level of cell A to default state.
''	33		Deactivate cell B.
18	UE		The UE is set in UE operation mode A (see
10			ICS) and the test is repeated from step 3 to
			step 16.
	l	1	

Specific message contents

None.

12.6.1.1.5 Test requirements

At step4, when the UE is powered on or switched on, UE shall:

- initiate <u>a-the PS</u> attach procedure with information elements specified in the above Expected Sequence when UE is powered on or switched on.

At step6, When when the UE receives the AUTHENTICATION AND CIPHERING REQUEST message form SS, UE shall:

____send the AUTHENTICATION AND CIPHERING RESPONSE message with the RES information field set to the same value as the one produced by the authentication and ciphering algorithm in the network.

At step11, when the RF level of the attached cell is lower than the RF level of the new cell, UE shall:

- perform routing area updating procedure.

12.6.1.2 Authentication rejected by the network

12.6.1.2.1 Definition

12.6.1.2.2 Conformance requirement

- 1) After reception of an Authentication Reject message the UE shall:
 - 1.1 not perform normal routing area updating
 - 1.2 not perform periodic routing area updating
 - 1.3 not perform PS detach if switched off
- 2) The UE shall delete the stored RAI, PS-CKSN P-TMSI and P-TMSI signature. USIM shall be considered invalid until power is switched off or USIM is removed.

Reference

3GPP TS 24.008 clauses 4.7.7.

12.6.1.2.3 Test purpose

To test the behaviour of the UE if the network rejects the authentication and ciphering procedure.

12.6.1.2.4 Method of test

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4). Both cells are operating in network operation mode II.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
UE operation mode C Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

A PS attach is performed, and the SS rejects the authentication and ciphering procedure.

The SS checks that the UE does not perform normal routing area updating, does not perform periodic routing area updating and does not perform PS detach if switched off.

T3312; set to 10 minutes.

Step	Direction	Message	Comments
	UE SS		
1 2	SS UE		The following messages are sent and shall be received on cell A. The SS activates cell A. The UE is set in UE operation mode C (see ICS). If UE operation mode C not supported,
3	UE		goto step 14. The UE is powered up or switched on and initiates an attach (see ICS).
4	->	ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = IMSI
5	<-	AUTHENTICATION AND CIPHERING REQUEST	Request authentication. Set PS-CKSN-1
6	->	AUTHENTICATION AND CIPHERING RESPONSE	RES
7	<-	AUTHENTICATION AND CIPHERING REJECT	
8	<-	PAGING TYPE1	Mobile identity = IMSI Paging order is for PS services.
9	UE		No response from the UE to the request. This is checked for 10 seconds.
10	SS		The following messages are sent and shall be received on cell B. Activate cell B with a lower signal strength than cell A The RF level of cell A is lowered until cell
11	UE		B is preferred by the UE. No ROUTING AREA UPDATING REQUEST sent to the SS
12	UE		(SS waits 30 seconds). No periodic ROUTING AREA UPDATING REQUEST sent to the SS (SS waits T3310 Periodic Routing Area Updating timer (T3312) after the Authentication
13 14	UE SS		and Ciphering Reject message.) The UE is switched off (see ICS). No DETACH REQUEST sent to the SS (SS waits 30 seconds).
15	UE		The UE is set in UE operation mode A (see ICS). Restore cell A and B according to initial conditions. and tThe test is repeated from step 1–3 to step 1–3.

Specific message contents

None.

12.6.1.2.5 Test requirements

At step4, when the UE is powered on or switched on, UE shall:

- initiate <u>a-the PS</u> attach procedure with information elements specified in the above Expected Sequence when UE is powered on or switched on.

At step9, After when the UE receives the AUTHENTICATION AND CIPHERING REJECT message, UE shall:

- not respond paging message for PS domain.

At step11, when the RF level of the attached cell is lower than the RF level of the new cell, UE shall:

— not perform normal routing area updating. when the RF level of the attached cell is lower than the RF level of the new cell.

At step12, when the timer T3312 expires, UE shall:

-_____not perform a periodic routing area updating. when the timer T3312 expires.

At step14, when the UE is switched off, UE shall:

- not perform PS detach when UE is switched offprocedure.
- delete the stored RAI, PS CKSN, P TMSI and P TMSI signature.
- consider the USIM as invalid until power is switched off or USIM is removed.

12.6.1.3 Authentication rejected by the UE

12.6.1.3.1 GMM cause 'MAC failure'

12.6.1.3.1.1 Definition

12.6.1.3.1.2 Conformance requirement

If the UE considers the MAC code (supplied by the core network in the AUTN parameter) to be invalid, the UE shall send AUTHENTICATION AND CIPHERING FAILURE message with the reject cause 'MAC failure' to the System Simulator.

Reference

3GPP TS 24.008 clause 4.7.7.

12.6.1.3.1.3 Test purpose

To test the behaviors of the UE, when the UE considers the MAC code (supplied by the core network in the AUTN parameter) to be invalid.

12.6.1.3.1.4 Method of test

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4).

Both cells are operating in network operation mode II.

The MAC (Message Authentication Code) code, which is included in AUTHENTICATION AND CIPHERING REQUEST, is invalid value.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No UE operation mode A UE operation mode C Switch off on button Yes/No Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

A PS attach is performed, and the SS initiates an authentication and ciphering procedure.

The UE sends AUTHENTICATION AND CIPHERING FAILURE message with reject cause 'MAC failure' to the SS and starts timer T3214.

The SS initiates an identification procedure, upon receipt of a failure message with reject cause 'MAC failure'.

After the identification procedure is complete, the SS re-initiates an authentication and ciphering procedure.

T3360; set to 6 seconds.

T3318; set to 5 seconds.

Expected Sequence

Step	Direction	Message	Comments
	UE SS	3	
1 2	SS UE		The following messages are sent and shall be received on cell A. The SS activates cell A. The UE is set in UE operation mode C (see ICS). If UE operation mode C is not supported,
3 4	UE		goto step 25. The following messages are sent and shall be
5	UE		received on cell A. The UE is powered up or switched on and
6	->	ATTACH REQUEST	initiates an attach (see ICS). Attach type = 'PS attach' Mobility identity = IMSI
7	<-	AUTHENTICATION AND CIPHERING REQUEST	Request authentication. Invalid Message Authentication Code (MAC).
9	->	AUTHENTICATION AND CIPHERING FAILURE	GMM cause='MAC failure'
10 11	<- -> SS	IDENTITY REQUEST IDENTITY RESPONSE	Identity type = IMSI Mobile identity = IMSI
13	<-	AUTHENTICATION AND CIPHERING REQUEST	Request authentication. Including PS-CSKN-1
14	->	AUTHENTICATION AND CIPHERING RESPONSE	RES
15	SS		The SS checks the RES value.
16	<- ->	ATTACH ACCEPT ATTACH COMPLETE	Attach result = 'PS only attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-1
			The following messages are sent and shall be
18 19	SS ->	ROUTING AREA UPDATING REQUEST	received on cell B. Cell B is activated and cell A is deactivated. Update type = 'RA updating' P-TMSI-2 signature Routing area identity = RAI-1 PS-CKSN-1
20 21	SS <-	ROUTING AREA UPDATING ACCEPT	The value of PS-CKSN is checked Update result = 'RA updated' Mobile identity = P-TMSI-1 P-TMSI-1 signature
22	->	ROUTING AREA UPDATING COMPLETE	Routing area identity = RAI-2
23	UE		The UE is switched off or power is removed
24	->	DETACH REQUEST	(see ICS). Message is not sent if power is removed. Detach type = 'power switched off, PS detach'
25	UE		The UE is set in UE operation mode A (see ICS) and the test is repeated from step 1 to step 24.

Specific message contents

None.

12.6.1.3.1.5 Test requirements

At step6, when the UE is powered on or switched on, UE shall:

—initiate a-the PS attach procedure with information element specified in the above Expected Sequence—when UE is powered on or switched on.

At step9, when the UE receives the AUTHENTICATION AND CIPHERING REQUEST with Invalid Message Authentication Code, UE shall:

- send an-the AUTHENTICATION AND CIPHERING FAILURE message with GMM cause 'MAC failure' to the SS

- start timer T3318.

<u>At step11, After-when the UE receives the IDENTITY REQUEST message with Identity type = IMSI from SS, UE shall:</u>

- send the IDENTITY RESPONSE message with Mobile identity = IMSI to SS.

At step14, After when the UE receives the second AUTHENTICATION AND CIPHERING REQUEST message (containing a valid MAC) from SS, UE shall:

- stop timer T3318, if running
- send the AUTHENTICATION AND CIPHERING RESPONSE message to SS.

12.6.1.3.2 GMM cause 'Synch failure'

12.6.1.3.2.1 Definition

12.6.1.3.2.2 Conformance requirement

If the UE considers the SQN (supplied by the core network in the AUTN parameter) to be out of range, the UE shall send AUTHENTICATION AND CIPHERING FAILURE message with the reject cause 'Synch failure' to the System Simulator.

Reference

3GPP TS 24.008 clause 4.7.7.

12.6.1.3.2.3 Test purpose

To test the behaviors of the UE, when the UE considers the SQN (supplied by the core network in the AUTN parameter) to be out of range.

12.6.1.3.2.4 Method of test

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4).

Both cells are operating in network operation mode II.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A
UE operation mode C
Switch off on button
Yes/No
Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

A PS attach is performed, and the SS initiates an authentication and ciphering procedure.

UE sends AUTHENTICATION AND CIPHERING FAILURE message with reject cause 'synch failure' to the SS and starts timer T3214.

SS re-initiates an authentication and ciphering procedure.

T3360; set to 6 seconds.

T3320; set to 15 seconds.

Expected Sequence

Step	Direction	Message	Comments
	UE SS	1	
			The following messages are sent and shall be
	00		received on cell A.
1	SS		The SS activates cell A.
2	UE		The UE is set in UE operation mode C (see
			ICS). If UE operation mode C is not supported,
			goto step 21.
			The following messages are sent and shall be received on cell A.
3	UE		The UE is powered up or switched on and
3	00		initiates an attach (see ICS).
4	->	ATTACH REQUEST	Attach type = 'PS attach'
4	>	ATTACTI REQUEST	Mobility identity = IMSI
5	<-	AUTHENTICATION AND	Request authentication.
3	ζ-	CIPHERING REQUEST	SQN is out of range.
6	SS	CII FIERING REQUEST	The SS starts the timer T3360
7	->	AUTHENTICATION AND	GMM cause = 'Synch failure'
'		CIPHERING FAILURE	AUTS parameter
8	SS	OII FIERMO FAILORE	set new authentication vectors. (re-
			synchronisation)
9	<-	AUTHENTICATION AND	Request authentication.
		CIPHERING REQUEST	Including PS-CKSN-1
10	->	AUTHENTICATION AND	RES
		CIPHERING RESPONSE	
11	SS		The SS checks the RES value.
12	<-	ATTACH ACCEPT	Attach result = 'PS only attached'
			Mobile identity = P-TMSI-2
			P-TMSI-2 signature
			Routing area identity = RAI-1
13	->	ATTACH COMPLETE	
			The following messages are sent and shall be
			received on cell B.
14	SS		
			Cell B is activated, cell A is deactivated.
15	->	ROUTING AREA UPDATING	Update type = 'RA updating'
		REQUEST	P-TMSI-2 signature
			Routing area identity = RAI-1
40	00		PS-CKSN-1
16	SS	ROUTING AREA UPDATING	The value of PS-CKSN is checked
17	<-		Update result = 'RA updated'
		ACCEPT	Mobile identity = P-TMSI-1
			P-TMSI-1 signature
1	l	l	Routing area identity = RAI-2

Step	Direction		Message	Comments
	UE	SS		
18	T	>	ROUTING AREA UPDATING COMPLETE	
19	U	E		The UE is switched off or power is removed (see ICS).
20	T	>	DETACH REQUEST	Message is not sent if power is removed. Detach type = 'power switched off, PS detach'
21	U	E		The UE is set in UE operation mode A (see ICS) and the test is repeated from step 1 to step 20.

Specific message contents

None.

12.6.1.3.2.5 Test requirements

At step4, when the UE is powered on or switched on, UE shall:

—initiate a the PS attach procedure with information element specified in the above Expected Sequence when UE is powered on or switched on.

At step7, when the UE receives the AUTHENTICATION AND CIPHERING REQUEST message(SQN is out of range.), UE shall:

- send the AUTHENTICATION AND CIPHERING FAILURE message with GMM cause 'synch failure' to the SS
- start timer T3320.

At step10, After when the UE receives the second AUTHENTICATION AND CIPHERING REQUEST message from SS, UE shall:

- stop timer T3320, if running.
- —send the AUTHENTICATION AND CIPHERING RESPONSE message to SS.

At step15, when the RF level of the attached cell is lower than the RF level of the new cell, UE shall:

- perform routing area updating procedure.

12.6.1.3.3 Authentication rejected by the UE / fraudulent network

12.6.1.3.3.1 Definition

12.6.1.3.3.2 Conformance requirement

It can be assumed that the source of the authentication challenge is not genuine (authentication not accepted by the UE) if any of the following occur:

- After sending the AUTHENTICATION & CIPHERING FAILURE message with GMM cause 'MAC failure' the timer T3318 expires;
- Upon receipt of the second AUTHENTICATION & CIPHERING REQUEST message from the network while the T3318 is running and the MAC value cannot be resolved.

If the UE deems that the network has failed in the authentication check, then the UE shall treat the cell where the AUTHENTICATION & CIPERHERING REQUEST message was received as barred, until System Information is refreshed.

Reference

3GPP TS 24.008 clause 4.7.7.6.1.

12.6.1.3.3.3 Test purpose

To test UE treating a cell as barred:

- 1. when the network sends the second AUTHENTICATION & CIPHERING REQUEST message with invalid MAC code during the timer T3318 is running.
- 2. when the timer T3318 has expired.

12.6.1.3.3.4 Method of test

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1(RAI-1), cell B in MCC1/MNC1/LAC1/RAC2(RAI-2). Both cells are operating in network operation mode II.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No UE operation mode A Yes/No UE operation mode C Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

Two cells are configured. Cell A transmits with higher power so that the UE attempts an attach procedure to cell A.

During the attach procedure, the SS initiates an authentication and ciphering procedure but it sends an incorrect Message Authentication Code (MAC) value in its AUTHENTICATION AND CIPHERING REQUEST message.

The UE sends AUTHENTICATION AND CIPHERING FAILURE message to the SS indicating authentication failure.

The SS repeats a second time the authentication procedure, which fails again. Next, the UE shall attempt to attach to cell B, which again fails. In this case T3318 expires after the second attempt.

The UE shall treat now both cells as barred and shall not attempt to access the network, even if the user triggers the UE to perform an attach procedure.

Step	Direction	Message	Comments
_	UE SS		
1	SS		The SS is configures two cells A and B. Cell A transmits with higher power levels, so that the UE selects cell A for attaching. The following messages are sent and shall be
2	UE		received on cell A. The UE is powered up or switched on and
3	->	ATTACH REQUEST	initiates an attach procedure. Attach type = 'PS attach' Mobility identity = IMSI
4	<-	AUTHENTICATION AND CIPHERING REQUEST	Request for authentication. Invalid Message Authentication Code (MAC).
5	->	AUTHENTICATION AND CIPHERING FAILURE	GMM cause='MAC failure'
6	<-	AUTHENTICATION AND CIPHERING REQUEST	Request for authentication. Invalid Message Authentication Code (MAC).
7	->	AUTHENTICATION AND CIPHERING FAILURE	GMM cause='MAC failure'
8	SS	OII FIERING FAILORE	SS verifies that the UE does not attempt to access the network for 30s.
9	SS		The SS deactivates cell A and activates cell B.
10	UE		UE shall attempt an attach on cell B. The following messages are sent and shall be received on cell B. The UE initiates an attach by MMI or AT command.
11	->	ATTACH REQUEST	Attach type = 'PS attach' Mobility identity = IMSI
12	<-	AUTHENTICATION AND CIPHERING REQUEST	Request for authentication. Invalid Message Authentication Code (MAC).
13	->	AUTHENTICATION AND CIPHERING FAILURE	GMM cause='MAC failure'
14	SS		SS waits T3318 (20s)
15	SS		SS verifies that the UE does not attempt to access the network for 30s.
16	UE		The UE initiates an attach by MMI or AT command.
17	SS		SS verifies that the UE does not attempt to access the network for 30s.

Specific message contents

None.

12.6.1.3.3.5 Test requirements

At step3, when the UE is powered on or switched on, UE shall:

- initiate <u>a the PS</u> attach procedure with information elements specified in the above Expected Sequence—when UE is powered on or switched on.

At step5, After when the UE receives the AUTHENTICATION AND CIPHERING REQUEST message with invalid Message Authentication Code (MAC), UE shall:

- send an-the AUTHENTICATION AND CIPHERING FAILURE message with GMM cause 'MAC failure' to the SS.

At step7, After-when the UE receives the second AUTHENTICATION AND CIPHERING REQUEST message with invalid Message Authentication Code (MAC) from the network during a timer T3318 is running, UE shall:

- send an AUTHENTICATION AND CIPHERING FAILURE message with GMM cause 'MAC failure' to the SS.

At step11, After when the activated cell is changed from cell A to cell B, UE shall:

- initiate <u>a-the PS</u> attach procedure with information elements specified in the above Expected Sequence.

At step13, when After the UE receives the AUTHENTICATION AND CIPHERING REQUEST message with invalid Message Authentication Code (MAC), UE shall:

- send an AUTHENTICATION AND CIPHERING FAILURE message with GMM cause 'MAC failure' to the SS.

At step17, After when a the timer T3318 is expired, UE shall:

- not attempt to access the network.

12.6.2 Void

12.7 Identification procedure

The purpose of this procedure is to check that the UE gives its identity as requested by the network. If this procedure does not work, it will not be possible for the network to rely on the identity claimed by the UE.

12.7.1 General Identification

12.7.1.1 Definition

12.7.1.2 Conformance requirement

- 1) When requested by the network the User Equipment shall send its IMSI.
- 2) When requested by the network the User Equipment shall send its IMEI as stored in the Mobile Equipment.
- 3) When requested by the network the User Equipment shall send its IMEISV as stored in the Mobile Equipment.

Reference

3GPP TS 24.008 clauses 4.7.8

12.7.1.3 Test purpose

To verify that the UE sends identity information as requested by the system. The following identities can be requested: IMSI, IMEI and IMEISV.

12.7.1.4 Method of test

Initial condition

System Simulator:

One cell operating in network mode II.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
UE operation mode C Yes/No
Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS requests identity information from the UE:

- IMSI
- IMEI
- IMEISV

Expected Sequence

Step	Direction	Message	Comments
	UE SS		
1	SS		The UE is set in UE operation mode C (see ICS). If UE operation mode C not supported,
2	UE		goto step 14. The UE is powered up or switched on and initiates an attach (see ICS).
3	->	ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = IMSI
4	<-	ATTACH ACCEPT	Attach result = 'PS only attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-1
5	->	ATTACH COMPLETE	
6	<-	IDENTITY REQUEST	Identity type = IMSI
7	->	IDENTITY RESPONSE	Mobile identity = IMSI
8	<-	IDENTITY REQUEST	Identity type = IMEI
9	->	IDENTITY RESPONSE	Mobile identity = IMEI
10	<-	IDENTITY REQUEST	Identity type = IMEISV
11	->	IDENTITY RESPONSE	Mobile identity = IMEISV
12	UE		The UE is switched off or power is removed (see ICS).
13	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'
14	UE		The UE is set in UE operation mode A (see ICS) and the test is repeated from step 2 to step 13.

Specific message contents

None.

12.7.1.5 Test requirements

At step3, when the UE is powered on or switched on, UE shall:

- initiate <u>a the PS</u> attach procedure with information elements specified in the above Expected Sequence when UE is powered on or switched on.

At step7, When when the SS requests an IMSI with the IDENTITY REQUEST message, UE shall:

- send the IDENTITY RESPONSE message with the Mobile identity = IMSI.

At step9, When when the SS requests an IMEI with the IDENTITY REQUEST message, UE shall:

- send the IDENTITY RESPONSE message with the Mobile identity = IMEI.

At step11, When when the SS requests an IMEISV with the IDENTITY REQUEST message, UE shall:

- send the IDENTITY RESPONSE message with the Mobile identity = IMEISV.

12.8 GMM READY timer handling

The READY timer is not applicable for UMTS.

12.8.1 Definition

12.8.2 Conformance requirement

If a READY timer value is received by an UE capable of both UMTS and GSM in the ATTACH ACCEPT or the ROUTING AREA UPDATE ACCEPT messages, then the received value shall be stored by the UE in order to be used at an intersystem change from UMTS to GSM.

Reference

3GPP TS 24.008 clause 4.7.2.1

12.8.3 Test purpose

To verify the functionality of the READY timer.

12.8.4 Method of test

12.8.4.1 Test procedure1

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC1 (RAI-1).

Both cells are operating in network operation mode II.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

An attach is performed.

T3314; set to 60 seconds

Step	Direction	Message	Comments
	UE SS		
			The following messages are sent and shall be
			received on cell A.
1	SS		The SS activates cell A.
2	UE		The UE is set in UE operation mode A (see
			ICS). If UE operation mode A not supported set
			the UE in operation mode C.
			The UE is powered up or switched on and
			initiates an attach (see ICS).
3	->	ATTACH REQUEST	Attach type = 'PS attach'
			Mobile identity = IMSI
4	<-	ATTACH ACCEPT	Attach result = 'PS only attached'
			Mobile identity = P-TMSI-2
			P-TMSI-2 signature
			Routing area identity = RAI-1
			T3314 = 60 seconds
5	->	ATTACH COMPLETE	
6	UE		The UE is switched off or power is removed
			(see ICS).
7	->	DETACH REQUEST	Message not sent if power is removed.
			Detach type = 'power switched off, PS detach'

Specific message contents

None.

12.8.5 Test requirements

At step4, When when the UE receives the ATTACH ACCEPT or the ROUTING AREA UPDATE ACCEPT messages, UE shall:

- store the received READY timer value.

12.9 Service Request procedure (UMTS Only)

12.9.1 Service Request Initiated by UE Procedure

12.9.1.1 Definition

12.9.1.2 Conformance requirement

UE shall send the Service Request message to the network in order to establish the PS signalling connection for the upper layer signalling or for the resource reservation for active PDP context(s).

Reference

TS 24.008 clauses 4.7.13

TS 23.060 clauses 6.12.1

12.9.1.3 Test purpose

To test the behaviour of the UE if the UE initiates the CM layer service (e.g. SM or SMS) procedure.

12.9.1.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.

User Equipment:

The UE has a valid IMSI

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode A Yes/No UE operation mode C Yes/No

Switch off on button Yes/No

Test procedure

- a) The UE in PMM-IDLE state sends a SERVICE REQUEST message to the SS in order to establish the PS signalling connection for the upper layer signalling.
- b) After the SS receives the SERVICE REQUEST message, the SS performs authentication procedure.

Expected Sequence

Step	Direction	Message	Comments
	UE SS		
1	UE		The UE is set in UE operation mode C(see
			ICS). If UE operation mode C not supported,
_			goto step 12.
2	UE		The UE is powered up or switched on and
3	->	ATTACH REQUEST	initiates an attach (see ICS). Attach type = 'PS attach'
3	->	ATTACH REQUEST	Mobile identity = IMSI
4	<-	ATTACH ACCEPT	Attach result = 'PS only attached'
			Mobile identity = P-TMSI-1
			P-TMSI-1 signature
			Routing area identity = RAI-1
5	->	ATTACH COMPLETE	
6	UE		The UE initiates an upper-layer signalling, e.g.,
			Active PDP Context request, by MMI or by AT
7	->	SERVICE REQUEST	command.
8	-> <-	AUTHENTICATION AND	Service type = "signalling",
		CIPHERING REQUEST	
9	->	AUTHENTICATION AND	
		CIPHERING RESPONSE	
10	UE		The UE is switched off or power is removed
			(see ICS).
11	->	DETACH REQUEST	Detach type = 'power switched off, PS detach'
12	UE		The UE is set in UE operation mode A (see
			ICS) and the test is repeated from step 2 to
			step 11.

Specific message contents

None.

12.9.1.5 Test requirements

At step3, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence .

At step7, When when the UE has any signalling message (e.g. for SM or SMS) that requires security protection, the UE shall:

- send the SERVICE REQUEST message with service type indicated "signalling".

12.9.2 Service Request Initiated by Network Procedure

12.9.2.1 Definition

12.9.2.2 Conformance requirement

When the UE receives a paging request for PS domain from the network in PMM-IDLE mode, the UE shall send the SERVICE REQUEST message to the network.

Reference

TS 24.008 clauses 4.7.13

TS 23.060 clauses 6.12.2

12.9.2.3 Test purpose

To test the behavior of the UE if the UE receives the paging request for PS domain service from the network.

12.9.2.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.

User Equipment:

The UE has a valid IMSI

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode A Yes/No

UE operation mode C Yes/No

Switch off on button Yes/No

Test procedure

- a) The UE is in PMM-IDLE state. The SS pages the UE by sending a Paging message to the UE.
- b) The UE sends a SERVICE REQUEST message to the SS. Service Type specifies Paging Response. The Service Request is carried over the radio in an RRC Direct Transfer message.
- c) After the SS receives the SERVICE REQUEST message from the UE, SS initiates an authentication procedure.

Step	Direction	Message	Comments
	UE SS		
1	ÜE		The UE is set in UE operation mode C(see ICS). If UE operation mode C not supported, goto step 12.
2	UE		The UE is powered up or switched in and initiates an attach (see ICS).
3	->	ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = IMSI
4	<-	ATTACH ACCEPT	Attach result = 'PS only attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-1
5	->	ATTACH COMPLETE	
6	<-	PAGING TYPE1	
7	->	SERVICE REQUEST	Service type = "Paging response"
8	<-	AUTHENTICATION AND CIPHERING REQUEST	
9	->	AUTHENTICATION AND CIPHERING RESPONSE	
10	UE		The UE is switched off or power is removed (see ICS).
11	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'
12	UE		The UE is set in UE operation mode A (see ICS) and the test is repeated from step 2 to step 11.

Specific message contents

None.

12.9.2.5 Test requirements

At step3, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence .

At step6. When when the UE receives a paging request for PS domain from the network in PMM-IDLE mode, the UE shall:

- send the SERVICE REQUEST message with service type indicated "paging response".

12.9.3 Service Request / rejected / Illegal MS

12.9.31 Definition

12.9.3.2 Conformance requirement

If the network rejects a service request procedure from the UE with the cause "Illegal MS", the UE shall:

- 1) set the GPRS update status to GU3 ROAMING NOT ALLOWED and enter state GMM DEREGISTRATED.
- 2) delete any P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number.
- 3) consider the USIM as invalid for PS service until switched off or the USIM is removed.

Reference

TS 24.008 clauses 4.7.13.4

12.9.3.3 Test purpose

To test the behaviour of the UE if the network rejects the service request procedure with the cause "Illegal MS".

12.9.3.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.

User Equipment:

The UE has a valid P-TMSI-1, P-TMSI-1 signature, RAI-1 and IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode A Yes/No UE operation mode C Yes/No

Switch off on button Yes/No

Test procedure

- a) The UE sends a SERVICE REQUEST message to the SS in order to establish the PS signalling connection for the upper layer signalling.
- b) After the SS receiving the SERVICE REQUEST message, the SS sends a SERVICE REJECT message with the cause value #3(Illegal MS).
- c) After the UE receives the SERVICE REJECT message with the cause value #3(Illegal MS), the UE deletes any P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number.
- d) The SS checks that the UE does not initiate an upper-layer signalling until the power of the UE is switched off.
- e) The SS checks that the UE does not initiate an upper-layer signalling until the USIM is removed from the UE.

Step	Direction UE SS	Message	Comments
	•		The following message are sent and shall be
1	UE		received on cell A. The UE is set in UE operation mode C (see
!	OE		ICS).
2	SS		The SS is set in network operation mode II and
3	UE		activates cell A. The UE is powered up or switched on and
	OL		initiates an attach (see ICS). Cell A is preferred
			by the UE.
4	->	ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1
			P-TMSI-1 signature
_		ATTACH ACCEPT	Routing area identity = RAI-1
5	<-	ATTACH ACCEPT	No new mobile identity assigned. P-TMSI and P-TMSI signature not included.
			Routing area identity = RAI-1
		ATTACH COMPLETE	Attach result = 'PS only attached'
6	-> UE	ATTACH COMPLETE	The UE initiates an upper-layer signalling, e.g.,
	<u> </u>		Active PDP Context request, by MMI or by AT
		CEDVICE DECLIECT	command.
8	-> <-	SERVICE REQUEST SERVICE REJECT	Service type = "signalling" Reject cause = "Illegal MS"
10	UE		The UE initiates an upper-layer signalling, e.g.,
			Active PDP Context request, by MMI or by AT
11	SS		command. The SS verifies that the UE does not attempt to
			access the network.
12	UE		(SS waits 30 seconds) The UE is switched off.
13	->	DETACH REQUEST	Detach type = 'power switched off, PS detach'
14	UE		The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred
			by the UE.
15	->	ATTACH REQUEST	Attach type = 'PS attach'
16	<-	ATTACH ACCEPT	Mobile identity = IMSI Attach result = 'PS only attached'
			Mobile identity = P-TMSI-1
			P-TMSI-1 signature Routing area identity = RAI-1
17	->	ATTACH COMPLETE	Routing area identity = RAI-1
18	UE		The UE initiates an upper-layer signalling, e.g.,
			Active PDP Context request, by MMI or by AT command.
19	->	SERVICE REQUEST	Service type = "signalling"
20	<-	SERVICE REJECT	Reject cause = "Illegal MS"
21	UE		The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT
			command.
22	SS		The SS verifies that the UE does not attempt to access the network.
			(SS waits 30 seconds)
23	UE		USIM is removed.
24	-> UE	DETACH REQUEST	USIM is inserted.
25	UE		The UE initiates a PS attach, by MMI or by AT
22		ATTACH DECUEST	command.
26	->	ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = IMSI
27	<-	ATTACH ACCEPT	Attach result = 'PS only attached'
			Mobile identity = P-TMSI-1
			P-TMSI-1 signature Routing area identity = RAI-1

Step	Direction	Message	Comments
	UE SS		
28	->	ATTACH COMPLETE	
29	UE		The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT
			command.
30	->	SERVICE REQUEST	Service type = "signalling"

Specific message contents

None.

12.9.3.5 Test requirements

At step4, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence .

At step11, When when the UE receives the SERVICE REJECT message with cause "Illegal MS" UE shall:

- not attempt to access the network.

At step15, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence .

At step22, when the UE receives the SERVICE REJECT message with cause "Illegal MS" UE shall:

- not attempt to access the network.

At step26, when the USIM is replaced, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence .

At step30, UE shall:

- initiate the service request procedure.
 - delete any P TMSI, P TMSI signature, RAI and GPRS ciphering key sequence number.
 - consider the USIM as invalid for PS services until the UE is switched off.
 - consider the USIM as invalid for PS service until USIM is removed.

12.9.4 Service Request / rejected / PS services not allowed

12.9.41 Definition

12.9.4.2 Conformance requirement

If the network rejects a service request procedure from the UE with the cause "PS services not allowed", the UE shall:

- 1) set the GPRS update state to GU3 ROAMING NOT ALLOWED.
- 2) delete any P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number.
- 3) consider the USIM as invalid for PS service until the UE is switched off or until the USIM is removed.

Reference

TS 24.008 clauses 4.7.13.4

12.9.4.3 Test purpose

To test the behaviour of the UE if the network rejects the service request procedure with the cause "PS service not allowed".

12.9.4.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.

User Equipment:

The UE has a valid P-TMSI-1, P-TMSI-1 signature and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode A Yes/No UE operation mode C Yes/No

Switch off on button Yes/No

Test procedure

- a) The UE sends a SERVICE REQUEST message to the SS in order to establish the PS signalling connection for the upper layer signalling.
- b) After the SS receiving the SERVICE REQUEST message, the SS sends a SERVICE REJECT message with the cause value #7(PS services not allowed).
- c) After the UE receives the SERVICE REJECT message with the cause value #7(PS services not allowed), the UE deletes any P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number.
- d) The SS checks that the UE does not initiate an upper-layer signalling until the UE is switched off.
- e) The SS checks that the UE does not initiate an upper-layer signalling until the USIM is removed from the UE.

Step	Direction UE SS	Message	Comments
	02 00		The following message are sent and shall be
			received on cell A.
1	UE		The UE is set in UE operation mode C (see
2	SS		ICS). The SS is set in network operation mode II and
	33		activates cell A.
3	UE		The UE is powered up or switched on and
			initiates an attach (see ICS). Cell A is preferred
4	_	ATTACH REQUEST	by the UE.
4	->	ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1
			P-TMSI-1 signature
			Routing area identity = RAI-1
5	<-	ATTACH ACCEPT	No new mobile identity assigned.
			P-TMSI and P-TMSI signature not included. Routing area identity = RAI-1
			Attach result = 'PS only attached'
6	->	ATTACH COMPLETE	l and a surface of the surface of th
7	UE		The UE initiates an upper-layer signalling, e.g.,
			Active PDP Context request, by MMI or by AT
8	->	SERVICE REQUEST	command. Service type = "signalling"
9	<-	SERVICE REJECT	Reject cause = "PS services not allowed"
10	UE		The UE initiates an upper-layer signalling, e.g.,
			Active PDP Context request, by MMI or by AT
11	SS		command. The SS verifies that the UE does not attempt to
''	33		access the network.
			(SS wait 30seconds)
12	UE		The UE is switched off.
13 14	-> UE	DETACH REQUEST	Detach type = 'power switched off, PS detach'
14	UE		The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred
			by the UE.
15	->	ATTACH REQUEST	Attach type = 'PS attach'
40		ATTACILACOERT	Mobile identity = IMSI
16	<-	ATTACH ACCEPT	Attach result = 'PS only attached' Mobile identity = P-TMSI-1
			P-TMSI-1 signature
			Routing area identity = RAI-2
17	->	ATTACH COMPLETE	
18	UE		The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT
			command.
19	->	SERVICE REQUEST	Service type = "signalling"
20	<-	SERVICE REJECT	Reject cause = "PS services not allowed"
21	UE		The UE initiates an upper-layer signalling, e.g.,
			Active PDP Context request, by MMI or by AT command.
22	SS		The SS verifies that the UE does not attempt to
			access the network.
00			(SS wait 30seconds)
23 24	UE ->	DETACH REQUEST	USIM is removed.
	UÉ		USIM is inserted.
25	UE		The UE initiates a PS attach, by MMI or by AT
00		ATTACH DECLIEGT	command.
26	->	ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = IMSI
27	<-	ATTACH ACCEPT	Attach result = 'PS only attached'
			Mobile identity = P-TMSI-1
			P-TMSI-1 signature
20	_	ATTACH COMPLETE	Routing area identity = RAI-3
28	->	ATTACH COMPLETE	

Step	Direction		Message	Comments
	UE	SS		
29	U	E		The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT
30	-;	>	SERVICE REQUEST	command. Service type = "signalling"

Specific message contents

12.9.4.5 Test requirements

At step4, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence .

At step11, When when the UE receives the SERVICE REJECT message with cause "PS services not allowed" UE shall:

- not attempt to access the network.

At step15, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence .

At step22, when the UE receives the SERVICE REJECT message with cause "PS services not allowed" UE shall:

not attempt to access the network.

At step26, when the USIM is replaced, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence .

At step30, UE shall:

- initiate the service request procedure.
 - delete any P TMSI, P TMSI signature, RAI and GPRS ciphering key sequence number
 - consider the USIM as invalid for PS services until the UE is switched off.
 - consider the USIM as invalid for PS services until USIM is removed.

12.9.5 Service Request / rejected / MS identity cannot be derived by the network

12.9.5.1 Definition

12.9.5.2 Conformance requirement

If the network rejects a service request procedure from the UE with the cause "MS identity cannot be derived by the network", the UE shall:

- 1) set the GPRS update states to GU2 NOT UPDATED.
- 2) delete any P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number.
- 3) initiate the PS attach procedure automatically.

Reference

TS 24.008 clauses 4.7.13.4

12.9.5.3 Test purpose

To test the behaviour of the UE if the network rejects the service request procedure with the cause "MS identity cannot be derived by the network".

12.9.5.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.

User Equipment:

The UE has a valid P-TMSI-1, P-TMSI-1 signature and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode A Yes/No UE operation mode C Yes/No

Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

- a) The UE sends a SERVICE REQUEST message to the SS in order to establish the PS signalling connection for the upper layer signalling.
- b) After the SS receiving the SERVICE REQUEST message, the SS sends a SERVICE REJECT message with the cause value #9 (MS identity cannot be derived by the network).

Step	Direction	Message	Comments
-	UE SS	1	
	•		The following message are sent and shall be
			received on cell A.
1	UE		The UE is set in UE operation mode C (see
			ICS).
2	SS		The SS is set in network operation mode II and
			activates cell A.
3	UE		The UE is powered up or switched on and
			initiates an attach (see ICS). Cell A is preferred
			by the UE.
4	->	ATTACH REQUEST	Attach type = 'PS attach'
			Mobile identity = P-TMSI-1
			P-TMSI-1 signature
_		ATTACH ACCEPT	Routing area identity = RAI-1
5	<-	ATTACH ACCEPT	No new mobile identity assigned.
			P-TMSI and P-TMSI signature not included.
			Routing area identity = RAI-1
_	_	ATTACH COMPLETE	Attach result = 'PS only attached'
6	-> UE	ATTACH COMPLETE	The LIE initiates on unner lever signalling of
/	UE		The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT
			command.
8	->	SERVICE REQUEST	Service type = "signalling"
9	<-	SERVICE REJECT	Reject cause = "MS identity cannot be derived
		OERVIOL REGEOT	by the network"
10	UE		The UE automatically initiates the PS attach
	02		procedure.
11	->	ATTACH REQUEST	Attach type = 'PS attach'
			Mobile identity = IMSI
12	<-	ATTACH ACCEPT	Attach result = 'PS only attached'
			Mobile identity = P-TMSI-2
			P-TMSI-2 signature
13	->	ATTACH COMPLETE	
14	UE		The UE initiates an upper-layer signalling, e.g.,
			Active PDP Context request, by MMI or by AT
			command.
15	->	SERVICE REQUEST	Service type = "signalling"
16	UE		The UE is switched off or power is removed
1			(see ICS).
17	->	DETACH REQUEST	Message not sent if power is removed.
			Detach type = 'power switched off, PS detach'

Specific message contents

None.

12.9.5.5 Test requirements

At step4, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence .

At step11, When when the UE receives the SERVICE REJECT message with cause "MS identity cannot be derived by the network" UE shall:

- delete any P-TMSI, P-TMSI signature, RAI and GPRS eiphering key sequence number.

After the UE deletes any P TMSI, P TMSI signature, RAI and GPRS ciphering key sequence number, UE shall:

- initiate PS attach procedure automatically.

12.9.6 Service Request / rejected / PLMN not allowed

12.9.6.1 Definition

12.9.6.2 Conformance requirement

If the network rejects a service request procedure from the UE with the cause "PLMN not allowed", the UE shall:

- 1) delete any RAI, P-TMSI, P-TMSI signature and GPRS ciphering key sequence number.
- 2) set the GPRS update status to GU3 ROAMING NOT ALLOWED.
- 3) store the LAI or the PLMN identity in the appropriate forbidden list.

Reference

TS 24.008 clauses 4.7.13.4

12.9.6.3 Test purpose

To test the behaviour of the UE if the network rejects the service request procedure with the cause "PLMN not allowed".

12.9.6.4 Method of test

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 cell B in MCC2/MNC1/LAC1/RAC1.

All two cells are operating in network operation mode II.

User Equipment:

The UE has a valid P-TMSI-1, P-TMSI-1 signature and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode A Yes/No UE operation mode C Yes/No

Switch off on button Yes/No

Test procedure

- a) The UE sends a SERVICE REQUEST message to the SS in order to establish the PS signalling connection for the upper layer signalling.
- b) After the SS receiving the SERVICE REQUEST message, the SS sends a SERVICE REJECT message with the cause value #11 (PLMN not allowed).
- c) The SS checks that the UE does not initiate an upper-layer signalling until the UE is switched off.
- d) The SS checks that the UE does not answer a Page from the SS until the power of the UE is switched off.

Step	Direction UE SS	Message	Comments
	02 00		The following message are sent and shall be
			received on cell A.
1	UE		The UE is set in UE operation mode C (see
			ICS).
2	SS		The SS is set in network operation mode II and activates cell A.
3	UE		The UE is powered up or switched on and
	02		initiates an attach (see ICS). Cell A is preferred
			by the UE.
4	->	ATTACH REQUEST	Attach type = 'PS attach'
			Mobile identity = P-TMSI-1
			P-TMSI-1 signature Routing area identity = RAI-1
5	<-	ATTACH ACCEPT	No new mobile identity assigned.
	`	THE THOUSE I	P-TMSI and P-TMSI signature not included.
			Routing area identity = RAI-1
			Attach result = 'PS only attached'
6	->	ATTACH COMPLETE	
7	UE		The UE initiates an upper-layer signalling, e.g.,
			Active PDP Context request, by MMI or by AT command.
8	->	SERVICE REQUEST	Service type = "signalling"
9	<-	SERVICE REJECT	Reject cause = "PLMN not allowed"
10	UE		The UE stores the LAI or the PLMN identity in
			the "forbidden PLMN list".
11	UE		The UE initiates an upper-layer signalling, e.g.,
			Active PDP Context request, by MMI or by AT
12	SS		command. The SS verifies that the UE does not attempt to
12			access the network.
			(SS wait 30second)
13	<-	PAGING TYPE1	Paging order is for PS service
14	UE		No response from the UE to the request. This
			is checked for 10 seconds.
			The following messages shall be sent and shall be received on cell B.
15	SS		The SS deactivates cell A and activates cell B.
16	ÜE		Cell D is preferred by the UE.
17	UE		The UE initiates an attach automatically, by
4.0		ATTACH DECLIEST	MMI or by AT command.
18	->	ATTACH REQUEST	Attach type = 'PS attach'
19	<-	ATTACH ACCEPT	Mobile identity = IMSI Mobile identity = P-TMSI-2
'		7.1.7.0.17.0021	P-TMSI-2 signature
			Routing area identity = RAI-2
			Attach result = 'PS only attached'
20	->	ATTACH COMPLETE	
21	UE		The UE is switched off or power is removed
22		DETACH REQUEST	(see ICS).
	->	PLIACITICACEST	

Specific message contents

None.

12.9.6.5 Test requirements

At step4, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence .

At step12, When when the UE receives the SERVICE REJECT message with cause "PLMN not allowed", UE shall:

- delete any RAI, P TMSI, P TMSI signature and GPRS ciphering key sequence number.
- store the LAI or the PLMN identity in the appropriate forbidden list, i.e. in the "forbidden PLMN list".

After the UE stores the LAI or the PLMN identity in the appropriate forbidden list, UE shall:

- —not perform a PS attach procedure in the same PLMN.

At step13, when the UE receives the paging message for PS domain UE shall:

- not respond to the paging message for PS domain.

At step18, UE shall:

- perform PS attach procedure.

12.9.7a Service Request / rejected / No PDP context activated

12.9.7a.1 Definition

12.9.7a.2 Conformance requirement

If the network rejects a service request procedure with the cause "No PDP context activated", the UE shall:

- deactivate all active PDP contexts.

After the UE deactivates all active PDP contexts, UE shall:

- perform PDP context(s) activation.

Reference

TS 24.008 clauses 4.7.13.4

12.9.7a.3 Test purpose

To test the behaviour of the UE if the network rejects the service request procedure with the cause "No PDP context activated".

12.9.7a.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.

User Equipment:

The UE has a valid P-TMSI-1, P-TMSI-1 signature and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode A Yes/No UE operation mode C Yes/No

Switch off on button Yes/No

Test procedure

- a) The UE sends a SERVICE REQUEST message to the SS in order to establish the PS signalling connection for the upper layer signalling.
- b) After the SS receiving the SERVICE REQUEST message, the SS sends a SERVICE REJECT message with the cause value #40 (No PDP context activated).
- c) After the UE receives the SERVICE REJECT message, the UE shall send the ACTIVATE PDP CONTEXT REQUEST message.

Expected Sequence

Step	Direction	Message	Comments
	UE SS		
1			The following message are sent and shall be received on cell A. The UE is set in UE operation mode C (see ICS).
2			The SS is set in network operation mode II and activates cell A.
3			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
4	->	ATTACH REQUEST	3, 32.
5	<-	ATTACH ACCEPT	
6	->	ATTACH COMPLETE	
7	UE		The UE initiates a PS call, by MMI or by AT command.
8	->	SERVICE REQUEST	Service type = "signalling"
9	<-	SERVICE REJECT	Reject cause = "No PDP context activated"
10	UE		The UE shall deactivate locally all active PDP
11	UE		contexts. The UE initiates a PS call, by MMI or by AT command.
<u>11a</u> <u>11b</u>	<u>-></u> <u>SS</u>	SERVICE REQUEST	Service type = "signalling" SS initiates a security procedure by sending SECURITY MODE COMMAND message.
12	->	ACTIVATE PDP CONTEXT REQUEST	Request a PDP context activation
13	<-	ACTIVATE PDP CONTEXT	Accept the PDP context activation
14	UE		The UE initiates Deactivate PDP Context request, by MMI or by AT command.
15	->	DEACTIVE PDP CONTEXT REQUEST	Deactivate PDP context deactivation
16	<-	DEACTIVE PDP CONTEXT	Accept PDP context deactivation
17	UE	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	The UE is switched off or power is removed (see ICS).
18	UE		The UE initiates Detach request, by MMI or by AT command.
19	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'

Specific message contents

None.

12.9.7a.5 Test requirements

At step4, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure.

When the UE receives a SERVICE REJECT message with the cause "No PDP context activated", UE shall:

____deactivate all active PDP context.

At step11a, UE shall:

- initiates a Service request procedure.

At step12, UE shall:

- perform PDP context(s) activation.

12.9.7b Service Request / rejected / No Suitable Cells In Location Area

12.9.7b.1 Definition

12.9.7b.2 Conformance requirement

If the network rejects a service request procedure from the UE with the cause "No Suitable Cells In Location Area", the UE shall:

- 1) delete any RAI, P-TMSI, P-TMSI signature and GPRS ciphering key sequence number.
- 2) set the GPRS update status to GU3 ROAMING NOT ALLOWED.
- 3) store the LAI or the PLMN identity in the list of 'forbidden location areas for roaming'.
- 4) search for a suitable cell in a different location area on the same PLMN.

Reference

TS 24.008 clauses 4.7.13.4

12.9.7b.3 Test purpose

To test the behaviour of the UE if the network rejects the service request procedure with the cause "No Suitable Cells In Location Area".

12.9.7b.4 Method of test

Initial condition

System Simulator:

Three cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC2/RAC1 (RAI-3), cell C in MCC2/MNC1/LAC1/RAC1 (RAI-2)

All three cells are operating in network operation mode II.

User Equipment:

The UE has valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No UE operation mode A Yes/No Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a Service request with the cause value 'No Suitable Cells In Location Area'. The SS checks that the UE shall perform PS attach procedure when the UE enters a suitable cell in a different location area on the same PLMN.

Expected Sequence

Step	Direction	Message	Comments
	UE SS		
	SS		The SS activates three cells simultaneously.
			The SS configures power level of each Cell as
			follows.
			Cell A > Cell B = Cell C
1	UE		The UE is set in UE operation mode A (see
			ICS).
2	UE		The UE is powered up or switched on and
			initiates an attach (see ICS). Cell A is preferred
			by the UE.
3	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach'
			Mobile identity = IMSI
			TMSI status = no valid TMSI available
4	<-	ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached'
			Mobile identity = P-TMSI-1
			P-TMSI-1 signature
			Mobile identity = TMSI-1
_			Routing area identity = RAI-1
5	->	ATTACH COMPLETE	TI 00:111 1 DD0 11 1
6	SS		The SS initiates the RRC connection release.
7	UE		The UE initiates a PS call, by MMI or by AT
		OFD, HOE DEOLIEOT	command.
8	->	SERVICE REQUEST	Service type = "signalling"
9	<-	SERVICE REJECT	Reject cause = "No Suitable Cells In Location Area"
			The following message are sent and shall be
			received on cell B.
10	->	ATTACH REQUEST	Attach type = 'PS attach'
10		ATTACTINEQUEST	Mobile identity = IMSI
11	<-	ATTACH ACCEPT	Mobile identity = P-TMSI-2
''		ATTACTTACCETT	P-TMSI-2 signature
			Routing area identity = RAI-2
			Attach result = 'PS only attached'
12	->	ATTACH COMPLETE	
13	ÚÉ		The UE is switched off or power is removed
			(see ICS).
14	->	DETACH REQUEST	

Specific message contents

None.

12.9.7b.5 Test requirements

At step3, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence .

When the UE receives the SERVICE REJECT message with the cause "No Suitable Cells In Location Area", UE shall:

- delete any RAI, P-TMSI, P-TMSI signature and GPRS eiphering key sequence number.
- store the LAI or the PLMN identity in the appropriate forbidden list, i.e. in the " forbidden location areas for roaming ".
- search for a suitable cell in a different location area on the same PLMN.

At step 10, when the UE enters a suitable cell in a different location area on the same PLMN, UE shall:

- perform the PS attach procedure.

12.9.8 Service Request / Abnormal cases / Access barred due to access class control

12.9.8.1 Definition

12.9.8.2 Conformance requirement

If the UE access class X is barred, the UE shall:

- 1) not start Service Request procedure.
- 2) stay in the current serving cell.
- 3) applie normal cell reselection process.

If the UE access class X is granted or serving cell is changed, the UE shall:

1) start Service Request procedure.

Reference

TS 24.008 clauses 4.7.13.5.

12.9.8.3 Test purpose

To test the behavior of the UE in case of access class control (access is granted).

12.9.8.4 Method of test

Initial condition

A random access class X (0-15) is selected. The USIM is programmed with this access class X.

Initially, an access class X is barred.

System Simulator:

One cell operating in network operation mode II.

Access class x barred.

User Equipment:

The UE has a valid P-TMSI-1, P-TMSI-1 signature and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode C Yes/No

UE operation mode A Yes/No

Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS initiates access class X barred. A service request procedure is not performed.

The SS initiates that access class X is not barred. A service request procedure is performed.

Expected Sequence

Step	Direction	Message	Comments
•	UE SS		
1	ÜĒ		The USIM is set up Access class x. The access class x is barred in cell A. The UE is powered up or switched on and
2	UE		attempt to initiate an ATTACH. No SERVICE REQUEST sent to SS, as access class X is barred. (SS waits 30 seconds)
3	SS		The access class x is not barred anymore.
4	UE		The UE automatically initiates an attach.
5	->	ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-2 P-TMSI-2 signature
6	<-	ATTACH ACCEPT	Routing area identity = RAI-1 Attach result = 'PS only attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-1
7	->	ATTACH COMPLETE	l and a second
8	UE		The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
9	->	SERVICE REQUEST	Service Type = "signalling".
10	<-	AUTHENTICATION AND CIPHERING REQUEST	
11	->	AUTHENTICATION AND CIPHERING RESPONSE	
12	UE		The UE is switched off or power is removed
13	->	DETACH REQUEST	(see ICS). Message not sent if power is removed. Detach type = 'power switched off, PS detach'

Specific message contents

None.

12.9.8.5 Test requirements

At step2, when the UE access class x is barred, UE shall:

- not perform Service Request procedure.

At step5, when the UE access class x is barred, UE shall:

- initiate the PS attach procedure.

UE shall perform the following actions depending on the UE access class X.

Case 1) The UE access class X is barred,

UE shall:

- not start Service Request procedure.
- stay in the current serving cell.
- apply normal cell reselection process.

Case 2) The UE access class X is granted or serving cell is changed,

At step9, UE shall:

- performstart Service Request procedure.

12.9.9 Service Request / Abnormal cases / Routing area update procedure is triggered

12.9.9.1 Definition

12.9.9.2 Conformance requirement

If a cell change into a new routing area occurs and the necessity of routing area update procedure is determined before the security mode control procedure is completed, the UE shall:

- abort Service request procedure.
- start routing area update procedure immediately.

Reference

TS 24.008 clause 4.7.13.5

12.9.9.3 Test purpose

To test the behavior of the UE in case of collision between Routing area update procedure and Service request procedure.

12.9.9.4 Method of test

Initial condition

System Simulator:

Two cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4). Both cells are operating in network operation mode II.

User Equipment:

The UE has a valid P-TMSI-1, P-TMSI-1 signature and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode A Yes/No UE operation mode C Yes/No

Switch off on button Yes/No

Test procedure

- a) The UE sends a SERVICE REQUEST message to the SS in order to establish the PS signalling connection for the upper layer signalling.
- b) The UE initiates the routing area update procedure.
- c) The UE aborts Service request procedure and performs Routing area updating procedure.

Expected Sequence

Step	Direction	Message	Comments
	UE SS		
			The following message are sent and shall be
			received on cell A.
1	UE		The UE is set in UE operation mode C (see
_			ICS).
2	SS		The SS is set in network operation mode II and
_			activates cell A.
3	UE		The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred
			by the UE.
4	->	ATTACH REQUEST	Attach type = 'PS attach'
7		ATTACTINEQUEST	Mobile identity = P-TMSI-1
			P-TMSI-1 signature
			Routing area identity = RAI-1
5	<-	ATTACH ACCEPT	No new mobile identity assigned.
			P-TMSI and P-TMSI signature not included.
			Routing area identity = RAI-1
			Attach result = 'PS only attached'
6	->	ATTACH COMPLETE	
	UE		The UE initiates an upper-layer signalling, e.g.,
			Active PDP Context request, by MMI or by AT
			command.
7	->	SERVICE REQUEST	Service type = "signalling"
8	SS		Activate cell B with a lower signal strength than
			cell A The RF level of cell A is lowered until cell
_	UE		B is preferred by the UE.
9	UE		The UE aborts Service request procedure. The following message are sent and shall be
			received on cell B.
10	->	ROUTING AREA UPDATING	Update type = 'RA updating'
10		REQUEST	P-TMSI-2 signature
11	<-	ROUTING AREA UPDATING	Update result = 'RA updated'
		ACCEPT	Mobile identity = P-TMSI-1
			P-TMSI-1 signature
			Routing area identity = RAI-4
12	->	ROUTING AREA UPDATING	
		COMPLETE	
13	UE		The UE initiates an upper-layer signalling, e.g.,
			Active PDP Context request, by MMI or by AT
			command.
14	->	SERVICE REQUEST	Service type = "signalling"
15	UE		The UE is switched off or power is removed
40		DETACH DECLEST	(see ICS).
16	->	DETACH REQUEST	Message not sent if power is removed.
			Detach type = 'power switched off, PS detach'

Specific message contents

None.

12.9.9.5 Test requirements

At step3, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence .

At step7, UE shall:

- perform the service request procedure.

At step10, When when the routing area update procedure is initiated before the security mode control procedure is completed, UE shall;

- abort a Service request procedure

After the UE aborts the Service request procedure, UE shall;

- perform the routing area updating procedure.

At step14, After after the UE completes the routing area updating procedure, UE shall;

- restart the Service Request procedure.

12.9.10 Service Request / Abnormal cases / Power off

12.9.10.1 Definition

12.9.10.2 Conformance requirement

When the UE in GMM-SERVICE-REQUEST-INITIATED state is switched off, UE shall:

- perform PS detach procedure.

Reference

TS 24.008 clauses 4.7.13.5

12.9.10.3 Test purpose

To test the behavior of the UE in case of collision between Service request procedure and "powered off".

12.9.10.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.

User Equipment:

The UE has a valid P-TMSI-1, P-TMSI-1 signature and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode A Yes/No UE operation mode C Yes/No

Switch off on button Yes/No

Test procedure

The UE is switched off after initiating a Service request procedure. A PS detach is automatically performed by the UE before power is switched off.

Expected Sequence

Step	Direction	Message	Comments
	UE SS		
			The following message are sent and shall be received on cell A.
1	UE		The UE is set in UE operation mode C (see ICS).
2	SS		The SS is set in network operation mode II and activates cell A.
3	UE		The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
4	->	ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-1
5	<-	ATTACH ACCEPT	No new mobile identity assigned. P-TMSI and P-TMSI signature not included. Routing area identity = RAI-1
6	UE		Attach result = 'PS only attached' The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
7 8	-> UE	SERVICE REQUEST	Service type = "signalling" The UE is powered off and initiates a PS detach (with power off) by MMI or by AT command.
9	->	DETACH REQUEST	Detach type = 'power switched off, PS detach'

Specific message contents

None.

12.9.10.5 Test requirements

At step4, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence .

At step7, UE shall:

- perform the service request procedure

At step9, When when the UE is switched off during the Service Request procedure, UE shall;

- abort the Service request procedure.

After the UE aborts the Service request procedure, UE shall;

- perform the PS detach procedure.

12.9.11 Service Request / Abnormal cases / Service request procedure collision

12.9.11.1 Definition

12.9.11.2 Conformance requirement

When the UE in GMM-SERVICE-REQUEST-INITIATED state receives a DETACH REQUEST message from the network, UE shall:

- perform the PS detach procedure.
- abort Service request procedure.

Reference

TS 24.008 clauses 4.7.13.5

12.9.11.3 Test purpose

To test the behaviour of the UE in case of collision between Service request procedure and PS detach procedure.

12.9.11.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.

User Equipment:

The UE has a valid P-TMSI-1, P-TMSI-1 signature and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode A Yes/No UE operation mode C Yes/No

Switch off on button Yes/No

Test procedure

- a) The UE sends a SERVICE REQUEST message to the SS in order to establish the PS signalling connection for the upper layer signalling.
- b) The SS sends a DETACH REQUEST message to the UE, before the security procedure is not started.
- c) After the UE receives the DETACH REQUEST message, the UE aborts the Service request procedure.

Expected Sequence

Step	Direction	Message	Comments
1	UE SS		
			The following message are sent and shall be
			received on cell A.
1	UE		The UE is set in UE operation mode C (see
			ICS).
2	SS		The SS is set in network operation mode II and
			activates cell A.
3	UE		The UE is powered up or switched on and
			initiates an attach (see ICS). Cell A is preferred
			by the UE.
4	->	ATTACH REQUEST	Attach type = 'PS attach'
			Mobile identity = P-TMSI-1
			P-TMSI-1 signature
			Routing area identity = RAI-1
5	<-	ATTACH ACCEPT	No new mobile identity assigned.
			P-TMSI and P-TMSI signature not included.
			Routing area identity = RAI-1
			Attach result = 'PS only attached'
6	->	ATTACH COMPLETE	
7	UE		The UE initiates an upper-layer signalling, e.g.,
			Active PDP Context request, by MMI or by AT
			command.
8	->	SERVICE REQUEST	Service type = "signalling"
	00		The 00 decement was a data 05D\/05
9	SS		The SS does not respond to SERVICE
40	_	DETACH DECHECT	REQUEST message.
10 11	<-	DETACH REQUEST ATTACH REQUEST	GMM cause = "reattach request"
''	->	ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1
			P-TMSI-1 signature
			Routing area identity = RAI-1
12	<-	ATTACH ACCEPT	No new mobile identity assigned.
12	ζ-	ATTACITACCEFT	P-TMSI and P-TMSI signature not included.
			Routing area identity = RAI-1
			Attach result = 'PS only attached'
13	->	ATTACH COMPLETE	Autori roodit – 1 o oriiy attaorioa
14	UÉ	THE STATE OF THE S	The UE is switched off or power is removed
'-			(see ICS).
15	->	DETACH REQUEST	Message not sent if power is removed.
		DE CATTLE GOLOT	Detach type = 'power switched off, PS detach'

Specific message contents

None.

12.9.11.5 Test requirements

At step4, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence .

At step11, When when the UE receives a DETACH REQUEST message from the network before the Service request procedure completes, UE shall;

- abort the Service request procedure.

After the UE aborts the Service request procedure, UE shall;

- perform the PS detach procedure.

3GPP TSG-T1 Meeting #13 Cancun, Mexico, 29-30 November 2001

3GPP TSG-T1/SIG Meeting #20 Cancun, Mexico, 26-28 November 2001

T1S-010262

	CHANGE REQUEST									
[≆] TS	34.123-1	CR 124	ж	ev	- #	Current vers	ion: 4.0.0	æ		
For <u>HELP</u> or	n using this fo	rm, see bottom o	of this pag	e or l	ook at	the pop-up text	over the ¥ syr	mbols.		
Proposed chang	ye affects: ♯	(U)SIM	ME/UE	X	Radio	Access Network	Core Ne	etwork		
Title:	第 Update o	f interoperability	radio bea	rer te	st case	es for FDD.				
Source:	策 Ericsson									
Work item code:	· <mark>エEI</mark>					Date: ♯	2001-11-26			
Category:	F (cor A (cor B (add C (fun D (edi Detailed ex	the following cates rection) responds to a correlition of feature), ctional modification torial modification planations of the a 3GPP TR 21.900.	rection in a n of featur)	e)		2	REL-4 the following relace (GSM Phase 2) (Release 1996) (Release 1997) (Release 1998) (Release 1999) (Release 4) (Release 5)	eases:		

Reason for change:

- 1. Generic test procedure in clause 14.1.1:
 - The generic test procedure need to be expanded for UEs only supporting PS (current generic test procedure assumes all UEs support CS).
- Clarification that TM RLC segmentation shall be configured for Conversational /Unknown-radio-bearer test cases.
- 3. In some of the Sub-tests of radio bearer test cases, list of TFCIs mentioned in Restricted UL TFCIs column is not matching with the Uplink TFCI under test and TFCI supporting Uplink TFCI under test. (comments from MCC Task 160 / Motorola)
- 4. Currently there are some radio bearer test cases which have RLC configured for transparent mode and for which the RLC SDU size would need transmission over more than one TTI. This is inconsistent with the RLC core specification TS 25.322. (Reference: T1S-010261, issue 1)
- 5. Currently there are some radio bearer test cases which have RLC configured for acknowledged mode and for which the test data size is set to a multiple of the actual transport block size. To achieve the test prupose the test data size should instead be set to a multiple of the payload size reduced by the size of the required length indicators. (Reference: T1S-010261, issue 2)

Summary of change: ₩

- Changes to generic test procedure in clause 4.1.1 to cover both CS and PS case.
- 2. Added RLC Info parameter 'Segmentation indication = TRUE' to the following test cases:

14.2.12, 14.2.13.1, 14.2.13.2, 14.2.14.2, 14.2.49.1, 14.2.49.2, 14.2.50.1, 14.2.50.2, 14.2.51.1, 14.2.51.2, 14.2.52.1, 14.2.52.2, 14.2.53.1 and 14.2.53.2.

3. Corrected column "Restricted Uplink TFCIs" in the Sub-test tables of following test cases:

14.2.40, 14.2.41, 14.2.42.1, 14.2.42.2, 14.2.43.1,14.2.43.2, 14.2.51.1, 14.2.51.2, 14.2.52.1, 14.2.52.2, 14.2.53.1, 14.2.53.2, 14.2.54 and 14.2.55.

- Limited the UL RLC SDU size to 576 bits for the following test cases (to be able to transmit the UL RLC SDU within one TTI): 14.2.18, 14.2.20, 14.2.22, 14.2.46, 14.2.47, 14.2.48, 14.2.54 and 14.2.55.
- 5. For the interactive background radio bearer test cases the test data size and RLC SDU size have been changed to be a multiple of the actual payload size. The test data size and RLC SDU size have also been reduced with the size of the required length indicator. Following test cases are affected:

14.2.23 to 14.2.44 and 14.2.51 to 14.2.55.

Consequences if not approved:

★ Incorrect radio bearer test cases

Clauses affected:	光 14
Other specs affected:	# Other core specifications # Test specifications O&M Specifications
Other comments:	# R99 and REL-4

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at: http://www.3gpp.org/3G Specs/CRs.htm. Below is a brief summary:

- 1) Fill out the above form. The symbols above marked # contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

14 Interoperability Radio Bearer Tests

14.1 General information for interoperability radio bearer tests

The purpose of the interoperability radio bearer test cases are to ensure interoperability of UE's in different regions and networks. For this purpose representative radio bearer configurations that will be used in real network implementations have been defined in TS 34.108 [9], clause 6.10.

The applicability of radio bearer tests is dependent on the UE uplink and downlink radio access capabilities and UE support tele- and bearer-services. See TS 34.123-2, annex B for applicability of the specific test cases.

14.1.1 Generic radio bearer test procedure

Initial conditions

UE in idle mode

Test procedure

- a) The SS setup the reference radio bearer configuration as specified in TS 34.108, clause 6.10 for the actual radio bearer test.
- b) The SS limits the UE allowed uplink transport format combinations according to the "Restricted UL TFCIs", as specified for the sub-test of the actual radio bearer test, using the RRC transport format combination control procedure. See note 1.
- c) The SS closes the test loop using UE test loop mode 1 and setting the UL RLC SDU size parameter, for all radio bearers under test, according to the "UL RLC SDU size" value as specified for the sub-test of the actual radio bearer test
- d) The SS transmits, for all radio bearers under test, an one or more RLC SDUs having the size equal to the "Test data size" as specified for the sub-test of the actual radio bearer test. See note 24.
- e) The SS checks that, for all radio bearers under test, the content of the received RLC SDU has the correct content and is received having the correct transport format. See TS 34.109 [10] clause 5.3.2.6.2 for details regarding the UE loopback of RLC SDUs.
- f) The SS opens the UE test loop.
- g) Steps b) to f) are repeated for all sub-tests
- h) The SS may optionally release the radio bearer.
- i) The SS may optionally deactivate the radio bearer test mode.
- NOTE 1: The restricted set of TFCIs shall contain all possible TFCI that could happen in a sub-test. The actual TTI of the different radio bearers and signaling radio bearers as well as the possible UE processing delays shall be taken into consideration.
- NOTE_2: For the case when the reference radio bearer configuration under test uses RLC transperant mode in downlink and is not configured for segmented operation then the radio bearer test case shall use a DL RLC SDU size (defined by the "Test data size" parameter) equal to the DL RLC PDU size. This is due to that the UE test loop function has no ability to perform reassembly of segmented DL RLC SDUs while the RLC is operated in transperent mode. See [7] TS 25.322 for details regarding UE operation in RLC transperent mode.

Expected sequence

CS paging procedure

Step	Direction		<u>Message</u>	<u>Comments</u>	
	UE SS				
<u>1</u>	<		SYSTEM INFORMATION (BCCH)	Broadcast	
2	<		PAGING TYPE 1 (PCCH)	Paging (CS domain, TMSI)	
<u>3</u>	>		RRC CONNECTION REQUEST (CCCH)	RRC	
<u>4</u>	<		RRC CONNECTION SETUP (CCCH)	RRC	
<u>5</u>	>		RRC CONNECTION SETUP COMPLETE (DCCH)	RRC	
6	>		PAGING RESPONSE (DCCH)	RR	

PS paging procedure

Step	Direction	<u>Message</u>	<u>Comments</u>	
	UE SS			
<u>1</u>	<	SYSTEM INFORMATION (BCCH)	<u>Broadcast</u>	
2	<	PAGING TYPE 1 (PCCH)	Paging (PS domain, P-TMSI)	
<u>3</u>	>	RRC CONNECTION REQUEST (CCCH)	RRC	
<u>4</u>	<	RRC CONNECTION SETUP (CCCH)	RRC	
<u>5</u>	>	RRC CONNECTION SETUP COMPLETE (DCCH)	RRC	
<u>6a</u>	<u>></u>	SERVICE REQUEST (DCCH)	GMM	
<u>6b</u>	<	SECURITY MODE COMMAND	RRC see note 1	
<u>6c</u>	>	SECURITY MODE COMPLETE	RRC see note 1	

Note 1 Step 6b and Step 6c are inserted in order to stop T3317 timer in the UE, which starts after transmitting SERVICE REQUEST message.

Step	Direction		Message	Comments
	UE	SS		
4			SYSTEM INFORMATION (BCCH)	Broadcast
2	+	_	PAGING (PCCH)	Paging
3		>	RRC CONNECTION REQUEST (CCCH)	RRC
4	+	_	RRC CONNECTION SETUP (CCCH)	RRC
5		>	RRC CONNECTION SETUP COMPLETE (DCCH)	RRC
6		>	PAGING RESPONSE (DCCH)	RR
16	<-	_	Paging	Use the CS paging procedure for testing of
	:			CS and combined CS/PS reference radio
				bearer configurations.
				Use the PS paging procedure for testing of
				PS reference radio bearer configurations.
7	<-		ACTIVATE RB TEST MODE (DCCH)	TC
8	;		ACTIVATE RB TEST MODE COMPLETE (DCCH)	TC
9	<-		RADIO BEARER SETUP (DCCH)	RRC
10			RADIO BEARER SETUP COMPLETE (DCCH)	RRC
11	11 <		TRANSPORT FORMAT COMBINATION CONTROL	RRC Transport format combinations is limited to
				"Restricted UL TFCIs", as specified for the sub-test
12	<-	-	CLOSE UE TEST LOOP	TC
				UE test mode 1
				RLC SDU size is for every active radio
				bearer set to "UL RLC SDU size", as
				specified for the sub-test.
13	;	>	CLOSE UE TEST LOOP COMPLETE (DCCH)	TC
14	<-	-	DOWNLINK RLC SDU	Send test data using the downlink
				transport format combination under test.
15	>	>	UPLINK RLC SDU	
16	<-	-	OPEN UE TEST LOOP	TC
17	>	>	OPEN UE TEST LOOP COMPLETE	TC
18			Repeat steps 11 to 17 for every sub-test.	
19			RB RELEASE	RRC
				Optional step
20	<-	-	DEACTIVATE RB TEST MODE	TC
				Optional step
21	;	>	DEACTIVATE RB TEST MODE COMPLETE	TC
				Optional step

14.2 Combinations on DPCH

14.2.1 Stand-alone UL:1.7 DL:1.7 kbps SRBs for DCCH

Implicitly tested.

14.2.2 Stand-alone UL:3.4 DL:3.4 kbps SRBs for DCCH

Implicitly tested.

14.2.3 Stand-alone UL:13.6 DL:13.6 kbps SRBs for DCCH

Implicitly tested.

14.2.4 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.2.4.1 Conformance requirement

The UE shall be able to establish the UTRAN requested radio bearers within the UE's signaled radio access capabilities.

The UE shall correctly transfer user data from peer to peer RLC entitities according to the requested radio bearer configuration.

Reference(s)

3GPP TS 25.331, clause 8.2.1

3GPP TS 25.2xx series (Physical Layer)

3GPP TS 25.321 (MAC)

3GPP TS 25.322 (RLC)

14.2.4.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.4.

14.2.4.3 Method of test

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	DCCH
	TF0, bits	0x81(alt. 1x0)	0x103	0x60	0x148
TFS	TF1, bits	1x39	1x103	1x60	1x148
	TF2, bits	1x81	N/A	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0)
UL_TFC3	(TF0, TF0, TF1)
UL_TFC4	(TF1, TF0, TF0, TF1)
UL_TFC5	(TF2, TF1, TF1, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	DCCH
	TF0, bits	1x0	0x103	0x60	0x148
TFS	TF1, bits	1x39	1x103	1x60	1x148
	TF2, bits	1x81	N/A	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0)
DL_TFC3	(TF0, TF0, TF1)
DL_TFC4	(TF1, TF0, TF0, TF1)
DL_TFC5	(TF2, TF1, TF1, TF1)

Sub-tests:

1 DL_TFC1 UL_TFC0, DL_TFC3, UL_TFC0, UL_TFC0, UL_TFC0, UL_TFC1, UL_TFC3 RB5: 39 bits RB6: 39 bits RB6: No da RB7: 60 bits RB7: No da UL_TFC4 2 DL_TFC2 UL_TFC2, UL_TFC3, UL_TFC0, UL_TFC0, UL_TFC2, UL_TFC3, UL_TFC3 UL_TFC2, RB6: 103 bits RB6: 103 bits RB6: 103 bits RB6: 103 bits RB7: 60 bits	Sub- test	Downlink TFCS under test	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (note)	Test data size
UL_TFC3	1	DL_TFC1	UL_TFC1	, _ , _ , _ ,	UL_TFC1, UL_TFC3,	RB5: 39 bits RB6: 103 bits	RB5: 39 bits RB6: No data RB7: No data
	2	DL_TFC2	UL_TFC2	, _ , _ , _ ,	UL_TFC2,	RB6: 103 bits	RB5: 81 bits RB6: 103 bits RB7: 60 bits

See 14.1.1 for test procedure.

14.2.4.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be
 - for sub-test 1: RB5/TF1 (1x39).
 - for sub-test 2: RB5/TF2 (1x81); RB6/TF1 (1x103); and RB7/TF1 (1x60).
- 3. At step 15 the UE shall return
 - for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6 or RB7.
 - for sub-test 2: an RLC SDU on each of RB5, RB6 and RB7 having the same content as sent by SS

14.2.5 Conversational / speech / UL:10.2 DL:10.2 kbps / CS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH

14.2.5.1 Conformance requirement

See clause 14.2.4.1.

14.2.5.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.5.

14.2.5.3 Method of test

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	DCCH
	TF0, bits	0x65(alt. 1x0)	0x99	0x40	0x148
TFS	TF1, bits	1x39	1x99	1x40	1x148
	TF2, bits	1x65	N/A	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7,DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0)
UL_TFC3	(TF0, TF0, TF1)
UL_TFC4	(TF1, TF0, TF0, TF1)
UL_TFC5	(TF2, TF1, TF1, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	DCCH
	TF0, bits	1x0	0x99	0x40	0x148
TFS	TF1, bits	1x39	1x99	1x40	1x148
	TF2, bits	1x65	N/A	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0)
DL_TFC3	(TF0, TF0, TF1)
DL_TFC4	(TF1, TF0, TF0, TF1)
DL_TFC5	(TF2, TF1, TF1, TF1)

Sub-tests:

Sub- test	Downlink TFCS under test	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size	Test data size
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4	RB5: 39 bits RB6: 99 bits RB7: 40 bits	RB5: 39 bits RB6: No data RB7: No data
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC2, UL_TFC3, UL_TFC5	RB5: 65 bits RB6: 99 bits RB7: 40 bits	RB5: 65 bits RB6: 99 bits RB7: 40 bits
NOTE:	See TS 34.	109 [10] clause	5.3.2.6.2 for details regarding loopl	back of RLC SE	Us.	

See clause 14.1.1 for test procedure.

14.2.5.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be
 - for sub-test 1: RB5/TF1 (1x39).

- for sub-test 2: RB5/TF2 (1x65); RB6/TF1 (1x99); and RB7/TF1 (1x40).

3. At step 15 the UE shall return

- for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6 or RB7.
- for sub-test 2: an RLC SDU on each of RB5, RB6 and RB7 having the same content as sent by SS.

14.2.6 Conversational / speech / UL:7.95 DL:7.95 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.2.6.1 Conformance requirement

See clause 14.2.4.1.

14.2.6.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.6.

14.2.6.3 Method of test

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	DCCH
	TF0, bits	0x75 (alt. 1x0)	0x84	0x148
TFS	TF1, bits	1x39	1x84	1x148
	TF2, bits	1x75	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, DCCH)	
UL_TFC0	(TF0, TF0, TF0)	
UL_TFC1	(TF1, TF0, TF0)	
UL_TFC2	(TF2, TF1, TF0)	
UL_TFC3	(TF0, TF0, TF1)	
UL_TFC4	(TF1, TF0, TF1)	
UL_TFC5	(TF2, TF1, TF1)	

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	DCCH
		(RAD Subilow #1)	(RAD Subflow #2)	
	TF0, bits	1x0	0x84	0x148
TFS	TF1, bits	1x39	1x84	1x148
	TF2, bits	1x75	N/A	N/A

Downlink TFCS:

TFCI	(RB5	5, RB6, DCCH)
DL_TFC0	(TF0, TF0, TF0)	
DL_TFC1	(TF1, TF0, TF0)	
DL_TFC2	(TF2, TF1, TF0)	
DL_TFC3	(TF0, TF0, TF1)	
DL_TFC4	(TF1, TF0, TF1)	
DL_TFC5	(TF2, TF1, TF1)	

Sub-tests:

Sub- test	Downlink TFCS under test	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size	Test data size (note)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4	RB5: 39 bits RB6: 84 bits	RB5: 39 bits RB6: No data
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC2, UL_TFC3, UL_TFC5,	RB5: 75 bits RB6: 84 bits	RB5: 75 bits RB6: 84 bits
NOTE:	See TS 34.	109 [10] clause	5.3.2.6.2 for details regarding loop	oack of RLC SE	Us.	•

See clause 14.1.1 for test procedure.

14.2.6.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be
 - for sub-test 1: RB5/TF1 (1x39).
 - for sub-test 2: RB5/TF2 (1x75) and RB6/TF1 (1x84).
- 3. At step 15 the UE shall return
 - for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6
 - for sub-test 2: an RLC SDU on each of RB5 and RB6 having the same content as sent by SS.

14.2.7 Conversational / speech / UL:7.4 DL:7.4 kbps / CS RAB+ UL:3.4 DL:3.4 kbps SRBs for DCCH

14.2.7.1 Conformance requirement

See clause 14.2.4.1.

14.2.7.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.7.

14.2.7.3 Method of test

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	рссн
	TF0, bits	0x61 (alt. 1x0)	0x87	0x148
TFS	TF1, bits	1x39	1x87	1x148
	TF2, bits	1x61	N/A	N/A

Uplink TFCS:

TFCI		(RB5, RB6, DCCH)
UL_TFC0	(TF0, TF0, TF0)	
UL_TFC1	(TF1, TF0, TF0)	
UL_TFC2	(TF2, TF1, TF0)	
UL_TFC3	(TF0, TF0, TF1)	
UL_TFC4	(TF1, TF0, TF1)	
UL_TFC5	(TF2, TF1, TF1)	

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	рссн
	TF0, bits	1x0	0x87	0x148
TFS	TF1, bits	1x39	1x87	1x148
	TF2, bits	1x61	N/A	N/A

Downlink TFCS:

TFCI		(RB5, RB6, DCCH)
DL_TFC0	(TF0, TF0, TF0)	
DL_TFC1	(TF1, TF0, TF0)	
DL_TFC2	(TF2, TF1, TF0)	
DL_TFC3	(TF0, TF0, TF1)	
DL_TFC4	(TF1, TF0, TF1)	
DL_TFC5	(TF2, TF1, TF1)	

Sub-tests:

Sub- test	Downlink TFCS under test	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	Size (note)	Test data size
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4	RB5: 39 bits RB6: 87 bits	RB5: 39 bits RB6: No data
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC2, UL_TFC3, UL_TFC5,	RB5: 61 bits RB6: 87 bits	RB5: 61 bits RB6: 87 bits

See clause 14.1.1 for test procedure.

14.2.7.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be
 - for sub-test 1: RB5/TF1 (1x39).
 - for sub-test 2: RB5/TF2 (1x61) and RB6/TF1 (1x87).

3. At step 15 the UE shall return

- for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6.
- for sub-test 2: an RLC SDU on each of RB5 and RB6 having the same content as sent by SS

14.2.8 Conversational / speech / UL:6.7 DL:6.7 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.2.8.1 Conformance requirement

See clause 14.2.4.1.

14.2.8.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.8.

14.2.8.3 Method of test

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	DCCH
	TF0, bits	0x58 (alt. 1x0)	0x76	0x148
TFS	TF1, bits	1x39	1x76	1x148
	TF2, bits	1x58	N/A	N/A

Uplink TFCS:

TFCI		(RB5, RB6, DCCH)
UL_TFC0	(TF0, TF0, TF0)	
UL_TFC1	(TF1, TF0, TF0)	
UL_TFC2	(TF2, TF1, TF0)	
UL_TFC3	(TF0, TF0, TF1)	
UL_TFC4	(TF1, TF0, TF1)	
UL_TFC5	(TF2, TF1, TF1)	

Downlink TFS:

		RB5	RB6	DCCH
		(RAB subflow #1)	(RAB subflow #2)	рссп
	TF0, bits	1x0	0x76	0x148
TFS	TF1, bits	1x39	1x76	1x148
	TF2, bits	1x58	N/A	N/A

Downlink TFCS:

TFCI		(RB5, RB6, DCCH)
DL_TFC0	(TF0, TF0, TF0)	
DL_TFC1	(TF1, TF0, TF0)	
DL_TFC2	(TF2, TF1, TF0)	
DL_TFC3	(TF0, TF0, TF1)	
DL_TFC4	(TF1, TF0, TF1)	
DL TFC5	(TF2, TF1, TF1)	

Sub-tests:

Sub- test	Downlink TFCS under test	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (note)	Test data size (note)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4	RB5: 39 bits RB6: 76 bits	RB5: 39 bits RB6: No data
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC2, UL_TFC3, UL_TFC5,	RB5: 58 bits RB6: 76 bits	RB5: 58 bits RB6: 76 bits
NOTE:	See TS 34.	109 [10] clause	5.3.2.6.2 for details regarding loopl	back of RLC SE)Us.	

See clause 14.1.1 for test procedure.

14.2.8.4 Test requirements

See clause 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be
 - for sub-test 1: RB5/TF1 (1x39).
 - for sub-test 2: RB5/TF2 (1x58) and RB6/TF1 (1x76).
- 3. At step 15 the UE shall return
 - for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6
 - for sub-test 2: an RLC SDU on each of RB5 and RB6 having the same content as sent by SS

14.2.9 Conversational / speech / UL:5.9 DL:5.9 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.2.9.1 Conformance requirement

See clause 14.2.4.1.

14.2.9.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.9.

14.2.9.3 Method of test

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	рссн
	TF0, bits	0x55 (alt. 1x0)	0x63	0x148
TFS	TF1, bits	1x39	1x63	1x148
	TF2, bits	1x55	N/A	N/A

Uplink TFCS:

TFCI		(RB5, RB6, DCCH)
UL_TFC0	(TF0, TF0, TF0)	
UL_TFC1	(TF1, TF0, TF0)	
UL_TFC2	(TF2, TF1, TF0)	
UL_TFC3	(TF0, TF0, TF1)	
UL_TFC4	(TF1, TF0, TF1)	
UL_TFC5	(TF2, TF1, TF1)	

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	DCCH
	TF0, bits	1x0	0x63	0x148
TFS	TF1, bits	1x39	1x63	1x148
	TF2, bits	1x55	N/A	N/A

Downlink TFCS:

TFCI		(RB5, RB6, DCCH)
DL_TFC0	(TF0, TF0, TF0)	
DL_TFC1	(TF1, TF0, TF0)	
DL_TFC2	(TF2, TF1, TF0)	
DL_TFC3	(TF0, TF0, TF1)	
DL_TFC4	(TF1, TF0, TF1)	
DL_TFC5	(TF2, TF1, TF1)	

Sub-tests:

1 DL_TFC1 UL_TFC0, DL_TFC3, UL_TFC0, UL_TFC0, UL_TFC1, UL_TFC1, UL_TFC3, UL_TFC3, UL_TFC3, UL_TFC4 RB5: 39 bits 2 DL_TFC2 UL_TFC2 DL_TFC3, UL_TFC3, UL_TFC0, UL_TFC0, UL_TFC2, RB6: 63 bits	Sub- test	Downlink TFCS under test	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size	Test data size
UL_TFC3 UL_TFC2, RB6: 63 bits	1	DL_TFC1	UL_TFC1		UL_TFC1, UL_TFC3,	RB5: 39 bits RB6: 63 bits	RB5: 39 bits RB6: No data
UL_TFC3, UL_TFC5,	2	DL_TFC2	UL_TFC2	_	UL_TFC2, UL_TFC3,	RB5: 55 bits RB6: 63 bits	RB5: 55 bits RB6: 63 bits

See clause 14.1.1 for test procedure.

14.2.9.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be
 - for sub-test 1: RB5/TF1 (1x39).
 - for sub-test 2: RB5/TF2 (1x55) and RB6/TF1 (1x63).

3. At step 15 the UE shall return

- for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6.
- for sub-test 2: an RLC SDU on each of RB5 and RB6 having the same content as sent by SS

14.2.10 Conversational / speech / UL:5.15 DL:5.15 kbps / CS RAB + UL:1.7 DL:1.7 kbps SRBs for DCCH

14.2.10.1 Conformance requirement

See clause 14.2.4.1.

14.2.10.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.10.

14.2.10.3 Method of test

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	рссн
	TF0, bits	0x49 (alt. 1x0)	0x54	0x148
TFS	TF1, bits	1x39	1x54	1x148
	TF2, bits	1x49	N/A	N/A

Uplink TFCS:

TFCI		(RB5, RB6, DCCH)
UL_TFC0	(TF0, TF0, TF0)	
UL_TFC1	(TF1, TF0, TF0)	
UL_TFC2	(TF2, TF1, TF0)	
UL_TFC3	(TF0, TF0, TF1)	
UL_TFC4	(TF1, TF0, TF1)	
UL_TFC5	(TF2, TF1, TF1)	

Downlink TFS:

		RB5	RB6	DCCH
		(RAB subflow #1)	(RAB subflow #2)	рссп
	TF0, bits	1x0	0x54	0x148
TFS	TF1, bits	1x39	1x54	1x148
	TF2, bits	1x49	N/A	N/A

Downlink TFCS:

TFCI		(RB5, RB6, DCCH)
DL_TFC0	(TF0, TF0, TF0)	
DL_TFC1	(TF1, TF0, TF0)	
DL_TFC2	(TF2, TF1, TF0)	
DL_TFC3	(TF0, TF0, TF1)	
DL_TFC4	(TF1, TF0, TF1)	
DL TFC5	(TF2, TF1, TF1)	

Sub-tests:

Sub- test	Downlink TFCS under test	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size	Test data size (note)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4	RB5: 39 bits RB6: 54 bits	RB5: 39 bits RB6: No data
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC2, UL_TFC3, UL_TFC5,	RB5: 49 bits RB6: 54 bits	RB5: 49 bits RB6: 54 bits
NOTE:	See TS 34.	109 [10] clause	5.3.2.6.2 for details regarding loopl	back of RLC SE	Us.	

See clause 14.1.1 for test procedure.

14.2.10.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be
 - for sub-test 1: RB5/TF1 (1x39).
 - for sub-test 2: RB5/TF2 (1x49) and RB6/TF1 (1x54).
- 3. At step 15 the UE shall return
 - for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6
 - for sub-test 2: an RLC SDU on each of RB5 and RB6 having the same content as sent by SS

14.2.11 Conversational / speech / UL:4.75 DL:4.75 kbps / CS RAB + UL:1.7 DL:1.7 kbps SRBs for DCCH

14.2.11.1 Conformance requirement

See clause 14.2.4.1.

14.2.11.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.11.

14.2.11.3 Method of test

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	рссн
	TF0, bits	0x49 (alt. 1x0)	0x53	0x148
TFS	TF1, bits	1x39	1x53	1x148
	TF2, bits	1x42	N/A	N/A

Uplink TFCS:

TFCI		(RB5, RB6, DCCH)	
UL_TFC0	(TF0, TF0, TF0)		
UL_TFC1	(TF1, TF0, TF0)		
UL_TFC2	(TF2, TF1, TF0)		
UL_TFC3	(TF0, TF0, TF1)		
UL_TFC4	(TF1, TF0, TF1)		
UL_TFC5	(TF2, TF1, TF1)		

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	рссн
	TF0, bits	1x0	0x53	0x148
TFS	TF1, bits	1x39	1x53	1x148
	TF2, bits	1x42	N/A	N/A

Downlink TFCS:

TFCI		(RB5, RB6, DCCH)
DL_TFC0	(TF0, TF0, TF0)	
DL_TFC1	(TF1, TF0, TF0)	
DL_TFC2	(TF2, TF1, TF0)	
DL_TFC3	(TF0, TF0, TF1)	
DL_TFC4	(TF1, TF0, TF1)	
DL_TFC5	(TF2, TF1, TF1)	

Sub-tests:

1 DL_TFC1 UL_TFC1 DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC0, UL_TFC1, UL_TFC1, UL_TFC3, UL_TFC3, UL_TFC3, UL_TFC4 RB5: 39 bits RB6: 53 bits RB6: 53 bits 2 DL_TFC2 UL_TFC2 DL_TFC3, UL_TFC0, UL_TFC0, UL_TFC0, UL_TFC2, RB6: 53 bits RB5: 42 bits RB6: 53 bits RB6: 53 bits	Sub- test	Downlink TFCS under test	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size	Test data size
UL_TFC3 UL_TFC2, RB6: 53 bits RB6	1	DL_TFC1	UL_TFC1		UL_TFC1, UL_TFC3,	RB5: 39 bits	RB5: 39 bits RB6: No data
UL_TFC5,	2	DL_TFC2	UL_TFC2	_	UL_TFC2, UL_TFC3,		RB5: 42 bits RB6: 53 bits

See clause 14.1.1 for test procedure.

14.2.11.4 Test requirements

See clause 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be
 - for sub-test 1: RB5/TF1 (1x39).
 - for sub-test 2: RB5/TF2 (1x42) and RB6/TF1 (1x53).
- 3. At step 15 the UE shall return
 - for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6.

- for sub-test 2: an RLC SDU on each of RB5 and RB6 having the same content as sent by SS

14.2.12 Conversational / unknown / UL:28.8 DL:28.8 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.2.12.1 Conformance requirement

See 14.2.4.1.

14.2.12.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.12.

14.2.12.3 Method of test

Initial Conditions

The following RLC Info parameter values shall be set by the SS:

Uplink RLC	
TM RLC	
Segmentation indication	TRUE
Downlink RLC	
TM RLC	
Segmentation indication	TRUE

Uplink TFS:

	TFI	RB5 (28.8 kbps)	DCCH
	TF0, bits	0x576	0x148
TFS	TF1, bits	1x576	1x148
	TF2, bits	2x576	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)	
UL_TFC0	(TF0, TF0)	
UL_TFC1	(TF1, TF0)	
UL_TFC2	(TF2, TF0)	
UL_TFC3	(TF0, TF1)	
UL_TFC4	(TF1, TF1)	
UL_TFC5	(TF2, TF1)	

Downlink TFS:

		RB5 (28.8 kbps)	рссн
	TF0, bits	0x576	0x148
TFS	TF1, bits	1x576	1x148
	TF2, bits	2x576	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)	
DL_TFC0	(TF0, TF0)	
DL_TFC1	(TF1, TF0)	
DL_TFC2	(TF2, TF0)	
DL_TFC3	(TF0, TF1)	
DL_TFC4	(TF1, TF1)	·
DL_TFC5	(TF2, TF1)	

Sub-tests:

Sub- test	Downlink TFCS under test	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4	RB5: 576	RB5: 576
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC2, UL_TFC3, UL_TFC5,	RB5: 1152	RB5: 1152
NOTE:	See TS 34.	109 [10] clause	5.3.2.6.2 for details regarding loop!	oack of RLC SD	Us.	

See clause 14.1.1 for test procedure.

14.2.12.4 Test requirements

See clause 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be
 - for sub-test 1: RB5/TF1 (1x576).
 - for sub-test 2: RB5/TF2 (2x576).
- 3. At step 15 the UE shall return
 - for sub-test 1 and 2: an RLC SDU on RB5 having the same content as sent by SS.

14.2.13 Conversational / unknown / UL:64 DL:64 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.2.13.1 Conversational / unknown / UL:64 DL:64 kbps / CS RAB / 20 ms TTI

14.2.13.1.1 Conformance requirement

See clause 14.2.4.1.

14.2.13.1.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.13 for the 20 ms TTI case.

14.2.13.1.3 Method of test

Initial Conditions

The following RLC Info parameter values shall be set by the SS:

Uplink RLC	
TM RLC	
Segmentation indication	TRUE
Downlink RLC	
TM RLC	
Segmentation indication	TRUE

Uplink TFS:

	TFI	RB5 (64 kbps)	DCCH
TFS	TF0, bits	0x640	0x148
11-5	TF1, bits	2x640	1x148

Uplink TFCS:

TFCI		(RB5, DCCH)	
UL_TFC0	(TF0, TF0)		
UL_TFC1	(TF1, TF0)		
UL_TFC2	(TF0, TF1)		
UL_TFC3	(TF1, TF1)		

Downlink TFS:

	TFI	RB5 (64 kbps)	DCCH
TFS	TF0, bits	0x640	0x148
115	TF1, bits	2x640	1x148

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF0, TF1)
DL_TFC3	(TF1, TF1)

Sub-tests:

Sub- test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC2	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3	RB5: 1280	RB5: 1280
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See clause 14.1.1 for test procedure.

14.2.13.1.4 Test requirements

See clause 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be
 - for sub-test 1: RB5/TF1 (2x640).
- 3. At step 15 the UE shall return
 - for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS.

14.2.13.2 Conversational / unknown / UL:64 DL:64 kbps / CS RAB / 40 ms TTI

14.2.13.2.1 Conformance requirement

See clause 14.2.4.1.

14.2.13.2.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.13 for the 40 ms TTI case.

14.2.13.2.3 Method of test

Initial Conditions

The following RLC Info parameter values shall be set by the SS:

Uplink RLC	
TM RLC	
Segmentation indication	<u>TRUE</u>
Downlink RLC	
TM RLC	
Segmentation indication	TRUE

Uplink TFS:

	TFI	RB5 (64 kbps)	DCCH
TFS	TF0, bits	0x640	0x148
115	TF1, bits	4x640	1x148

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF0, TF1)
UL_TFC3	(TF1, TF1)

Downlink TFS:

	TFI	RB5 (64 kbps)	DCCH
TFS	TF0, bits	0x640	0x148
11-3	TF1, bits	4x640	1x148

Downlink TFCS:

TFCI	(RB5, DCCH)		
DL_TFC0	(TF0, TF0)		
DL_TFC1	(TF1, TF0)		
DL_TFC2	(TF0, TF1)		
DL_TFC3	(TF1, TF1)		

Sub-tests:

Sub- test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits)	
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC2	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3	RB5: 2560	RB5: 2560	
NOTE:	NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 14.1.1 for test procedure.

14.2.13.2.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be
 - for sub-test 1: RB5/TF1 (4x640).
- 3. At step 15 the UE shall return
 - for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS.

14.2.14 Conversational / unknown / UL:32 DL:32 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.2.14.1 Conversational / unknown / UL:32 DL:32 kbps / CS RAB / 20 ms TTI

14.2.14.1.1 Conformance requirement

See 14.2.4.1.

14.2.14.1.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.14 for the 20 ms TTI case.

14.2.14.1.3 Method of test

Uplink TFS:

	TFI	RB5 (32 kbps)	DCCH
TFS	TF0, bits	0x640	0x148
11-3	TF1, bits	1x640	1x148

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF0, TF1)
UL_TFC3	(TF1, TF1)

Downlink TFS:

	TFI	RB5 (32 kbps)	DCCH
TFS	TF0, bits	0x640	0x148
115	TF1, bits	1x640	1x148

Downlink TFCS:

TFCI	(RB5, DCCH)		
DL_TFC0	(TF0, TF0)		
DL_TFC1	(TF1, TF0)		
DL_TFC2	(TF0, TF1)		
DL_TFC3	(TF1, TF1)		

Sub-tests:

Sub- test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits)	
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC2	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3	RB5: 640	RB5: 640	
NOTE:	NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 14.1.1 for test procedure.

14.2.14.1.4 Test requirements

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be
 - for sub-test 1: RB5/TF1 (1x640).
- 3. At step 15 the UE shall return
 - for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS.

14.2.14.2 Conversational / unknown / UL:32 DL:32 kbps / CS RAB / 40 ms TTI

14.2.14.2.1 Conformance requirement

See 14.2.4.1.

14.2.14.2.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.14 for the 40 ms TTI case.

14.2.14.2.3 Method of test

Initial Conditions

The following RLC Info parameter values shall be set by the SS:

Uplink RLC	
TM RLC	
Segmentation indication	TRUE
Downlink RLC	
TM RLC	
Segmentation indication	TRUE

Uplink TFS:

	TFI	RB5 (32 kbps)	DCCH
TFS	TF0, bits	0x640	0x148
113	TF1, bits	2x640	1x148

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF0, TF1)
UL_TFC3	(TF1, TF1)

Downlink TFS:

	TFI	RB5 (32 kbps)	DCCH
TFS	TF0, bits	0x640	0x148
1173	TF1, bits	2x640	1x148

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF0, TF1)
DL_TFC3	(TF1, TF1)

Sub-tests:

Sub- test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC2	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3	RB5: 1280	RB5: 1280
NOTE:	NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.					

See 14.1.1 for test procedure.

14.2.14.2.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be
 - for sub-test 1: RB5/TF1 (2x640).
- 3. At step 15 the UE shall return
 - for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS.

14.2.15 Streaming / unknown / UL:14.4/DL:14.4 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.2.15.1 Conformance requirement

See 14.2.4.1.

14.2.15.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.15.

14.2.15.3 Method of test

Uplink TFS:

	TFI	RB5 (14.4 kbps)	DCCH
TFS	TF0, bits	0x576	0x148
115	TF1, bits	1x576	1x148

Uplink TFCS:

TFCI		(RB5, DCCH)	
UL_TFC0	(TF0, TF0)		
UL_TFC1	(TF1, TF0)		
UL_TFC2	(TF0, TF1)		
UL_TFC3	(TF1, TF1)		

Downlink TFS:

	TFI	RB5 (14.4 kbps)	DCCH
TFS	TF0, bits	0x576	0x148
	TF1, bits	1x576	1x148

Downlink TFCS:

TFCI		(RB5, DCCH)	
DL_TFC0	(TF0, TF0)		
DL_TFC1	(TF1, TF0)		
DL_TFC2	(TF0, TF1)		
DL_TFC3	(TF1, TF1)		

Sub-tests:

Sub- test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC2	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3	RB5: 576	RB5: 576
NOTE:	NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.					

See 14.1.1 for test procedure.

14.2.15.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be
 - for sub-test 1: RB5/TF1 (1x576).
- 3. At step 15 the UE shall return
 - for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS.

14.2.16 Streaming / unknown / UL:28.8/DL:28.8 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.2.16.1 Conformance requirement

See 14.2.4.1.

14.2.16.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.16.

14.2.16.3 Method of test

Uplink TFS:

	TFI	RB5 (28.8 kbps)	DCCH
	TF0, bits	0x576	0x148
TFS	TF1, bits	1x576	1x148
	TF2, bits	2x576	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF0, TF1)
UL_TFC4	(TF1, TF1)
UL_TFC5	(TF2, TF1)

Downlink TFS:

		RB5 (28.8 kbps)	DCCH
	TF0, bits	0x576	0x148
TFS	TF1, bits	1x576	1x148
	TF2, bits	2x576	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)	
DL_TFC0	(TF0, TF0)	
DL_TFC1	(TF1, TF0)	
DL_TFC2	(TF2, TF0)	
DL_TFC3	(TF0, TF1)	
DL_TFC4	(TF1, TF1)	
DL_TFC5	(TF2, TF1)	

Sub-tests:

Sub- test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4	RB5: 576	RB5: 576
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC2, UL_TFC3, UL_TFC5,	RB5: 1152	RB5: 1152
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 14.1.1 for test procedure.

14.2.16.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be
 - for sub-test 1: RB5/TF1 (1x576).
 - for sub-test 2: RB5/TF2 (2x576).
- 3. At step 15 the UE shall return
 - for sub-test 1 and 2: an RLC SDU on RB5 having the same content as sent by SS.

14.2.17 Streaming / unknown / UL:57.6/DL:57.6 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.2.17.1 Conformance requirement

See 14.2.4.1.

14.2.17.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.17.

14.2.17.3 Method of test

Uplink TFS:

	TFI	RB5 (57.6 kbps)	DCCH
TFS	TF0, bits	0x576	0x148
	TF1, bits	1x576	1x148
	TF2, bits	2x576	N/A
	TF3, bits	3x576	N/A
	TF4, bits	4x576	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Downlink TFS:

	TFI	RB5 (57.6 kbps)	DCCH
TFS	TF0, bits	0x576	0x148
	TF1, bits	1x576	1x148
	TF2, bits	2x576	N/A
	TF3, bits	3x576	N/A
	TF4, bits	4x576	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF0, TF1)
DL_TFC6	(TF1, TF1)
DL_TFC7	(TF2, TF1)
DL_TFC8	(TF3, TF1)
DL_TFC9	(TF4, TF1)

Sub-tests:

Sub- test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5,	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 576	RB5: 576
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 1152	RB5: 1152
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 1728	RB5: 1728
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 2304	RB5: 2304
NOTE:	See TS 34.	109 [10] clause	5.3.2.6.2 for details regarding loops	pack of RLC SE	Us.	

See 14.1.1 for test procedure.

14.2.17.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be
 - for sub-test 1: RB5/TF1 (1x576).
 - for sub-test 2: RB5/TF2 (2x576).
 - for sub-test 3: RB5/TF3 (3x576).
 - for sub-test 4: RB5/TF4 (4x576).
- 3. At step 15 the UE shall return
 - for sub-test 1 to 4: an RLC SDU on RB5 having the same content as sent by SS.

14.2.18 Streaming / unknown / UL:0 DL:64 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.2.18.1 Conformance requirement

See 14.2.4.1.

14.2.18.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.18.

To be able to test the downlink radio bearer using the UE loopback function for the reference radio bearer UL:0 DL: 64 kbps, the reference radio bearer configuration according to TS 34.108, clause 6.10.2.4.1.15.1 (Streaming/unknown/UL:14.4 kbps) is used in uplink.

14.2.18.3 Method of test

Uplink TFS:

	TFI	RB5 (14.4 kbps)	DCCH
TFS	TF0, bits	0x576	0x148
115	TF1, bits	1x576	1x148

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF0, TF1)
UL_TFC3	(TF1, TF1)

Downlink TFS:

	TFI	RB5 (64 kbps)	рссн
	TF0, bits	0x320	0x148
	TF1, bits	1x320	1x148
TFS	TF2, bits	2x320	N/A
	TF3, bits	4x320	N/A
	TF4, bits	8x320	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)	
DL_TFC0	(TF0, TF0)	
DL_TFC1	(TF1, TF0)	
DL_TFC2	(TF2, TF0)	
DL_TFC3	(TF3, TF0)	
DL_TFC4	(TF4, TF0)	
DL_TFC5	(TF0, TF1)	
DL_TFC6	(TF1, TF1)	
DL_TFC7	(TF2, TF1)	
DL_TFC8	(TF3, TF1)	
DL_TFC9	(TF4, TF1)	

Sub-tests:

Sub- test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note 1)	Test data size (bits) (note 1)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC2	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3	RB5: 576	RB5: 320 (note 2)
2	DL_TFC2	UL_TFC1	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC2	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3	RB5: <u>576</u> 1152	RB5: 640 (note 3)
3	DL_TFC3	UL_TFC1	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC2	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3	RB5: <u>576</u> 1728	RB5: 1280 (note 4)
4	DL_TFC4	UL_TFC1	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC2	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3	RB5: <u>576</u> 2880	RB5: 2560 (note 5)

- NOTE 1: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
- NOTE 2: SS is using a DL RLC SDU with 320 bits as test data (=DL RLC PDU size for DL/TF1). UE will return one RLC PDU. SS creates an UL RLC SDU from the first 320 bits of the received RLC PDU.
- NOTE 3: SS is using a DL RLC SDU size of 640 bits as test data (=DL RLC PDU size for DL/TF2). UE will return one two RLC PDUs. SS creates an UL RLC SDU from the received RLC PDUby concatenating RLC PDU#1 and the first 64 bits of RLC PDU#2.
- NOTE 4: SS is using a DL RLC SDU size of 1280 bits as test data (=DL RLC PDU size for DL/TF3). UE will return one three RLC PDUs. SS creates an UL RLC SDU from the received RLC PDUby concatenating RLC PDU#1, RLC PDU#2 and the first 128 bits of RLC PDU#3.
- NOTE 5: SS is using a DL RLC SDU size of 2560 bits as test data (=DL RLC PDU size for DL/TF4). UE will return one five RLC PDUs. SS creates an UL RLC SDU from the received RLC PDUby concatenating RLC PDU#1, RLC PDU#2, RLC PDU#3, RLC PDU#4 and the first 256 bits of RLC PDU#5.

See 14.1.1 for test procedure.

14.2.18.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE shall return
 - for sub-test 1-to-4: an RLC SDU on RB5 having the same content as sent by the SS.
 - for sub-test 2 to 4: an RLC SDU on RB5 having the same content as the first 576 bits of the RLC SDU sent by the SS.

14.2.19 Streaming / unknown / UL:64 DL:0 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.2.19.1 Conformance requirement

See 14.2.4.1.

14.2.19.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.19.

To be able to test the uplink radio bearer using the UE loopback function for the reference radio bearer UL:64 DL: 0 kbps, the reference radio bearer configuration according to TS 34.108, clause 6.10.2.4.1.15.2 (Streaming/unknown/DL:14.4 kbps) is used in downlink.

14.2.19.3 Method of test

Uplink TFS:

	TFI	RB5 (64 kbps)	рссн
	TF0, bits	0x320	0x148
	TF1, bits	1x320	1x148
TFS	TF2, bits	2x320	N/A
	TF3, bits	4x320	N/A
	TF4, bits	8x320	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)	
UL_TFC0	(TF0, TF0)	
UL_TFC1	(TF1, TF0)	
UL_TFC2	(TF2, TF0)	
UL_TFC3	(TF3, TF0)	
UL_TFC4	(TF4, TF0)	
UL_TFC5	(TF0, TF1)	
UL_TFC6	(TF1, TF1)	
UL_TFC7	(TF2, TF1)	
UL_TFC8	(TF3, TF1)	
UL_TFC9	(TF4, TF1)	

Downlink TFS:

	TFI	RB5 (14.4 kbps)	DCCH
TFS	TF0, bits	0x576	0x148
113	TF1, bits	1x576	1x148

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF0, TF1)
DL_TFC3	(TF1, TF1)

Sub-tests:

Sub- test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note 1)	Test data size (bits)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 320	RB5: 576 (note 2)
2	DL_TFC1	UL_TFC2	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 640	RB5: 576 (note 3)
3	DL_TFC1	UL_TFC3	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 1280	RB5: 576 (note 4)
4	DL_TFC1	UL_TFC4	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 2560	RB5: 576 (note 5)

- NOTE 1: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
- NOTE 2: SS is using a DL RLC SDU with 576 bits as test data (=DL RLC PDU size for DL/TF1). UE will return the first 320 bits of the test data.
- NOTE 3: SS is using a DL RLC SDU size of 576 bits as test data (=DL RLC PDU size for DL/TF1). UE will return an RLC SDU repeating the received DL RLC SDU two times (truncating the last one to fit the UL RLC SDU size of 640 bits).
- NOTE 4: SS is using a DL RLC SDU size of 576 bits as test data (=DL RLC PDU size for DL/TF1). UE will return an RLC SDU repeating the received DL RLC SDU three times (truncating the last one to fit the UL RLC SDU size of 1280 bits).
- NOTE 5: SS is using a DL RLC SDU size of 576 bits as test data (=DL RLC PDU size for DL/TF1). UE will return an RLC SDU repeating the received DL RLC SDU five times (truncating the last one to fit the UL RLC SDU size of 2560 bits).

See 14.1.1 for test procedure.

14.2.19.4 Test requirements

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be
 - for sub-test 1: RB5/TF1 (1x320).
 - for sub-test 2: RB5/TF2 (2x320).
 - for sub-test 3: RB5/TF3 (4x320).
 - for sub-test 4: RB5/TF4 (8x320).
- 3. At step 15 the UE shall return
 - for sub-test 1: an RLC SDU on RB5 having the same content as the first 320 bits of the DL RLC SDU sent by the SS.
 - for sub-test 2: an RLC SDU on RB5 for which the first 576 bits are equal to the sent DL RLC SDU bit pattern and the remaining 64 bits are equal to the first 64 bits of the sent DL RLC SDU.
 - for sub-test 3: an RLC SDU on RB5 for which the first 1152 bits are equal to the sent DL RLC SDU bit pattern repeated twice and the remaining 128 bits are equal to the first 128 bits of the sent DL RLC SDU.
 - for sub-test 4: an RLC SDU on RB5 for which the first 2304 bits are equal to the sent DL RLC SDU bit pattern repeated four times and the remaining 256 bits are equal to the first 256 of the sent DL RLC SDU.

14.2.20 Streaming / unknown / UL:0 DL:128 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.2.20.1 Conformance requirement

See 14.2.4.1.

14.2.20.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.20.

To be able to test the downlink radio bearer using the UE loopback function for the reference radio bearer UL:0 DL: 128 kbps, the reference radio bearer configuration according to TS 34.108, clause 6.10.2.4.1.15.1 (Streaming/unknown/UL:14.4 kbps) is used in uplink. For all sub-tests UL_TFC1 is used.

14.2.20.3 Method of test

Uplink TFS:

	TFI	RB5 (28.8 kbps)	DCCH
TFS	TF0, bits	0x576	0x148
11-3	TF1, bits	1x576	1x148

Uplink TFCS:

TFCI	(RB5,	DCCH)
UL_TFC0	(TF0, TF0)	
UL_TFC1	(TF1, TF0)	
UL_TFC2	(TF0, TF1)	
UL_TFC3	(TF1, TF1)	

Downlink TFS:

	TFI	RB5 (128 kbps)	DCCH
	TF0, bits	0x320	0x148
	TF1, bits	1x320	1x148
TFS	TF2, bits	2x320	N/A
11-3	TF3, bits	4x320	N/A
	TF4, bits	8x320	N/A
	TF5, bits	16x320	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF5, TF0)
DL_TFC6	(TF0, TF1)
DL_TFC7	(TF1, TF1)
DL_TFC8	(TF2, TF1)
DL_TFC9	(TF3, TF1)
DL_TFC10	(TF4, TF1)
DL_TFC11	(TF5, TF1)

Sub-tests:

	Sub- test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (bits)	Test data size (bits)
ļ						(note 1)	(note 1)
	1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC6, UL_TFC0,	UL_TFC0,	RB5: 576	RB5: 320
				UL_TFC2	UL_TFC1,		(note 2)
					UL_TFC2,		
ļ	_				UL_TFC3		
	2	DL_TFC2	UL_TFC1	DL_TFC0, DL_TFC6, UL_TFC0,	UL_TFC0,	RB5:	RB5: 640
l				UL_TFC2	UL_TFC1,	<u>576</u> 1152	(note 3)
					UL_TFC2,		
ļ					UL_TFC3		
	3	DL_TFC3	UL_TFC1	DL_TFC0, DL_TFC6, UL_TFC0,	UL_TFC0,	RB5:	RB5: 1280
ļ				UL_TFC2	UL_TFC1,	<u>576</u> 1728	(note 4)
					UL_TFC2,		
ļ					UL_TFC3		
	4	DL_TFC4	UL_TFC1	DL_TFC0, DL_TFC6, UL_TFC0,	UL_TFC0,	RB5:	RB5: 2560
ļ				UL_TFC2	UL_TFC1,	<u>576</u> 2880	(note 5)
					UL_TFC2,		
ļ					UL_TFC3		
	5	DL_TFC5	UL_TFC1	DL_TFC0, DL_TFC6, UL_TFC0,	UL_TFC0,	RB5:	RB5: 5120
				UL_TFC2	UL_TFC1,	<u>576</u> 5184	(note 6)
					UL_TFC2,		
					UL_TFC3		

- NOTE 1: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
- NOTE 2: SS is using a DL RLC SDU with 320 bits as test data (=DL RLC PDU size for DL/TF1). UE will return one RLC PDU. SS creates an UL RLC SDU from the first 320 bits of the received RLC PDU.
- NOTE 3: SS is using a DL RLC SDU size of 640 bits as test data (=DL RLC PDU size for DL/TF2). UE will return one two RLC PDUs. SS creates an UL RLC SDU from the received RLC PDUby concatenating RLC PDU#1 and the first 64 bits of RLC PDU#2.
- NOTE 4: SS is using a DL RLC SDU size of 1280 bits as test data (=DL RLC PDU size for DL/TF3). UE will return one-three-RLC PDUs. SS creates an UL RLC SDU from-the-received-RLC PDUby concatenating-RLC PDU#1, RLC PDU#2 and the first 128 bits of RLC PDU#3.
- NOTE 5: SS is using a DL RLC SDU size of 2560 bits as test data (=DL RLC PDU size for DL/TF4). UE will return one five RLC PDUs. SS creates an UL RLC SDU from the received RLC PDUby concatenating RLC PDU#1, RLC PDU#2, RLC PDU#3, RLC PDU#4 and the first 256 bits of RLC PDU#5.
- NOTE 6: SS is using a DL RLC SDU size of 5120 bits as test data (=DL RLC PDU size for DL/TF5). UE will return one nine RLC PDUs. SS creates an UL RLC SDU from the received RLC PDUby concatenating RLC PDU#1, RLC PDU#2, ..., RLC PDU#8 and the first 512 bits of RLC PDU#9.

See 14.1.1 for test procedure.

14.2.20.4 Test requirements

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE shall return
 - for sub-test 1-to-5: an RLC SDU on RB5 having the same content as sent by the SS.
 - for sub-test 2 to 5: an RLC SDU on RB5 having the same content as the first 576 bits of the RLC SDU sent by the SS.

14.2.21 Streaming / unknown / UL:128 DL:0 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.2.21.1 Conformance requirement

See 14.2.4.1.

14.2.21.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.21.

To be able to test the uplink radio bearer using the UE loopback function for the reference radio bearer UL:64 DL: 0 kbps, the reference radio bearer configuration according to TS 34.108, clause 6.10.2.4.1.15.2 (Streaming/unknown/DL:14.4 kbps) is used in downlink.

14.2.21.3 Method of test

Uplink TFS:

	TFI	RB5 (128 kbps)	DCCH
	TF0, bits	0x320	0x148
	TF1, bits	1x320	1x148
TFS	TF2, bits	2x320	N/A
11-3	TF3, bits	4x320	N/A
	TF4, bits	8x320	N/A
	TF5, bits	16x320	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF4, TF0)
UL_TFC6	(TF0, TF1)
UL_TFC7	(TF1, TF1)
UL_TFC8	(TF2, TF1)
UL_TFC9	(TF3, TF1)
UL_TFC10	(TF4, TF1)
UL_TFC11	(TF5, TF1)

Downlink TFS:

	TFI	RB5 (28.8 kbps)	DCCH
TFS	TF0, bits	0x576	0x148
	TF1, bits	1x576	1x148

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF0, TF1)
DL_TFC3	(TF1, TF1)

Sub-tests:

Sub- test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (bits)	Test data size (bits)
	011401 1001	011401 1001			(note 1)	(note 1)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC6,	RB5: 320	RB5: 576 (note 2)
				UL_TFC7		
2	DL_TFC1	UL_TFC2	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC2, UL_TFC6, UL_TFC8	RB5: 640	RB5: 576 (note 3)
3	DL_TFC1	UL_TFC3	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC3, UL_TFC6, UL_TFC9	RB5: 1280	RB5: 576 (note 4)
4	DL_TFC1	UL_TFC4	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC4, UL_TFC6, UL_TFC10	RB5: 2560	RB5: 576 (note 5)
5	DL_TFC1	UL_TFC5	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC5, UL_TFC6, UL_TFC11	RB5: 5120	RB5: 576 (note 6)

- NOTE 1: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
- NOTE 2: SS is using a DL RLC SDU with 576 bits as test data (=DL RLC PDU size for DL/TF1). UE will return the first 320 bits of the test data.
- NOTE 3: SS is using a DL RLC SDU size of 576 bits as test data (=DL RLC PDU size for DL/TF1). UE will return an RLC SDU repeating the received DL RLC SDU two times (truncating the last one to fit the UL RLC SDU size of 640 bits).
- NOTE 4: SS is using a DL RLC SDU size of 576 bits as test data (=DL RLC PDU size for DL/TF1). UE will return an RLC SDU repeating the received DL RLC SDU three times (truncating the last one to fit the UL RLC SDU size of 1280 bits).
- NOTE 5: SS is using a DL RLC SDU size of 576 bits as test data (=DL RLC PDU size for DL/TF1). UE will return an RLC SDU repeating the received DL RLC SDU five times (truncating the last one to fit the UL RLC SDU size of 2560 bits).
- NOTE 6: SS is using a DL RLC SDU size of 576 bits as test data (=DL RLC PDU size for DL/TF1). UE will return an RLC SDU repeating the received DL RLC SDU nine times (truncating the last one to fit the UL RLC SDU size of 5120 bits).

See 14.1.1 for test procedure.

14.2.21.4 Test requirements

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be
 - for sub-test 1: RB5/TF1 (1x320).
 - for sub-test 2: RB5/TF2 (2x320).
 - for sub-test 3: RB5/TF3 (4x320).
 - for sub-test 4: RB5/TF4 (8x320).
 - for sub-test 5: RB5/TF5 (16x320).
- 3. At step 15 the UE shall return
 - for sub-test 1: an RLC SDU on RB5 having the same content as the first 320 bits of the DL RLC SDU sent by the SS.

- for sub-test 2: an RLC SDU on RB5 for which the first 576 bits are equal to the sent DL RLC SDU bit pattern and the remaining 64 bits are equal to the first 64 bits of the DL RLC SDU sent by the SS.
- for sub-test 3: an RLC SDU on RB5 for which the first 1152 bits are equal to the sent DL RLC SDU bit pattern repeated twice and the remaining 128 bits are equal to the first 128 of the sent DL RLC SDU.
- for sub-test 4: an RLC SDU on RB5 for which the first 2304 bits are equal to the sent DL RLC SDU bit pattern repeated four times and the remaining 256 bits are equal to the first 256 of the sent DL RLC SDU.
- for sub-test 5: an RLC SDU on RB5 for which the first 4608 bits are equal to the sent DL RLC SDU bit pattern repeated eight times and the remaining 512 bits are equal to the first 512 of the sent DL RLC SDU.

14.2.22 Streaming / unknown / UL:0 DL:384 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.2.22.1 Conformance requirement

See 14.2.4.1.

14.2.22.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.22.

To be able to test the downlink radio bearer using the UE loopback function for the reference radio bearer UL:0 DL: 384 kbps, the reference radio bearer configuration according to TS 34.108, clause 6.10.2.4.1.15.1 (Streaming/unknown/UL:14.4 kbps) is used in uplink.

14.2.22.3 Method of test

Uplink TFS:

	TFI	RB5 (28.8 kbps)	DCCH
TFS	TF0, bits	0x576	0x148
	TF1, bits	1x576	1x148

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF0, TF1)
UL_TFC3	(TF1, TF1)

Downlink TFS:

	TFI	RB5 (384 kbps)	DCCH
	TF0, bits	0x320	0x148
	TF1, bits	1x320	1x148
	TF2, bits	2x320	N/A
TFS	TF3, bits	4x320	N/A
115	TF4, bits	8x320	N/A
	TF5, bits	16x320	N/A
	TF6, bits	32x320	N/A
	TF7, bits	48x320	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF5, TF0)
DL_TFC6	(TF6, TF0)
DL_TFC7	(TF7, TF0)
DL_TFC8	(TF0, TF1)
DL_TFC9	(TF1, TF1)
DL_TFC10	(TF2, TF1)
DL_TFC11	(TF3, TF1)
DL_TFC12	(TF4, TF1)
DL_TFC13	(TF5, TF1)
DL_TFC14	(TF6, TF1)
DL_TFC15	(TF7, TF1)

Sub-tests:

Sub- test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (bits)	Test data size (bits)
					(note 1)	(note 1)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC8, UL_TFC0, UL_TFC2	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3	RB5: 576	RB5: 320 (note 2)
2	DL_TFC2	UL_TFC1	DL_TFC0, DL_TFC8, UL_TFC0, UL_TFC2	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3	RB5: <u>576</u> 1152	RB5: 640 (note 3)
3	DL_TFC3	UL_TFC1	DL_TFC0, DL_TFC8, UL_TFC0, UL_TFC2,	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3	RB5: <u>576</u> 1728	RB5: 1280 (note 4)
4	DL_TFC4	UL_TFC1	DL_TFC0, DL_TFC8, UL_TFC0, UL_TFC2	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3	RB5: <u>576</u> 2880	RB5: 2560 (note 5)
5	DL_TFC5	UL_TFC1	DL_TFC0, DL_TFC8, UL_TFC0, UL_TFC2	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3	RB5: <u>576</u> 5184	RB5: 5120 (note 6)
6	DL_TFC6	UL_TFC1	DL_TFC0, DL_TFC8, UL_TFC0, UL_TFC2	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3	RB5: <u>576</u> 10368	RB5: 10240 (note 7)

Sub- test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note 1)	Test data size (bits)
7	DL_TFC7	UL_TFC1	DL_TFC0, DL_TFC8, UL_TFC0, UL_TFC2	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3	RB5: <u>576</u> 15552	RB5: 15360 (note 8)

- NOTE 1: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
- NOTE 2: SS is using a DL RLC SDU with 320 bits as test data (=DL RLC PDU size for DL/TF1). UE will return one RLC PDU. SS creates an UL RLC SDU from the first 320 bits of the received RLC PDU.
- NOTE 3: SS is using a DL RLC SDU size of 640 bits as test data (=DL RLC PDU size for DL/TF2). UE will return one two RLC PDUs. SS creates an UL RLC SDU from the received RLC PDUby concatenating RLC PDU#1 and the first 64 bits of RLC PDU#2.
- NOTE 4: SS is using a DL RLC SDU size of 1280 bits as test data (=DL RLC PDU size for DL/TF3). UE will return one3 RLC PDUs. SS creates an UL RLC SDU from the received RLC PDUby concatenating RLC PDU#1, RLC PDU#2 and the first 128 bits of RLC PDU#3.
- NOTE 5: SS is using a DL RLC SDU size of 2560 bits as test data (=DL RLC PDU size for DL/TF4). UE will return one5 RLC PDUs. SS creates an UL RLC SDU from the received RLC PDUby concatenating RLC PDU#1, RLC PDU#2, RLC PDU#3, RLC PDU#4 and the first 256 bits of RLC PDU#5.
- NOTE 6: SS is using a DL RLC SDU size of 5120 bits as test data (=DL RLC PDU size for DL/TF5). UE will return one9 RLC PDUs. SS creates an UL RLC SDU from the received RLC PDUby concatenating RLC PDU#1, RLC PDU#2, ..., RLC PDU#8 and the first 512 bits of RLC PDU#9.
- NOTE 7: SS is using a DL RLC SDU size of 10240 bits as test data (=DL RLC PDU size for DL/TF6). UE will return one 18 RLC PDUs. SS creates an UL RLC SDU from the received RLC PDUby concatenating RLC PDU#1, RLC PDU#1, m, RLC PDU#17 and the first 448 bits of RLC PDU#18.
- NOTE 8: SS is using a DL RLC SDU size of 15360 bits as test data (=DL RLC PDU size for DL/TF7). UE will return one 27 RLC PDUs. SS creates an UL RLC SDU from the received RLC PDUby concatenating RLC PDU#1, RLC PDU#26 and the first 384 bits of RLC PDU#27.

See 14.1.1 for test procedure.

14.2.22.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE shall return
 - for sub-test 1-to-7: an RLC SDU on RB5 having the same content as sent by the SS.
 - for sub-test 2 to 7: an RLC SDU on RB5 having the same content as the first 576 bits of the RLC SDU sent by the SS.

14.2.23 Interactive or background / UL:32 DL:8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.2.23.1 Interactive or background / UL:32 DL:8 kbps / PS RAB / (TC,10 ms TTI)

14.2.23.1.1 Conformance requirement

See 14.2.4.1.

14.2.23.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.23 for the turbo channel coding and uplink 10 ms TTI case.

14.2.23.1.3 Method of test

Uplink TFS:

	TFI	RB5 (32 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
11-3	TF1, bits	1x336	1x148

Uplink TFCS:

TFCI		(RB5, DCCH)	
UL_TFC0	(TF0, TF0)		
UL_TFC1	(TF1, TF0)		
UL_TFC2	(TF0, TF1)		
UL_TFC3	(TF1, TF1)		

Downlink TFS:

	TFI	RB5 (8 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
1173	TF1, bits	1x336	1x148

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF0, TF1)
DL_TFC3	(TF1, TF1)

Sub-tests:

Sub- test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC2	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3	RB5: <u>312</u> 336	RB5: <u>312336</u>
NOTE:	See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.					

See 14.1.1 for test procedure.

14.2.23.1.4 Test requirements

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be
 - for sub-test 1: RB5/TF1 (1x336).
- 3. At step 15 the UE shall return
 - for sub-test 1: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

14.2.23.2 Interactive or background / UL:32 DL:8 kbps / PS RAB / (TC, 20 ms TTI)

14.2.23.2.1 Conformance requirement

See 14.2.4.1.

14.2.23.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.23 for the turbo channel coding and uplink 20 ms TTI case.

14.2.23.2.3 Method of test

Uplink TFS:

	TFI	RB5 (32 kbps)	DCCH
	TF0, bits	0x336	0x148
TFS	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)	
UL_TFC0	(TF0, TF0)	
UL_TFC1	(TF1, TF0)	
UL_TFC2	(TF2, TF0)	
UL_TFC3	(TF0, TF1)	
UL_TFC4	(TF1, TF1)	
UL_TFC5	(TF2, TF1)	•

Downlink TFS:

	TFI	RB5 (8 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
11-3	TF1, bits	1x336	1x148

Downlink TFCS:

TFCI		(RB5, DCCH)	
DL_TFC0	(TF0, TF0)		
DL_TFC1	(TF1, TF0)		
DL_TFC2	(TF0, TF1)		
DL_TFC3	(TF1, TF1)		

Sub-tests:

Sub- test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4	RB5: <u>312</u> 336	RB5: <u>312</u> 336
2	DL_TFC1	UL_TFC2	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC2, UL_TFC3, UL_TFC5	RB5: <u>632</u> 672	RB5: <u>632</u> 672
NOTE:	See TS 34.	109 [10] clause	5.3.2.6.2 for details regarding loople	oack of RLC SE	Us.	

See 14.1.1 for test procedure.

14.2.23.2.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be
 - for sub-test 1: RB5/TF1 (1x336).
 - for sub-test 2: RB5/TF2 (2x336).
- 3. At step 15 the UE shall return
 - for sub-test 1 and 2: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

14.2.23.3 Interactive or background / UL:32 DL:8 kbps / PS RAB / (CC, 10 ms TTI)

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.23 for the convolutional channel coding and uplink 10 ms TTI case.

See test case 14.2.23.1 for test procedure and test requirement.

14.2.23.4 Interactive or background / UL:32 DL:8 kbps / PS RAB / (CC, 20 ms TTI)

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.23 for the convolutional channel coding and uplink 20 ms TTI case.

See test case 14.2.23.2 for test procedure and test requirement.

14.2.24 Interactive or background / UL:64 DL:8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.2.24.1 Interactive or background / UL:64 DL:8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / TC

14.2.24.1.1 Conformance requirement

See 14.2.4.1.1.

14.2.24.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.24 for the downlink turbo coding case.

14.2.24.1.3 Method of test

Uplink TFS:

	TFI	RB5 (64 kbps)	рссн
	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
TFS	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)	
UL_TFC0	(TF0, TF0)	
UL_TFC1	(TF1, TF0)	
UL_TFC2	(TF2, TF0)	
UL_TFC3	(TF3, TF0)	
UL_TFC4	(TF4, TF0)	
UL_TFC5	(TF0, TF1)	
UL_TFC6	(TF1, TF1)	
UL_TFC7	(TF2, TF1)	
UL_TFC8	(TF3, TF1)	
UL_TFC9	(TF4, TF1)	

Downlink TFS:

	TFI	RB5 (8 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
1173	TF1, bits	1x336	1x148

Downlink TFCS:

TFCI	(RB5, DCCH)		
DL_TFC0	(TF0, TF0)		
DL_TFC1	(TF1, TF0)		
DL_TFC2	(TF0, TF1)		
DL_TFC3	(TF1, TF1)		

Sub-tests:

Sub- test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: <u>312336</u>	RB5: <u>312</u> 336
2	DL_TFC1	UL_TFC2	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC2, UL_TFC5, UL_TFC7	RB5: <u>632</u> 672	RB5: <u>632</u> 672
3	DL_TFC1	UL_TFC3	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 9521008	RB5: <u>952</u> 1008
4	DL_TFC1	UL_TFC4	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 1272 ¹³⁴⁴	RB5: 1272 <mark>1344</mark>
NOTE:	See TS 34.	109 [10] clause	5.3.2.6.2 for details regarding loops	oack of RLC SE	Us.	

See 14.1.1 for test procedure.

14.2.24.1.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be
 - for sub-test 1: RB5/TF1 (1x336).
 - for sub-test 2: RB5/TF2 (2x336).
 - for sub-test 3: RB5/TF3 (3x336).
 - for sub-test 4: RB5/TF4 (4x336).
- 3. At step 15 the UE shall return
 - for sub-test 1 to 4: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

14.2.24.2 Interactive or background / UL:64 DL:8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / CC

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.24 for the downlink convolutional channel coding case.

See test case 14.2.24.1 for test procedure and test requirement.

14.2.25 Interactive or background / UL:32 DL: 64 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

- 14.2.25.1 Interactive or background / UL:32 DL: 64 kbps / PS RAB / (TC, 10 ms TTI)
- 14.2.25.1.1 Conformance requirement

See 14.2.4.1.

14.2.25.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.25 for the uplink turbo channel coding and 10 ms TTI case.

14.2.25.1.3 Method of test

Uplink TFS:

	TFI	RB5 (32 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
115	TF1, bits	1x336	1x148

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF0, TF1)
UL_TFC3	(TF1, TF1)

Downlink TFS:

	TFI	RB5 (64 kbps)	DCCH
	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
TFS	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)	
DL_TFC0	(TF0, TF0)	
DL_TFC1	(TF1, TF0)	
DL_TFC2	(TF2, TF0)	
DL_TFC3	(TF3, TF0)	
DL_TFC4	(TF4, TF0)	
DL_TFC5	(TF0, TF1)	
DL_TFC6	(TF1, TF1)	
DL_TFC7	(TF2, TF1)	•
DL_TFC8	(TF3, TF1)	
DL TFC9	(TF4 TF1)	

Sub-tests:

Sub- test	Downlink TFCS	Uplink TFCS	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size	Test data size (bits)
	Under test	Under test			(bits) (note)	(note)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC2	UL_TFC0, UL_TFC1, UL_TFC2,	RB5: <u>312</u> 336	RB5: <u>312</u> 336
2	DL_TFC2	UL_TFC1	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC2	UL_TFC3 UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3	RB5: <u>632672</u>	RB5: <u>632</u> 672
3	DL_TFC3	UL_TFC1	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC2	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3	RB5: 9521008	RB5: <u>952</u> 1008
4	DL_TFC4	UL_TFC1	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC2	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3	RB5: 1272 ¹³⁴⁴	RB5: 1272 <mark>1344</mark>
NOTE:	See TS 34.	109 [10] clause	5.3.2.6.2 for details regarding loop	oack of RLC SE	Us.	

See 14.1.1 for test procedure.

14.2.25.1.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be
 - for sub-test 1 to 4: RB5/TF1 (1x336).
- 3. At step 15 the UE shall return
 - for sub-test 1 to 4: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

14.2.25.2 Interactive or background / UL:32 DL: 64 kbps / PS RAB / (TC, 20 ms TTI)

14.2.25.2.1 Conformance requirement

See 14.2.4.1.

14.2.25.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.25 for the uplink turbo channel coding and 20 ms TTI case.

14.2.25.2.3 Method of test

Uplink TFS:

	TFI	RB5 (32 kbps)	рссн
	TF0, bits	0x336	0x148
TFS	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A

Uplink TFCS:

TFCI		(RB5, DCCH)
UL_TFC0	(TF0, TF0)	
UL_TFC1	(TF1, TF0)	
UL_TFC2	(TF2, TF0)	
UL_TFC3	(TF0, TF1)	
UL_TFC4	(TF1, TF1)	
UL_TFC5	(TF2, TF1)	

Downlink TFS:

	TFI	RB5 (64 kbps)	DCCH
	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
TFS	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF0, TF1)
DL_TFC6	(TF1, TF1)
DL_TFC7	(TF2, TF1)
DL_TFC8	(TF3, TF1)
DL_TFC9	(TF4, TF1)

Sub-tests:

TFCS Under test	TFCS Under test	Implicitely tested	Restricted UL TFCIs	size (bits) (note)	Test data size (bits)
DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4	RB5: <u>312</u> 336	RB5: <u>312</u> 336
DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC2, UL_TFC3, UL_TFC5	RB5: <u>632</u> 672	RB5: <u>632</u> 672
DL_TFC3	UL_TFC1	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4	RB5: 9521008	RB5: <u>952</u> 1008
DL_TFC4	UL_TFC2	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC2, UL_TFC3, UL_TFC5	RB5: 1272 ¹³⁴⁴	RB5: 1272 <mark>1344</mark>
	DL_TFC2 DL_TFC3 DL_TFC4	DL_TFC1 UL_TFC1 DL_TFC2 UL_TFC2 DL_TFC3 UL_TFC1 DL_TFC4 UL_TFC2	DL_TFC1 UL_TFC1 DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC0, UL_TFC3 DL_TFC2 UL_TFC2 DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC3 DL_TFC3 UL_TFC1 DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC3 DL_TFC4 UL_TFC2 DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC3	DL_TFC1	DL_TFC1

See 14.1.1 for test procedure.

14.2.25.2.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be
 - for sub-test 1: RB5/TF1 (1x336).
 - for sub-test 2: RB5/TF2 (2x336).
 - for sub-test 3: RB5/TF1 (1x336).
 - for sub-test 4: RB5/TF2 (2x336).
- 3. At step 15 the UE shall return
 - for sub-test 1 to 4: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

14.2.25.3 Interactive or background / UL:32 DL:64 kbps / PS RAB / (CC, 10 ms TTI)

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.25 for the uplink convolutional channel coding and 10 ms TTI case.

See test case 14.2.25.1 for test procedure and test requirement.

14.2.25.4 Interactive or background / UL:32 DL:64 kbps / PS RAB / (CC, 20 ms TTI)

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.25 for the uplink convolutional channel coding and 20 ms TTI case.

See test case 14.2.25.2 for test procedure and test requirement.

14.2.26 Interactive or background / UL:64 DL: 64 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.2.26.1 Conformance requirement

See 14.2.4.1.

14.2.26.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.26.

14.2.26.3 Method of test

Uplink TFS:

	TFI	RB5 (64 kbps)	DCCH
	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
TFS	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)	
UL_TFC0	(TF0, TF0)	
UL_TFC1	(TF1, TF0)	
UL_TFC2	(TF2, TF0)	
UL_TFC3	(TF3, TF0)	
UL_TFC4	(TF4, TF0)	
UL_TFC5	(TF0, TF1)	
UL_TFC6	(TF1, TF1)	
UL_TFC7	(TF2, TF1)	
UL_TFC8	(TF3, TF1)	
UL_TFC9	(TF4, TF1)	

Downlink TFS:

	TFI	RB5 (64 kbps)	DCCH
	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
TFS	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF0, TF1)
DL_TFC6	(TF1, TF1)
DL_TFC7	(TF2, TF1)
DL_TFC8	(TF3, TF1)
DL_TFC9	(TF4, TF1)

Sub-tests:

Sub- test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: <u>312</u> 336	RB5: <u>312</u> 336
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC2, UL_TFC5, UL_TFC7	RB5: <u>632672</u>	RB5: <u>632</u> 672
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 9521008	RB5: <u>952</u> 1008
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 1272 ¹³⁴⁴	RB5: 12721344

See 14.1.1 for test procedure.

14.2.26.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be
 - for sub-test 1: RB5/TF1 (1x336).
 - for sub-test 2: RB5/TF2 (2x336).
 - for sub-test 3: RB5/TF3 (3x336).
 - for sub-test 4: RB5/TF4 (4x336).
- 3. At step 15 the UE shall return
 - for sub-test 1 to 4: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

14.2.27 Interactive or background / UL:64 DL:128 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.2.27.1 Conformance requirement

See 14.2.4.1.

14.2.27.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.27.

14.2.27.3 Method of test

Uplink TFS:

	TFI	RB5 (64 kbps)	DCCH
	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
TFS	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Downlink TFS:

	TFI	RB5 (128 kbps)	DCCH
	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
TFS	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF0, TF1)
DL_TFC6	(TF1, TF1)
DL_TFC7	(TF2, TF1)
DL_TFC8	(TF3, TF1)
DL_TFC9	(TF4, TF1)

Sub-tests:

Sub- test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: <u>312336</u>	RB5: <u>312</u> 336
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC2, UL_TFC5, UL_TFC7	RB5: <u>632672</u>	RB5: <u>632</u> 672
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 1272 ¹³⁴⁴	RB5: 12721344
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 25522688	RB5: 2552 ²⁶⁸⁸
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 14.1.1 for test procedure.

14.2.27.4 Test requirements

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be
 - for sub-test 1: RB5/TF1 (1x336).
 - for sub-test 2: RB5/TF2 (2x336).
 - for sub-test 3: RB5/TF3 (3x336).

- for sub-test 4: RB5/TF4 (4x336).
- 3. At step 15 the UE shall return
 - for sub-test 1 to 4: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

14.2.28 Interactive or background / UL:128 DL:128 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.2.28.1 Conformance requirement

See 14.2.4.1.

14.2.28.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.28.

14.2.28.3 Method of test

Uplink TFS:

	TFI	RB5 (128 kbps)	DCCH
	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
TFS	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Downlink TFS:

	TFI	RB5 (128 kbps)	DCCH
	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
TFS	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF0, TF1)
DL_TFC6	(TF1, TF1)
DL_TFC7	(TF2, TF1)
DL_TFC8	(TF3, TF1)
DL_TFC9	(TF4, TF1)

Sub-tests:

Sub- test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (bits)	Test data size (bits)	
					(note)	(note)	
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC5, UL_TFC0,	UL_TFC0,	RB5: <u>312</u> 336	RB5: <u>312</u> 336	
			UL_TFC5	UL_TFC1,			
				UL_TFC5,			
				UL_TFC6			
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC5, UL_TFC0,	UL_TFC0,	RB5: <u>632</u> 672	RB5: <u>632</u> 672	
			UL_TFC5	UL_TFC2,			
				UL_TFC5,			
				UL_TFC7			
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC5, UL_TFC0,	UL_TFC0,	RB5:	RB5:	
			UL_TFC5	UL_TFC3,	<u>1272</u> 1344	<u>1272</u> 1344	
				UL_TFC5,			
				UL_TFC8			
. 4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC5, UL_TFC0,	UL_TFC0,	RB5:	RB5:	
			UL_TFC5	UL_TFC4,	<u>2552</u> 2688	<u>2552</u> 2688	
				UL_TFC5,			
				UL_TFC9			
NOTE:	NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 14.1.1 for test procedure.

14.2.28.4 Test requirements

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be
 - for sub-test 1: RB5/TF1 (1x336).
 - for sub-test 2: RB5/TF2 (2x336).
 - for sub-test 3: RB5/TF3 (4x336).
 - for sub-test 4: RB5/TF4 (8x336).
- 3. At step 15 the UE shall return
 - for sub-test 1 to 4: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

14.2.29 Interactive or background / UL:64 DL:144 kbps / PS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH

14.2.29.1 Conformance requirement

See 14.2.4.1.

14.2.29.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.29.

14.2.29.3 Method of test

Uplink TFS:

	TFI	RB5 (64 kbps)	DCCH
	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
TFS	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Downlink TFS:

	TFI	RB5 (144 kbps)	DCCH
	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
TFS	TF2, bits	2x336	N/A
115	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A
	TF5, bits	9x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF5, TF1)
DL_TFC6	(TF0, TF1)
DL_TFC7	(TF1, TF1)
DL_TFC8	(TF2, TF1)
DL_TFC9	(TF3, TF1)
DL_TFC10	(TF4, TF1)
DL_TFC11	(TF5, TF1)

Sub-tests:

Sub- test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (bits)	Test data size (bits)
					(note)	(note)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: <u>312</u> 336	RB5: <u>312</u> 336
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC2, UL_TFC5, UL_TFC7	RB5: <u>632</u> 672	RB5: <u>632</u> 672
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC3, UL_TFC5, UL_TFC8	RB5: <u>1272</u> 1344	RB5: 1272 ¹³⁴⁴
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 2552 ²⁶⁸⁸	RB5: 2552 ²⁶⁸⁸
5 NOTE:	DL_TFC5	UL_TFC3	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5 5.3.2.6.2 for details regarding loopba	UL_TFC0, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 2872 ³⁰² 4	RB5: 2872 ³⁰²⁴

See 14.1.1 for test procedure.

14.2.29.4 Test requirements

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be
 - for sub-test 1: RB5/TF1 (1x336).
 - for sub-test 2: RB5/TF2 (2x336).
 - for sub-test 3: RB5/TF3 (4x336).
 - for sub-test 4: RB5/TF4 (8x336).
 - for sub-test 5: RB5/TF3 (4x336).

3. At step 15 the UE shall return

- for sub-test 1 to 5: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

14.2.30 Interactive or background / UL:144 DL:144 kbps / PS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH

14.2.30.1 Conformance requirement

See 14.2.4.1.

14.2.30.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.30.

14.2.30.3 Method of test

Uplink TFS:

	TFI	RB5 (144 kbps)	DCCH
	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
TFS	TF2, bits	2x336	N/A
115	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A
	TF5, bits	9x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF5, TF1)
UL_TFC6	(TF0, TF1)
UL_TFC7	(TF1, TF1)
UL_TFC8	(TF2, TF1)
UL_TFC9	(TF3, TF1)
UL_TFC10	(TF4, TF1)
UL_TFC11	(TF5, TF1)

Downlink TFS:

	TFI	RB5 (144 kbps)	DCCH
	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
TFS	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A
	TF5, bits	9x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF5, TF1)
DL_TFC6	(TF0, TF1)
DL_TFC7	(TF1, TF1)
DL_TFC8	(TF2, TF1)
DL_TFC9	(TF3, TF1)
DL_TFC10	(TF4, TF1)
DL_TFC11	(TF5, TF1)

Sub-tests:

	Sub- test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (bits)	Test data size (bits)
						(note)	(note)
	1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC6,	RB5: <u>312</u> 336	RB5: <u>312</u> 336
1	2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC7 UL_TFC0, UL_TFC2, UL_TFC6, UL_TFC8	RB5: <u>632</u> 6 72	RB5: <u>632</u> 672
	3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC3, UL_TFC6, UL_TFC9	RB5: <u>1272</u> 1344	RB5: 1272 ¹³⁴⁴
	4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC4, UL_TFC6, UL_TFC10	RB5: 2688 2552	RB5: 2688 2552
	5 NOTE:	DL_TFC5	UL_TFC5	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6 5.3.2.6.2 for details regarding loopba	UL_TFC0, UL_TFC5, UL_TFC6, UL_TFC11	RB5: 3024 <u>2872</u>	RB5: 3024 <u>2872</u>

See 14.1.1 for test procedure.

14.2.30.4 Test requirements

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be
 - for sub-test 1: RB5/TF1 (1x336).
 - for sub-test 2: RB5/TF2 (2x336).
 - for sub-test 3: RB5/TF3 (4x336).
 - for sub-test 4: RB5/TF4 (8x336).
 - for sub-test 5: RB5/TF5 (9x336).

3. At step 15 the UE shall return

- for sub-test 1 to 5: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

14.2.31 Interactive or background / UL:64 DL:256 kbps / PS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH

14.2.31.1 Interactive or background / UL:64 DL:256 kbps / PS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH/ 10 ms TTI

14.2.31.1.1 Conformance requirement

See 14.2.4.1.

14.2.31.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.31 for the downlink 10 ms TTI case.

14.2.31.1.3 Method of test

Uplink TFS:

	TFI	RB5 (64 kbps)	DCCH
	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
TFS	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Downlink TFS:

	TFI	RB5 (256 kbps, 10ms)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF0, TF1)
DL_TFC6	(TF1, TF1)
DL_TFC7	(TF2, TF1)
DL_TFC8	(TF3, TF1)
DL_TFC9	(TF4, TF1)

Sub-tests:

Sub- test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (bits)	Test data size (bits)
					(note)	(note)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC5, UL_TFC0,	UL_TFC0,	RB5: <u>312</u> 336	RB5: <u>312</u> 336
			UL_TFC5	UL_TFC1,		
				UL_TFC5,		
				UL_TFC6		
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC5, UL_TFC0,	UL_TFC0,	RB5: <u>632</u> 672	RB5: <u>632</u> 672
			UL_TFC5	UL_TFC2,		
				UL_TFC5,		
				UL_TFC7		
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC5, UL_TFC0,	UL_TFC0,	RB5:	RB5:
			UL_TFC5	UL_TFC3,	1272 1344	<u>1272</u> 1344
				UL_TFC5,		
				UL_TFC8		
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC5, UL_TFC0,	UL_TFC0,	RB5:	RB5:
			UL_TFC5	UL_TFC4,	2552 2688	2552 2688
				UL_TFC5,		
				UL_TFC9		
NOTE:	See TS 34.	109 [10] clause	5.3.2.6.2 for details regarding loopba	ck of RLC SD	Us.	

See 14.1.1 for test procedure.

14.2.31.1.4 Test requirements

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be
 - for sub-test 1: RB5/TF1 (1x336).
 - for sub-test 2: RB5/TF2 (2x336).
 - for sub-test 3: RB5/TF3 (3x336).
 - for sub-test 4: RB5/TF4 (4x336).
- 3. At step 15 the UE shall return
 - for sub-test 1 to 4: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

14.2.31.2 Interactive or background / UL:64 DL:256 kbps / PS RAB / 20 ms TTI

14.2.31.2.1 Conformance requirement

See 14.2.4.1.

14.2.31.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.31 for the downlink 20 ms TTI case.

14.2.31.2.3 Method of test

Uplink TFS:

	TFI	RB5 (64 kbps)	DCCH
	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
TFS	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)	
UL_TFC0	(TF0, TF0)	
UL_TFC1	(TF1, TF0)	
UL_TFC2	(TF2, TF0)	
UL_TFC3	(TF3, TF0)	
UL_TFC4	(TF4, TF0)	
UL_TFC5	(TF0, TF1)	
UL_TFC6	(TF1, TF1)	
UL_TFC7	(TF2, TF1)	
UL_TFC8	(TF3, TF1)	
UL_TFC9	(TF4, TF1)	

Downlink TFS:

	TFI	RB5 (256 kbps, 20ms)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A
	TF5, bits	12x336	N/A
	TF6, bits	16x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF5, TF0)
DL_TFC6	(TF6, TF0)
DL_TFC7	(TF0, TF1)
DL_TFC8	(TF1, TF1)
DL_TFC9	(TF2, TF1)
DL_TFC10	(TF3, TF1)
DL_TFC11	(TF4, TF1)
DL_TFC12	(TF5, TF1)
DL_TFC13	(TF6, TF1)

Sub-tests:

Sub- test	Downlink TFCS	Uplink TFCS	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size	Test data size (bits)
1001	Under test	Under test		02 11 010	(bits)	(Bito)
					(note)	(note)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC7, UL_TFC0,	UL_TFC0,	RB5: 312336	RB5: <u>312</u> 336
			UL_TFC5	UL_TFC1,		
				UL_TFC5,		
				UL_TFC6		
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC7, UL_TFC0,	UL_TFC0,	RB5: <u>632</u> 672	RB5: <u>632</u> 672
			UL_TFC5	UL_TFC2,		
				UL_TFC5,		
	DI TEOO	III TEOO	DI TEON DI TEON III TEON	UL_TFC7	DD5	555
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC7, UL_TFC0,	UL_TFC0,	RB5:	RB5:
			UL_TFC5	UL_TFC3,	<u>1272</u> 1344	<u>1272</u> 1344
				UL_TFC5, UL_TFC8		
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC7, UL_TFC0,	UL_TFC0,	RB5:	RB5:
4	DL_IFC4	UL_IFU4	UL TFC5	UL TFC4.	2552 2688	2552 2688
			00_11 03	UL_TFC5,	20022000	<u>2332</u> 2000
				UL_TFC9		
5	DL_TFC5	UL_TFC4	DL_TFC0, DL_TFC7, UL_TFC0,	UL TFC0,	RB5:	RB5:
			UL_TFC5	UL_TFC4,	3832 4032	38324 032
				UL_TFC5,		
				UL_TFC9		
6	DL_TFC6	UL_TFC4	DL_TFC0, DL_TFC7, UL_TFC0,	UL_TFC0,	RB5:	RB5:
			UL_TFC5	UL_TFC4,	<u>5112</u> 5376	<u>5112</u> 5376
				UL_TFC5,		
				UL_TFC9		
NOTE:	NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.					

See 14.1.1 for test procedure.

14.2.31.2.4 Test requirements

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be
 - for sub-test 1: RB5/TF1 (1x336).
 - for sub-test 2: RB5/TF2 (2x336).

- for sub-test 3: RB5/TF3 (3x336).
- for sub-test 4 to 6: RB5/TF4 (4x336).
- 3. At step 15 the UE shall return
 - for sub-test 1 to 6: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

14.2.32 Interactive or background / UL:64 DL:384 kbps / PS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH

14.2.32.1 Interactive or background / UL:64 DL:384 kbps / PS RAB / 10 ms TTI

14.2.32.1.1 Conformance requirement

See 14.2.4.1.

14.2.32.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.32 for the 10 ms TTI case.

14.2.32.1.3 Method of test

Uplink TFS:

	TFI	RB5 (64 kbps)	DCCH
	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
TFS	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Downlink TFS:

	TFI	RB5 (384 kbps, 10ms)	рссн
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A
	TF5, bits	12x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF5, TF0)
DL_TFC6	(TF0, TF1)
DL_TFC7	(TF1, TF1)
DL_TFC8	(TF2, TF1)
DL_TFC9	(TF3, TF1)
DL_TFC10	(TF4, TF1)
DL_TFC11	(TF5, TF1)

Sub-tests:

Sub- test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (bits)	Test data size (bits)	
					(note)	(note)	
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1,	RB5: <u>312</u> 336	RB5: <u>312</u> 336	
			32_11 33	UL_TFC5,			
	DI TEGG	=====	DI TEON DI TEON III TEON	UL_TFC6	DD= 000070	DD= 000070	
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC6, UL_TFC0,	UL_TFC0,	RB5: <u>632</u> 6 72	RB5: <u>632</u> 672	
			UL_TFC5	UL_TFC2,			
				UL_TFC5,			
				UL_TFC7			
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC6, UL_TFC0,	UL_TFC0,	RB5:	RB5:	
[]			UL_TFC5	UL_TFC3,	<u>1272</u> 1344	<u>1272</u> 1344	
				UL_TFC5,			
				UL_TFC8			
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC6, UL_TFC0,	UL_TFC0,	RB5:	RB5:	
[]			UL_TFC5	UL_TFC4,	<u>2552</u> 2688	<u>2552</u> 2688	
				UL_TFC5,			
				UL_TFC9			
5	DL_TFC5	UL_TFC4	DL_TFC0, DL_TFC6, UL_TFC0,	UL_TFC0,	RB5:	RB5:	
			UL_TFC5	UL_TFC4,	38324 032	3832 ₄₀₃₂	
				UL_TFC5,			
				UL_TFC9			
NOTE:	NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 14.1.1 for test procedure.

14.2.32.1.4 Test requirements

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be
 - for sub-test 1: RB5/TF1 (1x336).
 - for sub-test 2: RB5/TF2 (2x336).
 - for sub-test 3: RB5/TF3 (3x336).
 - for sub-test 4 and 5: RB5/TF4 (4x336).
- 3. At step 15 the UE shall return
 - for sub-test 1 to 5: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

14.2.32.2 Interactive or background / UL:64 DL:384 kbps / PS RAB / 20 ms TTI

14.2.32.2.1 Conformance requirement

See 14.2.4.1.

14.2.32.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.32 for the 20 ms TTI case.

14.2.32.2.3 Method of test

Uplink TFS:

	TFI	RB5 (64 kbps)	DCCH
	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
TFS	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

	TFI	RB5 (384 kbps, 20ms)	DCCH
	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
TFS	TF4, bits	8x336	N/A
	TF5, bits	12x336	N/A
	TF6, bits	16x336	N/A
	TF7, bits	20x336	N/A
	TF8, bits	24x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF5, TF0)
DL_TFC6	(TF6, TF0)
DL_TFC7	(TF7, TF0)
DL_TFC8	(TF8, TF0)
DL_TFC9	(TF0, TF1)
DL_TFC10	(TF1, TF1)
DL_TFC11	(TF2, TF1)
DL_TFC12	(TF3, TF1)
DL_TFC13	(TF4, TF1)
DL_TFC14	(TF5, TF1)
DL_TFC15	(TF6, TF1)
DL_TFC16	(TF7, TF1)
DL_TFC17	(TF8, TF1)

Sub-tests:

Sub- test	TFCS	Uplink TFCS	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size	Test data size (bits)
	Under test	Under test			(bits) (note)	(note)
1 1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC9, UL_TFC0,	UL_TFC0,	RB5: 312 336	RB5: 312 336
' '	52 0.	02	UL_TFC5	UL_TFC1,	1120. <u>012</u> 000	1120. <u>012</u> 000
				UL_TFC5,		
				UL_TFC6		
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC9, UL_TFC0,	UL_TFC0,	RB5: 632672	RB5: 632672
			UL_TFC5	UL_TFC2,		
				UL_TFC5,		
				UL_TFC7		
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC9, UL_TFC0,	UL_TFC0,	RB5:	RB5:
			UL_TFC5	UL_TFC3,	<u>1272</u> 1344	<u>1272</u> 1344
				UL_TFC5,		
				UL_TFC8		
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC9, UL_TFC0,	UL_TFC0,	RB5:	RB5:
			UL_TFC5	UL_TFC4,	<u>2552</u> 2688	<u>2552</u> 2688
				UL_TFC5,		
		===.		UL_TFC9		
5	DL_TFC5	UL_TFC4	DL_TFC0, DL_TFC9, UL_TFC0,	UL_TFC0,	RB5:	RB5:
			UL_TFC5	UL_TFC4,	3832 ₄₀₃₂	3832 4032
				UL_TFC5,		
6	DL_TFC6	UL_TFC4	DL_TFC0, DL_TFC9, UL_TFC0,	UL_TFC9 UL_TFC0,	RB5:	RB5:
ا ۲	DL_IFC0	UL_IFC4	DL_1FC0, DL_1FC9, DL_1FC0, UL_TFC5	UL_TFC0,	5112 5376	5112 5376
I			OL_IFG5	UL_TFC5,	<u>5112</u> 557 0	<u>5112</u> 5570
				UL_TFC9		
7	DL_TFC7	UL_TFC4	DL_TFC0, DL_TFC9, , UL_TFC0,	UL_TFC0,	RB5:	RB5:
11]		UL_TFC5	UL_TFC4,	6392 6720	6392 6720
1				UL_TFC5,		
				UL_TFC9		
8	DL_TFC8	UL_TFC4	DL_TFC0, DL_TFC9, UL_TFC0,	UL_TFC0,	RB5:	RB5:
		_	UL_TFC5	UL_TFC4,	7672 8064	7672 8064
				UL_TFC5,		
				UL_TFC9		
NOT	NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.					

See 14.1.1 for test procedure.

14.2.32.2.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be
 - for sub-test 1: RB5/TF1 (1x336).
 - for sub-test 2: RB5/TF2 (2x336).
 - for sub-test 3: RB5/TF3 (3x336).
 - for sub-test 4 to 8: RB5/TF4 (4x336).
- 3. At step 15 the UE shall return
 - for sub-test 1 to 8: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

14.2.33 Interactive or background / UL:128 DL:384 kbps / PS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH

14.2.33.1 Interactive or background / UL:128 DL:384 kbps / PS RAB / 10 ms TTI

14.2.33.1.1 Conformance requirement

See 14.2.4.1.

14.2.33.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.33 for the 10 ms TTI case.

14.2.33.1.3 Method of test

Uplink TFS:

	TFI	RB5 (128 kbps)	DCCH
	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
TFS	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Downlink TFS:

	TFI	RB5 (384 kbps, 10ms)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A
	TF5, bits	12x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF5, TF0)
DL_TFC6	(TF0, TF1)
DL_TFC7	(TF1, TF1)
DL_TFC8	(TF2, TF1)
DL_TFC9	(TF3, TF1)
DL_TFC10	(TF4, TF1)
DL_TFC11	(TF5, TF1)

Sub-tests:

Sub- test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (bits)	Test data size (bits)
					(note)	(note)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: <u>312</u> 336	RB5: <u>312336</u>
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC2, UL_TFC5, UL_TFC7	RB5: <u>632</u> 672	RB5: <u>632</u> 672
α	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 1272 ¹³⁴⁴	RB5: 1272 ¹³⁴⁴
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 2552 2688	RB5: 2552 ²⁶⁸⁸
5 NOTE:	DL_TFC5	UL_TFC4	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5 5.3.2.6.2 for details regarding loopba	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 38324032	RB5: 38324032

See 14.1.1 for test procedure.

14.2.33.1.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.

- 2. At step 15 the UE transmitted transport format shall be
 - for sub-test 1: RB5/TF1 (1x336).
 - for sub-test 2: RB5/TF2 (2x336).
 - for sub-test 3: RB5/TF3 (4x336).
 - for sub-test 4 and 5: RB5/TF4 (8x336).
- 3. At step 15 the UE shall return
 - for sub-test 1 to 5: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

14.2.33.2 Interactive or background / UL:128 DL:384 kbps / PS RAB / 20 ms TTI

14.2.33.2.1 Conformance requirement

See 14.2.4.1.

14.2.33.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.33 for the 20 ms TTI case.

14.2.33.2.3 Method of test

Uplink TFS:

	TFI	RB5 (128 kbps)	DCCH
	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
TFS	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Downlink TFS:

	TFI	RB5 (384 kbps, 20ms)	DCCH
	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
TFS	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A
	TF5, bits	12x336	N/A
	TF6, bits	16x336	N/A
	TF7, bits	20x336	N/A
	TF8, bits	24x336	N/A

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF5, TF0)
DL_TFC6	(TF6, TF0)
DL_TFC7	(TF7, TF0)
DL_TFC8	(TF8, TF0)
DL_TFC9	(TF0, TF1)
DL_TFC10	(TF1, TF1)
DL_TFC11	(TF2, TF1)
DL_TFC12	(TF3, TF1)
DL_TFC13	(TF4, TF1)
DL_TFC14	(TF5, TF1)
DL_TFC15	(TF6, TF1)
DL_TFC16	(TF7, TF1)
DL_TFC17	(TF8, TF1)

	Sub- test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (bits)	Test data size (bits)
۱.						(note)	(note)
	1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: <u>312</u> 336	RB5: <u>312</u> 336
	2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC2, UL_TFC5, UL_TFC7	RB5: <u>632</u> 672	RB5: <u>632</u> 672
	3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 1272 ¹³⁴⁴	RB5: 1272 <mark>1344</mark>
	4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 2552 ²⁶⁸⁸	RB5: 25522688
	5	DL_TFC5	UL_TFC4	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC5,	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 38324032	RB5: 38324032
	6	DL_TFC6	UL_TFC4	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: <u>5112</u> 5376	RB5: 51125376
	7	DL_TFC7	UL_TFC4	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 63926720	RB5: 63926720
	8 NOTE:	DL_TFC8	UL_TFC4	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC5 5.3.2.6.2 for details regardir	UL_TFC0, UL_TFC4 UL_TFC5, UL_TFC9	RB5: 76728064	RB5: 76728064

See 14.1.1 for test procedure.

14.2.33.2.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be
 - for sub-test 1: RB5/TF1 (1x336).
 - for sub-test 2: RB5/TF2 (2x336).
 - for sub-test 3: RB5/TF3 (4x336).
 - for sub-test 4 to 8: RB5/TF4 (8x336).
- 3. At step 15 the UE shall return
 - for sub-test 1 to 8: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

14.2.34 Interactive or background / UL:384 DL:384 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.2.34.1 Interactive or background / UL:384 DL:384 kbps / PS RAB / 10 ms TTI

14.2.34.1.1 Conformance requirement

See 14.2.4.1.

14.2.34.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.34 for the 10 ms TTI case.

14.2.34.1.3 Method of test

Uplink TFS:

	TFI	RB5 (384 kbps, 10ms)	DCCH
	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
TFS	TF2, bits	2x336	N/A
1173	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A
	TF5, bits	12x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF5, TF0)
UL_TFC6	(TF0, TF1)
UL_TFC7	(TF1, TF1)
UL_TFC8	(TF2, TF1)
UL_TFC9	(TF3, TF1)
UL_TFC10	(TF4, TF1)
UL_TFC11	(TF5, TF1)

	TFI	RB5 (384 kbps, 10ms)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A
	TF5, bits	12x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF5, TF0)
DL_TFC6	(TF0, TF1)
DL_TFC7	(TF1, TF1)
DL_TFC8	(TF2, TF1)
DL_TFC9	(TF3, TF1)
DL_TFC10	(TF4, TF1)
DL_TFC11	(TF5, TF1)

Sub-tests:

Sub- test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (bits)	Test data size (bits)
					(note)	(note)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC7, UL_TFC0,	UL_TFC0,	RB5: <u>312</u> 336	RB5: <u>312</u> 336
			UL_TFC7	UL_TFC1,		
				UL_TFC7, UL_TFC8		
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC7, UL_TFC0,	UL_TFC0,	RB5: 632672	RB5: <u>632</u> 672
			UL_TFC7	UL_TFC2,		
				UL_TFC7,		
				UL_TFC9		
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC7, UL_TFC0,	UL_TFC0,	RB5:	RB5:
IJ			UL_TFC7	UL_TFC3,	<u>1272</u> 1344	<u>1272</u> 1344
				UL_TFC7,		
4	DI TEO4	TEO.4	DI TEON DI TEON III TEON	UL_TFC10	005	DDF
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC7, UL_TFC0,	UL_TFC0,	RB5:	RB5:
!			UL_TFC7	UL_TFC4,	<u>2552</u> 2688	<u>2552</u> 2688
				UL_TFC7, UL_TFC11		
5	DL_TFC5	UL_TFC5	DL TFC0, DL TFC7, UL TFC0,	UL TFC0,	RB5:	RB5:
ا ا	DL_11 03	0L_11 03	UL TFC7	UL TFC5,	3832 4032	3832 4032
'			52 57	UL_TFC7,	0002	0002
				UL_TFC12		
NOTE:	See TS 34.	109 [10] clause	5.3.2.6.2 for details regarding loopba		Js.	

See 14.1.1 for test procedure.

14.2.34.1.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be
 - for sub-test 1: RB5/TF1 (1x336).
 - for sub-test 2: RB5/TF2 (2x336).
 - for sub-test 3: RB5/TF3 (4x336).
 - for sub-test 4: RB5/TF4 (8x336).
 - for sub-test 5: RB5/TF4 (12x336).

3. At step 15 the UE shall return

- for sub-test 1 to 5: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

14.2.34.2 Interactive or background / UL:384 DL:384 kbps / PS RAB / 20 ms TTI

14.2.34.2.1 Conformance requirement

See 14.2.4.1.

14.2.34.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.34. for the 20 ms TTI case

14.2.34.2.3 Method of test

Uplink TFS:

	TFI	RB5 (384 kbps, 20ms)	DCCH
	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
TFS	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A
	TF5, bits	12x336	N/A
	TF6, bits	16x336	N/A
	TF7, bits	20x336	N/A
	TF8, bits	24x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF5, TF0)
UL_TFC6	(TF6, TF0)
UL_TFC7	(TF7, TF0)
UL_TFC8	(TF8, TF0)
UL_TFC9	(TF0, TF1)
UL_TFC10	(TF1, TF1)
UL_TFC11	(TF2, TF1)
UL_TFC12	(TF3, TF1)
UL_TFC13	(TF4, TF1)
UL_TFC14	(TF5, TF1)
UL_TFC15	(TF6, TF1)
UL_TFC16	(TF7, TF1)
UL_TFC17	(TF8, TF1)

Downlink TFS:

	TFI	RB5 (384 kbps, 20ms)	DCCH
	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
TFS	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A
	TF5, bits	12x336	N/A
	TF6, bits	16x336	N/A
	TF7, bits	20x336	N/A
	TF8, bits	24x336	N/A

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF5, TF0)
DL_TFC6	(TF6, TF0)
DL_TFC7	(TF7, TF0)
DL_TFC8	(TF8, TF0)
DL_TFC9	(TF0, TF1)
DL_TFC10	(TF1, TF1)
DL_TFC11	(TF2, TF1)
DL_TFC12	(TF3, TF1)
DL_TFC13	(TF4, TF1)
DL_TFC14	(TF5, TF1)
DL_TFC15	(TF6, TF1)
DL_TFC16	(TF7, TF1)
DL_TFC17	(TF8, TF1)

1	RB5: <u>632</u> 672 RB5: <u>632</u> 672
DL_TFC0, UL_TFC9	RB5: <u>632</u> 672 RB5: <u>632</u> 672
UL_TFC0, UL_TFC9	
UL_TFC0, UL_TFC9	
UL_TFC9, UL_TFC9	<u>1272</u> 1344 <u>1272</u> 1344
UL_TFC9, UL_TFC9	<u>2552</u> 2688 <u>2552</u> 2688
UL_TFC0, UL_TFC9 UL_TFC6, UL_TFC9,	<u>3832</u> 4 032 <u>3832</u> 4 032
	<u>51125376</u> <u>51125376</u>
7 DL_TFC7 UL_TFC7 DL_TFC9, UL_TFC9, UL_TFC7, UL_TFC9, UL_TFC9, UL_TFC9, UL_TFC9, UL_TFC16	6392 6720 6392 6720
8 DL_TFC8 UL_TFC8 DL_TFC9, UL_TFC9, UL_TFC9, UL_TFC8, UL_TFC9, UL_TFC9, UL_TFC9, UL_TFC9, UL_TFC17 NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback or	<u>7672</u> 8064 <u>7672</u> 8064

See 14.1.1 for test procedure.

14.2.34.2.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be
 - for sub-test 1: RB5/TF1 (1x336).
 - for sub-test 2: RB5/TF2 (2x336).
 - for sub-test 3: RB5/TF3 (4x336).
 - for sub-test 4: RB5/TF4 (8x336).
 - for sub-test 5: RB5/TF5 (12x336).
 - for sub-test 6: RB5/TF6 (16x336).
 - for sub-test 7: RB5/TF7 (20x336).
 - for sub-test 8: RB5/TF8 (24x336).

3. At step 15 the UE shall return

- for sub-test 1 to 8: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

14.2.35 Interactive or background / UL:64 DL:2048 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.2.35.1 Interactive or background / UL:64 DL:2048 kbps / PS RAB / 10 ms TTI

14.2.35.1.1 Conformance requirement

See 14.2.4.1.

14.2.35.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.35 for the 10 ms TTI case.

14.2.35.1.3 Method of test

Uplink TFS:

	TFI	RB5 (64 kbps)	DCCH
	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
TFS	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Downlink TFS:

	TFI	RB5 (2048 kbps, 10ms)	DCCH
	TF0, bits	0x656	0x148
	TF1, bits	1x656	1x148
	TF2, bits	2x656	N/A
	TF3, bits	4x656	N/A
	TF4, bits	8x656	N/A
TFS	TF5, bits	12x656	N/A
	TF6, bits	16x656	N/A
	TF7, bits	20x656	N/A
	TF8, bits	24x656	N/A
	TF9, bits	28x656	N/A
	TF10, bits	32x656	N/A

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF5, TF0)
DL_TFC6	(TF6, TF0)
DL_TFC7	(TF7, TF0)
DL_TFC8	(TF8, TF0)
DL_TFC9	(TF9, TF0)
DL_TFC10	(TF10, TF0)
DL_TFC11	(TF0, TF1)
DL_TFC12	(TF1, TF1)
DL_TFC13	(TF2, TF1)
DL_TFC14	(TF3, TF1)
DL_TFC15	(TF4, TF1)
DL_TFC16	(TF5, TF1)
DL_TFC17	(TF6, TF1)
DL_TFC18	(TF7, TF1)
DL_TFC19	(TF8, TF1)
DL_TFC20	(TF9, TF1)
DL_TFC21	(TF10, TF1)

Sub- test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (bits)	Test data size (bits)
					(note)	(note)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC11, UL_TFC0,	UL_TFC0,	RB5: <u>632</u> 656	RB5: <u>632</u> 656
			UL_TFC5	UL_TFC1,		
				UL_TFC5,		
				UL_TFC6		
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC11, UL_TFC0,	UL_TFC0,	RB5:	RB5:
			UL_TFC5	UL_TFC2,	<u>1272</u> 1312	<u>1272</u> 1312
				UL_TFC5,		
		=====		UL_TFC7		
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC11, UL_TFC0,	UL_TFC0,	RB5:	RB5:
			UL_TFC5	UL_TFC3,	2552 2624	<u>2552</u> 2624
				UL_TFC5,		
	DI TEOA	TEO 4	DI TEON DI TEOM III TEON	UL_TFC8	DD:	DDF
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC11, UL_TFC0,	UL_TFC0,	RB5:	RB5:
			UL_TFC5	UL_TFC4,	<u>5112</u> 5248	<u>51125248</u>
				UL_TFC5,		
_	DI TEOF	TEO 4	DI TEON DI TEOM III TEON	UL_TFC9	DD:	DDF
5	DL_TFC5	UL_TFC4	DL_TFC0, DL_TFC11, UL_TFC0,	UL_TFC0,	RB5:	RB5:
			UL_TFC5	UL_TFC4,	7672 7872	<u>7672</u> 7872
				UL_TFC5,		
	DI TEOO	III TEO4	DI TEON DI TEOM III TEON	UL_TFC9	DDC	RB5:
6	DL_TFC6	UL_TFC4	DL_TFC0, DL_TFC11, UL_TFC0,	UL_TFC0,	RB5:	
			UL_TFC5	UL_TFC4, UL_TFC5,	<u>10232</u> 10496	<u>10232</u> 10496
				UL_TFC5,		
7	DL_TFC7	UL_TFC4	DL_TFC0, DL_TFC11, UL_TFC0,	UL_TFC0,	RB5:	RB5:
l '	DL_IFC/	OL_IFC4	UL_TFC5	UL_TFC4,	12792 13120	12792 13120
			OL_IFG5	UL_TFC5,	12/32 13120	12192 10120
				UL_TFC9		
8	DL TFC8	UL TFC4	DL_TFC0, DL_TFC11, UL_TFC0,	UL TFC0.	RB5:	RB5:
	DL_11 00	01_11 04	UL_TFC5	UL_TFC4,	15352 15744	15352 15744
			00_11 03	UL_TFC5,	1000210744	1000210111
				UL_TFC9		
9	DL_TFC9	UL_TFC4	DL_TFC0, DL_TFC11, UL_TFC0,	UL_TFC0,	RB5:	RB5:
	DL_11 03	01_11 04	UL_TFC5	UL_TFC4,	17912 18368	17912 18368
			52_11 55	UL_TFC5,	17012	17.012
				UL_TFC9		
10	DL_TFC10	UL_TFC4	DL_TFC0, DL_TFC11, UL_TFC0,	UL_TFC0,	RB5:	RB5:
.		32 0 '	UL_TFC5	UL_TFC4,	20472 20992	20472 20992
				UL TFC5,		
				UL_TFC9		
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 14.1.1 for test procedure.

14.2.35.1.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

- $1. \ \ \text{At step 10 the UE shall send RADIO BEARER SETUP COMPLETE}.$
- 2. At step 15 the UE transmitted transport format shall be
 - for sub-test 1: RB5/TF1 (1x336).
 - for sub-test 2: RB5/TF2 (2x336).
 - for sub-test 3: RB5/TF3 (3x336).
 - for sub-test 4 to 10: RB5/TF4 (4x336).

3. At step 15 the UE shall return

- for sub-test 1 to 10: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

14.2.35.2 Interactive or background / UL:64 DL:2048 kbps / PS RAB / 20 ms TTI

14.2.35.2.1 Conformance requirement

See 14.2.4.1.

14.2.35.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.35 for the 20 ms TTI case.

14.2.35.2.3 Method of test

Uplink TFS:

	TFI	RB5 (64 kbps)	DCCH
	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
TFS	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Downlink TFS:

	TFI	RB5 (2048 kbps, 10ms)	DCCH
	TF0, bits	0x656	0x148
	TF1, bits	1x656	1x148
	TF2, bits	2x656	N/A
	TF3, bits	4x656	N/A
	TF4, bits	8x656	N/A
	TF5, bits	12x656	N/A
	TF6, bits	16x656	N/A
	TF7, bits	20x656	N/A
	TF8, bits	24x656	N/A
TFS	TF9, bits	28x656	N/A
	TF10, bits	32x656	N/A
	TF11, bits	36x656	N/A
	TF12, bits	40x656	N/A
	TF13, bits	44x656	N/A
	TF14, bits	48x656	N/A
	TF15, bits	52x656	N/A
	TF16, bits	56x656	N/A
	TF17, bits	60x656	N/A
	TF18, bits	64x656	N/A

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF5, TF0)
DL_TFC6	(TF6, TF0)
DL_TFC7	(TF7, TF0)
DL_TFC8	(TF8, TF0)
DL_TFC9	(TF9, TF0)
DL_TFC10	(TF10, TF0)
DL_TFC11	(TF11, TF0)
DL_TFC12	(TF12, TF0)
DL_TFC13	(TF13, TF0)
DL_TFC14	(TF14, TF0)
DL_TFC15	(TF15, TF0)
DL_TFC16	(TF16, TF0)
DL_TFC17	(TF17, TF0)
DL_TFC18	(TF18, TF0)
DL_TFC19	(TF0, TF1)
DL_TFC20	(TF1, TF1)
DL_TFC21	(TF2, TF1)
DL_TFC22	(TF3, TF1)
DL_TFC23	(TF4, TF1)
DL_TFC24	(TF5, TF1)
DL_TFC25	(TF6, TF1)
DL_TFC26	(TF7, TF1)
DL_TFC27	(TF8, TF1)
DL_TFC28	(TF9, TF1)
DL_TFC29	(TF10, TF1)
DL_TFC30	(TF11, TF1)
DL_TFC31	(TF12, TF1)
DL_TFC32	(TF13, TF1)
DL_TFC33	(TF14, TF1)
DL_TFC34	(TF15, TF1)

TFCI	(RB5, DCCH)
DL_TFC35	(TF16, TF1)
DL_TFC36	(TF17, TF1)
DL_TFC37	(TF18, TF1)

	Sub- test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (bits)	Test data size (bits)
	1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: <u>632</u> 6 56	RB5: <u>632</u> 656
	2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 1272 ¹³¹²	RB5: 1272 ¹³¹²
	3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 2552 ²⁶² 4	RB5: 2552 <mark>2624</mark>
	4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: <u>5112</u> 5248	RB5: 5112 ⁵²⁴⁸
	ō	DL_TFC5	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: <u>76727872</u>	RB5: <u>7672</u> 7872
	Ö	DL_TFC6	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 1023210496	RB5: 1023210496
	7	DL_TFC7	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 12792 <mark>13120</mark>	RB5: 1279213120
	8	DL_TFC8	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 1535215744	RB5: 1535215744
	9	DL_TFC9	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: <u>17912</u> 18368	RB5: 1791218368
	10	DL_TFC10	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 20472 <mark>20992</mark>	RB5: 20472 20992
	11	DL_TFC11	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 2303223616	RB5: 2303223616
	12	DL_TFC12	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 25592 <mark>26240</mark>	RB5: 25592 <mark>26240</mark>
	13	DL_TFC13	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4 UL_TFC5, UL_TFC9	RB5: 2815228864	RB5: 2815228864

	Sub- test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (bits)	Test data size (bits)
-	14	DL_TFC14	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0,	UL_TFC0,	(note) RB5:	(note) RB5:
ıl	14	DL_IFC14	UL_IFC4	DL_TPC0, DL_TPC19, DL_TPC0, UL_TFC5	UL TFC4,	30712 31488	30712 31488
H				UL_IFC5	UL TFC5,	<u>307 12</u> 3 1400	307 12 3 1400
					UL_TFC9		
F	15	DL_TFC15	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0,	UL_TFC9	RB5:	RB5:
ıl	15	DL_IFC15	UL_IFC4	DL_TPC0, DL_TPC19, DL_TPC0, UL_TFC5	UL_TFC0,	_	
I				UL_IFC5	UL TFC5,	<u>33272</u> 34112	<u>33272</u> 34112
					UL TFC9		
F	16	DL_TFC16	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0,	UL TFC0.	RB5:	RB5:
ı	10	DL_IFC 10	UL_IFC4	DL_1FC0, DL_1FC19, DL_1FC0, UL_TFC5	UL_TFC0,	35832 36736	35832 36736
I				OL_IFCS	UL_TFC5,	33032 30730	33032 30730
					UL_TFC9		
-	17	DL_TFC17	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0,	UL_TFC0,	RB5:	RB5:
ıl	17	DL_IFC17	UL_IFC4	UL TFC5	UL TFC4	38392 39360	38392 <mark>39360</mark>
I				06_11 63	UL_TFC5,	<u>30332</u> 33300	<u>30332</u> 33300
					UL_TFC9		
F	18	DL_TFC18	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0,	UL_TFC0,	RB5:	RB5:
	10	DL_11 010	02_1104	UL TFC5	UL_TFC4,	40952 41984	40952 41984
I				01_11 00	UL_TFC5,	10002 1100 1	10002 11001
					UL_TFC9		
F	NOTE:	See TS 34.	109 [10] claus	se 5.3.2.6.2 for details regarding loopba	_	Us.	

See 14.1.1 for test procedure.

14.2.35.2.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be
 - for sub-test 1: RB5/TF1 (1x336).
 - for sub-test 2: RB5/TF2 (2x336).
 - for sub-test 3: RB5/TF3 (3x336).
 - for sub-test 4 to 18: RB5/TF4 (4x336).
- 3. At step 15 the UE shall return
 - for sub-test 1 to 18: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

14.2.36 Interactive or background / UL:128 DL:2048 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.2.36.1 Interactive or background / UL:128 DL:2048 kbps / PS RAB / 10 ms TTI

14.2.36.1.1 Conformance requirement

See 14.2.4.1.

14.2.36.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.36 for the 10 ms TTI case.

14.2.36.1.3 Method of test

Uplink TFS:

	TFI	RB5 (128 kbps)	DCCH
	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
TFS	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Downlink TFS:

	TFI	RB5 (2048 kbps, 10ms)	DCCH
	TF0, bits	0x656	0x148
	TF1, bits	1x656	1x148
	TF2, bits	2x656	N/A
	TF3, bits	4x656	N/A
	TF4, bits	8x656	N/A
TFS	TF5, bits	12x656	N/A
	TF6, bits	16x656	N/A
	TF7, bits	20x656	N/A
	TF8, bits	24x656	N/A
	TF9, bits	28x656	N/A
	TF10, bits	32x656	N/A

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF5, TF0)
DL_TFC6	(TF6, TF0)
DL_TFC7	(TF7, TF0)
DL_TFC8	(TF8, TF0)
DL_TFC9	(TF9, TF0)
DL_TFC10	(TF10, TF0)
DL_TFC11	(TF0, TF1)
DL_TFC12	(TF1, TF1)
DL_TFC13	(TF2, TF1)
DL_TFC14	(TF3, TF1)
DL_TFC15	(TF4, TF1)

TFCI	(RB5, DCCH)
DL_TFC16	(TF5, TF1)
DL_TFC17	(TF6, TF1)
DL_TFC18	(TF7, TF1)
DL_TFC19	(TF8, TF1)
DL_TFC20	(TF9, TF1)
DL_TFC21	(TF10, TF1)

Sub- test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (bits)	Test data size (bits)
					(note)	(note)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 632RB5: 656	RB5: 632RB5: 656
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 1272RB5: 1312	RB5: 1272RB5: 1312
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 2552RB5: 2624	RB5: 2552RB5: 2624
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 5112RB5: 5248	RB5: 5112RB5: 5248
5	DL_TFC5	UL_TFC4	DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 7672RB5: 7872	RB5: 7672RB5: 7872
6	DL_TFC6	UL_TFC4	DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 10232RB5: 10496	RB5: 10232RB5: 10496
7	DL_TFC7	UL_TFC4	DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 12792RB5: 13120	RB5: 12792RB5: 13120
8	DL_TFC8	UL_TFC4	DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 15352RB5: 15744	RB5: 15352RB5: 15744
9	DL_TFC9	UL_TFC4	DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 17912RB5: 18368	RB5: 17912RB5: 18368
10	DL_TFC10	UL_TFC4	DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 20472RB5: 20992	RB5: 20472RB5: 20992
NOTE:	See TS 34.	109 [10] claus	se 5.3.2.6.2 for details regarding loopba	ack of RLC SD	Us.	

See 14.1.1 for test procedure.

14.2.36.1.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.

- 2. At step 15 the UE transmitted transport format shall be
 - for sub-test 1: RB5/TF1 (1x336).
 - for sub-test 2: RB5/TF2 (2x336).
 - for sub-test 3: RB5/TF3 (4x336).
 - for sub-test 4 to 10: RB5/TF4 (8x336).
- 3. At step 15 the UE shall return
 - for sub-test 1 to 10: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

14.2.36.2 Interactive or background / UL:128 DL:2048 kbps / PS RAB / 20 ms TTI

14.2.36.2.1 Conformance requirement

See 14.2.4.1.

14.2.36.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.36 for the 20 ms TTI case.

14.2.36.2.3 Method of test

Uplink TFS:

	TFI	RB5 (128 kbps)	DCCH
	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
TFS	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Downlink TFS:

	TFI	RB5 (2048 kbps, 10ms)	DCCH
	TF0, bits	0x656	0x148
	TF1, bits	1x656	1x148
	TF2, bits	2x656	N/A
	TF3, bits	4x656	N/A
	TF4, bits	8x656	N/A
	TF5, bits	12x656	N/A
	TF6, bits	16x656	N/A
	TF7, bits	20x656	N/A
	TF8, bits	24x656	N/A
TFS	TF9, bits	28x656	N/A
	TF10, bits	32x656	N/A
	TF11, bits	36x656	N/A
	TF12, bits	40x656	N/A
	TF13, bits	44x656	N/A
	TF14, bits	48x656	N/A
	TF15, bits	52x656	N/A
	TF16, bits	56x656	N/A
	TF17, bits	60x656	N/A
	TF18, bits	64x656	N/A

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF5, TF0)
DL_TFC6	(TF6, TF0)
DL_TFC7	(TF7, TF0)
DL_TFC8	(TF8, TF0)
DL_TFC9	(TF9, TF0)
DL_TFC10	(TF10, TF0)
DL_TFC11	(TF11, TF0)
DL_TFC12	(TF12, TF0)
DL_TFC13	(TF13, TF0)
DL_TFC14	(TF14, TF0)
DL_TFC15	(TF15, TF0)
DL_TFC16	(TF16, TF0)
DL_TFC17	(TF17, TF0)
DL_TFC18	(TF18, TF0)
DL_TFC19	(TF0, TF1)
DL_TFC20	(TF1, TF1)
DL_TFC21	(TF2, TF1)
DL_TFC22	(TF3, TF1)
DL_TFC23	(TF4, TF1)
DL_TFC24	(TF5, TF1)
DL_TFC25	(TF6, TF1)
DL_TFC26	(TF7, TF1)
DL_TFC27	(TF8, TF1)
DL_TFC28	(TF9, TF1)
DL_TFC29	(TF10, TF1)
DL_TFC30	(TF11, TF1)
DL_TFC31	(TF12, TF1)
DL_TFC32	(TF13, TF1)
DL_TFC33	(TF14, TF1)
DL_TFC34	(TF15, TF1)

TFCI	(RB5, DCCH)
DL_TFC35	(TF16, TF1)
DL_TFC36	(TF17, TF1)
DL_TFC37	(TF18, TF1)

Sub- test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (bits)	Test data size (bits)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 632RB5: 656	RB5: 632RB5: 656
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 1272RB5: 1312	RB5: 1272RB5: 1312
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 2552RB5: 2624	RB5: 2552RB5: 2624
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 5112RB5: 5248	RB5: 5112 RB5: 5248
5	DL_TFC5	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 7672 RB5: 7872	RB5: 7672 RB5: 7872
6	DL_TFC6	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 10232RB5: 10496	RB5: 10232RB5: 10496
7	DL_TFC7	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 12792RB5: 13120	RB5: 12792RB5: 13120
8	DL_TFC8	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 15352RB5: 15744	RB5: 15352RB5: 15744
9	DL_TFC9	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 17912RB5: 18368	RB5: 17912RB5: 18368
10	DL_TFC10	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 20472RB5: 20992	RB5: 20472RB5: 20992
11	DL_TFC11	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 23032RB5: 23616	RB5: 23032RB5: 23616
12	DL_TFC12	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 25592RB5: 26240	RB5: 25592RB5: 26240
13	DL_TFC13	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 28152RB5: 28864	RB5: 28152RB5: 28864

Sub- test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (bits)	Test data size (bits)
					(note)	(note)
14	DL_TFC14	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0,	UL_TFC0,	<u>RB5:</u>	<u>RB5:</u>
			UL_TFC5	UL_TFC4,	30712RB5:	30712RB5:
				UL_TFC5,	31488	31488
				UL_TFC9		
15	DL_TFC15	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0,	UL_TFC0,	RB5:	RB5:
			UL_TFC5	UL_TFC4,	33272RB5:	33272RB5:
				UL_TFC5,	34112	34112
				UL_TFC9		
16	DL_TFC16	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0,	UL_TFC0,	<u>RB5:</u>	<u>RB5:</u>
			UL_TFC5	UL_TFC4,	35832RB5:	35832RB5:
				UL_TFC5,	36736	36736
				UL_TFC9		
17	DL_TFC17	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0,	UL_TFC0,	<u>RB5:</u>	<u>RB5:</u>
			UL_TFC5	UL_TFC4,	38392RB5:	38392RB5:
				UL_TFC5,	39360	39360
				UL_TFC9		
18	DL_TFC18	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0,	UL_TFC0,	RB5:	RB5:
			UL_TFC5	UL_TFC4,	40952RB5:	40952RB5:
				UL_TFC5,	41984	41984
				UL_TFC9		
NOTE:	See TS 34.	109 [10] claus	se 5.3.2.6.2 for details regarding loopba	ck of RLC SD	Us.	

See 14.1.1 for test procedure.

14.2.36.2.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be
 - for sub-test 1: RB5/TF1 (1x336).
 - for sub-test 2: RB5/TF2 (2x336).
 - for sub-test 3: RB5/TF3 (4x336).
 - for sub-test 4 to 18: RB5/TF4 (8x336).
- 3. At step 15 the UE shall return
 - for sub-test 1 to 18: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

14.2.37 Interactive or background / UL:384 DL:2048 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.2.37.1 Interactive or background / UL:384 DL:2048 kbps / PS RAB / 10 ms TTI

14.2.37.1.1 Conformance requirement

See 14.2.4.1.

14.2.37.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.37 for the 10 ms TTI case.

14.2.37.1.3 Method of test

Uplink TFS:

	TFI	RB5 (384 kbps, 10ms)	DCCH
	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
TFS	TF2, bits	2x336	N/A
115	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A
	TF5, bits	12x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF5, TF0)
UL_TFC6	(TF0, TF1)
UL_TFC7	(TF1, TF1)
UL_TFC8	(TF2, TF1)
UL_TFC9	(TF3, TF1)
UL_TFC10	(TF4, TF1)
UL_TFC11	(TF5, TF1)

Downlink TFS:

	TFI	RB5 (2048 kbps, 10ms)	DCCH
	TF0, bits	0x656	0x148
	TF1, bits	1x656	1x148
	TF2, bits	2x656	N/A
	TF3, bits	4x656	N/A
	TF4, bits	8x656	N/A
TFS	TF5, bits	12x656	N/A
	TF6, bits	16x656	N/A
	TF7, bits	20x656	N/A
	TF8, bits	24x656	N/A
	TF9, bits	28x656	N/A
	TF10, bits	32x656	N/A

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF5, TF0)
DL_TFC6	(TF6, TF0)
DL_TFC7	(TF7, TF0)
DL_TFC8	(TF8, TF0)
DL_TFC9	(TF9, TF0)
DL_TFC10	(TF10, TF0)
DL_TFC11	(TF0, TF1)
DL_TFC12	(TF1, TF1)

TFCI	(RB5, DCCH)
DL_TFC13	(TF2, TF1)
DL_TFC14	(TF3, TF1)
DL_TFC15	(TF4, TF1)
DL_TFC16	(TF5, TF1)
DL_TFC17	(TF6, TF1)
DL_TFC18	(TF7, TF1)
DL_TFC19	(TF8, TF1)
DL_TFC20	(TF9, TF1)
DL_TFC21	(TF10, TF1)

1 DL_TFC1 UL_TFC1 DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC0, UL_TFC6 2 DL_TFC2 UL_TFC2 DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC6 3 DL_TFC3 UL_TFC3 DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC6 4 DL_TFC4 UL_TFC4 DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC6 5 DL_TFC5 UL_TFC5 DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC6 6 DL_TFC6 UL_TFC5 DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC6 7 DL_TFC7 UL_TFC5 DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC6, UL_TFC7 UL_TFC2, UL_TFC6, UL_TFC8 UL_TFC3, UL_TFC3, UL_TFC6, UL_TFC9 UL_TFC9 UL_TFC0, UL_TFC0, UL_TFC0,	RB5: 1272RB5: 1272RB5: 1312 RB5: 2552RB5: 2624 RB5: 5112RB5: 5248	(note) RB5: 632RB5: 656 RB5: 1272RB5: 1312 RB5: 2552RB5: 2624 RB5: 5112RB5:
2 DL_TFC2 UL_TFC2 DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC6 3 DL_TFC3 UL_TFC3 DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC6 4 DL_TFC4 UL_TFC4 DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC6 5 DL_TFC5 UL_TFC5 DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC6 6 DL_TFC6 UL_TFC5 DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC6 7 DL_TFC7 UL_TFC5 DL_TFC0, DL_TFC11, UL_TFC0,	UL_TFC1, UL_TFC6, UL_TFC7 UL_TFC2, UL_TFC6, UL_TFC8 UL_TFC3, UL_TFC3, UL_TFC6, UL_TFC9 UL_TFC9 UL_TFC9, UL_TFC0, UL_TFC0, UL_TFC0, UL_TFC0, UL_TFC0, UL_TFC0,	RB5: 1272RB5: 1312 RB5: 2552RB5: 2624 RB5: 5112RB5:	RB5: 1272RB5: 1312 RB5: 2552RB5: 2624 RB5:
2 DL_TFC2 UL_TFC2 DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC6 3 DL_TFC3 UL_TFC3 DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC6 4 DL_TFC4 UL_TFC4 DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC6 5 DL_TFC5 UL_TFC5 DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC6 6 DL_TFC6 UL_TFC5 DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC6 7 DL_TFC7 UL_TFC5 DL_TFC0, DL_TFC11, UL_TFC0,	UL_TFC6, UL_TFC7 UL_TFC0, UL_TFC2, UL_TFC6, UL_TFC8 UL_TFC3, UL_TFC3, UL_TFC6, UL_TFC9 UL_TFC9 UL_TFC9, UL_TFC0, UL_TFC4, UL_TFC4, UL_TFC6,	RB5: 1272RB5: 1312 RB5: 2552RB5: 2624 RB5: 5112RB5:	RB5: 1272RB5: 1312 RB5: 2552RB5: 2624 RB5:
JUL_TFC6	UL_TFC7 UL_TFC0, UL_TFC2, UL_TFC6, UL_TFC3, UL_TFC3, UL_TFC6, UL_TFC9 UL_TFC9 UL_TFC0, UL_TFC0, UL_TFC0, UL_TFC0,	RB5: 2552RB5: 2624 RB5: 5112RB5:	1272 _{RB5} : 1312 RB5: 2552 _{RB5} : 2624 RB5:
3	UL_TFC0, UL_TFC2, UL_TFC6, UL_TFC8 UL_TFC3, UL_TFC6, UL_TFC9 UL_TFC9 UL_TFC0, UL_TFC4, UL_TFC4, UL_TFC6,	RB5: 2552RB5: 2624 RB5: 5112RB5:	1272 _{RB5} : 1312 RB5: 2552 _{RB5} : 2624 RB5:
3	UL_TFC2, UL_TFC6, UL_TFC8 UL_TFC0, UL_TFC3, UL_TFC6, UL_TFC9 UL_TFC0, UL_TFC4, UL_TFC4, UL_TFC6,	RB5: 2552RB5: 2624 RB5: 5112RB5:	1272 _{RB5} : 1312 RB5: 2552 _{RB5} : 2624 RB5:
3 DL_TFC3 UL_TFC3 DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC6 4 DL_TFC4 UL_TFC4 DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC6 5 DL_TFC5 UL_TFC5 DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC6 6 DL_TFC6 UL_TFC5 DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC6 7 DL_TFC7 UL_TFC5 DL_TFC0, DL_TFC11, UL_TFC0,	UL_TFC6, UL_TFC8 UL_TFC0, UL_TFC3, UL_TFC6, UL_TFC9 UL_TFC0, UL_TFC4, UL_TFC4, UL_TFC6,	RB5: 2552RB5: 2624 RB5: 5112RB5:	RB5: 2552RB5: 2624 RB5:
UL_TFC6	UL_TFC8 UL_TFC0, UL_TFC3, UL_TFC6, UL_TFC9 UL_TFC0, UL_TFC4, UL_TFC4, UL_TFC6,	RB5: 2552RB5: 2624 RB5: 5112RB5:	RB5: 2552RB5: 2624 RB5:
UL_TFC6	UL_TFC0, UL_TFC3, UL_TFC6, UL_TFC9 UL_TFC0, UL_TFC4, UL_TFC6,	2552 2624 RB5: 5112 RB5:	2552RB5: 2624 RB5:
UL_TFC6	UL_TFC3, UL_TFC6, UL_TFC9 UL_TFC0, UL_TFC4, UL_TFC6,	2552 2624 RB5: 5112 RB5:	2552RB5: 2624 RB5:
4 DL_TFC4 UL_TFC4 DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC6 5 DL_TFC5 UL_TFC5 DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC6 6 DL_TFC6 UL_TFC5 DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC6 7 DL_TFC7 UL_TFC5 DL_TFC0, DL_TFC11, UL_TFC0,	UL_TFC6, UL_TFC9 UL_TFC0, UL_TFC4, UL_TFC6,	RB5: 5112RB5:	2624 <u>RB5:</u>
5 DL_TFC5 UL_TFC5 DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC6 6 DL_TFC6 UL_TFC5 DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC6 7 DL_TFC7 UL_TFC5 DL_TFC0, DL_TFC11, UL_TFC0,	UL_TFC9 UL_TFC0, UL_TFC4, UL_TFC6,	RB5: 5112 RB5:	<u>RB5:</u>
5 DL_TFC5 UL_TFC5 DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC6 6 DL_TFC6 UL_TFC5 DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC6 7 DL_TFC7 UL_TFC5 DL_TFC0, DL_TFC11, UL_TFC0,	UL_TFC0, UL_TFC4, UL_TFC6,	5112RB5:	
5	UL_TFC4, UL_TFC6,	5112RB5:	
5 DL_TFC5 UL_TFC5 DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC6 6 DL_TFC6 UL_TFC5 DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC6 7 DL_TFC7 UL_TFC5 DL_TFC0, DL_TFC11, UL_TFC0,	UL_TFC6,		5112 RB5:
OL_TFC6		5248	
OL_TFC6	TEO 45	0210	5248
0	UL_TFC10		
OL_TFC6	UL_TFC0,	RB5:	RB5:
UL_TFC6	UL_TFC5,	7672 RB5:	7672 RB5:
UL_TFC6	UL_TFC6,	7872	7872
	UL_TFC11		
UL_TFC6	UL_TFC0,	RB5:	RB5:
7 DL_TFC7 UL_TFC5 DL_TFC0, DL_TFC11, UL_TFC0,	UL_TFC5,	10232 RB5:	10232 RB5:
	UL_TFC6,	10496	10496
	UL_TFC11		
	UL_TFC0,	RB5:	RB5:
	UL TFC5,	12792 RB5:	12792 RB5:
	UL_TFC6,	13120	13120
'	UL_TFC11	.0.20	.0.20
8 DL_TFC8 UL_TFC5 DL_TFC0, DL_TFC11, UL_TFC0,	UL TFC0,	RB5:	RB5:
UL_TFC6	UL_TFC5,	15352 RB5:	15352 RB5:
	UL_TFC6,	15744	15744
'	UL_TFC11		
9 DL_TFC9 UL_TFC5 DL_TFC0, DL_TFC11, UL_TFC0,	UL_TFC0,	RB5:	RB5:
UL_TFC6	UL_TFC5,	17912 RB5:	17912 RB5:
	UL_TFC6,	18368	18368
'	UL_TFC11	.0000	.0000
10 DL_TFC10 UL_TFC5 DL_TFC0, DL_TFC11, UL_TFC0,	UL_TFC0,	RB5:	RB5:
UL_TFC6	UL_TFC5,	20472 RB5:	20472 RB5:
	10 151.7	20992	20992
		2 0002	2000E
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopba	UL_TFC5, UL_TFC6, UL_TFC11		l

See 14.1.1 for test procedure.

14.2.37.1.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be
 - for sub-test 1: RB5/TF1 (1x336).
 - for sub-test 2: RB5/TF2 (2x336).
 - for sub-test 3: RB5/TF3 (4x336).
 - for sub-test 4: RB5/TF3 (8x336).
 - for sub-test 5 to 10: RB5/TF4 (12x336).
- 3. At step 15 the UE shall return
 - for sub-test 1 to 10: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

14.2.37.2 Interactive or background / UL:384 DL:2048 kbps / PS RAB / 20 ms TTI

14.2.37.2.1 Conformance requirement

See 14.2.4.1.

14.2.37.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.37 for the 20 ms TTI case.

14.2.37.2.3 Method of test

Uplink TFS:

	TFI	RB5 (384 kbps, 20ms)	DCCH
	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
TFS	TF4, bits	8x336	N/A
	TF5, bits	12x336	N/A
	TF6, bits	16x336	N/A
	TF7, bits	20x336	N/A
	TF8, bits	24x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF5, TF0)
UL_TFC6	(TF6, TF0)
UL_TFC7	(TF7, TF0)
UL_TFC8	(TF8, TF0)
UL_TFC9	(TF0, TF1)
UL_TFC10	(TF1, TF1)

TFCI		(RB5, DCCH)
UL_TFC11	(TF2, TF1)	
UL_TFC12	(TF3, TF1)	
UL_TFC13	(TF4, TF1)	
UL_TFC14	(TF5, TF1)	
UL_TFC15	(TF6, TF1)	
UL_TFC16	(TF7, TF1)	
UL_TFC17	(TF8, TF1)	

Downlink TFS:

	TFI	RB5 (2048 kbps, 10ms)	рссн
	TF0, bits	0x656	0x148
	TF1, bits	1x656	1x148
	TF2, bits	2x656	N/A
	TF3, bits	4x656	N/A
	TF4, bits	8x656	N/A
	TF5, bits	12x656	N/A
	TF6, bits	16x656	N/A
	TF7, bits	20x656	N/A
	TF8, bits	24x656	N/A
TFS	TF9, bits	28x656	N/A
	TF10, bits	32x656	N/A
	TF11, bits	36x656	N/A
	TF12, bits	40x656	N/A
	TF13, bits	44x656	N/A
	TF14, bits	48x656	N/A
	TF15, bits	52x656	N/A
	TF16, bits	56x656	N/A
	TF17, bits	60x656	N/A
	TF18, bits	64x656	N/A

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF5, TF0)
DL_TFC6	(TF6, TF0)
DL_TFC7	(TF7, TF0)
DL_TFC8	(TF8, TF0)
DL_TFC9	(TF9, TF0)
DL_TFC10	(TF10, TF0)
DL_TFC11	(TF11, TF0)
DL_TFC12	(TF12, TF0)
DL_TFC13	(TF13, TF0)
DL_TFC14	(TF14, TF0)
DL_TFC15	(TF15, TF0)
DL_TFC16	(TF16, TF0)
DL_TFC17	(TF17, TF0)
DL_TFC18	(TF18, TF0)
DL_TFC19	(TF0, TF1)
DL_TFC20	(TF1, TF1)
DL_TFC21	(TF2, TF1)
DL_TFC22	(TF3, TF1)
DL_TFC23	(TF4, TF1)
DL_TFC24	(TF5, TF1)

TFCI	(RB5, DCCH)
DL_TFC25	(TF6, TF1)
DL_TFC26	(TF7, TF1)
DL_TFC27	(TF8, TF1)
DL_TFC28	(TF9, TF1)
DL_TFC29	(TF10, TF1)
DL_TFC30	(TF11, TF1)
DL_TFC31	(TF12, TF1)
DL_TFC32	(TF13, TF1)
DL_TFC33	(TF14, TF1)
DL_TFC34	(TF15, TF1)
DL_TFC35	(TF16, TF1)
DL_TFC36	(TF17, TF1)
DL_TFC37	(TF18, TF1)

Sub- test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (bits)	Test data size (bits)
					(note)	(note)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC1, UL_TFC9, UL_TFC10	RB5: 632RB5: 656	RB5: 632RB5: 656
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC2, UL_TFC9, UL_TFC11	RB5: 1272RB5: 1312	RB5: 1272RB5: 1312
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC3, UL_TFC9, UL_TFC12	RB5: 2552RB5: 2624	RB5: 2552RB5: 2624
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC4, UL_TFC9, UL_TFC13	RB5: 5112RB5: 5248	RB5: 5112RB5: 5248
5	DL_TFC5	UL_TFC5	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC5, UL_TFC9, UL_TFC14	RB5: 7672RB5: 7872	RB5: 7672 RB5: 7872
6	DL_TFC6	UL_TFC6	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC6, UL_TFC9, UL_TFC15	RB5: 10232RB5: 10496	RB5: 10232RB5: 10496
7	DL_TFC7	UL_TFC7	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC7, UL_TFC9, UL_TFC16	RB5: 12792RB5: 13120	RB5: 12792RB5: 13120
8	DL_TFC8	UL_TFC8	DL_TFC0, DL_TFC19, , UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC8, UL_TFC9, UL_TFC17	RB5: 15352RB5: 15744	RB5: 15352RB5: 15744
9	DL_TFC9	UL_TFC8	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC8, UL_TFC9, UL_TFC17	RB5: 17912RB5: 18368	RB5: 17912RB5: 18368
10	DL_TFC10	UL_TFC8	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC8, UL_TFC9, UL_TFC17	RB5: 20472RB5: 20992	RB5: 20472RB5: 20992
11	DL_TFC11	UL_TFC8	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC8, UL_TFC9, UL_TFC17	RB5: 23032RB5: 23616	RB5: 23032RB5: 23616

Sub- test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (bits)	Test data size (bits)
					(note)	(note)
12	DL_TFC12	UL_TFC8	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC8, UL_TFC9, UL_TFC17	RB5: 25592RB5: 26240	RB5: 25592RB5: 26240
13	DL_TFC13	UL_TFC8	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC8, UL_TFC9, UL_TFC17	RB5: 28152RB5: 28864	RB5: 28152RB5: 28864
14	DL_TFC14	UL_TFC8	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC8, UL_TFC9, UL_TFC17	RB5: 30712RB5: 31488	RB5: 30712RB5: 31488
15	DL_TFC15	UL_TFC8	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC8, UL_TFC9, UL_TFC17	RB5: 33272RB5: 34112	RB5: 33272RB5: 34112
16	DL_TFC16	UL_TFC8	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC8, UL_TFC9, UL_TFC17	RB5: 35832RB5: 36736	RB5: 35832RB5: 36736
17	DL_TFC17	UL_TFC8	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC8, UL_TFC9, UL_TFC17	RB5: 38392RB5: 39360	RB5: 38392RB5: 39360
18	DL_TFC18	UL_TFC8	DL_TFC0, DL_TFC19, , UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC8, UL_TFC9, UL_TFC17	RB5: 40952RB5: 41984	RB5: 40952RB5: 41984
NOTE	: See TS 34.	109 [10] claus	se 5.3.2.6.2 for details regarding loopba	ack of RLC SD	Us.	

See 14.1.1 for test procedure.

14.2.37.2.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be
 - for sub-test 1: RB5/TF1 (1x336).
 - for sub-test 2: RB5/TF2 (2x336).
 - for sub-test 3: RB5/TF3 (4x336).
 - for sub-test 4: RB5/TF4 (8336).
 - for sub-test 5: RB5/TF5 (12x336).
 - for sub-test 6: RB5/TF6 (16x336).
 - for sub-test 7: RB5/TF7 (20x336).
 - for sub-test 8 to 18: RB5/TF4 (24x336).
- 3. At step 15 the UE shall return
 - for sub-test 1 to 18: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

14.2.38 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:32 DL:8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.2.38.1 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:32 DL:8 kbps / PS RAB / (TC, 20 ms TTI)

14.2.38.1.1 Conformance requirement

See 14.2.4.1.

14.2.38.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.38 for the turbo channel coding and 20 ms TTI case.

14.2.38.1.3 Method of test

Uplink TFS:

		TFI	RB5	RB6	RB7	RB8	DCCH
		1171	(RAB subflow #1)	(RAB subflow #2)	(RAB subflow #3)	(32 kbps)	
	TFS	TF0, bits	0x81(alt. 1x0)	0x103	0x60	0x336	0x148
TF		TF1, bits	1x39	1x103	1x60	1x336	1x148
		TF2, bits	1x81	N/A	N/A	2x336	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0, TF0)
UL_TFC3	(TF0, TF0, TF1, TF0)
UL_TFC4	(TF1, TF0, TF0, TF1, TF0)
UL_TFC5	(TF2, TF1, TF1, TF0)
UL_TFC6	(TF0, TF0, TF0, TF2, TF0)
UL_TFC7	(TF1, TF0, TF0, TF2, TF0)
UL_TFC8	(TF2, TF1, TF1, TF2, TF0)
UL_TFC9	(TF0, TF0, TF0, TF1)
UL_TFC10	(TF1, TF0, TF0, TF1)
UL_TFC11	(TF2, TF1, TF1, TF0, TF1)
UL_TFC12	(TF0, TF0, TF1, TF1)
UL_TFC13	(TF1, TF0, TF0, TF1, TF1)
UL_TFC14	(TF2, TF1, TF1, TF1, TF1)
UL_TFC15	(TF0, TF0, TF0, TF2, TF1)
UL_TFC16	(TF1, TF0, TF0, TF2, TF1)
UL_TFC17	(TF2, TF1, TF1, TF2, TF1)

_			RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (8 kbps)	DCCH
		TF0, bits	1x0	0x103	0x60	0x336	0x148
	TFS	TF1, bits	1x39	1x103	1x60	1x336	1x148
		TF2. bits	1x81	N/A	N/A	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0, TF0)
DL_TFC3	(TF0, TF0, TF1, TF0)
DL_TFC4	(TF1, TF0, TF0, TF1, TF0)
DL_TFC5	(TF2, TF1, TF1, TF0)
DL_TFC6	(TF0, TF0, TF0, TF1)
DL_TFC7	(TF1, TF0, TF0, TF1)
DL_TFC8	(TF2, TF1, TF1, TF0, TF1)
DL_TFC9	(TF0, TF0, TF1, TF1)
DL_TFC10	(TF1, TF0, TF0, TF1, TF1)
DL_TFC11	(TF2, TF1, TF1, TF1, TF1)

Sub-tests:

	ub-	Downlink	Uplink	Implicitely tested	Restricted UL	UL RLC	Test data size
t	est	TFCS	TFCS		TFCIs	SDU size	(bits)
		under	Under test			(bits)	(()
Η,		test	TEO4	DI TEON DI TEON	III TEOO	(note)	(note)
1		DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC6,	UL_TFC0,	RB5: 39	RB5: 39
				UL_TFC0, UL_TFC9	UL_TFC1,	RB6: 103	RB6: No data
ı					UL_TFC9,	RB7: 60	RB7: No data
بال		DI TEOO	=====	DI TEGO DI TEGO	UL_TFC10	RB8: <u>312</u> 336	RB8: No data
2		DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC6,	UL_TFC0,	RB5: 81	RB5: 81
				UL_TFC0, UL_TFC9	UL_TFC2,	RB6: 103	RB6: 103
					UL_TFC9,	RB7: 60	RB7: 60
1			=====		UL_TFC11	RB8: <u>312</u> 336	RB8: No data
3		DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC6,	UL_TFC0,	RB5: 39	RB5: No data
				UL_TFC0, UL_TFC9	UL_TFC3,	RB6: 103	RB6: No data
					UL_TFC9,	RB7: 60	RB7: No data
1					UL_TFC12	RB8: <u>312</u> 336	RB8: <u>312</u> 336
4		DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC6,	UL_TFC0,	RB5: 39	RB5: 39
				UL_TFC0, UL_TFC9	UL_TFC4,	RB6: 103	RB6: No data
					UL_TFC9,	RB7: 60	RB7: No data
1					UL_TFC13	RB8: <u>312</u> 336	RB8: <u>312336</u>
5		DL_TFC5	UL_TFC5	DL_TFC0, DL_TFC6,	UL_TFC0,	RB5: 81	RB5: 81
				UL_TFC0, UL_TFC9	UL_TFC5,	RB6: 103	RB6: 103
					UL_TFC9,	RB7: 60	RB7: 60
1					UL_TFC14	RB8: <u>312</u> 336	RB8: <u>312336</u>
6		DL_TFC5	UL_TFC6	DL_TFC0, DL_TFC6,	UL_TFC0,	RB5: 39	RB5: No data
				UL_TFC0, UL_TFC9	UL_TFC6,	RB6: 103	RB6: No data
ı					UL_TFC9,	RB7: 60	RB7: No data
1					UL_TFC15	RB8: <u>632</u> 672	RB8: <u>632</u> 672
7		DL_TFC5	UL_TFC7	DL_TFC0, DL_TFC6,	UL_TFC0,	RB5: 39	RB5: 39
				UL_TFC0, UL_TFC9	UL_TFC7,	RB6: 103	RB6: No data
					UL_TFC9,	RB7: 60	RB7: No data
1					UL_TFC16	RB8: <u>632</u> 672	RB8: <u>632</u> 672
8		DL_TFC5	UL_TFC8	DL_TFC0, DL_TFC6,	UL_TFC0,	RB5: 81	RB5: 81
				UL_TFC0, UL_TFC9	UL_TFC8,	RB6: 103	RB6: 103
					UL_TFC9,	RB7: 60	RB7: 60
1					UL_TFC17	RB8: <u>632</u> 672	RB8: <u>632672</u>
Ν	OTE:	See TS 34	.109 [10] claus	se 5.3.2.6.2 for details regard	ling loopback of RLC	SDUs.	

See 14.1.1 for test procedure.

14.2.38.1.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.

- 2. At step 15 the UE transmitted transport format shall be
 - for sub-test 1: RB5/TF1 (1x39).
 - for sub-test 2: RB5/TF2 (1x81); RB6/TF1 (1x103); and RB7/TF1 (1x60).
 - for sub-test 3: RB8/TF1 (1x336)
 - for sub-test 4: RB5/TF1 (1x39) and RB8/TF1 (1x336).
 - for sub-test 5: RB5/TF2 (1x81); RB6/TF1 (1x103); RB7/TF1 (1x60); and RB8/TF1 (1x336).
 - for sub-test 6: RB8/TF2 (2x336)
 - for sub-test 7: RB5/TF1 (1x39) and RB8/TF2 (2x336).
 - for sub-test 8: RB5/TF2 (1x81); RB6/TF1 (1x103); RB7/TF1 (1x60); and RB8/TF2 (2x336).
- 3. At step 15 the UE shall return
 - for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6, RB7 and RB8.
 - for sub-test 2: an RLC SDU on RB5, RB6 and RB7 having the same content as sent by SS; and no data shall be received on RB8.
 - for sub-test 3 and 6: an RLC SDU on RB8 having the same content as sent by SS; and no data shall be received on RB5, RB6 and RB7.
 - for sub-test 4 and 7: an RLC SDU on RB5 and RB8 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
 - for sub-test 5 and 8: an RLC SDU on RB5, RB6, RB7 and RB8 having the same content as sent by SS.

14.2.38.2 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:32 DL:8 kbps / PS RAB / (TC, 10 ms TTI)

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.38 for the turbo channel coding and 10 ms TTI case.

See 14.2.38.1 for test procedure and test requirements. Only sub-tests 1 to 5 are applicable for the 10 ms TTI case.

14.2.38.3 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:32 DL:8 kbps / PS RAB / (CC, 20 ms TTI)

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.38 for the convolutional channel coding and 20 ms TTI case.

See test case 14.2.38.1 for test procedure and test requirement.

14.2.38.4 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:32 DL:8 kbps / PS RAB / (CC, 10 ms TTI)

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.38 for the convolutional channel coding and 10 ms TTI case.

See test case 14.2.38.2 for test procedure and test requirement.

14.2.39 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:32 DL:64 kbps / PS RAB+ UL:3.4 DL: 3.4 kbps SRBs for DCCH

14.2.39.1 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:32 DL:64 kbps / PS RAB / (TC, 10 ms TTI)

14.2.39.1.1 Conformance requirement

See 14.2.4.1.

14.2.39.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.39 for the uplink turbo channel coding and 10 ms TTI case.

14.2.39.1.3 Method of test

Uplink TFS:

		TFI	RB5	RB6	RB7	RB8	DCCH
		1171	(RAB subflow #1)	(RAB subflow #2)	(RAB subflow #3)	(32 kbps)	
	TFS	TF0, bits	0x81(alt. 1x0)	0x103	0x60	0x336	0x148
1		TF1, bits	1x39	1x103	1x60	1x336	1x148
		TF2, bits	1x81	N/A	N/A	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0, TF0)
UL_TFC3	(TF0, TF0, TF1, TF0)
UL_TFC4	(TF1, TF0, TF0, TF1, TF0)
UL_TFC5	(TF2, TF1, TF1, TF0)
UL_TFC6	(TF0, TF0, TF0, TF1)
UL_TFC7	(TF1, TF0, TF0, TF1)
UL_TFC8	(TF2, TF1, TF1, TF0, TF1)
UL_TFC9	(TF0, TF0, TF1, TF1)
UL_TFC10	(TF1, TF0, TF0, TF1, TF1)
UL_TFC11	(TF2, TF1, TF1, TF1, TF1)

			RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (64 kbps)	DCCH	
		TF0, bits	1x0	0x103	0x60	0x336	0x148	
		TF1, bits	1x39	1x103	1x60	1x336	1x148	
	TFS	TF2, bits	1x81	N/A	N/A	2x336	N/A	
		TF3, bits	N/A	N/A	N/A	3x336	N/A	ı
		TF4, bits	N/A	N/A	N/A	4x336	N/A	1

TFCI	(RB5, RB6, RB7, RB8, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1, TF0)
DL_TFC4	(TF1, TF0, TF0, TF1, TF0)
DL_TFC5	(TF2, TF1, TF1, TF0)
DL_TFC6	(TF0, TF0, TF0, TF2, TF0)
DL_TFC7	(TF1, TF0, TF0, TF2, TF0)
DL_TFC8	(TF2, TF1, TF1, TF2, TF0)
DL_TFC9	(TF0, TF0, TF0, TF3, TF0)
DL_TFC10	(TF1, TF0, TF0, TF3, TF0)
DL_TFC11	(TF2, TF1, TF1, TF3, TF0)
DL_TFC12	(TF0, TF0, TF0, TF4, TF0)
DL_TFC13	(TF1, TF0, TF0, TF4, TF0)
DL_TFC14	(TF2, TF1, TF1, TF4, TF0)
DL_TFC15	(TF0, TF0, TF0, TF1)
DL_TFC16	(TF1, TF0, TF0, TF1)
DL_TFC17	(TF2, TF1, TF1, TF0, TF1)
DL_TFC18	(TF0, TF0, TF1, TF1)
DL_TFC19	(TF1, TF0, TF0, TF1, TF1)
DL_TFC20	(TF2, TF1, TF1, TF1)
DL_TFC21	(TF0, TF0, TF0, TF1)
DL_TFC22	(TF1, TF0, TF0, TF2, TF1)
DL_TFC23	(TF2, TF1, TF1, TF2, TF1)
DL_TFC24	(TF0, TF0, TF0, TF3, TF1)
DL_TFC25	(TF1, TF0, TF0, TF3, TF1)
DL_TFC26	(TF2, TF1, TF1, TF3, TF1)
DL_TFC27	(TF0, TF0, TF0, TF4, TF1)
DL_TFC28	(TF1, TF0, TF0, TF4, TF1)
DL_TFC29	(TF2, TF1, TF1, TF4, TF1)

Sub- test	Downlink TFCS Under	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (bits)	Test data size (bits)
4	Test	LII TEO4	DI TEON DI TEONE	LII TEOO	(note)	(note)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC1,	RB5: 39 RB6: 103	RB5: 39 RB6: No data
			0L_1FC0, 0L_1FC9	UL_TFC1,	RB7: 60	RB7: No data
				UL_TFC10	RB8: 312 336	RB8: No data
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC15,	UL_TFC0,	RB5: 81	RB5: 81
-		00_	UL_TFC0, UL_TFC9	UL_TFC2,	RB6: 103	RB6: 103
			_ , _	UL_TFC9,	RB7: 60	RB7: 60
				UL_TFC11	RB8: <u>312</u> 336	RB8: No data
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC15,	UL_TFC0,	RB5: 39	RB5: No data
			UL_TFC0, UL_TFC9	UL_TFC3,	RB6: 103	RB6: No data
				UL_TFC9,	RB7: 60	RB7: No data
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC15,	UL_TFC12 UL_TFC0,	RB8: <u>312</u> 336 RB5: 39	RB8: <u>312</u> 336 RB5: 39
4	DL_IFC4	UL_TFU4	UL_TFC0, UL_TFC9	UL_TFC4,	RB6: 103	RB6: No data
			02_11 00, 02_11 00	UL_TFC9,	RB7: 60	RB7: No data
				UL_TFC13	RB8: 312 336	RB8: 312 336
5	DL_TFC5	UL_TFC5	DL_TFC0, DL_TFC15,	UL_TFC0,	RB5: 81	RB5: 81
			UL_TFC0, UL_TFC9	UL_TFC5,	RB6: 103	RB6: 103
				UL_TFC9,	RB7: 60	RB7: 60
		=====		UL_TFC14	RB8: <u>312</u> 336	RB8: <u>312</u> 336
6	DL_TFC6	UL_TFC3	DL_TFC0, DL_TFC15,	UL_TFC0,	RB5: 39	RB5: No data
			UL_TFC0, UL_TFC9	UL_TFC3, UL_TFC9,	RB6: 103 RB7: 60	RB6: No data RB7: No data
				UL_TFC12	RB8: <u>632672</u>	RB8: <u>632672</u>
7	DL_TFC7	UL_TFC4	DL_TFC0, DL_TFC15,	UL_TFC0,	RB5: 39	RB5: 39
			UL_TFC0, UL_TFC9	UL_TFC4,	RB6: 103	RB6: No data
				UL_TFC9,	RB7: 60	RB7: No data
				UL_TFC13	RB8: <u>632</u> 672	RB8: <u>632</u> 672
8	DL_TFC8	UL_TFC5	DL_TFC0, DL_TFC15,	UL_TFC0,	RB5: 81	RB5: 81
			UL_TFC0, UL_TFC9	UL_TFC5,	RB6: 103	RB6: 103
				UL_TFC9, UL_TFC14	RB7: 60 RB8: <u>632</u> 672	RB7: 60 RB8: <u>632</u> 672
9	DL TFC9	UL_TFC3	DL_TFC0, DL_TFC15,	UL_TFC0,	RB5: 39	RB5: No data
		0	UL_TFC0, UL_TFC9	UL_TFC3,	RB6: 103	RB6: No data
			_	UL_TFC9,	RB7: 60	RB7: No data
				UL_TFC12	RB8:	RB8: <u>952</u> 1008
					<u>952</u> 1008	
10	DL_TFC10	UL_TFC4	DL_TFC0, DL_TFC15,	UL_TFC0,	RB5: 39	RB5: 39
			UL_TFC0, UL_TFC9	UL_TFC4, UL_TFC9,	RB6: 103 RB7: 60	RB6: No data RB7: No data
				UL_TFC13	RB8:	RB8: 952 1008
				02_11 010	952 1008	1120. <u>002</u> 1000
11	DL_TFC11	UL_TFC5	DL_TFC0, DL_TFC15,	UL_TFC0,	RB5: 81	RB5: 81
			UL_TFC0, UL_TFC9	UL_TFC5,	RB6: 103	RB6: 103
				UL_TFC9,	RB7: 60	RB7: 60
				UL_TFC14	RB8:	RB8: <u>952</u> 1008
12	DI TECAO	III TECO	DI TECO DI TECAT	III TECO	952 1008	DDE: No data
12	DL_TFC12	UL_TFC3	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC3,	RB5: 39 RB6: 103	RB5: No data RB6: No data
			JL_11 JU, JL_11 JJ	UL_TFC9,	RB7: 60	RB7: No data
				UL_TFC12	RB8:	RB8:
					<u>1272</u> 1344	<u>1272</u> 1344
13	DL_TFC13	UL_TFC4	DL_TFC0, DL_TFC15,	UL_TFC0,	RB5: 39	RB5: 39
			UL_TFC0, UL_TFC9	UL_TFC4,	RB6: 103	RB6: No data
				UL_TFC9,	RB7: 60	RB7: No data
				UL_TFC13	RB8:	RB8:
14	DL_TFC14	UL_TFC5	DL_TFC0, DL_TFC15,	UL_TFC0,	12721344 RB5: 81	12721344 RB5: 81
1-7	51_11 014	31_11 00	UL_TFC0, UL_TFC9	UL_TFC5,	RB6: 103	RB6: 103
			_ = ==, ==	UL_TFC9,	RB7: 60	RB7: 60
				UL_TFC14	RB8:	RB8:
					<u>1272</u> 1344	<u>1272</u> 1344

Sub- test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits)		
NOTE:								

14.2.39.1.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be
 - for sub-test 1: RB5/TF1 (1x39).
 - for sub-test 2: RB5/TF2 (1x81); RB6/TF1 (1x103); and RB7/TF1 (1x60).
 - for sub-test 3, 6, 9 and 12: RB8/TF1 (1x336)
 - for sub-test 4, 7, 10 and 13: RB5/TF1 (1x39) and RB8/TF1 (1x336).
 - for sub-test 5, 8, 11 and 14: RB5/TF2 (1x81); RB6/TF1 (1x103); RB7/TF1 (1x60); and RB8/TF1 (1x336).
- 3. At step 15 the UE shall return
 - for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6. RB7 and RB8.
 - for sub-test 2: an RLC SDU on RB5, RB6 and RB7 having the same content as sent by SS; and no data shall be received on RB8.
 - for sub-test 3, 6, 9 and 12: an RLC SDU on RB8 having the same content as sent by SS; and no data shall be received on RB5, RB6 and RB7.
 - for sub-test 4, 7, 10 and 13: an RLC SDU on RB5 and RB8 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
 - for sub-test 5, 8, 11 and 14: an RLC SDU on RB5, RB6, RB7 and RB8 having the same content as sent by SS.

14.2.39.2 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:32 DL:64 kbps / PS RAB / (TC, 20 ms TTI)

14.2.39.2.1 Conformance requirement

See 14.2.4.1.

14.2.39.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.39 for the uplink turbo channel coding and 20 ms TTI case.

14.2.39.2.3 Method of test

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (32 kbps)	DCCH
	TF0, bits	0x81(alt. 1x0)	0x103	0x60	0x336	0x148
TFS	TF1, bits	1x39	1x103	1x60	1x336	1x148
	TF2, bits	1x81	N/A	N/A	2x336	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0, TF0)
UL_TFC3	(TF0, TF0, TF1, TF0)
UL_TFC4	(TF1, TF0, TF0, TF1, TF0)
UL_TFC5	(TF2, TF1, TF1, TF0)
UL_TFC6	(TF0, TF0, TF0, TF2, TF0)
UL_TFC7	(TF1, TF0, TF0, TF2, TF0)
UL_TFC8	(TF2, TF1, TF1, TF2, TF0)
UL_TFC9	(TF0, TF0, TF0, TF1)
UL_TFC10	(TF1, TF0, TF0, TF1)
UL_TFC11	(TF2, TF1, TF1, TF0, TF1)
UL_TFC12	(TF0, TF0, TF1, TF1)
UL_TFC13	(TF1, TF0, TF0, TF1, TF1)
UL_TFC14	(TF2, TF1, TF1, TF1, TF1)
UL_TFC15	(TF0, TF0, TF0, TF2, TF1)
UL_TFC16	(TF1, TF0, TF0, TF2, TF1)
UL_TFC17	(TF2, TF1, TF1, TF2, TF1)

		RB5	RB6	RB7	RB8	рссн
		(RAB subflow #1)	(RAB subflow #2)	(RAB subflow #3)	(64 kbps)	рссп
	TF0, bits	1x0	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
TFS	TF2, bits	1x81	N/A	N/A	2x336	N/A
	TF3, bits	N/A	N/A	N/A	3x336	N/A
	TF4, bits	N/A	N/A	N/A	4x336	N/A

TFCI	(RB5, RB6, RB7, RB8, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1, TF0)
DL_TFC4	(TF1, TF0, TF0, TF1, TF0)
DL_TFC5	(TF2, TF1, TF1, TF0)
DL_TFC6	(TF0, TF0, TF0, TF2, TF0)
DL_TFC7	(TF1, TF0, TF0, TF2, TF0)
DL_TFC8	(TF2, TF1, TF1, TF2, TF0)
DL_TFC9	(TF0, TF0, TF0, TF3, TF0)
DL_TFC10	(TF1, TF0, TF0, TF3, TF0)
DL_TFC11	(TF2, TF1, TF1, TF3, TF0)
DL_TFC12	(TF0, TF0, TF0, TF4, TF0)
DL_TFC13	(TF1, TF0, TF0, TF4, TF0)
DL_TFC14	(TF2, TF1, TF1, TF4, TF0)
DL_TFC15	(TF0, TF0, TF0, TF1)
DL_TFC16	(TF1, TF0, TF0, TF1)
DL_TFC17	(TF2, TF1, TF1, TF0, TF1)
DL_TFC18	(TF0, TF0, TF1, TF1)
DL_TFC19	(TF1, TF0, TF0, TF1, TF1)
DL_TFC20	(TF2, TF1, TF1, TF1)
DL_TFC21	(TF0, TF0, TF0, TF1)
DL_TFC22	(TF1, TF0, TF0, TF2, TF1)
DL_TFC23	(TF2, TF1, TF1, TF2, TF1)
DL_TFC24	(TF0, TF0, TF3, TF1)
DL_TFC25	(TF1, TF0, TF0, TF3, TF1)
DL_TFC26	(TF2, TF1, TF1, TF3, TF1)
DL_TFC27	(TF0, TF0, TF4, TF1)
DL_TFC28	(TF1, TF0, TF0, TF4, TF1)
DL_TFC29	(TF2, TF1, TF1, TF4, TF1)

Sub-	Downlink	Uplink	Implicitely tested	Restricted UL	UL RLC SDU	Test data size
test	TFCS Under	TFCS Under test		TFCIs	size (bits)	(bits)
	Test	Ondor toot			(note)	(note)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC15,	UL_TFC0,	RB5: 39	RB5: 39
			UL_TFC0, UL_TFC9	UL_TFC1,	RB6: 103	RB6: No data
				UL_TFC9,	RB7: 60	RB7: No data
				UL_TFC10	RB8: <u>312</u> 336	RB8: No data
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC15,	UL_TFC0,	RB5: 81	RB5: 81
			UL_TFC0, UL_TFC9	UL_TFC2,	RB6: 103	RB6: 103
				UL_TFC9,	RB7: 60	RB7: 60
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC15,	UL_TFC11	RB8: <u>312336</u>	RB8: No data
3	DL_IFG3	UL_IFC3	UL_TFC0, UL_TFC15,	UL_TFC0, UL_TFC3,	RB5: 39 RB6: 103	RB5: No data RB6: No data
			OL_TFC0, OL_TFC9	UL_TFC9,	RB7: 60	RB7: No data
				UL_TFC12	RB8: <u>312</u> 336	RB8: <u>312</u> 336
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC15,	UL_TFC0,	RB5: 39	RB5: 39
'		0	UL_TFC0, UL_TFC9	UL_TFC4,	RB6: 103	RB6: No data
				UL_TFC9,	RB7: 60	RB7: No data
				UL_TFC13	RB8: 312336	RB8: <u>312</u> 336
5	DL_TFC5	UL_TFC5	DL_TFC0, DL_TFC15,	UL_TFC0,	RB5: 81	RB5: 81
			UL_TFC0, UL_TFC9	UL_TFC5,	RB6: 103	RB6: 103
				UL_TFC9,	RB7: 60	RB7: 60
	DI TEGG	TEO.	DI TEON DI TENT	UL_TFC14	RB8: <u>312336</u>	RB8: <u>312336</u>
6	DL_TFC6	UL_TFC6	DL_TFC0, DL_TFC15,	UL_TFC0,	RB5: 39	RB5: No data
			UL_TFC0, UL_TFC9	UL_TFC6, UL_TFC9,	RB6: 103 RB7: 60	RB6: No data RB7: No data
				UL_TFC15	RB8: 632 672	RB8: 672 632
7	DL_TFC7	UL_TFC7	DL_TFC0, DL_TFC15,	UL_TFC0,	RB5: 39	RB5: 39
'		02_11 07	UL_TFC0, UL_TFC9	UL_TFC7,	RB6: 103	RB6: No data
				UL_TFC9,	RB7: 60	RB7: No data
				UL_TFC16	RB8: 632672	RB8: <u>632</u> 672
8	DL_TFC8	UL_TFC8	DL_TFC0, DL_TFC15,	UL_TFC0,	RB5: 81	RB5: 81
			UL_TFC0, UL_TFC9	UL_TFC8,	RB6: 103	RB6: 103
				UL_TFC9,	RB7: 60	RB7: 60
	DI TEOO	UL_TFC6	DI TEON DI TEONE	UL_TFC17	RB8: <u>632</u> 672	RB8: <u>632</u> 672
9	DL_TFC9	UL_IFC6	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC6,	RB5: 39 RB6: 103	RB5: No data RB6: No data
			OL_TFC0, OL_TFC9	UL_TFC9,	RB7: 60	RB7: No data
				UL_TFC15	RB8: 1008 952	RB8: 952 1008
10	DL TFC10	UL_TFC7	DL_TFC0, DL_TFC15,	UL_TFC0,	RB5: 39	RB5: 39
	_	_	UL_TFC0, UL_TFC9	UL_TFC7,	RB6: 103	RB6: No data
				UL_TFC9,	RB7: 60	RB7: No data
				UL_TFC15	RB8: <u>952</u> 1008	RB8: <u>952</u> 1008
11	DL_TFC11	UL_TFC8	DL_TFC0, DL_TFC15,	UL_TFC0,	RB5: 81	RB5: 81
			UL_TFC0, UL_TFC9	UL_TFC8,	RB6: 103	RB6: 103
				UL_TFC9,	RB7: 60	RB7: 60
12	DL_TFC12	UL_TFC6	DL_TFC0, DL_TFC15,	UL_TFC17 UL_TFC0,	RB8: <u>952</u> 1008 RB5: 39	RB8: <u>952</u> 1008 RB5: No data
'-	DL_IFUIZ	OL_IFC0	UL_TFC0, UL_TFC15,	UL_TFC6,	RB6: 103	RB6: No data
			5 55, 52 55	UL_TFC9,	RB7: 60	RB7: No data
				UL_TFC15	RB8:	RB8:
					<u>1272</u> 1344	1344 <u>1272</u>
13	DL_TFC13	UL_TFC7	DL_TFC0, DL_TFC15,	UL_TFC0,	RB5: 39	RB5: 39
			UL_TFC0, UL_TFC9	UL_TFC7,	RB6: 103	RB6: No data
				UL_TFC9,	RB7: 60	RB7: No data
				UL_TFC16	RB8:	RB8:
1.1	DI TECAA	III TECO	DI TECO DI TECAT	III TECO	12721344	12721344
14	DL_TFC14	UL_TFC8	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC8,	RB5: 81 RB6: 103	RB5: 81 RB6: 103
			0L_11 00, 0L_1F08	UL_TFC9,	RB7: 60	RB7: 60
				UL_TFC17	RB8:	RB8:
					<u>1272</u> 1344	<u>1272</u> 1344
NOTE:	See TS 34	.109 [10] claus	se 5.3.2.6.2 for details regard	ding loopback of RLC		

14.2.39.2.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be
 - for sub-test 1: RB5/TF1 (1x39).
 - for sub-test 2: RB5/TF2 (1x81); RB6/TF1 (1x103); and RB7/TF1 (1x60).
 - for sub-test 3: RB8/TF1 (1x336)
 - for sub-test 4: RB5/TF1 (1x39) and RB8/TF1 (1x336).
 - for sub-test 5: RB5/TF2 (1x81); RB6/TF1 (1x103); RB7/TF1 (1x60); and RB8/TF1 (1x336).
 - for sub-test 6, 9 and 12: RB8/TF2 (2x336)
 - for sub-test 7, 10 and 13: RB5/TF1 (1x39) and RB8/TF2 (2x336).
 - for sub-test 8, 11 and 14: RB5/TF2 (1x81); RB6/TF1 (1x103); RB7/TF1 (1x60); and RB8/TF2 (2x336).
- 3. At step 15 the UE shall return
 - for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6, RB7 and RB8.
 - for sub-test 2: an RLC SDU on RB5, RB6 and RB7 having the same content as sent by SS; and no data shall be received on RB8.
 - for sub-test 3, 6, 9 and 12: an RLC SDU on RB8 having the same content as sent by SS; and no data shall be received on RB5, RB6 and RB7.
 - for sub-test 4, 7, 10 and 13: an RLC SDU on RB5 and RB8 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
 - for sub-test 5, 8, 11 and 14: an RLC SDU on RB5, RB6, RB7 and RB8 having the same content as sent by SS.

14.2.39.3 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:32 DL:64 kbps / PS RAB / (CC, 10 ms TTI)

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.39 for the uplink convolutional channel coding and 10 ms TTI case.

See test case 14.2.39.1 for test procedure and test requirement.

14.2.39.4 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:32 DL:64 kbps / PS RAB / (CC, 20 ms TTI)

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.39 for the uplink convolutional channel coding and 20 ms TTI case.

See test case 14.2.39.2 for test procedure and test requirement.

14.2.40 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:64 DL:64 kbps / PS RAB+ UL:3.4 DL: 3.4 kbps SRBs for DCCH

14.2.40.1 Conformance requirement

See 14.2.4.1.

14.2.40.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.40.

14.2.40.3 Method of test

Uplink TFS:

	TFI	RB5	RB6	RB7	RB8	DCCH
	151	(RAB subflow #1)	(RAB subflow #2)	(RAB subflow #3)	(64 kbps)	
	TF0, bits	0x81(alt. 1x0)	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
TFS	TF2, bits	1x81	N/A	N/A	2x336	N/A
	TF3, bits	N/A	N/A	N/A	3x336	N/A
	TF4, bits	N/A	N/A	N/A	4x336	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1, TF0)
UL_TFC4	(TF1, TF0, TF0, TF1, TF0)
UL_TFC5	(TF2, TF1, TF1, TF0)
UL_TFC6	(TF0, TF0, TF0, TF2, TF0)
UL_TFC7	(TF1, TF0, TF0, TF2, TF0)
UL_TFC8	(TF2, TF1, TF1, TF2, TF0)
UL_TFC9	(TF0, TF0, TF0, TF3, TF0)
UL_TFC10	(TF1, TF0, TF0, TF3, TF0)
UL_TFC11	(TF2, TF1, TF1, TF3, TF0)
UL_TFC12	(TF0, TF0, TF0, TF4, TF0)
UL_TFC13	(TF1, TF0, TF0, TF4, TF0)
UL_TFC14	(TF2, TF1, TF1, TF4, TF0)
UL_TFC15	(TF0, TF0, TF0, TF1)
UL_TFC16	(TF1, TF0, TF0, TF1)
UL_TFC17	(TF2, TF1, TF1, TF0, TF1)
UL_TFC18	(TF0, TF0, TF1, TF1)
UL_TFC19	(TF1, TF0, TF0, TF1, TF1)
UL_TFC20	(TF2, TF1, TF1, TF1)
UL_TFC21	(TF0, TF0, TF0, TF1)
UL_TFC22	(TF1, TF0, TF0, TF2, TF1)
UL_TFC23	(TF2, TF1, TF1, TF2, TF1)
UL_TFC24	(TF0, TF0, TF3, TF1)
UL_TFC25	(TF1, TF0, TF0, TF3, TF1)
UL_TFC26	(TF2, TF1, TF1, TF3, TF1)
UL_TFC27	(TF0, TF0, TF0, TF4, TF1)
UL_TFC28	(TF1, TF0, TF0, TF4, TF1)
UL_TFC29	(TF2, TF1, TF1, TF4, TF1)

Downlink TFS:

_		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (64 kbps)	DCCH
	TF0, bits	1x0	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
TFS	TF2, bits	1x81	N/A	N/A	2x336	N/A
	TF3, bits	N/A	N/A	N/A	3x336	N/A
	TF4, bits	N/A	N/A	N/A	4x336	N/A

TFCI	(RB5, RB6, RB7, RB8, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1, TF0)
DL_TFC4	(TF1, TF0, TF0, TF1, TF0)
DL_TFC5	(TF2, TF1, TF1, TF0)
DL_TFC6	(TF0, TF0, TF0, TF2, TF0)
DL_TFC7	(TF1, TF0, TF0, TF2, TF0)
DL_TFC8	(TF2, TF1, TF1, TF2, TF0)
DL_TFC9	(TF0, TF0, TF0, TF3, TF0)
DL_TFC10	(TF1, TF0, TF0, TF3, TF0)
DL_TFC11	(TF2, TF1, TF1, TF3, TF0)
DL_TFC12	(TF0, TF0, TF0, TF4, TF0)
DL_TFC13	(TF1, TF0, TF0, TF4, TF0)
DL_TFC14	(TF2, TF1, TF1, TF4, TF0)
DL_TFC15	(TF0, TF0, TF0, TF1)
DL_TFC16	(TF1, TF0, TF0, TF1)
DL_TFC17	(TF2, TF1, TF1, TF0, TF1)
DL_TFC18	(TF0, TF0, TF1, TF1)
DL_TFC19	(TF1, TF0, TF0, TF1, TF1)
DL_TFC20	(TF2, TF1, TF1, TF1)
DL_TFC21	(TF0, TF0, TF0, TF1)
DL_TFC22	(TF1, TF0, TF0, TF2, TF1)
DL_TFC23	(TF2, TF1, TF1, TF2, TF1)
DL_TFC24	(TF0, TF0, TF3, TF1)
DL_TFC25	(TF1, TF0, TF0, TF3, TF1)
DL_TFC26	(TF2, TF1, TF1, TF3, TF1)
DL_TFC27	(TF0, TF0, TF0, TF4, TF1)
DL_TFC28	(TF1, TF0, TF0, TF4, TF1)
DL_TFC29	(TF2, TF1, TF1, TF4, TF1)

Sub- test		Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (bits)	Test data size (bits)
	Test				(note)	(note)
1	DL_TFC1	UL_TFC1	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: 39
			DL_TFC15,	UL_TFC1,	RB6: 103	RB6: No data
			UL_TFC0,	UL_TFC15,	RB7: 60	RB7: No data
2	DL_TFC2	UL_TFC2	UL_TFC15 DL_TFC0,	UL_TFC16 UL_TFC0,	RB8: <u>312</u> 336 RB5: 81	RB8: No data RB5: 81
-	DL_TFG2	UL_IFU2	DL_TFC0, DL_TFC15,	UL TFC2,	RB6: 103	RB6: 103
			UL_TFC0,	UL_TFC15,	RB7: 60	RB7: 60
			UL_TFC15	UL_TFC17	RB8: 312336	RB8: No data
3	DL_TFC3	UL_TFC3	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: No data
			DL_TFC15,	UL_TFC3,	RB6: 103	RB6: No data
			UL_TFC0,	UL_TFC15,	RB7: 60	RB7: No data
1	DI TEGA	==0.4	UL_TFC15	UL_TFC18	RB8: <u>312</u> 336	RB8: <u>312</u> 336
4	DL_TFC4	UL_TFC4	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: 39
			DL_TFC15, DUL_TFC0,	UL_TFC4, UL_TFC15,	RB6: 103 RB7: 60	RB6: No data RB7: No data
			UL_TFC15	UL_TFC15,	RB8: 312 336	RB8: 312 336
5	DL TFC5	UL_TFC5	DL_TFC0,	UL TFC0,	RB5: 81	RB5: 81
			DL_TFC15,	UL_TFC5,	RB6: 103	RB6: 103
			UL_TFC0,	UL_TFC15,	RB7: 60	RB7: 60
			UL_TFC15	UL_TFC20	RB8: <u>312</u> 336	RB8: <u>312</u> 336
6	DL_TFC6	UL_TFC6	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: No data
			DL_TFC15,	UL_TFC6,	RB6: 103	RB6: No data
ı			UL_TFC0, UL_TFC15	UL_TFC15, UL_TFC21	RB7: 60 RB8: <u>632672</u>	RB7: No data RB8: <u>632672</u>
1 7	DL_TFC7	UL_TFC7	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: 39
'	DL_11 01	02_11 07	DL_TFC15,	UL_TFC7,	RB6: 103	RB6: No data
			UL_TFC0,	UL_TFC15,	RB7: 60	RB7: No data
			UL_TFC15	UL_TFC22	RB8: <u>632672</u>	RB8: <u>632</u> 672
8	DL_TFC8	UL_TFC8	DL_TFC0,	UL_TFC0,	RB5: 81	RB5: 81
			DL_TFC15,	UL_TFC8,	RB6: 103	RB6: 103
			UL_TFC0,	UL_TFC15,	RB7: 60	RB7: 60
9	DL_TFC9	UL_TFC9	UL_TFC15	UL_TFC23	RB8: <u>632</u> 672	RB8: <u>632</u> 672
9	DL_IFC9	UL_IFC9	DL_TFC0, DL_TFC15,	UL_TFC0, UL_TFC9,	RB5: 39 RB6: 103	RB5: No data RB6: No data
			UL_TFC0,	UL_TFC15,	RB7: 60	RB7: No data
			UL_TFC15	UL_TFC24	RB8:	RB8: 1008 952
			_		952 1008	
10	DL_TFC10	UL_TFC10	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: 39
			DL_TFC15,	UL_TFC10,	RB6: 103	RB6: No data
,			UL_TFC0,	UL_TFC15,	RB7: 60	RB7: No data
			UL_TFC15	UL_TFC25	RB8: 952 1008	RB8: <u>952</u> 1008
11	DL_TFC11	UL_TFC11	DL_TFC0,	UL TFC0,	RB5: 81	RB5: 81
' '		52_11 011	DL_TFC15,	UL_TFC11,	RB6: 103	RB6: 103
			UL_TFC0,	UL_TFC15,	RB7: 60	RB7: 60
			UL_TFC15	UL_TFC26	RB8:	RB8: <u>952</u> 1008
					<u>952</u> 1008	
12	DL_TFC12	UL_TFC12	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: No data
			DL_TFC15,	UL_TFC12,	RB6: 103	RB6: No data
ıl			UL_TFC0,	UL_TFC15,	RB7: 60 RB8:	RB7: No data RB8:
			UL_TFC15	UL_TFC <u>27</u> 26	1344 <u>1272</u>	1272 1344
13	DL_TFC13	UL_TFC13	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: 39
			DL_TFC15,	UL_TFC13,	RB6: 103	RB6: No data
			UL_TFC0,	UL_TFC15,	RB7: 60	RB7: No data
			UL_TFC15	UL_TFC <u>28</u> 27	RB8:	RB8:
1	DI TEST	===::	DI TEGO	LII TEO.	<u>1272</u> 1344	<u>1272</u> 1344
14	DL_TFC14	UL_TFC14	DL_TFC0,	UL_TFC0,	RB5: 81	RB5: 81
			DL_TFC15, UL_TFC0,	UL_TFC14, UL_TFC15,	RB6: 103 RB7: 60	RB6: 103 RB7: 60
			UL_TFC15	UL_TFC15,	RB8:	RB8:
1			32 0.0	32 323	1272 1344	1272 1344
• •				<u> </u>		

Sub- test	Downlink TFCS Under	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (bits)	Test data size (bits)		
	Test				(note)	(note)		
NOTE:	NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.							

14.2.40.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be
 - for sub-test 1: RB5/TF1 (1x39).
 - for sub-test 2: RB5/TF2 (1x81); RB6/TF1 (1x103); and RB7/TF1 (1x60).
 - for sub-test 3: RB8/TF1 (1x336)
 - for sub-test 4: RB5/TF1 (1x39) and RB8/TF1 (1x336).
 - for sub-test 5: RB5/TF2 (1x81); RB6/TF1 (1x103); RB7/TF1 (1x60); and RB8/TF1 (1x336).
 - for sub-test 6: RB8/TF2 (2x336)
 - for sub-test 7: RB5/TF1 (1x39) and RB8/TF2 (2x336).
 - for sub-test 8: RB5/TF2 (1x81); RB6/TF1 (1x103); RB7/TF1 (1x60); and RB8/TF2 (2x336).
 - for sub-test 9: RB8/TF3 (3x336)
 - for sub-test 10: RB5/TF1 (1x39) and RB8/TF3 (3x336).
 - for sub-test 11: RB5/TF2 (1x81); RB6/TF1 (1x103); RB7/TF1 (1x60); and RB8/TF3 (3x336).
 - for sub-test 12: RB8/TF4 (4x336)
 - for sub-test 13: RB5/TF1 (1x39) and RB8/TF4 (4x336).
 - for sub-test 14: RB5/TF2 (1x81); RB6/TF1 (1x103); RB7/TF1 (1x60); and RB8/TF4 (4x336).
- 3. At step 15 the UE shall return
 - for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6, RB7 and RB8.
 - for sub-test 2: an RLC SDU on RB5, RB6 and RB7 having the same content as sent by SS; and no data shall be received on RB8.
 - for sub-test 3, 6, 9 and 12: an RLC SDU on RB8 having the same content as sent by SS; and no data shall be received on RB5, RB6 and RB7.
 - for sub-test 4, 7, 10 and 13: an RLC SDU on RB5 and RB8 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
 - for sub-test 5, 8, 11 and 14: an RLC SDU on RB5, RB6, RB7 and RB8 having the same content as sent by SS.

14.2.41 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:64 DL:128 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.2.41.1 Conformance requirement

See 14.2.4.1.

14.2.41.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.41.

14.2.41.3 Method of test

Uplink TFS:

	TFI	RB5	RB6	RB7	RB8	DCCH
	151	(RAB subflow #1)	(RAB subflow #2)	(RAB subflow #3)	(64 kbps)	
	TF0, bits	0x81(alt. 1x0)	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
TFS	TF2, bits	1x81	N/A	N/A	2x336	N/A
	TF3, bits	N/A	N/A	N/A	3x336	N/A
	TF4, bits	N/A	N/A	N/A	4x336	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0, TF0)
UL_TFC3	(TF0, TF0, TF1, TF0)
UL_TFC4	(TF1, TF0, TF0, TF1, TF0)
UL_TFC5	(TF2, TF1, TF1, TF0)
UL_TFC6	(TF0, TF0, TF0, TF2, TF0)
UL_TFC7	(TF1, TF0, TF0, TF2, TF0)
UL_TFC8	(TF2, TF1, TF1, TF2, TF0)
UL_TFC9	(TF0, TF0, TF0, TF3, TF0)
UL_TFC10	(TF1, TF0, TF0, TF3, TF0)
UL_TFC11	(TF2, TF1, TF1, TF3, TF0)
UL_TFC12	(TF0, TF0, TF0, TF4, TF0)
UL_TFC13	(TF1, TF0, TF0, TF4, TF0)
UL_TFC14	(TF2, TF1, TF1, TF4, TF0)
UL_TFC15	(TF0, TF0, TF0, TF1)
UL_TFC16	(TF1, TF0, TF0, TF1)
UL_TFC17	(TF2, TF1, TF1, TF0, TF1)
UL_TFC18	(TF0, TF0, TF1, TF1)
UL_TFC19	(TF1, TF0, TF0, TF1, TF1)
UL_TFC20	(TF2, TF1, TF1, TF1)
UL_TFC21	(TF0, TF0, TF0, TF1)
UL_TFC22	(TF1, TF0, TF0, TF2, TF1)
UL_TFC23	(TF2, TF1, TF1, TF2, TF1)
UL_TFC24	(TF0, TF0, TF0, TF3, TF1)
UL_TFC25	(TF1, TF0, TF0, TF3, TF1)
UL_TFC26	(TF2, TF1, TF1, TF3, TF1)
UL_TFC27	(TF0, TF0, TF4, TF1)
UL_TFC28	(TF1, TF0, TF0, TF4, TF1)
UL_TFC29	(TF2, TF1, TF1, TF4, TF1)

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (128 kbps)	DCCH
	TF0, bits	1x0	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
TFS	TF2, bits	1x81	N/A	N/A	2x336	N/A
	TF3, bits	N/A	N/A	N/A	4x336	N/A
	TF4, bits	N/A	N/A	N/A	8x336	N/A

TFCI	(RB5, RB6, RB7, RB8, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0, TF0)
DL_TFC3	(TF0, TF0, TF1, TF0)
DL_TFC4	(TF1, TF0, TF0, TF1, TF0)
DL_TFC5	(TF2, TF1, TF1, TF0)
DL_TFC6	(TF0, TF0, TF0, TF2, TF0)
DL_TFC7	(TF1, TF0, TF0, TF2, TF0)
DL_TFC8	(TF2, TF1, TF1, TF2, TF0)
DL_TFC9	(TF0, TF0, TF0, TF3, TF0)
DL_TFC10	(TF1, TF0, TF0, TF3, TF0)
DL_TFC11	(TF2, TF1, TF1, TF3, TF0)
DL_TFC12	(TF0, TF0, TF0, TF4, TF0)
DL_TFC13	(TF1, TF0, TF0, TF4, TF0)
DL_TFC14	(TF2, TF1, TF1, TF4, TF0)
DL_TFC15	(TF0, TF0, TF0, TF1)
DL_TFC16	(TF1, TF0, TF0, TF1)
DL_TFC17	(TF2, TF1, TF1, TF0, TF1)
DL_TFC18	(TF0, TF0, TF1, TF1)
DL_TFC19	(TF1, TF0, TF0, TF1, TF1)
DL_TFC20	(TF2, TF1, TF1, TF1)
DL_TFC21	(TF0, TF0, TF0, TF2, TF1)
DL_TFC22	(TF1, TF0, TF0, TF2, TF1)
DL_TFC23	(TF2, TF1, TF1, TF2, TF1)
DL_TFC24	(TF0, TF0, TF3, TF1)
DL_TFC25	(TF1, TF0, TF0, TF3, TF1)
DL_TFC26	(TF2, TF1, TF1, TF3, TF1)
DL_TFC27	(TF0, TF0, TF0, TF4, TF1)
DL_TFC28	(TF1, TF0, TF0, TF4, TF1)
DL_TFC29	(TF2, TF1, TF1, TF4, TF1)

Sub- test	Downlink TFCS Under	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (bits)	Test data size (bits)
	Test				(note)	(note)
1	DL_TFC1	UL_TFC1	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: 39
			DL_TFC15,	UL_TFC1,	RB6: 103	RB6: No data
			UL_TFC0,	UL_TFC15,	RB7: 60	RB7: No data
l			UL_TFC15	UL_TFC16	RB8: 336 312	RB8: No data
2	DL_TFC2	UL_TFC2	DL_TFC0,	UL_TFC0,	RB5: 81	RB5: 81
			DL_TFC15,	UL_TFC2,	RB6: 103	RB6: 103
,			UL_TFC0,	UL_TFC15,	RB7: 60	RB7: 60
1	DI TEOO	TEO	UL_TFC15	UL_TFC17	RB8: <u>312</u> 336	RB8: No data
3	DL_TFC3	UL_TFC3	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: No data
			DL_TFC15, UL_TFC0,	UL_TFC3,	RB6: 103 RB7: 60	RB6: No data RB7: No data
ıl			UL_TFC15	UL_TFC15, UL_TFC18	RB8: <u>312336</u>	RB8: <u>312336</u>
4	DL_TFC4	UL_TFC4	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: 39
-	DL_11 04	02_11 04	DL_TFC15,	UL_TFC4,	RB6: 103	RB6: No data
			UL_TFC0,	UL TFC15,	RB7: 60	RB7: No data
			UL_TFC15	UL_TFC19	RB8: 312 336	RB8: 312 336
5	DL_TFC5	UL_TFC5	DL_TFC0,	UL_TFC0,	RB5: 81	RB5: 81
1			DL_TFC15,	UL_TFC5,	RB6: 103	RB6: 103
			UL_TFC0,	UL_TFC15,	RB7: 60	RB7: 60
I <u></u>			UL_TFC15	UL_TFC20	RB8: <u>312</u> 336	RB8: <u>312</u> 336
6	DL_TFC6	UL_TFC6	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: No data
			DL_TFC15,	UL_TFC6,	RB6: 103	RB6: No data
			UL_TFC0,	UL_TFC15,	RB7: 60	RB7: No data
l			UL_TFC15	UL_TFC21	RB8: 672 632	RB8: <u>632</u> 672
7	DL_TFC7	UL_TFC7	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: 39
			DL_TFC15,	UL_TFC7,	RB6: 103	RB6: No data
,			UL_TFC0,	UL_TFC15,	RB7: 60	RB7: No data
1	DI TEOO	III TEO0	UL_TFC15	UL_TFC22	RB8: <u>632</u> 672	RB8: <u>632</u> 672
8	DL_TFC8	UL_TFC8	DL_TFC0, DL_TFC15,	UL_TFC0, UL_TFC8,	RB5: 81 RB6: 103	RB5: 81 RB6: 103
			UL_TFC0,	UL_TFC8,	RB7: 60	RB7: 60
ıl			UL_TFC15	UL_TFC23	RB8: 632 672	RB8: 632 672
9	DL_TFC9	UL_TFC9	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: No data
ľ	52 00	0200	DL_TFC15,	UL_TFC9,	RB6: 103	RB6: No data
			UL_TFC0,	UL_TFC15,	RB7: 60	RB7: No data
			UL_TFC15	UL_TFC24	RB8:	RB8:
			_	_	<u>1272</u> 1344	1344 1272
10	DL_TFC10	UL_TFC10	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: 39
			DL_TFC15,	UL_TFC10,	RB6: 103	RB6: No data
			UL_TFC0,	UL_TFC15,	RB7: 60	RB7: No data
,			UL_TFC15	UL_TFC25	RB8:	RB8:
1	DI TECH	===::	DI TEGO	TEO.	<u>1272</u> 1344	<u>1272</u> 1344
11	DL_TFC11	UL_TFC11	DL_TFC0,	UL_TFC0,	RB5: 81	RB5: 81
1			DL_TFC15,	UL_TFC11,	RB6: 103	RB6: 103
1			UL_TFC0, UL_TFC15	UL_TFC15, UL_TFC26	RB7: 60 RB8:	RB7: 60 RB8:
il			OL_IPUI3	UL_IFUZ0	1272 1344	1272 1344
12	DL_TFC12	UL_TFC12	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: No data
'-	50_11012	32_11 012	DL_TFC15,	UL_TFC12,	RB6: 103	RB6: No data
1			UL_TFC0,	UL_TFC15,	RB7: 60	RB7: No data
11			UL_TFC15	UL_TFC2726	RB8:	RB8:
[]					2688 2552	2552 <mark>2688</mark>
13	DL_TFC13	UL_TFC13	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: 39
			DL_TFC15, ,	UL_TFC13,	RB6: 103	RB6: No data
			UL_TFC0,	UL_TFC15,	RB7: 60	RB7: No data
			UL_TFC15	UL_TFC <u>28</u> 27	RB8:	RB8:
					<u>2552</u> 2688	<u>2552</u> 2688
14	DL_TFC14	UL_TFC14	DL_TFC0,	UL_TFC0,	RB5: 81	RB5: 81
			DL_TFC15,	UL_TFC14,	RB6: 103	RB6: 103
			UL_TFC0,	UL_TFC15,	RB7: 60	RB7: 60
ıl .			UL_TFC15	UL_TFC29	RB8:	RB8:
I <u></u>					2552 2688	2552 2688

Sub- test	Downlink TFCS Under	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (bits)	Test data size (bits)		
	Test				(note)	(note)		
NOTE:	NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.							

14.2.41.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be
 - for sub-test 1: RB5/TF1 (1x39).
 - for sub-test 2: RB5/TF2 (1x81); RB6/TF1 (1x103); and RB7/TF1 (1x60).
 - for sub-test 3: RB8/TF1 (1x336)
 - for sub-test 4: RB5/TF1 (1x39) and RB8/TF1 (1x336).
 - for sub-test 5: RB5/TF2 (1x81); RB6/TF1 (1x103); RB7/TF1 (1x60); and RB8/TF1 (1x336).
 - for sub-test 6: RB8/TF2 (2x336)
 - for sub-test 7: RB5/TF1 (1x39) and RB8/TF2 (2x336).
 - for sub-test 8: RB5/TF2 (1x81); RB6/TF1 (1x103); RB7/TF1 (1x60); and RB8/TF2 (2x336).
 - for sub-test 9: RB8/TF3 (3x336)
 - for sub-test 10: RB5/TF1 (1x39) and RB8/TF3 (3x336).
 - for sub-test 11: RB5/TF2 (1x81); RB6/TF1 (1x103); RB7/TF1 (1x60); and RB8/TF3 (3x336).
 - for sub-test 12: RB8/TF4 (4x336)
 - for sub-test 13: RB5/TF1 (1x39) and RB8/TF4 (4x336).
 - for sub-test 14: RB5/TF2 (1x81); RB6/TF1 (1x103); RB7/TF1 (1x60); and RB8/TF4 (4x336).
- 3. At step 15 the UE shall return
 - for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6, RB7 and RB8.
 - for sub-test 2: an RLC SDU on RB5, RB6 and RB7 having the same content as sent by SS; and no data shall be received on RB8.
 - for sub-test 3, 6, 9 and 12: an RLC SDU on RB8 having the same content as sent by SS; and no data shall be received on RB5, RB6 and RB7.
 - for sub-test 4, 7, 10 and 13: an RLC SDU on RB5 and RB8 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
 - for sub-test 5, 8, 11 and 14: an RLC SDU on RB5, RB6, RB7 and RB8 having the same content as sent by SS.

14.2.42 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:64 DL:256 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.2.42.1 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:64 DL:256 kbps / PS RAB / 10 ms TTI

14.2.42.1.1 Conformance requirement

See 14.2.4.1.

14.2.42.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.42 for the downlink 10 ms TTI case.

14.2.42.1.3 Method of test

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (64 kbps)	DCCH
	TF0, bits	0x81(alt. 1x0)	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
TFS	TF2, bits	1x81	N/A	N/A	2x336	N/A
	TF3, bits	N/A	N/A	N/A	3x336	N/A
	TF4, bits	N/A	N/A	N/A	4x336	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1, TF0)
UL_TFC4	(TF1, TF0, TF0, TF1, TF0)
UL_TFC5	(TF2, TF1, TF1, TF0)
UL_TFC6	(TF0, TF0, TF0, TF2, TF0)
UL_TFC7	(TF1, TF0, TF0, TF2, TF0)
UL_TFC8	(TF2, TF1, TF1, TF2, TF0)
UL_TFC9	(TF0, TF0, TF0, TF3, TF0)
UL_TFC10	(TF1, TF0, TF0, TF3, TF0)
UL_TFC11	(TF2, TF1, TF1, TF3, TF0)
UL_TFC12	(TF0, TF0, TF0, TF4, TF0)
UL_TFC13	(TF1, TF0, TF0, TF4, TF0)
UL_TFC14	(TF2, TF1, TF1, TF4, TF0)
UL_TFC15	(TF0, TF0, TF0, TF1)
UL_TFC16	(TF1, TF0, TF0, TF1)
UL_TFC17	(TF2, TF1, TF1, TF0, TF1)
UL_TFC18	(TF0, TF0, TF1, TF1)
UL_TFC19	(TF1, TF0, TF0, TF1, TF1)
UL_TFC20	(TF2, TF1, TF1, TF1)
UL_TFC21	(TF0, TF0, TF0, TF2, TF1)
UL_TFC22	(TF1, TF0, TF0, TF2, TF1)
UL_TFC23	(TF2, TF1, TF1, TF2, TF1)
UL_TFC24	(TF0, TF0, TF0, TF3, TF1)
UL_TFC25	(TF1, TF0, TF0, TF3, TF1)
UL_TFC26	(TF2, TF1, TF1, TF3, TF1)
UL_TFC27	(TF0, TF0, TF0, TF4, TF1)
UL_TFC28	(TF1, TF0, TF0, TF4, TF1)
UL_TFC29	(TF2, TF1, TF1, TF4, TF1)

		RB5	RB6	RB7	RB8	DCCH
		(RAB subflow #1)	(RAB subflow #2)	(RAB subflow #3)	(256 kbps)	
	TF0, bits	1x0	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
TFS	TF2, bits	1x81	N/A	N/A	2x336	N/A
	TF3, bits	N/A	N/A	N/A	4x336	N/A
	TF4, bits	N/A	N/A	N/A	8x336	N/A

TFCI	(RB5, RB6, RB7, RB8, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1, TF0)
DL_TFC4	(TF1, TF0, TF0, TF1, TF0)
DL_TFC5	(TF2, TF1, TF1, TF0)
DL_TFC6	(TF0, TF0, TF0, TF2, TF0)
DL_TFC7	(TF1, TF0, TF0, TF2, TF0)
DL_TFC8	(TF2, TF1, TF1, TF2, TF0)
DL_TFC9	(TF0, TF0, TF0, TF3, TF0)
DL_TFC10	(TF1, TF0, TF0, TF3, TF0)
DL_TFC11	(TF2, TF1, TF1, TF3, TF0)
DL_TFC12	(TF0, TF0, TF0, TF4, TF0)
DL_TFC13	(TF1, TF0, TF0, TF4, TF0)
DL_TFC14	(TF2, TF1, TF1, TF4, TF0)
DL_TFC15	(TF0, TF0, TF0, TF1)
DL_TFC16	(TF1, TF0, TF0, TF1)
DL_TFC17	(TF2, TF1, TF1, TF0, TF1)
DL_TFC18	(TF0, TF0, TF1, TF1)
DL_TFC19	(TF1, TF0, TF0, TF1, TF1)
DL_TFC20	(TF2, TF1, TF1, TF1)
DL_TFC21	(TF0, TF0, TF0, TF1)
DL_TFC22	(TF1, TF0, TF0, TF2, TF1)
DL_TFC23	(TF2, TF1, TF1, TF2, TF1)
DL_TFC24	(TF0, TF0, TF0, TF3, TF1)
DL_TFC25	(TF1, TF0, TF0, TF3, TF1)
DL_TFC26	(TF2, TF1, TF1, TF3, TF1)
DL_TFC27	(TF0, TF0, TF0, TF4, TF1)
DL_TFC28	(TF1, TF0, TF0, TF4, TF1)
DL_TFC29	(TF2, TF1, TF1, TF4, TF1)

Sub- test	Downlink TFCS Under	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (bits)	Test data size (bits)
	Test				(note)	(note)
1	DL_TFC1	UL_TFC1	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: 39
			DL_TFC15,	UL_TFC1,	RB6: 103	RB6: No data
			UL_TFC0, UL_TFC15	UL_TFC15, UL_TFC16	RB7: 60 RB8: 312 336	RB7: No data RB8: No data
2	DL_TFC2	UL_TFC2	DL_TFC0,	UL_TFC0,	RB5: 81	RB5: 81
	DL_11 02	02_11 02	DL_TFC15,	UL_TFC2,	RB6: 103	RB6: 103
			UL_TFC0,	UL_TFC15,	RB7: 60	RB7: 60
			UL_TFC15	UL_TFC17	RB8: <u>312</u> 336	RB8: No data
3	DL_TFC3	UL_TFC3	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: No data
			DL_TFC15,	UL_TFC3,	RB6: 103	RB6: No data
			UL_TFC0, UL_TFC15	UL_TFC15, UL_TFC18	RB7: 60 RB8: <u>312336</u>	RB7: No data RB8: <u>312336</u>
4	DL_TFC4	UL_TFC4	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: 39
'		02_11 0 1	DL_TFC15,	UL_TFC4,	RB6: 103	RB6: No data
			UL_TFC0,	UL_TFC15,	RB7: 60	RB7: No data
			UL_TFC15	UL_TFC19	RB8: <u>312</u> 336	RB8: <u>312</u> 336
5	DL_TFC5	UL_TFC5	DL_TFC0,	UL_TFC0,	RB5: 81	RB5: 81
			DL_TFC15,	UL_TFC5,	RB6: 103	RB6: 103
			UL_TFC0, UL_TFC15	UL_TFC15, UL_TFC20	RB7: 60 RB8: <u>312336</u>	RB7: 60 RB8: <u>312</u> 336
6	DL TFC6	UL_TFC6	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: No data
	DL_11 00	02_11 00	DL_TFC15,	UL_TFC6,	RB6: 103	RB6: No data
			UL_TFC0,	UL_TFC15,	RB7: 60	RB7: No data
			UL_TFC15	UL_TFC21	RB8: <u>632</u> 672	RB8: <u>632</u> 672
7	DL_TFC7	UL_TFC7	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: 39
			DL_TFC15,	UL_TFC7,	RB6: 103	RB6: No data
			UL_TFC0, UL_TFC15	UL_TFC15, UL_TFC22	RB7: 60 RB8: <u>632672</u>	RB7: No data RB8: <u>632672</u>
8	DL_TFC8	UL_TFC8	DL_TFC0,	UL_TFC0,	RB5: 81	RB5: 81
	52 00	02_11 00	DL_TFC15,	UL_TFC8,	RB6: 103	RB6: 103
			UL_TFC0,	UL_TFC15,	RB7: 60	RB7: 60
			UL_TFC15	UL_TFC23	RB8: <u>632</u> 672	RB8: <u>632</u> 672
9	DL_TFC9	UL_TFC9	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: No data
			DL_TFC15, UL_TFC0,	UL_TFC9, UL_TFC15,	RB6: 103 RB7: 60	RB6: No data RB7: No data
			UL_TFC15	UL_TFC15,	RB8: 1344 1272	RB8:
			02_11 010	02_11 02 1	1130. 1011 <u>1212</u>	<u>12721344</u>
10	DL_TFC10	UL_TFC10	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: 39
			DL_TFC15,	UL_TFC10,	RB6: 103	RB6: No data
			UL_TFC0,	UL_TFC15,	RB7: 60	RB7: No data
			UL_TFC15	UL_TFC25	RB8: <u>1272</u> 1344	RB8: 1272 1344
11	DL_TFC11	UL_TFC11	DL_TFC0,	UL_TFC0,	RB5: 81	RB5: 81
' '		5 5	DL_TFC15,	UL_TFC11,	RB6: 103	RB6: 103
.]			UL_TFC0,	UL_TFC15,	RB7: 60	RB7: 60
			UL_TFC15	UL_TFC26	RB8: <u>1272</u> 1344	RB8:
10	DI TEO10	III TEO40	DI TEOO	LII TEOO	DD5 00	<u>1272</u> 1344
12	DL_TFC12	UL_TFC12	DL_TFC0, DL_TFC15,	UL_TFC0, UL_TFC12,	RB5: 39 RB6: 103	RB5: No data RB6: No data
			UL_TFC15,	UL_TFC12, UL_TFC15,	RB7: 60	RB6: No data
			UL_TFC15	UL_TFC27 26	RB8: 2552 2688	RB8:
						2688 2552
13	DL_TFC13	UL_TFC13	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: 39
			DL_TFC15,	UL_TFC13,	RB6: 103	RB6: No data
			UL_TFC0,	UL_TFC15,	RB7: 60	RB7: No data
			UL_TFC15	UL_TFC <u>2827</u>	RB8: <u>2552</u> 2688	RB8: 2552 2688
14	DL_TFC14	UL_TFC14	DL_TFC0,	UL_TFC0,	RB5: 81	RB5: 81
• •			DL_TFC15,	UL_TFC14,	RB6: 103	RB6: 103
			UL_TFC0,	UL_TFC15,	RB7: 60	RB7: 60
			UL_TFC15	UL_TFC29	RB8: <u>2552</u> 2688	RB8:
						<u>2552</u> 2688

Sub- test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits)		
NOTE:	NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.							

14.2.42.1.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be
 - for sub-test 1: RB5/TF1 (1x39).
 - for sub-test 2: RB5/TF2 (1x81); RB6/TF1 (1x103); and RB7/TF1 (1x60).
 - for sub-test 3: RB8/TF1 (1x336)
 - for sub-test 4: RB5/TF1 (1x39) and RB8/TF1 (1x336).
 - for sub-test 5: RB5/TF2 (1x81); RB6/TF1 (1x103); RB7/TF1 (1x60); and RB8/TF1 (1x336).
 - for sub-test 6: RB8/TF2 (2x336)
 - for sub-test 7: RB5/TF1 (1x39) and RB8/TF2 (2x336).
 - for sub-test 8: RB5/TF2 (1x81); RB6/TF1 (1x103); RB7/TF1 (1x60); and RB8/TF2 (2x336).
 - for sub-test 9: RB8/TF3 (3x336)
 - for sub-test 10: RB5/TF1 (1x39) and RB8/TF3 (3x336).
 - for sub-test 11: RB5/TF2 (1x81); RB6/TF1 (1x103); RB7/TF1 (1x60); and RB8/TF3 (3x336).
 - for sub-test 12: RB8/TF4 (4x336)
 - for sub-test 13: RB5/TF1 (1x39) and RB8/TF4 (4x336).
 - for sub-test 14: RB5/TF2 (1x81); RB6/TF1 (1x103); RB7/TF1 (1x60); and RB8/TF4 (4x336).
- 3. At step 15 the UE shall return
 - for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6, RB7 and RB8.
 - for sub-test 2: an RLC SDU on RB5, RB6 and RB7 having the same content as sent by SS; and no data shall be received on RB8.
 - for sub-test 3, 6, 9 and 12: an RLC SDU on RB8 having the same content as sent by SS; and no data shall be received on RB5, RB6 and RB7.
 - for sub-test 4, 7, 10 and 13: an RLC SDU on RB5 and RB8 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
 - for sub-test 5, 8, 11 and 14: an RLC SDU on RB5, RB6, RB7 and RB8 having the same content as sent by SS.

14.2.42.2 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:64 DL:256 kbps / PS RAB / 20 ms TTI

14.2.42.2.1 Conformance requirement

See 14.2.4.1.

14.2.42.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.42 for the downlink 20 ms TTI case.

14.2.42.2.3 Method of test

Uplink TFS:

	TFI	RB5	RB6	RB7	RB8	DCCH
	1171	(RAB subflow #1)	(RAB subflow #2)	(RAB subflow #3)	(64 kbps)	
	TF0, bits	0x81(alt. 1x0)	0x103	0x60	0x336	0x148
TFS	TF1, bits	1x39	1x103	1x60	1x336	1x148
	TF2, bits	1x81	N/A	N/A	2x336	N/A
	TF3, bits	N/A	N/A	N/A	3x336	N/A
	TF4, bits	N/A	N/A	N/A	4x336	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0, TF0)
UL_TFC3	(TF0, TF0, TF1, TF0)
UL_TFC4	(TF1, TF0, TF0, TF1, TF0)
UL_TFC5	(TF2, TF1, TF1, TF0)
UL_TFC6	(TF0, TF0, TF0, TF2, TF0)
UL_TFC7	(TF1, TF0, TF0, TF2, TF0)
UL_TFC8	(TF2, TF1, TF1, TF2, TF0)
UL_TFC9	(TF0, TF0, TF0, TF3, TF0)
UL_TFC10	(TF1, TF0, TF0, TF3, TF0)
UL_TFC11	(TF2, TF1, TF1, TF3, TF0)
UL_TFC12	(TF0, TF0, TF0, TF4, TF0)
UL_TFC13	(TF1, TF0, TF0, TF4, TF0)
UL_TFC14	(TF2, TF1, TF1, TF4, TF0)
UL_TFC15	(TF0, TF0, TF0, TF1)
UL_TFC16	(TF1, TF0, TF0, TF1)
UL_TFC17	(TF2, TF1, TF1, TF0, TF1)
UL_TFC18	(TF0, TF0, TF1, TF1)
UL_TFC19	(TF1, TF0, TF0, TF1, TF1)
UL_TFC20	(TF2, TF1, TF1, TF1)
UL_TFC21	(TF0, TF0, TF0, TF1)
UL_TFC22	(TF1, TF0, TF0, TF2, TF1)
UL_TFC23	(TF2, TF1, TF1, TF2, TF1)
UL_TFC24	(TF0, TF0, TF0, TF3, TF1)
UL_TFC25	(TF1, TF0, TF0, TF3, TF1)
UL_TFC26	(TF2, TF1, TF1, TF3, TF1)
UL_TFC27	(TF0, TF0, TF0, TF4, TF1)
UL_TFC28	(TF1, TF0, TF0, TF4, TF1)
UL_TFC29	(TF2, TF1, TF1, TF4, TF1)

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (256 kbps, 20 ms)	DCCH
	TF0, bits	1x0	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
	TF2, bits	1x81	N/A	N/A	2x336	N/A
TFS	TF3, bits	N/A	N/A	N/A	4x336	N/A
	TF4, bits	N/A	N/A	N/A	8x336	N/A
	TF5, bits	N/A	N/A	N/A	12x336	N/A
	TF6, bits	N/A	N/A	N/A	16x336	N/A

TFCI	(RB5, RB6, RB7, RB8, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1, TF0)
DL_TFC4	(TF1, TF0, TF0, TF1, TF0)
DL_TFC5	(TF2, TF1, TF1, TF1, TF0)
DL_TFC6	(TF0, TF0, TF0, TF2, TF0)
DL_TFC7	(TF1, TF0, TF0, TF2, TF0)
DL_TFC8	(TF2, TF1, TF1, TF2, TF0)
DL_TFC9	(TF0, TF0, TF0, TF3, TF0)
DL_TFC10	(TF1, TF0, TF0, TF3, TF0)
DL_TFC11	(TF2, TF1, TF1, TF3, TF0)
DL_TFC12	(TF0, TF0, TF0, TF4, TF0)
DL_TFC13	(TF1, TF0, TF0, TF4, TF0)
	(TF2, TF1, TF1, TF4, TF0)
DL_TFC15	(TF0, TF0, TF0, TF5, TF0)
DL_TFC16	(TF1, TF0, TF0, TF5, TF0)
	(TF2, TF1, TF1, TF5, TF0)
DL_TFC18	(TF0, TF0, TF0, TF6, TF0)
DL_TFC19	(TF1, TF0, TF0, TF6, TF0)
DL_TFC20	(TF2, TF1, TF1, TF6, TF0)
DL_TFC21	(TF0, TF0, TF0, TF1)
DL_TFC22	(TF1, TF0, TF0, TF1)
DL_TFC23	(TF2, TF1, TF1, TF0, TF1)
DL_TFC24	(TF0, TF0, TF1, TF1)
DL_TFC25	(TF1, TF0, TF0, TF1, TF1)
DL_TFC26	(TF2, TF1, TF1, TF1, TF1)
	(TF0, TF0, TF0, TF2, TF1)
DL_TFC28	(TF1, TF0, TF0, TF2, TF1)
DL_TFC29	(TF2, TF1, TF1, TF2, TF1)
	(TF0, TF0, TF3, TF1)
DL_TFC31	(TF1, TF0, TF0, TF3, TF1)
DL_TFC32	(TF2, TF1, TF1, TF3, TF1)
DL_TFC33	(TF0, TF0, TF0, TF4, TF1)
DL_TFC34	(TF1, TF0, TF0, TF4, TF1)
DL_TFC35	(TF2, TF1, TF1, TF4, TF1)
DL_TFC36	(TF0, TF0, TF5, TF1)
DL_TFC37	(TF1, TF0, TF0, TF5, TF1)
DL_TFC38	(TF2, TF1, TF1, TF5, TF1)
DL_TFC39	(TF0, TF0, TF6, TF1)
	(TF1, TF0, TF0, TF6, TF1)
DL_TFC41	(TF2, TF1, TF1, TF6, TF1)

Sub- test	Downlink TFCS Under	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (bits)	Test data size (bits)
	Test				(note)	(note)
1	DL_TFC1	UL_TFC1	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: 39
			DL_TFC21,	UL_TFC1,	RB6: 103	RB6: No data
			UL_TFC0,	UL_TFC15,	RB7: 60	RB7: No data
1	DI TEOO	III TEO0	UL_TFC15	UL_TFC16	RB8: <u>312</u> 336	RB8: No data
2	DL_TFC2	UL_TFC2	DL_TFC0,	UL_TFC0,	RB5: 81 RB6: 103	RB5: 81 RB6: 103
			DL_TFC21, UL_TFC0,	UL_TFC2, UL_TFC15,	RB7: 60	RB7: 60
il			UL_TFC15	UL_TFC17	RB8: <u>312336</u>	RB8: No data
3	DL_TFC3	UL_TFC3	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: No data
		0	DL_TFC21,	UL_TFC3,	RB6: 103	RB6: No data
			UL_TFC0,	UL_TFC15,	RB7: 60	RB7: No data
			UL_TFC15	UL_TFC18	RB8: <u>312</u> 336	RB8: <u>312</u> 336
4	DL_TFC4	UL_TFC4	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: 39
			DL_TFC21,	UL_TFC4,	RB6: 103	RB6: No data
,			UL_TFC0,	UL_TFC15,	RB7: 60	RB7: No data
I <u>-</u>	DI TEOF	TEO.	UL_TFC15	UL_TFC19	RB8: <u>312</u> 336	RB8: <u>312336</u>
5	DL_TFC5	UL_TFC5	DL_TFC0,	UL_TFC0, UL_TFC5,	RB5: 81 RB6: 103	RB5: 81
			DL_TFC21, UL_TFC0,	UL_TFC5, UL_TFC15,	RB6: 103	RB6: 103 RB7: 60
ıl			UL_TFC15	UL_TFC15,	RB8: <u>312336</u>	RB8: <u>312336</u>
6	DL_TFC6	UL_TFC6	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: No data
	DL_11 00	02_11 00	DL_TFC21,	UL TFC6,	RB6: 103	RB6: No data
			UL_TFC0,	UL_TFC15,	RB7: 60	RB7: No data
			UL_TFC15	UL_TFC21	RB8: <u>632</u> 672	RB8: <u>632672</u>
7	DL_TFC7	UL_TFC7	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: 39
			DL_TFC21,	UL_TFC7,	RB6: 103	RB6: No data
,			UL_TFC0,	UL_TFC15,	RB7: 60	RB7: No data
1	DI TEOO		UL_TFC15	UL_TFC22	RB8: <u>632</u> 672	RB8: <u>632</u> 672
8	DL_TFC8	UL_TFC8	DL_TFC0,	UL_TFC0,	RB5: 81	RB5: 81
			DL_TFC21, UL_TFC0,	UL_TFC8, UL_TFC15,	RB6: 103 RB7: 60	RB6: 103 RB7: 60
il			UL_TFC0,	UL_TFC23	RB8: <u>632672</u>	RB8: <u>632672</u>
9	DL TFC9	UL_TFC9	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: No data
ľ	52_11 00	0200	DL_TFC21,	UL_TFC9,	RB6: 103	RB6: No data
			UL_TFC0,	UL_TFC15,	RB7: 60	RB7: No data
			UL_TFC15	UL_TFC24	RB8: <u>1272</u> 1344	RB8:
						1344 <u>1272</u>
10	DL_TFC10	UL_TFC10	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: 39
			DL_TFC21,	UL_TFC10,	RB6: 103	RB6: No data
,			UL_TFC0,	UL_TFC15,	RB7: 60	RB7: No data
			UL_TFC15	UL_TFC25	RB8: <u>1272</u> 13 44	RB8: 1272 1344
11	DL_TFC11	UL_TFC11	DL_TFC0,	UL TFC0,	RB5: 81	RB5: 81
1 ''		55_11 511	DL_TFC0, DL_TFC21,	UL_TFC11,	RB6: 103	RB6: 103
1			UL_TFC0,	UL_TFC15,	RB7: 60	RB7: 60
11			UL_TFC15	UL_TFC26	RB8: <u>1272</u> 1344	RB8:
<u> </u>			_			<u>1272</u> 1344
12	DL_TFC12	UL_TFC12	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: No data
1			DL_TFC21,	UL_TFC12,	RB6: 103	RB6: No data
d			UL_TFC0,	UL_TFC15,	RB7: 60	RB7: No data
[]			UL_TFC15	UL_TFC <u>27</u> 26	RB8: 2688 2552	RB8:
13	DL_TFC13	UL_TFC13	DL_TFC0,	UL_TFC0,	RB5: 39	2552 2688 RB5: 39
13	DE_IFOIS	OL_IFCIS	DL_TFC0, DL_TFC21,	UL_TFC13,	RB6: 103	RB6: No data
			UL_TFC0,	UL_TFC15,	RB7: 60	RB7: No data
			UL_TFC15	UL_TFC <u>28</u> 27	RB8: <u>2552</u> 2688	RB8:
						<u>2552</u> 2688
14	DL_TFC14	UL_TFC14	DL_TFC0,	UL_TFC0,	RB5: 81	RB5: 81
			DL_TFC21,	UL_TFC14,	RB6: 103	RB6: 103
d			UL_TFC0,	UL_TFC15,	RB7: 60	RB7: 60
[]			UL_TFC15	UL_TFC29	RB8: <u>2552</u> 2688	RB8:
I [<u>2552</u> 2688

Sub- test	Downlink TFCS Under	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (bits)	Test data size (bits)
15	Test DL_TFC15	UL_TFC12	DL_TFC0, DL_TFC21, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC12, UL_TFC15, UL_TFC2726	(note) RB5: 39 RB6: 103 RB7: 60 RB8: <u>3832</u> 4032	(note) RB5: No data RB6: No data RB7: No data RB8: 40323832
16	DL_TFC16	UL_TFC13	DL_TFC0, DL_TFC21, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC13, UL_TFC15, UL_TFC <u>28</u> 27	RB5: 39 RB6: 103 RB7: 60 RB8: <u>3832</u> 4032	RB5: 39 RB6: No data RB7: No data RB8: 38324032
17	DL_TFC17	UL_TFC14	DL_TFC0, DL_TFC21, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC14, UL_TFC15, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: <u>3832</u> 4 032	RB5: 81 RB6: 103 RB7: 60 RB8: 38324032
18	DL_TFC18	UL_TFC12	DL_TFC0, DL_TFC21, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC12, UL_TFC15, UL_TFC <u>2726</u>	RB5: 39 RB6: 103 RB7: 60 RB8: <u>51125376</u>	RB5: No data RB6: No data RB7: No data RB8: 51125376
19	DL_TFC19	UL_TFC13	DL_TFC0, DL_TFC21, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC13, UL_TFC15, UL_TFC <u>28</u> 27	RB5: 39 RB6: 103 RB7: 60 RB8: <u>5112</u> 5376	RB5: 39 RB6: No data RB7: No data RB8: 51125376
20 NOTE:	DL_TFC20	UL_TFC14	DL_TFC0, DL_TFC21, UL_TFC0, UL_TFC15 se 5.3.2.6.2 for details r	UL_TFC0, UL_TFC14, UL_TFC15, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: <u>5112</u> 5376	RB5: 81 RB6: 103 RB7: 60 RB8: 51125376

14.2.42.2.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be
 - for sub-test 1: RB5/TF1 (1x39).
 - for sub-test 2: RB5/TF2 (1x81); RB6/TF1 (1x103); and RB7/TF1 (1x60).
 - for sub-test 3: RB8/TF1 (1x336)
 - for sub-test 4: RB5/TF1 (1x39) and RB8/TF1 (1x336).
 - for sub-test 5: RB5/TF2 (1x81); RB6/TF1 (1x103); RB7/TF1 (1x60); and RB8/TF1 (1x336).
 - for sub-test 6: RB8/TF2 (2x336)
 - for sub-test 7: RB5/TF1 (1x39) and RB8/TF2 (2x336).
 - for sub-test 8: RB5/TF2 (1x81); RB6/TF1 (1x103); RB7/TF1 (1x60); and RB8/TF2 (2x336).
 - for sub-test 9: RB8/TF3 (3x336)
 - for sub-test 10: RB5/TF1 (1x39) and RB8/TF3 (3x336).
 - for sub-test 11: RB5/TF2 (1x81); RB6/TF1 (1x103); RB7/TF1 (1x60); and RB8/TF3 (3x336).

- for sub-test 12, 15 and 18: RB8/TF4 (4x336)
- for sub-test 13, 16 and 19: RB5/TF1 (1x39) and RB8/TF4 (4x336).
- for sub-test 14, 17 and 20: RB5/TF2 (1x81); RB6/TF1 (1x103); RB7/TF1 (1x60); and RB8/TF4 (4x336).

3. At step 15 the UE shall return

- for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6, RB7 and RB8.
- for sub-test 2: an RLC SDU on RB5, RB6 and RB7 having the same content as sent by SS; and no data shall be received on RB8.
- for sub-test 3, 6, 9, 12, 15 and 18: an RLC SDU on RB8 having the same content as sent by SS; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 4, 7, 10, 13, 16 and 19: an RLC SDU on RB5 and RB8 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 5, 8, 11, 14, 17 and 20: an RLC SDU on RB5, RB6, RB7 and RB8 having the same content as sent by SS.

14.2.43 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:64 DL:384 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.2.43.1 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:64 DL:384 kbps / PS RAB / 10 ms TTI

14.2.43.1.1 Conformance requirement

See 14.2.4.1.

14.2.43.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.43 for the downlink 10 ms TTI case.

14.2.43.1.3 Method of test

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (64 kbps)	DCCH
	TF0, bits	0x81(alt. 1x0)	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
TFS	TF2, bits	1x81	N/A	N/A	2x336	N/A
	TF3, bits	N/A	N/A	N/A	3x336	N/A
	TF4, bits	N/A	N/A	N/A	4x336	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1, TF0)
UL_TFC4	(TF1, TF0, TF0, TF1, TF0)
UL_TFC5	(TF2, TF1, TF1, TF0)
UL_TFC6	(TF0, TF0, TF0, TF2, TF0)
UL_TFC7	(TF1, TF0, TF0, TF2, TF0)
UL_TFC8	(TF2, TF1, TF1, TF2, TF0)
UL_TFC9	(TF0, TF0, TF0, TF3, TF0)
UL_TFC10	(TF1, TF0, TF0, TF3, TF0)
UL_TFC11	(TF2, TF1, TF1, TF3, TF0)
UL_TFC12	(TF0, TF0, TF0, TF4, TF0)
UL_TFC13	(TF1, TF0, TF0, TF4, TF0)
UL_TFC14	(TF2, TF1, TF1, TF4, TF0)
UL_TFC15	(TF0, TF0, TF0, TF1)
UL_TFC16	(TF1, TF0, TF0, TF1)
UL_TFC17	(TF2, TF1, TF1, TF0, TF1)
UL_TFC18	(TF0, TF0, TF1, TF1)
UL_TFC19	(TF1, TF0, TF0, TF1, TF1)
UL_TFC20	(TF2, TF1, TF1, TF1)
UL_TFC21	(TF0, TF0, TF0, TF1)
UL_TFC22	(TF1, TF0, TF0, TF2, TF1)
UL_TFC23	(TF2, TF1, TF1, TF2, TF1)
UL_TFC24	(TF0, TF0, TF0, TF3, TF1)
UL_TFC25	(TF1, TF0, TF0, TF3, TF1)
UL_TFC26	(TF2, TF1, TF1, TF3, TF1)
UL_TFC27	(TF0, TF0, TF0, TF4, TF1)
UL_TFC28	(TF1, TF0, TF0, TF4, TF1)
UL_TFC29	(TF2, TF1, TF1, TF4, TF1)

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (384 kbps, 10 ms)	DCCH
	TF0, bits	1x0	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
TFS	TF2, bits	1x81	N/A	N/A	2x336	N/A
1173	TF3, bits	N/A	N/A	N/A	4x336	N/A
	TF4, bits	N/A	N/A	N/A	8x336	N/A
	TF5, bits	N/A	N/A	N/A	12x336	N/A

TFCI	(RB5, RB6, RB7, RB8, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1, TF0)
DL_TFC4	(TF1, TF0, TF0, TF1, TF0)
DL_TFC5	(TF2, TF1, TF1, TF0)
DL_TFC6	(TF0, TF0, TF0, TF2, TF0)
DL_TFC7	(TF1, TF0, TF0, TF2, TF0)
DL_TFC8	(TF2, TF1, TF1, TF2, TF0)
DL_TFC9	(TF0, TF0, TF0, TF3, TF0)
DL_TFC10	(TF1, TF0, TF0, TF3, TF0)
DL_TFC11	(TF2, TF1, TF1, TF3, TF0)
DL_TFC12	(TF0, TF0, TF0, TF4, TF0)
DL_TFC13	(TF1, TF0, TF0, TF4, TF0)
DL_TFC14	(TF2, TF1, TF1, TF4, TF0)
DL_TFC15	(TF0, TF0, TF0, TF5, TF0)
DL_TFC16	(TF1, TF0, TF0, TF5, TF0)
DL_TFC17	(TF2, TF1, TF1, TF5, TF0)
DL_TFC18	(TF0, TF0, TF0, TF1)
DL_TFC19	(TF1, TF0, TF0, TF1)
DL_TFC20	(TF2, TF1, TF1, TF0, TF1)
DL_TFC21	(TF0, TF0, TF1, TF1)
DL_TFC22	(TF1, TF0, TF0, TF1, TF1)
DL_TFC23	(TF2, TF1, TF1, TF1)
DL_TFC24	(TF0, TF0, TF0, TF2, TF1)
DL_TFC25	(TF1, TF0, TF0, TF2, TF1)
DL_TFC26	(TF2, TF1, TF1, TF2, TF1)
DL_TFC27	(TF0, TF0, TF0, TF3, TF1)
DL_TFC28	(TF1, TF0, TF0, TF3, TF1)
DL_TFC29	(TF2, TF1, TF1, TF3, TF1)
DL_TFC30	(TF0, TF0, TF0, TF4, TF1)
DL_TFC31	(TF1, TF0, TF0, TF4, TF1)
DL_TFC32	(TF2, TF1, TF1, TF4, TF1)
DL_TFC33	(TF0, TF0, TF5, TF1)
DL_TFC34	(TF1, TF0, TF0, TF5, TF1)
DL_TFC35	(TF2, TF1, TF1, TF5, TF1)

Sub- test	Downlink TFCS Under	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (bits)	Test data size (bits)
	Test	Officer test			(note)	(note)
1	DL_TFC1	UL_TFC1	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: 39
			DL_TFC18,	UL_TFC1,	RB6: 103	RB6: No data
			UL_TFC0,	UL_TFC15,	RB7: 60	RB7: No data
			UL_TFC15	UL_TFC16	RB8: 336312	RB8: No data
2	DL_TFC2	UL_TFC2	DL_TFC0,	UL_TFC0,	RB5: 81	RB5: 81
			DL_TFC18,	UL_TFC2, UL_TFC15,	RB6: 103 RB7: 60	RB6: 103 RB7: 60
			UL_TFC0, UL_TFC15	UL_TFC15,	RB8: <u>312336</u>	RB8: No data
3	DL_TFC3	UL_TFC3	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: No data
3	DL_II 03	0L_11 03	DL_TFC18,	UL_TFC3,	RB6: 103	RB6: No data
			UL_TFC0,	UL_TFC15,	RB7: 60	RB7: No data
			UL_TFC15	UL_TFC18	RB8: 312336	RB8: 312336
4	DL_TFC4	UL_TFC4	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: 39
			DL_TFC18,	UL_TFC4,	RB6: 103	RB6: No data
•			UL_TFC0,	UL_TFC15,	RB7: 60	RB7: No data
		====	UL_TFC15	UL_TFC19	RB8: <u>312</u> 336	RB8: <u>312</u> 336
5	DL_TFC5	UL_TFC5	DL_TFC0,	UL_TFC0,	RB5: 81	RB5: 81
			DL_TFC18, UL_TFC0,	UL_TFC5,	RB6: 103	RB6: 103
			UL_TFC0, UL_TFC15	UL_TFC15, UL_TFC20	RB7: 60 RB8: <u>312336</u>	RB7: 60 RB8: <u>312</u> 336
6	DL_TFC6	UL_TFC6	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: No data
	DL_11 00	02_11 00	DL_TFC18,	UL_TFC6,	RB6: 103	RB6: No data
			UL_TFC0,	UL_TFC15,	RB7: 60	RB7: No data
			UL_TFC15	UL_TFC21	RB8: 672632	RB8: 632672
7	DL_TFC7	UL_TFC7	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: 39
			DL_TFC18,	UL_TFC7,	RB6: 103	RB6: No data
			UL_TFC0,	UL_TFC15,	RB7: 60	RB7: No data
	D	=====	UL_TFC15	UL_TFC22	RB8: <u>632</u> 672	RB8: <u>632</u> 672
8	DL_TFC8	UL_TFC8	DL_TFC0,	UL_TFC0,	RB5: 81	RB5: 81
			DL_TFC18, UL_TFC0,	UL_TFC8, UL_TFC15,	RB6: 103 RB7: 60	RB6: 103 RB7: 60
			UL_TFC15	UL_TFC13,	RB8: 632 672	RB8: <u>632672</u>
9	DL_TFC9	UL_TFC9	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: No data
			DL_TFC18,	UL_TFC9,	RB6: 103	RB6: No data
			UL_TFC0,	UL_TFC15,	RB7: 60	RB7: No data
			UL_TFC15	UL_TFC24	RB8:	RB8:
					<u>1272</u> 1344	1344 <u>1272</u>
10	DL_TFC10	UL_TFC10	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: 39
			DL_TFC18,	UL_TFC10,	RB6: 103	RB6: No data
			UL_TFC0, UL_TFC15	UL_TFC15, UL_TFC25	RB7: 60 RB8:	RB7: No data RB8:
			0L_11 013	0L_11 023	1272 1344	1272 1344
11	DL_TFC11	UL_TFC11	DL_TFC0,	UL_TFC0,	RB5: 81	RB5: 81
			DL_TFC18,	UL_TFC11,	RB6: 103	RB6: 103
			UL_TFC0,	UL_TFC15,	RB7: 60	RB7: 60
			UL_TFC15	UL_TFC26	RB8:	RB8:
I <u>. </u>		====	.	====	<u>1272</u> 1344	<u>1272</u> 1344
12	DL_TFC12	UL_TFC12	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: No data
			DL_TFC18,	UL_TFC12,	RB6: 103	RB6: No data
			UL_TFC0, UL_TFC15	UL_TFC15, UL_TFC27 26	RB7: 60 RB8:	RB7: No data RB8:
			JL_11 013	0L_11 0 <u>2120</u>	2552 2688	2552 2688
13	DL_TFC13	UL_TFC13	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: 39
	5.0	5.5	DL_TFC18,	UL_TFC13,	RB6: 103	RB6: No data
.]			UL_TFC0,	UL_TFC15,	RB7: 60	RB7: No data
			UL_TFC15	UL_TFC <u>28</u> 27	RB8:	RB8:
					<u>2552</u> 2688	<u>2552</u> 2688
14	DL_TFC14	UL_TFC14	DL_TFC0,	UL_TFC0,	RB5: 81	RB5: 81
			DL_TFC18,	UL_TFC14,	RB6: 103	RB6: 103
			UL_TFC0, UL_TFC15	UL_TFC15, UL_TFC29	RB7: 60 RB8:	RB7: 60 RB8:
			06_15010	OL_IFOZ8	2552 2688	2552 2688
l [ı	l	I .	I	<u> </u>	<u> </u>

Sub- test	Downlink TFCS	Uplink TFCS	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size	Test data size (bits)
	Under	Under test			(bits)	4
	Test				(note)	(note)
15	DL_TFC15	UL_TFC12	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: No data
			DL_TFC18,	UL_TFC12,	RB6: 103	RB6: No data
			UL_TFC0,	UL_TFC15,	RB7: 60	RB7: No data
			UL_TFC15	UL_TFC <u>27</u> 26	RB8:	RB8:
					3832 ₄₀₃₂	4 032 3832
16	DL_TFC16	UL_TFC13	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: 39
			DL_TFC18, ,	UL_TFC13,	RB6: 103	RB6: No data
			UL_TFC0,	UL_TFC15,	RB7: 60	RB7: No data
			UL_TFC15	UL_TFC <u>28</u> 27	RB8:	RB8:
					3832 ₄₀₃₂	3832 ₄₀₃₂
17	DL_TFC17	UL_TFC14	DL_TFC0,	UL_TFC0,	RB5: 81	RB5: 81
			DL_TFC18,	UL_TFC14,	RB6: 103	RB6: 103
			UL_TFC0,	UL_TFC15,	RB7: 60	RB7: 60
			UL_TFC15	UL_TFC29	RB8:	RB8:
					3832 ₄₀₃₂	3832 ₄₀₃₂
NOTE:	See TS 34	.109 [10] claus	se 5.3.2.6.2 for details	regarding loopback of	RLC SDUs.	

14.2.43.1.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be
 - for sub-test 1: RB5/TF1 (1x39).
 - for sub-test 2: RB5/TF2 (1x81); RB6/TF1 (1x103); and RB7/TF1 (1x60).
 - for sub-test 3: RB8/TF1 (1x336)
 - for sub-test 4: RB5/TF1 (1x39) and RB8/TF1 (1x336).
 - for sub-test 5: RB5/TF2 (1x81); RB6/TF1 (1x103); RB7/TF1 (1x60); and RB8/TF1 (1x336).
 - for sub-test 6: RB8/TF2 (2x336)
 - for sub-test 7: RB5/TF1 (1x39) and RB8/TF2 (2x336).
 - for sub-test 8: RB5/TF2 (1x81); RB6/TF1 (1x103); RB7/TF1 (1x60); and RB8/TF2 (2x336).
 - for sub-test 9: RB8/TF3 (3x336)
 - for sub-test 10: RB5/TF1 (1x39) and RB8/TF3 (3x336).
 - for sub-test 11: RB5/TF2 (1x81); RB6/TF1 (1x103); RB7/TF1 (1x60); and RB8/TF3 (3x336).
 - for sub-test 12 and 15: RB8/TF4 (4x336)
 - for sub-test 13 and 16: RB5/TF1 (1x39) and RB8/TF4 (4x336).
 - for sub-test 14 and 17: RB5/TF2 (1x81); RB6/TF1 (1x103); RB7/TF1 (1x60); and RB8/TF4 (4x336).
- 3. At step 15 the UE shall return
 - for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6, RB7 and RB8.
 - for sub-test 2: an RLC SDU on RB5, RB6 and RB7 having the same content as sent by SS; and no data shall be received on RB8.

- for sub-test 3, 6, 9, 12 and 15: an RLC SDU on RB8 having the same content as sent by SS; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 4, 7, 10, 13 and 16: an RLC SDU on RB5 and RB8 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 5, 8, 11, 14, and 17: an RLC SDU on RB5, RB6, RB7 and RB8 having the same content as sent by SS.

14.2.43.2 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:64 DL:384 kbps / PS RAB / 20 ms TTI

14.2.43.2.1 Conformance requirement

See 14.2.4.1.

14.2.43.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.43 for the downlink 20 ms TTI case.

14.2.43.2.3 Method of test

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (64 kbps)	DCCH
	TF0, bits	0x81(alt. 1x0)	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
TFS	TF2, bits	1x81	N/A	N/A	2x336	N/A
	TF3, bits	N/A	N/A	N/A	3x336	N/A
	TF4, bits	N/A	N/A	N/A	4x336	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1, TF0)
UL_TFC4	(TF1, TF0, TF0, TF1, TF0)
UL_TFC5	(TF2, TF1, TF1, TF0)
UL_TFC6	(TF0, TF0, TF0, TF2, TF0)
UL_TFC7	(TF1, TF0, TF0, TF2, TF0)
UL_TFC8	(TF2, TF1, TF1, TF2, TF0)
UL_TFC9	(TF0, TF0, TF0, TF3, TF0)
UL_TFC10	(TF1, TF0, TF0, TF3, TF0)
UL_TFC11	(TF2, TF1, TF1, TF3, TF0)
UL_TFC12	(TF0, TF0, TF0, TF4, TF0)
UL_TFC13	(TF1, TF0, TF0, TF4, TF0)
UL_TFC14	(TF2, TF1, TF1, TF4, TF0)
UL_TFC15	(TF0, TF0, TF0, TF1)
UL_TFC16	(TF1, TF0, TF0, TF1)
UL_TFC17	(TF2, TF1, TF1, TF0, TF1)
UL_TFC18	(TF0, TF0, TF1, TF1)
UL_TFC19	(TF1, TF0, TF0, TF1, TF1)
UL_TFC20	(TF2, TF1, TF1, TF1)
UL_TFC21	(TF0, TF0, TF0, TF1)
UL_TFC22	(TF1, TF0, TF0, TF2, TF1)
UL_TFC23	(TF2, TF1, TF1, TF2, TF1)
UL_TFC24	(TF0, TF0, TF3, TF1)
UL_TFC25	(TF1, TF0, TF0, TF3, TF1)
UL_TFC26	(TF2, TF1, TF1, TF3, TF1)
UL_TFC27	(TF0, TF0, TF0, TF4, TF1)
UL_TFC28	(TF1, TF0, TF0, TF4, TF1)
UL_TFC29	(TF2, TF1, TF1, TF4, TF1)

Downlink TFS:

-		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (384 kbps, 10 ms)	DCCH
	TF0, bits	1x0	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
	TF2, bits	1x81	N/A	N/A	2x336	N/A
	TF3, bits	N/A	N/A	N/A	4x336	N/A
TFS	TF4, bits	N/A	N/A	N/A	8x336	N/A
	TF5, bits	N/A	N/A	N/A	12x336	N/A
	TF6, bits	N/A	N/A	N/A	16x336	N/A
	TF7, bits	N/A	N/A	N/A	20x336	N/A
	TF8, bits	N/A	N/A	N/A	24x336	N/A

TFCI	(RB5, RB6, RB7, RB8, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0, TF0)
DL_TFC3	(TF0, TF0, TF1, TF0)
DL_TFC4	(TF1, TF0, TF0, TF1, TF0)
DL_TFC5	(TF2, TF1, TF1, TF0)
DL_TFC6	(TF0, TF0, TF0, TF2, TF0)
DL_TFC7	(TF1, TF0, TF0, TF2, TF0)
DL_TFC8	(TF2, TF1, TF1, TF2, TF0)
DL_TFC9	(TF0, TF0, TF0, TF3, TF0)
DL_TFC10	(TF1, TF0, TF0, TF3, TF0)
DL_TFC11	(TF2, TF1, TF1, TF3, TF0)

TFCI	(RB5, RB6, RB7, RB8, DCCH)
DL TFC12	(TF0, TF0, TF0, TF4, TF0)
DL_TFC13	(TF1, TF0, TF4, TF0)
DL TFC14	(TF2, TF1, TF1, TF4, TF0)
DL_TFC15	(TF0, TF0, TF0, TF5, TF0)
DL_TFC16	(TF1, TF0, TF0, TF5, TF0)
DL_TFC17	(TF2, TF1, TF1, TF5, TF0)
DL_TFC18	(TF0, TF0, TF0, TF6, TF0)
DL_TFC19	(TF1, TF0, TF0, TF6, TF0)
DL_TFC20	(TF2, TF1, TF1, TF6, TF0)
DL_TFC21	(TF0, TF0, TF0, TF7, TF0)
DL_TFC22	(TF1, TF0, TF0, TF7, TF0)
DL_TFC23	(TF2, TF1, TF1, TF7, TF0)
DL_TFC24	(TF0, TF0, TF0, TF8, TF0)
DL_TFC25	(TF1, TF0, TF0, TF8, TF0)
DL_TFC26	(TF2, TF1, TF1, TF8, TF0)
DL_TFC27	(TF0, TF0, TF0, TF1)
DL_TFC28	(TF1, TF0, TF0, TF1)
DL_TFC29	(TF2, TF1, TF1, TF0, TF1)
DL_TFC30	(TF0, TF0, TF1, TF1)
DL_TFC31	(TF1, TF0, TF0, TF1, TF1)
DL_TFC32	(TF2, TF1, TF1, TF1)
DL_TFC33	(TF0, TF0, TF0, TF2, TF1)
DL_TFC34	(TF1, TF0, TF0, TF2, TF1)
DL_TFC35	(TF2, TF1, TF1, TF2, TF1)
DL_TFC36	(TF0, TF0, TF3, TF1)
DL_TFC37	(TF1, TF0, TF0, TF3, TF1)
DL_TFC38	(TF2, TF1, TF1, TF3, TF1)
DL_TFC39	(TF0, TF0, TF0, TF4, TF1)
DL_TFC40	(TF1, TF0, TF0, TF4, TF1)
DL_TFC41	(TF2, TF1, TF1, TF4, TF1)
DL_TFC42	(TF0, TF0, TF0, TF1)
DL_TFC43	(TF1, TF0, TF0, TF5, TF1)
DL_TFC44	(TF2, TF1, TF1, TF5, TF1)
DL_TFC45	(TF0, TF0, TF0, TF6, TF1)
DL_TFC46	(TF1, TF0, TF0, TF6, TF1)
DL_TFC47	(TF2, TF1, TF1, TF6, TF1)
DL_TFC48	(TF0, TF0, TF0, TF7, TF1)
DL_TFC49	(TF1, TF0, TF0, TF7, TF1)
DL_TFC50 DL_TFC51	(TF2, TF1, TF1, TF7, TF1) (TF0, TF0, TF0, TF8, TF1)
DL_TFC51	(TF0, TF0, TF0, TF8, TF1)
DL_TFC52 DL_TFC53	(TF2, TF1, TF1, TF8, TF1)
DL_1FC53	(1174, 1171, 1170, 1171)

Sub- test	Downlink TFCS Under	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (bits)	Test data size (bits)
	Test				(note)	(note)
1	DL_TFC1	UL_TFC1	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: 39
			DL_TFC27,	UL_TFC1,	RB6: 103	RB6: No data
			UL_TFC0,	UL_TFC15,	RB7: 60	RB7: No data
			UL_TFC15	UL_TFC16	RB8: <u>312</u> 336	RB8: No data
2	DL_TFC2	UL_TFC2	DL_TFC0,	UL_TFC0,	RB5: 81	RB5: 81
			DL_TFC27,	UL_TFC2,	RB6: 103	RB6: 103
			UL_TFC0,	UL_TFC15,	RB7: 60	RB7: 60
			UL_TFC15	UL_TFC17	RB8: 312336	RB8: No data
3	DL_TFC3	UL_TFC3	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: No data
			DL_TFC27,	UL_TFC3,	RB6: 103	RB6: No data
			UL_TFC0,	UL_TFC15,	RB7: 60	RB7: No data
			UL_TFC15	UL_TFC18	RB8: 312 336	RB8: 312 336

	Sub- test	Downlink TFCS Under	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (bits)	Test data size (bits)
		Test				(note)	(note)
Ī	4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC27, UL_TFC0, UL_TFC15,	UL_TFC0, UL_TFC4, UL_TFC15, UL_TFC19	RB5: 39 RB6: 103 RB7: 60 RB8: <u>312</u> 336	RB5: 39 RB6: No data RB7: No data RB8: <u>312</u> 336
	5	DL_TFC5	UL_TFC5	DL_TFC0, DL_TFC27, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC5, UL_TFC15, UL_TFC20	RB5: 81 RB6: 103 RB7: 60 RB8: 312 336	RB5: 81 RB6: 103 RB7: 60 RB8: 312336
	6	DL_TFC6	UL_TFC6	DL_TFC0, DL_TFC27, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC6, UL_TFC15, UL_TFC21	RB5: 39 RB6: 103 RB7: 60 RB8: 632672	RB5: No data RB6: No data RB7: No data RB8: 672632
	7	DL_TFC7	UL_TFC7	DL_TFC0, DL_TFC27, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC7, UL_TFC15, UL_TFC22	RB5: 39 RB6: 103 RB7: 60 RB8: 632672	RB5: 39 RB6: No data RB7: No data RB8: 632672
	8	DL_TFC8	UL_TFC8	DL_TFC0, DL_TFC27, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC8, UL_TFC15, UL_TFC23	RB5: 81 RB6: 103 RB7: 60 RB8: 632672	RB5: 81 RB6: 103 RB7: 60 RB8: <u>632</u> 672
	Φ	DL_TFC9	UL_TFC9	DL_TFC0, DL_TFC27, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC9, UL_TFC15, UL_TFC24	RB5: 39 RB6: 103 RB7: 60 RB8: 13441272	RB5: No data RB6: No data RB7: No data RB8: 12721344
	10	DL_TFC10	UL_TFC10	DL_TFC0, DL_TFC27, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC10, UL_TFC15, UL_TFC25	RB5: 39 RB6: 103 RB7: 60 RB8: 12721344	RB5: 39 RB6: No data RB7: No data RB8: 1272 1344
	11	DL_TFC11	UL_TFC11	DL_TFC0, DL_TFC27, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC11, UL_TFC15, UL_TFC26	RB5: 81 RB6: 103 RB7: 60 RB8: 1272 1344	RB5: 81 RB6: 103 RB7: 60 RB8: 1272 1344
	12	DL_TFC12	UL_TFC12	DL_TFC0, DL_TFC27, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC12, UL_TFC15, UL_TFC <u>27</u> 26	RB5: 39 RB6: 103 RB7: 60 RB8: 25522688	RB5: No data RB6: No data RB7: No data RB8: 26882552
	13	DL_TFC13	UL_TFC13	DL_TFC0, DL_TFC27, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC13, UL_TFC15, UL_TFC <u>28</u> 27	RB5: 39 RB6: 103 RB7: 60 RB8: 25522688	RB5: 39 RB6: No data RB7: No data RB8: 2552 2688
 	14	DL_TFC14	UL_TFC14	DL_TFC0, DL_TFC27, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC14, UL_TFC15, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 25522688	RB5: 81 RB6: 103 RB7: 60 RB8: 2552 2688
	15	DL_TFC15	UL_TFC12	DL_TFC0, DL_TFC27, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC12, UL_TFC15, UL_TFC <u>27</u> 26	RB5: 39 RB6: 103 RB7: 60 RB8: 38324032	RB5: No data RB6: No data RB7: No data RB8: 38324032
	16	DL_TFC16	UL_TFC13	DL_TFC0, DL_TFC27,, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC13, UL_TFC15, UL_TFC <u>28</u> 27	RB5: 39 RB6: 103 RB7: 60 RB8: 38324032	RB5: 39 RB6: No data RB7: No data RB8: 38324032

Sub- test	Downlink TFCS Under	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (bits)	Test data size (bits)
	Test	Officer test			(note)	(note)
17	DL_TFC17	UL_TFC14	DL_TFC0, DL_TFC27, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC14, UL_TFC15, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8:	RB5: 81 RB6: 103 RB7: 60 RB8:
18	DL_TFC18	UL_TFC12	DL_TFC0, DL_TFC27,	UL_TFC0, UL_TFC12,	38324032 RB5: 39 RB6: 103	38324032 RB5: No data RB6: No data
			UL_TFC0, UL_TFC15	UL_TFC15, UL_TFC <u>27</u> 26	RB7: 60 RB8: 5112 5376	RB7: No data RB8: 5376 5112
19	DL_TFC19	UL_TFC13	DL_TFC0, DL_TFC27, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC13, UL_TFC15, UL_TFC <u>28</u> 27	RB5: 39 RB6: 103 RB7: 60 RB8: 51125376	RB5: 39 RB6: No data RB7: No data RB8: 51125376
20	DL_TFC20	UL_TFC14	DL_TFC0, DL_TFC27, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC14, UL_TFC15, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 5112 5376	RB5: 81 RB6: 103 RB7: 60 RB8: 51125376
21	DL_TFC21	UL_TFC12	DL_TFC0, DL_TFC27, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC12, UL_TFC15, UL_TFC <u>27</u> 26	RB5: 39 RB6: 103 RB7: 60 RB8: 67206392	RB5: No data RB6: No data RB7: No data RB8: 63926720
22	DL_TFC22	UL_TFC13	DL_TFC0, DL_TFC27, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC13, UL_TFC15, UL_TFC <u>28</u> 27	RB5: 39 RB6: 103 RB7: 60 RB8: 63926720	RB5: 39 RB6: No data RB7: No data RB8: 63926720
23	DL_TFC23	UL_TFC14	DL_TFC0, DL_TFC27, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC14, UL_TFC15, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 63926720	RB5: 81 RB6: 103 RB7: 60 RB8: 63926720
24	DL_TFC24	UL_TFC12	DL_TFC0, DL_TFC27, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC12, UL_TFC15, UL_TFC <u>27</u> 26	RB5: 39 RB6: 103 RB7: 60 RB8: 76728064	RB5: No data RB6: No data RB7: No data RB8: 76728064
25	DL_TFC25	UL_TFC13	DL_TFC0, DL_TFC27, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC13, UL_TFC15, UL_TFC <u>28</u> 27	RB5: 39 RB6: 103 RB7: 60 RB8: 76728064	RB5: 39 RB6: No data RB7: No data RB8: 76728064
26	DL_TFC26	UL_TFC14	DL_TFC0, DL_TFC27, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC14, UL_TFC15, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 76728064	RB5: 81 RB6: 103 RB7: 60 RB8: 76728064
NOTE:	See TS 34	.109 [10] claus	se 5.3.2.6.2 for details	regarding loopback o	of RLC SDUs.	

14.2.43.2.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be

- for sub-test 1: RB5/TF1 (1x39).
- for sub-test 2: RB5/TF2 (1x81); RB6/TF1 (1x103); and RB7/TF1 (1x60).
- for sub-test 3: RB8/TF1 (1x336)
- for sub-test 4: RB5/TF1 (1x39) and RB8/TF1 (1x336).
- for sub-test 5: RB5/TF2 (1x81); RB6/TF1 (1x103); RB7/TF1 (1x60); and RB8/TF1 (1x336).
- for sub-test 6: RB8/TF2 (2x336)
- for sub-test 7: RB5/TF1 (1x39) and RB8/TF2 (2x336).
- for sub-test 8: RB5/TF2 (1x81); RB6/TF1 (1x103); RB7/TF1 (1x60); and RB8/TF2 (2x336).
- for sub-test 9: RB8/TF3 (3x336)
- for sub-test 10: RB5/TF1 (1x39) and RB8/TF3 (3x336).
- for sub-test 11: RB5/TF2 (1x81); RB6/TF1 (1x103); RB7/TF1 (1x60); and RB8/TF3 (3x336).
- for sub-test 12, 15, 18, 21 and 24: RB8/TF4 (4x336)
- for sub-test 13, 16, 19, 22 and 25: RB5/TF1 (1x39) and RB8/TF4 (4x336).
- for sub-test 14, 17, 20, 23 and 26: RB5/TF2 (1x81); RB6/TF1 (1x103); RB7/TF1 (1x60); and RB8/TF4 (4x336).

3. At step 15 the UE shall return

- for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6, RB7 and RB8.
- for sub-test 2: an RLC SDU on RB5, RB6 and RB7 having the same content as sent by SS; and no data shall be received on RB8.
- for sub-test 3, 6, 9, 12, 15, 18, 21 and 24: an RLC SDU on RB8 having the same content as sent by SS; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 4, 7, 10, 13, 16, 19, 22 and 25: an RLC SDU on RB5 and RB8 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 5, 8, 11, 14, 17, 20, 23 and 26: an RLC SDU on RB5, RB6, RB7 and RB8 having the same content as sent by SS.

14.2.44 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:128 DL:2048 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.2.44.1 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:128 DL:2048 kbps / PS RAB / 10 ms TTI

14.2.44.1.1 Conformance requirement

See 14.2.4.1.

14.2.44.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.44 for the downlink 10 ms TTI case.

14.2.44.1.3 Method of test

Uplink TFS:

	TFI	RB5	RB6	RB7	RB8	DCCH
	1171	(RAB subflow #1)	(RAB subflow #2)	(RAB subflow #3)	(128 kbps)	
	TF0, bits	0x81(alt. 1x0)	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
TFS	TF2, bits	1x81	N/A	N/A	2x336	N/A
	TF3, bits	N/A	N/A	N/A	4x336	N/A
	TF4, bits	N/A	N/A	N/A	8x336	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0, TF0)
UL_TFC3	(TF0, TF0, TF1, TF0)
UL_TFC4	(TF1, TF0, TF0, TF1, TF0)
UL_TFC5	(TF2, TF1, TF1, TF0)
UL_TFC6	(TF0, TF0, TF0, TF2, TF0)
UL_TFC7	(TF1, TF0, TF0, TF2, TF0)
UL_TFC8	(TF2, TF1, TF1, TF2, TF0)
UL_TFC9	(TF0, TF0, TF0, TF3, TF0)
UL_TFC10	(TF1, TF0, TF0, TF3, TF0)
UL_TFC11	(TF2, TF1, TF1, TF3, TF0)
UL_TFC12	(TF0, TF0, TF0, TF4, TF0)
UL_TFC13	(TF1, TF0, TF0, TF4, TF0)
UL_TFC14	(TF2, TF1, TF1, TF4, TF0)
UL_TFC15	(TF0, TF0, TF0, TF1)
UL_TFC16	(TF1, TF0, TF0, TF1)
UL_TFC17	(TF2, TF1, TF1, TF0, TF1)
UL_TFC18	(TF0, TF0, TF1, TF1)
UL_TFC19	(TF1, TF0, TF0, TF1, TF1)
UL_TFC20	(TF2, TF1, TF1, TF1)
UL_TFC21	(TF0, TF0, TF0, TF2, TF1)
UL_TFC22	(TF1, TF0, TF0, TF2, TF1)
UL_TFC23	(TF2, TF1, TF1, TF2, TF1)
UL_TFC24	(TF0, TF0, TF0, TF3, TF1)
UL_TFC25	(TF1, TF0, TF0, TF3, TF1)
UL_TFC26	(TF2, TF1, TF1, TF3, TF1)
UL_TFC27	(TF0, TF0, TF4, TF1)
UL_TFC28	(TF1, TF0, TF0, TF4, TF1)
UL_TFC29	(TF2, TF1, TF1, TF4, TF1)

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (2048 kbps)	DCCH
	TF0, bits	1x0	0x103	0x60	0x656	0x148
	TF1, bits	1x39	1x103	1x60	1x656	1x148
	TF2, bits	1x81	N/A	N/A	2x656	N/A
	TF3, bits	N/A	N/A	N/A	4x656	N/A
	TF4, bits	N/A	N/A	N/A	8x656	N/A
TFS	TF5, bits	N/A	N/A	N/A	12x656	N/A
	TF6, bits	N/A	N/A	N/A	16x656	N/A
	TF7, bits	N/A	N/A	N/A	20x656	N/A
	TF8, bits	N/A	N/A	N/A	24x656	N/A
	TF9, bits	N/A	N/A	N/A	28x656	N/A
	TF10, bits	N/A	N/A	N/A	32x656	N/A

TFCI	(RB5, RB6, RB7, RB8, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0, TF0)
DL_TFC3	(TF0, TF0, TF1, TF0)
DL_TFC4	(TF1, TF0, TF0, TF1, TF0)
DL_TFC5	(TF2, TF1, TF1, TF0)
DL_TFC6	(TF0, TF0, TF0, TF0, TF0)
DL_TFC7 DL_TFC8	(TF1, TF0, TF0, TF2, TF0) (TF2, TF1, TF1, TF2, TF0)
DL_TFC9	(TF0, TF0, TF0, TF3, TF0)
DL_TFC10	(TF1, TF0, TF0, TF3, TF0)
DL_TFC11	(TF2, TF1, TF3, TF0)
DL_TFC12	(TF0, TF0, TF4, TF0)
DL_TFC13	(TF1, TF0, TF0, TF4, TF0)
DL_TFC14	(TF2, TF1, TF1, TF4, TF0)
DL_TFC15	(TF0, TF0, TF0, TF5, TF0)
DL_TFC16	(TF1, TF0, TF0, TF5, TF0)
DL_TFC17	(TF2, TF1, TF1, TF5, TF0)
DL_TFC18	(TF0, TF0, TF0, TF6, TF0)
DL_TFC19 DL_TFC20	(TF1, TF0, TF0, TF6, TF0) (TF2, TF1, TF1, TF6, TF0)
DL_TFC20	(TF0, TF0, TF0, TF7, TF0)
DL_TFC21	(TF1, TF0, TF0, TF7, TF0)
DL_TFC23	(TF2, TF1, TF7, TF0)
DL_TFC24	(TF0, TF0, TF8, TF0)
DL_TFC25	(TF1, TF0, TF0, TF8, TF0)
DL_TFC26	(TF2, TF1, TF1, TF8, TF0)
DL_TFC27	(TF0, TF0, TF9, TF0)
DL_TFC28	(TF1, TF0, TF0, TF9, TF0)
DL_TFC29 DL_TFC30	(TF2, TF1, TF1, TF9, TF0) (TF0, TF0, TF0, TF10, TF0)
DL_TFC30	(TF1, TF0, TF0, TF10, TF10)
DL_TFC32	(TF2, TF1, TF10, TF0)
DL_TFC33	(TF0, TF0, TF0, TF1)
DL_TFC34	(TF1, TF0, TF0, TF1)
DL_TFC35	(TF2, TF1, TF1, TF0, TF1)
DL_TFC36	(TF0, TF0, TF1, TF1)
DL_TFC37	(TF1, TF0, TF1, TF1)
DL_TFC38	(TF2, TF1, TF1, TF1, TF1)
DL_TFC39 DL_TFC40	(TF0, TF0, TF0, TF2, TF1) (TF1, TF0, TF0, TF2, TF1)
DL_TFC41	(TF2, TF1, TF1, TF2, TF1)
DL_TFC42	(TF0, TF0, TF3, TF1)
DL_TFC43	(TF1, TF0, TF3, TF1)
DL_TFC44	(TF2, TF1, TF1, TF3, TF1)
DL_TFC45	(TF0, TF0, TF0, TF4, TF1)
DL_TFC46	(TF1, TF0, TF0, TF4, TF1)
DL_TFC47	(TF2, TF1, TF1, TF4, TF1)
DL_TFC48	(TF0, TF0, TF0, TF5, TF1)
DL_TFC49 DL_TFC50	(TF1, TF0, TF0, TF5, TF1) (TF2, TF1, TF1, TF5, TF1)
DL_TFC50	(TF0, TF0, TF0, TF1)
DL_TFC52	(TF1, TF0, TF0, TF6, TF1)
DL_TFC53	(TF2, TF1, TF6, TF1)
DL_TFC54	(TF0, TF0, TF0, TF7, TF1)
DL_TFC55	(TF1, TF0, TF0, TF7, TF1)
DL_TFC56	(TF2, TF1, TF1, TF7, TF1)
DL_TFC57	(TF0, TF0, TF0, TF8, TF1)
DL_TFC58	(TF1, TF0, TF0, TF8, TF1)
DL_TFC59 DL_TFC60	(TF2, TF1, TF1, TF8, TF1) (TF0, TF0, TF0, TF9, TF1)
PL_II.C00	(110, 110, 110, 110, 111)

TFCI	(RB5, RB6, RB7, RB8, DCCH)
DL_TFC61	(TF1, TF0, TF0, TF9, TF1)
DL_TFC62	(TF2, TF1, TF1, TF9, TF1)
DL_TFC63	(TF0, TF0, TF10, TF1)
DL_TFC64	(TF1, TF0, TF0, TF10, TF1)
DL_TFC65	(TF2, TF1, TF1, TF10, TF1)

	Sub- test	Downlink TFCS	Uplink TFCS	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size	Test data size (bits)
		under test	Under test			(bits) (note)	(note)
f	1	DL_TFC1	UL_TFC1	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: 39
				DL_TFC33,	UL_TFC1,	RB6: 103	RB6: No data
				UL_TFC0,	UL_TFC15,	RB7: 60	RB7: No data
				UL_TFC15	UL_TFC16	RB8: <u>632</u> 656	RB8: No data
	2	DL_TFC2	UL_TFC2	DL_TFC0,	UL_TFC0,	RB5: 81	RB5: 81
				DL_TFC33,	UL_TFC2,	RB6: 103	RB6: 103
				UL_TFC0,	UL_TFC15,	RB7: 60	RB7: 60
1				UL_TFC15	UL_TFC17	RB8: <u>632</u> 656	RB8: No data
	3	DL_TFC3	UL_TFC3	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: No data
				DL_TFC33,	UL_TFC3,	RB6: 103	RB6: No data
				UL_TFC0,	UL_TFC15,	RB7: 60	RB7: No data
1				UL_TFC15	UL_TFC18	RB8: <u>632</u> 656	RB8: <u>632656</u>
	4	DL_TFC4	UL_TFC4	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: 39
				DL_TFC33,	UL_TFC4,	RB6: 103	RB6: No data
,				UL_TFC0,	UL_TFC15,	RB7: 60	RB7: No data
1				UL_TFC15	UL_TFC19	RB8: <u>632</u> 656	RB8: <u>632</u> 656
	5	DL_TFC5	UL_TFC5	DL_TFC0,	UL_TFC0,	RB5: 81	RB5: 81
				DL_TFC33,	UL_TFC5,	RB6: 103	RB6: 103
,				UL_TFC0,	UL_TFC15,	RB7: 60	RB7: 60
1	_			UL_TFC15	UL_TFC20	RB8: <u>632</u> 656	RB8: <u>632</u> 656
	6	DL_TFC6	UL_TFC6	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: No data
				DL_TFC33,	UL_TFC6,	RB6: 103	RB6: No data
ı				UL_TFC0,	UL_TFC15,	RB7: 60	RB7: No data
				UL_TFC15	UL_TFC21	RB8:	RB8: <u>1272</u> 1312
1	_	DI TEO7	TEO7	DI TEOO	LII TEOO	1312 1272	DD5 00
	7	DL_TFC7	UL_TFC7	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: 39
				DL_TFC33,	UL_TFC7,	RB6: 103	RB6: No data
ı				UL_TFC0,	UL_TFC15,	RB7: 60	RB7: No data
				UL_TFC15	UL_TFC22	RB8: 1272 1312	RB8: <u>1272</u> 1312
1	8	DL_TFC8	UL_TFC8	DL_TFC0,	UL_TFC0,	RB5: 81	RB5: 81
	0	DL_11 00	0L_11 00	DL_TFC33,	UL_TFC8,	RB6: 103	RB6: 103
				UL_TFC0,	UL_TFC15,	RB7: 60	RB7: 60
I				UL_TFC15	UL_TFC23	RB8:	RB8: <u>1272</u> 1312
						1272 1312	
'	9	DL_TFC9	UL_TFC9	DL_TFC0,	UL TFC0,	RB5: 39	RB5: No data
	·	22 00	3=00	DL_TFC33,	UL_TFC9,	RB6: 103	RB6: No data
				UL_TFC0,	UL_TFC15,	RB7: 60	RB7: No data
				UL_TFC15	UL_TFC24	RB8:	RB8: 2624 2552
				01_11 010	02_11 02 1	2552 2624	1120. 202 1 <u>2002</u>
'	10	DL_TFC10	UL_TFC10	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: 39
	_			DL_TFC33,	UL_TFC10,	RB6: 103	RB6: No data
				UL_TFC0,	UL_TFC15,	RB7: 60	RB7: No data
				UL_TFC15	UL_TFC25	RB8:	RB8: <u>25522624</u>
				_	_	2552 2624	
Ī	11	DL_TFC11	UL_TFC11	DL_TFC0,	UL_TFC0,	RB5: 81	RB5: 81
				DL_TFC33,	UL_TFC11,	RB6: 103	RB6: 103
				UL_TFC0,	UL_TFC15,	RB7: 60	RB7: 60
				UL_TFC15	UL_TFC26	RB8:	RB8: <u>2552</u> 2624
						<u>2552</u> 2624	

Sub- test	Downlink TFCS under	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (bits)	Test data size (bits)
	test				(note)	(note)
12	DL_TFC12	UL_TFC12	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 52485112	RB5: No data RB6: No data RB7: No data RB8: 51125248
13	DL_TFC13	UL_TFC13	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC13, UL_TFC15, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 51125248	RB5: 39 RB6: No data RB7: No data RB8: <u>5112</u> 5248
14	DL_TFC14	UL_TFC14	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC14, UL_TFC15, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 51125248	RB5: 81 RB6: 103 RB7: 60 RB8: <u>5112</u> 5248
15	DL_TFC15	UL_TFC12	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: <u>7672</u> 7872	RB5: No data RB6: No data RB7: No data RB8: 7872 7672
16	DL_TFC16	UL_TFC13	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC13, UL_TFC15, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: <u>7672</u> 7872	RB5: 39 RB6: No data RB7: No data RB8: <u>7672</u> 7872
17	DL_TFC17	UL_TFC14	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC14, UL_TFC15, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 76727872	RB5: 81 RB6: 103 RB7: 60 RB8: 76727872
18	DL_TFC18	UL_TFC12	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 1049610232	RB5: No data RB6: No data RB7: No data RB8: 10232 10496
19	DL_TFC19	UL_TFC13	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC13, UL_TFC15, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 1023210496	RB5: 39 RB6: No data RB7: No data RB8: 1023210496
20	DL_TFC20	UL_TFC14	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC14, UL_TFC15, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 1023210496	RB5: 81 RB6: 103 RB7: 60 RB8: 1023210496
21	DL_TFC21	UL_TFC12	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 12792 13120	RB5: No data RB6: No data RB7: No data RB8: 12792 1312 0
22	DL_TFC22	UL_TFC13	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC13, UL_TFC15, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 1279213120	RB5: 39 RB6: No data RB7: No data RB8: 12792 13120
23	DL_TFC23	UL_TFC14	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC14, UL_TFC15, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 1279213120	RB5: 81 RB6: 103 RB7: 60 RB8: 1279243120

Sub- test	Downlink TFCS	Uplink TFCS	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size	Test data size (bits)
	under test	Under test			(bits) (note)	(note)
24	DL_TFC24	UL_TFC12	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 1535245744	RB5: No data RB6: No data RB7: No data RB8: 15352 15744
25	DL_TFC25	UL_TFC13	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC13, UL_TFC15, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 15352 15744	RB5: 39 RB6: No data RB7: No data RB8: 1535215744
26	DL_TFC26	UL_TFC14	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC14, UL_TFC15, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 1535215744	RB5: 81 RB6: 103 RB7: 60 RB8: 1535215744
27	DL_TFC27	UL_TFC12	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 1791218368	RB5: No data RB6: No data RB7: No data RB8: 1836817912
28	DL_TFC28	UL_TFC13	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC13, UL_TFC15, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 17912 18368	RB5: 39 RB6: No data RB7: No data RB8: 17912 18368
29	DL_TFC29	UL_TFC14	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC14, UL_TFC15, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 1791218368	RB5: 81 RB6: 103 RB7: 60 RB8: 1791248368
30	DL_TFC30	UL_TFC12	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 2099220472	RB5: No data RB6: No data RB7: No data RB8: 2047220992
31	DL_TFC31	UL_TFC13	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC13, UL_TFC15, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 20472 20992	RB5: 39 RB6: No data RB7: No data RB8: 2047220992
32 NOTE	DL_TFC32 : See TS 34	UL_TFC14	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15 se 5.3.2.6.2 for details	UL_TFC0, UL_TFC14, UL_TFC15, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 2047220992	RB5: 81 RB6: 103 RB7: 60 RB8: 2047220992

14.2.44.1.4 Test requirements

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be
 - for sub-test 1: RB5/TF1 (1x39).
 - for sub-test 2: RB5/TF2 (1x81); RB6/TF1 (1x103); and RB7/TF1 (1x60).
 - for sub-test 3: RB8/TF1 (1x336)

- for sub-test 4: RB5/TF1 (1x39) and RB8/TF1 (1x336).
- for sub-test 5: RB5/TF2 (1x81); RB6/TF1 (1x103); RB7/TF1 (1x60); and RB8/TF1 (1x336).
- for sub-test 6: RB8/TF2 (2x336)
- for sub-test 7: RB5/TF1 (1x39) and RB8/TF2 (2x336).
- for sub-test 8: RB5/TF2 (1x81); RB6/TF1 (1x103); RB7/TF1 (1x60); and RB8/TF2 (2x336).
- for sub-test 9: RB8/TF3 (4x336)
- for sub-test 10: RB5/TF1 (1x39) and RB8/TF3 (4x336).
- for sub-test 11: RB5/TF2 (1x81); RB6/TF1 (1x103); RB7/TF1 (1x60); and RB8/TF3 (4x336).
- for sub-test 12,15,18,21,24,27,30: RB8/TF4 (8x336)
- for sub-test 13,16,19,22,25,28,31: RB5/TF1 (1x39) and RB8/TF4 (8x336).
- for sub-test 14,17,20,23,26,29,32: RB5/TF2 (1x81); RB6/TF1 (1x103); RB7/TF1 (1x60); and RB8/TF4 (8x336).

3. At step 15 the UE shall return

- for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6, RB7 and RB8.
- for sub-test 2: an RLC SDU on RB5, RB6 and RB7 having the same content as sent by SS; and no data shall be received on RB8.
- for sub-test 3, 6, 9, 12, 15, 18, 21, 24, 27, 30: an RLC SDU on RB8 having the same content as sent by SS; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 4, 7, 10, 13, 16, 19, 22, 25, 28, 31: an RLC SDU on RB5 and RB8 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 5, 8, 11, 14, 17, 20, 23, 26, 29, 32: an RLC SDU on RB5, RB6, RB7 and RB8 having the same content as sent by SS.

14.2.44.2 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:128 DL:2048 kbps / PS RAB / 20 ms TTI

14.2.44.2.1 Conformance requirement

See 14.2.4.1.

14.2.44.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.44 for the downlink 20 ms TTI case.

14.2.44.2.3 Method of test

Uplink TFS:

		TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (128 kbps)	DCCH
		TF0, bits	0x81(alt. 1x0)	0x103	0x60	0x336	0x148
	TFS	TF1, bits	1x39	1x103	1x60	1x336	1x148
1 -		TF2, bits	1x81	N/A	N/A	2x336	N/A
		TF3, bits	N/A	N/A	N/A	4x336	N/A
		TF4, bits	N/A	N/A	N/A	8x336	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0, TF0)
UL_TFC3	(TF0, TF0, TF1, TF0)
UL_TFC4	(TF1, TF0, TF0, TF1, TF0)
UL_TFC5	(TF2, TF1, TF1, TF0)
UL_TFC6	(TF0, TF0, TF0, TF2, TF0)
UL_TFC7	(TF1, TF0, TF0, TF2, TF0)
UL_TFC8	(TF2, TF1, TF1, TF2, TF0)
UL_TFC9	(TF0, TF0, TF0, TF3, TF0)
UL_TFC10	(TF1, TF0, TF0, TF3, TF0)
UL_TFC11	(TF2, TF1, TF1, TF3, TF0)
UL_TFC12	(TF0, TF0, TF0, TF4, TF0)
UL_TFC13	(TF1, TF0, TF0, TF4, TF0)
UL_TFC14	(TF2, TF1, TF1, TF4, TF0)
UL_TFC15	(TF0, TF0, TF0, TF1)
UL_TFC16	(TF1, TF0, TF0, TF1)
UL_TFC17	(TF2, TF1, TF1, TF0, TF1)
UL_TFC18	(TF0, TF0, TF1, TF1)
UL_TFC19	(TF1, TF0, TF0, TF1, TF1)
UL_TFC20	(TF2, TF1, TF1, TF1)
UL_TFC21	(TF0, TF0, TF0, TF2, TF1)
UL_TFC22	(TF1, TF0, TF0, TF2, TF1)
UL_TFC23	(TF2, TF1, TF1, TF2, TF1)
UL_TFC24	(TF0, TF0, TF0, TF3, TF1)
UL_TFC25	(TF1, TF0, TF0, TF3, TF1)
UL_TFC26	(TF2, TF1, TF1, TF3, TF1)
UL_TFC27	(TF0, TF0, TF0, TF4, TF1)
UL_TFC28	(TF1, TF0, TF0, TF4, TF1)
UL_TFC29	(TF2, TF1, TF1, TF4, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (2048 kbps)	DCCH
	TF0, bits	1x0	0x103	0x60	0x656	0x148
	TF1, bits	1x39	1x103	1x60	1x656	1x148
	TF2, bits	1x81	N/A	N/A	2x656	N/A
	TF3, bits	N/A	N/A	N/A	4x656	N/A
	TF4, bits	N/A	N/A	N/A	8x656	N/A
	TF5, bits	N/A	N/A	N/A	12x656	N/A
	TF6, bits	N/A	N/A	N/A	16x656	N/A
	TF7, bits	N/A	N/A	N/A	20x656	N/A
	TF8, bits	N/A	N/A	N/A	24x656	N/A
TFS	TF9, bits	N/A	N/A	N/A	28x656	N/A
	TF10, bits	N/A	N/A	N/A	32x656	N/A
	TF11, bits	N/A	N/A	N/A	36x656	N/A
	TF12, bits	N/A	N/A	N/A	40x656	N/A
	TF13, bits	N/A	N/A	N/A	44x656	N/A
	TF14, bits	N/A	N/A	N/A	48x656	N/A
	TF15, bits	N/A	N/A	N/A	52x656	N/A
	TF16, bits	N/A	N/A	N/A	56x656	N/A
	TF17, bits	N/A	N/A	N/A	60x656	N/A
	TF18, bits	N/A	N/A	N/A	64x656	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0, TF0)
DL_TFC3	(TF0, TF0, TF1, TF0)
DL_TFC4	(TF1, TF0, TF0, TF1, TF0)
DL_TFC5	(TF2, TF1, TF1, TF0)
DL_TFC6	(TF0, TF0, TF0, TF2, TF0)
DL_TFC7 DL_TFC8	(TF1, TF0, TF0, TF2, TF0) (TF2, TF1, TF1, TF2, TF0)
DL_TFC9	(TF0, TF0, TF0, TF3, TF0)
DL_TFC10	(TF1, TF0, TF0, TF3, TF0)
DL_TFC11	(TF2, TF1, TF3, TF0)
DL_TFC12	(TF0, TF0, TF4, TF0)
DL_TFC13	(TF1, TF0, TF0, TF4, TF0)
DL_TFC14	(TF2, TF1, TF1, TF4, TF0)
DL_TFC15	(TF0, TF0, TF0, TF5, TF0)
DL_TFC16	(TF1, TF0, TF0, TF5, TF0)
DL_TFC17	(TF2, TF1, TF5, TF0)
DL_TFC18	(TF0, TF0, TF0, TF6, TF0)
DL_TFC19	(TF1, TF0, TF0, TF6, TF0)
DL_TFC20	(TF2, TF1, TF1, TF6, TF0)
DL_TFC21 DL_TFC22	(TF0, TF0, TF0, TF7, TF0) (TF1, TF0, TF0, TF7, TF0)
DL_TFC23	(TF2, TF1, TF1, TF7, TF0)
DL_TFC23	(TF0, TF0, TF0, TF8, TF0)
DL_TFC25	(TF1, TF0, TF0, TF8, TF0)
DL_TFC26	(TF2, TF1, TF8, TF0)
DL_TFC27	(TF0, TF0, TF0, TF9, TF0)
DL_TFC28	(TF1, TF0, TF0, TF9, TF0)
DL_TFC29	(TF2, TF1, TF1, TF9, TF0)
DL_TFC30	(TF0, TF0, TF10, TF0)
DL_TFC31	(TF1, TF0, TF0, TF10, TF0)
DL_TFC32	(TF2, TF1, TF1, TF10, TF0)
DL_TFC33 DL_TFC34	(TF0, TF0, TF11, TF0) (TF1, TF0, TF0, TF11, TF0)
DL_TFC34	(TF2, TF1, TF11, TF11, TF0)
DL_TFC36	(TF0, TF0, TF12, TF0)
DL_TFC37	(TF1, TF0, TF12, TF0)
DL_TFC38	(TF2, TF1, TF12, TF0)
DL_TFC39	(TF0, TF0, TF0, TF13, TF0)
DL_TFC40	(TF1, TF0, TF0, TF13, TF0)
DL_TFC41	(TF2, TF1, TF13, TF0)
DL_TFC42	(TF0, TF0, TF14, TF0)
DL_TFC44	(TF1, TF0, TF0, TF14, TF0)
DL_TFC44	(TF2, TF1, TF1, TF14, TF0)
DL_TFC45 DL_TFC46	(TF0, TF0, TF15, TF0) (TF1, TF0, TF0, TF15, TF0)
DL_TFC46	(TF2, TF1, TF15, TF15, TF0)
DL_TFC48	(TF0, TF0, TF16, TF16)
DL_TFC49	(TF1, TF0, TF16, TF16)
DL_TFC50	(TF2, TF1, TF16, TF0)
DL_TFC51	(TF0, TF0, TF17, TF0)
DL_TFC52	(TF1, TF0, TF0, TF17, TF0)
DL_TFC53	(TF2, TF1, TF17, TF0)
DL_TFC54	(TF0, TF0, TF18, TF0)
DL_TFC55	(TF1, TF0, TF0, TF18, TF0)
DL_TFC56	(TF2, TF1, TF1, TF18, TF0)
DL_TFC57	(TF0, TF0, TF0, TF1)
DL_TFC58 DL_TFC59	(TF1, TF0, TF0, TF1) (TF2, TF1, TF1, TF0, TF1)
DL_TFC60	(TF0, TF0, TF1, TF1)
PF_11 000	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \

DL TFC61	TFCI	(RB5, RB6, RB7, RB8, DCCH)
DL TFC63		
DL TFC64 (TF1, TF0, TF0, TF2, TF1) DL TFC65 (TF2, TF1, TF1, TF2, TF1) DL TFC66 (TF0, TF0, TF0, TF3, TF1) DL TFC67 (TF1, TF0, TF0, TF3, TF1) DL TFC68 (TF2, TF1, TF1, TF3, TF1) DL TFC68 (TF2, TF1, TF1, TF3, TF1) DL TFC68 (TF2, TF1, TF1, TF3, TF1) DL TFC69 (TF0, TF0, TF0, TF4, TF1) DL TFC70 (TF1, TF0, TF0, TF4, TF1) DL TFC71 (TF2, TF1, TF1, TF4, TF1) DL TFC72 (TF0, TF0, TF0, TF5, TF1) DL TFC73 (TF1, TF0, TF0, TF5, TF1) DL TFC73 (TF1, TF0, TF0, TF5, TF1) DL TFC74 (TF2, TF1, TF1, TF3, TF1) DL TFC75 (TF1, TF0, TF0, TF6, TF1) DL TFC76 (TF1, TF0, TF0, TF6, TF1) DL TFC76 (TF1, TF0, TF0, TF6, TF1) DL TFC77 (TF2, TF1, TF1, TF3, TF1) DL TFC78 (TF1, TF0, TF0, TF0, TF1) DL TFC79 (TF1, TF0, TF0, TF0, TF1) DL TFC79 (TF1, TF0, TF0, TF0, TF1) DL TFC80 (TF2, TF1, TF1, TF3, TF1) DL TFC81 (TF0, TF0, TF0, TF0, TF1) DL TFC82 (TF1, TF1, TF3, TF1) DL TFC83 (TF2, TF1, TF1, TF3, TF1) DL TFC84 (TF0, TF0, TF0, TF0, TF0, TF1) DL TFC85 (TF1, TF0, TF0, TF0, TF0, TF1) DL TFC86 (TF2, TF1, TF1, TF3, TF1) DL TFC87 (TF0, TF0, TF0, TF0, TF1) DL TFC88 (TF2, TF1, TF1, TF3, TF1) DL TFC89 (TF2, TF1, TF1, TF1, TF1) DL TFC99 (TF1, TF0, TF0, TF0, TF1) DL TFC99 (TF1, TF1, TF1, TF1) DL TFC99 (TF1, TF1, TF1, TF1, TF1) DL TFC100 (TF1, TF0, TF0, TF0, TF1, TF1) DL TFC101 (TF2, TF1, TF1, TF1, TF1) DL TFC102 (TF0, TF0, TF0, TF1, TF1) DL TFC105 (TF0, TF0, TF0, TF1, TF1) DL TFC106 (TF1, TF0, TF0, TF1, TF1) DL TFC107 (TF2, TF1, TF1, TF1, TF1) DL TF	DL_TFC61	(TF2, TF1, TF1, TF1, TF1)
DL_TFC65	DL_TFC63	(TF0, TF0, TF0, TF2, TF1)
DL_TFC65	DL_TFC64	(TF1, TF0, TF0, TF2, TF1)
DL_TFC66 (TF0, TF0, TF0, TF3, TF1) DL_TFC68 (TF2, TF1, TF1, TF3, TF1) DL_TFC69 (TF0, TF0, TF0, TF3, TF1) DL_TFC69 (TF0, TF0, TF0, TF4, TF1) DL_TFC70 (TF1, TF0, TF0, TF4, TF1) DL_TFC71 (TF2, TF1, TF1, TF4, TF1) DL_TFC72 (TF0, TF0, TF0, TF5, TF1) DL_TFC73 (TF1, TF0, TF0, TF5, TF1) DL_TFC74 (TF2, TF1, TF1, TF4, TF1) DL_TFC75 (TF0, TF0, TF0, TF5, TF1) DL_TFC76 (TF1, TF0, TF0, TF6, TF1) DL_TFC77 (TF2, TF1, TF1, TF6, TF1) DL_TFC78 (TF0, TF0, TF0, TF6, TF1) DL_TFC79 (TF1, TF0, TF0, TF6, TF1) DL_TFC79 (TF1, TF0, TF0, TF7, TF1) DL_TFC80 (TF2, TF1, TF1, TF7, TF1) DL_TFC81 (TF0, TF0, TF0, TF7, TF1) DL_TFC82 (TF1, TF0, TF0, TF8, TF1) DL_TFC83 (TF2, TF1, TF1, TF7, TF1) DL_TFC84 (TF0, TF0, TF0, TF8, TF1) DL_TFC85 (TF1, TF0, TF0, TF9, TF1) DL_TFC86 (TF2, TF1, TF1, TF8, TF1) DL_TFC86 (TF2, TF1, TF1, TF8, TF1) DL_TFC87 (TF0, TF0, TF0, TF9, TF1) DL_TFC88 (TF1, TF0, TF0, TF9, TF1) DL_TFC89 (TF2, TF1, TF1, TF1, TF1, TF1) DL_TFC80 (TF2, TF1, TF1, TF1, TF1) DL_TFC81 (TF0, TF0, TF0, TF1, TF1) DL_TFC82 (TF1, TF1, TF1, TF1, TF1) DL_TFC83 (TF2, TF1, TF1, TF1, TF1) DL_TFC84 (TF2, TF1, TF1, TF1, TF1) DL_TFC85 (TF1, TF0, TF0, TF1, TF1) DL_TFC86 (TF2, TF1, TF1, TF1, TF1) DL_TFC87 (TF0, TF0, TF0, TF1, TF1) DL_TFC89 (TF2, TF1, TF1, TF1, TF1) DL_TFC89 (TF2, TF1, TF1, TF1, TF1) DL_TFC90 (TF0, TF0, TF0, TF1, TF1) DL_TFC90 (TF0, TF0, TF0, TF1, TF1) DL_TFC91 (TF1, TF0, TF0, TF12, TF1) DL_TFC92 (TF2, TF1, TF1, TF1, TF1) DL_TFC93 (TF2, TF1, TF1, TF1, TF1) DL_TFC94 (TF1, TF0, TF0, TF12, TF1) DL_TFC95 (TF2, TF1, TF1, TF1, TF1) DL_TFC96 (TF0, TF0, TF0, TF12, TF1) DL_TFC97 (TF1, TF1, TF1, TF1, TF1) DL_TFC99 (TF1, TF1, TF1, TF1, TF1) DL_TFC99 (TF1, TF0, TF0, TF12, TF1) DL_TFC99 (TF1, TF0, TF0, TF12, TF1) DL_TFC99 (TF1, TF0, TF0, TF13, TF1) DL_TFC100 (TF1, TF0, TF0, TF14, TF1) DL_TFC101 (TF2, TF1, TF1, TF1, TF1, TF1) DL_TFC102 (TF1, TF0, TF0, TF14, TF1) DL_TFC109 (TF1, TF0, TF0, TF14, TF1) D	DL_TFC65	
DL_TEC68	DL_TFC66	
DL_TFC69	DL_TFC67	(TF1, TF0, TF0, TF3, TF1)
DL_TFC70 (TF1, TF0, TF0, TF4, TF1) DL_TFC71 (TF2, TF1, TF1, TF4, TF1) DL_TFC72 (TF0, TF0, TF5, TF1) DL_TFC73 (TF1, TF0, TF0, TF5, TF1) DL_TFC74 (TF2, TF1, TF1, TF5, TF1) DL_TFC75 (TF0, TF0, TF0, TF5, TF1) DL_TFC76 (TF1, TF0, TF0, TF6, TF1) DL_TFC77 (TF2, TF1, TF1, TF6, TF1) DL_TFC78 (TF0, TF0, TF0, TF6, TF1) DL_TFC79 (TF1, TF0, TF0, TF7, TF1) DL_TFC80 (TF2, TF1, TF1, TF7, TF1) DL_TFC81 (TF0, TF0, TF0, TF7, TF1) DL_TFC82 (TF1, TF1, TF7, TF1) DL_TFC83 (TF0, TF0, TF0, TF8, TF1) DL_TFC84 (TF0, TF0, TF0, TF8, TF1) DL_TFC85 (TF1, TF1, TF1, TF8, TF1) DL_TFC86 (TF2, TF1, TF1, TF1, TF1) DL_TFC86 (TF2, TF1, TF1, TF9, TF1) DL_TFC86 (TF2, TF1, TF1, TF9, TF1) DL_TFC86 (TF2, TF1, TF1, TF9, TF1) DL_TFC87 (TF0, TF0, TF0, TF0, TF1) DL_TFC88 (TF1, TF0, TF0, TF0, TF1) DL_TFC89 (TF2, TF1, TF1, TF1, TF1) DL_TFC89 (TF2, TF1, TF1, TF1) DL_TFC90 (TF0, TF0, TF0, TF10, TF1) DL_TFC91 (TF0, TF0, TF0, TF11, TF1) DL_TFC92 (TF2, TF1, TF1, TF1, TF1) DL_TFC93 (TF0, TF0, TF0, TF12, TF1) DL_TFC94 (TF1, TF0, TF0, TF12, TF1) DL_TFC95 (TF2, TF1, TF1, TF13, TF1) DL_TFC96 (TF2, TF1, TF1, TF13, TF1) DL_TFC97 (TF1, TF0, TF0, TF13, TF1) DL_TFC98 (TF2, TF1, TF1, TF13, TF1) DL_TFC99 (TF0, TF0, TF0, TF13, TF1) DL_TFC90 (TF0, TF0, TF0, TF13, TF1) DL_TFC91 (TF1, TF0, TF0, TF13, TF1) DL_TFC96 (TF0, TF0, TF0, TF13, TF1) DL_TFC97 (TF1, TF0, TF0, TF14, TF1) DL_TFC98 (TF2, TF1, TF1, TF14, TF1) DL_TFC99 (TF0, TF0, TF0, TF14, TF1) DL_TFC90 (TF0, TF0, TF0, TF14, TF1) DL_TFC91 (TF1, TF0, TF0, TF14, TF1) DL_TFC101 (TF2, TF1, TF1, TF14, TF1) DL_TFC102 (TF0, TF0, TF0, TF14, TF1) DL_TFC103 (TF1, TF0, TF0, TF14, TF1) DL_TFC104 (TF2, TF1, TF1, TF14, TF1) DL_TFC105 (TF0, TF0, TF0, TF14, TF1) DL_TFC106 (TF0, TF0, TF0, TF14, TF1) DL_TFC107 (TF2, TF1, TF1, TF1, TF1) DL_TFC108 (TF0, TF	DL_TFC68	(TF2, TF1, TF1, TF3, TF1)
DL_TFC71	DL_TFC69	(TF0, TF0, TF0, TF4, TF1)
DL_TFC72 (TF0, TF0, TF0, TF5, TF1) DL_TFC73 (TF1, TF0, TF0, TF5, TF1) DL_TFC74 (TF2, TF1, TF1, TF5, TF1) DL_TFC75 (TF0, TF0, TF0, TF6, TF1) DL_TFC76 (TF1, TF0, TF0, TF6, TF1) DL_TFC77 (TF2, TF1, TF1, TF6, TF1) DL_TFC78 (TF0, TF0, TF0, TF6, TF1) DL_TFC79 (TF1, TF0, TF0, TF7, TF1) DL_TFC80 (TF2, TF1, TF1, TF7, TF1) DL_TFC81 (TF0, TF0, TF0, TF7, TF1) DL_TFC82 (TF1, TF0, TF0, TF0, TF8, TF1) DL_TFC83 (TF2, TF1, TF1, TF8, TF1) DL_TFC84 (TF0, TF0, TF0, TF9, TF1) DL_TFC85 (TF1, TF0, TF0, TF9, TF1) DL_TFC86 (TF2, TF1, TF1, TF9, TF1) DL_TFC86 (TF2, TF1, TF1, TF9, TF1) DL_TFC87 (TF0, TF0, TF0, TF0, TF1) DL_TFC88 (TF1, TF0, TF0, TF0, TF1) DL_TFC89 (TF2, TF1, TF1, TF1, TF1) DL_TFC89 (TF2, TF1, TF1, TF1, TF1) DL_TFC90 (TF0, TF0, TF0, TF11, TF1) DL_TFC91 (TF1, TF0, TF0, TF11, TF1) DL_TFC92 (TF2, TF1, TF1, TF1, TF1) DL_TFC93 (TF0, TF0, TF0, TF12, TF1) DL_TFC94 (TF1, TF0, TF0, TF0, TF12, TF1) DL_TFC95 (TF2, TF1, TF1, TF1, TF1) DL_TFC96 (TF0, TF0, TF0, TF13, TF1) DL_TFC97 (TF1, TF0, TF0, TF0, TF13, TF1) DL_TFC98 (TF2, TF1, TF1, TF13, TF1) DL_TFC99 (TF2, TF1, TF1, TF13, TF1) DL_TFC99 (TF0, TF0, TF0, TF13, TF1) DL_TFC99 (TF0, TF0, TF0, TF14, TF1) DL_TFC90 (TF0, TF0, TF0, TF14, TF1) DL_TFC91 (TF1, TF0, TF0, TF14, TF1) DL_TFC91 (TF2, TF1, TF1, TF13, TF1) DL_TFC91 (TF2, TF1, TF1, TF14, TF1) DL_TFC101 (TF2, TF1, TF1, TF14, TF1) DL_TFC102 (TF0, TF0, TF0, TF14, TF1) DL_TFC103 (TF0, TF0, TF0, TF14, TF1) DL_TFC104 (TF2, TF1, TF1, TF1, TF1) DL_TFC105 (TF0, TF0, TF0, TF14	DL_TFC70	(TF1, TF0, TF0, TF4, TF1)
DL_TFC73		(TF2, TF1, TF1, TF4, TF1)
DL_TFC74		
DL_TFC75		
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DL_TFC95 (TF2, TF1, TF1, TF12, TF1) DL_TFC96 (TF0, TF0, TF0, TF13, TF1) DL_TFC97 (TF1, TF0, TF0, TF13, TF1) DL_TFC98 (TF2, TF1, TF1, TF13, TF1) DL_TFC99 (TF0, TF0, TF0, TF14, TF1) DL_TFC100 (TF1, TF0, TF0, TF14, TF1) DL_TFC101 (TF2, TF1, TF1, TF14, TF1) DL_TFC102 (TF0, TF0, TF0, TF15, TF1) DL_TFC103 (TF1, TF0, TF0, TF15, TF1) DL_TFC104 (TF2, TF1, TF1, TF15, TF1) DL_TFC105 (TF0, TF0, TF0, TF16, TF1) DL_TFC106 (TF1, TF0, TF0, TF16, TF1) DL_TFC107 (TF2, TF1, TF1, TF16, TF1) DL_TFC108 (TF0, TF0, TF0, TF17, TF1) DL_TFC109 (TF1, TF0, TF0, TF17, TF1) DL_TFC110 (TF2, TF1, TF1, TF17, TF1) DL_TFC111 (TF0, TF0, TF0, TF18, TF1) DL_TFC112 (TF1, TF0, TF0, TF18, TF1)	DL_TFC93	(TF0, TF0, TF12, TF1)
DL_TFC96 (TF0, TF0, TF0, TF13, TF1) DL_TFC97 (TF1, TF0, TF0, TF13, TF1) DL_TFC98 (TF2, TF1, TF1, TF13, TF1) DL_TFC99 (TF0, TF0, TF0, TF14, TF1) DL_TFC100 (TF1, TF0, TF0, TF14, TF1) DL_TFC101 (TF2, TF1, TF1, TF14, TF1) DL_TFC102 (TF0, TF0, TF0, TF15, TF1) DL_TFC103 (TF1, TF0, TF0, TF15, TF1) DL_TFC104 (TF2, TF1, TF1, TF15, TF1) DL_TFC105 (TF0, TF0, TF0, TF16, TF1) DL_TFC106 (TF1, TF0, TF0, TF16, TF1) DL_TFC107 (TF2, TF1, TF1, TF16, TF1) DL_TFC108 (TF0, TF0, TF0, TF17, TF1) DL_TFC109 (TF1, TF0, TF0, TF17, TF1) DL_TFC110 (TF2, TF1, TF1, TF17, TF1) DL_TFC111 (TF0, TF0, TF0, TF18, TF1) DL_TFC112 (TF1, TF0, TF0, TF18, TF1)	DL_TFC94	(TF1, TF0, TF0, TF12, TF1)
DL_TFC97 (TF1, TF0, TF0, TF13, TF1) DL_TFC98 (TF2, TF1, TF1, TF13, TF1) DL_TFC99 (TF0, TF0, TF0, TF14, TF1) DL_TFC100 (TF1, TF0, TF0, TF14, TF1) DL_TFC101 (TF2, TF1, TF1, TF14, TF1) DL_TFC102 (TF0, TF0, TF0, TF15, TF1) DL_TFC103 (TF1, TF0, TF0, TF15, TF1) DL_TFC104 (TF2, TF1, TF1, TF15, TF1) DL_TFC105 (TF0, TF0, TF0, TF16, TF1) DL_TFC106 (TF1, TF0, TF0, TF16, TF1) DL_TFC107 (TF2, TF1, TF1, TF16, TF1) DL_TFC108 (TF0, TF0, TF0, TF17, TF1) DL_TFC109 (TF1, TF0, TF0, TF17, TF1) DL_TFC110 (TF2, TF1, TF1, TF17, TF1) DL_TFC111 (TF0, TF0, TF0, TF18, TF1) DL_TFC112 (TF1, TF0, TF0, TF18, TF1)	DL_TFC95	(TF2, TF1, TF1, TF12, TF1)
DL_TFC98 (TF2, TF1, TF13, TF1) DL_TFC99 (TF0, TF0, TF0, TF14, TF1) DL_TFC100 (TF1, TF0, TF0, TF14, TF1) DL_TFC101 (TF2, TF1, TF14, TF1) DL_TFC102 (TF0, TF0, TF0, TF15, TF1) DL_TFC103 (TF1, TF0, TF0, TF15, TF1) DL_TFC104 (TF2, TF1, TF1, TF15, TF1) DL_TFC105 (TF0, TF0, TF0, TF16, TF1) DL_TFC106 (TF1, TF0, TF0, TF16, TF1) DL_TFC107 (TF2, TF1, TF1, TF16, TF1) DL_TFC108 (TF0, TF0, TF0, TF17, TF1) DL_TFC109 (TF1, TF0, TF0, TF17, TF1) DL_TFC110 (TF2, TF1, TF1, TF17, TF1) DL_TFC111 (TF0, TF0, TF0, TF18, TF1) DL_TFC111 (TF0, TF0, TF0, TF18, TF1) DL_TFC112 (TF1, TF0, TF0, TF18, TF1)	DL_TFC96	(TF0, TF0, TF13, TF1)
DL_TFC99 (TF0, TF0, TF0, TF14, TF1) DL_TFC100 (TF1, TF0, TF0, TF14, TF1) DL_TFC101 (TF2, TF1, TF1, TF14, TF1) DL_TFC102 (TF0, TF0, TF0, TF15, TF1) DL_TFC103 (TF1, TF0, TF0, TF15, TF1) DL_TFC104 (TF2, TF1, TF1, TF15, TF1) DL_TFC105 (TF0, TF0, TF0, TF16, TF1) DL_TFC106 (TF1, TF0, TF0, TF16, TF1) DL_TFC107 (TF2, TF1, TF1, TF16, TF1) DL_TFC108 (TF0, TF0, TF0, TF17, TF1) DL_TFC109 (TF1, TF0, TF0, TF17, TF1) DL_TFC110 (TF2, TF1, TF1, TF17, TF1) DL_TFC111 (TF0, TF0, TF0, TF18, TF1) DL_TFC112 (TF1, TF0, TF0, TF18, TF1)	DL_TFC97	
DL_TFC100 (TF1, TF0, TF0, TF14, TF1) DL_TFC101 (TF2, TF1, TF1, TF14, TF1) DL_TFC102 (TF0, TF0, TF0, TF15, TF1) DL_TFC103 (TF1, TF0, TF0, TF15, TF1) DL_TFC104 (TF2, TF1, TF1, TF15, TF1) DL_TFC105 (TF0, TF0, TF0, TF16, TF1) DL_TFC106 (TF1, TF0, TF0, TF16, TF1) DL_TFC107 (TF2, TF1, TF1, TF16, TF1) DL_TFC108 (TF0, TF0, TF0, TF17, TF1) DL_TFC109 (TF1, TF0, TF0, TF17, TF1) DL_TFC110 (TF2, TF1, TF1, TF17, TF1) DL_TFC111 (TF0, TF0, TF0, TF18, TF1) DL_TFC112 (TF1, TF0, TF0, TF18, TF1)	_	,
DL_TFC101 (TF2, TF1, TF1, TF14, TF1) DL_TFC102 (TF0, TF0, TF0, TF15, TF1) DL_TFC103 (TF1, TF0, TF0, TF15, TF1) DL_TFC104 (TF2, TF1, TF1, TF15, TF1) DL_TFC105 (TF0, TF0, TF0, TF16, TF1) DL_TFC106 (TF1, TF0, TF0, TF16, TF1) DL_TFC107 (TF2, TF1, TF1, TF16, TF1) DL_TFC108 (TF0, TF0, TF0, TF17, TF1) DL_TFC109 (TF1, TF0, TF0, TF17, TF1) DL_TFC110 (TF2, TF1, TF1, TF17, TF1) DL_TFC111 (TF0, TF0, TF0, TF18, TF1) DL_TFC112 (TF1, TF0, TF0, TF18, TF1)		,
DL_TFC102 (TF0, TF0, TF15, TF1) DL_TFC103 (TF1, TF0, TF0, TF15, TF1) DL_TFC104 (TF2, TF1, TF15, TF1) DL_TFC105 (TF0, TF0, TF0, TF16, TF1) DL_TFC106 (TF1, TF0, TF0, TF16, TF1) DL_TFC107 (TF2, TF1, TF1, TF16, TF1) DL_TFC108 (TF0, TF0, TF0, TF17, TF1) DL_TFC109 (TF1, TF0, TF0, TF17, TF1) DL_TFC110 (TF2, TF1, TF1, TF17, TF1) DL_TFC111 (TF0, TF0, TF0, TF18, TF1) DL_TFC112 (TF1, TF0, TF0, TF18, TF1)		
DL_TFC103 (TF1, TF0, TF0, TF15, TF1) DL_TFC104 (TF2, TF1, TF1, TF15, TF1) DL_TFC105 (TF0, TF0, TF0, TF16, TF1) DL_TFC106 (TF1, TF0, TF0, TF16, TF1) DL_TFC107 (TF2, TF1, TF1, TF16, TF1) DL_TFC108 (TF0, TF0, TF0, TF17, TF1) DL_TFC109 (TF1, TF0, TF0, TF17, TF1) DL_TFC110 (TF2, TF1, TF1, TF17, TF1) DL_TFC111 (TF0, TF0, TF0, TF18, TF1) DL_TFC112 (TF1, TF0, TF0, TF18, TF1)		
DL_TFC104 (TF2, TF1, TF1, TF15, TF1) DL_TFC105 (TF0, TF0, TF0, TF16, TF1) DL_TFC106 (TF1, TF0, TF0, TF16, TF1) DL_TFC107 (TF2, TF1, TF1, TF16, TF1) DL_TFC108 (TF0, TF0, TF0, TF17, TF1) DL_TFC109 (TF1, TF0, TF0, TF17, TF1) DL_TFC110 (TF2, TF1, TF1, TF17, TF1) DL_TFC111 (TF0, TF0, TF0, TF18, TF1) DL_TFC112 (TF1, TF0, TF0, TF18, TF1)		
DL_TFC105 (TF0, TF0, TF16, TF1) DL_TFC106 (TF1, TF0, TF0, TF16, TF1) DL_TFC107 (TF2, TF1, TF1, TF16, TF1) DL_TFC108 (TF0, TF0, TF0, TF17, TF1) DL_TFC109 (TF1, TF0, TF0, TF17, TF1) DL_TFC110 (TF2, TF1, TF1, TF17, TF1) DL_TFC111 (TF0, TF0, TF0, TF18, TF1) DL_TFC112 (TF1, TF0, TF0, TF18, TF1)		
DL_TFC106 (TF1, TF0, TF0, TF16, TF1) DL_TFC107 (TF2, TF1, TF1, TF16, TF1) DL_TFC108 (TF0, TF0, TF0, TF17, TF1) DL_TFC109 (TF1, TF0, TF0, TF17, TF1) DL_TFC110 (TF2, TF1, TF1, TF17, TF1) DL_TFC111 (TF0, TF0, TF0, TF18, TF1) DL_TFC112 (TF1, TF0, TF0, TF18, TF1)		
DL_TFC107 (TF2, TF1, TF16, TF1) DL_TFC108 (TF0, TF0, TF0, TF17, TF1) DL_TFC109 (TF1, TF0, TF0, TF17, TF1) DL_TFC110 (TF2, TF1, TF1, TF17, TF1) DL_TFC111 (TF0, TF0, TF0, TF18, TF1) DL_TFC112 (TF1, TF0, TF0, TF18, TF1)		
DL_TFC108 (TF0, TF0, TF17, TF1) DL_TFC109 (TF1, TF0, TF0, TF17, TF1) DL_TFC110 (TF2, TF1, TF1, TF17, TF1) DL_TFC111 (TF0, TF0, TF0, TF18, TF1) DL_TFC112 (TF1, TF0, TF0, TF18, TF1)		
DL_TFC109 (TF1, TF0, TF0, TF17, TF1) DL_TFC110 (TF2, TF1, TF1, TF17, TF1) DL_TFC111 (TF0, TF0, TF0, TF18, TF1) DL_TFC112 (TF1, TF0, TF0, TF18, TF1)		
DL_TFC110 (TF2, TF1, TF1, TF17, TF1) DL_TFC111 (TF0, TF0, TF0, TF18, TF1) DL_TFC112 (TF1, TF0, TF0, TF18, TF1)		
DL_TFC111 (TF0, TF0, TF18, TF1) DL_TFC112 (TF1, TF0, TF0, TF18, TF1)		
DL_TFC112 (TF1, TF0, TF0, TF18, TF1)		
		† ·

Sub- test	Downlink TFCS	Uplink TFCS	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size	Test data size (bits)
	under	Under test	35555		(bits)	
_	test	==0.4	DI TEGO		(note)	(note)
1	DL_TFC1	UL_TFC1	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: 39
			DL_TFC57,	UL_TFC1,	RB6: 103	RB6: No data
			UL_TFC0,	UL_TFC15,	RB7: 60	RB7: No data
			UL_TFC15	UL_TFC16	RB8: <u>632</u> 656	RB8: No data
2	DL_TFC2	UL_TFC2	DL_TFC0,	UL_TFC0,	RB5: 81	RB5: 81
			DL_TFC57,	UL_TFC2,	RB6: 103	RB6: 103
			UL_TFC0,	UL_TFC15,	RB7: 60	RB7: 60
			UL_TFC15	UL_TFC17	RB8: 632656	RB8: No data
3	DL_TFC3	UL_TFC3	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: No data
	_	_	DL_TFC57,	UL_TFC3,	RB6: 103	RB6: No data
			UL_TFC0,	UL_TFC15,	RB7: 60	RB7: No data
			UL_TFC15	UL_TFC18	RB8: <u>632</u> 656	RB8: <u>632</u> 656
4	DL_TFC4	UL_TFC4	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: 39
	DL 0 .	02	DL_TFC57,	UL_TFC4,	RB6: 103	RB6: No data
			UL_TFC0,	UL_TFC15,	RB7: 60	RB7: No data
ıl			UL_TFC15	UL TFC19	RB8: 632 656	RB8: 632 656
5	DL_TFC5	UL_TFC5	DL_TFC15	UL_TFC0,	RB5: 81	RB5: 81
١	DE_11-03	0L_1F03	DL_TFC0, DL_TFC57,	UL_TFC5,	RB6: 103	RB6: 103
			UL_TFC0,	UL_TFC5, UL_TFC15,	RB7: 60	RB0: 103 RB7: 60
1						
1	DI TECO	III TEOO	UL_TFC15	UL_TFC20	RB8: <u>632</u> 656	RB8: <u>632</u> 656
6	DL_TFC6	UL_TFC6	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: No data
			DL_TFC57,	UL_TFC6,	RB6: 103	RB6: No data
			UL_TFC0,	UL_TFC15,	RB7: 60	RB7: No data
,			UL_TFC15	UL_TFC21	RB8:	RB8:
I <u> </u>				====	1312 1272	<u>1272</u> 1312
7	DL_TFC7	UL_TFC7	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: 39
			DL_TFC57,	UL_TFC7,	RB6: 103	RB6: No data
			UL_TFC0,	UL_TFC15,	RB7: 60	RB7: No data
			UL_TFC15	UL_TFC22	RB8:	RB8:
					<u>1272</u> 1312	<u>1272</u> 1312
8	DL_TFC8	UL_TFC8	DL_TFC0,	UL_TFC0,	RB5: 81	RB5: 81
			DL_TFC57,	UL_TFC8,	RB6: 103	RB6: 103
			UL_TFC0,	UL_TFC15,	RB7: 60	RB7: 60
			UL_TFC15	UL_TFC23	RB8:	RB8:
			_	_	<u>1272</u> 1312	1272 1312
9	DL_TFC9	UL_TFC9	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: No data
	_	_	DL_TFC57,	UL_TFC9,	RB6: 103	RB6: No data
			UL_TFC0,	UL_TFC15,	RB7: 60	RB7: No data
			UL_TFC15	UL_TFC24	RB8:	RB8:
			0	00	<u>2552</u> 2624	2624 2552
10	DL_TFC10	UL_TFC10	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: 39
		==	DL_TFC57,	UL_TFC10,	RB6: 103	RB6: No data
			UL_TFC0,	UL_TFC15,	RB7: 60	RB7: No data
			UL_TFC15	UL_TFC25	RB8:	RB8:
ıl			31_11 010	32_11 320	2552 2624	2552 2624
11	DL_TFC11	UL_TFC11	DL_TFC0,	UL_TFC0,	RB5: 81	RB5: 81
' '	25_11 011	5-11-511	DL_TFC0, DL_TFC57,	UL_TFC11,	RB6: 103	RB6: 103
			UL_TFC57,	UL_TFC11, UL_TFC15,	RB7: 60	RB7: 60
			UL_TFC0,			
i			UL_IFUID	UL_TFC26	RB8:	RB8:
12	DI TECAO	III TECAO	DI TECO	III TECO	2552 2624	25522624
12	DL_TFC12	UL_TFC12	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: No data
			DL_TFC57,	UL_TFC12,	RB6: 103	RB6: No data
			UL_TFC0,	UL_TFC15,	RB7: 60	RB7: No data
			UL_TFC15	UL_TFC27	RB8:	RB8:
I	_			=====	5248 <u>5112</u>	<u>5112</u> 5248
13	DL_TFC13	UL_TFC13	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: 39
			DL_TFC57,	UL_TFC13,	RB6: 103	RB6: No data
			UL_TFC0,	UL_TFC15,	RB7: 60	RB7: No data
.			UL_TFC15	UL_TFC28	RB8:	RB8:
[<u>5112</u> 5248	<u>5112</u> 5248

	Sub- test	Downlink TFCS under	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (bits)	Test data size (bits)
		test				(note)	(note)
	14	DL_TFC14	UL_TFC14	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC14, UL_TFC15, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8:	RB5: 81 RB6: 103 RB7: 60 RB8:
1						<u>5112</u> 5248	<u>5112</u> 5248
	15	DL_TFC15	UL_TFC12	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 76727872	RB5: No data RB6: No data RB7: No data RB8: 78727672
Ì	16	DL_TFC16	UL_TFC13	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC13, UL_TFC15, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 7672 7872	RB5: 39 RB6: No data RB7: No data RB8: 7672 7872
	17	DL_TFC17	UL_TFC14	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC14, UL_TFC15, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 76727872	RB5: 81 RB6: 103 RB7: 60 RB8: 76727872
	18	DL_TFC18	UL_TFC12	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 1049610232	RB5: No data RB6: No data RB7: No data RB8: 1023210496
	19	DL_TFC19	UL_TFC13	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC13, UL_TFC15, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 1023210496	RB5: 39 RB6: No data RB7: No data RB8: 1023210496
<u>'</u>	20	DL_TFC20	UL_TFC14	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC14, UL_TFC15, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 1023210496	RB5: 81 RB6: 103 RB7: 60 RB8: 1023210496
	21	DL_TFC21	UL_TFC12	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 12792 13120	RB5: No data RB6: No data RB7: No data RB8: 1312012792
	22	DL_TFC22	UL_TFC13	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC13, UL_TFC15, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 12792 13120	RB5: 39 RB6: No data RB7: No data RB8: 12792 13120
	23	DL_TFC23	UL_TFC14	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC14, UL_TFC15, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 12792 13120	RB5: 81 RB6: 103 RB7: 60 RB8: 12792 13120
	24	DL_TFC24	UL_TFC12	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 4574415352	RB5: No data RB6: No data RB7: No data RB8: 1535245744
	25	DL_TFC25	UL_TFC13	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC13, UL_TFC15, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: <u>15352</u> 45744	RB5: 39 RB6: No data RB7: No data RB8: 1535245744

Sub- test	Downlink TFCS under	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (bits)	Test data size (bits)
	test				(note)	(note)
26	DL_TFC26	UL_TFC14	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC14, UL_TFC15, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 1535215744	RB5: 81 RB6: 103 RB7: 60 RB8: 1535215744
27	DL_TFC27	UL_TFC12	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 17912 18368	RB5: No data RB6: No data RB7: No data RB8: 17912 18368
28	DL_TFC28	UL_TFC13	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC13, UL_TFC15, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 1791248368	RB5: 39 RB6: No data RB7: No data RB8: 1791248368
29	DL_TFC29	UL_TFC14	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC14, UL_TFC15, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: <u>1791248368</u>	RB5: 81 RB6: 103 RB7: 60 RB8: <u>1791248368</u>
30	DL_TFC30	UL_TFC12	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 2099220472	RB5: No data RB6: No data RB7: No data RB8: 2047220992
31	DL_TFC31	UL_TFC13	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC13, UL_TFC15, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 20472 20992	RB5: 39 RB6: No data RB7: No data RB8: 2047220992
32	DL_TFC32	UL_TFC14	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC14, UL_TFC15, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 20472 20992	RB5: 81 RB6: 103 RB7: 60 RB8: 2047220992
33	DL_TFC33	UL_TFC12	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 2303223616	RB5: No data RB6: No data RB7: No data RB8: 23032 23616
34	DL_TFC34	UL_TFC13	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC13, UL_TFC15, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 2303223616	RB5: 39 RB6: No data RB7: No data RB8: 2303223616
35	DL_TFC35	UL_TFC14	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC14, UL_TFC15, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 2303223616	RB5: 81 RB6: 103 RB7: 60 RB8: 2303223616
36	DL_TFC36	UL_TFC12	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 2559226240	RB5: No data RB6: No data RB7: No data RB8: 2559226240
37	DL_TFC37	UL_TFC13	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC13, UL_TFC15, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 2559226240	RB5: 39 RB6: No data RB7: No data RB8: 2559226240

Sub- test	Downlink TFCS under	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (bits)	Test data size (bits)
	test				(note)	(note)
38	DL_TFC38	UL_TFC14	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC14, UL_TFC15, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 2559226240	RB5: 81 RB6: 103 RB7: 60 RB8: 2559226240
39	DL_TFC39	UL_TFC12	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 2886428152	RB5: No data RB6: No data RB7: No data RB8: 2815228864
40	DL_TFC40	UL_TFC13	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC13, UL_TFC15, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 2815228864	RB5: 39 RB6: No data RB7: No data RB8: 2815228864
41	DL_TFC41	UL_TFC14	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC14, UL_TFC15, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: <u>2815228864</u>	RB5: 81 RB6: 103 RB7: 60 RB8: 2815228864
42	DL_TFC42	UL_TFC12	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 3071231488	RB5: No data RB6: No data RB7: No data RB8: 3071231488
43	DL_TFC43	UL_TFC13	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC13, UL_TFC15, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 3071231488	RB5: 39 RB6: No data RB7: No data RB8: 3071231488
44	DL_TFC44	UL_TFC14	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC14, UL_TFC15, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 3071231488	RB5: 81 RB6: 103 RB7: 60 RB8: 3071231488
45	DL_TFC45	UL_TFC12	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 33272 34112	RB5: No data RB6: No data RB7: No data RB8: 3327234112
46	DL_TFC46	UL_TFC13	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC13, UL_TFC15, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 3327234112	RB5: 39 RB6: No data RB7: No data RB8: 3327234112
47	DL_TFC47	UL_TFC14	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC14, UL_TFC15, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 3327234112	RB5: 81 RB6: 103 RB7: 60 RB8: 3327234112
48	DL_TFC48	UL_TFC12	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 3583236736	RB5: No data RB6: No data RB7: No data RB8: 3583236736
49	DL_TFC49	UL_TFC13	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC13, UL_TFC15, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 3583236736	RB5: 39 RB6: No data RB7: No data RB8: 3583236736

	Sub- test	Downlink TFCS	Uplink TFCS	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size	Test data size (bits)
	1001	under	Under test	tootou	11 010	(bits)	(Ditto)
		test				(note)	(note)
ı	50	DL_TFC50	UL_TFC14	DL_TFC0,	UL_TFC0,	RB5: 81	RB5: 81
				DL_TFC57,	UL_TFC14,	RB6: 103	RB6: 103
				UL_TFC0,	UL_TFC15,	RB7: 60	RB7: 60
				UL_TFC15	UL_TFC29	RB8:	RB8:
						35832 36736	35832 36736
	51	DL_TFC51	UL_TFC12	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: No data
				DL_TFC57,	UL_TFC12,	RB6: 103	RB6: No data
				UL_TFC0,	UL_TFC15,	RB7: 60	RB7: No data
				UL_TFC15	UL_TFC27	RB8:	RB8:
						39360 38392	38392 39360
	52	DL_TFC52	UL_TFC13	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: 39
				DL_TFC57,	UL_TFC13,	RB6: 103	RB6: No data
				UL_TFC0,	UL_TFC15,	RB7: 60	RB7: No data
				UL_TFC15	UL_TFC28	RB8:	RB8:
						38392 39360	38392 39360
	53	DL_TFC53	UL_TFC14	DL_TFC0,	UL_TFC0,	RB5: 81	RB5: 81
				DL_TFC57,	UL_TFC14,	RB6: 103	RB6: 103
				UL_TFC0,	UL_TFC15,	RB7: 60	RB7: 60
				UL_TFC15	UL_TFC29	RB8:	RB8:
						38392 39360	<u>38392</u> 39360
	54	DL_TFC54	UL_TFC12	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: No data
				DL_TFC57,	UL_TFC12,	RB6: 103	RB6: No data
				UL_TFC0,	UL_TFC15,	RB7: 60	RB7: No data
				UL_TFC15	UL_TFC27	RB8:	RB8:
		D. TEO.	====	DI TEOS		<u>40952</u> 41984	<u>40952</u> 41984
	55	DL_TFC55	UL_TFC13	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: 39
				DL_TFC57,	UL_TFC13,	RB6: 103	RB6: No data
				UL_TFC0,	UL_TFC15,	RB7: 60	RB7: No data
إر				UL_TFC15	UL_TFC28	RB8:	RB8:
Ц	50	DI TEOFO	III TEO44	DI TEOO	LII TEOO	4095241984	4095241984
	56	DL_TFC56	UL_TFC14	DL_TFC0,	UL_TFC0,	RB5: 81	RB5: 81
				DL_TFC57,	UL_TFC14,	RB6: 103	RB6: 103
				UL_TFC0,	UL_TFC15,	RB7: 60	RB7: 60
ار				UL_TFC15	UL_TFC29	RB8:	RB8:
Ц	NOTE	Co. TC 04	400 [40] al		:	4095241984	<u>40952</u> 4 1984
Į	NOTE:	See 15 34	. 109 [10] claus	se 5.3.2.6.2 for deta	ils regarding loopback	OF KLC SDUS.	

14.2.44.2.4 Test requirements

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be
 - for sub-test 1: RB5/TF1 (1x39).
 - for sub-test 2: RB5/TF2 (1x81); RB6/TF1 (1x103); and RB7/TF1 (1x60).
 - for sub-test 3: RB8/TF1 (1x336)
 - for sub-test 4: RB5/TF1 (1x39) and RB8/TF1 (1x336).
 - for sub-test 5: RB5/TF2 (1x81); RB6/TF1 (1x103); RB7/TF1 (1x60); and RB8/TF1 (1x336).
 - for sub-test 6: RB8/TF2 (2x336)
 - for sub-test 7: RB5/TF1 (1x39) and RB8/TF2 (2x336).
 - for sub-test 8: RB5/TF2 (1x81); RB6/TF1 (1x103); RB7/TF1 (1x60); and RB8/TF2 (2x336).

- for sub-test 9: RB8/TF3 (4x336)
- for sub-test 10: RB5/TF1 (1x39) and RB8/TF3 (4x336).
- for sub-test 11: RB5/TF2 (1x81); RB6/TF1 (1x103); RB7/TF1 (1x60); and RB8/TF3 (4x336).
- for sub-test 12,15,18,21,24,27,30,33,36,39,42: RB8/TF4 (8x336)
- for sub-test 13,16,19,22,25,28,31,34,37,40,43: RB5/TF1 (1x39) and RB8/TF4 (8x336).
- for sub-test 14,17,20,23,26,29,32,35,38,41,44: RB5/TF2 (1x81); RB6/TF1 (1x103); RB7/TF1 (1x60); and RB8/TF4 (8x336).

3. At step 15 the UE shall return

- for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6, RB7 and RB8.
- for sub-test 2: an RLC SDU on RB5, RB6 and RB7 having the same content as sent by SS; and no data shall be received on RB8.
- for sub-test 3, 6, 9, 12, 15, 18, 21, 24, 27, 30, 33, 36, 39, 42: an RLC SDU on RB8 having the same content as sent by SS; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 4, 7, 10, 13, 16, 19, 22, 25, 28, 31, 34, 37, 40, 43: an RLC SDU on RB5 and RB8 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 5, 8, 11, 14, 17, 20, 23, 26, 29, 32, 35, 38, 41, 44: an RLC SDU on RB5, RB6, RB7 and RB8 having the same content as sent by SS.

14.2.45 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Streaming / unknown / UL:57.6 DL:57.6 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.2.45.1 Conformance requirement

See 14.2.4.1.

14.2.45.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.45.

14.2.45.3 Method of test

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (57.6 kbps)	DCCH
	TF0, bits	0x81(alt. 1x0)	0x103	0x60	0x576	0x148
	TF1, bits	1x39	1x103	1x60	1x576	1x148
TFS	TF2, bits	1x81	N/A	N/A	2x576	N/A
	TF3, bits	N/A	N/A	N/A	3x576	N/A
	TF4, bits	N/A	N/A	N/A	4x576	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0, TF0)
UL_TFC3	(TF0, TF0, TF1, TF0)
UL_TFC4	(TF1, TF0, TF0, TF1, TF0)
UL_TFC5	(TF2, TF1, TF1, TF0)
UL_TFC6	(TF0, TF0, TF0, TF2, TF0)
UL_TFC7	(TF1, TF0, TF0, TF2, TF0)
UL_TFC8	(TF2, TF1, TF1, TF2, TF0)
UL_TFC9	(TF0, TF0, TF0, TF3, TF0)
UL_TFC10	(TF1, TF0, TF0, TF3, TF0)
UL_TFC11	(TF2, TF1, TF1, TF3, TF0)
UL_TFC12	(TF0, TF0, TF4, TF0)
UL_TFC13	(TF1, TF0, TF0, TF4, TF0)
UL_TFC14	(TF2, TF1, TF1, TF4, TF0)
UL_TFC15	(TF0, TF0, TF0, TF1)
UL_TFC16	(TF1, TF0, TF0, TF1)
UL_TFC17	(TF2, TF1, TF1, TF0, TF1)
UL_TFC18	(TF0, TF0, TF1, TF1)
UL_TFC19	(TF1, TF0, TF0, TF1, TF1)
UL_TFC20	(TF2, TF1, TF1, TF1)
UL_TFC21	(TF0, TF0, TF0, TF1)
UL_TFC22	(TF1, TF0, TF0, TF2, TF1)
UL_TFC23	(TF2, TF1, TF1, TF2, TF1)
UL_TFC24	(TF0, TF0, TF3, TF1)
UL_TFC25	(TF1, TF0, TF0, TF3, TF1)
UL_TFC26	(TF2, TF1, TF1, TF3, TF1)
UL_TFC27	(TF0, TF0, TF0, TF4, TF1)
UL_TFC28	(TF1, TF0, TF0, TF4, TF1)
UL_TFC29	(TF2, TF1, TF1, TF4, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (57.6 kbps)	DCCH
	TF0, bits	1x0	0x103	0x60	0x576	0x148
	TF1, bits	1x39	1x103	1x60	1x576	1x148
TFS	TF2, bits	1x81	N/A	N/A	2x576	N/A
	TF3, bits	N/A	N/A	N/A	3x576	N/A
	TF4, bits	N/A	N/A	N/A	4x576	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1, TF0)
DL_TFC4	(TF1, TF0, TF0, TF1, TF0)
DL_TFC5	(TF2, TF1, TF1, TF0)
DL_TFC6	(TF0, TF0, TF0, TF2, TF0)
DL_TFC7	(TF1, TF0, TF0, TF2, TF0)
DL_TFC8	(TF2, TF1, TF1, TF2, TF0)
DL_TFC9	(TF0, TF0, TF0, TF3, TF0)
DL_TFC10	(TF1, TF0, TF0, TF3, TF0)
DL_TFC11	(TF2, TF1, TF1, TF3, TF0)
DL_TFC12	(TF0, TF0, TF0, TF4, TF0)
DL_TFC13	(TF1, TF0, TF0, TF4, TF0)
DL_TFC14	(TF2, TF1, TF1, TF4, TF0)
DL_TFC15	(TF0, TF0, TF0, TF1)
DL_TFC16	(TF1, TF0, TF0, TF1)
DL_TFC17	(TF2, TF1, TF1, TF0, TF1)
DL_TFC18	(TF0, TF0, TF1, TF1)
DL_TFC19	(TF1, TF0, TF0, TF1, TF1)
DL_TFC20	(TF2, TF1, TF1, TF1)
DL_TFC21	(TF0, TF0, TF0, TF1)
DL_TFC22	(TF1, TF0, TF0, TF2, TF1)
DL_TFC23	(TF2, TF1, TF1, TF2, TF1)
DL_TFC24	(TF0, TF0, TF0, TF3, TF1)
DL_TFC25	(TF1, TF0, TF0, TF3, TF1)
DL_TFC26	(TF2, TF1, TF1, TF3, TF1)
DL_TFC27	(TF0, TF0, TF0, TF4, TF1)
DL_TFC28	(TF1, TF0, TF0, TF4, TF1)
DL_TFC29	(TF2, TF1, TF1, TF4, TF1)

Sub- test	Downlink TFCS	Uplink TFCS	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size	Test data size (bits)
	Under Test	Under test			(bits) (note)	(note)
1	DL_TFC1	UL_TFC1	DL TFC0,	UL_TFC0,	RB5: 39	RB5: 39
·	52 0.	02	DL_TFC15,	UL_TFC1,	RB6: 103	RB6: No data
			UL_TFC0,	UL_TFC15,	RB7: 60	RB7: No data
			UL_TFC15	UL_TFC16	RB8: 576	RB8: No data
2	DL_TFC2	UL_TFC2	DL_TFC0,	UL_TFC0,	RB5: 81	RB5: 81
_	52 62	02 02	DL_TFC15,	UL_TFC2,	RB6: 103	RB6: 103
			UL_TFC0,	UL_TFC15,	RB7: 60	RB7: 60
			UL_TFC15	UL_TFC17	RB8: 576	RB8: No data
3	DL_TFC3	UL TFC3	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: No data
		0 00	DL_TFC15,	UL_TFC3,	RB6: 103	RB6: No data
			UL_TFC0,	UL_TFC15,	RB7: 60	RB7: No data
			UL_TFC15	UL_TFC18	RB8: 576	RB8: 336
4	DL_TFC4	UL_TFC4	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: 39
			DL_TFC15, ,	UL_TFC4,	RB6: 103	RB6: No data
			UL_TFC0,	UL_TFC15,	RB7: 60	RB7: No data
			UL_TFC15	UL_TFC19	RB8: 576	RB8: 576
5	DL_TFC5	UL_TFC5	DL_TFC0,	UL_TFC0,	RB5: 81	RB5: 81
-	:		DL_TFC15,	UL_TFC5,	RB6: 103	RB6: 103
			UL_TFC0,	UL_TFC15,	RB7: 60	RB7: 60
			UL_TFC15	UL_TFC20	RB8: 576	RB8: 576
6	DL_TFC6	UL_TFC6	DL_TFC0,	UL TFC0.	RB5: 39	RB5: No data
		0	DL_TFC15,	UL_TFC6,	RB6: 103	RB6: No data
			UL_TFC0,	UL_TFC15,	RB7: 60	RB7: No data
			UL_TFC15	UL_TFC21	RB8: 1152	RB8: 1152
7	DL_TFC7	UL_TFC7	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: 39
		_	DL_TFC15,	UL_TFC7,	RB6: 103	RB6: No data
			UL_TFC0,	UL_TFC15,	RB7: 60	RB7: No data
			UL_TFC15	UL_TFC22	RB8: 1152	RB8: 1152
8	DL_TFC8	UL_TFC8	DL_TFC0,	UL_TFC0,	RB5: 81	RB5: 81
		_	DL_TFC15,	UL_TFC8,	RB6: 103	RB6: 103
			UL_TFC0,	UL_TFC15,	RB7: 60	RB7: 60
			UL_TFC15	UL_TFC23	RB8: 1152	RB8: 1152
9	DL_TFC9	UL_TFC9	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: No data
			DL_TFC15,	UL_TFC9,	RB6: 103	RB6: No data
			UL_TFC0,	UL_TFC15,	RB7: 60	RB7: No data
			UL_TFC15	UL_TFC24	RB8: 1728	RB8: 1728
10	DL_TFC10	UL_TFC10	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: 39
			DL_TFC15,	UL_TFC10,	RB6: 103	RB6: No data
			UL_TFC0,	UL_TFC15,	RB7: 60	RB7: No data
			UL_TFC15	UL_TFC25	RB8: 1728	RB8: 1728
11	DL_TFC11	UL_TFC11	DL_TFC0,	UL_TFC0,	RB5: 81	RB5: 81
			DL_TFC15,	UL_TFC11,	RB6: 103	RB6: 103
			UL_TFC0,	UL_TFC15,	RB7: 60	RB7: 60
			UL_TFC15	UL_TFC26	RB8: 1728	RB8: 1728
12	DL_TFC12	UL_TFC12	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: No data
			DL_TFC15,	UL_TFC12,	RB6: 103	RB6: No data
			UL_TFC0,	UL_TFC15,	RB7: 60	RB7: No data
ļ			UL_TFC15	UL_TFC26	RB8: 2304	RB8: 2304
13	DL_TFC13	UL_TFC13	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: 39
			DL_TFC15,	UL_TFC13,	RB6: 103	RB6: No data
			UL_TFC0,	UL_TFC15,	RB7: 60	RB7: No data
			UL_TFC15	UL_TFC27	RB8: 2304	RB8: 2304
14	DL_TFC14	UL_TFC14	DL_TFC0,	UL_TFC0,	RB5: 81	RB5: 81
			DL_TFC15,	UL_TFC14,	RB6: 103	RB6: 103
			UL_TFC0,	UL_TFC15,	RB7: 60	RB7: 60
			UL_TFC15	UL_TFC29	RB8: 2304	RB8: 2304
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 14.1.1 for test procedure.

14.2.45.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be
 - for sub-test 1: RB5/TF1 (1x39).
 - for sub-test 2: RB5/TF2 (1x81); RB6/TF1 (1x103); and RB7/TF1 (1x60).
 - for sub-test 3: RB8/TF1 (1x576)
 - for sub-test 4: RB5/TF1 (1x39) and RB8/TF1 (1x576).
 - for sub-test 5: RB5/TF2 (1x81); RB6/TF1 (1x103); RB7/TF1 (1x60); and RB8/TF1 (1x576).
 - for sub-test 6: RB8/TF2 (2x576)
 - for sub-test 7: RB5/TF1 (1x39) and RB8/TF2 (2x576).
 - for sub-test 8: RB5/TF2 (1x81); RB6/TF1 (1x103); RB7/TF1 (1x60); and RB8/TF2 (2x576).
 - for sub-test 9: RB8/TF2 (3x576)
 - for sub-test 10: RB5/TF1 (1x39) and RB8/TF3 (3x576).
 - for sub-test 11: RB5/TF2 (1x81); RB6/TF1 (1x103); RB7/TF1 (1x60); and RB8/TF3 (3x576).
 - for sub-test 12: RB8/TF2 (4x576)
 - for sub-test 13: RB5/TF1 (1x39) and RB8/TF4 (4x576).
 - for sub-test 14: RB5/TF2 (1x81); RB6/TF1 (1x103); RB7/TF1 (1x60); and RB8/TF4 (4x576).
- 3. At step 15 the UE shall return
 - for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6, RB7 and RB8.
 - for sub-test 2: an RLC SDU on RB5, RB6 and RB7 having the same content as sent by SS; and no data shall be received on RB8.
 - for sub-test 3, 6, 9 and 12: an RLC SDU on RB8 having the same content as sent by SS; and no data shall be received on RB5, RB6 and RB7.
 - for sub-test 4, 7, 10 and 13: an RLC SDU on RB5 and RB8 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
 - for sub-test 5, 8, 11 and 14: an RLC SDU on RB5, RB6, RB7 and RB8 having the same content as sent by SS.

14.2.46 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Streaming / unknown / UL:0 DL:64 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.2.46.1 Conformance requirement

See 14.2.4.1.

14.2.46.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.46.

To be able to test the downlink radio bearer using the UE loopback function for the reference radio bearer UL:0 DL: 64 kbps,, the reference radio bearer configuration according to TS 34.108, clause 6.10.2.4.1.15.1 (Streaming/unknown/UL:14.4 kbps) is used in uplink.

14.2.46.3 Method of test

Uplink TFS:

	TFI	RB5	RB6	RB7	RB8	DCCH
		(RAB subflow #1)	(RAB subflow #2)	(RAB subflow #3)	(14.4 kbps)	
	TF0, bits	0x81(alt. 1x0)	0x103	0x60	0x576	0x148
TFS	TF1, bits	1x39	1x103	1x60	1x576	1x148
	TF2, bits	1x81	N/A	N/A	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1, TF0)
UL_TFC4	(TF1, TF0, TF0, TF1, TF0)
UL_TFC5	(TF2, TF1, TF1, TF0)
UL_TFC6	(TF0, TF0, TF0, TF1)
UL_TFC7	(TF1, TF0, TF0, TF1)
UL_TFC8	(TF2, TF1, TF1, TF0, TF1)
UL_TFC9	(TF0, TF0, TF1, TF1)
UL_TFC10	(TF1, TF0, TF0, TF1, TF1)
UL_TFC11	(TF2, TF1, TF1, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (64 kbps)	DCCH
	TF0, bits	1x0	0x103	0x60	0x320	0x148
	TF1, bits	1x39	1x103	1x60	1x320	1x148
TFS	TF2, bits	1x81	N/A	N/A	2x320	N/A
	TF3, bits	N/A	N/A	N/A	4x320	N/A
	TF4, bits	N/A	N/A	N/A	8x320	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1, TF0)
DL_TFC4	(TF1, TF0, TF0, TF1, TF0)
DL_TFC5	(TF2, TF1, TF1, TF0)
DL_TFC6	(TF0, TF0, TF0, TF2, TF0)
DL_TFC7	(TF1, TF0, TF0, TF2, TF0)
DL_TFC8	(TF2, TF1, TF1, TF2, TF0)
DL_TFC9	(TF0, TF0, TF0, TF3, TF0)
DL_TFC10	(TF1, TF0, TF0, TF3, TF0)
DL_TFC11	(TF2, TF1, TF1, TF3, TF0)
DL_TFC12	(TF0, TF0, TF0, TF4, TF0)
DL_TFC13	(TF1, TF0, TF0, TF4, TF0)
DL_TFC14	(TF2, TF1, TF1, TF4, TF0)
DL_TFC15	(TF0, TF0, TF0, TF1)
DL_TFC16	(TF1, TF0, TF0, TF1)
DL_TFC17	(TF2, TF1, TF1, TF0, TF1)
DL_TFC18	(TF0, TF0, TF1, TF1)
DL_TFC19	(TF1, TF0, TF0, TF1, TF1)
DL_TFC20	(TF2, TF1, TF1, TF1)
DL_TFC21	(TF0, TF0, TF0, TF1)
DL_TFC22	(TF1, TF0, TF0, TF2, TF1)
DL_TFC23	(TF2, TF1, TF1, TF2, TF1)
DL_TFC24	(TF0, TF0, TF3, TF1)
DL_TFC25	(TF1, TF0, TF0, TF3, TF1)
DL_TFC26	(TF2, TF1, TF1, TF3, TF1)
DL_TFC27	(TF0, TF0, TF4, TF1)
DL_TFC28	(TF1, TF0, TF0, TF4, TF1)
DL_TFC29	(TF2, TF1, TF1, TF4, TF1)

Sub- test	Downlink TFCS Under	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (bits)	Test data size (bits)
	Test				(note 1)	(note 1)
1	DL_TFC1	UL_TFC1	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: 39
			DL_TFC15,	UL_TFC1,	RB6: 103	RB6: No data
			UL_TFC0,	UL_TFC6,	RB7: 60	RB7: No data
	DI TEOO	UL_TFC2	UL_TFC6	UL_TFC7	RB8: 576	RB8: No data
2	DL_TFC2	UL_IFC2	DL_TFC0, DL_TFC15,	UL_TFC0, UL_TFC2,	RB5: 81 RB6: 103	RB5: 81 RB6: 103
			UL_TFC15,	UL_TFC6,	RB7: 60	RB7: 60
			UL_TFC6	UL_TFC8	RB8: 576	RB8: No data
3	DL_TFC3	UL_TFC3	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: No data
	_	_	DL_TFC15,	UL_TFC3,	RB6: 103	RB6: No data
			UL_TFC0,	UL_TFC6,	RB7: 60	RB7: No data
			UL_TFC6	UL_TFC9	RB8: 576	RB8: 320
						(note 2)
4	DL_TFC4	UL_TFC4	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: 39
			DL_TFC15,	UL_TFC4,	RB6: 103 RB7: 60	RB6: No data
			UL_TFC0, UL_TFC6	UL_TFC6, UL_TFC10	RB8: 576	RB7: No data RB8: 320
			OL_II CO		ND0. 370	(note 2)
5	DL_TFC5	UL_TFC5	DL TFC0,	UL_TFC0,	RB5: 81	RB5: 81
			DL_TFC15,	UL_TFC5,	RB6: 103	RB6: 103
			UL_TFC0,	UL_TFC6,	RB7: 60	RB7: 60
			UL_TFC6	UL_TFC11	RB8: 576	RB8: 320
						(note 2)
6	DL_TFC6	UL_TFC3	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: No data
			DL_TFC15,	UL_TFC3,	RB6: 103	RB6: No data
			UL_TFC0, UL_TFC6	UL_TFC6, UL_TFC9	RB7: 60 RB8:	RB7: No data RB8: 640
			OL_IFC0	OL_IFO9	576 1152	(note 3)
7	DL_TFC7	UL_TFC4	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: 39
			DL_TFC15,	UL_TFC4,	RB6: 103	RB6: No data
			UL_TFC0,	UL_TFC6,	RB7: 60	RB7: No data
			UL_TFC6	UL_TFC10	RB8:	RB8: 640
	5. ==6.	=====	D	=====	<u>576</u> 1152	(note 3)
8	DL_TFC8	UL_TFC5	DL_TFC0,	UL_TFC0,	RB5: 81	RB5: 81
			DL_TFC15, UL_TFC0,	UL_TFC5, UL_TFC6,	RB6: 103 RB7: 60	RB6: 103 RB7: 60
			UL_TFC6	UL_TFC11	RB8:	RB8: 640
			02_11 00	02_11 011	576 1152	(note 3)
9	DL_TFC9	UL_TFC3	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: No data
			DL_TFC15,	UL_TFC3,	RB6: 103	RB6: No data
			UL_TFC0,	UL_TFC6,	RB7: 60	RB7: No data
.			UL_TFC6	UL_TFC9	RB8:	RB8: 1280
10	DI TECAO	UL_TFC4	DI TECO	UL TFC0,	576 1728	(note 4)
10	DL_TFC10	UL_IFC4	DL_TFC0, DL_TFC15,	UL_TFC0, UL_TFC4,	RB5: 39 RB6: 103	RB5: 39 RB6: No data
			UL_TFC15,	UL_TFC6,	RB7: 60	RB7: No data
			UL_TFC6	UL_TFC10	RB8:	RB8: 1280
					576 1728	(note 4)
11	DL_TFC11	UL_TFC5	DL_TFC0,	UL_TFC0,	RB5: 81	RB5: 81
			DL_TFC15,	UL_TFC5,	RB6: 103	RB6: 103
			UL_TFC0,	UL_TFC6,	RB7: 60	RB7: 60
 			UL_TFC6	UL_TFC11	RB8:	RB8: 1280
12	DL_TFC12	UL_TFC3	DI TECO	III TECO	5761728	(note 4)
12	DL_IFU12	UL_IFU3	DL_TFC0, DL_TFC15,	UL_TFC0, UL_TFC3,	RB5: 39 RB6: 103	RB5: No data RB6: No data
			UL_TFC15,	UL_TFC6,	RB7: 60	RB7: No data
			UL_TFC6	UL_TFC9	RB8:	RB8: 2560
					576 2880	(note 5)
		•	•			. , -,

	Sub- test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note 1)	Test data size (bits)
1	13	DL_TFC13	UL_TFC4	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC4, UL_TFC6, UL_TFC10	RB5: 39 RB6: 103 RB7: 60 RB8: 5762880	RB5: 39 RB6: No data RB7: No data RB8: 2560 (note 5)
	14	DL_TFC14	UL_TFC5	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC5, UL_TFC6, UL_TFC11	RB5: 81 RB6: 103 RB7: 60 RB8: 5762880	RB5: 81 RB6: 103 RB7: 60 RB8: 2560 (note 5)

- NOTE 1: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
- NOTE 2: RB8: SS is using a DL RLC SDU with 320 bits as test data (=DL RLC PDU size for DL/TF1). UE will return one RLC PDU. SS creates an UL RLC SDU from the first 320 bits of the received RLC PDU.
- NOTE 3: RB8: SS is using a DL RLC SDU size of 640 bits as test data (=DL RLC PDU size for DL/TF2). UE will return onetwo RLC PDUs. SS creates an UL RLC SDU from the received RLC PDUby concatenating RLC PDU#1 and the first 64 bits of RLC PDU#2.
- NOTE 4: RB8: SS is using a DL RLC SDU size of 1280 bits as test data (=DL RLC PDU size for DL/TF3). UE will return onethree RLC PDUs. SS creates an UL RLC SDU from the received RLC PDUby concatenating RLC PDU#1, RLC PDU#2 and the first 128 bits of RLC PDU#3.
- NOTE 5: RB8: SS is using a DL RLC SDU size of 2560 bits as test data (=DL RLC PDU size for DL/TF4). UE will return one five RLC PDUs. SS creates an UL RLC SDU from the received RLC PDUby concatenating RLC PDU#1, RLC PDU#2, RLC PDU#3, RLC PDU#4 and the first 256 bits of RLC PDU#5.

14.2.46.4 Test requirements

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be
 - for sub-test 1, 4, 7, 10 and 13: RB5/TF1 (1x39).
 - for sub-test 2, 5, 8, 11 and 14: RB5/TF2 (1x81); RB6/TF1 (1x103); and RB7/TF1 (1x60).
- 3. At step 15 the UE shall return
 - for sub-test 3, 6, 9 and 12: no data on RB5, RB6 and RB7.
 - for sub-test 1, 4, 7, 10 and 13: an RLC SDU on RB5 having the same content as sent by the SS; and no data shall be received on RB6 or RB7.
 - for sub-test 2, 5, 8, 11 and 14: an RLC SDU on each of RB5, RB6 and RB7 having the same content as sent by the SS.
 - for sub-test 1 to 2: no data on RB8.
 - for sub-test 3 to 514: an RLC SDU on RB8 having the same content as sent by the SS.
 - for sub-test 6 to 14: an RLC SDU on RB5 having the same content as the first 576 bits of the RLC SDU sent by the SS.

14.2.47 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Streaming / unknown / UL:0 DL:128 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.2.47.1 Conformance requirement

See 14.2.4.1.

14.2.47.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.47.

To be able to test the downlink radio bearer using the UE loopback function for the reference radio bearer UL:0 DL: 128 kbps, the reference radio bearer configuration according to TS 34.108, clause 6.10.2.4.1.15.1 (Streaming/unknown/UL:14.4 kbps) is used in uplink.

14.2.47.3 Method of test

Uplink TFS:

		TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (14.4 kbps)	DCCH
		TF0, bits	0x81(alt. 1x0)	0x103	0x60	0x576	0x148
	TFS	TF1, bits	1x39	1x103	1x60	1x576	1x148
		TF2, bits	1x81	N/A	N/A	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1, TF0)
UL_TFC4	(TF1, TF0, TF0, TF1, TF0)
UL_TFC5	(TF2, TF1, TF1, TF0)
UL_TFC6	(TF0, TF0, TF0, TF1)
UL_TFC7	(TF1, TF0, TF0, TF1)
UL_TFC8	(TF2, TF1, TF1, TF0, TF1)
UL_TFC9	(TF0, TF0, TF1, TF1)
UL_TFC10	(TF1, TF0, TF0, TF1, TF1)
UL_TFC11	(TF2, TF1, TF1, TF1, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (128 kbps)	DCCH
	TF0, bits	1x0	0x103	0x60	0x320	0x148
	TF1, bits	1x39	1x103	1x60	1x320	1x148
TFS	TF2, bits	1x81	N/A	N/A	2x320	N/A
113	TF3, bits	N/A	N/A	N/A	4x320	N/A
	TF4, bits	N/A	N/A	N/A	8x320	N/A
	TF5, bits	N/A	N/A	N/A	16x320	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1, TF0)
DL_TFC4	(TF1, TF0, TF0, TF1, TF0)
DL_TFC5	(TF2, TF1, TF1, TF0)
DL_TFC6	(TF0, TF0, TF0, TF2, TF0)
DL_TFC7	(TF1, TF0, TF0, TF2, TF0)
DL_TFC8	(TF2, TF1, TF1, TF2, TF0)
DL_TFC9	(TF0, TF0, TF0, TF3, TF0)
DL_TFC10	(TF1, TF0, TF0, TF3, TF0)
DL_TFC11	(TF2, TF1, TF1, TF3, TF0)
DL_TFC12	(TF0, TF0, TF0, TF4, TF0)
DL_TFC13	(TF1, TF0, TF0, TF4, TF0)
DL_TFC14	(TF2, TF1, TF1, TF4, TF0)
DL_TFC15	(TF0, TF0, TF0, TF5, TF0)
DL_TFC16	(TF1, TF0, TF0, TF5, TF0)
DL_TFC17	(TF2, TF1, TF1, TF5, TF0)
DL_TFC18	(TF0, TF0, TF0, TF1)
DL_TFC19	(TF1, TF0, TF0, TF1)
DL_TFC20	(TF2, TF1, TF1, TF0, TF1)
DL_TFC21	(TF0, TF0, TF1, TF1)
DL_TFC22	(TF1, TF0, TF0, TF1, TF1)
DL_TFC23	(TF2, TF1, TF1, TF1)
DL_TFC24	(TF0, TF0, TF0, TF2, TF1)
DL_TFC25	(TF1, TF0, TF0, TF2, TF1)
DL_TFC26	(TF2, TF1, TF1, TF2, TF1)
DL_TFC27	(TF0, TF0, TF0, TF3, TF1)
DL_TFC28	(TF1, TF0, TF0, TF3, TF1)
DL_TFC29	(TF2, TF1, TF1, TF3, TF1)
DL_TFC30	(TF0, TF0, TF0, TF4, TF1)
DL_TFC31	(TF1, TF0, TF0, TF4, TF1)
DL_TFC32	(TF2, TF1, TF1, TF4, TF1)
DL_TFC33	(TF0, TF0, TF5, TF1)
DL_TFC34	(TF1, TF0, TF0, TF5, TF1)
DL_TFC35	(TF2, TF1, TF1, TF5, TF1)

Sub- test	Downlink TFCS Under	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (bits)	Test data size (bits)
1	Test DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC18, UL_TFC0,	UL_TFC0, UL_TFC1, UL_TFC6,	(note 1) RB5: 39 RB6: 103 RB7: 60	(note 1) RB5: 39 RB6: No data RB7: No data
2	DL_TFC2	UL_TFC2	UL_TFC6 DL_TFC0, DL_TFC18, UL_TFC0, UL_TFC6	UL_TFC7 UL_TFC0, UL_TFC2, UL_TFC6, UL_TFC8	RB8: 576 RB5: 81 RB6: 103 RB7: 60 RB8: 576	RB8: No data RB5: 81 RB6: 103 RB7: 60 RB8: No data
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC18, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC3, UL_TFC6, UL_TFC9	RB5: 39 RB6: 103 RB7: 60 RB8: 576	RB5: No data RB6: No data RB7: No data RB8: 320 (note 2)
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC18, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC4, UL_TFC6, UL_TFC10	RB5: 39 RB6: 103 RB7: 60 RB8: 576	RB5: 39 RB6: No data RB7: No data RB8: 320 (note 2)
5	DL_TFC5	UL_TFC5	DL_TFC0, DL_TFC18, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC5, UL_TFC6, UL_TFC11	RB5: 81 RB6: 103 RB7: 60 RB8: 576	RB5: 81 RB6: 103 RB7: 60 RB8: 320 (note 2)
6	DL_TFC6	UL_TFC3	DL_TFC0, DL_TFC18, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC3, UL_TFC6, UL_TFC9	RB5: 39 RB6: 103 RB7: 60 RB8: <u>576</u> 1152	RB5: No data RB6: No data RB7: No data RB8: 640 (note 3)
7	DL_TFC7	UL_TFC4	DL_TFC0, DL_TFC18, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC4, UL_TFC6, UL_TFC10	RB5: 39 RB6: 103 RB7: 60 RB8: <u>576</u> 1152	RB5: 39 RB6: No data RB7: No data RB8: 640 (note 3)
8	DL_TFC8	UL_TFC5	DL_TFC0, DL_TFC18, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC5, UL_TFC6, UL_TFC11	RB5: 81 RB6: 103 RB7: 60 RB8: <u>576</u> 1152	RB5: 81 RB6: 103 RB7: 60 RB8: 640 (note 3)
9	DL_TFC9	UL_TFC3	DL_TFC0, DL_TFC18, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC3, UL_TFC6, UL_TFC9	RB5: 39 RB6: 103 RB7: 60 RB8: <u>576</u> 1728	RB5: No data RB6: No data RB7: No data RB8: 1280 (note 4)
10	DL_TFC10	UL_TFC4	DL_TFC0, DL_TFC18, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC4, UL_TFC6, UL_TFC10	RB5: 39 RB6: 103 RB7: 60 RB8: <u>576</u> 1728	RB5: 39 RB6: No data RB7: No data RB8: 1280 (note 4)
11	DL_TFC11	UL_TFC5	DL_TFC0, DL_TFC18, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC5, UL_TFC6, UL_TFC11	RB5: 81 RB6: 103 RB7: 60 RB8: <u>576</u> 4728	RB5: 81 RB6: 103 RB7: 60 RB8: 1280 (note 4)
12	DL_TFC12	UL_TFC3	DL_TFC0, DL_TFC18, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC3, UL_TFC6, UL_TFC9	RB5: 39 RB6: 103 RB7: 60 RB8: <u>5762880</u>	RB5: No data RB6: No data RB7: No data RB8: 2560 (note 5)

	Sub- test	Downlink TFCS Under	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (bits)	Test data size (bits)
		Test	Officer test			(note 1)	(note 1)
I	13	DL_TFC13	UL_TFC4	DL_TFC0, DL_TFC18, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC4, UL_TFC6, UL_TFC10	RB5: 39 RB6: 103 RB7: 60 RB8: <u>576</u> 2880	RB5: 39 RB6: No data RB7: No data RB8: 2560 (note 5)
ĺ	14	DL_TFC14	UL_TFC5	DL_TFC0, DL_TFC18, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC5, UL_TFC6, UL_TFC11	RB5: 81 RB6: 103 RB7: 60 RB8: <u>576</u> 2880	RB5: 81 RB6: 103 RB7: 60 RB8: 2560 (note 5)
	15	DL_TFC15	UL_TFC3	DL_TFC0, DL_TFC18, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC3, UL_TFC6, UL_TFC9	RB5: 39 RB6: 103 RB7: 60 RB8: <u>576</u> 5184	RB5: No data RB6: No data RB7: No data RB8: 5120 (note 6)
1	16	DL_TFC16	UL_TFC4	DL_TFC0, DL_TFC18, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC4, UL_TFC6, UL_TFC10	RB5: 39 RB6: 103 RB7: 60 RB8: <u>576</u> 5184	RB5: 39 RB6: No data RB7: No data RB8: 5120 (note 6)
ĺ	17	DL_TFC17	UL_TFC5	DL_TFC0, DL_TFC18, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC5, UL_TFC6, UL_TFC11	RB5: 81 RB6: 103 RB7: 60 RB8: <u>576</u> 5184	RB5: 81 RB6: 103 RB7: 60 RB8: 5120 (note 6)

- NOTE 1: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
- NOTE 2: RB8: SS is using a DL RLC SDU with 320 bits as test data (=DL RLC PDU size for DL/TF1). UE will return 1 RLC PDU. SS creates an UL RLC SDU from the first 320 bits of the received RLC PDU.
- NOTE 3: RB8: SS is using a DL RLC SDU size of 640 bits as test data (=DL RLC PDU size for DL/TF2). UE will return one2 RLC PDUs. SS creates an UL RLC SDU from the received RLC PDUby concatenating RLC PDU#1 and the first 64 bits of RLC PDU#2.
- NOTE 4: RB8: SS is using a DL RLC SDU size of 1280 bits as test data (=DL RLC PDU size for DL/TF3). UE will return one3 RLC PDUs. SS creates an UL RLC SDU from the received RLC PDUby concatenating RLC PDU#1, RLC PDU#2 and the first 128 bits of RLC PDU#3.
- NOTE 5: RB8: SS is using a DL RLC SDU size of 2560 bits as test data (=DL RLC PDU size for DL/TF4). UE will return one5 RLC PDUs. SS creates an UL RLC SDU from the received RLC PDUby concatenating RLC PDU#1, RLC PDU#2, RLC PDU#3, RLC PDU#4 and the first 256 bits of RLC PDU#5.
- NOTE 6: RB8: SS is using a DL RLC SDU size of 5120 bits as test data (=DL RLC PDU size for DL/TF5). UE will return one9 RLC PDUs. SS creates an UL RLC SDU from the received RLC PDUby concatenating RLC PDU#1, RLC PDU#2, ..., RLC PDU#8 and the first 512 bits of RLC PDU#9.

14.2.47.4 Test requirements

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be
 - for sub-test 1, 4, 7, 10, 13 and 16: RB5/TF1 (1x39).
 - for sub-test 2, 5, 8, 11, 14 and 17: RB5/TF2 (1x81); RB6/TF1 (1x103); and RB7/TF1 (1x60).
- 3. At step 15 the UE shall return
 - for sub-test 3, 6, 9, 12 and 15: no data on RB5, RB6 and RB7.
 - for sub-test 1, 4, 7, 10, 13 and 16: an RLC SDU on RB5 having the same content as sent by the SS; and no data shall be received on RB6 or RB7.

- for sub-test 2, 5, 8, 11, 14 and 17: an RLC SDU on each of RB5, RB6 and RB7 having the same content as sent by the SS.
- for sub-test 1 to 2: no data on RB8.
- for sub-test 3 to 517: an RLC SDU on RB8 having the same content as sent by the SS.
- for sub-test 6 to 17: an RLC SDU on RB5 having the same content as the first 576 bits of the RLC SDU sent by the SS.

14.2.48 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Streaming / unknown / UL:0 DL:384 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.2.48.1 Conformance requirement

See 14.2.4.1.

14.2.48.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.48.

To be able to test the downlink radio bearer using the UE loopback function for the reference radio bearer UL:0 DL: 384 kbps,, the reference radio bearer configuration according to TS 34.108, clause 6.10.2.4.1.15.1 (Streaming/unknown/UL:14.4 kbps) is used in uplink.

14.2.48.3 Method of test

Uplink TFS:

	TFI	RB5	RB6	RB7	RB8	DCCH
		(RAB subflow #1)	(RAB subflow #2)	(RAB subflow #3)	(14.4 kbps)	
	TF0, bits	0x81(alt. 1x0)	0x103	0x60	0x576	0x148
TFS	TF1, bits	1x39	1x103	1x60	1x576	1x148
	TF2, bits	1x81	N/A	N/A	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0, TF0)
UL_TFC3	(TF0, TF0, TF1, TF0)
UL_TFC4	(TF1, TF0, TF0, TF1, TF0)
UL_TFC5	(TF2, TF1, TF1, TF1, TF0)
UL_TFC6	(TF0, TF0, TF0, TF1)
UL_TFC7	(TF1, TF0, TF0, TF1)
UL_TFC8	(TF2, TF1, TF1, TF0, TF1)
UL_TFC9	(TF0, TF0, TF0, TF1, TF1)
UL_TFC10	(TF1, TF0, TF0, TF1, TF1)
UL TFC11	(TF2, TF1, TF1, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (128 kbps)	DCCH
	TF0, bits	1x0	0x103	0x60	0x320	0x148
	TF1, bits	1x39	1x103	1x60	1x320	1x148
	TF2, bits	1x81	N/A	N/A	2x320	N/A
TFS	TF3, bits	N/A	N/A	N/A	4x320	N/A
1173	TF4, bits	N/A	N/A	N/A	8x320	N/A
	TF5, bits	N/A	N/A	N/A	16x320	N/A
	TF6, bits	N/A	N/A	N/A	32x320	N/A
	TF7, bits	N/A	N/A	N/A	48x320	N/A

Downlink TFCS:

TECL	(DDE DDC DDZ DD0 DCCII)
TFCI	(RB5, RB6, RB7, RB8, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0, TF0)
DL_TFC3	(TF0, TF0, TF1, TF0)
DL_TFC4	(TF1, TF0, TF0, TF1, TF0)
DL_TFC5	(TF2, TF1, TF1, TF0)
DL_TFC6	(TF0, TF0, TF0, TF2, TF0)
DL_TFC7	(TF1, TF0, TF0, TF2, TF0)
DL_TFC8	(TF2, TF1, TF1, TF2, TF0)
DL_TFC9	(TF0, TF0, TF0, TF3, TF0)
DL_TFC10	(TF1, TF0, TF0, TF3, TF0)
DL_TFC11	(TF2, TF1, TF1, TF3, TF0)
DL_TFC12	(TF0, TF0, TF0, TF4, TF0)
DL_TFC13	(TF1, TF0, TF0, TF4, TF0)
DL_TFC14	(TF2, TF1, TF1, TF4, TF0)
DL_TFC16	(TF0, TF0, TF0, TF5, TF0)
DL_TFC16	(TF1, TF0, TF0, TF5, TF0)
DL_TFC17	(TF2, TF1, TF1, TF5, TF0)
DL_TFC18	(TF0, TF0, TF0, TF6, TF0) (TF1, TF0, TF0, TF6, TF0)
DL_TFC19 DL_TFC20	(TF2, TF1, TF6, TF6)
DL_TFC20	(TF0, TF0, TF0, TF0)
DL_TFC21	(TF1, TF0, TF0, TF7, TF0)
DL_TFC23	(TF2, TF1, TF1, TF7, TF0)
DL_TFC23	(TF0, TF0, TF0, TF1)
DL_TFC24	(TF1, TF0, TF0, TF1)
DL_TFC26	(TF2, TF1, TF1, TF0, TF1)
DL_TFC27	(TF0, TF0, TF1, TF1)
DL_TFC28	(TF1, TF0, TF0, TF1, TF1)
DL_TFC29	(TF2, TF1, TF1, TF1)
DL_TFC30	(TF0, TF0, TF0, TF2, TF1)
DL_TFC31	(TF1, TF0, TF0, TF2, TF1)
DL TFC32	(TF2, TF1, TF1, TF2, TF1)
DL TFC33	(TF0, TF0, TF3, TF1)
DL_TFC34	(TF1, TF0, TF0, TF3, TF1)
DL_TFC35	(TF2, TF1, TF1, TF3, TF1)
DL_TFC36	(TF0, TF0, TF0, TF4, TF1)
DL_TFC37	(TF1, TF0, TF0, TF4, TF1)
DL_TFC38	(TF2, TF1, TF1, TF4, TF1)
DL_TFC39	(TF0, TF0, TF0, TF5, TF1)
DL_TFC40	(TF1, TF0, TF0, TF5, TF1)
DL_TFC41	(TF2, TF1, TF1, TF5, TF1)
DL_TFC42	(TF0, TF0, TF0, TF6, TF1)
DL_TFC43	(TF1, TF0, TF0, TF6, TF1)
DL_TFC44	(TF2, TF1, TF1, TF6, TF1)
DL_TFC45	(TF0, TF0, TF7, TF1)
DL_TFC46	(TF1, TF0, TF0, TF7, TF1)

TFCI	(RB5, RB6, RB7, RB8, DCCH)
DL_TFC47	(TF2, TF1, TF1, TF7, TF1)

Sub- test	Downlink TFCS	Uplink TFCS	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size	Test data size (bits)
test	Under Test	Under test	lesteu	11 013	(bits)	, ,
1	DL_TFC1	UL_TFC1	DL_TFC0,	UL_TFC0,	(note 1) RB5: 39	(note 1) RB5: 39
I	DL_IFCI	UL_IFCI	DL_TFC0, DL_TFC24,	UL_TFC0,	RB6: 103	RB6: No data
			UL_TFC24,	UL_TFC1,	RB7: 60	RB7: No data
_	DI TEOO	LII TEOO	UL_TFC6	UL_TFC7	RB8: 576	RB8: No data
2	DL_TFC2	UL_TFC2	DL_TFC0,	UL_TFC0,	RB5: 81	RB5: 81
			DL_TFC24,	UL_TFC2,	RB6: 103	RB6: 103
			UL_TFC0,	UL_TFC6,	RB7: 60	RB7: 60
	DI TEGO		UL_TFC6	UL_TFC8	RB8: 576	RB8: No data
3	DL_TFC3	UL_TFC3	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: No data
			DL_TFC24,	UL_TFC3,	RB6: 103	RB6: No data
			UL_TFC0,	UL_TFC6,	RB7: 60	RB7: No data
			UL_TFC6	UL_TFC9	RB8: 576	RB8: 320
				====		(note 2)
4	DL_TFC4	UL_TFC4	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: 39
			DL_TFC24,	UL_TFC4,	RB6: 103	RB6: No data
			UL_TFC0,	UL_TFC6,	RB7: 60	RB7: No data
			UL_TFC6	UL_TFC10	RB8: 576	RB8: 320
						(note 2)
5	DL_TFC5	UL_TFC5	DL_TFC0,	UL_TFC0,	RB5: 81	RB5: 81
			DL_TFC24,	UL_TFC5,	RB6: 103	RB6: 103
			UL_TFC0,	UL_TFC6,	RB7: 60	RB7: 60
			UL_TFC6	UL_TFC11	RB8: 576	RB8: 320
						(note 2)
6	DL_TFC6	UL_TFC3	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: No data
			DL_TFC24,	UL_TFC3,	RB6: 103	RB6: No data
			UL_TFC0,	UL_TFC6,	RB7: 60	RB7: No data
			UL_TFC6	UL_TFC9	RB8: <u>576</u> 1152	RB8: 640
						(note 3)
7	DL_TFC7	UL_TFC4	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: 39
			DL_TFC24,	UL_TFC4,	RB6: 103	RB6: No data
			UL_TFC0,	UL_TFC6,	RB7: 60	RB7: No data
			UL_TFC6	UL_TFC10	RB8: <u>576</u> 1152	RB8: 640
						(note 3)
8	DL_TFC8	UL_TFC5	DL_TFC0,	UL_TFC0,	RB5: 81	RB5: 81
			DL_TFC24,	UL_TFC5,	RB6: 103	RB6: 103
			UL_TFC0,	UL_TFC6,	RB7: 60	RB7: 60
			UL_TFC6	UL_TFC11	RB8: <u>576</u> 1152	RB8: 640
						(note 3)
9	DL_TFC9	UL_TFC3	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: No data
			DL_TFC24,	UL_TFC3,	RB6: 103	RB6: No data
			UL_TFC0,	UL_TFC6,	RB7: 60	RB7: No data
			UL_TFC6	UL_TFC9	RB8: <u>576</u> 1728	RB8: 1280
		==				(note 4)
10	DL_TFC10	UL_TFC4	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: 39
			DL_TFC24,	UL_TFC4,	RB6: 103	RB6: No data
			UL_TFC0,	UL_TFC6,	RB7: 60	RB7: No data
			UL_TFC6	UL_TFC10	RB8: <u>576</u> 1728	RB8: 1280
	DI ==::	====	D. T-00			(note 4)
11	DL_TFC11	UL_TFC5	DL_TFC0,	UL_TFC0,	RB5: 81	RB5: 81
			DL_TFC24,	UL_TFC5,	RB6: 103	RB6: 103
			UL_TFC0,	UL_TFC6,	RB7: 60	RB7: 60
			UL_TFC6	UL_TFC11	RB8: <u>576</u> 1728	RB8: 1280
						(note 4)
12	DL_TFC12	UL_TFC3	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: No data
			DL_TFC24,	UL_TFC3,	RB6: 103	RB6: No data
			UL_TFC0,	UL_TFC6,	RB7: 60	RB7: No data
			UL_TFC6	UL_TFC9	RB8: <u>576</u> 2880	RB8: 2560
						(note 5)

	Sub- test	Downlink TFCS Under	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (bits)	Test data size (bits)
L		Test				(note 1)	(note 1)
1	13	DL_TFC13	UL_TFC4	DL_TFC0, DL_TFC24, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC4, UL_TFC6, UL_TFC10	RB5: 39 RB6: 103 RB7: 60 RB8: <u>576</u> 2880	RB5: 39 RB6: No data RB7: No data RB8: 2560 (note 5)
]	14	DL_TFC14	UL_TFC5	DL_TFC0, DL_TFC24, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC5, UL_TFC6, UL_TFC11	RB5: 81 RB6: 103 RB7: 60 RB8: <u>576</u> 2880	RB5: 81 RB6: 103 RB7: 60 RB8: 2560 (note 5)
I	15	DL_TFC15	UL_TFC3	DL_TFC0, DL_TFC24, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC3, UL_TFC6, UL_TFC9	RB5: 39 RB6: 103 RB7: 60 RB8: <u>576</u> 5184	RB5: No data RB6: No data RB7: No data RB8: 5120 (note 6)
	16	DL_TFC16	UL_TFC4	DL_TFC0, DL_TFC24, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC4, UL_TFC6, UL_TFC10	RB5: 39 RB6: 103 RB7: 60 RB8: <u>576</u> 5184	RB5: 39 RB6: No data RB7: No data RB8: 5120 (note 6)
	17	DL_TFC17	UL_TFC5	DL_TFC0, DL_TFC24, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC5, UL_TFC6, UL_TFC11	RB5: 81 RB6: 103 RB7: 60 RB8: <u>576</u> 5184	RB5: 81 RB6: 103 RB7: 60 RB8: 5120 (note 6)
1	18	DL_TFC18	UL_TFC3	DL_TFC0, DL_TFC24, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC3, UL_TFC6, UL_TFC9	RB5: 39 RB6: 103 RB7: 60 RB8: 576 10368	RB5: No data RB6: No data RB7: No data RB8: 10240 (note 7)
	19	DL_TFC19	UL_TFC4	DL_TFC0, DL_TFC24, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC4, UL_TFC6, UL_TFC10	RB5: 39 RB6: 103 RB7: 60 RB8: <u>57610368</u>	RB5: 39 RB6: No data RB7: No data RB8: 10240 (note 7)
	20	DL_TFC20	UL_TFC5	DL_TFC0, DL_TFC24, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC5, UL_TFC6, UL_TFC11	RB5: 81 RB6: 103 RB7: 60 RB8: 57610368	RB5: 81 RB6: 103 RB7: 60 RB8: 10240 (note 7)
	21	DL_TFC21	UL_TFC3	DL_TFC0, DL_TFC24, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC3, UL_TFC6, UL_TFC9	RB5: 39 RB6: 103 RB7: 60 RB8: <u>57645552</u>	RB5: No data RB6: No data RB7: No data RB8: 15360 (note 8)

Sub- test	Downlink TFCS Under	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (bits)	Test data size (bits)
	Test				(note 1)	(note 1)
22	DL_TFC22	UL_TFC4	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: 39
			DL_TFC24,	UL_TFC4,	RB6: 103	RB6: No data
			UL_TFC0,	UL_TFC6,	RB7: 60	RB7: No data
			UL_TFC6	UL_TFC10	RB8:	RB8: 15360
					<u>576</u> 15552	(note 8)
23	DL_TFC23	UL_TFC5	DL_TFC0,	UL_TFC0,	RB5: 81	RB5: 81
			DL_TFC24,	UL_TFC5,	RB6: 103	RB6: 103
			UL_TFC0,	UL_TFC6,	RB7: 60	RB7: 60
			UL_TFC6	UL_TFC11	RB8:	RB8: 15360
					576 15552	(note 8)

- NOTE 1: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
- NOTE 2: RB8: SS is using a DL RLC SDU with 320 bits as test data (=DL RLC PDU size for DL/TF1). UE will return 1 RLC PDU. SS creates an UL RLC SDU from the first 320 bits of the received RLC PDU.
- NOTE 3: RB8: SS is using a DL RLC SDU size of 640 bits as test data (=DL RLC PDU size for DL/TF2). UE will return one2 RLC PDUs. SS creates an UL RLC SDU from the received RLC PDUby concatenating RLC PDU#1 and the first 64 bits of RLC PDU#2.
- NOTE 4: RB8: SS is using a DL RLC SDU size of 1280 bits as test data (=DL RLC PDU size for DL/TF3). UE will return one3 RLC PDUs. SS creates an UL RLC SDU from the received RLC PDUby concatenating RLC PDU#1, RLC PDU#2 and the first 128 bits of RLC PDU#3.
- NOTE 5: RB8: SS is using a DL RLC SDU size of 2560 bits as test data (=DL RLC PDU size for DL/TF4). UE will return one5 RLC PDUs. SS creates an UL RLC SDU from the received RLC PDUby concatenating RLC PDU#1, RLC PDU#2, RLC PDU#3, RLC PDU#4 and the first 256 bits of RLC PDU#5.
- NOTE 6: RB8: SS is using a DL RLC SDU size of 5120 bits as test data (=DL RLC PDU size for DL/TF5). UE will return one9 RLC PDUs. SS creates an UL RLC SDU from the received RLC PDUby concatenating RLC PDU#1, RLC PDU#2, ..., RLC PDU#8 and the first 512 bits of RLC PDU#9.
- NOTE 7: RB8: SS is using a DL RLC SDU size of 10240 bits as test data (=DL RLC PDU size for DL/TF6). UE will return one48 RLC PDUs. SS creates an UL RLC SDU from the received RLC PDUby concatenating RLC PDU#1, RLC PDU#2, .., RLC PDU#17 and the first 448 bits of RLC PDU#18.
- NOTE 8: RB8: SS is using a DL RLC SDU size of 15360 bits as test data (=DL RLC PDU size for DL/TF7). UE will return one 27 RLC PDUs. SS creates an UL RLC SDU from the received RLC PDUby concatenating RLC PDU#1, RLC PDU#2, ..., RLC PDU#26 and the first 384 bits of RLC PDU#27.

14.2.48.4 Test requirements

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be
 - for sub-test 1, 4, 7, 10, 13, 16, 19 and 22: RB5/TF1 (1x39).
 - for sub-test 2, 5, 8, 11, 14, 17, 20 and 23: RB5/TF2 (1x81); RB6/TF1 (1x103); and RB7/TF1 (1x60).
- 3. At step 15 the UE shall return
 - for sub-test 3, 6, 9, 12, 15, 18 and 21: no data on RB5, RB6 and RB7.
 - for sub-test 1, 4, 7, 10, 13, 16, 19 and 22: an RLC SDU on RB5 having the same content as sent by the SS; and no data shall be received on RB6 or RB7.
 - for sub-test 2, 5, 8, 11, 14, 17, 20 and 23: an RLC SDU on each of RB5, RB6 and RB7 having the same content as sent by the SS.
 - for sub-test 1 to 2: no data on RB8.
 - for sub-test 3 to <u>523</u>: an RLC SDU on RB8 having the same content as sent by <u>the SS</u>.

- for sub-test 6 to 23: an RLC SDU on RB5 having the same content as the first 576 bits of the RLC SDU sent by the SS.

14.2.49 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Conversational / unknown / UL:64 DL:64 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.2.49.1 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Conversational / unknown / UL:64 DL:64 kbps / CS RAB / 20 ms TTI

14.2.49.1.1 Conformance requirement

See 14.2.4.1.

14.2.49.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.49 for the 20 ms TTI case.

14.2.49.1.3 Method of test

Initial Conditions

The following RLC Info parameter values shall be set by the SS for the Conversational / unknown / UL:64 DL:64 kbps / CS RAB (RB8):

Uplink RLC		
TM RLC		
Segmentation indication	TRUE	
Downlink RLC		
TM RLC		
Segmentation indication	TRUE	

Uplink TFS:

	TFI	RB5	RB6	RB7	RB8	DCCH
	151	(RAB subflow #1)	(RAB subflow #2)	(RAB subflow #3)	(64 kbps)	
	TF0, bits	0x81(alt. 1x0)	0x103	0x60	0x640	0x148
TFS	TF1, bits	1x39	1x103	1x60	2x640	1x148
	TF2, bits	1x81	N/A	N/A	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0, TF0)
UL_TFC3	(TF0, TF0, TF1, TF0)
UL_TFC4	(TF1, TF0, TF0, TF1, TF0)
UL_TFC5	(TF2, TF1, TF1, TF0)
UL_TFC6	(TF0, TF0, TF0, TF1)
UL_TFC7	(TF1, TF0, TF0, TF1)
UL_TFC8	(TF2, TF1, TF1, TF0, TF1)
UL_TFC9	(TF0, TF0, TF1, TF1)
UL_TFC10	(TF1, TF0, TF0, TF1, TF1)
UL TFC11	(TF2, TF1, TF1, TF1, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (64 kbps)	DCCH
	TF0, bits	1x0	0x103	0x60	0x640	0x148
TFS	TF1, bits	1x39	1x103	1x60	2x640	1x148
	TF2, bits	1x81	N/A	N/A	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1, TF0)
DL_TFC4	(TF1, TF0, TF0, TF1, TF0)
DL_TFC5	(TF2, TF1, TF1, TF0)
DL_TFC6	(TF0, TF0, TF0, TF1)
DL_TFC7	(TF1, TF0, TF0, TF1)
DL_TFC8	(TF2, TF1, TF1, TF0, TF1)
DL_TFC9	(TF0, TF0, TF1, TF1)
DL_TFC10	(TF1, TF0, TF0, TF1, TF1)
DL_TFC11	(TF2, TF1, TF1, TF1)

Sub-tests:

Sub-	Downlink	Uplink	Implicitely	Restricted UL	UL RLC SDU	Test data size
test	TFCS	TFCS	tested	TFCIs	size	(bits)
	Under	Under test			(bits)	
	Test				(note)	(note)
1	DL_TFC1	UL_TFC1	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: 39
			DL_TFC6,	UL_TFC1,	RB6: 103	RB6: No data
			UL_TFC0,	UL_TFC6,	RB7: 60	RB7: No data
			UL_TFC6	UL_TFC7	RB8: 1280	RB8: No data
2	DL_TFC2	UL_TFC2	DL_TFC0,	UL_TFC0,	RB5: 81	RB5: 81
			DL_TFC6,	UL_TFC2,	RB6: 103	RB6: 103
			UL_TFC0,	UL_TFC6,	RB7: 60	RB7: 60
			UL_TFC6	UL_TFC8	RB8: 1280	RB8: No data
3	DL_TFC3	UL_TFC3	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: No data
			DL_TFC6,	UL_TFC3,	RB6: 103	RB6: No data
			UL_TFC0,	UL_TFC6,	RB7: 60	RB7: No data
			UL_TFC6	UL_TFC9	RB8: 1280	RB8: 1280
4	DL_TFC4	UL_TFC4	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: 39
			DL_TFC6,	UL_TFC4,	RB6: 103	RB6: No data
			UL_TFC0,	UL_TFC6,	RB7: 60	RB7: No data
			UL_TFC6	UL_TFC10	RB8: 1280	RB8: 1280
5	DL_TFC5	UL_TFC5	DL_TFC0,	UL_TFC0,	RB5: 81	RB5: 81
			DL_TFC6,	UL_TFC5,	RB6: 103	RB6: 103
			UL_TFC0,	UL_TFC6,	RB7: 60	RB7: 60
			UL_TFC6	UL_TFC11	RB8: 1280	RB8: 1280
NOTE:	See TS 34	.109 [10] claus	se 5.3.2.6.2 for deta	ils regarding loop	oack of RLC SDU	3.

See 14.1.1 for test procedure.

14.2.49.1.4 Test requirements

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be
 - for sub-test 1: RB5/TF1 (1x39).

- for sub-test 2: RB5/TF2 (1x81); RB6/TF1 (1x103); and RB7/TF1 (1x60).
- for sub-test 3: RB8/TF1 (2x640)
- for sub-test 4: RB5/TF1 (1x39) and RB8/TF1 (2x640).
- for sub-test 5: RB5/TF2 (1x81); RB6/TF1 (1x103); RB7/TF1 (1x60); and RB8/TF1 (2x640).

3. At step 15 the UE shall return

- for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6, RB7 and RB8.
- for sub-test 2: an RLC SDU on RB5, RB6 and RB7 having the same content as sent by SS; and no data shall be received on RB8.
- for sub-test 3: an RLC SDU on RB8 having the same content as sent by SS; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 4: an RLC SDU on RB5 and RB8 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 5: an RLC SDU on RB5, RB6, RB7 and RB8 having the same content as sent by SS.

14.2.49.2 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Conversational / unknown / UL:64 DL:64 kbps / CS RAB / 40 ms TTI

14.2.49.2.1 Conformance requirement

See 14.2.4.1.

14.2.49.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.49 for the 40 ms TTI case.

14.2.49.2.3 Method of test

Initial Conditions

The following RLC Info parameter values shall be set by the SS for the Conversational / unknown / UL:64 DL:64 kbps / CS RAB (RB8):

Uplink RLC		
TM RLC		
Segmentation indication	TRUE	
Downlink RLC		
TM RLC		
Segmentation indication	TRUE	

Uplink TFS:

	TFI	RB5	RB6	RB7	RB8	DCCH
	1171	(RAB subflow #1)	(RAB subflow #2)	(RAB subflow #3)	(64 kbps)	
	TF0, bits	0x81(alt. 1x0)	0x103	0x60	0x640	0x148
TFS	TF1, bits	1x39	1x103	1x60	4x640	1x148
	TF2, bits	1x81	N/A	N/A	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1, TF0)
UL_TFC4	(TF1, TF0, TF0, TF1, TF0)
UL_TFC5	(TF2, TF1, TF1, TF0)
UL_TFC6	(TF0, TF0, TF0, TF1)
UL_TFC7	(TF1, TF0, TF0, TF1)
UL_TFC8	(TF2, TF1, TF1, TF0, TF1)
UL_TFC9	(TF0, TF0, TF1, TF1)
UL_TFC10	(TF1, TF0, TF0, TF1, TF1)
UL_TFC11	(TF2, TF1, TF1, TF1, TF1)

Downlink TFS:

		RB5	RB6	RB7	RB8	DCCH
		(RAB subflow #1)	(RAB subflow #2)	(RAB subflow #3)	(64 kbps)	рссп
	TF0, bits	1x0	0x103	0x60	0x640	0x148
TFS	TF1, bits	1x39	1x103	1x60	4x640	1x148
	TF2, bits	1x81	N/A	N/A	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0, TF0)
DL_TFC3	(TF0, TF0, TF1, TF0)
DL_TFC4	(TF1, TF0, TF0, TF1, TF0)
DL_TFC5	(TF2, TF1, TF1, TF0)
DL_TFC6	(TF0, TF0, TF0, TF1)
DL_TFC7	(TF1, TF0, TF0, TF1)
DL_TFC8	(TF2, TF1, TF1, TF0, TF1)
DL_TFC9	(TF0, TF0, TF1, TF1)
DL_TFC10	(TF1, TF0, TF0, TF1, TF1)
DL_TFC11	(TF2, TF1, TF1, TF1)

Sub-	Downlink	Uplink TFCS	Implicitely tested	Restricted UL TFCIs	UL RLC SDU	Test data size
test	TFCS	Under test		IFCIS	size	(bits)
	Under	Under test			(bits)	(==4=)
	Test	===.		=====	(note)	(note)
1	DL_TFC1	UL_TFC1	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: 39
			DL_TFC6,	UL_TFC1,	RB6: 103	RB6: No data
			UL_TFC0,	UL_TFC6,	RB7: 60	RB7: No data
			UL_TFC6	UL_TFC7	RB8: 2560	RB8: No data
2	DL_TFC2	UL_TFC2	DL_TFC0,	UL_TFC0,	RB5: 81	RB5: 81
			DL_TFC6,	UL_TFC2,	RB6: 103	RB6: 103
			UL_TFC0,	UL_TFC6,	RB7: 60	RB7: 60
			UL_TFC6	UL_TFC8	RB8: 2560	RB8: No data
3	DL_TFC3	UL_TFC3	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: No data
			DL_TFC6,	UL_TFC3,	RB6: 103	RB6: No data
			UL_TFC0,	UL_TFC6,	RB7: 60	RB7: No data
			UL_TFC6	UL_TFC9	RB8: 2560	RB8: 2560
4	DL_TFC4	UL_TFC4	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: 39
			DL_TFC6,	UL_TFC4,	RB6: 103	RB6: No data
			UL_TFC0,	UL_TFC6,	RB7: 60	RB7: No data
			UL_TFC6	UL_TFC10	RB8: 2560	RB8: 2560
5	DL_TFC5	UL_TFC5	DL_TFC0,	UL_TFC0,	RB5: 81	RB5: 81
			DL_TFC6,	UL_TFC5,	RB6: 103	RB6: 103
			UL_TFC0,	UL_TFC6,	RB7: 60	RB7: 60
			UL_TFC6	UL_TFC11	RB8: 2560	RB8: 2560
NOTE:	NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.					

14.2.49.2.4 Test requirements

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be
 - for sub-test 1: RB5/TF1 (1x39).
 - for sub-test 2: RB5/TF2 (1x81); RB6/TF1 (1x103); and RB7/TF1 (1x60).
 - for sub-test 3: RB8/TF1 (4x640)
 - for sub-test 4: RB5/TF1 (1x39) and RB8/TF1 (2x640).
 - for sub-test 5: RB5/TF2 (1x81); RB6/TF1 (1x103); RB7/TF1 (1x60); and RB8/TF1 (4x640).
- 3. At step 15 the UE shall return
 - for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6, RB7 and RB8.
 - for sub-test 2: an RLC SDU on RB5, RB6 and RB7 having the same content as sent by SS; and no data shall be received on RB8.
 - for sub-test 3: an RLC SDU on RB8 having the same content as sent by SS; and no data shall be received on RB5, RB6 and RB7.
 - for sub-test 4: an RLC SDU on RB5 and RB8 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
 - for sub-test 5: an RLC SDU on RB5, RB6, RB7 and RB8 having the same content as sent by SS.

- 14.2.50 Conversational / unknown / UL:64 DL:64 kbps / CS RAB + Conversational / unknown / UL:64 DL:64 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH
- 14.2.50.1 Conversational / unknown / UL:64 DL:64 kbps / CS RAB + Conversational / unknown / UL:64 DL:64 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / 20 ms TTI

14.2.50.1.1 Conformance requirement

See 14.2.4.1.

14.2.50.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.50 for the 20 ms TTI case.

14.2.50.1.3 Method of test

Initial Conditions

The following RLC Info parameter values shall be set by the SS for the Conversational / unknown / UL:64 DL:64 kbps / CS RAB (RB5 and RB6):

	RB5 (64 kbps)	RB6 (64 kbps)
Uplink RLC		
TM RLC		
Segmentation indication	TRUE	TRUE
Downlink RLC		
TM RLC		
Segmentation indication	TRUE	TRUE

Uplink TFS:

	TFI	RB5 (64 kbps)	RB6 (64 kbps)	DCCH
	TF0, bits	0x640	0x640	0x148
TFS	TF1, bits	2x640	2x640	1x148
	TF2, bits	N/A	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, DCCH)
UL_TFC0	(TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0)
UL_TFC2	(TF0, TF1, TF0)
UL_TFC3	(TF1, TF1, TF0)
UL_TFC4	(TF0, TF0, TF1)
UL_TFC5	(TF1, TF0, TF1)
UL_TFC6	(TF0, TF1, TF1)
UL_TFC7	(TF1, TF1, TF1)

	TFI	RB5 (64 kbps)	RB6 (64 kbps)	DCCH
	TF0, bits	0x640	0x640	0x148
TFS	TF1, bits	2x640	2x640	1x148
	TF2, bits	N/A	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, DCCH)
DL_TFC0	(TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0)
DL_TFC2	(TF0, TF1, TF0)
DL_TFC3	(TF1, TF1, TF0)
DL_TFC4	(TF0, TF0, TF1)
DL_TFC5	(TF1, TF0, TF1)
DL_TFC6	(TF0, TF1, TF1)
DL_TFC7	(TF1, TF1, TF1)

Sub-tests:

Sub- test	Downlink TFCS Under	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size	Test data size (bits)
	Test	Under test			(bits) (note)	(note)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC4, UL_TFC0,	UL_TFC0, UL_TFC1, UL_TFC4,	RB5: 1280 RB6: 1280	RB5: 1280 RB6: No data
2	DL_TFC2	UL_TFC2	UL_TFC4 DL_TFC0, DL_TFC4, UL_TFC0, UL_TFC4	UL_TFC5 UL_TFC0, UL_TFC2, UL_TFC4, UL_TFC6	RB5: 1280 RB6: 1280	RB5: No data RB6: 1280
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC4, UL_TFC0, UL_TFC4	UL_TFC0, UL_TFC3, UL_TFC4, UL_TFC7	RB5: 1280 RB6: 1280	RB5: 1280 RB6: 1280
NOTE:	NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.					

See 14.1.1 for test procedure.

14.2.50.1.4 Test requirements

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be
 - for sub-test 1: RB5/TF1 (2x640).
 - for sub-test 2: RB6/TF1 (2x640).
 - for sub-test 3: RB5/TF1 (2x640); RB6/TF1 (2x640)
- 3. At step 15 the UE shall return
 - for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6.
 - for sub-test 2: an RLC SDU on RB6 having the same content as sent by SS; and no data shall be received on RB5.

- for sub-test 3: an RLC SDU on RB5 and RB6 having the same content as sent by SS.

14.2.50.2 Conversational / unknown / UL:64 DL:64 kbps / CS RAB + Conversational / unknown / UL:64 DL:64 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / 40 ms TTI

14.2.50.2.1 Conformance requirement

See 14.2.4.1.

14.2.50.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.50 for the 40 ms TTI case.

14.2.50.2.3 Method of test

Initial Conditions

The following RLC Info parameter values shall be set by the SS for the Conversational / unknown / UL:64 DL:64 kbps / CS RAB (RB5 and RB6):

	RB5 (64 kbps)	<u>RB6</u> (64 kbps)
Uplink RLC	,	,
TM RLC		
Segmentation indication	TRUE	<u>TRUE</u>
Downlink RLC		
TM RLC		
Segmentation indication	TRUE	TRUE

Uplink TFS:

	TFI	RB5 (64 kbps)	RB6 (64 kbps)	DCCH
	TF0, bits	0x640	0x640	0x148
TFS	TF1, bits	4x640	4x640	1x148
	TF2, bits	N/A	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, DCCH)
UL_TFC0	(TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0)
UL_TFC2	(TF0, TF1, TF0)
UL_TFC3	(TF1, TF1, TF0)
UL_TFC4	(TF0, TF0, TF1)
UL_TFC5	(TF1, TF0, TF1)
UL_TFC6	(TF0, TF1, TF1)
UL_TFC7	(TF1, TF1, TF1)

Downlink TFS:

	TFI		RB5 (64 kbps)	RB6 (64 kbps)	DCCH
I		TF0, bits	0x640	0x640	0x148
	TFS	TF1, bits	4x640	4x640	1x148
ı		TF2, bits	N/A	N/A	N/A

TFCI	(RB5, RB6, DCCH)
DL_TFC0	(TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0)
DL_TFC2	(TF0, TF1, TF0)
DL_TFC3	(TF1, TF1, TF0)
DL_TFC4	(TF0, TF0, TF1)
DL_TFC5	(TF1, TF0, TF1)
DL_TFC6	(TF0, TF1, TF1)
DL_TFC7	(TF1, TF1, TF1)

Sub-tests:

Sub- test	Downlink TFCS Under	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (bits)	Test data size (bits)	
	Test				(note)	(note)	
1	DL_TFC1	UL_TFC1	DL_TFC0,	UL_TFC0,	RB5: 2560	RB5: 2560	
			DL_TFC4,	UL_TFC1,	RB6: 2560	RB6: No data	
			UL_TFC0,	UL_TFC4,			
			UL_TFC4	UL_TFC5			
2	DL_TFC2	UL_TFC2	DL_TFC0,	UL_TFC0,	RB5: 2560	RB5: No data	
			DL_TFC4,	UL_TFC2,	RB6: 2560	RB6: 2560	
			UL_TFC0,	UL_TFC4,			
			UL_TFC4	UL_TFC6			
3	DL_TFC3	UL_TFC3	DL_TFC0,	UL_TFC0,	RB5: 2560	RB5: 2560	
			DL_TFC4,	UL_TFC3,	RB6: 2560	RB6: 2560	
			UL_TFC0,	UL_TFC4,			
			UL_TFC4	UL_TFC7			
NOTE:	NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 14.1.1 for test procedure.

14.2.50.2.4 Test requirements

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be
 - for sub-test 1: RB5/TF1 (4x640).
 - for sub-test 2: RB6/TF1 (4x640).
 - for sub-test 3: RB5/TF1 (4x640); RB6/TF1 (4x640)
- 3. At step 15 the UE shall return
 - for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6.
 - for sub-test 2: an RLC SDU on RB6 having the same content as sent by SS; and no data shall be received on RB5.
 - for sub-test 3: an RLC SDU on RB5 and RB6 having the same content as sent by SS.

14.2.51 Conversational / unknown / UL:64 DL:64 kbps / CS RAB + Interactive or background / UL:64 DL:64 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.2.51.1 Conversational / unknown / UL:64 DL:64 kbps / CS RAB / 20 ms TTI + Interactive or background / UL:64 DL:64 kbps / PS RAB

14.2.51.1.1 Conformance requirement

See 14.2.4.1.

14.2.51.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.51 for the 20 ms TTI case.

14.2.51.1.3 Method of test

Initial Conditions

The following RLC Info parameter values shall be set by the SS for the Conversational / unknown / UL:64 DL:64 kbps / CS RAB (RB5):

	RB5 (Conv. 64 kbps)
Uplink RLC	
TM RLC	
Segmentation indication	<u>TRUE</u>
Downlink RLC	
TM RLC	
Segmentation indication	TRUE

Uplink TFS:

	TFI	RB5 (Conv. 64 kbps)	RB6 (I/B 64 kbps)	DCCH
TFS	TF0, bits	0x640	0x336	0x148
	TF1, bits	2x640	1x336	1x148
	TF2, bits	N/A	2x336	N/A
	TF3, bits	N/A	3x336	N/A
	TF4, bits	N/A	4x336	N/A

TFCI	(RB5, RB6, DCCH)
UL_TFC0	(TF0, TF0, TF0)
UL_TFC1	(TF0, TF1, TF0)
UL_TFC2	(TF0, TF2, TF0)
UL_TFC3	(TF0, TF3, TF0)
UL_TFC4	(TF0, TF4, TF0)
UL_TFC5	(TF1, TF0, TF0)
UL_TFC6	(TF1, TF1, TF0)
UL_TFC7	(TF1, TF2, TF0)
UL_TFC8	(TF1, TF3, TF0)
UL_TFC9	(TF1, TF4, TF0)
UL_TFC10	(TF0, TF0, TF1)
UL_TFC11	(TF0, TF1, TF1)
UL_TFC12	(TF0, TF2, TF1)
UL_TFC13	(TF0, TF3, TF1)
UL_TFC14	(TF0, TF4, TF1)
UL_TFC15	(TF1, TF0, TF1)
UL_TFC16	(TF1, TF1, TF1)
UL_TFC17	(TF1, TF2, TF1)
UL_TFC18	(TF1, TF3, TF1)
UL_TFC19	(TF1, TF4, TF1)

	TFI	RB5 (Conv. 64 kbps)	RB6 (I/B 64 kbps)	DCCH
	TF0, bits	0x640	0x336	0x148
	TF1, bits	2x640	1x336	1x148
TFS	TF2, bits	N/A	2x336	N/A
	TF3, bits	N/A	3x336	N/A
	TF4, bits	N/A	4x336	N/A

Downlink TFCS:

TFCI	(RB5, RB6, DCCH)
DL_TFC0	(TF0, TF0, TF0)
DL_TFC1	(TF0, TF1, TF0)
DL_TFC2	(TF0, TF2, TF0)
DL_TFC3	(TF0, TF3, TF0)
DL_TFC4	(TF0, TF4, TF0)
DL_TFC5	(TF1, TF0, TF0)
DL_TFC6	(TF1, TF1, TF0)
DL_TFC7	(TF1, TF2, TF0)
DL_TFC8	(TF1, TF3, TF0)
DL_TFC9	(TF1, TF4, TF0)
DL_TFC10	(TF0, TF0, TF1)
DL_TFC11	(TF0, TF1, TF1)
DL_TFC12	(TF0, TF2, TF1)
DL_TFC13	(TF0, TF3, TF1)
DL_TFC14	(TF0, TF4, TF1)
DL_TFC15	(TF1, TF0, TF1)
DL_TFC16	(TF1, TF1, TF1)
DL_TFC17	(TF1, TF2, TF1)
DL_TFC18	(TF1, TF3, TF1)
DL_TFC19	(TF1, TF4, TF1)

Sub-tests:

	Sub-	Downlink	Uplink TFCS	Implicitely	Restricted UL	UL RLC	Test data size
	test	TFCS Under	Under test	tested	TFCIs	SDU size (bits)	(bits)
		Test	Under lest			• •	(note)
ŀ	1	DL_TFC1	UL_TFC1	DL_TFC0,	UL_TFC0,	(note) RB5: 1280	RB5: No data
ı	1	DL_IFC1	OL_IFC1	DL_TFC0, DL_TFC10,	UL_TFC1,	RB6: 336 312	RB6: <u>312</u> 336
1				UL_TFC0,	UL_TFC10,	ND0. 000 512	11D0. <u>512</u> 550
				UL_TFC10	UL_TFC11		
ŀ	2	DL_TFC2	UL TFC2	DL_TFC0,	UL_TFC0,	RB5: 1280	RB5: No data
ı	۷	DL_11 02	0L_11 02	DL_TFC10,	UL TFC2.	RB6:	RB6: 672 632
				UL TFC0.	UL TFC10.	672 632	11D0. 012002
1				UL_TFC10	UL_TFC12	012 032	
ŀ	3	DL_TFC3	UL_TFC3	DL_TFC0,	UL_TFC0,	RB5: 1280	RB5: No data
П	3	DL_11 03	0L_11 03	DL_TFC10,	UL_TFC3,	RB6:	RB6: 1008 952
				UL_TFC0,	UL_TFC10,	1008 952	11D0. 1000 <u>332</u>
I				UL_TFC10	UL_TFC13	1000 <u>332</u>	
ŀ	4	DL TFC4	UL TFC4	DL TFC0,	UL TFC0,	RB5: 1280	RB5: No data
П	•	DL_11 0 1	02_11 0 1	DL_TFC10,	UL_TFC43,	RB6:	RB6:
				UL_TFC0,	UL_TFC10,	1272 1344	1344 1272
1				UL_TFC10	UL_TFC14	1212	1011 <u>1212</u>
Ì	5	DL_TFC5	UL_TFC5	DL TFC0,	UL TFC0.	RB5: 1280	RB5: 1280
I				DL_TFC10,	UL_TFC54,	RB6: 312 336	RB6: No data
				UL_TFC0,	UL_TFC10,		
				UL_TFC10	UL_TFC15		
İ	6	DL_TFC6	UL_TFC6	DL_TFC0,	UL_TFC0,	RB5: 1280	RB5: 1280
				DL_TFC10,	UL_TFC64,	RB6: 312336	RB6: 312336
				UL_TFC0,	UL_TFC10,	· 	
				UL_TFC10	UL_TFC16		
Ī	7	DL_TFC7	UL_TFC7	DL_TFC0,	UL_TFC0,	RB5: 1280	RB5: 1280
				DL_TFC10,	UL_TFC <u>7</u> 2,	RB6:	RB6: 672 632
				UL_TFC0,	UL_TFC10,	632 672	
				UL_TFC10	UL_TFC17		
	8	DL_TFC8	UL_TFC8	DL_TFC0,	UL_TFC0,	RB5: 1280	RB5: 1280
				DL_TFC10,	UL_TFC <u>8</u> 3,	RB6:	RB6: <u>952</u> 1008
				UL_TFC0,	UL_TFC10,	952 1008	
				UL_TFC10	UL_TFC18		
	9	DL_TFC9	UL_TFC9	DL_TFC0,	UL_TFC0,	RB5: 1280	RB5: 1280
				DL_TFC10,	UL_TFC <u>9</u> 3,	RB6:	RB6:
				UL_TFC0,	UL_TFC10,	<u>1272</u> 1344	<u>1272</u> 1344
Į				UL_TFC10	UL_TFC19		
	NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 14.1.1 for test procedure.

14.2.51.1.4 Test requirements

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be
 - for sub-test 1 and 6: RB6/TF1 (1x336).
 - for sub-test 2 and 7: RB6/TF1 (2x336).
 - for sub-test 3 and 8: RB6/TF1 (3x336).
 - for sub-test 4 and 9: RB6/TF1 (4x336).
 - for sub-test 5, 6, 7, 8 and 9: RB5/TF1 (2x640)
- 3. At step 15 the UE shall return
 - for sub-test 1, 2, 3, 4: an RLC SDU on RB6 having the same content as sent by SS; and no data shall be received on RB5.

- for sub-test 5: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6.
- for sub-test 6, 7, 8 and 9: an RLC SDU on RB5 and RB6 having the same content as sent by SS.

14.2.51.2 Conversational / unknown / UL:64 DL:64 kbps / CS RAB / 40 ms TTI + Interactive or background / UL:64 DL:64 kbps / PS RAB

14.2.51.2.1 Conformance requirement

See 14.2.4.1.

14.2.51.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.51 for the 40 ms TTI case.

14.2.51.2.3 Method of test

Initial Conditions

The following RLC Info parameter values shall be set by the SS for the Conversational / unknown / UL:64 DL:64 kbps / CS RAB (RB5):

	RB5 (Conv.
Uplink RLC	<u>64 kbps)</u>
TM RLC	
Segmentation indication	TRUE
	IKUE
Downlink RLC	
TM RLC	
Segmentation indication	TRUE

Uplink TFS:

	TFI	RB5 (Conv. 64 kbps)	RB6 (I/B 64 kbps)	DCCH
	TF0, bits	0x640	0x336	0x148
	TF1, bits	4x640	1x336	1x148
TFS	TF2, bits	N/A	2x336	N/A
	TF3, bits	N/A	3x336	N/A
	TF4, bits	N/A	4x336	N/A

TFCI	(RB5, RB6, DCCH)
UL_TFC0	(TF0, TF0, TF0)
UL_TFC1	(TF0, TF1, TF0)
UL_TFC2	(TF0, TF2, TF0)
UL_TFC3	(TF0, TF3, TF0)
UL_TFC4	(TF0, TF4, TF0)
UL_TFC5	(TF1, TF0, TF0)
UL_TFC6	(TF1, TF1, TF0)
UL_TFC7	(TF1, TF2, TF0)
UL_TFC8	(TF1, TF3, TF0)
UL_TFC9	(TF1, TF4, TF0)
UL_TFC10	(TF0, TF0, TF1)
UL_TFC11	(TF0, TF1, TF1)
UL_TFC12	(TF0, TF2, TF1)
UL_TFC13	(TF0, TF3, TF1)
UL_TFC14	(TF0, TF4, TF1)
UL_TFC15	(TF1, TF0, TF1)
UL_TFC16	(TF1, TF1, TF1)
UL_TFC17	(TF1, TF2, TF1)
UL_TFC18	(TF1, TF3, TF1)
UL_TFC19	(TF1, TF4, TF1)

	TFI	RB5 (Conv. 64 kbps)	RB6 (I/B 64 kbps)	DCCH
	TF0, bits	0x640	0x336	0x148
	TF1, bits	4x640	1x336	1x148
TFS	TF2, bits	N/A	2x336	N/A
	TF3, bits	N/A	3x336	N/A
	TF4, bits	N/A	4x336	N/A

Downlink TFCS:

TFCI	(RB5, RB6, DCCH)
DL_TFC0	(TF0, TF0, TF0)
DL_TFC1	(TF0, TF1, TF0)
DL_TFC2	(TF0, TF2, TF0)
DL_TFC3	(TF0, TF3, TF0)
DL_TFC4	(TF0, TF4, TF0)
DL_TFC5	(TF1, TF0, TF0)
DL_TFC6	(TF1, TF1, TF0)
DL_TFC7	(TF1, TF2, TF0)
DL_TFC8	(TF1, TF3, TF0)
DL_TFC9	(TF1, TF4, TF0)
DL_TFC10	(TF0, TF0, TF1)
DL_TFC11	(TF0, TF1, TF1)
DL_TFC12	(TF0, TF2, TF1)
DL_TFC13	(TF0, TF3, TF1)
DL_TFC14	(TF0, TF4, TF1)
DL_TFC15	(TF1, TF0, TF1)
DL_TFC16	(TF1, TF1, TF1)
DL_TFC17	(TF1, TF2, TF1)
DL_TFC18	(TF1, TF3, TF1)
DL_TFC19	(TF1, TF4, TF1)

Sub-tests:

Under Test Under test Und		Sub- test	Downlink TFCS	Uplink TFCS	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size	Test data size (bits)
Test		1031			icsica	11 013		(Dit3)
DL_TFC1							• •	(note)
DL_TFC10, UL_TFC10, UL_TFC2, UL_TFC2, UL_TFC2, UL_TFC2, UL_TFC2, UL_TFC2, UL_TFC10,	ľ	1		UL TFC1	DL TFC0.	UL TFC0,		
UL_TFC0, UL_TFC10	1		_	_			RB6: 312 336	RB6: 312 336
DL_TFC2					UL_TFC0,	UL_TFC10,		
DL_TFC10, UL_TFC2, UL_TFC10, UL_TFC0, UL_TFC0, UL_TFC10, UL_TFC1					UL_TFC10	UL_TFC11		
UL_TFC0, UL_TFC10, UL_TFC10, UL_TFC10, UL_TFC12	Ī	2	DL_TFC2	UL_TFC2	DL_TFC0,	UL_TFC0,	RB5: 2560	RB5: No data
UL_TFC10	Ш						RB6: <u>632</u> 672	RB6: 672 632
DL_TFC3					UL_TFC0,	UL_TFC10,		
DL_TFC10, UL_TFC3, UL_TFC10, UL_TFC0, UL_TFC0, UL_TFC10, UL_TFC1	Ĺ							
UL_TFC0, UL_TFC10, UL_TFC13	.	3	DL_TFC3	UL_TFC3				RB5: No data
UL_TFC10							RB6: <u>952</u> 1008	RB6: 1008 <u>952</u>
4 DL_TFC4 UL_TFC0, DL_TFC10, UL_TFC0, DL_TFC10, UL_TFC10, UL_TFC10, UL_TFC10, UL_TFC10, UL_TFC10, UL_TFC10, UL_TFC10, UL_TFC10, UL_TFC10, UL_TFC14 RB5: 2560 RB5: No data RB6: 1344 5 DL_TFC5 UL_TFC0, UL_TFC10, UL_TFC54, UL_TFC14 RB6: 312336 RB6: No data RB6: No data 6 DL_TFC6 UL_TFC0, UL_TFC10, UL_TFC15 UL_TFC10, UL_T						. – ,		
DL_TFC10, UL_TFC23, UL_TFC10, UL_TFC10, UL_TFC10, UL_TFC10, UL_TFC10, UL_TFC10, UL_TFC10, UL_TFC51, UL_TFC51, UL_TFC51, UL_TFC10, UL_T	ļ				_			
UL_TFC10	.	4	DL_TFC4	UL_TFC4				
DL_TFC5	П						RB6: 1344	RB6: 1344
5 DL_TFC5 DL_TFC0, DL_TFC0, DL_TFC0, DL_TFC10, UL_TFC54, UL_TFC10, UL_TFC10, UL_TFC10, UL_TFC10, UL_TFC10 RB5: 2560 RB6: 312336 RB6: No data 6 DL_TFC6 DL_TFC10, UL_TFC15 DL_TFC10, UL_TFC15 RB5: 2560 RB5: 2560 RB6: No data 7 DL_TFC6 DL_TFC10, UL_TFC64, UL_TFC10, UL_TFC10, UL_TFC10 UL_TFC10 RB6: 312336 RB6: 312336 8 DL_TFC7 DL_TFC0, UL_TFC10, UL_TFC0, UL_TFC0, UL_TFC10, UL_TFC								
DL_TFC10, UL_TFC10, UL_TFC10, UL_TFC10, UL_TFC10, UL_TFC10, UL_TFC10, UL_TFC15	ļ	_						
UL_TFC0, UL_TFC10, UL_TFC15	ı	5	DL_TFC5	UL_TFC5	_ ′	_ <i>'</i>		
OL_TFC10	П						RB6: <u>312</u> 336	RB6: No data
6 DL_TFC6 DL_TFC0, DL_TFC0, DL_TFC0, DL_TFC0, DL_TFC10, UL_TFC64, UL_TFC10, UL_TFC10 RB5: 2560 RB6: 312336 RB5: 2560 RB6: 312336 7 DL_TFC7 DL_TFC0, DL_TFC0, DL_TFC0, DL_TFC10, UL_TFC10, UL_TFC10, UL_TFC10, UL_TFC10, UL_TFC10 RB5: 2560 RB6: 632672 RB5: 2560 RB6: 632672 8 DL_TFC8 DL_TFC0, DL_TFC0, DL_TFC0, DL_TFC10, UL_TFC10, RB5: 2560 RB5: 2560 RB6: 43441272								
DL_TFC10, UL_TFC64, UL_TFC10, UL_TFC10, UL_TFC10, UL_TFC10, UL_TFC16 RB6: 312336 RB6: 312336 7	ļ	_	DI TEOO	====			DD= 0=00	DD= 0500
UL_TFC0, UL_TFC10, UL_TFC16	ı	6	DL_TFC6	UL_IFC6				
UL_TFC10	П				_ ′		RB6: <u>312</u> 336	RB6: <u>312</u> 336
7 DL_TFC7 UL_TFC0, DL_TFC0, DL_TFC0, DL_TFC10, UL_TFC10, UL_TFC10, UL_TFC10, UL_TFC10 RB5: 2560 RB6: 632672 RB6: 632672					_ ′			
DL_TFC10, UL_TFC10, UL_TFC10, UL_TFC17 8 DL_TFC8 UL_TFC8 DL_TFC0, UL_TFC0, UL_TFC0, UL_TFC10,	ŀ	7	DI TEO7	TEO7			DDE: 0500	DDE: 0500
UL_TFC0, UL_TFC10 UL_TFC10, UL_TFC17 UL_TFC10, UL_TFC17 RB5: 2560 RB5: 2560 RB5: 2560 RB6: 9524008 8 DL_TFC8 DL_TFC10, UL_TFC10, UL_TFC10 UL_TFC83, UL_TFC10, UL_TFC10 RB6: 9524008 RB6: 9524008 9 DL_TFC9 DL_TFC0, DL_TFC10, UL_TFC10, UL_TFC10, UL_TFC10, UL_TFC10 UL_TFC0, UL_TFC10, UL_TFC10, UL_TFC19 RB5: 2560 RB6: 43441272	d	1	DL_IFC/	UL_IFC/	_ ′	_ ′		
8 DL_TFC8 UL_TFC10 UL_TFC17 RB5: 2560 RB5: 2560 RB5: 2560 RB6: 9524008 RB6: 9524008 <td>П</td> <td></td> <td></td> <td></td> <td></td> <td> ,</td> <td>ND0. <u>0320/2</u></td> <td>ND0. <u>032012</u></td>	П					,	ND0. <u>0320/2</u>	ND0. <u>032012</u>
8 DL_TFC8 UL_TFC0, DL_TFC0, DL_TFC10, UL_TFC23, UL_TFC10, UL_TFC10, UL_TFC10 RB5: 2560 RB6: 9524008 RB6: 9524008 9 DL_TFC9 UL_TFC0, UL_TFC10, UL_TFC10, UL_TFC10, UL_TFC10, UL_TFC10, UL_TFC10, UL_TFC10, UL_TFC10, UL_TFC10 RB5: 2560 RB5: 2560 RB5: 2560 RB5: 2560 RB6: 43441272								
DL_TFC10, UL_TFC83, UL_TFC10, UL_TFC10, UL_TFC18 9 DL_TFC9 UL_TFC9 DL_TFC0, UL_TFC10,	ŀ	0	DI TECO	III TECO			DDE: 2560	DDE: 2560
9 DL_TFC9 UL_TFC10 UL_TFC18 9 DL_TFC9 DL_TFC0, DL_TFC0, DL_TFC0, DL_TFC10, UL_TFC10, UL_TFC10, UL_TFC10, UL_TFC10, UL_TFC10, UL_TFC10 RB5: 2560 RB5: 2560 RB6: 43441272	ıl	0	DL_IFC8	OL_IFC8				
UL_TFC10 UL_TFC18 9 DL_TFC9 DL_TFC0, DL_TFC0, DL_TFC0, DL_TFC10, UL_TFC10, UL_TFC10, UL_TFC10, UL_TFC10, UL_TFC10 RB5: 2560 RB5: 2560 RB6: 43441272	1					′	1100. <u>302</u> 1000	1100. <u>302 1000</u>
9 DL_TFC9 UL_TFC9 DL_TFC0, UL_TFC0, RB5: 2560 RB6: 43441272 UL_TFC10, UL_TFC10, UL_TFC19						. – ,		
DL_TFC10, UL_TFC <u>93,</u> RB6: RB6: 1344 1272 UL_TFC0, UL_TFC10, <u>1272</u> 1344 UL_TFC10 UL_TFC19	ŀ	a	DI TECO	III TECO	_	_	RB5: 2560	RR5: 2560
UL_TFC0, UL_TFC10, <u>1272</u> 1344 UL_TFC10 UL_TFC19	ıl	9	DL_IFO9	OL_IFO9	_ ′			
UL_TFC10 UL_TFC19								1100. 1011 12/2
	1						1212 1011	
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.	ŀ	NOTE:	See TS 34	109 [10] claus			ck of RLC SDUs	

See 14.1.1 for test procedure.

14.2.51.2.4 Test requirements

- $1. \ \ \text{At step 10 the UE shall send RADIO BEARER SETUP COMPLETE}.$
- 2. At step 15 the UE transmitted transport format shall be
 - for sub-test 1 and 6: RB6/TF1 (1x336).
 - for sub-test 2 and 7: RB6/TF1 (2x336).
 - for sub-test 3 and 8: RB6/TF1 (3x336).
 - for sub-test 4 and 9: RB6/TF1 (4x336).
 - for sub-test 5, 6, 7, 8 and 9: RB5/TF1 (4x640)

- 3. At step 15 the UE shall return
 - for sub-test 1, 2, 3, 4: an RLC SDU on RB6 having the same content as sent by SS; and no data shall be received on RB5.
 - for sub-test 5: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6
 - for sub-test 6, 7, 8 and 9: an RLC SDU on RB5 and RB6 having the same content as sent by SS.
- 14.2.52 Conversational / unknown / UL:64 DL:64 kbps / CS RAB + Interactive or background / UL:64 DL:128 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH
- 14.2.52.1 Conversational / unknown / UL:64 DL:64 kbps / CS RAB / 20 ms TTI + Interactive or background / UL:64 DL:128 kbps / PS RAB

14.2.52.1.1 Conformance requirement

See 14.2.4.1.

14.2.52.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.52 for the 20 ms TTI case.

14.2.52.1.3 Method of test

Initial Conditions

The following RLC Info parameter values shall be set by the SS for the Conversational / unknown / UL:64 DL:64 kbps / CS RAB (RB5):

	RB5
	(Conv.
	64 kbps)
Uplink RLC	
TM RLC	
Segmentation indication	TRUE
Downlink RLC	
TM RLC	
Segmentation indication	TRUE

Uplink TFS:

	TFI	RB5 (Conv. 64 kbps)	RB6 (I/B 64 kbps)	DCCH
	TF0, bits	0x640	0x336	0x148
	TF1, bits	2x640	1x336	1x148
TFS	TF2, bits	N/A	2x336	N/A
	TF3, bits	N/A	3x336	N/A
	TF4, bits	N/A	4x336	N/A

TFCI		(RB5, RB6, DCCH)
UL_TFC0	(TF0, TF0, TF0)	
UL_TFC1	(TF0, TF1, TF0)	
UL_TFC2	(TF0, TF2, TF0)	

TFCI	(RB5, RB6, DCCH)
UL_TFC3	(TF0, TF3, TF0)
UL_TFC4	(TF0, TF4, TF0)
UL_TFC5	(TF1, TF0, TF0)
UL_TFC6	(TF1, TF1, TF0)
UL_TFC7	(TF1, TF2, TF0)
UL_TFC8	(TF1, TF3, TF0)
UL_TFC9	(TF1, TF4, TF0)
UL_TFC10	(TF0, TF0, TF1)
UL_TFC11	(TF0, TF1, TF1)
UL_TFC12	(TF0, TF2, TF1)
UL_TFC13	(TF0, TF3, TF1)
UL_TFC14	(TF0, TF4, TF1)
UL_TFC15	(TF1, TF0, TF1)
UL_TFC16	(TF1, TF1, TF1)
UL_TFC17	(TF1, TF2, TF1)
UL_TFC18	(TF1, TF3, TF1)
UL_TFC19	(TF1, TF4, TF1)

	TFI	RB5 (Conv. 64 kbps)	RB6 (I/B 128 kbps)	DCCH
	TF0, bits	0x640	0x336	0x148
	TF1, bits	2x640	1x336	1x148
TFS	TF2, bits	N/A	2x336	N/A
	TF3, bits	N/A	4x336	N/A
	TF4, bits	N/A	8x336	N/A

Downlink TFCS:

TFCI	(RB5, RB6, DCCH)
DL_TFC0	(TF0, TF0, TF0)
DL_TFC1	(TF0, TF1, TF0)
DL_TFC2	(TF0, TF2, TF0)
DL_TFC3	(TF0, TF3, TF0)
DL_TFC4	(TF0, TF4, TF0)
DL_TFC5	(TF1, TF0, TF0)
DL_TFC6	(TF1, TF1, TF0)
DL_TFC7	(TF1, TF2, TF0)
DL_TFC8	(TF1, TF3, TF0)
DL_TFC9	(TF1, TF4, TF0)
DL_TFC10	(TF0, TF0, TF1)
DL_TFC11	(TF0, TF1, TF1)
DL_TFC12	(TF0, TF2, TF1)
DL_TFC13	(TF0, TF3, TF1)
DL_TFC14	(TF0, TF4, TF1)
DL_TFC15	(TF1, TF0, TF1)
DL_TFC16	(TF1, TF1, TF1)
DL_TFC17	(TF1, TF2, TF1)
DL_TFC18	(TF1, TF3, TF1)
DL_TFC19	(TF1, TF4, TF1)

Sub-tests:

	ub- est	Downlink TFCS Under	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (bits)	Test data size (bits)
		Test				(note)	(note)
1		DL_TFC1	UL_TFC1	DL_TFC0,	UL_TFC0,	RB5: 1280	RB5: No data
				DL_TFC10,	UL_TFC1,	RB6: 312336	RB6: <u>312</u> 336
				UL_TFC0,	UL_TFC10,		
				UL_TFC10	UL_TFC11		
2		DL_TFC2	UL_TFC2	DL_TFC0,	UL_TFC0,	RB5: 1280	RB5: No data
				DL_TFC10,	UL_TFC2,	RB6: <u>632</u> 672	RB6: 632672
				UL_TFC0,	UL_TFC10,	<u> </u>	
				UL_TFC10	UL_TFC12		
3		DL_TFC3	UL_TFC3	DL_TFC0,	UL_TFC0,	RB5: 1280	RB5: No data
				DL_TFC10,	UL_TFC3,	RB6:	RB6: 1344 1272
				UL_TFC0,	UL_TFC10,	1272 1344	
				UL_TFC10	UL_TFC13		
4		DL_TFC4	UL_TFC4	DL_TFC0,	UL_TFC0,	RB5: 1280	RB5: No data
		_	_	DL_TFC10,	UL_TFC43,	RB6:	RB6: <u>2552</u> 2688
				UL_TFC0,	UL_TFC10,	2552 2688	
				UL_TFC10	UL_TFC14		
5		DL_TFC5	UL_TFC5	DL_TFC0,	UL_TFC0,	RB5: 1280	RB5: 1280
		_	_	DL_TFC10,	UL_TFC54,	RB6: 312336	RB6: No data
				UL_TFC0,	UL_TFC10,		
				UL_TFC10	UL_TFC15		
6		DL_TFC6	UL_TFC6	DL_TFC0,	UL_TFC0,	RB5: 1280	RB5: 1280
				DL_TFC10,	UL_TFC <u>6</u> 4,	RB6: 312336	RB6: 312336
				UL_TFC0,	UL_TFC10,		
				UL_TFC10	UL_TFC16		
7		DL_TFC7	UL_TFC7	DL_TFC0,	UL_TFC0,	RB5: 1280	RB5: 1280
				DL_TFC10,	UL_TFC <u>7</u> 2,	RB6: <u>632</u> 672	RB6: <u>632</u> 672
				UL_TFC0,	UL_TFC10,		
				UL_TFC10	UL_TFC17		
8		DL_TFC8	UL_TFC8	DL_TFC0,	UL_TFC0,	RB5: 1280	RB5: 1280
				DL_TFC10,	UL_TFC83,	RB6:	RB6: <u>1272</u> 1344
				UL_TFC0,	UL_TFC10,	1272 1344	
				UL_TFC10	UL_TFC18		
9		DL_TFC9	UL_TFC9	DL_TFC0,	UL_TFC0,	RB5: 1280	RB5: 1280
				DL_TFC10,	UL_TFC <u>9</u> 3,	RB6:	RB6: <u>2552</u> 2688
Ш				UL_TFC0,	UL_TFC10,	2552 2688	
L				UL_TFC10	UL_TFC19		
NO	NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 14.1.1 for test procedure.

14.2.52.1.4 Test requirements

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be
 - for sub-test 1 and 6: RB6/TF1 (1x336).
 - for sub-test 2 and 7: RB6/TF1 (2x336).
 - for sub-test 3 and 8: RB6/TF1 (3x336).
 - for sub-test 4 and 9: RB6/TF1 (4x336).
 - for sub-test 5, 6, 7, 8 and 9: RB5/TF1 (2x640)

3. At step 15 the UE shall return

- for sub-test 1, 2, 3, 4: an RLC SDU on RB6 having the same content as sent by SS; and no data shall be received on RB5.
- for sub-test 5: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6
- for sub-test 6, 7, 8 and 9: an RLC SDU on RB5 and RB6 having the same content as sent by SS.

14.2.52.2 Conversational / unknown / UL:64 DL:64 kbps / CS RAB / 40 ms TTI + Interactive or background / UL:64 DL:128 kbps / PS RAB

14.2.52.2.1 Conformance requirement

See 14.2.4.1.

14.2.52.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.51 for the 40 ms TTI case.

14.2.52.2.3 Method of test

Initial Conditions

The following RLC Info parameter values shall be set by the SS for the Conversational / unknown / UL:64 DL:64 kbps / CS RAB (RB5):

	<u>RB5</u>
	(Conv.
	64 kbps)
Uplink RLC	
TM RLC	
Segmentation indication	TRUE
Downlink RLC	
TM RLC	
Segmentation indication	TRUE

Uplink TFS:

	TFI	RB5 (Conv. 64 kbps)	RB6 (I/B 64 kbps)	DCCH
	TF0, bits	0x640	0x336	0x148
	TF1, bits	4x640	1x336	1x148
TFS	TF2, bits	N/A	2x336	N/A
	TF3, bits	N/A	3x336	N/A
	TF4, bits	N/A	4x336	N/A

TFCI	(RB5, RB6, DCCH)
UL_TFC0	(TF0, TF0, TF0)
UL_TFC1	(TF0, TF1, TF0)
UL_TFC2	(TF0, TF2, TF0)
UL_TFC3	(TF0, TF3, TF0)
UL_TFC4	(TF0, TF4, TF0)
UL_TFC5	(TF1, TF0, TF0)
UL_TFC6	(TF1, TF1, TF0)
UL_TFC7	(TF1, TF2, TF0)
UL_TFC8	(TF1, TF3, TF0)
UL_TFC9	(TF1, TF4, TF0)
UL_TFC10	(TF0, TF0, TF1)
UL_TFC11	(TF0, TF1, TF1)
UL_TFC12	(TF0, TF2, TF1)
UL_TFC13	(TF0, TF3, TF1)
UL_TFC14	(TF0, TF4, TF1)
UL_TFC15	(TF1, TF0, TF1)
UL_TFC16	(TF1, TF1, TF1)
UL_TFC17	(TF1, TF2, TF1)
UL_TFC18	(TF1, TF3, TF1)
UL_TFC19	(TF1, TF4, TF1)

	TFI	RB5 (Conv. 64 kbps)	RB6 (I/B 128 kbps)	DCCH
	TF0, bits	0x640	0x336	0x148
	TF1, bits	4x640	1x336	1x148
TFS	TF2, bits	N/A	2x336	N/A
	TF3, bits	N/A	4x336	N/A
	TF4, bits	N/A	8x336	N/A

Downlink TFCS:

TFCI	(RB5, RB6, DCCH)
DL_TFC0	(TF0, TF0, TF0)
DL_TFC1	(TF0, TF1, TF0)
DL_TFC2	(TF0, TF2, TF0)
DL_TFC3	(TF0, TF3, TF0)
DL_TFC4	(TF0, TF4, TF0)
DL_TFC5	(TF1, TF0, TF0)
DL_TFC6	(TF1, TF1, TF0)
DL_TFC7	(TF1, TF2, TF0)
DL_TFC8	(TF1, TF3, TF0)
DL_TFC9	(TF1, TF4, TF0)
DL_TFC10	(TF0, TF0, TF1)
DL_TFC11	(TF0, TF1, TF1)
DL_TFC12	(TF0, TF2, TF1)
DL_TFC13	(TF0, TF3, TF1)
DL_TFC14	(TF0, TF4, TF1)
DL_TFC15	(TF1, TF0, TF1)
DL_TFC16	(TF1, TF1, TF1)
DL_TFC17	(TF1, TF2, TF1)
DL_TFC18	(TF1, TF3, TF1)
DL_TFC19	(TF1, TF4, TF1)

Sub-tests:

	Sub- test	Downlink TFCS	Uplink TFCS	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size	Test data size (bits)
		Under	Under test	100104	0.0	(bits)	(5.10)
		Test				(note)	(note)
	1	DL_TFC1	UL_TFC1	DL_TFC0,	UL_TFC0,	RB5: 2560	RB5: No data
				DL_TFC10,	UL_TFC1,	RB6: 312336	RB6: 336312
				UL_TFC0,	UL_TFC10,		
				UL_TFC10	UL_TFC11		
	2	DL_TFC2	UL_TFC2	DL_TFC0,	UL_TFC0,	RB5: 2560	RB5: No data
				DL_TFC10,	UL_TFC2,	RB6: <u>632</u> 672	RB6: 672 632
				UL_TFC0,	UL_TFC10,		
				UL_TFC10	UL_TFC12		
	3	DL_TFC3	UL_TFC3	DL_TFC0,	UL_TFC0,	RB5: 2560	RB5: No data
				DL_TFC10,	UL_TFC3,	RB6: <u>1272</u> 1344	RB6:
				UL_TFC0,	UL_TFC10,		1344 <u>1272</u>
				UL_TFC10	UL_TFC13		
	4	DL_TFC4	UL_TFC4	DL_TFC0,	UL_TFC0,	RB5: 2560	RB5: No data
				DL_TFC10,	UL_TFC <u>4</u> 3,	RB6: <u>2552</u> 2688	RB6:
				UL_TFC0,	UL_TFC10,		2552 2688
				UL_TFC10	UL_TFC14		
	5	DL_TFC5	UL_TFC5	DL_TFC0,	UL_TFC0,	RB5: 2560	RB5: 2560
				DL_TFC10,	UL_TFC <u>5</u> 4,	RB6: <u>312</u> 336	RB6: No data
				UL_TFC0,	UL_TFC10,		
				UL_TFC10	UL_TFC15		
	6	DL_TFC6	UL_TFC6	DL_TFC0,	UL_TFC0,	RB5: 2560	RB5: 2560
				DL_TFC10,	UL_TFC <u>6</u> 4,	RB6: <u>312</u> 336	RB6: <u>312</u> 336
				UL_TFC0,	UL_TFC10,		
				UL_TFC10	UL_TFC16		
	7	DL_TFC7	UL_TFC7	DL_TFC0,	UL_TFC0,	RB5: 2560	RB5: 2560
ļ				DL_TFC10,	UL_TFC <u>7</u> 2,	RB6: <u>632</u> 672	RB6: <u>632</u> 672
				UL_TFC0,	UL_TFC10,		
				UL_TFC10	UL_TFC17		
	8	DL_TFC8	UL_TFC8	DL_TFC0,	UL_TFC0,	RB5: 2560	RB5: 2560
				DL_TFC10,	UL_TFC <u>8</u> 3,	RB6: <u>1272</u> 1344	RB6:
				UL_TFC0,	UL_TFC10,		<u>1272</u> 1344
ļ				UL_TFC10	UL_TFC18		
	9	DL_TFC9	UL_TFC9	DL_TFC0,	UL_TFC0,	RB5: 2560	RB5: 2560
Ш				DL_TFC10,	UL_TFC <u>9</u> 3,	RB6: <u>2552</u> 2688	RB6:
Ц				UL_TFC0,	UL_TFC10,		2552 2688
ļ				UL_TFC10	UL_TFC19		
	NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 14.1.1 for test procedure.

14.2.52.2.4 Test requirements

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be
 - for sub-test 1 and 6: RB6/TF1 (1x336).
 - for sub-test 2 and 7: RB6/TF1 (2x336).
 - for sub-test 3 and 8: RB6/TF1 (3x336).
 - for sub-test 4 and 9: RB6/TF1 (4x336).
 - for sub-test 5, 6, 7, 8 and 9: RB5/TF1 (4x640)
- 3. At step 15 the UE shall return
 - for sub-test 1, 2, 3, 4: an RLC SDU on RB6 having the same content as sent by SS; and no data shall be received on RB5.

- for sub-test 5: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6.
- for sub-test 6, 7, 8 and 9: an RLC SDU on RB5 and RB6 having the same content as sent by SS.
- 14.2.53 Conversational / unknown / UL:64 DL:64 kbps / CS RAB + Interactive or background / UL:128 DL:128 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH
- 14.2.53.1 Conversational / unknown / UL:64 DL:64 kbps / CS RAB / 20 ms TTI + Interactive or background / UL:128 DL:128 kbps / PS RAB
- 14.2.53.1.1 Conformance requirement

See 14.2.4.1.

14.2.53.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.53 for the 20 ms TTI case.

14.2.53.1.3 Method of test

Initial Conditions

The following RLC Info parameter values shall be set by the SS for the Conversational / unknown / UL:64 DL:64 kbps / CS RAB (RB5):

	RB5 (Conv. 64 kbps)
Uplink RLC	
TM RLC	
Segmentation indication	TRUE
Downlink RLC	
TM RLC	
Segmentation indication	TRUE

Uplink TFS:

	TFI	RB5 (Conv. 64 kbps)	RB6 (I/B 128 kbps)	DCCH
	TF0, bits	0x640	0x336	0x148
	TF1, bits	2x640	1x336	1x148
TFS	TF2, bits	N/A	2x336	N/A
	TF3, bits	N/A	4x336	N/A
	TF4, bits	N/A	8x336	N/A

TFCI	(RB5, RB6, DCCH)
UL_TFC0	(TF0, TF0, TF0)
UL_TFC1	(TF0, TF1, TF0)
UL_TFC2	(TF0, TF2, TF0)
UL_TFC3	(TF0, TF3, TF0)
UL_TFC4	(TF0, TF4, TF0)
UL_TFC5	(TF1, TF0, TF0)
UL_TFC6	(TF1, TF1, TF0)
UL_TFC7	(TF1, TF2, TF0)
UL_TFC8	(TF1, TF3, TF0)
UL_TFC9	(TF1, TF4, TF0)
UL_TFC10	(TF0, TF0, TF1)
UL_TFC11	(TF0, TF1, TF1)
UL_TFC12	(TF0, TF2, TF1)
UL_TFC13	(TF0, TF3, TF1)
UL_TFC14	(TF0, TF4, TF1)
UL_TFC15	(TF1, TF0, TF1)
UL_TFC16	(TF1, TF1, TF1)
UL_TFC17	(TF1, TF2, TF1)
UL_TFC18	(TF1, TF3, TF1)
UL_TFC19	(TF1, TF4, TF1)

	TFI	RB5 (Conv. 64 kbps)	RB6 (I/B 128 kbps)	DCCH
	TF0, bits	0x640	0x336	0x148
	TF1, bits	2x640	1x336	1x148
TFS	TF2, bits	N/A	2x336	N/A
	TF3, bits	N/A	4x336	N/A
	TF4, bits	N/A	8x336	N/A

Downlink TFCS:

TFCI	(RB5, RB6, DCCH)
DL_TFC0	(TF0, TF0, TF0)
DL_TFC1	(TF0, TF1, TF0)
DL_TFC2	(TF0, TF2, TF0)
DL_TFC3	(TF0, TF3, TF0)
DL_TFC4	(TF0, TF4, TF0)
DL_TFC5	(TF1, TF0, TF0)
DL_TFC6	(TF1, TF1, TF0)
DL_TFC7	(TF1, TF2, TF0)
DL_TFC8	(TF1, TF3, TF0)
DL_TFC9	(TF1, TF4, TF0)
DL_TFC10	(TF0, TF0, TF1)
DL_TFC11	(TF0, TF1, TF1)
DL_TFC12	(TF0, TF2, TF1)
DL_TFC13	(TF0, TF3, TF1)
DL_TFC14	(TF0, TF4, TF1)
DL_TFC15	(TF1, TF0, TF1)
DL_TFC16	(TF1, TF1, TF1)
DL_TFC17	(TF1, TF2, TF1)
DL_TFC18	(TF1, TF3, TF1)
DL_TFC19	(TF1, TF4, TF1)

Sub-tests:

	Sub- test	Downlink TFCS Under	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (bits)	Test data size (bits)
		Test				(note)	(note)
-	1	DL_TFC1	UL_TFC1	DL_TFC0,	UL_TFC0,	RB5:	RB5: No data
				DL_TFC10,	UL_TFC1,	1280 640	RB6: 336 312
				UL_TFC0,	UL_TFC10,	RB6: <u>312</u> 336	
				UL_TFC10	UL_TFC11		
. 2	2	DL_TFC2	UL_TFC2	DL_TFC0,	UL_TFC0,	RB5: 1280	RB5: No data
				DL_TFC10,	UL_TFC2,	RB6:	RB6: 672632
				UL_TFC0,	UL_TFC10,	<u>632672</u>	
				UL_TFC10	UL_TFC12		
1	3	DL_TFC3	UL_TFC3	DL_TFC0,	UL_TFC0,	RB5: 1280	RB5: No data
				DL_TFC10,	UL_TFC3,	RB6:	RB6:
				UL_TFC0,	UL_TFC10,	<u>1272</u> 1344	1344 1272
				UL_TFC10	UL_TFC13		
. 4	4	DL_TFC4	UL_TFC4	DL_TFC0,	UL_TFC0,	RB5: 1280	RB5: No data
				DL_TFC10,	UL_TFC <u>4</u> 3,	RB6:	RB6:
				UL_TFC0,	UL_TFC10,	2552 2688	2552 2688
				UL_TFC10	UL_TFC14		
. {	5	DL_TFC5	UL_TFC5	DL_TFC0,	UL_TFC0,	RB5: 1280	RB5: 1280
				DL_TFC10,	UL_TFC <u>5</u> 4,	RB6: <u>312</u> 336	RB6: No data
				UL_TFC0,	UL_TFC10,		
L.	_	D: ==0.	=====	UL_TFC10	UL_TFC15		
, (ŝ	DL_TFC6	UL_TFC6	DL_TFC0,	UL_TFC0,	RB5: 1280	RB5: 1280
l				DL_TFC10,	UL_TFC <u>6</u> 4,	RB6: <u>312</u> 336	RB6: <u>312</u> 336
				UL_TFC0,	UL_TFC10,		
-	7	DI TEO7	UL TFC7	UL_TFC10	UL_TFC16	DDC: 4000	DDE: 4000
ıl '	7	DL_TFC7	UL_IFC/	DL_TFC0,	UL_TFC0,	RB5: 1280	RB5: 1280
				DL_TFC10,	UL_TFC <u>7</u> 2,	RB6:	RB6: <u>632</u> 672
I				UL_TFC0,	UL_TFC10,	632 672	
Ι.,	3	DI TECO	UL_TFC8	UL_TFC10	UL_TFC17	DDC: 4000	DDC: 4000
ıl '	5	DL_TFC8	UL_IFC8	DL_TFC0,	UL_TFC0,	RB5: 1280 RB6:	RB5: 1280 RB6:
				DL_TFC10,	UL_TFC83,		
I				UL_TFC0,	UL_TFC10, UL_TFC18	<u>1272</u> 1344	<u>1272</u> 1344
Η,	9	DL_TFC9	UL_TFC9	UL_TFC10 DL TFC0.	UL TFC0,	RB5: 1280	RB5: 1280
ıl '	9	DL_1FC9	UL_IFC9	DL_TFC0, DL_TFC10,		RB5: 1280 RB6:	RB5: 1280 RB6:
				UL_TFC10,	UL_TFC <u>9</u> 3, UL_TFC10,	2552 2688	2552 2688
I				UL_TFC0,	UL_TFC10,	<u> 2002</u> 2000	<u> 2002</u> 2000
-	NOTE:	Soo TS 24	100 [10] claus			nhack of PLC SI	Dile
ᆜ	NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 14.1.1 for test procedure.

14.2.53.1.4 Test requirements

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be
 - for sub-test 1 and 6: RB6/TF1 (1x336).
 - for sub-test 2 and 7: RB6/TF1 (2x336).
 - for sub-test 3 and 8: RB6/TF1 (4x336).
 - for sub-test 4 and 9: RB6/TF1 (8x336).
 - for sub-test 5, 6, 7, 8 and 9: RB5/TF1 (2x640)
- 3. At step 15 the UE shall return
 - for sub-test 1, 2, 3, 4: an RLC SDU on RB6 having the same content as sent by SS; and no data shall be received on RB5.

- for sub-test 5: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6.
- for sub-test 6, 7, 8 and 9: an RLC SDU on RB5 and RB6 having the same content as sent by SS.

14.2.53.2 Conversational / unknown / UL:64 DL:64 kbps / CS RAB / 40 ms TTI + Interactive or background / UL:128 DL:128 kbps / PS RAB

14.2.53.2.1 Conformance requirement

See 14.2.4.1.

14.2.53.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.53 for the 40 ms TTI case.

14.2.53.2.3 Method of test

Initial Conditions

The following RLC Info parameter values shall be set by the SS for the Conversational / unknown / UL:64 DL:64 kbps / CS RAB (RB5):

	RB5 (Conv. 64 kbps)
<u>Uplink RLC</u>	
TM RLC Segmentation indication	TRUE
Downlink RLC	THOL
TM RLC	
Segmentation indication	TRUE

Uplink TFS:

	TFI	RB5 (Conv. 64 kbps)	RB6 (I/B 128 kbps)	DCCH
	TF0, bits	0x640	0x336	0x148
TFS	TF1, bits	2x640 <u>4x64</u> 0	1x336	1x148
1173	TF2, bits	N/A	2x336	N/A
	TF3, bits	N/A	4x336	N/A
	TF4, bits	N/A	8x336	N/A

TFCI	(RB5, RB6, DCCH)
UL_TFC0	(TF0, TF0, TF0)
UL_TFC1	(TF0, TF1, TF0)
UL_TFC2	(TF0, TF2, TF0)
UL_TFC3	(TF0, TF3, TF0)
UL_TFC4	(TF0, TF4, TF0)
UL_TFC5	(TF1, TF0, TF0)
UL_TFC6	(TF1, TF1, TF0)
UL_TFC7	(TF1, TF2, TF0)
UL_TFC8	(TF1, TF3, TF0)
UL_TFC9	(TF1, TF4, TF0)
UL_TFC10	(TF0, TF0, TF1)
UL_TFC11	(TF0, TF1, TF1)
UL_TFC12	(TF0, TF2, TF1)
UL_TFC13	(TF0, TF3, TF1)
UL_TFC14	(TF0, TF4, TF1)
UL_TFC15	(TF1, TF0, TF1)
UL_TFC16	(TF1, TF1, TF1)
UL_TFC17	(TF1, TF2, TF1)
UL_TFC18	(TF1, TF3, TF1)
UL_TFC19	(TF1, TF4, TF1)

	TFI	RB5 (Conv. 64 kbps)	RB6 (I/B 128 kbps)	DCCH
	TF0, bits	0x640	0x336	0x148
TFS	TF1, bits	2x6404x64 0	1x336	1x148
1173	TF2, bits	N/A	2x336	N/A
	TF3, bits	N/A	4x336	N/A
	TF4, bits	N/A	8x336	N/A

Downlink TFCS:

TFCI	(RB5, RB6, DCCH)
DL_TFC0	(TF0, TF0, TF0)
DL_TFC1	(TF0, TF1, TF0)
DL_TFC2	(TF0, TF2, TF0)
DL_TFC3	(TF0, TF3, TF0)
DL_TFC4	(TF0, TF4, TF0)
DL_TFC5	(TF1, TF0, TF0)
DL_TFC6	(TF1, TF1, TF0)
DL_TFC7	(TF1, TF2, TF0)
DL_TFC8	(TF1, TF3, TF0)
DL_TFC9	(TF1, TF4, TF0)
DL_TFC10	(TF0, TF0, TF1)
DL_TFC11	(TF0, TF1, TF1)
DL_TFC12	(TF0, TF2, TF1)
DL_TFC13	(TF0, TF3, TF1)
DL_TFC14	(TF0, TF4, TF1)
DL_TFC15	(TF1, TF0, TF1)
DL_TFC16	(TF1, TF1, TF1)
DL_TFC17	(TF1, TF2, TF1)
DL_TFC18	(TF1, TF3, TF1)
DL_TFC19	(TF1, TF4, TF1)

Sub-tests:

Su	st TFCS Under	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (bits)	Test data size (bits)
	Test				(note)	(note)
. 1	DL_TFC1	UL_TFC1	DL_TFC0,	UL_TFC0,	RB5: 2560	RB5: No data
			DL_TFC10,	UL_TFC1,	RB6: <u>312</u> 336	RB6: 336 312
			UL_TFC0,	UL_TFC10,		
			UL_TFC10	UL_TFC11		
2	DL_TFC2	UL_TFC2	DL_TFC0,	UL_TFC0,	RB5: 2560	RB5: No data
			DL_TFC10,	UL_TFC2,	RB6:	RB6: <u>632</u> 672
			UL_TFC0,	UL_TFC10,	672 632	
			UL_TFC10	UL_TFC12		
3	DL_TFC3	UL_TFC3	DL_TFC0,	UL_TFC0,	RB5: 2560	RB5: No data
			DL_TFC10,	UL_TFC3,	RB6:	RB6:
			UL_TFC0,	UL_TFC10,	<u>1272</u> 1344	<u>1272</u> 1344
			UL_TFC10	UL_TFC13		
. 4	DL_TFC4	UL_TFC4	DL_TFC0,	UL_TFC0,	RB5: 2560	RB5: No data
			DL_TFC10,	UL_TFC <u>4</u> 3,	RB6:	RB6:
			UL_TFC0,	UL_TFC10,	2552 2688	2552 2688
			UL_TFC10	UL_TFC14		
5	DL_TFC5	UL_TFC5	DL_TFC0,	UL_TFC0,	RB5: 2560	RB5: 2560
			DL_TFC10,	UL_TFC <u>5</u> 4,	RB6: 336 312	RB6: No data
			UL_TFC0,	UL_TFC10,		
			UL_TFC10	UL_TFC15		
6	DL_TFC6	UL_TFC6	DL_TFC0,	UL_TFC0,	RB5: 2560	RB5: 2560
			DL_TFC10,	UL_TFC <u>6</u> 4,	RB6: <u>312</u> 336	RB6: <u>312</u> 336
			UL_TFC0,	UL_TFC10,		
			UL_TFC10	UL_TFC16		
7	DL_TFC7	UL_TFC7	DL_TFC0,	UL_TFC0,	RB5: 2560	RB5: 2560
			DL_TFC10,	UL_TFC <u>7</u> 2,	RB6:	RB6: <u>632</u> 672
			UL_TFC0,	UL_TFC10,	632 672	
			UL_TFC10	UL_TFC17		
8	DL_TFC8	UL_TFC8	DL_TFC0,	UL_TFC0,	RB5: 2560	RB5: 2560
			DL_TFC10,	UL_TFC <u>8</u> 3,	RB6:	RB6:
			UL_TFC0,	UL_TFC10,	<u>1272</u> 1344	<u>1272</u> 1344
			UL_TFC10	UL_TFC18		
9	DL_TFC9	UL_TFC9	DL_TFC0,	UL_TFC0,	RB5: 2560	RB5: 2560
			DL_TFC10,	UL_TFC <u>9</u> 3,	RB6:	RB6:
			UL_TFC0,	UL_TFC10,	2552 2688	2552 2688
			UL_TFC10	UL_TFC19		
NC	NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.					

See 14.1.1 for test procedure.

14.2.53.2.4 Test requirements

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be
 - for sub-test 1 and 6: RB6/TF1 (1x336).
 - for sub-test 2 and 7: RB6/TF1 (2x336).
 - for sub-test 3 and 8: RB6/TF1 (4x336).
 - for sub-test 4 and 9: RB6/TF1 (8x336).
 - for sub-test 5, 6, 7, 8 and 9: RB5/TF1 (4x640)

3. At step 15 the UE shall return

- for sub-test 1, 2, 3, 4: an RLC SDU on RB6 having the same content as sent by SS; and no data shall be received on RB5.
- for sub-test 5: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6.
- for sub-test 6, 7, 8 and 9: an RLC SDU on RB5 and RB6 having the same content as sent by SS.

14.2.54 Interactive or background / UL:64 DL:128 kbps / PS RAB + Streaming / unknown / UL:0 DL:64 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.2.54.1 Conformance requirement

See 14.2.4.1.

14.2.54.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.54.

To be able to test the downlink radio bearer using the UE loopback function for the reference radio bearer UL:0 DL: 64 kbps, the reference radio bearer configuration according to TS 34.108, clause 6.10.2.4.1.15.1 (Streaming/unknown/UL:14.4 kbps) is used in uplink.

14.2.54.3 Method of test

	TFI	RB5 (I/B 64 kbps)	RB6 (Str. 14.4 kbps)	DCCH
	TF0, bits	0x336	0x576	0x148
	TF1, bits	1x336	1x576	1x148
TFS	TF2, bits	2x336	N/A	N/A
	TF3, bits	3x336	N/A	N/A
	TF4, bits	4x336	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, DCCH)
UL_TFC0	(TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0)
UL_TFC2	(TF2, TF0, TF0)
UL_TFC3	(TF3, TF0, TF0)
UL_TFC4	(TF4, TF0, TF0)
UL_TFC5	(TF0, TF1, TF0)
UL_TFC6	(TF1, TF1, TF0)
UL_TFC7	(TF2, TF1, TF0)
UL_TFC8	(TF3, TF1, TF0)
UL_TFC9	(TF4, TF1, TF0)
UL_TFC10	(TF0, TF0, TF1)
UL_TFC11	(TF1, TF0, TF1)
UL_TFC12	(TF2, TF0, TF1)
UL_TFC13	(TF3, TF0, TF1)
UL_TFC14	(TF4, TF0, TF1)
UL_TFC15	(TF0, TF1, TF1)
UL_TFC16	(TF1, TF1, TF1)
UL_TFC17	(TF2, TF1, TF1)
UL_TFC18	(TF3, TF1, TF1)
UL_TFC19	(TF4, TF1, TF1)

Downlink TFS:

	TFI	RB5 (I/B 128 kbps)	RB6 (Str. 64 kbps)	DCCH
	TF0, bits	0x336	0x320	0x148
	TF1, bits	1x336	1x320	1x148
TFS	TF2, bits	2x336	2x320	N/A
	TF3, bits	4x336	4x320	N/A
	TF4, bits	8x336	8x320	N/A

Downlink TFCS:

TFCI	(RB5, RB6, DCCH)
DL_TFC0	(TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0)
DL_TFC2	(TF2, TF0, TF0)
DL_TFC3	(TF3, TF0, TF0)
DL_TFC4	(TF4, TF0, TF0)
DL_TFC5	(TF0, TF1, TF0)
DL_TFC6	(TF1, TF1, TF0)
DL_TFC7	(TF2, TF1, TF0)
DL_TFC8	(TF3, TF1, TF0)
DL_TFC9	(TF4, TF1, TF0)
DL_TFC10	(TF0, TF2, TF0)
DL_TFC11	(TF1, TF2, TF0)
DL_TFC12	(TF2, TF2, TF0)
DL_TFC13	(TF3, TF2, TF0)
DL_TFC14	(TF4, TF2, TF0)
DL_TFC15	(TF0, TF3, TF0)
DL_TFC16	(TF1, TF3, TF0)
DL_TFC17	(TF2, TF3, TF0)
DL_TFC18	(TF3, TF3, TF0)
DL_TFC19	(TF4, TF3, TF0)
DL_TFC20	(TF0, TF4, TF0)
DL_TFC21	(TF1, TF4, TF0)
DL_TFC22	(TF2, TF4, TF0)
DL_TFC23	(TF3, TF4, TF0)
DL_TFC24	(TF4, TF4, TF0)

TFCI	(RB5, RB6, D	CCH)
DL_TFC25	(TF0, TF0, TF1)	
DL_TFC26	(TF1, TF0, TF1)	
DL_TFC27	(TF2, TF0, TF1)	
DL_TFC28	(TF3, TF0, TF1)	
DL_TFC29	(TF4, TF0, TF1)	
DL_TFC30	(TF0, TF1, TF1)	
DL_TFC31	(TF1, TF1, TF1)	
DL_TFC32	(TF2, TF1, TF1)	
DL_TFC33	(TF3, TF1, TF1)	
DL_TFC34	(TF4, TF1, TF1)	
DL_TFC35	(TF0, TF2, TF1)	
DL_TFC36	(TF1, TF2, TF1)	
DL_TFC37	(TF2, TF2, TF1)	
DL_TFC38	(TF3, TF2, TF1)	
DL_TFC39	(TF4, TF2, TF1)	
DL_TFC40	(TF0, TF3, TF1)	
DL_TFC41	(TF1, TF3, TF1)	
DL_TFC42	(TF2, TF3, TF1)	
DL_TFC43	(TF3, TF3, TF1)	
DL_TFC44	(TF4, TF3, TF1)	
DL_TFC45	(TF0, TF4, TF1)	
DL_TFC46	(TF1, TF4, TF1)	•
DL_TFC47	(TF2, TF4, TF1)	
DL_TFC48	(TF3, TF4, TF1)	
DL_TFC49	(TF4, TF4, TF1)	

Sub-tests:

Sub- test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (bits)	Test data size (bits)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC25, UL_TFC0,	UL_TFC0, UL_TFC1, UL_TFC10,	(note 1) RB5: <u>312</u> 336 RB6: 576	(note 1) RB5: <u>312</u> 336 RB6: No data
2	DL_TFC2	UL_TFC2	UL_TFC10 DL_TFC0, DL_TFC25, UL_TFC0, UL TFC10	UL_TFC11 UL_TFC0, UL_TFC2, UL_TFC10, UL TFC12	RB5: <u>632</u> 672 RB6: 576	RB5: <u>672632</u> RB6: No data
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC25, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC3, UL_TFC10, UL_TFC13	RB5: 1344<u>1272</u> RB6: 576	RB5: 1344 <u>1272</u> RB6: No data
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC25, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC43, UL_TFC10, UL_TFC14	RB5: <u>2552</u> 2688 RB6: 576	RB5: <u>2552</u> 2688 RB6: No data
5	DL_TFC5	UL_TFC5	DL_TFC0, DL_TFC25, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC <u>5</u> 4, UL_TFC10, UL_TFC15	RB5: 336 312 RB6: 576	RB5: No data RB6: 320 (note 2)
6	DL_TFC6	UL_TFC6	DL_TFC0, DL_TFC25, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC64, UL_TFC10, UL_TFC16	RB5: 336 312 RB6: 576	RB5: 336 312 RB6: 320 (note 2)
7	DL_TFC7	UL_TFC7	DL_TFC0, DL_TFC25, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC72, UL_TFC10, UL_TFC17	RB5: <u>632</u> 672 RB6: 576	RB5: <u>632</u> 672 RB6: 320 (note 2)
8	DL_TFC8	UL_TFC8	DL_TFC0, DL_TFC25, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC <u>8</u> 3, UL_TFC10, UL_TFC18	RB5: 1344 1272 RB6: 576	RB5: 13441272 RB6: 320 (note 2)

Sub- test	Downlink TFCS Under	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (bits)	Test data size (bits)
	Test				(note 1)	(note 1)
. 9	DL_TFC9	UL_TFC9	DL_TFC0,	UL_TFC0,	RB5:	RB5:
			DL_TFC25,	UL_TFC <u>9</u> 3,	<u>2552</u> 2688	<u>2552</u> 2688
			UL_TFC0,	UL_TFC10,	RB6: 576	RB6: 320
			UL_TFC10	UL_TFC19		(note 2)
10	DL_TFC10	UL_TFC5	DL_TFC0,	UL_TFC0,	RB5: 336 312	RB5: No data
			DL_TFC25,	UL_TFC <u>5</u> 4,	RB6:	RB6: 640
			UL_TFC0,	UL_TFC10,	<u>576</u> 1152	(note 3)
			UL_TFC10	UL_TFC15		
11	DL_TFC11	UL_TFC6	DL_TFC0,	UL_TFC0,	RB5: 336 312	RB5: 336 312
			DL_TFC25,	UL_TFC <u>6</u> 4,	RB6:	RB6: 640
			UL_TFC0,	UL_TFC10,	<u>576</u> 1152	(note 3)
			UL_TFC10	UL_TFC16		
12	DL_TFC12	UL_TFC7	DL_TFC0,	UL_TFC0,	RB5: <u>632</u> 672	RB5: <u>632</u> 672
			DL_TFC25,	UL_TFC <u>7</u> 2,	RB6:	RB6: 640
			UL_TFC0,	UL_TFC10,	<u>576</u> 1152	(note 3)
			UL_TFC10	UL_TFC17		
13	DL_TFC13	UL_TFC8	DL_TFC0,	UL_TFC0,	RB5:	RB5:
			DL_TFC25,	UL_TFC <u>8</u> 3,	1344 <u>1272</u>	1344 <u>1272</u>
			UL_TFC0,	UL_TFC10,	RB6:	RB6: 640
			UL_TFC10	UL_TFC18	<u>576</u> 1152	(note 3)
14	DL_TFC14	UL_TFC9	DL_TFC0,	UL_TFC0,	RB5:	RB5:
			DL_TFC25,	UL_TFC <u>9</u> 3,	<u>2552</u> 2688	<u>2552</u> 2688
i			UL_TFC0,	UL_TFC10,	RB6:	RB6: 640
			UL_TFC10	UL_TFC19	<u>576</u> 1152	(note 3)
15	DL_TFC15	UL_TFC5	DL_TFC0,	UL_TFC0,	RB5: 336 312	RB5: No data
			DL_TFC25,	UL_TFC <u>5</u> 4,	RB6:	RB6: 1280
			UL_TFC0,	UL_TFC10,	<u>576</u> 1728	(note 4)
1 40	DI TEO10	III TEOO	UL_TFC10	UL_TFC15	DD5 000040	DDF 000040
16	DL_TFC16	UL_TFC6	DL_TFC0,	UL_TFC0,	RB5: 336 312	RB5: 336 312
			DL_TFC25,	UL_TFC64,	RB6:	RB6: 1280
			UL_TFC0,	UL_TFC10,	<u>576</u> 1728	(note 4)
17	DL TFC17	UL TFC7	DL TFC0,	UL_TFC16 UL TFC0,	RB5: 632 672	DDE: 622672
17	DL_IFC17	UL_IFC/	DL_TFC0, DL_TFC25,	UL_TFC0, UL_TFC72,	RB5: <u>632672</u> RB6:	RB5: <u>632</u> 672 RB6: 1280
					576 1728	(note 4)
			UL_TFC0, UL_TFC10	UL_TFC10, UL_TFC17	<u> 370</u> +720	(11016 4)
18	DL_TFC18	UL_TFC8	DL_TFC0,	UL_TFC0,	RB5:	RB5:
10	DL_IFC18	OL_IFC6	DL_TFC0, DL_TFC25,	UL_TFC83,	1344 1272	1344 1272
			UL_TFC0,	UL_TFC10,	RB6:	RB6: 1280
			UL_TFC10	UL_TFC18	576 1728	(note 4)
19	DL_TFC19	UL_TFC9	DL_TFC0,	UL_TFC0,	RB5:	RB5:
	DL_11 019	JL_11 03	DL_TFC0,	UL_TFC93,	2552 2688	2552 2688
			UL_TFC0,	UL_TFC10,	RB6:	RB6: 1280
			UL_TFC10	UL_TFC19	576 1728	(note 4)
20	DL_TFC20	UL_TFC5	DL_TFC0,	UL_TFC0,	RB5: 336 312	RB5: No data
-	52 520	52 55	DL_TFC25,	UL_TFC54,	RB6:	RB6: 2560
			UL_TFC0,	UL_TFC10,	576 2880	(note 5)
1			UL_TFC10	UL_TFC15	<u>5. 0</u> _000	()
21	DL_TFC21	UL_TFC6	DL_TFC0,	UL_TFC0,	RB5: 336 312	RB5: 336 312
-:	52.	== 55	DL_TFC25,	UL_TFC64,	RB6:	RB6: 2560
			UL_TFC0,	UL_TFC10,	576 2880	(note 5)
1			UL_TFC10	UL_TFC16	<u>5. 0</u> _000	()
22	DL_TFC22	UL_TFC7	DL_TFC0,	UL_TFC0,	RB5: 632 672	RB5: 632 672
-			DL_TFC25,	UL_TFC <u>72,</u>	RB6:	RB6: 2560
			UL TFC0.	UL_TFC10,	576 2880	(note 5)
			UL_TFC10	UL_TFC17		(,
	<u> </u>	ı	, , ,	, , ,	<u> </u>	I .

	Sub- test	Downlink TFCS	Uplink TFCS	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size	Test data size (bits)
		Under	Under test			(bits)	
L		Test				(note 1)	(note 1)
	23	DL_TFC23	UL_TFC8	DL_TFC0,	UL_TFC0,	RB5:	RB5:
				DL_TFC25,	UL_TFC <u>8</u> 3,	1344 1272	1344 1272
				UL_TFC0,	UL_TFC10,	RB6:	RB6: 2560
				UL_TFC10	UL_TFC18	576 2880	(note 5)
	24	DL_TFC24	UL_TFC9	DL_TFC0,	UL_TFC0,	RB5:	RB5:
				DL_TFC25,	UL_TFC <u>9</u> 3,	2688 2552	2552 2688
				UL_TFC0,	UL_TFC10,	RB6:	RB6: 2560
				UL_TFC10	UL_TFC19	576 2880	(note 5)

- NOTE 1: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
- NOTE 2: RB6: SS is using a DL RLC SDU with 320 bits as test data (=DL RLC PDU size for DL/TF1). UE will return one RLC PDU. SS creates an UL RLC SDU from the first 320 bits of the received RLC PDU.
- NOTE 3: RB6: SS is using a DL RLC SDU size of 640 bits as test data (=DL RLC PDU size for DL/TF2).

 UE will return one two RLC PDUs. SS creates an UL RLC SDU from the received RLC PDUby concatenating RLC PDU#1 and the first 64 bits of RLC PDU#2.
- NOTE 4: RB6: SS is using a DL RLC SDU size of 1280 bits as test data (=DL RLC PDU size for DL/TF3). UE will return one three RLC PDUs. SS creates an UL RLC SDU from the received RLC PDUby concatenating RLC PDU#1, RLC PDU#2 and the first 128 bits of RLC PDU#3.
- NOTE 5: RB6: SS is using a DL RLC SDU size of 2560 bits as test data (=DL RLC PDU size for DL/TF4). UE will return one five RLC PDUs. SS creates an UL RLC SDU from the received RLC PDUby concatenating RLC PDU#1, RLC PDU#2, RLC PDU#3, RLC PDU#4 and the first 256 bits of RLC PDU#5.

See 14.1.1 for test procedure.

14.2.54.4 Test requirements

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be
 - for sub-test 1, 6, 11, 16 and 21: RB5/TF1 (1x336).
 - for sub-test 2, 7, 12, 17 and 22: RB5/TF1 (2x336).
 - for sub-test 3, 8, 13, 18 and 23: RB5/TF1 (3x336).
 - for sub-test 4, 9, 14, 19 and 24: RB5/TF1 (4x336).
- 3. At step 15 the UE shall return
 - for sub-test 1, 2, 3, 4, 6, 7, 8, 9, 11, 12, 13, 14, 16, 17, 18, 19, 21, 22, 23 and 24: an RLC SDU on RB5 having the same content as sent by the SS.
 - for sub-test 5, 10, 15 and 20: no data shall be received on RB5.
 - for sub-test 1 to 4, 2, 3 and 4: no data shall be received on RB6.
 - for sub-test 5 to <u>924</u>: an RLC SDU on RB6 having the same content as sent by <u>the SS</u>.
 - for sub-test 10 to 24: an RLC SDU on RB5 having the same content as the first 576 bits of the RLC SDU sent by the SS.

14.2.55 Interactive or background / UL:64 DL:128 kbps / PS RAB + Streaming / unknown / UL:0 DL:128 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.2.55.1 Conformance requirement

See 14.2.4.1.

14.2.55.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.55.

To be able to test the downlink radio bearer using the UE loopback function for the reference radio bearer UL:0 DL: 64 kbps, the reference radio bearer configuration according to TS 34.108, clause 6.10.2.4.1.15.1 (Streaming/unknown/UL:14.4 kbps) is used in uplink.

14.2.55.3 Method of test

Uplink TFS:

	TFI	RB5 (I/B 64 kbps)	RB6 (Str. 14.4 kbps)	DCCH
	TF0, bits	0x336	0x576	0x148
	TF1, bits	1x336	1x576	1x148
TFS	TF2, bits	2x336	N/A	N/A
	TF3, bits	3x336	N/A	N/A
	TF4, bits	4x336	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, DCCH)
UL_TFC0	(TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0)
UL_TFC2	(TF2, TF0, TF0)
UL_TFC3	(TF3, TF0, TF0)
UL_TFC4	(TF4, TF0, TF0)
UL_TFC5	(TF0, TF1, TF0)
UL_TFC6	(TF1, TF1, TF0)
UL_TFC7	(TF2, TF1, TF0)
UL_TFC8	(TF3, TF1, TF0)
UL_TFC9	(TF4, TF1, TF0)
UL_TFC10	(TF0, TF0, TF1)
UL_TFC11	(TF1, TF0, TF1)
UL_TFC12	(TF2, TF0, TF1)
UL_TFC13	(TF3, TF0, TF1)
UL_TFC14	(TF4, TF0, TF1)
UL_TFC15	(TF0, TF1, TF1)
UL_TFC16	(TF1, TF1, TF1)
UL_TFC17	(TF2, TF1, TF1)
UL_TFC18	(TF3, TF1, TF1)
UL_TFC19	(TF4, TF1, TF1)

Downlink TFS:

	TFI	RB5 (I/B 128 kbps)	RB6 (Str. 128 kbps)	DCCH
	TF0, bits	0x336	0x320	0x148
	TF1, bits	1x336	1x320	1x148
TFS	TF2, bits	2x336	2x320	N/A
115	TF3, bits	4x336	4x320	N/A
	TF4, bits	8x336	8x320	N/A
	TF5. bits	N/A	16x320	N/A

TFCI	(RB5, RB6, DCCH)
DL_TFC0	(TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0)
DL_TFC2	(TF2, TF0, TF0)
DL_TFC3	(TF3, TF0, TF0)
DL_TFC4	(TF4, TF0, TF0)
DL_TFC5	(TF0, TF1, TF0)
DL_TFC6	(TF1, TF1, TF0)
DL_TFC7	(TF2, TF1, TF0)
DL_TFC8	(TF3, TF1, TF0)
DL_TFC9	(TF4, TF1, TF0)
DL_TFC10	(TF0, TF2, TF0)
DL_TFC11 DL_TFC12	(TF1, TF2, TF0)
DL_TFC12 DL_TFC13	(TF2, TF2, TF0) (TF3, TF2, TF0)
DL_TFC13	(TF4, TF2, TF0)
DL_TFC15	(TF0, TF3, TF0)
DL_TFC16	(TF1, TF3, TF0)
DL_TFC17	(TF2, TF3, TF0)
DL_TFC18	(TF3, TF3, TF0)
DL_TFC19	(TF4, TF3, TF0)
DL_TFC20	(TF0, TF4, TF0)
DL_TFC21	(TF1, TF4, TF0)
DL_TFC22	(TF2, TF4, TF0)
DL_TFC23	(TF3, TF4, TF0)
DL_TFC24	(TF4, TF4, TF0)
DL_TFC25	(TF0, TF5, TF0)
DL_TFC26	(TF1, TF5, TF0)
DL_TFC27	(TF2, TF5, TF0)
DL_TFC28 DL_TFC29	(TF3, TF5, TF0) (TF4, TF5, TF0)
DL_TFC30	(TF0, TF0, TF1)
DL_TFC31	(TF1, TF0, TF1)
DL_TFC32	(TF2, TF0, TF1)
DL_TFC33	(TF3, TF0, TF1)
DL_TFC34	(TF4, TF0, TF1)
DL_TFC35	(TF0, TF1, TF1)
DL_TFC36	(TF1, TF1, TF1)
DL_TFC37	(TF2, TF1, TF1)
DL_TFC38	(TF3, TF1, TF1)
DL_TFC39	(TF4, TF1, TF1)
DL_TFC40	(TF0, TF2, TF1)
DL_TFC41	(TF1, TF2, TF1)
DL_TFC42 DL_TFC43	(TF2, TF2, TF1) (TF3, TF2, TF1)
DL_TFC43	(TF4, TF2, TF1)
DL_TFC44	(TF0, TF3, TF1)
DL_TFC46	(TF1, TF3, TF1)
DL_TFC47	(TF2, TF3, TF1)
DL_TFC48	(TF3, TF3, TF1)
DL_TFC49	(TF4, TF3, TF1)
DL_TFC50	(TF0, TF4, TF1)
DL_TFC51	(TF1, TF4, TF1)
DL_TFC52	(TF2, TF4, TF1)
DL_TFC53	(TF3, TF4, TF1)
DL_TFC54	(TF4, TF4, TF1)
DL_TFC55	(TF0, TF5, TF1)
DL_TFC56	(TF1, TF5, TF1)
DL_TFC57	(TF2, TF5, TF1)
DL_TFC58	(TF3, TF5, TF1)
DL_TFC59	(TF4, TF5, TF1)

Sub-tests:

Sub- test	Downlink TFCS Under	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (bits)	Test data size (bits)
1 4	Test	LII TECA	DI TECO	UL_TFC0,	(note 1)	(note 1)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC30,	UL_TFC0,	RB5: 336 312 RB6: 576	RB5: 336 312 RB6: No data
			UL_TFC0,	UL_TFC10,	ND0. 57 0	NDO. NO data
			UL_TFC10	UL_TFC11		
2	DL_TFC2	UL_TFC2	DL_TFC0,	UL_TFC0,	RB5: 672632	RB5: 672 632
			DL_TFC30,	UL_TFC2,	RB6: 576	RB6: No data
			UL_TFC0,	UL_TFC10,		
1 2	DL TFC3	III TECO	UL_TFC10	UL_TFC12	RB5:	DDC: 40444070
3	DL_IFC3	UL_TFC3	DL_TFC0, DL_TFC30,	UL_TFC0, UL_TFC3,	1344 <u>1272</u>	RB5: 1344 1272 RB6: No data
'			UL_TFC0,	UL_TFC10,	RB6: 576	NDO. NO data
			UL_TFC10	UL_TFC13	. 1.20. 0. 0	
4	DL_TFC4	UL_TFC4	DL_TFC0,	UL_TFC0,	RB5:	RB5: 2688 2552
[]			DL_TFC30,	UL_TFC <u>4</u> 3,	2552 2688	RB6: No data
			UL_TFC0,	UL_TFC10,	RB6: 576	
	DI TEOF	III TEOE	UL_TFC10	UL_TFC14	DD5: 000040	DDC: No data
5	DL_TFC5	UL_TFC5	DL_TFC0, DL_TFC30,	UL_TFC0, UL_TFC54,	RB5: 336 312 RB6: 576	RB5: No data RB6: 320
1			UL_TFC0,	UL_TFC5+,	1200.070	(note 2)
			UL_TFC10	UL_TFC15		(1.0.0 2)
6	DL_TFC6	UL_TFC6	DL_TFC0,	UL_TFC0,	RB5: 336 312	RB5: 336 312
[]			DL_TFC30,	UL_TFC <u>6</u> 4,	RB6: 576	RB6: 320
			UL_TFC0,	UL_TFC10,		(note 2)
1 -	DI TEO7	III TEO7	UL_TFC10	UL_TFC16	DD5: 070000	DD5: 070000
7	DL_TFC7	UL_TFC7	DL_TFC0, DL_TFC30,	UL_TFC0, UL_TFC72,	RB5: 672 632 RB6: 576	RB5: 672 <u>632</u> RB6: 320
1			UL_TFC0,	UL_TFC10,	ND0. 570	(note 2)
			UL_TFC10	UL_TFC17		(11010 2)
8	DL_TFC8	UL_TFC8	DL_TFC0,	UL_TFC0,	RB5:	RB5: 1344 <u>1272</u>
			DL_TFC30,	UL_TFC <u>8</u> 3,	1344 <u>1272</u>	RB6: 320
			UL_TFC0,	UL_TFC10,	RB6: 576	(note 2)
9	DL_TFC9	UL_TFC9	UL_TFC10 DL_TFC0,	UL_TFC18 UL_TFC0,	RB5:	RB5: 2552 2688
	DL_11 03	02_1103	DL_TFC30,	UL_TFC <u>9</u> 3,	2552 2688	RB6: 320
•			UL_TFC0,	UL_TFC10,	RB6: 576	(note 2)
			UL_TFC10	UL_TFC19		,
10	DL_TFC10	UL_TFC5	DL_TFC0,	UL_TFC0,	RB5: 336 312	RB5: No data
Ц			DL_TFC30,	UL_TFC <u>5</u> 4,	RB6: <u>576</u> 1152	RB6: 640
			UL_TFC0, UL_TFC10	UL_TFC10, UL_TFC15		(note 3)
11	DL_TFC11	UL_TFC6	DL_TFC10	UL_TFC0,	RB5: 336 312	RB5: 336 312
	5	52_11 55	DL_TFC30,	UL_TFC <u>6</u> 4,	RB6: 576 1152	RB6: 640
1			UL_TFC0,	UL_TFC10,		(note 3)
,			UL_TFC10	UL_TFC16		
12	DL_TFC12	UL_TFC7	DL_TFC0,	UL_TFC0,	RB5: 672632	RB5: 672 632
1			DL_TFC30,	UL_TFC <u>7</u> 2,	RB6: <u>576</u> 1152	RB6: 640
			UL_TFC0, UL_TFC10	UL_TFC10, UL_TFC17		(note 3)
13	DL_TFC13	UL_TFC8	DL_TFC0,	UL_TFC0,	RB5:	RB5: 1344 1272
			DL_TFC30,	UL_TFC <u>8</u> 3,	1344 <u>1272</u>	RB6: 640
			UL_TFC0,	UL_TFC10,	RB6: <u>576</u> 1152	(note 3)
<u> </u>		====	UL_TFC10	UL_TFC18		
14	DL_TFC14	UL_TFC9	DL_TFC0,	UL_TFC0,	RB5:	RB5: <u>2552</u> 2688
[[DL_TFC30, UL_TFC0,	UL_TFC <u>9</u> 3, UL_TFC10,	2552 2688 RB6: 576 1152	RB6: 640 (note 3)
П			UL_TFC0,	UL_TFC10,	1100. <u>010+102</u>	(HOLE 3)
15	DL_TFC15	UL_TFC5	DL_TFC0,	UL_TFC0,	RB5: 336 312	RB5: No data
[[DL_TFC30,	UL_TFC <u>5</u> 4,	RB6: <u>576</u> 1728	RB6: 1280
			UL_TFC0,	UL_TFC10,		(note 4)
			UL_TFC10	UL_TFC15		

Sub- test	Downlink TFCS Under	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (bits)	Test data size (bits)
	Test	Ondor tool			(note 1)	(note 1)
16	DL_TFC16	UL_TFC6	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC <u>6</u> 4, UL_TFC10, UL_TFC16	RB5: 336 312 RB6: <u>576</u> 1728	RB5: <u>336312</u> RB6: 1280 (note 4)
17	DL_TFC17	UL_TFC7	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC <u>7</u> 2, UL_TFC10, UL_TFC17	RB5: <u>672632</u> RB6: <u>576</u> 1728	RB5: <u>672632</u> RB6: 1280 (note 4)
18	DL_TFC18	UL_TFC8	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC <u>8</u> 3, UL_TFC10, UL_TFC18	RB5: 1344<u>1272</u> RB6: <u>576</u> 1728	RB5: <u>13441272</u> RB6: 1280 (note 4)
19	DL_TFC19	UL_TFC9	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC <u>9</u> 3, UL_TFC10, UL_TFC19	RB5: <u>2552</u> 2688 RB6: <u>576</u> 1728	RB5: <u>2552</u> 2688 RB6: 1280 (note 4)
20	DL_TFC20	UL_TFC5	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC <u>5</u> 4, UL_TFC10, UL_TFC15	RB5: <u>336312</u> RB6: <u>5762880</u>	RB5: No data RB6: 2560 (note 5)
21	DL_TFC21	UL_TFC6	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC <u>6</u> 4, UL_TFC10, UL_TFC16	RB5: 336312 RB6: 5762880	RB5: <u>336312</u> RB6: 2560 (note 5)
22	DL_TFC22	UL_TFC7	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC <u>7</u> 2, UL_TFC10, UL_TFC17	RB5: <u>672632</u> RB6: <u>5762880</u>	RB5: <u>672632</u> RB6: 2560 (note 5)
23	DL_TFC23	UL_TFC8	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC <u>8</u> 3, UL_TFC10, UL_TFC18	RB5: 13441272 RB6: 5762880	RB5: 1344 1272 RB6: 2560 (note 5)
24	DL_TFC24	UL_TFC9	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC <u>9</u> 3, UL_TFC10, UL_TFC19	RB5: 25522688 RB6: 5762880	RB5: <u>2552</u> 2688 RB6: <u>2560</u> (note 5)
25	DL_TFC20	UL_TFC5	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC <u>5</u> 4, UL_TFC10, UL_TFC15	RB5: <u>336312</u> RB6: <u>576518</u> 4	RB5: No data RB6: 5120 (note 6)
26	DL_TFC21	UL_TFC6	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC <u>6</u> 4, UL_TFC10, UL_TFC16	RB5: 336 312 RB6: <u>576</u> 5184	RB5: <u>336312</u> RB6: 5120 (note 6)
27	DL_TFC22	UL_TFC7	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC <u>7</u> 2, UL_TFC10, UL_TFC17	RB5: <u>672632</u> RB6: <u>576</u> 5184	RB5: <u>672632</u> RB6: 5120 (note 6)

Sub- test	Downlink TFCS	Uplink TFCS	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size	Test data size (bits)
	Under	Under test			(bits)	
	Test				(note 1)	(note 1)
28	DL_TFC23	UL_TFC8	DL_TFC0,	UL_TFC0,	RB5:	RB5: 1344 1272
			DL_TFC30,	UL_TFC <u>8</u> 3,	1344 1272	RB6: 5120
			UL_TFC0,	UL_TFC10,	RB6: <u>576</u> 5184	(note 6)
			UL_TFC10	UL_TFC18		
29	DL_TFC24	UL_TFC9	DL_TFC0,	UL_TFC0,	RB5:	RB5: <u>2552</u> 2688
			DL_TFC30,	UL_TFC <u>9</u> 3,	2552 2688	RB6: 5120
			UL_TFC0,	UL_TFC10,	RB6: <u>576</u> 5184	(note 6)
			UL_TFC10	UL_TFC19		

- NOTE 1: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
- NOTE 2: RB6: SS is using a DL RLC SDU with 320 bits as test data (=DL RLC PDU size for DL/TF1). UE will return one RLC PDU. SS creates an UL RLC SDU from the first 320 bits of the received RLC PDU.
- NOTE 3: RB6: SS is using a DL RLC SDU size of 640 bits as test data (=DL RLC PDU size for DL/TF2).

 UE will return one two RLC PDUs. SS creates an UL RLC SDU from the received RLC PDUby concatenating RLC PDU#1 and the first 64 bits of RLC PDU#2.
- NOTE 4: RB6: SS is using a DL RLC SDU size of 1280 bits as test data (=DL RLC PDU size for DL/TF3). UE will return onethree RLC PDUs. SS creates an UL RLC SDU from the received RLC PDUby concatenating RLC PDU#1, RLC PDU#2 and the first 128 bits of RLC PDU#3.
- NOTE 5: RB6: SS is using a DL RLC SDU size of 2560 bits as test data (=DL RLC PDU size for DL/TF4). UE will return one-five RLC PDUs. SS creates an UL RLC SDU from the received RLC PDUby concatenating RLC PDU#1, RLC PDU#2, RLC PDU#3, RLC PDU#4 and the first 256 bits of RLC PDU#5.
- NOTE 6: RB6: SS is using a DL RLC SDU size of 5120 bits as test data (=DL RLC PDU size for DL/TF5).

 UE will return one RLC PDUs. SS creates an UL RLC SDU from the received RLC PDUsy concatenating RLC PDU#1, RLC PDU#2, ..., RLC PDU#8 and the first 512 bits of RLC PDU#9.

See 14.1.1 for test procedure.

14.2.55.4 Test requirements

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be
 - for sub-test 1, 6, 11, 16, 21 and 26: RB5/TF1 (1x336).
 - for sub-test 2, 7, 12, 17, 22 and 27: RB5/TF1 (2x336).
 - for sub-test 3, 8, 13, 18, 23 and 28: RB5/TF1 (3x336).
 - for sub-test 4, 9, 14, 19, 24 and 29: RB5/TF1 (4x336).
- 3. At step 15 the UE shall return
 - for sub-test 1, 2, 3, 4, 6, 7, 8, 9, 11, 12, 13, 14, 16, 17, 18, 19, 21, 22, 23, 24, 26, 27, 28 and 29: an RLC SDU on RB5 having the same content as sent by the SS.
 - for sub-test 5, 10, 15, 20 and 25: no data shall be received on RB5.
 - for sub-test 1, 2, 3 and 4: no data shall be received on RB6.
 - for sub-test 5 to 929: an RLC SDU on RB6 having the same content as sent by the SS.
 - for sub-test 10 to 29: an RLC SDU on RB5 having the same content as the first 576 bits of the RLC SDU sent by the SS.

14.3 Combinations on PDSCH and DPCH

14.3.1 Interactive or background / UL:64 DL:256 kbps / PS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH

14.3.1.1 Interactive or background / UL:64 DL:256 kbps / PS RAB / 10 ms TTI

14.3.1.1.1 Conformance requirement

See 14.2.4.1.

14.3.1.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.2.1 for the downlink 10 ms TTI case.

14.3.1.1.3 Method of test

Uplink TFS:

	TFI	RB5 (64 kbps)	DCCH
	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
TFS	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

DSCH downlink TFS:

	TFI	RB5 (256 kbps)
	DSCH_TF0, bits	0x354
	DSCH_TF1, bits	1x354
TFS	DSCH_TF2, bits	2x354
	DSCH_TF3, bits	4x354
	DSCH_TF4, bits	8x354

DSCH downlink TFCS:

TFCI	RB5
DL_DSCH_TFC0	DSCH_TF0
DL_DSCH_TFC1	DSCH_TF1
DL_DSCH_TFC2	DSCH_TF2
DL_DSCH_TFC3	DSCH_TF3
DL_DSCH_TFC4	DSCH_TF4

DCH downlink TFS:

	TFI	DCCH
TFS	DCH_TF0, bits	0x148
115	DCH_TF1, bits	1x148

DCH downlink TFCS:

TFCI	DCCH
DL_DCH_TFC0	DCH_TF0
DL_DCH_TFC1	DCH_TF1

Sub-tests:

Sub- test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note 1)	Test data size (bits) (note 1)
1	DL_DSCH_ TFC1	UL_TFC1	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 354	RB5: 354 (note 2)
2	DL_DSCH_ TFC2	UL_TFC2	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 708	RB5: 708 (note 3)
3	DL_DSCH_ TFC3	UL_TFC3	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 1416	RB5: 1416 (note 4)
4	DL_DSCH_ TFC4	UL_TFC4	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 2832	RB5: 2832 (note 5)

NOTE 1: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.

NOTE 2: SS is using a DL RLC SDU with 354 bits as test data (=DL RLC PDU size for DL/DSCH_TF1). UE will return two RLC PDUs. The SS creates an UL RLC SDU by concatenating RLC PDU#1 and the first 18 bits of RLC PDU#2.

NOTE 3: SS is using a DL RLC SDU size of 708 bits as test data (=DL RLC PDU size for DL/DSCH_TF2). UE will return two RLC PDUs. The SS creates an UL RLC SDU by concatenating RLC PDU#1 and the first 36 bits of RLC PDU#2.

NOTE 4: SS is using a DL RLC SDU size of 1416 bits as test data (=DL RLC PDU size for DL/DSCH_TF3). UE will return two RLC PDUs. The SS creates an UL RLC SDU by concatenating RLC PDU#1 and the first 408 bits of RLC PDU#2.

NOTE 5: SS is using a DL RLC SDU size of 2832 bits as test data (=DL RLC PDU size for DL/DSCH_TF4). UE will return three RLC PDUs. The SS creates an UL RLC SDU by concatenating RLC PDU#1, RLC PDU#2 and the first 144 bits of RLC PDU#3.

See 14.1.1 for test procedure.

14.3.1.1.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be
 - for sub-test 1: RB5/TF1 (1x336).
 - for sub-test 2: RB5/TF2 (2x336).
 - for sub-test 3: RB5/TF3 (3x336).
 - for sub-test 4: RB5/TF4 (4x336).
- 3. At step 15 the UE shall return
 - for sub-test 1 to 4: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

14.3.1.2 Interactive or background / UL:64 DL:256 kbps / PS RAB / 20 ms TTI

14.3.1.2.1 Conformance requirement

See 14.2.4.1.

14.3.1.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.2.1 for the downlink 20 ms TTI case.

14.3.1.2.3 Method of test

Uplink TFS:

	TFI	RB5 (64 kbps)	DCCH
	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
TFS	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

DSCH downlink TFS:

	TFI	RB5 (256 kbps)
	DSCH_TF0, bits	0x354
	DSCH_TF1, bits	1x354
	DSCH_TF2, bits	2x354
TFS	DSCH_TF3, bits	4x354
	DSCH_TF4, bits	8x354
	DSCH_TF5, bits	12x354
	DSCH_TF6, bits	16x354

DSCH downlink TFCS:

TFCI	RB5
DL_DSCH_TFC0	DSCH_TF0
DL_DSCH_TFC1	DSCH_TF1
DL_DSCH_TFC2	DSCH_TF2
DL_DSCH_TFC3	DSCH_TF3
DL_DSCH_TFC4	DSCH_TF4
DL_DSCH_TFC5	DSCH_TF5
DL_DSCH_TFC6	DSCH_TF6

DCH downlink TFS:

	TFI	DCCH
TFS	DCH_TF0, bits	0x148
	DCH_TF1, bits	1x148

DCH downlink TFCS:

TFCI		DCCH	
DL_DCH_TFC0	DCH_TF0		
DL DCH TEC1	DCH_TF1		

Sub-tests:

Sub- test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note 1)	Test data size (bits)
1	DL_DSCH_ TFC1	UL_TFC1	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 354	RB5: 354 (note 2)
2	DL_DSCH_ TFC2	UL_TFC2	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 708	RB5: 708 (note 3)
3	DL_DSCH_ TFC3	UL_TFC3	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 1416	RB5: 1416 (note 4)
4	DL_DSCH_ TFC4	UL_TFC4	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 2832	RB5: 2832 (note 5)
5	DL_DSCH_ TFC5	UL_TFC4	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 4248	RB5: 4248 (note 6)
6	DL_DSCH_ TFC6	UL_TFC4	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 5664	RB5: 5664 (note 7)

- NOTE 1: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
- NOTE 2: SS is using a DL RLC SDU with 354 bits as test data (=DL RLC PDU size for DL/DSCH_TF1). UE will return two RLC PDUs. The SS creates an UL RLC SDU by concatenating RLC PDU#1 and the first 18 bits of RLC PDU#2.
- NOTE 3: SS is using a DL RLC SDU size of 708 bits as test data (=DL RLC PDU size for DL/DSCH_TF2). UE will return two RLC PDUs. The SS creates an UL RLC SDU by concatenating RLC PDU#1 and the first 36 bits of RLC PDU#2.
- NOTE 4: SS is using a DL RLC SDU size of 1416 bits as test data (=DL RLC PDU size for DL/DSCH_TF3). UE will return two RLC PDUs. The SS creates an UL RLC SDU by concatenating RLC PDU#1 and the first 408 bits of RLC PDU#2.
- NOTE 5: SS is using a DL RLC SDU size of 2832 bits as test data (=DL RLC PDU size for DL/DSCH_TF4). UE will return three RLC PDUs. The SS creates an UL RLC SDU by concatenating RLC PDU#1, RLC PDU#2 and the first 144 bits of RLC PDU#3.
- NOTE 6: SS is using a DL RLC SDU size of 4248 bits as test data (=DL RLC PDU size for DL/DSCH_TF5). UE will return four RLC PDUs. The SS creates an UL RLC SDU by concatenating RLC PDU#1, RLC PDU#2, RLC PDU#3 and the first 216 bits of RLC PDU#4.
- NOTE 7: SS is using a DL RLC SDU size of 5664 bits as test data (=DL RLC PDU size for DL/DSCH_TF6). UE will return five RLC PDUs. The SS creates an UL RLC SDU by concatenating RLC PDU#1, RLC PDU#2, RLC PDU#3, RLC PDU#4 and the first 288 bits of RLC PDU#5.

See 14.1.1 for test procedure.

14.3.1.2.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be
 - for sub-test 1: RB5/TF1 (1x336).

- for sub-test 2: RB5/TF2 (2x336).
- for sub-test 3: RB5/TF3 (3x336).
- for sub-test 4, 5 and 6: RB5/TF4 (4x336).
- 3. At step 15 the UE shall return
 - for sub-test 1 to 6: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

14.3.2 Interactive or background / UL:64 DL:384 kbps / PS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH

14.3.2.1 Interactive or background / UL:64 DL:384 kbps / PS RAB / 10 ms TTI

14.3.2.1.1 Conformance requirement

See 14.2.4.1.

14.3.2.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.2.2 for the downlink 10 ms TTI case.

14.3.2.1.3 Method of test

Uplink TFS:

	TFI	RB5 (64 kbps)	DCCH
	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
TFS	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

DSCH downlink TFS:

	TFI	RB5 (384 kbps)
	DSCH_TF0, bits	0x354
	DSCH_TF1, bits	1x354
TFS	DSCH_TF2, bits	2x354
115	DSCH_TF3, bits	4x354
	DSCH_TF4, bits	8x354
	DSCH_TF5, bits	12x354

DSCH downlink TFCS:

TFCI	RB5
DL_DSCH_TFC0	DSCH_TF0
DL_DSCH_TFC1	DSCH_TF1
DL_DSCH_TFC2	DSCH_TF2
DL_DSCH_TFC3	DSCH_TF3
DL_DSCH_TFC4	DSCH_TF4
DL_DSCH_TFC5	DSCH_TF5

DCH downlink TFS:

	TFI	DCCH
TFS	DCH_TF0, bits	0x148
11-3	DCH_TF1, bits	1x148

DCH downlink TFCS:

TFCI	DCCH
DL_DCH_TFC0	DCH_TF0
DL_DCH_TFC1	DCH_TF1

Sub-tests:

Sub- test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (bits)	Test data size (bits)
1	DL_DSCH_ TFC1	UL_TFC1	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	(note 1) RB5: 354	(note 1) RB5: 354 (note 2)
2	DL_DSCH_ TFC2	UL_TFC2	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 708	RB5: 708 (note 3)
3	DL_DSCH_ TFC3	UL_TFC3	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 1416	RB5: 1416 (note 4)
4	DL_DSCH_ TFC4	UL_TFC4	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 2832	RB5: 2832 (note 5)

Sub- test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note 1)	Test data size (bits) (note 1)
5	DL_DSCH_ TFC5	UL_TFC4	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 4248	RB5: 4248 (note 6)

- NOTE 1: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
- NOTE 2: SS is using a DL RLC SDU with 354 bits as test data (=DL RLC PDU size for DL/DSCH_TF1). UE will return two RLC PDUs. The SS creates an UL RLC SDU by concatenating RLC PDU#1 and the first 18 bits of RLC PDU#2.
- NOTE 3: SS is using a DL RLC SDU size of 708 bits as test data (=DL RLC PDU size for DL/DSCH_TF2). UE will return two RLC PDUs. The SS creates an UL RLC SDU by concatenating RLC PDU#1 and the first 36 bits of RLC PDU#2.
- NOTE 4: SS is using a DL RLC SDU size of 1416 bits as test data (=DL RLC PDU size for DL/DSCH_TF3). UE will return two RLC PDUs. The SS creates an UL RLC SDU by concatenating RLC PDU#1 and the first 408 bits of RLC PDU#2.
- NOTE 5: SS is using a DL RLC SDU size of 2832 bits as test data (=DL RLC PDU size for DL/DSCH_TF4).

 UE will return three RLC PDUs. The SS creates an UL RLC SDU by concatenating RLC PDU#1,
 RLC PDU#2 and the first 144 bits of RLC PDU#3.
- NOTE 6: SS is using a DL RLC SDU size of 4248 bits as test data (=DL RLC PDU size for DL/DSCH_TF5). UE will return four RLC PDUs. The SS creates an UL RLC SDU by concatenating RLC PDU#1, RLC PDU#2, RLC PDU#3 and the first 216 bits of RLC PDU#4.

See 14.1.1 for test procedure.

14.3.2.1.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be
 - for sub-test 1: RB5/TF1 (1x336).
 - for sub-test 2: RB5/TF2 (2x336).
 - for sub-test 3: RB5/TF3 (3x336).
 - for sub-test 4, 5 and 6: RB5/TF4 (4x336).
- 3. At step 15 the UE shall return
 - for sub-test 1 to 6: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

14.3.2.2 Interactive or background / UL:64 DL:384 kbps / PS RAB / 20 ms TTI

14.3.2.2.1 Conformance requirement

See 14.2.4.1.

14.3.2.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.2.2 for the downlink 20 ms TTI case.

14.3.2.2.3 Method of test

Uplink TFS:

	TFI	RB5 (64 kbps)	DCCH
	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
TFS	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

DSCH downlink TFS:

	TFI	RB5 (384 kbps)
	DSCH_TF0, bits	0x354
	DSCH_TF1, bits	1x354
	DSCH_TF2, bits	2x354
	DSCH_TF3, bits	4x354
TFS	DSCH_TF4, bits	8x354
	DSCH_TF5, bits	12x354
	DSCH_TF6, bits	16x354
	DSCH_TF7, bits	20x354
	DSCH_TF8, bits	24x354

DSCH downlink TFCS:

TFCI	RB5
DL_DSCH_TFC0	DSCH_TF0
DL_DSCH_TFC1	DSCH_TF1
DL_DSCH_TFC2	DSCH_TF2
DL_DSCH_TFC3	DSCH_TF3
DL_DSCH_TFC4	DSCH_TF4
DL_DSCH_TFC5	DSCH_TF5
DL_DSCH_TFC6	DSCH_TF6
DL_DSCH_TFC7	DSCH_TF7
DL_DSCH_TFC8	DSCH_TF8

DCH downlink TFS:

	TFI	DCCH
TFS	DCH_TF0, bits	0x148
115	DCH_TF1, bits	1x148

DCH downlink TFCS:

TFCI	DCCH
DL_DCH_TFC0	DCH_TF0
DL_DCH_TFC1	DCH_TF1

Sub-tests:

Sub- test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note 1)	Test data size (bits) (note 1)
1	DL_DSCH_ TFC1	UL_TFC1	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 354	RB5: 354 (note 2)
2	DL_DSCH_ TFC2	UL_TFC2	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 708	RB5: 708 (note 3)
3	DL_DSCH_ TFC3	UL_TFC3	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 1416	RB5: 1416 (note 4)
4	DL_DSCH_ TFC4	UL_TFC4	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 2832	RB5: 2832 (note 5)
5	DL_DSCH_ TFC5	UL_TFC4	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 4248	RB5: 4248 (note 6)
6	DL_DSCH_ TFC6	UL_TFC4	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 5664	RB5: 5664 (note 7)
7	DL_DSCH_ TFC7	UL_TFC4	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 7080	RB5: 7080 (note 8)

Sub- test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note 1)	Test data size (bits) (note 1)
8	DL_DSCH_ TFC8	UL_TFC4	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 8496	RB5: 8496 (note 9)

- NOTE 1: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
- NOTE 2: SS is using a DL RLC SDU with 354 bits as test data (=DL RLC PDU size for DL/DSCH_TF1). UE will return two RLC PDUs. The SS creates an UL RLC SDU by concatenating RLC PDU#1 and the first 18 bits of RLC PDU#2.
- NOTE 3: SS is using a DL RLC SDU size of 708 bits as test data (=DL RLC PDU size for DL/DSCH_TF2). UE will return two RLC PDUs. The SS creates an UL RLC SDU by concatenating RLC PDU#1 and the first 36 bits of RLC PDU#2.
- NOTE 4: SS is using a DL RLC SDU size of 1416 bits as test data (=DL RLC PDU size for DL/DSCH_TF3). UE will return two RLC PDUs. The SS creates an UL RLC SDU by concatenating RLC PDU#1 and the first 408 bits of RLC PDU#2.
- NOTE 5: SS is using a DL RLC SDU size of 2832 bits as test data (=DL RLC PDU size for DL/DSCH_TF4). UE will return three RLC PDUs. The SS creates an UL RLC SDU by concatenating RLC PDU#1, RLC PDU#2 and the first 144 bits of RLC PDU#3.
- NOTE 6: SS is using a DL RLC SDU size of 4248 bits as test data (=DL RLC PDU size for DL/DSCH_TF5). UE will return four RLC PDUs. The SS creates an UL RLC SDU by concatenating RLC PDU#1, RLC PDU#2, RLC PDU#3 and the first 216 bits of RLC PDU#4.
- NOTE 7: SS is using a DL RLC SDU size of 4248 bits as test data (=DL RLC PDU size for DL/DSCH_TF6). UE will return five RLC PDUs. The SS creates an UL RLC SDU by concatenating RLC PDU#1 to RLC PDU#4 and the first 288 bits of RLC PDU#5.
- NOTE 8: SS is using a DL RLC SDU size of 4248 bits as test data (=DL RLC PDU size for DL/DSCH_TF7). UE will return six RLC PDUs. The SS creates an UL RLC SDU by concatenating RLC PDU#1 to RLC PDU#5 and the first 360 bits of RLC PDU#6.
- NOTE 9: SS is using a DL RLC SDU size of 4248 bits as test data (=DL RLC PDU size for DL/DSCH_TF8). UE will return seven RLC PDUs. The SS creates an UL RLC SDU by concatenating RLC PDU#1 to RLC PDU#6 and the first 432 bits of RLC PDU#7.

See 14.1.1 for test procedure.

14.3.2.2.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be
 - for sub-test 1: RB5/TF1 (1x336).
 - for sub-test 2: RB5/TF2 (2x336).
 - for sub-test 3: RB5/TF3 (3x336).
 - for sub-test 4, 5, 6, 7 and 8: RB5/TF4 (4x336).
- 3. At step 15 the UE shall return
 - for sub-test 1 to 8: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

14.3.3 Interactive or background / UL:64 DL:2048 kbps / PS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH

14.3.3.1 Interactive or background / UL:64 DL:2048 kbps / PS RAB / 10 ms TTI

14.3.3.1.1 Conformance requirement

See 14.2.4.1.

14.3.3.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.2.3 for the downlink 10 ms TTI case.

14.3.3.1.3 Method of test

Uplink TFS:

	TFI	RB5 (64 kbps)	рссн
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)	
UL_TFC0	(TF0, TF0)	
UL_TFC1	(TF1, TF0)	
UL_TFC2	(TF2, TF0)	
UL_TFC3	(TF3, TF0)	
UL_TFC4	(TF4, TF0)	
UL_TFC5	(TF0, TF1)	
UL_TFC6	(TF1, TF1)	
UL_TFC7	(TF2, TF1)	
UL_TFC8	(TF3, TF1)	
UL_TFC9	(TF4, TF1)	

DSCH downlink TFS:

	TFI	RB5 (384 kbps)
	DSCH_TF0, bits	0x674
	DSCH_TF1, bits	1x674
	DSCH_TF2, bits	2x674
	DSCH_TF3, bits	4x674
	DSCH_TF4, bits	8x674
TFS	DSCH_TF5, bits	12x674
	DSCH_TF6, bits	16x674
	DSCH_TF7, bits	20x674
	DSCH_TF8, bits	24x674
	DSCH_TF9, bits	28x674
	DSCH_TF10, bits	32x674

DSCH downlink TFCS:

TFCI	RB5
DL_DSCH_TFC0	DSCH_TF0
DL_DSCH_TFC1	DSCH_TF1
DL_DSCH_TFC2	DSCH_TF2
DL_DSCH_TFC3	DSCH_TF3
DL_DSCH_TFC4	DSCH_TF4
DL_DSCH_TFC5	DSCH_TF5
DL_DSCH_TFC6	DSCH_TF6
DL_DSCH_TFC7	DSCH_TF7
DL_DSCH_TFC8	DSCH_TF8
DL_DSCH_TFC9	DSCH_TF9
DL_DSCH_TFC10	DSCH_TF10

DCH downlink TFS:

	TFI	DCCH
TFS	DCH_TF0, bits	0x148
1173	DCH_TF1, bits	1x148

DCH downlink TFCS:

TFCI	DCCH
DL_DCH_TFC0	DCH_TF0
DL_DCH_TFC1	DCH_TF1

Sub-tests:

Sub- test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note 1)	Test data size (bits)
1	DL_DSCH_ TFC1	UL_TFC1	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 674	RB5: 674 (note 2)
2	DL_DSCH_ TFC2	UL_TFC2	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 1348	RB5: 1348 (note 3)
3	DL_DSCH_ TFC3	UL_TFC3	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 2696	RB5: 2696 (note 4)
4	DL_DSCH_ TFC4	UL_TFC4	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 5392	RB5: 5392 (note 5)
5	DL_DSCH_ TFC5	UL_TFC4	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 8088	RB5: 8088 (note 6)
6	DL_DSCH_ TFC6	UL_TFC4	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 10784	RB5: 10784 (note 7)
7	DL_DSCH_ TFC7	UL_TFC4	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 13480	RB5: 13480 (note 8)
8	DL_DSCH_ TFC8	UL_TFC4	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 16176	RB5: 16176 (note 9)

Sub-	Downlink	Uplink	Implicitely tested	Restricted	UL RLC	Test data size				
test	TFCS	TFCS		UL TFCIs	SDU size	(bits)				
	Under test	Under test			(bits)					
					(note 1)	(note 1)				
9	DL_DSCH_	UL_TFC4	DL_DSCH_TFC0,	UL_TFC0,	RB5: 18872	RB5: 18872				
	TFC9		DL_DCH_TFC0,	UL_TFC4,		(note 10)				
			DL_DCH_TFC1,	UL_TFC5,						
			UL_TFC0,	UL_TFC9						
			UL_TFC5							
10	DL_DSCH_	UL_TFC4	DL_DSCH_TFC0,	UL_TFC0,	RB5: 21568	RB5: 21568				
	TFC10		DL_DCH_TFC0,	UL_TFC4,		(note 11)				
			DL_DCH_TFC1,	UL_TFC5,						
			UL_TFC0,	UL_TFC9						
			UL_TFC5							
			5.3.2.6.2 for details re							
NOTE			J with 674 bits as test d							
			DUs. The SS creates a	ın UL RLC SDI	J by concatenat	ing RLC PDU#1,				
			bits of RLC PDU#3.							
NOTE			J size of 1348 bits as te							
			turn three RLC PDUs.			DU by				
			1, RLC SDU#2 and the							
NOTE			J size of 2696 bits as te							
			turn three RLC PDUs.			DU by				
			1, RLC SDU#2 and the							
NOTE			J size of 5392 bits as te							
			turn five RLC PDUs. T			J by				
	concatenating RLC PDU#1 to RLC PDU#4 and the first 16 bits of RLC PDU#5.									

- concatenating RLC PDU#1 to RLC PDU#4 and the first 16 bits of RLC PDU#5.

 NOTE 6: SS is using a DL RLC SDU size of 8088 bits as test data (=DL RLC PDU size for DL/DSCH_TF5). UE will return seven RLC PDUs. The SS creates an UL RLC SDU by
- concatenating RLC PDU#1 to RLC PDU#6 and the first 24 bits of RLC PDU#7.

 NOTE 7: SS is using a DL RLC SDU size of 10784 bits as test data (=DL RLC PDU size for DL/DSCH_TF6). UE will return nine RLC PDUs. The SS creates an UL RLC SDU by concatenating RLC PDU#1 to RLC PDU#8 and the first 32 bits of RLC PDU#9.
- NOTE 8: SS is using a DL RLC SDU size of 13480 bits as test data (=DL RLC PDU size for DL/DSCH_TF7). UE will return eleven RLC PDUs. The SS creates an UL RLC SDU by concatenating RLC PDU#1 to RLC PDU#10 and the first 40 bits of RLC PDU#11.
- NOTE 9: SS is using a DL RLC SDU size of 16176 bits as test data (=DL RLC PDU size for DL/DSCH_TF8). UE will return thirteen RLC PDUs. The SS creates an UL RLC SDU by concatenating RLC PDU#1 to RLC PDU#12 and the first 48 bits of RLC PDU#13.
- NOTE 10: SS is using a DL RLC SDU size of 18872 bits as test data (=DL RLC PDU size for DL/DSCH_TF9). UE will return fifteen RLC PDUs. The SS creates an UL RLC SDU by concatenating RLC PDU#1 to RLC PDU#14 and the first 56 bits of RLC PDU#15.
- NOTE 11: SS is using a DL RLC SDU size of 21568 bits as test data (=DL RLC PDU size for DL/DSCH_TF10). UE will return seventeen RLC PDUs. The SS creates an UL RLC SDU by concatenating RLC PDU#1 to RLC PDU#16 and the first 64 bits of RLC PDU#17.

See 14.1.1 for test procedure.

14.3.3.1.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be
 - for sub-test 1: RB5/TF1 (1x336).
 - for sub-test 2: RB5/TF2 (2x336).
 - for sub-test 3: RB5/TF3 (3x336).
 - for sub-test 4, 5, 6, 7, 8, 9 and 10: RB5/TF4 (4x336).
- 3. At step 15 the UE shall return
 - for sub-test 1 to 10: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

14.3.3.2 Interactive or background / UL:64 DL:2048 kbps / PS RAB / 20 ms TTI

14.3.3.2.1 Conformance requirement

See 14.2.4.1.

14.3.3.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.2.3 for the downlink 20 ms TTI case.

14.3.3.2.3 Method of test

Uplink TFS:

	TFI	RB5 (64 kbps)	DCCH
	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
TFS	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

DSCH downlink TFS:

	TFI	RB5 (384 kbps)
	DSCH TF0, bits	0x674
	DSCH_TF1, bits	1x674
	DSCH_TF2, bits	2x674
	DSCH_TF3, bits	4x674
	DSCH_TF4, bits	8x674
	DSCH_TF5, bits	12x674
	DSCH_TF6, bits	16x674
	DSCH_TF7, bits	20x674
	DSCH_TF8, bits	24x674
TFS	DSCH_TF9, bits	28x674
	DSCH_TF10, bits	32x674
	DSCH_TF11, bits	36x674
	DSCH_TF12, bits	40x674
	DSCH_TF13, bits	44x674
	DSCH_TF14, bits	48x674
	DSCH_TF15, bits	52x674
	DSCH_TF16, bits	56x674
	DSCH_TF17, bits	60x674
	DSCH_TF18, bits	64x674

DSCH downlink TFCS:

TFCI	RB5
DL_DSCH_TFC0	DSCH_TF0
DL_DSCH_TFC1	DSCH_TF1
DL_DSCH_TFC2	DSCH_TF2
DL_DSCH_TFC3	DSCH_TF3
DL_DSCH_TFC4	DSCH_TF4
DL_DSCH_TFC5	DSCH_TF5
DL_DSCH_TFC6	DSCH_TF6
DL_DSCH_TFC7	DSCH_TF7
DL_DSCH_TFC8	DSCH_TF8
DL_DSCH_TFC9	DSCH_TF9
DL_DSCH_TFC10	DSCH_TF10
DL_DSCH_TFC11	DSCH_TF11
DL_DSCH_TFC12	DSCH_TF12
DL_DSCH_TFC13	DSCH_TF13
DL_DSCH_TFC14	DSCH_TF14
DL_DSCH_TFC15	DSCH_TF15
DL_DSCH_TFC16	DSCH_TF16
DL_DSCH_TFC17	DSCH_TF17
DL_DSCH_TFC18	DSCH_TF18

DCH downlink TFS:

	TFI	DCCH
TFS	DCH_TF0, bits	0x148
115	DCH_TF1, bits	1x148

DCH downlink TFCS:

TFCI		DCCH
DL_DCH_TFC0	DCH_TF0	
DL DCH TFC1	DCH_TF1	

Sub-tests:

Sub- test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note 1)	Test data size (bits) (note 1)
1	DL_DSCH_ TFC1	UL_TFC1	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 674	RB5: 674 (note 2)
2	DL_DSCH_ TFC2	UL_TFC2	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 1348	RB5: 1348 (note 3)
3	DL_DSCH_ TFC3	UL_TFC3	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 2696	RB5: 2696 (note 4)
4	DL_DSCH_ TFC4	UL_TFC4	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 5392	RB5: 5392 (note 5)
5	DL_DSCH_ TFC5	UL_TFC4	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 8088	RB5: 8088 (note 6)
6	DL_DSCH_ TFC6	UL_TFC4	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 10784	RB5: 10784 (note 7)
7	DL_DSCH_ TFC7	UL_TFC4	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 13480	RB5: 13480 (note 8)
8	DL_DSCH_ TFC8	UL_TFC4	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 16176	RB5: 16176 (note 9)
9	DL_DSCH_ TFC9	UL_TFC4	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 18872	RB5: 18872 (note 10)
10	DL_DSCH_ TFC10	UL_TFC4	DL_DSCH_TFC0, DL_DSC_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 21568	RB5: 21568 (note 11)
11	DL_DSCH_ TFC11	UL_TFC4	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 24264	RB5: 24264 (note 12)
12	DL_DSCH_ TFC12	UL_TFC4	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 26960	RB5: 26960 (note 13)

Sub- test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note 1)	Test data size (bits) (note 1)
13	DL_DSCH_ TFC13	UL_TFC4	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 29656	RB5: 29656 (note 14)
14	DL_DSCH_ TFC14	UL_TFC4	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 32352	RB5: 32352 (note 15)
15	DL_DSCH_ TFC15	UL_TFC4	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 35048	RB5: 35048 (note 16)
16	DL_DSCH_ TFC16	UL_TFC4	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 37744	RB5: 37744 (note 17)
17	DL_DSCH_ TFC17	UL_TFC4	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 40440	RB5: 40440 (note 18)
18	DL_DSCH_ TFC18	UL_TFC4	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 43136	RB5: 43136 (note 19)

Sub-	Downlink	Uplink	Implicitely tested	Restricted	UL RLC	Test data
test	TFCS	TFCS		UL TFCIs	SDU size	size
	Under test	Under test			(bits)	(bits)
NOTE	1. Con TC 24	100 [10] alausa	F 2 2 6 2 for details rea	ardina loophool	(note 1)	(note 1)
			e 5.3.2.6.2 for details req J with 674 bits as test d			OSCH TE1)
NOTE			DUs. The SS creates a			
			2 bits of RLC PDU#3.	II OL KLO SDO	by concatenating	g KLC FD0#1,
NOTE			J size of 1348 bits as te	et data (-DI RI	C PDI I size for	
NOIL			eturn three RLC PDUs.			l hv
	_	,	1, RLC SDU#2 and the			, Бу
NOTE			J size of 2696 bits as te			
			eturn three RLC PDUs.			J bv
			1, RLC SDU#2 and the			
NOTE			J size of 5392 bits as te			
			eturn five RLC PDUs. Th			ΟV
			1 to RLC PDU#4 and th			,
NOTE	6: SS is using	a DL RLC SDI	J size of 8088 bits as te	st data (=DL RL	C PDU size for	
	DL/DSCH_	TF5). UE will re	eturn seven RLC PDUs.	The SS creates	an UL RLC SD	U by
			1 to RLC PDU#6 and th			
NOTE			J size of 10784 bits as t			
			eturn nine RLC PDUs. T			by
			1 to RLC PDU#8 and th			
NOTE			J size of 13480 bits as t			
			eturn eleven RLC PDUs			DU by
NOTE			1 to RLC PDU#10 and t			
NOTE			J size of 16176 bits as t			
			eturn thirteen RLC PDUs 1 to RLC PDU#12 and t			оо бу
NOTE			J size of 18872 bits as t			
NOIL			eturn fifteen RLC PDUs.			
			1 to RLC PDU#14 and t			ОБу
NOTE			J size of 21568 bits as t			
			return seventeen RLC F			
			1 to RLC PDU#16 and t			· ,
NOTE			J size of 24264 bits as t			•
			return nineteen RLC PD			
	concatenat	ing RLC PDU#	1 to RLC PDU#18 and t	he first 72 bits o	f RLC PDU#19.	
NOTE			J size of 26960 bits as t			
			return twenty-one RLC			_C SDU by
			1 to RLC PDU#20 and t			
NOTE			J size of 29656 bits as t			
			return twenty-three RLC			
NOTE			1 to RLC PDU#22 and t			
NOTE			J size of 32352 bits as t			
			return twenty-five RLC F			C SDU by
NOTE			1 to RLC PDU#24 and t			-
NOTE			J size of 35048 bits as t return twenty-seven RL			
			1 to RLC PDU#26 and t			
NOTE			J size of 37744 bits as t			
11012			return twenty-nine RLC			
			1 to RLC PDU#28 and t			
NOTE			J size of 40440 bits as t			
			return thirty-one RLC PI			
			1 to RLC PDU#30 and t			
NOTE			J size of 43136 bits as t			
			return thirty-three RLC I			
	concatenat	ing RLC PDU#	1 to RLC PDU#32 and t	he first 128 bits	of RLC PDU#33	i.

See 14.1.1 for test procedure.

14.3.3.2.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.

- 2. At step 15 the UE transmitted transport format shall be
 - for sub-test 1: RB5/TF1 (1x336).
 - for sub-test 2: RB5/TF2 (2x336).
 - for sub-test 3: RB5/TF3 (3x336).
 - for sub-test 4 to 18: RB5/TF4 (4x336).
- 3. At step 15 the UE shall return
 - for sub-test 1 to 18: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.
- 14.3.4 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:64 DL:256 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH
- 14.3.4.1 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:64 DL:256 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / 10 ms TTI

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.2.4 for the downlink 10 ms TTI case.

14.3.4.2 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:64 DL:256 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / 20 ms TTI

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.2.4 for the downlink 20 ms TTI case.

- 14.3.5 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:64 DL:384 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH
- 14.3.5.1 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:64 DL:384 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / 10 ms TTI

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.2.5 for the downlink 10 ms TTI case.

14.3.5.2 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:64 DL:384 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / 20 ms TTI

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.2.5 for the downlink 20 ms TTI case.

- 14.3.6 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:64 DL:2048 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH
- 14.3.6.1 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:64 DL:2048 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / 10 ms TTI

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.2.6 for the downlink 10 ms TTI case.

14.3.6.2 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:64 DL:2048 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / 10 ms TTI

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.2.6 for the downlink 20 ms TTI case.

14.4 Combinations on SCCPCH

14.4.1 Stand-alone signalling RB for PCCH

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.3.1.

14.4.2 Interactive/Background 32 kbps PS RAB + SRBs for CCCH + SRB for DCCH + SRB for BCCH

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.3.2.

14.4.3 Interactive/Background 32 kbps RAB + SRBs for PCCH + SRB for CCCH + SRB for DCCH + SRB for BCCH

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.3.3.

14.5 Combinations on PRACH

14.5.1 Interactive/Background 32 kbps PS RAB + SRB for CCCH + SRB for DCCH

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.4.1.

3GPP TSG- T1 Meeting #13 Cancun, Mexico, 29-30 Nov 2001

3GPP TSG- T1/SIG Meeting #20 Cancun, Mexico, 26-28 Nov 2001

TSG T1S-010313r1

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Reason for change: # Correction of the replace mechanism test

Summary of change: # 1. Correction of the replace mechanism test

The Replace Short Message feature of 3GPP TS 23.040 had changed on and after release 98 in a way that the SC address is no longer checked (sub-clause 9.2.3.9).

It is being written in this core specification as follows;

If such a code is present, then the MS shall check the originating address and replace any existing stored message having the same Protocol Identifier code and originating address with the new short message and other parameter values. If there is no message to be replaced, the MS shall store the message in the normal way. The MS may also check the SC address as well as the Originating Address. However, in a network which has multiple SCs, it is possible for a Replace Message type for a SM to be sent via different SCs and so it is recommended that the SC address should not be checked by the MS unless the application specifically requires such a check.

Therefore, it is unnecessary about all the test descriptions that check the SC address by MS (sub-clause 16.1.7 and 16.2.7).

Deletion of the description about using two different SC addresses (RP-OA1 and RP-OA2), in "Conformance requirement" (16.1.7.2 and 16.2.7.2), "Test procedure" (16.1.7.4 and 16.2.7.4) and "Expected sequence" (16.1.7.4 and 16.2.7.4)

Deletion of step d) in "Test procedure" (16.1.7.4 and 16.2.7.4) Deletion of step 25 to 36 in "Expected sequence" (16.1.7.4 and 16.2.7.4) Deletion of the written description as "step 31", in "Test procedure" (16.1.7.4 and 16.2.7.4) and "Test requirements" (16.1.7.5 and 16.2.7.5) 2. Editorial modifications After step 45 → After step 43 (sub-clause 16.2.2.5) After step **71** → After step **61** (sub-clause 16.2.2.5) Consequences if An inconsistency with the core specification will remain. not approved: Clauses affected: 16.1.7, 16.2.2, 16.2,7 Other specs \mathfrak{R} Other core specifications \mathfrak{R} Test specifications affected: **O&M Specifications** Other comments: # Applicable to R99 and later releases

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- 1) Fill out the above form. The symbols above marked # contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

<Start of modified section>

16.1.7 Test of the replace mechanism for SM type 1-7

16.1.7.1 Definition

16.1.7.2 Conformance requirement

On receipt of a short message, the UE shall check to see if the associated Protocol Identifier contains a Replace Short Message Type code. If such a code is present, then the UE will check the associated SC address (RP-OA) and originating address (TP-OA) and replace any existing stored message having the same Protocol Identifier code, SC address and originating address with the new short message.

Reference(s)

3GPP TS 23.040 clause 9.2.3.9.

16.1.7.3 Test purpose

This procedure verifies the correct implementation of the replace mechanism for Replace Short Messages.

16.1.7.4 Method of test

Initial conditions

- System Simulator:
 - 1 cell, default parameters.
- User Equipment:
 - the UE shall be in MM-state "Idle, updated";
 - the UE message store shall be empty.

Related ICS/IXIT Statements

Support for Short message MT/PP.

The value of timer TC1M.

Test procedure

- a) Two different numbers n and m are drawn randomly between 1 and 7. Two different addresses for TP-Originating-Address (TPOA1 and TPOA2) are drawn. Two different addresses for RP Originating Address (RPOA1 and RPOA2) are drawn.
- b) The SS delivers a short message to the UE as specified in clause 16.1.1 step a). In the SMS-DELIVER TPDU, the TP-Protocol-Identifier parameter is "Replace Short Message Type n", the TP-Originating-Address is TPOA1, and the RP-Originating-Address is RPOA1.
- c) Step b) is repeated but with a different TP-Originating-Address (TPOA2), and different contents of TP-User-Data in the SMS-DELIVER TPDU. The other parameters are the same as in step b).
- d) Step c) is repeated but with RPOA2 in the RP-Originated-Address, and contents of TP-User-Data different from the former two messages. The other parameters are the same as in step c).
- e) Step <u>c</u>d) is repeated but with the TP-Protocol-Identifier equal to "Replace Short Message Type m", and contents of TP-User-Data different from the former <u>twothree</u> messages. The other parameters are the same as in step <u>c</u>d).

- f) Step e) is repeated but the contents of TP-User-Data are different from that used in step e).
- g) The SS prompts the operator to indicate the Short Messages stored in the UE.

Expected sequence

Step	Direction	Message	Comments
	UE SS		0.000
1		Mobile terminated establishment of Radio Resource Connection	See 3GPP TS34.108
2	>	PAGING RESPONSE	
3	<	AUTHENTICATION REQUEST	
4	>	AUTHENTICATION RESPONSE	
5	<	SECURITY MODE COMMAND	
6	>	SECURITY MODE COMPLETE	
7			Contains RP-DATA RPDU (SMS DELIVER TPDU) TP-PID is "Replace Short Message Type n", TP-OA is TPOA1 and RP-OA is RPOA4
8	>	CP-ACK	
9	>	CP-DATA	Contains RP-ACK RPDU.
10	<	CP-ACK	
11	<	RRC CONNECTION RELEASE	
12	>	RRC CONNECTION RELEASE COMPLETE	
13		Mobile terminated establishment	See 3GPP TS34.108
		of Radio Resource Connection	
14	>	PAGING RESPONSE	
15	<	AUTHENTICATION REQUEST	
16	>	AUTHENTICATION RESPONSE	
17	<	SECURITY MODE COMMAND	
18	>	SECURITY MODE COMPLETE	
19		CP-DATA	Contains RP-DATA RPDU (SMS DELIVER TPDU) TP-
19	<	CP-DATA	
			PID is "Replace Short Message Type n", TP-OA is TPOA2 and RP-OA is RPOA4, TP-UD different from step 7
20		CP-ACK	
	>		Contains DD ACK DDDU
21	>	CP-DATA	Contains RP-ACK RPDU.
22	<	CP-ACK	
23	<	RRC CONNECTION RELEASE	
24	>	RRC CONNECTION RELEASE	
		COMPLETE	
25		Mobile terminated establishment of Radio Resource	See 3GPP TS34.108
		Connection(void)	
26	>	PAGING RESPONSE(void)	
27	<	AUTHENTICATION	
		REQUEST(void)	
28	>	AUTHENTICATION	
		RESPONSE(void)	
29	←	SECURITY MODE	
		COMMAND(void)	
30	>	SECURITY MODE	
	-	COMPLETE(void)	
31	<	CP-DATA(void)	Contains RP-DATA RPDU (SMS DELIVER TPDU) TP-
01	`	or Bring ivolaj	PID is "Replace Short Message Type n", TP-OA is
			TPOA2 and RP-OA is RPOA2, TP-UD different from step
1			7 and 19
30	_	CB ACK(void)	/ anu ro
32	>	CP-ACK(void)	Contains DD ACK DDDLI
33	>	CP-DATA(void)	Contains RP-ACK RPDU.
34	←	CP-ACK(void)	
35	←-	RRC CONNECTION	
		RELEASE(void)	
36	>	RRC CONNECTION RELEASE	
1		COMPLETE(void)	
37		Mobile terminated establishment	See 3GPP TS34.108
1		of Radio Resource Connection	
38	>	PAGING RESPONSE	
		•	,

Step	Direction	Message	Comments
-	UE SS	_	
39	<	AUTHENTICATION REQUEST	
40	>	AUTHENTICATION RESPONSE	
41	<	SECURITY MODE COMMAND	
42	>	SECURITY MODE COMPLETE	
43	<	CP-DATA	Contains RP-DATA RPDU (SMS DELIVER TPDU) TP-PID is "Replace Short Message Type m", TP-OA is TPOA2 and RP-OA is RPOA2, TP-UD different from step 7, 19 and 1931
44	>	CP-ACK	
45	>	CP-DATA	Contains RP-ACK RPDU.
46	<	CP-ACK	
47	<	RRC CONNECTION RELEASE	
48	>	RRC CONNECTION RELEASE COMPLETE	
49		Mobile terminated establishment of Radio Resource Connection	See 3GPP TS34.108
50	>	PAGING RESPONSE	
51	<	AUTHENTICATION REQUEST	
52	>	AUTHENTICATION RESPONSE	
53	<	SECURITY MODE COMMAND	
54	>	SECURITY MODE COMPLETE	
55	<	CP-DATA	Contains RP-DATA RPDU (SMS DELIVER TPDU) TP-PID is "Replace Short Message Type m", TP-OA is TPOA2 and RP-OA is RPOA2, TP-UD different from step 43
56	>	CP-ACK	
57	>	CP-DATA	Contains RP-ACK RPDU.
58	<	CP-ACK	
59	<	RRC CONNECTION RELEASE	
60	>	RRC CONNECTION RELEASE COMPLETE	
61	SS		Prompts the operator to indicate the Short Messages stored in the UE. Only the Short Messages delivered in step 7, 19, 31 and 55 shall be retrievable and indicated

Specific Message Contents

SMS-DELIVER TPDU

Information element	Comment Value
TP-MMS	no more messages are waiting in SC "1"B
TP-PID	binary 01000xxx, xxx represents n resp. m (see test
	method description)

16.1.7.5 Test requirements

After step 60 only the Short Messages delivered in step 7, 19, 31 and 55 shall be retrieved and indicated.

<End of modified section>

<Start of modified section>

16.2.2 SMS mobile originated

16.2.2.1 Definition

16.2.2.2 Conformance requirements

An active UE shall be able to submit short message TPDU (SMS-SUBMIT) at any time, independently of whether or not there is a PDP context in progress.

Reference

3GPP TS 23.040 clause 3.1.

16.2.2.3 Test purpose

To verify that the UE is able to correctly send a short message where the SMS is provided for the point to point service.

16.2.2.4 Method of test

Initial Conditions

- System simulator:
 - 1 cell, default parameters.
- User Equipment:
 - the UE shall be in GMM-state "GMM-REGISTERED";
 - the SMS message storage shall be empty.

Related ICS/IXIT Statements

Support for Short message MO/PP.

Support for state PDP-ACTIVE of session management.

The value of timer TC1M.

Whether SMS messages are stored in the USIM and/or the ME.

Maximum length (characters) of a mobile originated short message.

Test procedure

- a) The UE shall be set up to send a SM to the SS. The SS responds to RRC CONNECTION REQUEST by allocating a CCCH. The SS receives RRC CONNECTION SETUP COMPLETE on DCCH and then performs the authentication.
- b) After receiving SECURITY MODE COMMAND UE shall send SECURITY COMMAND COMPLETE.
- c) The SS responds to the CP-DATA containing RP-DATA RPDU (SMS SUBMIT TPDU) from the UE with a CP-ACK message within TC1M followed by a CP-DATA message containing the correct RP-ACK RPDU. The SS waits a maximum of 25 s for the CP-ACK message.
- d) The SS sends a channel release message to the UE.

- e) Steps a) and b) are repeated. The SS is configured not to send the CP-ACK message. Then maximum 3 CP-DATA retransmissions may occur. After a duration of TC1M + 5 s after the last CP-DATA retransmission the SS initiates channel release. The 5 s is the appropriate time to wait to verify that the UE does not send more than the maximum CP-DATA retransmissions.
- f) Steps a) and b) are repeated. On receipt of the CP-DATA from the UE the SS sends a CP-ERROR message within TC1M containing a "Network Failure" cause. Then the SS initiates channel release.
- g) A PDP context is established with the SS and the state PDP-ACTIVE of session management is entered. The UE is set up to send an SM to the SS. After the reception of the SERVICE REQUEST, the SS sends a SERVICE ACCEPT message.
- h) The SS responds to the CP-DATA containing RP-DATA RPDU (SMS SUBMIT TPDU) from the UE with a CP-ACK message within TC1M followed by a CP-DATA message containing the correct RP-ACK RPDU. The SS waits a maximum of 25 s for the CP-ACK message. Then the SS sends a channel release message to the UE.
- i) Step g) is repeated. The SS is configured not to send the CP-ACK message. Then maximum 3 CP-DATA retransmissions may occur. After a duration of TC1M + 15 s after the last CP-DATA retransmission the SS initiates channel release. The 15 s is the appropriate time to wait to verify that the UE does not send more than the maximum CP-DATA retransmissions (during a PDP context in progress).
- j) (void)
- k) The UE is set up to send an SM to the SS. On receipt of the SERVICE REQUEST the SS sends a SERVICE REJECT message with the reject cause set to "GPRS services not allowed". After 5 s the SS initiates channel release.

Expected sequence

Step	Direction	Message	Comments
Oteb	UE SS		Odminents
1	<	SYSTEM INFORMATION	BCCH
2	>	RRC CONNECTION REQUEST	CCCH
3	<	RRC CONNECTION SETUP	CCCH
4	>	RRC CONNECTION SETUP	DCCH
		COMPLETE	
5	>	SERVICE REQUEST	
6	<	AUTHENTICATION AND	
		CIPHERING REQUEST	
7	>	AUTHENTICATION AND	
_		CIPHERING RESPONSE	
8	<	SECURITY MODE COMMAND	
9	>	SECURITY MODE COMPLETE	O
10	>	CP-DATA	Contains RP-DATA RPDU (SMS SUBMIT TPDU)
11	<	CP-ACK	Sent within TC1M after step 10
12	<	CP-DATA	Contains RP-ACK RPDU
13 14	SS	CP-ACK	Waits max 25 s for CP-ACK
15	> <	RRC CONNECTION RELEASE	RRC connection is released.
16	>	RRC CONNECTION RELEASE	RRC connection is released.
10	/	COMPLETE	
17	<	SYSTEM INFORMATION	ВССН
18	>	RRC CONNECTION REQUEST	CCCH
19	<	RRC CONNECTION SETUP	CCCH
20	>	RRC CONNECTION SETUP	DCCH
		COMPLETE	
21	>	SERVICE REQUEST	
22	<	AUTHENTICATION AND	
		CIPHERING REQUEST	
23	>	AUTHENTICATION AND	
		CIPHERING RESPONSE	
24	<	SECURITY MODE COMMAND	
25	>	SECURITY MODE COMPLETE	
26	>	CP-DATA	Contains RP-DATA RPDU (SMS SUBMIT TPDU)
27	SS		SS configured not to send CP-ACK

Step	Direction	Message	Comments
	UE SS		
28	>	CP-DATA	Retransmitted CP-DATA message within twice TC1M
29	UE		after step 26 Depending on the maximum number of CP-DATA
23	OL		retransmissions implemented, step 28 may be repeated.
			The maximum number of retransmissions may however
			not exceed three.
30	<	RRC CONNECTION RELEASE	RRC CONNECTION is released after a duration of TC1M
31		RRC CONNECTION RELEASE	+ 5 s after the last CP-DATA retransmission.
31	>	COMPLETE	
32	<	SYSTEM INFORMATION	вссн
33	>	RRC CONNECTION REQUEST	CCCH
34	<	RRC CONNECTION SETUP	CCCH
35	>	RRC CONNECTION SETUP COMPLETE	DCCH
36	>	SERVICE REQUEST	
37	<	AUTHENTICATION AND	
		CIPHERING REQUEST	
38	>	AUTHENTICATION AND	
20		CIPHERING RESPONSE SECURITY MODE COMMAND	
39 40	< >	SECURITY MODE COMPLETE	
41	>	CP-DATA	Contains RP-DATA RPDU (SMS SUBMIT TPDU)
42	<	CP-ERROR	Sent within TC1M containing "Network Failure" cause.
43	<	RRC CONNECTION RELEASE	RRC CONNECTION is released.
44	>	RRC CONNECTION RELEASE	
45	SS	COMPLETE	A PDP context is established with the SS and the state
75	00		PDP-ACTIVE of session management is entered.
46	UE		The UE is set up to send an SM
47	>	SERVICE REQUEST	·
48	<	SERVICE ACCEPT	Ocarteia - DD DATA DDDII (OMO OUDMIT TDDII)
49 50	> <	CP-DATA CP-ACK	Contains RP-DATA RPDU (SMS SUBMIT TPDU) Sent within TC1M after step 49
51	<	CP-DATA	Contains RP-ACK RPDU
52	SS	G. 27	Waits max 25 s for CP-ACK
53	>	CP-ACK	
54	<	RRC CONNECTION RELEASE	RRC CONNECTION is released.
55	>	RRC CONNECTION RELEASE COMPLETE	
56	SS	COMI ELTE	A PDP context is established with the SS and the state
			PDP-ACTIVE of session management is entered.
57	>	SERVICE REQUEST	
58	<	SERVICE ACCEPT	Ocarteia - DD DATA DDDII (OMO OUDMIT TDDII)
59 60	> SS	CP-DATA	Contains RP-DATA RPDU (SMS SUBMIT TPDU) SS configured not to send CP-ACK
61	>	CP-DATA	Transmitted CP-DATA message within twice TC1M after
			step 59
62	UE		Depending on the maximum number of CP-DATA
			retransmissions implemented, step 61 may be repeated.
			The maximum number of retransmissions may however not exceed three.
63	<	RRC CONNECTION RELEASE	RRC CONNECTION is released after a duration of TC1m
			+ 15 s after the last CP-DATA retransmission.
64	>	RRC CONNECTION RELEASE	
6F 77		COMPLETE	
65-77 78	>	(void) RRC CONNECTION REQUEST	initiate outgoing call
79	<	RRC CONNECTION SETUP	Thinking out
80	>	RRC CONNECTION SETUP	
		COMPLETE	
81	>	SERVICE REQUEST	Deject course act to "CDDC comisees and allowed"
82 83	< <	SERVICE REJECT RRC CONNECTION RELEASE	Reject cause set to "GPRS services not allowed" Sent 5 s after SERVICE REJ
84	>	RRC CONNECTION RELEASE	Some of anti- Service New
		COMPLETE	
	i	•	

Step	Direction	Message	Comments	
	UE SS			
NOTE:	Time value	s for SS wait times are chosen suffi	ciently high to be sure that the UE has enough time to	
	respond to the different messages.			

Specific Message Contents

SMS SUBMIT TPDU

Information element	Comment Value
TP-UDL TP-UD (140 octets max)	as applicable maximum number of characters (text of message) as defined by the manufacturer (see ICS/IXIT)

16.2.2.5 Test requirements

After step 9 UE shall send a CP-DATA containing RP-data. The RP-DATA shall contain SMS SUBMIT TPDU.

After step 26 UE shall retransmit a CP-DATA containing RP-data. The RP-DATA shall contain SMS SUBMIT TPDU.

After step 4345 UE shall send the RRC CONNECTION RELEASE COMPLETE.

After step 48 UE shall send a CP-DATA containing RP-data. The RP-DATA shall contain SMS SUBMIT TPDU.

After step 6174 UE shall repeat CP-DATA retransmissions as many times as the decided maximum number.

After step 82 UE shall not send CP-DATA.

<End of modified section>

<Start of modified section>

16.2.7 Test of the replace mechanism for SM type 1-7

16.2.7.1 Definition

16.2.7.2 Conformance requirement

On receipt of a short message, the UE shall check to see if the associated Protocol Identifier contains a Replace Short Message Type code. If such a code is present, then the UE will check the associated SC address (RP-OA) and originating address (TP-OA) and replace any existing stored message having the same Protocol Identifier code, SC address and originating address with the new short message.

Reference(s)

3GPP TS 23.040; clause 9.2.3.9.

16.2.7.3 Test purpose

This procedure verifies the correct implementation of the replace mechanism for Replace Short Messages.

16.2.7.4 Method of test

Initial conditions

- System Simulator:
 - 1 cell, default parameters.
- User Equipment:
 - the UE shall be in GMM-state "GMM-REGISTERED";
 - the UE message store shall be empty.

Related ICS/IXIT Statements

Support for Short message MT/PP.

The value of timer TC1M.

Test procedure

- a) Two different numbers n and m are drawn randomly between 1 and 7. Two different addresses for TP-Originating-Address (TPOA1 and TPOA2) are drawn. Two different addresses for RP Originating Address (RPOA1 and RPOA2) are drawn.
- b) The SS delivers a short message to the UE as specified in clause 16.2.1 step a). In the SMS-DELIVER TPDU, the TP-Protocol-Identifier parameter is "Replace Short Message Type n", the TP-Originating-Address is TPOA1, and the RP-Originating-Address is RPOA4.
- c) Step b) is repeated but with a different TP-Originating-Address (TPOA2), and different contents of TP-User-Data in the SMS-DELIVER TPDU. The other parameters are the same as in step b).
- d) Step c) is repeated but with RPOA2 in the RP-Originated-Address, and contents of TP-User-Data different from the former two messages. The other parameters are the same as in step c).
- e) Step <u>cd</u>) is repeated but with the TP-Protocol-Identifier equal to "Replace Short Message Type m", and contents of TP-User-Data different from the former <u>twothree</u> messages. The other parameters are the same as in step <u>cd</u>).

- f) Step e) is repeated but the contents of TP-User-Data are different from that used in step e).
- g) The SS prompts the operator to indicate the Short Messages stored in the UE.

Expected sequence

Step	Direction	Message	Comments
	UE SS		
1		Mobile terminated establishment	See 3GPP TS34.108
		of Radio Resource Connection	
2	>	SERVICE REQUEST	
3	<	AUTHENTICATION AND	
		CIPHERING REQUEST	
4	>	AUTHENTICATION AND	
		CIPHERING RESPONSE	
5	<	SECURITY MODE COMMAND	
6	>	SECURITY MODE COMPLETE	
7	<	CP-DATA	Contains RP-DATA RPDU (SMS DELIVER TPDU) TP-PID is "Replace Short Message Type n", TP-OA is TPOA1 and RP-OA is RPOA4
8	>	CP-ACK	
9	>	CP-DATA	Contains RP-ACK RPDU.
10	<	CP-ACK	
11	<	RRC CONNECTION RELEASE	
12	>	RRC CONNECTION RELEASE	
		COMPLETE	
13		Mobile terminated establishment of Radio Resource Connection	See 3GPP TS34.108
14	>	SERVICE REQUEST	
15	<	AUTHENTICATION AND	
		CIPHERING REQUEST	
16	>	AUTHENTICATION AND	
4.7		CIPHERING RESPONSE	
17	<	SECURITY MODE COMMAND	
18 19	>	SECURITY MODE COMPLETE CP-DATA	Contains BD DATA BDDU (SMS DELIVED TDDU) TD
19	<	CP-DATA	Contains RP-DATA RPDU (SMS DELIVER TPDU) TP-PID is "Replace Short Message Type n", TP-OA is TPOA2 and RP-OA is RPOA1, TP-UD different from step 7
20	>	CP-ACK	
21	>	CP-DATA	Contains RP-ACK RPDU.
22	<	CP-ACK	
23	<	RRC CONNECTION RELEASE	
24	>	RRC CONNECTION RELEASE	
		COMPLETE	
25		Mobile terminated establishment of Radio Resource	See 3GPP TS34.108
		Connection(void)	
26	>	SERVICE REQUEST(void)	
27	<	AUTHENTICATION AND	
		CIPHERING REQUEST(void)	
28	>	AUTHENTICATION AND	
20		CIPHERING RESPONSE(void) SECURITY MODE	
29	<		
30	_	COMMAND(void) SECURITY MODE	
30	>	COMPLETE(void)	
31	<	CP-DATA(void)	Contains RP-DATA RPDU (SMS DELIVER TPDU) TP-
		G-DATA(VOID)	PID is "Replace Short Message Type n", TP-OA is TPOA2 and RP-OA is RPOA2, TP-UD different from step 7 and 19
32	>	CP-ACK(void)	
33	>	CP-DATA(void)	Contains RP-ACK RPDU.
34	<	CP-ACK(void)	
35	←	RRC CONNECTION RELEASE(void)	

Step	Direction	Message	Comments
	UE SS	1	
36	>	RRC CONNECTION RELEASE	
		COMPLETE(void)	
37		Mobile terminated establishment	See 3GPP TS34.108
		of Radio Resource Connection	
38	>	SERVICE REQUEST	
39	<	AUTHENTICATION AND	
		CIPHERING REQUEST	
40	>	AUTHENTICATION AND	
4.4		CIPHERING RESPONSE	
41	<	SECURITY MODE COMMAND	
42	>	SECURITY MODE COMPLETE	Contains DD DATA DDDLL (SMS DELIVED TDDLL) TD
43	<	CP-DATA	Contains RP-DATA RPDU (SMS DELIVER TPDU) TP-PID is "Replace Short Message Type m", TP-OA is
			TPOA2 and RP-OA is RPOA2, TP-UD different from step
			7 + 19 and 1931
44	>	CP-ACK	7 , 19 and <u>19</u> 91
45	>	CP-DATA	Contains RP-ACK RPDU.
46	<	CP-ACK	Contains to More to Bo.
47	<	RRC CONNECTION RELEASE	
48	>	RRC CONNECTION RELEASE	
		COMPLETE	
49		Mobile terminated establishment	See 3GPP TS34.108
		of Radio Resource Connection	
50	>	SERVICE REQUEST	
51	<	AUTHENTICATION AND	
		CIPHERING REQUEST	
52	>	AUTHENTICATION AND	
		CIPHERING RESPONSE	
53	<	SECURITY MODE COMMAND	
54	>	SECURITY MODE COMPLETE	Contains DD DATA DDDU (CMC DELIVED TDDU) TD
55	<	CP-DATA	Contains RP-DATA RPDU (SMS DELIVER TPDU) TP-PID is "Replace Short Message Type m", TP-OA is
			TPOA2 and RP-OA is RPOA2, TP-UD different from step
			143
56	>	CP-ACK	30
57	>	CP-DATA	Contains RP-ACK RPDU.
58	<	CP-ACK	Containe It. Mortiti Bo.
59	<	RRC CONNECTION RELEASE	
60	>	RRC CONNECTION RELEASE	
		COMPLETE	
61	SS		Prompts the operator to indicate the Short Messages
			stored in the UE. Only the Short Messages delivered in
			step 7, 19, 31 and 55 shall be retrievable and indicated

Specific Message Contents

SMS-DELIVER TPDU

Information element	Comment Value
TP-MMS	no more messages are waiting in SC "1"B
TP-PID	binary 01000xxx, xxx represents n resp. m (see test
	method description)

16.2.7.5 Test requirements

After step 60 only the Short Messages delivered in step 7, 19, 31 and 55 shall be retrieved and indicated.

<End of modified section>

3GPP TSG-T1 SIG Meeting #20 Cancun, Mexico, 26th – 28th November 2001

T1S-010357r2

CHANGE REQUEST					
ж Т;	34.123-1 CR 126 # ev - #	Current version: 4.0.0 **			
For HELP o	n using this form, see bottom of this page or look at the	pop-up text over the % symbols.			
Proposed chan	le affects: 郑 (U)SIM ME/UE X Radio Acc	cess Network Core Network			
Title:	★ Corrections to RRC test cases				
Source:	₩ MCI				
Work item code	** TEI	Date: 第 28 th November 01			
Category:	## F Use one of the following categories: F (correction) A (corresponds to a correction in an earlier release B (addition of feature), C (functional modification of feature) D (editorial modification) Detailed explanations of the above categories can be found in 3GPP TR 21.900.	Release: # REL-4 Use one of the following releases: 2 (GSM Phase 2)) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) REL-4 (Release 4) REL-5 (Release 5)			

Reason for change: # There are many technical errors found in the test proses. Summary of change: # Test requirements in clause 8.1, 8.2.1 are updated to reflect more accurately the requirement of the UE. References in many test cases are corrected. Grammatical corrections. Clarifications are made to improve the readability of the test proses. Updating of the IEs according to June version TS 25.331. In all multi-cells tables, all entries labeled CPICH RSCP are revised to CPICH Ec since these tables specify the DL TX power configured by SS, instead of the Rx power received by UE. The value of this parameter when the cell is not suitable for camping is -75dBm and the value is -60 dBm when the cell is suitable for camping. All post amble test steps are removed. Specific message content are clarified to ensure all IEs are clearly indicated. References of the specific message are also clarified. Contents in the SIB type 5 used in clause 8.1.2.2 have been update according to those found in TS 34.108. In clause 8.1 and 8.2.1, all reception of invalid RRC message test cases are revised to use short message to generate the invalid message. In clause 8.1.1.5 and 8.1.1.6, the current test cases required UE to read SIB type 1 and 13 in CELL_PCH and URA_PCH state. This is not possible so the test cases are revised to

use SIB type 3 and 4 instead. In the revised test case, after UE read the new SIB type 3 and 4, UE will not respond to PAGING TYPE 1 message as the status of the cell is changed from "not barred" to "barred". Clause 8.1.14 is also revised to be consistent with clause 8.1.1.5 and 8.1.1.6.

In clause 8.1.1.7 and 8.1.1.8, step 1, which is to test that the UE does not react to a PAGING TYPE 2 message with unmatch Paging Record Type Identifier, is removed because this test depends on what type of paging record type identifier the UE support.

Conformance requirement and test purpose of clause 8.1.1.7 is updated to include testing of UE's behaviour when invalid PAGING TYPE 2 message is received.

In clause 8.1.2.2, one of the conformance requirements cannot be met so it is removed. The invalid RRC CONNECTION SETUP message in step 5 cannot cause variable PROTOCOL_ERROR_REJECT in the UE to be set to TRUE.

In clause 8.1.2.4, the transmisson power of both cells is specified. The IE "UARFCN uplink (Nu)" is set to the frequency used in cell 2. The conformance requirement is updated. In step 1, IE "Initial UE identity" should be set to IMSI stored in the TEST USIM.

In clause 8.1.2.5, in step 2, IE "Initial UE identity" should be set to IMSI stored in the TEST USIM.

In clause 8.1.2.6, the RRC CONNECTION REQUEST message in step 3 and 5 should be the same as in step 1.

In clause 8.1.2.7, "Originating Background Call" and "Orginating Streaming Call" can also be used as the establishment cause in the RRC CONNECTION REQUEST message.

Clause 8.1.2.8 is removed because this requirement does not exist in the core specification.

In clause 8.1.2.9, conformance requirement for invalid message reception is removed. This has been tested in another clause. Step 2 of the expected sequence has been revised and step 2a is added.

In clause 8.1.3.1, IE "Number of RRC Message Transmission" is replaced with IE "N308" and the range of value is corrected. In the test purpose, number of time RRC CONNECTION RELEASE message is transmitted is corrected to N308+1 times.

In step 4 of clause 8.1.6.1 and 8.1.6.2, RRC STATUS message need to include IE "Identification of received message type".

In clause 8.1.6, in the test requirement, RRC STATUS message should not include IE "failure cause" as it is not in the message.

In clause 8.1.7.1, it is clarified in the conformance requirement that ciphering is for signalling radio bearers and any radio bearers, integrity protection is for signalling links only. Test purpose is also updated to include testing of UE when UE receives invalid SECURITY MODE COMMAND message.

In clause 8.1.7.2, testing of UE's behaviour when UE performs cell re-selection procedure and ciphering as well as integrity protection is in used, has been removed. This is because it is very difficult for the SS to control the UE to complete cell-reselection procedure before it responds with SECURITY MODE COMPLETE message.

In clause 8.1.8, conformance requirement is updated to include testing of UE when UE receives invalid COUNTER CHECK message.

In clause 8.2.1, the applicability of many test cases is revised.

Clause 8.2.1.2 is removed because test for integrity is already included in clause 8.1.7.

In many test cases in clause 8.2.1, references of default messages are updated.

In clause 8.2.1.3, IE "UARFCN uplink (Nu)" in the unsupported configuration message is

set to '0' and IE "UARFCN downlink (Nd)" is set to 950. This may not be the best solution but at least the test condition will not misled readers.

In clause 8.2.1.5, the content of CELL UPDATE CONFIRM messge in step 4 is revised so that the UE returns to its initial state.

In clause 8.2.1, all invalid configuration messages from SS to UE shall use the following setting:

Default DPCH Offset Value 512 DPCH frame offset 1024

In clause 8.2.1.6 and 8.2.1.14, IE "Scrambling code number" is added to the RBC messages in step 1 and 2 but the values for both messages are different.

In subsequently received test cases, IE "Scrambling code number" is added to the two same RBC messages subsequently sent from SS but the values for both messages are different. These changes apply to clause 8.2.1.17 and 8.2.1.18.

In clause 8.2.1.19 and 8.2.1.20, IE "Primary scrambling code" is added to RADIO BEARER SETUP message in step 1.

In cell re-select test cases (clause 8.2.1.9), the tests are modified to use only 1 cell. The RBC messages shall include IE "Primary CPICH info" which is set to the value of cell 2. Since cell 2 is not available, the UE shall re-select to cell 1 and then send a CELL UPDATE message with IE "Cell update cause" set to "cell reselection".

In test cases where UE fails to revert back to old configuration (clause 8.2.1.13), the cell update cause should be "radio link failure".

In cell-reselect test cases (clause 8.2.1.9), the CELL UPDATE CONFIRM messages are revised to exclude IE "New U-RNTI" and IE "New C-RNTI" so that UE shall not need to send back UTRAN MOBILITY INFORMATION message back to SS.

Consequences if not approved:

The test prose cannot test UE correctly.

Clauses affected:	# Clause 8.1 and clause 8.2.1
Other specs affected:	# Other core specifications # Test specifications O&M Specifications
Other comments:	# Affects Rel'99 and Rel'4 UE test cases.

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at: http://www.3gpp.org/3G Specs/CRs.htm. Below is a brief summary:

- 1) Fill out the above form. The symbols above marked # contain pop-up help information about the field that they are closest to
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

8 Radio Resource Control RRC

8.1 RRC Connection Management Procedure

8.1.1 Paging

8.1.1.1 Paging for Connection in idle mode

8.1.1.1.1 Definition

8.1.1.1.2 Conformance requirement

In idle mode, UE monitors the paging occasions determined using parameters from SYSTEM INFORMATION BLOCK messages. When the UE receives a PAGING TYPE 1 message transmitted on PCCH during one of its assigned paging occasions, it shall attempt to establish an RRC connection.

Reference

3GPP TS 25.331 clause 8.1.2, 3GPP TS 25.211 clause 5.3.3.7, 3GPP TS 25.304 clause 8.

8.1.1.1.3 Test purpose

To confirm that the UE establishes an RRC connection after it receives a PAGING TYPE 1 message which includes IE "Paging Record UE identity" (UE identity in IE "Paging Record") set to the IMSI of the UE.

8.1.1.1.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: Idle state (state 2 or state 3 or state 7) as specified in clause 7.4 of TS 34.108 with a CN UE identity (set to IMSI), depending on the CN domain(s) supported by the UE.

Test Procedure

SS transmits SYSTEM INFORMATION BLOCK TYPE 1 or 13 messages, depending on the CN type supported by the UE. The SS transmits a PAGING TYPE 1 message, which includes an unmatched CN UE identity for the UE in the idle state. The UE shall not change its state. The SS transmits a PAGING TYPE 1 message, which includes a matched CN UE identity for the UE in the idle state. During transmission of PAGING TYPE 1 messages, SS selects the correct paging indicator on the PICH in order to allow the UE to respond to paging. Then the UE transmits an RRC CONNECTION REQUEST to the SS, the SS transmits an RRC CONNECTION SETUP to the UE. When the UE receives this message, the UE establishes an RRC connection and transmits an RRC CONNECTION SETUP COMPLETE message on the uplink DCCH.

NOTE: For UEs supporting GSM-MAP CN type only, SYSTEM INFORMATION TYPE 1 messages are to be sent by SS in this test case. On the other hand, SS transmits SYSTEM INFORMATION TYPE 13 messages if the UE under test supports only ANSI-41 CN type.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	*	-	SYSTEM INFORMATION BLOCK TYPE 13 or SYSTEM INFORMATION BLOCK TYPE 1	Transmit these messages on the BCCH, in addition to the normal BCCH transmissions. See specific message contents.
2	*	-	PAGING TYPE 1	The SS transmits the message, which includes an unmatched identity (incorrect IMSI), and the UE does not change its state.
3	•	-	PAGING TYPE 1	The SS transmits the message, which includes a matched identity (test-SIM IMSI).
4	-)	RRC CONNECTION REQUEST	
5	*	_	RRC CONNECTION SETUP	SS assigns DPCH resources to allow UE to establish an RRC connection.
6	1	→	RRC CONNECTION SETUP COMPLETE	

Specific Message Contents

SYSTEM INFORMATION BLOCK TYPE 1 (Step 1) – for UEs supporting GSM-MAP core networks

Information Element	Value/remark	
CN common GSM-MAP NAS system information	Location Area Information (LAI)	
CN domain system information list		
- CN domain system information		
- CN domain identity	Supported Domain (PS Domain or CS Domain)	
- CHOICE CN Type	Supported CN type	
 CN domain specific NAS system information 	00 00(CS) or 1E 01(PS)	
- CN domain specific DRX cycle length coefficient	7	
UE Timers and constants in idle mode		
- T300	4000 milliseconds	
- N300	3	
- T312	10 seconds	
- N312	200	

SYSTEM INFORMATION TYPE 13 (Step 1) – for UEs supporting ANSI-41 core networks

Information Element	Value/remark
CN domain system information list	Only 1 entry
CN domain system information	
- CN domain identity	Supported Domain (PS Domain or CS Domain)
- CHOICE CN Type	Supported CN type
 CN domain specific NAS system information 	Default
 CN domain specific DRX cycle length coefficient 	6
UE Timers and constants in idle mode	
- T300	6000 milliseconds
- N300	3
- T312	10 sec
- N312	200

PAGING TYPE 1 (Step 2)

Information Element	Value/remark
Message Type	
Paging record list	Only 1 entry
Paging record	
CHOICE Used paging identity	CN identity
- Paging cause	Terminating Call with one of the supported services
- CN domain identity	Supported Domain (PS Domain or CS Domain)
- CHOICE UE Identity	IMSI
- IMSI	Set to an arbitrary octet string of length 7 bytes which is
	different from the IMSI value stored in the TEST USIM
	card.
BCCH modification info	Not Present

PAGING TYPE 1 (Step 3)

Information Element	Value/remark
Message Type	
Paging record list	Only 1 entry
Paging record	
CHOICE Used paging identity	CN identity
- Paging cause	Terminating Call with one of the supported services
- CN domain identity	Supported Domain (PS Domain or CS Domain)
- CHOICE UE Identity	IMSI
- IMSI	Set to the same octet string as in the IMSI stored in the
	TEST USIM card
BCCH modification info	Not Present

RRC CONNECTION REQUEST (Step 4)

Information Element	Value/remark
Message type	
Initial UE identity	Same as the IMSI stored in the TEST USIM card, or the registered TMSI or P-TMSI
Establishment Cause	Check to see if it is set to the same value as "Paging Cause" IE in the PAGING TYPE 1 message transmitted on step 3.
Protocol Error Indicator	Check to see if it is set to FALSE
Measured results on RACH	Not checked.

8.1.1.1.5 Test requirement

After step 2 the UE shall not transmit on the uplink CCCH in order to establish a RRC connection.

After step 5 the UE shall have an RRC connection based on dedicated physical channel resources and transmit an RRC CONNECTION SETUP COMPLETE message on the uplink DCCH.

8.1.1.2 Paging for Connection in connected mode (CELL_PCH)

8.1.1.2.1 Definition

8.1.1.2.2 Conformance requirement

In CELL_PCH state, a UE can respond to a paging request from UTRAN. In this case, the UTRAN has requested to establish a connection with the UE. The UE shall then attempt to perform a cell update procedure and move to CELL_FACH state in order to respond to the paging using uplink CCCH.

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Reference

3GPP TS 25.331 clause 8.1.2.

8.1.1.2.3 Test purpose

To confirm that the UE enters the CELL_FACH state after it receives a PAGING TYPE 1 message which indicates that the paging has originated from UTRAN. To verify that the UE performs cell update procedure after entering the CELL_FACH state.

8.1.1.2.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: CELL_PCH state (state 6-12) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE with a valid U-RNTI already assigned by the SS.

Test Procedure

SS transmits SYSTEM INFORMATION BLOCK TYPE 1 or 13 messages, depending on the CN type supported by the UE. The SS transmits a PAGING TYPE 1 message, which includes an unmatched U-RNTI-in CELL_PCH state. The UE does not change its state. Then SS transmits a PAGING TYPE 1 message with a matched identifier but originates from the CN instead of UTRAN. The UE shall not change state after receiving this message. The SS transmits a PAGING TYPE 1 message, which includes a matched U-RNTI-in the connected state. Then the UE enters the CELL_FACH state and performs the cell updating procedure.

NOTE: For UEs supporting GSM-MAP CN type only, SYSTEM INFORMATION TYPE 1 messages are to be sent by SS in this test case. On the other hand, SS transmits SYSTEM INFORMATION TYPE 13 messages if the UE under test supports only ANSI-41 CN type.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	*		SYSTEM INFORMATION BLOCK TYPE 13 or SYSTEM INFORMATION BLOCK TYPE 1	Transmit these messages on the BCCH, in addition to the normal BCCH transmissions. See specific message contents
2	*	.	PAGING TYPE 1	The SS transmits a message including an unmatched identifier. UE shall not respond to the paging.
3	*		PAGING TYPE 1	The SS transmits a message includes a matched identifier but with the originator being the CN, UE shall not respond to the paging.
4	*		PAGING TYPE 1	The SS transmits the message with the UTRAN being the originator and including the UE's assigned U-RNTI
5	-	>	CELL UPDATE	The UE enters the CELL_FACH state. UE performs cell updating procedure. The CELL UPDATE message shall contain the value "Cell Update Cause" set to "paging response".
6	•		CELL UPDATE CONFIRM	Use the default message specified in Annex A.

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Specific Message Contents

PAGING TYPE 1 (Step 2)

Information Element	Value/remark
Message Type	
Paging record list	Only 1 entry
Paging record	
- CHOICE Used paging identity	UTRAN identity
- U-RNTI	
- SRNC Identity	Set to an arbitrary 16-bit string which is different from
	the SRNC identity assigned.
- S-RNTI	Set to an arbitrary 20-bit string which is different from
	the S-RNTI assigned.
BCCH modification info	Not Present

PAGING TYPE 1 (Step 3)

Same as the PAGING TYPE 1 message as in <u>step 3 of Clause clause</u> 8.1.1.1.4, with the exception that the "BCCH modification info" IE shall be omitted in the message.

PAGING TYPE 1 (Step 4)

Information Element	Value/remark
Message Type	
Paging record list	Only 1 entry
Paging record	
- CHOICE Used paging identity	UTRAN identity
- U-RNTI	
- SRNC Identity	Set to the same SRNC identity as previously assigned.
- S-RNTI	Set to the same S-RNTI as previously assigned.
BCCH modification info	Not Present

SYSTEM INFORMATION BLOCK TYPE 13

Use the same SYSTEM INFORMATION BLOCK TYPE 13 message as specified in clause 8.1.1.1.4.

SYSTEM INFORMATION BLOCK TYPE 1

Use the same SYSTEM INFORMATION BLOCK TYPE 1 message as specified in clause 8.1.1.1.4.

8.1.1.2.5 Test requirement

After step 2 the UE shall not respond to the PAGING TYPE 1 message sent in step 2.

After step 3 the UE shall not respond to the PAGING TYPE 1 message sent in step 23.

After step 4 the UE shall enter the CELL FACH state and send a CELL UPDATE message with "Cell Update Cause" IE set to "paging response".

After step 6 the UE shall be in the CELL_FACH state.

8.1.1.3 Paging for Connection in connected mode_(URA_PCH)

8.1.1.3.1 Definition

8.1.1.3.2 Conformance requirement

This procedure is used to transmit a PAGING TYPE 1 message from the network to selected UEs in URA_PCH state using the paging control channel (PCCH). The UE listens to it and then enters the CELL_FACH state.

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Reference

3GPP TS 25.331 clause 8.1.2.

8.1.1.3.3 Test purpose

To confirm that the UE enters the CELL_FACH state after it receives a PAGING TYPE 1 message which includes IE "Paging Record" (U RNTI) for the UE and which is set to "UTRAN originatoridentity" in IE "Used paging originatoridentity" and the U-RNTI value assigned to UE in the IE "U-RNTI".

8.1.1.3.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: URA_PCH state (state 6-13) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE-with a valid U-RNTI assigned by the SS.

Test Procedure

The SS transmits a PAGING TYPE 1 message, which includes an unmatched U-RNTI-in URA_PCH state. The UE does not change its current state. The SS transmits a PAGING TYPE 1 message which includes a matched U-RNTI-in the connected state. Then the UE listens to it and enters the CELL_FACH state to transmit a CELL UPDATE message using uplink CCCH in respond to the paging.

Expected sequence

Step	Direction	Message	Comment
	UE SS		
1	+	PAGING TYPE 1	The SS transmits the message that includes an unmatched identifier, then but the UE does not change its state.
2	←	PAGING TYPE 1	The SS transmits the message that includes a matched identifier.
3	→	CELL UPDATE	The UE enters the CELL_FACH state.
4	+	CELL UPDATE CONFIRM	Use the default message specified in Annex A.

Specific Message Contents

PAGING TYPE 1 (Step 1)

Information Element	Value/remark
Message Type	
Paging record list	Only 1 entry
Paging record	
 CHOICE Used paging identity 	UTRAN identity
- U-RNTI	
- SRNC Identity	Set to an unused SRNC identity which is different from
	the SRNC identity assigned.
- S-RNTI	Set to an arbitrary 20-bit string which is different from
	the S-RNTI assigned.
BCCH modification info	Not Present

PAGING TYPE 1 (Step 2)

Information Element	Value/remark
Message Type	
Paging record list	Only 1 entry
Paging record	
- CHOICE Used paging identity	UTRAN identity
- U-RNTI	
- SRNC Identity	Set to the previously assigned SRNC identity
- S-RNTI	Set to previously assigned S-RNTI
BCCH modification info	Not Present

8.1.1.3.5 Test requirement

After step 1 the UE shall not respond to the paging.

After step 2 the UE shall enter the CELL FACH state, and transmit CELL UPDATE message to initiate the cell updating procedure with the paging cause set to "paging response".

After step 4 the UE shall be in the CELL FACH state.

8.1.1.4 Paging for Notification in idle mode

8.1.1.4.1 Definition

8.1.1.4.2 Conformance requirement

When a system information block on the BCCH is modified, the PAGING TYPE 1 message can be sent on the PCCH to inform the UE in the idle mode about the changes, which are currently taking place in the idle mode. The PAGING TYPE 1 message includes the IE "BCCH Modification Information". Upon receiving this notification from the UTRAN, the UE shall read the relevant MIB and/or SIB(s) subsequently during idle mode.

Reference

3GPP TS 25.331 clause 8.1. <u>1.</u>2.

8.1.1.4.3 Test purpose

To confirm that the UE checks the new value tag of the master information block and reads the updated SYSTEM INFORMATION BLOCK messages after it receives a PAGING TYPE 1 message which includes the IE "BCCH Modification Information".

8.1.1.4.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: Idle state (state 2 or state 3 or state 7) as specified in clause 7.4 of TS 34.108 with a CN UE identity, depending on the CN domain(s) supported by the UE.

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Test Procedure

The UE is in the idle state before SS starts to change the SYSTEM INFORMATION BLOCK TYPE 1 or 13 messages, depending on the CN type supported by the UE. The SS transmits a PAGING TYPE 1 message on the paging occasions assigned to the UE. The message shall include the IE "BCCH Modification Information" indicating the time when the first modified master information block is available. Before the starting time, SS continuously broadcast the original MASTER INFORMATION BLOCK and various types of SYSTEM INFORMATION BLOCK on the BCCH mapped to BCH transport channel. SS maintains this status until the SFN which corresponds to the starting modification time is reached. Then it transmits the new master information block followed by the new SYSTEM INFORMATION BLOCK TYPE 1-3 orand 13-4 messages. In the new SIB TYPE 1 or 133 and 4 messages, the IE "DRX Cycle Length CoefficientCell Access Restriction" is altered different when compared to the original SIB TYPE 1 or 133 and 4 messages. At the next paging occasion, SS transmits a new PAGING TYPE 1 message. The This message addresses the UE using its IMSI and the "paging cause" IE set to a terminating call type that is supported by the UE. The UE shall consider the cell as barred and not reactrespond to the PAGING TYPE 1 message and then send a RRC CONNECTION REQUEST message to SS.

NOTE: For UEs supporting GSM MAP CN type only, SYSTEM INFORMATION TYPE 1 messages are to be sent by SS in this test case. On the other hand, SS transmits SYSTEM INFORMATION TYPE 13 messages if the UE under test supports only ANSI 41 CN type.

Step	Direction	Message	Comment
	UE SS	-	
1	+	MASTER INFORMATION BLOCK SYSTEM INFORMATION BLOCK TYPE 1 or SYSTEM INFORMATION BLOCK TYPE 13 Void	SS transmits information on BCCH in order for UE to listen to one of the S-CCPCH physical channel, which carries PAGING TYPE 1 or 13 messages on PCCH. Relevant paging parameters are also broadcasted.
2	←	PAGING TYPE 1	SS transmits the message includes the IE "BCCH Modification Information", with the "Value Tag" changed from the "MIB Value Tag" of the current Master Information Block. Also the modification time is set to 4088 radio frame from the current SFN. SS continuously broadcast the same MASTER INFORMATION BLOCK and various types of SYSTEM INFORMATION BLOCK on BCCH for a period stretching 4087 frames.
3	+	MASTER INFORMATION BLOCK	SS starts to transmit the MIB with the "MIB Value Tag" IE different from the original setting.
	←	SYSTEM INFORMATION BLOCK TYPE 1 or SYSTEM INFORMATION BLOCK TYPE 133 and 4	At the same time, SS starts to transmit the affected SIB TYPE 4-3 or-and TYPE 1-3 derand TYPE
			SS starts to monitor the uplink RACH after approximately 4087 frames from step 2.
4	←	PAGING TYPE 1	SS starts to transmit this message continuously on the PCCH according to the new value of "DRX Cycle Length Coefficient", at the next paging occasion immediately following step 3at the correct paging occasion.
5)	RRC CONNECTION REQUEST	The UE shall not transmit an RRC CONNECTION REQUEST message. UE transmits a request due to answer to the PAGING TYPE 1 received in step 4. The IE "Establishment Cause" shall be set to "Terminating Call" supported by the UE and the "Initial UE Identity" set to UE's IMSI.
6	+	RRC CONNECTION REJECT	UE shall return to idle mode after receiving this message

Specific Message Contents

SYSTEM INFORMATION BLOCK TYPE 1 (Step 1) - for UEs supporting GSM-MAP core networks

Information Element	Value/remark
CN common GSM-MAP NAS system information	
CN domain system information list	Location Area Information (LAI)
— - CN domain system information	Supports both CS and PS domains
CN domain identity	
——- CHOICE CN Type	CS domain
- CN domain specific NAS system information	00 00
	7
CN domain specific DRX cycle length coefficient	
— - CN domain system information	PS domain
— - CN domain identity	1 E 01
——- CHOICE CN Type	7
CN domain specific NAS system information	
	4000 milliseconds
- CN domain specific DRX cycle length coefficient	7
UE Timers and constants in idle mode	10 seconds
 T300	200
—- N300	Not Present
—- T312	
—- N312	
UE Timers and constants in connected mode	

SYSTEM INFORMATION BLOCK TYPE 13 (Step 1) - for UEs supporting ANSI-41 core networks

Information Element	Value/remark
CN domain system information list	Supports both CS and PS domains
CN domain system information	
CN domain identity	CS
—- CHOICE CN Type	ANSI-41
CN domain specific NAS system information	
- ANSI-41 NAS System Information	
- ANSI-41 NAS Parameter	Set to an ANSI-41 user zone information
- CN domain specific DRX cycle length coefficient	12
— - CN domain identity	PS
—- CHOICE CN Type	ANSI-41
- CN domain specific NAS system information	
- ANSI-41 NAS System Information	
- ANSI-41 NAS Parameter	Set to an ANSI-41 user zone information
CN domain specific DRX cycle length coefficient	12
UE Capability update requirement	Not Present

PAGING TYPE 1 (Step 2)

Information Element	Value/remark
Message Type	
Paging record list	Not Present
BCCH modification info	
MIB Value Tag	2
BCCH Modification time	4088

MASTER INFORMATION BLOCK (Step 3)

Information Element	Value/remark
MIB Value tag	2

${\tt SYSTEM\ INFORMATION\ BLOCK\ TYPE\ 4-} \underline{3\ and\ 4\ (Step\ 3)} - \underline{\mathsf{for\ UEs\ supporting\ GSM-MAP\ core\ networks}}$

Information Element	Value/remark
- Cell Access Restriction	
- Cell barred	Barred
- Intra-frequency cell re-selection indicator	not allowed
- Tharred	10
- Cell Reserved for operator use	Not reserved
- Cell Reservation Extension	Not reserved
- Access Class Barred List	
- Access Class Barred0	Barred
- Access Class Barred1	Barred
- Access Class Barred2	Barred
- Access Class Barred3	Barred
- Access Class Barred4	Barred
- Access Class Barred5	Barred
- Access Class Barred6	Barred
- Access Class Barred7	Barred
- Access Class Barred8	Barred
- Access Class Barred9	Barred
- Access Class Barred10	Barred
- Access Class Barred11	Barred
- Access Class Barred12	Barred
- Access Class Barred13	Barred
- Access Class Barred14	Barred
- Access Class Barred15	Barred
References to other system information blocks	Not Present
CN common GSM-MAP NAS system information	Location Area Information (LAI)
CN domain system information list	Supports both CS and PS domains
CN domain system information	
- CN domain identity	CS domain
— - CHOICE CN Type	00 00
- CN domain specific NAS system information	6
,	
- CN domain specific DRX cycle length coefficient	PS domain
- CN domain system information	1E 01
— - CN domain identity	6
- CHOICE CN Type	
- CN domain specific NAS system information	4000 milliseconds
	6
- CN domain specific DRX cycle length coefficient	10 seconds
UE Timers and constants in idle mode	200
— - T300	Not Present
—- N300	
—- T312	
- N312	
UE Timers and constants in connected mode	

SYSTEM INFORMATION BLOCK TYPE 13 (Step 3) - for UEs supporting ANSI-41 core networks

Information Element	Value/remark
References to other system information blocks	Not Present
CN domain system information list	Supports both CS and PS domains
CN domain system information	
—- CN domain identity	CS domain
— - CHOICE CN Type	ANSI-41
- CN domain specific NAS system information	
- ANSI-41 NAS system information	
- ANSI-41 NAS Parameter	Set to an ANSI-41 user zone information
CN domain specific DRX cycle length coefficient	6
— - CN domain identity	PS domain
—- CHOICE CN Type	ANSI-41
- CN domain specific NAS system information	
- ANSI-41 NAS system information	
	Set to an ANSI-41 user zone information
- CN domain specific DRX cycle length coefficient	6

PAGING TYPE 1 (Step 4)

Information Element	Value/remark
Message Type	
Paging record list	Only 1 entry
Paging record	
 CHOICE Used paging identity 	CN identity
- Paging Cause	Terminating Call with one of the supported services
- CN Domain Identity	Supported Domain (PS Domain or CS Domain)
- CHOICE UE Identity	IMSI
- IMSI	Set to the same octet string as in the IMSI value stored
	in the TEST USIM card
BCCH modification info	Not Present

RRC CONNECTION REJECT (Step 6)

Information Element	Value/remark
Initial UE identity	
CHOICE UE id type	IMSI
 IMSI	Set to the same octet string as in the IMSI value stored
	in the TEST USIM card
Rejection cause	Unspecified
Wait time	θ .
Redirection info	Not Present

8.1.1.4.5 Test requirement

After step <u>5-4</u> the UE shall <u>not</u> transmit RRC CONNECTION REQUEST messages in response to the PAGING TYPE 1 messages sent in step 4.

8.1.1.5 Paging for Notification in connected mode (CELL_PCH)

8.1.1.5.1 Definition

8.1.1.5.2 Conformance requirement

When a system information block on the BCCH is modified, the message PAGING TYPE 1 can be sent on the PCCH to inform the UE in the CELL_PCH state about this change in the CELL_PCH state. This message includes the IE "BCCH Modification Information". Upon receiving this notification from the UTRAN, the UE shall read the relevant MIB and/or SIB(s) subsequently while in CELL_PCH state.

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Reference

3GPP TS 25.331 clause 8.1._1.2.

8.1.1.5.3 Test purpose

To confirm that the UE enters the CELL_FACH state, checks the new value tag of the master information block, and read the SYSTEM INFORMATION messages after it receives a PAGING TYPE 1 message which includes the IE "BCCH Modification Information".

8.1.1.5.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CELL_PCH state (state 6-12) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE with valid a U-RNTI assigned to it.

Test Procedure

The SS transmits a PAGING TYPE 1 message on the paging occasions assigned to the UE. The message shall include the IE "BCCH Modification Information" indicating the time when the first modified master information block is available. Before the starting time, SS continuously broadcast the original MASTER INFORMATION BLOCK and various types of SYSTEM INFORMATION BLOCK on the BCCH mapped to BCH transport channel. SS maintains this status until the SFN, which corresponds to the modification time, is reached. Then it transmits the new master information block followed by the new SYSTEM INFORMATION BLOCK TYPE 3 and 4 messages. In the new SIB TYPE 3 and 4 messages, the IE "Cell Access Restriction" is different when compared to the original SIB TYPE 3 and 4 messages. At the next paging occasion, SS transmits a new PAGING TYPE 1 message. This message addresses the UE using its IMSI and the "paging cause" IE set to a terminating call type that is supported by the UE. The UE shall consider the cell as barred and not respond to the PAGING TYPE 1 message. Identical test steps 1 to 4 in Clause 8.1.1.4 are applied to this test. However, the PAGING TYPE 1 messages used in step 2 and step 4 are altered. The changes are indicated in the specific message content paragraph under this clause. At step 5, UE shall send the CELL UPDATE message indicating the "cell update cause" to be "paging response". SS then replies with a CELL UPDATE CONFIRM message to allow the UE to transit to CELL_FACH state.

NOTE: For UEs supporting GSM MAP CN type only, SYSTEM INFORMATION TYPE 1 messages are to be sent by SS in this test case. On the other hand, SS transmits SYSTEM INFORMATION TYPE 13 messages if the UE under test supports only ANSI 41 CN type.

Step	Direction UE SS	Message	Comment
1	<u>√</u>	MASTER INFORMATION BLOCK SYSTEM INFORMATION BLOCK TYPE 1 or SYSTEM INFORMATION BLOCK TYPE 13Void	SS transmits information on BCCH in order for UE to listen to one of the S-CCPCH physical channel, which carries PAGING TYPE 1 or 13 messages on PCCH. Relevant paging parameters are also broadcasted.
2	←	PAGING TYPE 1	SS transmits the paging message which comprises IE "BCCH Modification Information", with the "Value Tag" changed from the "MIB Value Tag" of the current Master Information Block. Also the modification time is set to 4088 radio frame from the current SFN. SS continuously broadcast the same MASTER INFORMATION BLOCK and various types of SYSTEM INFORMATION BLOCK on BCCH for a period stretching 4087 frames.
3	←	MASTER INFORMATION BLOCK	SS starts to transmit the MIB with the "MIB Value Tag" IE different from the original setting.
	←	SYSTEM INFORMATION BLOCK TYPE 1-or SYSTEM INFORMATION BLOCK TYPE 133 and 4	At the same time, SS starts to transmit the affected SIB TYPE 4 or TYPE 13 messages3 and 4 continuously. The value of IE "DRX Cycle Length CoefficientCell Access Restriction" is changed in this message from "Not barred" to "Barred". SS starts to monitor the uplink RACH after approximately 4087
4	+	PAGING TYPE 1	SFN from step 2. SS transmits this message continuously on the PCCH according to the new value of "DRX Cycle Length Coefficient", at the next paging occasion immediately following step 3. This message shall page the UE with its U-RNTI and setting the UTRAN as the paging originator.at the correct paging occasion.
5)	CELL UPDATE	The UE shall not transmit an RRC CONNECTION REQUEST message. The IE "Cell Update Cause" shall be set to "Paging Response" and the IE "U-RNTI" shall be similar to the UE's U-RNTI value. The "Protocol Error Indicator" IE shall be set to FALSE.
6	+	CELL UPDATE CONFIRM	UE shall transit to CELL_FACH state after receiving this message.

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Specific Message Contents

SYSTEM INFORMATION BLOCK TYPE 1 or TYPE 13 (Step 1)

The content of this message is the same in the message used in step 1 specified in clause 8.1.1.4.4.

PAGING TYPE 1 (Step 2)

Information Element	Value/remark
Message Type	
Paging record list	Only 1 entry
Paging record	
- CHOICE Used paging identity	UTRAN identity
- U-RNTI	Equal to the U-RNTI assigned earlier.
- SRNC Identity	
- S-RNTI	
BCCH modification info	
- MIB Value Tag	2
- BCCH Modification time	4088

MASTER INFORMATION BLOCK (Step 3) and

SYSTEM INFORMATION BLOCK TYPE 1 or TYPE 133 and 4 (Step 3)

The content of these messages is the same in the message used in step 3 specified in clause 8.1.1.4.4.

PAGING TYPE 1 (Step 4)

Information Element	Value/remark
Message Type	
Paging record list	Only 1 entry
Paging record	
 CHOICE Used paging identity 	UTRAN identity
- U-RNTI	Equal to the U-RNTI assigned earlier.
- SRNC Identity	
- S-RNTI	
BCCH modification info	Not Present

CELL UPDATE CONFIRM (Step 6)

Use the same message type found in annex A, with the following exception:

Information Element	Value/remark
- U-RNTI	Equal to the U-RNTI assigned earlier.
SRNC Identity	
S-RNTI	
- RRC State Indicator	CELL FACH

8.1.1.5.5 Test requirement

After step 5-4 the UE shall <u>not transmit any CELL UPDATE messages</u> with "cell update cause" IE set to "paging response". Upon receiving CELL UPDATE CONFIRM message, the UE shall enter the CELL_FACH state.

8.1.1.6 Paging for Notification in connected mode (URA_PCH)

8.1.1.6.1 Definition

8.1.1.6.2 Conformance requirement

When a system information block on the BCCH is modified, the UTRAN can send a PAGING TYPE 1 message on the PCCH to inform UE about the changes while the UE is in the URA_PCH state. This message includes the IE "BCCH Modification Information". When receiving this message in URA_PCH state, the UE shall read the relevant MIB and/or SIB(s).

Reference

3GPP TS 25.331 clause 8.1._1.2.

8.1.1.6.3 Test purpose

To confirm that the UE enters the CELL_FACH state, checks the included new value tag of the master information block and reads the relevant SYSTEM INFORMATION block(s) after it receives a PAGING TYPE 1 message which includes the IE "BCCH Modification Information".

8.1.1.6.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: URA_PCH state (state 6-13) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE with a valid U-RNTI assigned.

Test Procedure

The SS transmits a PAGING TYPE 1 message on the paging occasions assigned to the UE. The message shall include the IE "BCCH Modification Information" indicating the time when the first modified master information block is available. Before the starting time, SS continuously broadcast the original MASTER INFORMATION BLOCK and various types of SYSTEM INFORMATION BLOCK on the BCCH mapped to BCH transport channel. SS maintains this status until the SFN which corresponds to the modification time is reached. Then it transmits the new master information block followed by the new SYSTEM INFORMATION BLOCK TYPE 3 and 4 messages. In the new SIB TYPE 3 and 4 messages, the IE "Cell Access Restriction" is different when compared to the original SIB TYPE 3 and 4 messages. At the next paging occasion, SS transmits a new PAGING TYPE 1 message. This message addresses the UE using its IMSI and the "paging cause" IE set to a terminating call type that is supported by the UE. The UE shall consider the cell as barred and not respond to the PAGING TYPE 1 message. Identical test steps 1 to 4 in clause 8.1.1.4 are applied to this test. However, the PAGING TYPE 1 messages used in step 2 and step 4 are altered. The changes are indicated in the specific message content paragraph under this clause. At step 5, UE shall send the CELL UPDATE message indicating the "cell update cause" to be "paging response". SS then replies with a CELL UPDATE CONFIRM message to allow the UE to transit to CELL_FACH state.

NOTE: For UEs supporting GSM-MAP CN type only, SYSTEM INFORMATION TYPE 1 messages are to be sent by SS in this test case. On the other hand, SS transmits SYSTEM INFORMATION TYPE 13 messages if the UE under test supports only ANSI 41 CN type.

Step	Direction UE SS	Message	Comment
1	<u>∪E 33 </u> —←	MASTER INFORMATION BLOCK SYSTEM INFORMATION BLOCK TYPE 1 or SYSTEM INFORMATION BLOCK TYPE 13Void	SS transmits information on BCCH in order for UE to listen to one of the S-CCPCH physical channel, which carries PAGING TYPE 1 or 13 messages on PCCH. Relevant
			paging parameters are also broadcasted.
2	(PAGING TYPE 1	SS transmits the paging message which comprises IE "BCCH Modification Information", with the "Value Tag" changed from the "MIB Value Tag" of the current Master Information Block. Also the modification time is set to 4088 radio frame from the current SFN. SS continuously broadcast the same MASTER INFORMATION BLOCK and various types of SYSTEM INFORMATION BLOCK on BCCH for a period stretching 4087 frames.
3	+	MASTER INFORMATION BLOCK	SS starts to transmit the MIB with the "MIB Value Tag" IE different from the original setting.
	←	SYSTEM INFORMATION BLOCK TYPE 1-or SYSTEM INFORMATION BLOCK TYPE 133 and 4	At the same time, SS starts to transmit the affected SIB TYPE 1-3 er-and TYPE 13-4 messages continuously. The value of IE "DRX Cycle Length CoefficientCell Access Restriction" is changed in this message from "Not barred" to "Barred". SS starts to monitor the uplink
			RACH after approximately 4087 SFN from step 2.
4	←	PAGING TYPE 1	SS transmits this message continuously on the PCCH according to the new value of "DRX Cycle Length Coefficient", at the next paging occasion immediately following step 3. This message shall page the UE with its U-RNTI and setting the UTRAN as the paging originator at the correct occasion.
5	→	CELL UPDATE	The UE shall not transmit an RRC CONNECTION REQUEST message.The IE "Cell Update Cause" shall be set to "Paging Response" and the IE "U-RNTI" shall be similar to the UE's U-RNTI value. The "Protocol Error Indicator" IE shall be set to FALSE.
6	+	CELL UPDATE CONFIRM	UE shall transit to CELL_FACH state after receiving this message.

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Specific Message Contents

SYSTEM INFORMATION BLOCK TYPE 1 or TYPE 13 (Step 1)

The content of this message is the same in the message used in step 1 specified in clause 8.1.1.4.4.

PAGING TYPE 1 (Step 2)

Information Element	Value/remark
Message Type	
Paging record list	Only 1 entry
Paging record	
- CHOICE Used paging identity	UTRAN identity
- U-RNTI	Equal to the U-RNTI assigned earlier.
- SRNC Identity	
- S-RNTI	
BCCH modification info	
- MIB Value Tag	2
- BCCH Modification time	4088

MASTER INFORMATION BLOCK (Step 3) and

SYSTEM INFORMATION BLOCK TYPE 1 or TYPE 133 and 4 (Step 3)

The content of these messages is the same in the message used in step 3 specified in clause 8.1.1.4.4.

PAGING TYPE 1 (Step 4)

Information Element	Value/remark
Message Type	
Paging record list	Only 1 entry
Paging record	
 CHOICE Used paging identity 	UTRAN identity
- U-RNTI	Equal to the U-RNTI assigned earlier.
- SRNC Identity	
- S-RNTI	
BCCH modification info	Not Present

CELL UPDATE CONFIRM (Step 6)

Use the same message type found in Annex A, with the following exception:

Information Element	Value/remark
- U-RNTI	Equal to the U-RNTI assigned earlier.
SRNC Identity	
S-RNTI	
- RRC State Indicator	CELL FACH

8.1.1.6.5 Test requirement

After step 4, the UE shall not transmit any CELL UPDATE messages.

After step 2 the UE shall enter the CELL_FACH state and read the SYSTEM INFORMATION message and follow it.

8.1.1.7 Paging for Connection in connected mode (CELL_DCH)

8.1.1.7.1 Definition

8.1.1.7.2 Conformance requirement

This procedure is used to transmit a PAGING TYPE 2 message from the network to selected UEs in CELL_DCH state using the dedicated control channel (DCCH). The UE listens to it and responds to this message accordingly.

When UE receives an invalid PAGING TYPE 2 message, UE shall perform procedure specific error handling.

Reference

3GPP TS 25.331 clause 8.1.11.

8.1.1.7.3 Test purpose

To confirm that the UE responds this message after it receives to a PAGING TYPE 2 message which includes IE "Paging Record Type Identifier" for the UE.

To confirm that the UE responds with a RRC STATUS message after it received an invalid PAGING TYPE 2 message.

8.1.1.7.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CELL_DCH state (state 6-9 or state 6-10) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE, after executing a location registration or attach procedure followed by the release of the TMSI of P-TMSI allocated.

Test Procedure

The SS transmits an invalid PAGING TYPE 2 message, which includes an unmatched Paging Record Type Identifier in CELL_DCH state. The UE shall not respond to this message. SS pages the UE again, this time with an invalid PAGING TYPE 2. UE shall respond by transmitting a RRC STATUS message on the DCCH using RLC-AM mode. Finally, SS transmits a PAGING TYPE 2 message, which includes a matched Paging Record Type Identifier. Then the UE shall responds to this message by the transmission of an upper layer message.

Expected sequence

Step	Direction	Message	Comment
	UE SS		
1	+	PAGING TYPE 2Void	The SS transmits the message includes an unmatched identifier, then the UE does not respond.
2	+	PAGING TYPE 2	See message content.
3	→	RRC STATUS	The UE shall respond by reporting the protocol error to the SS.
4	\	PAGING TYPE 2	SS pages the UE with a matched identifier and with a valid "paging cause" IE.
5	\rightarrow	UPLINK DIRECT TRANSFER	The UE shall respond to the paging message sent in step 43.

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Specific Message Contents

PAGING TYPE 2 (Step 1)

Information Element	Value/remark
Paging cause	Terminating Call supported by the UE
CN domain identity	Domain supported by the UE
Paging record type identifier	Set to "TMSI" or "P-TMSI" allocated during the
	execution of location registration or attach procedure
	respectively

PAGING TYPE 2 (Step 2)

Information Element	Value/remark
All IEs	Not Present

RRC STATUS (Step 3)

Use the same message type found in Annex A, with the following exception.

Information Element	Value/remark
Protocol error information	Checked to see if set to "ASN.1 violation or encoding
	error"

PAGING TYPE 2 (Step 4)

Use the same message type found in Annex A, with the following exception.

Information Element	Values/Remarks
Paging cause	Terminating Call supported by the UE
CN domain identity	Domain supported by the UE
Paging record type identifier	Set to "IMSI (GSM-MAP)" for UEs supporting GSM-MAP core network type or "IMSI (DS-41)" for UEs supporting
	ANSI-41 core network type.

UPLINK DIRECT TRANSFER (Step 5)

Only the message type IE for this message is checked.

8.1.1.7.5 Test requirement

After step 1 the UE shall not respond to the paging message on the DCCH.

After step 2 the UE shall respond to the paging message by transmitting RRC STATUS on the DCCH, stating the protocol error as "ASN.1 violation or encoding error".

After step 4 the UE shall respond to the paging message by transmitting an UPLINK DIRECT TRANSFER message on the uplink DCCH.

8.1.1.8 Paging for Connection in connected mode (CELL_FACH)

8.1.1.8.1 Definition

8.1.1.8.2 Conformance requirement

This procedure is used to transmit a PAGING TYPE 2 message from the network to selected UEs in CELL_FACH state using the dedicated control channel (DCCH). The UE shall listen to it and responds to this message accordingly.

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Reference

3GPP TS 25.331 clause 8.1.11.

8.1.1.8.3 Test purpose

To confirm that the UE responds to a PAGING TYPE 2 message, which includes a matching value for IE "Paging Record Type Identifier".

8.1.1.8.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CELL_FACH state (state 6-11) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The SS transmits a PAGING TYPE 2 message, which includes an unmatched Paging Record Type Identifier in CELL_FACH state. The UE shall not respond to this message. The SS transmits a PAGING TYPE 2 message, which includes a matched Paging Record Type Identifier. Then the UE shall respond by transmitting an upper layer message to answer this page.

Expected sequence

Step	Direction		Step Direc	ction	Message	Comment
	UE	SS				
1	· ·	-	PAGING TYPE 2Void	The SS transmits the message		
				includes an unmatched identifier,		
				then the UE does not respond.		
2	•	-	PAGING TYPE 2	The SS transmits the message		
				includes a matched identifier.		
3	-)	UPLINK DIRECT TRANSFER	The UE responds by sending an		
				upper layer message.		

Specific Message Content

PAGING TYPE 2 (Step 1)

Use the same message content as in step 1 from 8.1.1.7.4.

UPLINK DIRECT TRANSFER (Step 2)

Only the message type IE for this message is checked.

PAGING TYPE 2 (Step 2)

Use the same message content as in step 4 from 8.1.1.7.4.

8.1.1.8.5 Test requirement

After step 1 the UE shall not respond.

After step 2-1 the UE shall respond to the second-PAGING TYPE 2 message by transmitting an UPLINK DIRECT TRANSFER message on the uplink DCCH.

8.1.2 RRC Connection Establishment

8.1.2.1 RRC Connection Establishment in CELL_DCH state: Success

8.1.2.1.1 Definition

8.1.2.1.2 Conformance requirement

- The RRC connection establishment is initiated by the UE, which leaves the idle mode and transmits an RRC CONNECTION REQUEST message. This message shall include the IE "Initial UE identity" and is to be transmitted on the uplink CCCH.
- 2. After the UE receives an RRC CONNECTION SETUP message which includes the same value of the IE "initial UE identity", radio resource parameters (i.e. Signalling link typeradio bearers and multiplexing info) and U-RNTI, UE then configures the layer 2 and layer 1 processing so as to support the DCCH according to the radio resource parameters specified. The procedure successfully ends when the network receives an RRC CONNECTION SETUP COMPLETE message on the uplink DCCH.

Reference

3GPP TS 25.331 clause 8.1.3.

8.1.2.1.3 Test purpose

To confirm that the UE leaves the Idle Mode and correctly establishes a-signalling link-radio bearers on the DCCH.

8.1.2.1.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: Idle state (state 2 or state 3 or state 7) as specified in clause 7.4 of TS 34.108-, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE transmits an RRC CONNECTION REQUEST message to the SS on the uplink CCCH by attempting to make an outgoing call. After SS receives this message, it assigns the necessary radio resources and U-RNTI to be used by the UE. SS then transmits an RRC CONNECTION SETUP message containing an IE "Initial UE Identity" that does not match the IE "Initial UE Identity" in the most recent RRC CONNECTION REQUEST message sent by the UE. UE receives the RRC CONNECTION SETUP message within-before timer T300 expires but discards it due to the a IE "Initial UE Identity" mismatch. UE shall wait for timer T300 to time out before re-transmitting a RRC CONNECTION REQUEST message to the SS. SS again assigns the necessary radio resources and U-RNTI. SS then follows by transmitting transmits a RRC CONNECTION SETUP message containing an IE "Initial UE Identity" that matches the IE "Initial UE Identity" in the most recent RRC CONNECTION REQUEST sent by the UE. SS then waits for the UE to transmit an RRC CONNECTION SETUP COMPLETE message on the DCCH.

Step	Dire	ction	Message	Comment
	UE	SS		
1	-)	RRC CONNECTION REQUEST	By outgoing call operation
2	•	(RRC CONNECTION SETUP	This message is not addressed to the UE.
3	-	>	RRC CONNECTION REQUEST	UE shall re-transmit the request message again after a time out of T300 from step 1.
4	•	(RRC CONNECTION SETUP	
5				The UE configures the layer 2 and layer 1.
6	-	>	RRC CONNECTION SETUP COMPLETE	

Specific Message Content

RRC CONNECTION SETUP (Step 2)

Use the same message type found in clause 9 of TS 34.108, with the following exception.

Information Element	Value/remark
Initial UE Identity	
CHOICE UE id type	IMSI
IMSI	Set to an arbitrary octet string of length 7 which different
	from the IMSI value stored in the TEST USIM card.

8.1.2.1.5 Test requirement

After step 2 the UE shall re-transmit the RRC CONNECTION REQUEST message again in order to continue the RRC connection establishment procedure.

After step 6 the UE shall establish an RRC connection and continue the procedure of the outgoing call on the DCCH.

8.1.2.2 RRC Connection Establishment: Success after T300 timeout

8.1.2.2.1 Definition

8.1.2.2.2 Conformance requirement

1. The RRC connection establishment is initiated by the UE, which leaves the idle mode. The UE shall transmit an RRC CONNECTION REQUEST message which includes the IE "Initial UE identity". This message shall be sent on the uplink CCCH.

When there are more than one PRACHs available, the UE shall select one PRACH randomly and transmit an RRC CONNECTION REQUEST message by use of selected PRACH.

2. In the case of a failure to establish the RRC connection at the expiry of timer T300-, the UE retries to establish the RRC connection until V300 is greater than N300

When the UE receives a RRC CONNECTION SETUP message, which contains a protocol error and causing the internal variable PROTOCOL_ERROR_REJECT set to TRUE, it shall perform the appropriate error handling procedure.

Reference

3GPP TS 25.331 clause 8.1.3.

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8.1.2.2.3 Test purpose

To confirm that the UE retries to establish the RRC connection until V300 is greater than N300 after the expiry of timer T300 when the SS transmits no response for an RRC CONNECTION REQUEST message.

8.1.2.2.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: Idle state (state 2 or state 3 or state 7) as specified in clause 7.4 of TS 34.108-, depending on the CN domain(s) supported by the UE.

Test Procedure

Before the test starts, SYSTEM INFORMATION BLOCK TYPE 5 message is modified and this modification is notified to the UE. Aan internal counter K in SS is initialized to a value = 0. Following this, the UE shall transmit an RRC CONNECTION REQUEST message to the SS on the uplink CCCH by use of selected PRACH from the available PRACH No.1 and PRACH No.2, after the operator attempts to make an outgoing call. SS ignores this message, increments K every time such a message is received and waits for T300 timer to expire. This cycle is repeated until K reaches N300. When K is equal to N300, the SS transmits the RRC CONNECTION SETUP message specified in step 6 to the UE and wait until T300 expires. The UE shall send another RRC CONNECTION REQUEST message on the uplink CCCH. SS verifies that the UE does not access the radio resource allocated in step 6. After confirming this restriction is observed, SS replies with a valid RRC CONNECTION SETUP message. The UE shall then acknowledge the establishment of RRC connection by sending the RRC CONNECTION SETUP COMPLETE message on uplink DCCH.

Step	Direction	Message	Comment
	UE SS		
<u>1</u>	<u>+</u>	PAGING TYPE 1	SS transmits the paging message which comprises IE "BCCH Modification Information", with the "Value Tag" different from the "MIB Value Tag" of the current Master Information Block. Also the modification time is set to 4088 radio frame from the current SFN. SS continuously broadcast the same MASTER INFORMATION BLOCK and various types of SYSTEM INFORMATION BLOCK on BCCH for a period stretching 4087 frames.
1 <u>a</u>	←	MASTER INFORMATION BLOCK SYSTEM INFORMATION BLOCK TYPE 5	SS starts to transmit the MIB with the "MIB Value Tag" IE different from the original setting. At the same time, SS starts to transmit the affected SIB TYPE 5 messages. Transmit these messages on the BCCH. See specific message contents.
2			SS initializes counter K to 0. Operator is asked to make an outgoing call and SS starts to wait for RRC CONNECTION REQUEST on uplink CCCH.
3	\rightarrow	RRC CONNECTION REQUEST	511 dpiinik 5551 i.
4			SS checks to see if K is equal to N300. If so, goes to step 6. Else, continues to execute step 5.
5			SS increments K. The next step is step 3.
6	+	RRC CONNECTION SETUP	Use an invalid message in ASN.1. SS waits for T300 to expire again.
7	→	RRC CONNECTION REQUEST	UE shall not access the radio resource indicated in RRC CONNECTION SETUP message sent in step 6.
8	+	RRC CONNECTION SETUP	This is a legal message. See the clause 9 in TS 34.108 on default message content for RRC.
9			The UE configures the layer 1 and layer 2.
10	\rightarrow	RRC CONNECTION SETUP COMPLETE	

Specific Message Contents

PAGING TYPE 1 (Step 1a)

Information Element	<u>Value/remark</u>
Message Type	
Paging record list	Only 1 entry
Paging record	
 CHOICE Used paging identity 	<u>UTRAN identity</u>
<u>- U-RNTI</u>	Equal to the U-RNTI assigned earlier.
- SRNC Identity	
S-RNTI	
BCCH modification info	
MIB Value Tag	<u>2</u>
 BCCH Modification time 	<u>4088</u>

SYSTEM INFORMATION TYPE 5 (Step 1)

- PRACH system information - PRACH info (PRACH No.1) - CHOICE mode - Available Signature - Available Signature - Available Signature - Available Signature - Puncturing Limit - Available Sub Channel number - Puncturing Limit - Available Sub Channel number - Transport Channel Identity - RACH TFS - CHOICE Transport channel type - Dynamic Transport format information - RLC size - Number of TB and TTI List - Number of TB and TTI List - Number of TB and TTI List - Number of TB and TTI List - Number of TB and TTI List - Number of TB and TTI List - Number of Transport blocks - CHOICE Mode - CHOICE Mode - CHOICE Mode - CHOICE Mode - CHOICE Mode - CHOICE Mode - CHOICE Mode - CHOICE Mode - CHOICE Mode - CHOICE Mode - CHOICE Mode - CHOICE Mode - CHOICE Mode - CHOICE Togical Channel List - Semi-static Transport Format information - Transmission time interval - Type of channel coding - Coding Rate - RACH TFCS - Normal - TFCI Field 1 information - CHOICE TFCS representation - TFCS addition information - CHOICE TFCS representation - TFCS addition information - CHOICE Gain Factors - Power offset information - CHOICE Gain Factors - Power offset information - CHOICE Gain Factors - Power offset information		
- PRACH info (PRACH No.1) - CHOICE mode - Available Signature - Available SF - Preamble scrambling code number - Puncturing Limit - Available Sub Channel number - Transport Channel Identity - RACH TFS - CHOICE Transport channel type - Dynamic Transport format information - RLC size - Number of TB and TTI List - Number of Transport blocks - CHOICE Logical Channel List - RLC size - Number of TB and TTI List - Number of Transport blocks - CHOICE Logical Channel List - RLC size - Number of Transport blocks - CHOICE Mode - CHOICE Mode - CHOICE Mode - CHOICE Mode - CHOICE Mode - CHOICE Mode - CHOICE Mode - CHOICE Mode - CHOICE Mode - CHOICE Mode - CHOICE Mode - CHOICE Mode - CHOICE Mode - CHOICE Mode - CHOICE Mode - CHOICE Transport Format information - Transmission time interval - Type of channel coding - Coding Rate - Rate matching attribute - CRC size - RACH TFCS - Normal - TFCI Field 1 information - CHOICE TFC Size - CTFC information - CHOICE Gain Factors - Power offset information - CHOICE Gain Factors - Power offset Information - CHOICE Gain Factors - Power offset Pp-m - CTFC information - CTFC information - CHOICE Gain Factors - Power offset Pp-m - CTFC information	- PRACH system information	2PRACHs
- CHOICE mode - Available Signature - Available SF - Preamble scrambling code number - Puncturing Limit - Available Sub Channel number - Transport Channel Identity - Transport Channel Identity - RACH TFS - CHOICE Transport channel type - Dynamic Transport format information - RLC size - Number of TB and TTI List - Number of TB and TTI List - Number of TB and TTI List - Number of TB and TTI List - Number of TB and TTI List - Number of TB and TTI List - Number of Transport blocks - CHOICE Mode - CHOICE Logical Channel List - Semi-static Transport Format information - Transmission time interval - Type of channel coding - Coding Rate - Rate matching attribute - CRC size - RACH TFCS - Normal - TFCI Field 1 information - CHOICE TFC Size - CTFC information - CHOICE Gain Factors - Power offset information - CHOICE Gain Factors - Power offset information - CHOICE Gain Factors - Power offset information - CHOICE Gain Factors - Power offset information - CHOICE Gain Factors - Power offset information - CHOICE Gain Factors - Power offset information - CHOICE Gain Factors - CTFC information - CHOICE Gin Factors - SdB - Refer to clause 6.10 Parameter Set1		
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- Preamble scrambling code number - Puncturing Limit - Available Sub Channel number - Transport Channel Identity - RACH TFS - CHOICE Transport channel type - Dynamic Transport format information - RLC size - Number of TB and TTI List - Number of Transport blocks - CHOICE Mode - CHOICE Logical Channel List - Number of TB and TTI List - Number of TB and TTI List - Number of TB and TTI List - Number of TB and TTI List - Number of Transport blocks - CHOICE Logical Channel List - Number of Transport blocks - CHOICE Logical Channel List - Number of Transport blocks - CHOICE Mode - CHOICE Logical Channel List - Semi-static Transport format information - Transmission time interval - Semi-static Transport blocks - Cack size - Race matching attribute - CRC size - RACH TFCS - Normal - TFCI Field 1 information - CHOICE CFFC Size - CTFC information - Power offset information - Power offset information - Power offset Pp-m - CTFC information - CHOICE Gain Factors - Power offset Pp-m - CTFC information		
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- Number of Transport blocks - CHOICE Mode - CHOICE Logical Channel List - RLC size - Number of TB and TTI List - Number of Transport blocks - CHOICE Mode - CHOICE Mode - CHOICE Logical Channel List - Semi-static Transport Format information - Transmission time interval - Type of channel coding - Coding Rate - CRC size - RACH TFCS - Normal - TFCI Field 1 information - CHOICE TFCS representation - TFCS addition information - CHOICE CTFC Size - CTFC information - CHOICE Gain Factors - Power offset Pp-m - CTFC information - CHOICE Gain Factors - Power offset Pp-m - CTFC information - CTFC informati		100
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- CHOICE Mode - CHOICE Logical Channel List - Semi-static Transport Format information - Transmission time interval - Type of channel coding - Coding Rate - Rate matching attribute - CRC size - RACH TFCS - Normal - TFCI Field 1 information - CHOICE TFCS representation - TFCS addition information - CHOICE CTFC Size - CTFC information - Power offset information - CHOICE Gain Factors - Power offset Pp-m - CTFC information - CTFC information - CTFC information - CHOICE Gain Factors - Power offset Pp-m - CTFC information		
- CHOICE Logical Channel List - Semi-static Transport Format information - Transmission time interval - Type of channel coding - Coding Rate - Rate matching attribute - CRC size - CRC size - CHOICE TFCS representation - TFCS addition information - CHOICE CTFC Size - CTFC information - CHOICE Gain Factors - Power offset Pp-m - CTFC information - CTFC inf		
- Semi-static Transport Format information - Transmission time interval - Type of channel coding - Coding Rate - Rate matching attribute - CRC size - RACH TFCS - Normal - TFCI Field 1 information - CHOICE TFCS representation - TFCS addition information - CHOICE CTFC Size - CTFC information - Power offset information - CHOICE Gain Factors - Power offset Pp-m - CTFC information - CTFC informa		
- Transmission time interval - Type of channel coding - Coding Rate - Rate matching attribute - CRC size - RACH TFCS - Normal - TFCI Field 1 information - CHOICE TFCS representation - TFCS addition information - CHOICE CTFC Size - CTFC information - Power offset information - CHOICE Gain Factors - Power offset Pp-m - CTFC information - CTFC information - CTFC information - CHOICE Gain Factors - Power offset Pp-m - CTFC information - CTFC informat		ALL
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- Coding Rate - Rate matching attribute - CRC size - RACH TFCS - Normal - TFCI Field 1 information - CHOICE TFCS representation - TFCS addition information - CHOICE CTFC Size - CTFC information - Power offset information - CHOICE Gain Factors - Power offset Pp-m - CTFC information - CTFC information - CTFC information - CHOICE Gain Factors - Power offset Pp-m - CTFC information - CTFC information - CTFC information - CTFC information - CTFC information - CTFC information - CTFC information - CTFC information - CTFC information - CTFC information - CTFC information - CTFC information - CTFC information - CTFC information - CTFC information - CTFC information - CTFC information - CTFC information - Information - Information - Information - Information - Information - CTFC information - Information - CTFC information - CT	- Transmission time interval	20 ms
- Rate matching attribute - CRC size - RACH TFCS - Normal - TFCI Field 1 information - CHOICE TFCS representation - TFCS addition information - CHOICE CTFC Size - CTFC information - Power offset information - CHOICE Gain Factors - Power offset Pp-m - CTFC information - CTFC information - CTFC information - CHOICE Gain Factors - Power offset Pp-m - CTFC information - CTFC	- Type of channel coding	Convolutional
- CRC size - RACH TFCS - Normal - TFCI Field 1 information - CHOICE TFCS representation - TFCS addition information - CHOICE CTFC Size - CTFC information - Power offset information - CHOICE Gain Factors - Power offset Pp-m - CTFC information - CTFC information - CTFC information - CHOICE Gain Factors - Power offset Pp-m - CTFC information - CTFC informa	- Coding Rate	1/2
- RACH TFCS - Normal - TFCI Field 1 information - CHOICE TFCS representation - TFCS addition information - CHOICE CTFC Size - CTFC information - Power offset information - CHOICE Gain Factors - Power offset Pp-m - CTFC information	- Rate matching attribute	150
- Normal - TFCI Field 1 information - CHOICE TFCS representation - TFCS addition information - CHOICE CTFC Size - CTFC information - Power offset information - CHOICE Gain Factors - Power offset Pp-m - CTFC information - C	- CRC size	16
- Normal - TFCI Field 1 information - CHOICE TFCS representation - TFCS addition information - CHOICE CTFC Size - CTFC information - Power offset information - CHOICE Gain Factors - Power offset Pp-m - CTFC information - C	- RACH TFCS	(This IE is repeated for TFC number.)
- CHOICE TFCS representation - TFCS addition information - CHOICE CTFC Size - CTFC information - Power offset information - CHOICE Gain Factors - Power offset Pp-m - CTFC information - CTFC information - CTFC information - CMDICE Gain Factors - Power offset Pp-m - CTFC information - Computed Gain Factor - 5 dB - CTFC information - Computed Gain Factor - 5 dB - CTFC information - Computed Gain Factor - 5 dB - CTFC information		
- CHOICE TFCS representation - TFCS addition information - CHOICE CTFC Size - CTFC information - Power offset information - CHOICE Gain Factors - Power offset Pp-m - CTFC information - CTFC information - CTFC information - CMDICE Gain Factors - Power offset Pp-m - CTFC information - Computed Gain Factor - 5 dB - CTFC information - Computed Gain Factor - 5 dB - CTFC information - Computed Gain Factor - 5 dB - CTFC information	- TFCI Field 1 information	
- TFCS addition information - CHOICE CTFC Size 2 bit - CTFC information 0 - Power offset information - CHOICE Gain Factors Computed Gain Factor - Power offset Pp-m -5 dB - CTFC information Refer to clause 6.10 Parameter Set1		Complete
- CHOICE CTFC Size - CTFC information - Power offset information - CHOICE Gain Factors - Power offset Pp-m - CTFC information 2 bit 0 Computed Gain Factor -5 dB Refer to clause 6.10 Parameter Set 1		
- CTFC information - Power offset information - CHOICE Gain Factors - Power offset Pp-m - CTFC information 0 Computed Gain Factor -5 dB Refer to clause 6.10 Parameter Set 1		2 bit
 - Power offset information - CHOICE Gain Factors - Power offset Pp-m - CTFC information Computed Gain Factor -5 dB Refer to clause 6.10 Parameter Set 1 		
- CHOICE Gain Factors - Power offset Pp-m - CTFC information Computed Gain Factor -5 dB Refer to clause 6.10 Parameter Set 1		-
- Power offset Pp-m - CTFC information -5 dB Refer to clause 6.10 Parameter Set1		Computed Gain Factor
- CTFC information Refer to clause 6.10 Parameter Set1		
- I Ower Onset information		reser to siduse of to t diameter octi
		Signalled Gain Factor
- CHOICE Gain Factors Signalled Gain Factor - Gain factor ßc 10		
- Gain factor ßd 15		
- Reference TFC ID Not Present		
- Power offset Pp-m -5dB		-2005
- PRACH partitioning		
- Access Service Class		
- ASC Setting		
- CHOICE mode FDD		
- Available signature Start Index 0 (ASC#0)	- Available signature Start Index	0 (ASC#0)

- Available signature End Index	7 (ASC#0)
- Assigned Sub-channel Number	'1111'B
 - ASC Setting - CHOICE mode - Available signature Start Index - Available signature End Index - Assigned Sub-channel Number 	FDD 0 (ASC#1) 7 (ASC#1) '1111'B
 - ASC Setting - CHOICE mode - Available signature Start Index - Available signature End Index - Assigned Sub-channel Number 	FDD 0 (ASC#2) 7 (ASC#2) '1111'B
 - ASC Setting - CHOICE mode - Available signature Start Index - Available signature End Index - Assigned Sub-channel Number 	FDD 0 (ASC#3) 7 (ASC#3) '1111'B
 - ASC Setting - CHOICE mode - Available signature Start Index - Available signature End Index - Assigned Sub-channel Number 	FDD 0 (ASC#4) 7 (ASC#4) '1111'B
 - ASC Setting - CHOICE mode - Available signature Start Index - Available signature End Index - Assigned Sub-channel Number 	FDD 0 (ASC#5) 7 (ASC#5) '1111'B
 - ASC Setting - CHOICE mode - Available signature Start Index - Available signature End Index - Assigned Sub-channel Number 	FDD 0 (ASC#6) 7 (ASC#6) '1111'B
 - ASC Setting - CHOICE mode - Available signature Start Index - Available signature End Index - Assigned Sub-channel Number 	FDD 0 (ASC#7) 7 (ASC#7) '1111'B
- Persistence scaling factor - Persistence scaling factor - Persistence scaling factor - Persistence scaling factor - Persistence scaling factor - Persistence scaling factor - Persistence scaling factor - Persistence scaling factor - AC-to-ASC mapping table - AC-to-ASC mapping - AC-to-ASC mapping - AC-to-ASC mapping - AC-to-ASC mapping - AC-to-ASC mapping - AC-to-ASC mapping - AC-to-ASC mapping - AC-to-ASC mapping - AC-to-ASC mapping - Primary CPICH DL TX power - Constant value - PRACH power offset - Power Ramp Step - Preamble Retrans Max - RACH transmission parameters - Mmax - NB01min - NB01max - AICH info - Channelisation code	0.9 (for ASC#2) 0.9 (for ASC#3) 0.9 (for ASC#4) 0.9 (for ASC#5) 0.9 (for ASC#6) 0.9 (for ASC#7) 6 (AC0-9) 5 (AC10) 4 (AC11) 3 (AC12) 2 (AC13) 1 (AC14) 0 (AC15) 31 -10 3dB 2 2 3 slot 10 slot
Channelisation codeSTTD indicatorAICH transmission timing	3 FALSE 0
- Assigned Sub-channel Number - Persistence scaling factor - Persistence scaling factor - Persistence scaling factor - Persistence scaling factor - Persistence scaling factor - Persistence scaling factor - Persistence scaling factor - Persistence scaling factor - AC-to-ASC mapping table - AC-to-ASC mapping - AC-to-ASC mapping - AC-to-ASC mapping - AC-to-ASC mapping - AC-to-ASC mapping - AC-to-ASC mapping - AC-to-ASC mapping - AC-to-ASC mapping - AC-to-ASC mapping - Primary CPICH DL TX power - Constant value - PRACH power offset - Power Ramp Step - Preamble Retrans Max - RACH transmission parameters - Mmax - NB01min - NB01max - AICH info - Channelisation code - STTD indicator	0.9 (for ASC#2) 0.9 (for ASC#3) 0.9 (for ASC#4) 0.9 (for ASC#5) 0.9 (for ASC#6) 0.9 (for ASC#7) 6 (AC0-9) 5 (AC10) 4 (AC11) 3 (AC12) 2 (AC13) 1 (AC14) 0 (AC15) 31 -10 3dB 2 2 3 slot 10 slot 3 FALSE

ı	DBACH info (DBACH No. 2)	
	- PRACH info (PRACH No.2) - CHOICE mode	FDD
	- Available Signature	'0000 0000 1111 1111'B
	- Available SF	64
İ	- Preamble scrambling code number	<u>01</u>
•	- Puncturing Limit	100
	- Available Sub Channel number	'1111 1111 1111'B
	- Transport Channel Identity	15
	- RACH TFS	
	- CHOICE Transport channel type	Common transport channels
	- Dynamic Transport format information	400
	 RLC size Number of TB and TTI List 	168
	- Number of Transport blocks	1
	- CHOICE Mode	FDD
	- CHOICE Logical Channel List	ALL
	- RLC size	360
	- Number of TB and TTI List	
	 Number of Transport blocks 	1
	- CHOICE Mode	FDD
	- CHOICE Logical Channel List	ALL
	- Semi-static Transport Format information	00
	- Transmission time interval	20 ms
	 Type of channel coding Coding Rate 	Convolutional 1/2
	- Rate matching attribute	150
	- CRC size	16
	- RACH TFCS	
	- Normal	
	- TFCI Field 1 information	
	 CHOICE TFCS representation 	Complete
	- TFCS addition information	
	- CHOICE CTFC Size	2 bit
	- CTFC information - Power offset information	0
	- CHOICE Gain Factors	Computed Gain Factor
	- Power offset Pp-m	-5 dB
	- CTFC information	1
	- Power offset information	
	- CHOICE Gain Factors	Signalled Gain Factor
	- Gain factor ßc	10
	- Gain factor ßd	15
	- Reference TFC ID	Not Present
	- Power offset Pp-m	-5dB
	- PRACH partitioning - Access Service Class	
	- ASC Setting	
	- CHOICE mode	FDD
	- Available signature Start Index	0 (ASC#0)
	- Available signature End Index	7 (ASC#0)
	- Assigned Sub-channel Number	'1111'B
	-	
	ASC SettingCHOICE mode	FDD
	Available signature Start Index	0 (ASC#1)
	- Available signature End Index	7 (ASC#1)
	- Assigned Sub-channel Number	'1111'B
	- ASC Setting	
	- CHOICE mode	FDD
	- Available signature Start Index	0 (ASC#2)
	- Available signature End Index	7 (ASC#2)
	- Assigned Sub-channel Number	'1111'B ´
	- ASC Setting	
	- CHOICE mode	FDD
	 Available signature Start Index 	0 (ASC#3)
	- Available signature End Index	7 (ASC#3)
	- Assigned Sub-channel Number	'1111'B

- ASC Setting

- CHOICE mode	FDD
 Available signature Start Index 	0 (ASC#4)
- Available signature End Index	7 (ASC#4)
- Assigned Sub-channel Number	'1111'B
- ASC Setting	
- CHOICE mode	FDD
- Available signature Start Index	0 (ASC#5)
- Available signature End Index	7 (ASC#5)
- Assigned Sub-channel Number	'(\(\docume{0}\))
5	11116
- ASC Setting	
- CHOICE mode	FDD
- Available signature Start Index	0 (ASC#6)
- Available signature End Index	7 (ASC#6)
- Assigned Sub-channel Number	'1111'B
- ASC Setting	
- CHOICE mode	FDD
 Available signature Start Index 	0 (ASC#7)
 Available signature End Index 	7 (ASC#7)
 Assigned Sub-channel Number 	'1111'B
- Persistence scaling factor	
- Persistence scaling factor	0.9 (for ASC#2)
- Persistence scaling factor	0.9 (for ASC#3)
- Persistence scaling factor	0.9 (for ASC#4)
- Persistence scaling factor	0.9 (for ASC#5)
- Persistence scaling factor	0.9 (for ASC#6)
- Persistence scaling factor	0.9 (for ASC#7)
- AC-to-ASC mapping table	
 AC-to-ASC mapping 	6 (AC0-9)
 AC-to-ASC mapping 	5 (AC10)
 AC-to-ASC mapping 	4 (AC11)
- AC-to-ASC mapping	3 (AC12)
- AC-to-ASC mapping	2 (AC13)
- AC-to-ASC mapping	1 (AC14)
- AC-to-ASC mapping	0 (AC15)
- Primary CPICH DL TX power	31
- Constant value	-10
- PRACH power offset	0.15
- Power Ramp Step	3dB
- Preamble Retrans Max	2
- RACH transmission parameters	
- Mmax	2
- NB01min	3 slot
	10 2101
 NB01max AICH info Channelisation code STTD indicator AICH transmission timing 	10 slot 4 FALSE 0

RRC CONNECTION SETUP (Step 6)

Information Element	Value/remark
UTRAN DRX cycle length coefficient All IEs	Out of range value Not Present

8.1.2.2.5 Test requirement

After step 2 the UE shall select either PRACH No.1 or PRACH No.2 and transmit an RRC CONNECTION REQUEST message.

After step 6 the UE shall re-send another RRC CONNECTION REQUEST message-and not access any radio resources specified in RRC CONNECTION SETUP message sent in step 6.

After step 9 the UE shall transmit an RRC CONNECTION SETUP COMPLETE message and establish an RRC connection on the DCCH logical channel.

8.1.2.3 RRC Connection Establishment: Failure (V300 is greater than N300)

8.1.2.3.1 Definition

8.1.2.3.2 Conformance requirement

- The RRC connection establishment is initiated by the UE, which leaves the idle mode and transmits an RRC CONNECTION REQUEST message. This message shall include the IE "Initial UE identity" on the uplink CCCH.
- 2. In the case of a failure to establish the RRC connection after (N300+1) attempts, the UE goes back to idle mode.

Reference

3GPP TS 25.331 clause 8.1.3.

8.1.2.3.3 Test purpose

To confirm that the UE stops retrying to establish the RRC connection if V300 is greater than N300 and goes back to idle mode.

8.1.2.3.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: Idle state (state 2 or state 3 or state 7) as specified in clause 7.4 of TS 34.108-, depending on the CN domain(s) supported by the UE.

Test Procedure

Before the test starts, SS initializes an internal counter K to 0. The UE transmits an RRC CONNECTION REQUEST message to the SS on the uplink CCCH by an outgoing call operation. SS shall not respond to any RRC CONNECTION REQUEST message, instead the counter K is increased by 1 every time such a message is received. To arrive at the verdict, the SS checks that a total of (N300+1) such messages are received.

UE SS		SS initializes counter K to 0 and then prompts the operator to make
		an outgoing call.
\rightarrow	RRC CONNECTION REQUEST	
		SS increments K by 1.
		If K is greater than N300, goes to
		step 5 else proceed to step 2.
		SS monitor the uplink CCCH for a time period enough for UE to goes back to idle statenormal service.
		The exact amount of time to wait shall be derived from TS related to cell selection. If any uplink transmission is detected, the test fails.

Specific Message Contents

None

8.1.2.3.5 Test requirement

After step 5, counter K shall be equal to (N300+1) and there shall be no uplink transmission in the monitoring period specified in step 5.

8.1.2.4 RRC Connection Establishment: Reject ("wait time" is not equal to 0)

8.1.2.4.1 Definition

8.1.2.4.2 Conformance requirement

- The RRC connection establishment is initiated by the UE, which leaves the idle mode and transmits an RRC CONNECTION REQUEST message. This message shall include the IE "Initial UE identity" and is to be sent on the uplink CCCH.
- 2. After the UE receives an RRC CONNECTION REJECT message which includes IE "wait time" not set to 0, and neither IE "frequency info" nor IE "system info" is present, the UE shall wait for a period specified in the IE "wait time". Thereafter re-transmit an RRC CONNECTION REQUEST message to attempt to establish the RRC connection again. However, either IE "frequency info" or IE "system info" is available in the message, the UE shall attempt to perform cell reselection using these information.
- 3. After the UE receives an RRC CONNECTION REJECT message which includes IE "wait time" not set to 0, and either IE "frequency info" or IE "system info" is available in the message, the UE shall attempt to perform cell reselection using these information. Thereafter re-transmit an RRC CONNECTION REQUEST message to attempt to establish the RRC connection again.

Reference

3GPP TS 25.331 clause 8.1.3.

8.1.2.4.3 Test purpose

To confirm that the UE retries to establish the RRC connection after the "wait time" <u>lapses</u>, if the UE receives an RRC CONNECTION REJECT message which includes the IE "wait time" not set to 0.

To confirm that the UE performs a cell reselection when receiving an RRC CONNECTION REJECT message, containing relevant frequency information of the target cell to be re-selected.

8.1.2.4.4 Method of test

Initial Condition

System Simulator: 2 cells – both cell 1 and cell 2 are active and suitable for camping, but cell 1 is transmitted using a larger power. Cell 1 and cell 2 are being transmitted from different 2 UARFCNs. The transmission power of cell 2 is 15 dB smaller than cell 1.

Table 8.1.2.4

<u>Parameter</u>	Unit	Cell 1	Cell 2
UTRA RF		<u>Ch. 1</u>	<u>Ch. 2</u>
<u>Channel</u>			
Number			
CPICH Ec	<u>dBm</u>	<u>-60</u>	<u>-75</u>

UE: Idle state (state 2 or state 3 or state 7) as specified in clause 7.4 of TS 34.108-, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE transmits an RRC CONNECTION REQUEST message to the SS on the uplink CCCH by an outgoing call operation in cell 1. SS rejects the first request by transmitting an RRC CONNECTION REJECT message which indicates a non-zero wait time. In this message, frequency information for cell 2 is available. SS then waits for RRC CONNECTION REQUEST message on the uplink CCCH of cell 2. SS will also monitor the uplink of cell 1 simultaneously to ensure that all transmission activities from cell 1 have ceased. When the UE has successfully camp onto cell 2, it shall send an RRC CONNECTION REQUEST with the same establishment cause as its previous attempt in cell 1. SS responds with an RRC CONNECTION REJECT message, indicating a non-zero "wait time" and omitting the IE "Redirection Info". The UE shall observe the wait time period indicated. After the wait time has elapsed, the UE shall re-transmit RRC CONNECTION REEQUEST again. Finally, SS transmits an RRC CONNECTION SETUP message to establish an RRC connection with the UE, and the UE replies with an RRC CONNECTION SETUP COMPLETE message and enters CELL_DCH state.

Step	Direction	Message	Comment
	UE SS		
1	\rightarrow	RRC CONNECTION REQUEST	SS prompts the operator to make an outgoing call in cell 1.
2	←	RRC CONNECTION REJECT	This message shall includes the IE "wait time" set to 15 seconds and IE "frequency info" set to the UARFCN of cell 2.
3			SS waits for a period of time sufficient for UE to reselect to cell 2. At the same time, it monitors the uplink of cell 1 to make sure that all transmissions have ceased.
4	→	RRC CONNECTION REQUEST	UE shall attempt to re-start an RRC connection establishment procedure in cell 2. The establishment cause shall remain unchanged.
5	+	RRC CONNECTION REJECT	This message shall include the IE "wait time" set to 15 seconds, but with IE "Redirection Info" absent.
6	→	RRC CONNECTION REQUEST	SS waits until the duration specified in IE "wait time" has elapsed and then listens to the uplink CCCH for a second RRC CONNECTION REQUEST message.
7	+	RRC CONNECTION SETUP	SS sends the message to UE ₇ to setup an RRC connection with the UE.
8			The UE shall configure the layer 2 and layer 1 in order to access the uplink and downlink DCCH assigned.
9	→	RRC CONNECTION SETUP COMPLETE	

Specific Message Contents

RRC CONNECTION REQUEST (Step 1)

Use the same message type found in clause 9 of TS 34.108, with the following exception.

Information Element	Value/remark
Initial UE Identity	Checked to see if it is set to IMSI stored in the test
	TEST USIM card. Must be equal to U-RNTI assigned
Initial UE Capability	previously
Establishment Cause	Must be compatible with UE settings in TS25.306
	Must be "Originating Call"

RRC CONNECTION REJECT (Step 2)

Use the same message type found in Annex A, with the following exception.

Information Element	Value/remark
Wait time	15 seconds
Redirection Info	
Frequency Info	
UARFCN uplink (Nu)	Set to a different the UARFCN from for uplink carrier of
UARFCN downlink (Nd)	cell <u>2</u> 4
, ,	Not present - assuming a duplex distance of 190MHz.

RRC CONNECTION REQUEST (Step 4 and step 6)

Same requirement as in step 1.

RRC CONNECTION REJECT (Step 5)

Use the same message type found in Annex A, with the following exception.

Information Element	Value/remark
Wait time	15 seconds
Redirection Info	Not present

8.1.2.4.5 Test requirement

After step 3 the UE shall have successfully re-selected to cell 2, using information transmitted in IE "frequency info" of RRC CONNECTION REJECT message. UE shall trigger the start of RRC connection establishment by transmitting RRC CONNECTION REQUEST. The establishment cause shall be similar to the message sent in step 1.

After step 5 the UE shall observe the period specified in IE "wait time" of an RRC CONNECTION REJECT message and not transmit an RRC CONNECTION REQUEST message in this period.

After step 7 the UE shall transmit an RRC CONNECTION SETUP COMPLETE message to SS on uplink DCCH and then establish an RRC connection.

8.1.2.5 RRC Connection Establishment: Reject ("wait time" is not equal to 0 and V300 is greater than N300)

8.1.2.5.1 Definition

8.1.2.5.2 Conformance requirement

The RRC connection establishment is initiated by the UE, which leaves the idle mode and transmits an RRC CONNECTION REQUEST message. This message shall include the IE "Initial UE identity" and is to be sent on the uplink CCCH.

After the UE receives an RRC CONNECTION REJECT message which includes IE "wait time" not set to 0, and neither IE "frequency info" nor IE "system info" is present, the UE shall wait for a period specified in the IE "wait time". Thereafter it re-transmits an RRC CONNECTION REQUEST message to attempt to establish the RRC connection again. In the case of a failure to establish the RRC connection after (N300+1) attempts, the UE goes back to idle mode.

Reference

3GPP TS 25.331 clause 8.1.3.

8.1.2.5.3 Test purpose

To confirm that the UE retries to establish the RRC connection after the "wait time" <u>elapses</u> if the UE receives an RRC CONNECTION REJECT message which specifies a non-zero IE "wait time".

To confirm that the UE stops retrying to establish the RRC connection if V300 is greater than N300 and goes back to idle mode.

8.1.2.5.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: Idle state (state 2 or state 3 or state 7) as specified in clause 7.4 of TS 34.108-, depending on the CN domain(s) supported by the UE

Test Procedure

Before the test starts, SS initializes an internal counter K to 0. The UE transmits an RRC CONNECTION REQUEST message to the SS on the uplink CCCH, triggered by an outgoing data call operation. SS rejects all requests by transmitting an RRC CONNECTION REJECT message which indicates a non-zero wait time and the counter K is increased by 1 every time such a message is received. To arrive at the verdict, the SS checks that a total of (N300+1) such messages are received and the UE enters idle state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				SS initializes counter K to 0 and then prompts the operator to make an outgoing data call.
2		→	RRC CONNECTION REQUEST	Shall be sent on CCCH and contain the correct establishment cause.
3		←	RRC CONNECTION REJECT	This message includes the IE "wait time" set to 15 seconds.
4				SS increments K by 1.
5				If K is greater than N300, goes to step 6. Else SS waits for 15 sec before proceeding to step 2.
6				SS monitor the uplink CCCH for a time period enough for UE to goes back to idle statenormal service. The exact amount of time to wait shall be derived from TS related to cell selection. If any uplink transmission is detected, the test fails.

Specific Message Contents

RRC CONNECTION REQUEST (Step 2)

Use the same message type found in clause 9 of TS 34.108, with the following exception.

Information Element	Value/remark
Initial UE Identity	Checked to see if it is set to IMSI stored in the test
Initial UE Capability	TEST USIM card. Must be equal to U-RNTI assigned
	previously
Establishment Cause	Must be compatible with UE settings in TR25.926
	Must be "Originating Call"

RRC CONNECTION REJECT (Step 3)

Use the same message type found in Annex A, with the following exception.

Information Element	Value/remark		
Wait time	15 seconds		

8.1.2.5.5 Test requirement

After step 6, counter K shall be equals to (N300+1) and there shall be no uplink transmission in the monitoring period specified in step 6.

8.1.2.6 RRC Connection Establishment: Reject ("wait time" is set to 0)

8.1.2.6.1 Definition

8.1.2.6.2 Conformance requirement

- 1. The RRC connection establishment is initiated by the UE, which leaves the idle mode and transmits an RRC CONNECTION REQUEST message on the uplink CCCH.
- 2. In the case of a failure to establish the RRC connection by the reception of a RRC CONNECTION REJECT message which contains IE "wait time" equals to 0, the UE shall go back to idle mode immediately.

Reference

3GPP TS 25.331 clause 8.1.3.

8.1.2.6.3 Test purpose

To confirm that the UE goes back to idle mode, if the SS transmits an RRC CONNECTION REJECT message which includes IE "wait time" set to 0. To confirm that the UE ignores an RRC CONNECT REJECT message not addressed to it. To confirm that the UE is capable of handling an erroneous RRC CONNECTION REJECT message correctly.

8.1.2.6.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: Idle state (state 2 or state 3 or state 7) as specified in clause 7.4 of TS 34.108-, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE transmits an RRC CONNECTION REQUEST message to the SS on the uplink CCCH by making an outgoing call. After the SS receives this message, it transmits an RRC CONNECTION REJECT message which is not addressed to the UE. The UE shall disregard this message and proceed to re-transmit RRC CONNECTION REQUEST message upon T300 timer expiry. SS answers the second RRC CONNECTION REQUEST message by transmitting an <u>invalid</u> RRC CONNECTION REJECT message—with IE "wait time" set to 15 seconds, but without the mandatory IE "rejection cause". The UE shall continue to send the third RRC CONNECTION REQUEST message upon expiry of T300 timerafter a 15 second lapse. Next, the SS sends a legal RRC CONNECTION REJECT message which includes IE "wait time" which is set to '0' is expected to cause the UE to move to idle mode spontaneously. To confirm that finally the UE goes back to idle mode immediately after receiving the reject message, SS shall monitor the uplink CCCH for the next 60 seconds and verify that there is no further transmission in the uplink direction.

Step	Direction		Message	Comment
	UE	SS		
1		\rightarrow	RRC CONNECTION REQUEST	Test operator is prompted to make an out-going call,
2			RRC CONNECTION REJECT	IE "Initial UE identity" contains an identity different from any of the UE identities available.
3		\rightarrow	RRC CONNECTION REQUEST	UE shall continue to send this message after T300 time-outexpires.
4		+	RRC CONNECTION REJECT	IE "Reject Cause" is omitted, IE "wait time" is set to 15 seconds (maximum).
5		→	RRC CONNECTION REQUEST	UE shall continue to send this message after T300 expiresthe expiry of "wait time" IE indicated in RRC CONNECTION REJECT message in step 4.
6			RRC CONNECTION REJECT	IE "wait time" is set to 0.
7				The UE goes back to idle mode.

Specific Message Contents

RRC CONNECTION REQUEST (Step 1, 3 and 5)

Information Element	Value/remark
Message Type	
Initial UE Identity	Checked to see if it is set to IMSI stored in the test
·	TEST USIM card.
Establishment Cause	Checked to see if set to one of the supported originating
	call types
Protocol Error Indicator	Checked to see if set to "FALSE"
Measured Results on RACH	Checked to see if it is absent

RRC CONNECTION REJECT (Step 2)

Use the same message type found in Annex A, with the following exception.

Information Element	Value/remark
Initial UE Identity	
IMSI	Set to an arbitrary octet string of length 7 bytes, which is different from the IMSI stored in TEST USIM.
Wait time	15 seconds
Redirection Info	Not present

RRC CONNECTION REQUEST (Step 3)

Information Element	Value/remark
Initial UE Identity	Checked to see if it is set to IMSI stored in the test
·	TEST USIM card.
Establishment Cause	Checked to see if set to one of the supported originating
	call types
Protocol Error Indicator	Checked to see if set to "FALSE"
Measured Results on RACH	Checked to see if it is absent

RRC CONNECTION REJECT (Step 4)

Information Element	Value/remark
Initial UE Identity	
IMSI	Set to the identical octet string as the IMSI stored in the
	TEST USIM card.
Reject Cause	Not Present
Wait time	15 seconds (Maximum)
Redirection InfoAll IEs	Not PresentNot Present

RRC CONNECTION REQUEST (Step 5)

Information Element	Value/remark
Initial UE Identity	Checked to see if it is set to IMSI stored in the test
	TEST USIM card.
Establishment Cause	Checked to see if set to one of the supported originating
	call types
Protocol Error Indicator	Checked to see if set to "TRUE"
Measured Results on RACH	Checked to see if it is absent

RRC CONNECTION REJECT (Step 6)

Use the same message type found in Annex A, with the following exception.

Information Element	Value/remark
Initial UE Identity	
IMSI	Set to the identical octet string as the IMSI stored in the TEST USIM card.
Reject Cause	Congestion
Wait time	0 second
Redirection Info	Not present

8.1.2.6.5 Test requirement

After step 2 the UE shall transmit an RRC CONNECTION REQUEST message on uplink CCCH <u>upon expiry of T300 timer</u>.

After step 4 the UE shall re-transmit an RRC CONNECTION REQUEST message on the uplink CCCH <u>upon expiry of T300 timer 15 seconds after the transmission of the second downlink RRC CONNECTION REJECT message. In this message, the "protocol error indicator" IE shall be set to "TRUE".</u>

After step 6 the UE shall stop sending an RRC CONNECTION REQUEST message, go back to idle mode immediately and not transmit in the uplink direction again.

8.1.2.7 RRC Connection Establishment in CELL FACH state: Success

8.1.2.7.1 Definition

8.1.2.7.2 Conformance requirement

During the RRC connection establishment, the UTRAN might assign common physical resource to the UE using an RRC CONNECTION SETUP message. When no information about the physical channels accessible is available from the message, the UE shall utilize the PRACH and S-CCPCH information transmitted on the BCCH and then enter the CELL_FACH state. Subsequently, the UE shall establish the required signalling links-radio bearers with the UTRAN using common physical resources.

Reference

3GPP TS 25.331 clause 8.1.3.

8.1.2.7.3 Test Purpose

To confirm that the UE is able to enter CELL_FACH state and setup signalling links radio bearers using common physical channels.

8.1.2.7.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: Idle state (state 2 or state 3 or state 7) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE transmits an RRC CONNECTION REQUEST message to the SS on the uplink CCCH by attempting to make an outgoing call. After the SS receives this message, it assigns the necessary radio resources and U-RNTI to be used by the UE, and then transmits an RRC CONNECTION SETUP message to the UE within timer T300. SS then waits for the UE to transmit an RRC CONNECTION SETUP COMPLETE message on the DCCH.

Expected sequence

Step	Dire	ction	Message	Comment
	UE	SS		
1		→	RRC CONNECTION REQUEST	Test operator is requested to make an outgoing call. The UE shall transmit this message, indicating the correct establishment cause.
2		←	RRC CONNECTION SETUP	SS omits both IE "Uplink DPCH Info" and IE "Downlink DPCH Info" from the message.
3				The UE shall configure the layer 2 and layer 1.
4		\rightarrow	RRC CONNECTION SETUP COMPLETE	UE shall send this message on the DCCH, carried by the assigned PRACH resources.

Specific Message Content

RRC CONNECTION REQUEST

Use the same message type found in clause 9 of TS 34.108, with the following exception.

Information Element	Value/remark
Initial UE identity	Checked to see if it is set to IMSI stored in the test
	TEST USIM card.
Establishment Cause	Originating Interactive Call or Originating Background
	Call or Originating Streaming Call

RRC CONNECTION SETUP

For this message, the contents of the message to be used are basically identical to the message sub-type entitled "RRC CONNECTION SETUP message (Transition to CELL_FACH)" found in the default message content partAnnex A. The following exceptions are applicable in this test:

Information Element	Value/remark
Uplink DPCH Info	Not Present
Downlink information common for all radio links	Not Present
Downlink information per radio link list	Not Present

RRC CONNECTION SETUP COMPLETE

Use the same message type found in clause 9 of TS 34.108, with the following exception.

Information Element	Value/remark
UE Radio Access Capability	Checked to see if compatible with the stated capability
	in PIXIT/PICS statements.
UE radio access capability extension	Checked to see if compatible with the stated capability
	in PIXIT/PICS statements.
UE system specific Capability	Checked to see if compatible with the stated capability
	in PIXIT/PICS statements.

8.1.2.7.5 Test requirements

After step 3 the UE shall establish the RRC connection, and transmit RRC CONNECTION SETUP COMPLETE message on the DCCH using PRACH physical resource specified in system information block messages.

8.1.2.8 RRC Connection Establishment: Invalid system information message reception Void

8.1.2.8.1 Definition

8.1.2.8.2 Conformance requirement

The UE shall ignore the message and shall not select the cell, if the associated a SYSTEM INFORMATION message on the BCCH which includes an invalid value in the mandatory information element which in the master information block is broadcasting.

Reference

3GPP TS 25.331 clause 8.1.1 and clause 9.

8.1.2.8.3 Test purpose

To confirm that the UE does not select the cell if the transmitted SYSTEM INFORMATION message on the BCCH which includes an invalid value in the information element in the master information block is broadcasting.

8.1.2.8.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: Power off (state 1) as specified in clause 7.4 of TS 34.108.

Test Procedure

The SS broadcasts the SYSEM INFORMATION message on the BCCH which includes the PLMN Type information element having an invalid value in the master information block. When the UE is supplied the power, it finds that the SYSTEM INFORMATION message on the BCCH includes the unknown value in the mandatory information element and the UE shall ignore this message. When an outgoing call is attempted, the test operator shall be informed that the UE is in a "No Service" state. The UE shall not transmit an RRC CONNECTION REQUEST message on the uplink CCCH.

Expected sequence

Step	Direction		Message	Comment
	UE 9	SS		
1	-		SYSTEM INFORMATION	The SS broadcasts the SYSTEM INFORMATION message on the BCCH which includes an invalid value in the master information block.
2				The UE is supplied the power.
3				SS waits for 1 minute and then asks the test operator to attempt to make an outgoing call.
4				SS checks that no uplink transmission on CCCH is detected.

Specific Message Contents

SYSTEM INFORMATION (master information block)

The contents of a SYSTEM INFORMATION message in this test case is identical to the corresponding message found in the default contents of layer 3 messages for RRC tests, with the following exceptions:

Information Element	Value/remark
Supported PLMN Types	invalid value which is not defined

8.1.2.8.5 Test requirement

After step 3 the UE shall not transmit an RRC CONNECTION REQUEST message on the uplink CCCH.

8.1.2.9 RRC Connection Establishment: Success after Physical channel failure, Invalid message reception and Invalid configuration

8.1.2.9.1 Definition

8.1.2.9.2 Conformance requirement

- 1. The RRC connection establishment is initiated by the UE, which leaves the idle mode. The UE shall transmit an RRC CONNECTION REQUEST message which includes the IE "Initial UE identity". This message shall be sent on the uplink CCCH.
- 2. In the case of a failure to establish the RRC connection at <u>due to a the-physical channel failure</u> after the UE receives an RRC CONNECTION SETUP message-, the UE retries to establish the RRC connection until V300 is greater than N300
- 3. In the case of an invalid RRC CONNECTION SETUP message is received by UE, the UE retries to establish the RRC connection until V300 is greater than N300
- 43. In the case of a RRC CONNECTION SETUP message is received by UE causes invalid configuration, the UE retries to establish the RRC connection until V300 is greater than N300.

Reference

3GPP TS 25.331 clause 8.1.3.

8.1.2.9.3 Test purpose

To confirm that the UE retries to establish the RRC connection until V300 is greater than N300 for the when a physical channel failure as the occurs because SS does not configure the physical channel which that is specified in the transmitted RRC CONNECTION SETUP message. To confirm that the UE retries to establish the RRC connection until V300 is greater than N300 when the transmitted RRC CONNECTION SETUP message causes invalid configuration in the UE.

8.1.2.9.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: Idle state (state 2 or state 3 or state 7-) as specified in clause 7.4 of TS 34.108-, depending on the CN domain(s) supported by the UE

Test Procedure

Before the test starts, an internal counter K in SS is initialised to a value = 0. Following this, the UE shall transmit an RRC CONNECTION REQUEST message to the SS on the uplink CCCH, after the operator attempts to make an outgoing call. SS increments K every time such a message is received. Then, SS shall send a RRC CONNECTION SETUP message that contains an invalid configuration. UE shall then send RRC CONNECTION REQUEST message to SS again. Next SS transmits an RRC CONNECTION SETUP message to make the UE configure the physical channel in order to communicate on the DCCH but SS does not configure the physical channel. Then the UE detects the physical channel failure and transmits an RRC CONNECTION REQUEST message. This cycle is repeated until K reaches N300. When K is equal to N300, the SS transmits the RRC CONNECTION SETUP message and configures the physical channel. The UE shall detect "in-sync" from physical layer and then acknowledge the establishment of RRC connection by sending the RRC CONNECTION SETUP COMPLETE message on uplink DCCH.

Expected sequence

Step	Direction	Message	Comment
	UE SS		
1			SS initialises counter K to 0. Operator is asked to make an outgoing call and SS starts to wait for RRC CONNECTION REQUEST on uplink CCCH.
2	\rightarrow	RRC CONNECTION REQUEST	SS increments K.
<u>2a</u>			SS increments K by 1 for every RRC CONNECTION REQUEST message received in step 2
3			SS checks to see if K is equal to N300+1. If so, goes to step 6. Else, continues to execute step 4.
4	+	RRC CONNECTION SETUP	See message content below. SS does not configure the physical channel.
5			The next step is step 2.
6	+	RRC CONNECTION SETUP	See the clause 9 in TS 34.108 on default message content for RRC. SS configures the physical channel.
7			The UE configures the layer 1 and layer 2.
8	\rightarrow	RRC CONNECTION SETUP COMPLETE	

Specific Message Contents

RRC CONNECTION SETUP (Step 4 and K=1)

Use the same message sub-type found in Clause clause 9 of TS_34.108, with the following exceptions:

Information Element	Value/remark
RRC State Indicator	CELL_DCH
Uplink DPCH info	Not present

RRC CONNECTION SETUP (Step 4 and K>21)

Use the same message sub-type found in clause 9 of TS 34.108.

RRC CONNECTION REQUEST (Step 2 and K>=1)

Use the same message sub-type found in clause 9 of TS_34.108, with the following exceptions:

Information Element	Value/remark
Initial UE identity	Checked to see if it is set to IMSI stored in the test TEST
Establishment Cause	USIM card. Originating Interactive Call or Originating Background Call or Originating Streaming Call
Protocol error indicator	TRUE

8.1.2.9.5 Test requirement

After step 4 the UE shall re-send RRC CONNECTION REQUEST message.

After step 8 the UE shall transmit an RRC CONNECTION SETUP COMPLETE message and establish an RRC connection.

8.1.3 RRC Connection Release

8.1.3.1 RRC Connection Release in CELL DCH state: Success

8.1.3.1.1 Definition

8.1.3.1.2 Conformance requirement

In case of an RRC connection release from CELL_DCH state, the UTRAN transmits an RRC CONNECTION RELEASE message to the UE using unacknowledged mode on the DCCH. The UE then responds by transmitting an RRC CONNECTION RELEASE COMPLETE message using unacknowledged mode to UTRAN for N308 times, each time at the expiry of T308 timer. Then the UE leaves the RRC connected mode and initiates release of the layer 2 signalling <a href="https://linkradio.org/linkradio.or

Reference

3GPP TS 25.331 clause 8.1.4.

8.1.3.1.3 Test purpose

To confirm that the UE releases the L2 signalling https://link-radio bearer and dedicated resources and goes back to the idle state after it receives an RRC CONNECTION RELEASE message from the SS and transmits an RRC CONNECTON RELEASE COMPLETE message to the SS for N308+1 times at the interval specified by the value of T308 timer.

8.1.3.1.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: CELL_DCH state (state 6-1 or state 6-3) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE

Test Procedure

The UE is brought to the CELL_DCH state by prompting the operator to initiate an outgoing call. After the DCCH is established, SS transmits an RRC CONNECTION RELEASE message to the UE to disconnect the connection. SS then waits for the UE to transmit an RRC CONNECTION RELEASE COMPLETE message using unacknowledged mode. SS checks to see if P such messages has been received at each expiry of T308 timer. P is equal to the value of IE "Number of RRC Message Transmissions N308" in an RRC CONNECTION RELEASE message.

Expected sequence

Step	Direc	tion	Message	Comment
	UE	SS		
1				The UE is in the CELL_DCH state after a successful RRC connection establishment by virtue of the operator making an outgoing call.
2	•	(RRC CONNECTION RELEASE	SS disconnect the connection established. The value in IE "N308Number of RRC Message Transmissions" is arbitrarily chosen from 4-1 to 8 and denoted by P.
3	-)	RRC CONNECTION RELEASE COMPLETE	SS waits for the arrival of N308 such message at the expiry of each T308 timer, using unacknowledged mode.
4				The UE releases L2 signalling link-radio bearer and dedicated resources. Then the UE goes to idle mode.

Specific Message Content

RRC CONNECTION RELEASE (Step 2)

Use the same message type found in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
N308Number of RRC Message Transmission	Arbitrarily chosen between 4-1 and 8

8.1.3.1.5 Test requirement

After step 2 the UE shall start to transmit P times RRC CONNECTION RELEASE COMPLETE messages at and each time after the expiry of each T308 timer.

After step 3 the UE shall initiate the release L2 signalling <u>link-radio bearer</u> and dedicated resources, then it shall go to idle mode.

8.1.3.2 RRC Connection Release using on DCCH in CELL_FACH state: Success

8.1.3.2.1 Definition

8.1.3.2.2 Conformance requirement

In CELL_FACH state, the RRC layer entity in the network may issue an RRC CONNECTION RELEASE message using unacknowledged mode on the DCCH. Upon the reception of this message, the UE transmits an RRC CONNECTION RELEASE COMPLETE message using acknowledged mode to UTRAN on the DCCH and goes back to idle mode after it receives an RLC confirmation from the UTRAN.

Reference

3GPP TS 25.331 clause 8.1.4.

8.1.3.2.3 Test purpose

To confirm that the UE releases the L2 signalling link-radio bearer and resources and goes back to the idle state after it receives an RRC CONNECTION RELEASE message on downlink DCCH from the SS. It shall transmit an RRC CONNECTON RELEASE COMPLETE message using acknowledged mode on uplink DCCH to the SS.

8.1.3.2.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CELL_FACH state (state 6-2 or state 6-4) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE is brought to an initial state of CELL_FACH. After the successful establishment of the RRC connection, the SS transmits an RRC CONNECTION RELEASE message to the UE to disconnect the radio link. When the UE receives this message the UE transmits an RRC CONNECTION RELEASE COMPLETE message using acknowledged mode to the SS. Finally, SS checks that the UE performs proper release of all radio resources and then goes back to idle mode.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is brought to the CELL_FACH state.
2	*	(-	RRC CONNECTION RELEASE	SS sends this message using unacknowledged mode RLC operations on the uplink DCCH.
3	•	\rightarrow	RRC CONNECTION RELEASE COMPLETE	The UE transmits this message using acknowledged mode.
4				The UE releases L2 signalling link-radio bearer and radio resources. Then the UE goes to idle mode.

Specific Message Contents

None.

8.1.3.2.5 Test requirement

After step 2 the UE shall transmit an RRC CONNECTION RELEASE COMPLETE message using acknowledged mode then it shall receive a response for this message from the SS-RLC.

After step 3 the UE shall release its L2 signalling <u>link-radio bearers</u> and radio resources, then it shall go back to idle mode.

8.1.3.3 RRC Connection Release using on CCCH in CELL_FACH state: Success

8.1.3.3.1 Definition

8.1.3.3.2 Conformance requirement

In CELL_FACH state, the RRC layer entity in the network may issue an RRC CONNECTION RELEASE message using unacknowledged mode on the CCCH. Upon the reception of this message, the UE shall release the RRC connection immediately, without replying with a RRC CONNECTION RELEASE COMPLETE message on the uplink.

Reference

3GPP TS 25.331 clause 8.1.4.

8.1.3.3.3 Test purpose

To confirm that the UE releases all its radio resources upon the reception of a RRC CONNECTION RELEASE message on the downlink CCCH, without transmitting RRC CONNECTION RELEASE COMPLETE message on the uplink.

8.1.3.3.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CELL_FACH state (state 6-2 or state 6-4) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE is brought to an initial state of CELL_FACH. After the successful establishment of the RRC connection, SS transmits <u>an</u> RRC CONNECTION RELEASE message on the downlink CCCH. The UE shall terminate the RRC connection and release all radio resources allocated to it. SS monitors the uplink DCCH and CCCH to verify that no transmission is detected.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is brought to the
				CELL_FACH state.
2	+	•	RRC CONNECTION RELEASE	SS transmits this message with
				the contents identical to that
				found in TS 34.108 clause 9 on
				downlink CCCH.
3				SS waits for a period equivalent
				to 60 seconds. The UE shall not
				send any response message on
				uplink direction during this
				period. It shall release the radio
				resources allocated and return to
				idle mode.

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Specific Message Contents

None.

8.1.3.3.5 Test requirement

After step 2 the UE shall release all its radio resources, return to idle mode, without transmitting RRC CONNECTION RELEASE COMPLETE message on the uplink direction.

8.1.3.4 RRC Connection Release in CELL_FACH state: Failure

8.1.3.4.1 Definition

8.1.3.4.2 Conformance requirement

In case of RRC connection release from CELL_FACH state, the RRC layer entity in the network issues an RRC CONNECTION RELEASE message using unacknowledged mode on the DCCH. When the UE does not succeed to transmit the RRC CONNECTION RELEASE COMPLETE message using acknowledged mode, it shall release all its radio resources, enter idle mode and the procedure ends on the UE side.

Reference

3GPP TS 25.331 clause 8.1.4

8.1.3.4.3 Test purpose

To confirm that the UE releases all its radio resources and enters idle mode when the UE does not succeed in transmitting the RRC CONNECTION RELEASE COMPLETE message using acknowledged mode to the SS (i.e. the UE-RLC cannot receive acknowledgement for the transmission of the RRC CONNECTION RELEASE COMPLETE message from SS).

8.1.3.4.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: CELL_FACH state (state 6-2 or state 6-4) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE

Test Procedure

At the start of the test, the UE is brought to CELL_FACH state. When the RRC connection has been established, the SS transmits an RRC CONNECTION RELEASE message to the UE to disconnect the radio link. When the UE receives this message the UE transmits an RRC CONNECTION RELEASE COMPLETE message using acknowledged mode to the SS. The SS ignores the message and does not transmit a STATUS PDU of RLC for this message. SS checks to see that UE continues to release all its radio resources and then enters idle mode.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is brought into
				CELL_FACH state by asking the
				operator to perform an outgoing
				call attempt. clause
2	│	.	RRC CONNECTION RELEASE	SS ask to disconnect the radio
				link
3	-)	RRC CONNECTION RELEASE	The UE transmits this message
			COMPLETE	using acknowledged mode.
				The SS ignores this message
				and shall not transmit a STATUS
				PDU of RLC for this message.
4				SS checks to make sure that UE
				releases its all radio resources
				and enter idle mode.

Specific Message Contents

None

8.1.3.4.5 Test requirement

After step 3 the UE shall release its L2 signalling radio bearers link and radio resources then it shall go to idle mode.

8.1.3.5 RRC Connection Release in CELL_FACH state: Invalid message

8.1.3.5.1 Definition

8.1.3.5.2 Conformance requirement

In CELL_FACH state, the RRC layer entity in UTRAN may issue an RRC CONNECTION RELEASE message using unacknowledged mode on the DCCH. If an invalid RRC CONNECTION RELEASE message is received by the UE, the UE shall activate the appropriate error-handling mechanism and report the error to the UTRAN. After this, the UE shall release the RRC connection.

Reference

3GPP TS 25.331 clause 8.1.4

8.1.3.5.3 Test purpose

When the UE receives an invalid RRC CONNECTION RELEASE message on the downlink DCCH, it shall transmit an RRC CONNECTON RELEASE COMPLETE message that includes the appropriate error cause on the uplink DCCH. Thereafter, it shall release the RRC connection.

8.1.3.5.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: CELL_FACH state (state 6-2 or state 6-4) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE

Test Procedure

The UE is brought to an initial state of CELL_FACH. SS transmits an <u>invalid</u> RRC CONNECTION RELEASE message on the DCCH to request to disconnect the RRC connection. However, the message contains an invalid value in the IE "Release cause". As a result, tThe UE shall transmit an RRC CONNECTION RELEASE COMPLETE message on the uplink DCCH, which includes the IE "Error indication". This IE shall contain "Failure cause" IE which is set to "Protocol error" and "Protocol error information" IE which is set to "ASN.1 violation or encoding error Information element value not comprehended". The UE shall release the RRC connection and go back to idle mode after transmitting the RRC CONNECTION RELEASE COMPLETE message.

Expected sequence

Step	Direction		Message	Comment
-	UE	SS	_	
1				The UE is brought to the
				CELL_FACH state.
2	+	-	RRC CONNECTION RELEASE	See specific message contents
				for this message
3	-	>	RRC CONNECTION RELEASE	The IE "Protocol error cause"
			COMPLETE	found in IE "Protocol error
				information" shall be set to "
				ASN.1 violation or encoding
				error Information element value
				not comprehended". This
				message is sent using
				acknowledge mode.
4				The UE shall release the
				signalling radio bearers link and
				radio resources, and then return
				to idle mode.

Specific Message Contents

RRC CONNECTION RELEASE (Step 2)

Information Element	Value/remark
Release cause All IEs	invalid valueNot Present

RRC CONNECTION RELEASE COMPLETE

Check to see if the same message type found in clause 9 of TS 34.108 is received, with the following exceptions:

Information Element	Value/remark
Error Indication Failure cause —Protocol error information	Protocol error
- Protocol error cause	ASN.1 violation or encoding errorInformation element value not comprehended

8.1.3.5.5 Test requirement

After step_2 the UE shall transmit an RRC CONNECTION RELEASE COMPLETE message which includes the appropriate cause values in IE "Error Indication".

After step_3 the UE shall release its L2 signalling <u>radio bearers</u> <u>link</u> and radio resources, then it shall go back to idle mode.

8.1.4 Void

8.1.5 UE capability

8.1.5.1 UE Capability in CELL_DCH state: Success

8.1.5.1.1 Definition

8.1.5.1.2 Conformance requirement

- 1. The UE CAPABILITY ENQUIRY message is sent by the UTRAN to request the UE to transmit its capability information related to any radio access network that is supported by the UE or if the UTRAN needs an update of the UE's UMTS capability information or of its inter-system classmark.
- 2. When the UE receives a UE CAPABILITY ENQUIRY message, the UE transmits a UE CAPABILITY INFORMATION message on the uplink DCCH. Then the UTRAN transmits a UE CAPABILITY INFORMATION CONFIRM message.
- 3. If during the execution of UE capability update procedure, an invalid UE CAPABILITY INFORMATION CONFIRM is received, the UE shall respond with RRC STATUS message and decide whether to re-transmit UE CAPABILITY INFORMATION message by comparing its internal counter against N304.

Reference

3GPP TS 25.331 clauses 8.1.6 and 8.1.7.

8.1.5.1.3 Test purpose

To confirm that the UE transmits a UE CAPABILITY INFORMATION message after it receives a UE CAPABILITY ENQUIRY message from the SS. To confirm that the UE indicates an invalid message reception when invalid erroneous downlink-UE CAPABILITY ENQUIRY and UE CAPABILITY INFORMATION CONFIRM messages are received. The UE shall transmit RRC STATUS message with the correct error cause value to SS.

8.1.5.1.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CELL_DCH state (state 6-9 or state 6-10) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE is brought to the CELL_DCH state after a successful outgoing call attempt. The SS transmits an invalid erroneous-UE CAPABILITY ENQUIRY message eontaining invalid value in the IE "Capability update requirement". This message lacks all IEs except IE "Message Type". After receiving such a message, the UE shall report the error using RRC STATUS message with the appropriate error cause specified. Then SS transmits a correct UE CAPABILITY ENQUIRY message—which includes the IE "Capability update requirement", the UE receives this message and transmits a UE CAPABILITY INFORMATION message on the uplink DCCH which includes the "UE radio access capability" IE. The SS transmits a UE CAPABILITY INFORMATION CONFIRM message to the UE to complete the test. Then SS initiates another UE capability enquiry update—procedure—by transmitting the same UE CAPABILITY ENQUIRY using as in step 4. The UE shall reply with a UE CAPABILITY INFORMATION message on the uplink DCCH. When SS receives this message, it transmits an invalid erroneous—UE CAPABILITY INFORMATION CONFIRM message. This message lacks all IEs except IE "Message Type". The content of this message is lack of all IE. The UE shall detect a protocol error and send RRC STATUS message to report this event. After receiving RLC acknowledgement for this message, the UE shall re-transmit UE CAPABILITY INFORMATION message on the uplink DCCH by after the expiry of T304. SS completes this test by transmitting an error-free UE CAPABILITY INFORMATION CONFIRM message similar to the message sent in step 6.

Expected sequence

Step	Direction	Message	Comment
	UE SS		
1			The UE is brought to CELL_DCH state after an outgoing call has been established successfully.
2	←	UE CAPABILITY ENQUIRY	See specific message contents for this message
3	→	RRC STATUS	The IE "Protocol error cause" found in IE "Protocol error information" shall be set to "ASN.1 violation or encoding error Information element value not comprehended"
4	+	UE CAPABILITY ENQUIRY	Use default message.
5	\rightarrow	UE CAPABILITY INFORMATION	Use default message.
6	←	UE CAPABILITY INFORMATION CONFIRM	Use default message.
7	←	UE CAPABILITY ENQUIRY	Same as in step 4.
8	\rightarrow	UE CAPABILITY INFORMATION	Shall be the same message content as in step 5.
9	+	UE CAPABILITY INFORMATION CONFIRM	See specific message contents for this message
10	\rightarrow	RRC STATUS	UE shall detect an error and then transmit this message.
11	→	UE CAPABILITY INFORMATION	UE shall re-transmit this message after T304's expiryexpires.
12	+	UE CAPABILITY INFORMATION CONFIRM	SS sends an error-free message to acknowledge the receipt of the uplink message.

Specific Message Contents

UE CAPABILITY ENQUIRY (Step 2)

Information Element	Value/remark
Capability update requirement	
UE radio access FDD capability update	TRUE
requirement	
 - UE radio access TDD capability update 	FALSE
requirement	
- System specific capability update requirement list	invalid valueNot Present
- System specific capability update requirement All	
IEs	

RRC STATUS (Step 3)

Check to see if the same message type found in Annex A is received, with the following exceptions:

Information Element	Value/remark
Identification of received messag type	
- Received message type	Checked to see if set to "UE CAPABILITY ENQUIRY"
- RRC transaction identifier	Checked to see if set to the same value in the UE
	CAPABILITY ENQUIRY message
Protocol Error Information	
- Protocol Error Cause	Checked to see if set to "ASN.1 violation or encoding
	error Information element not comprehended"

UE CAPABILITY INFORMATION CONFIRM (Step 9)

Information Element	Value/remark	
All IEs	Not Present	

RRC STATUS (Step 10)

Check to see if the same message type found in Annex A is received, with the following exceptions:

Information Element	Value/remark
Protocol Error Information	
- Protocol Error Cause	Checked to see if set to "ASN.1 violation or encoding
	error <u>"</u>

8.1.5.1.5 Test requirement

After step 2, the UE shall transmit a RRC STATUS message on the uplink DCCH, reporting the error with protocol error cause set to "ASN.1 violation or encoding error Information element value not comprehended".

After step 4 and 7 the UE shall transmit a UE CAPABILITY INFORMATION message on the uplink DCCH to respond to the UE CAPABILITY ENQUIRY message.

After step 9, the UE shall transmit a RRC STATUS message on the uplink DCCH. The protocol error cause shall be set to "ASN.1 violation or encoding error".

After step 10, the UE shall re-transmit the UE CAPABILITY INFORMATION message with a similar content as in step 8 after the expiry of T304.

8.1.5.2 UE Capability in CELL_DCH state: Success after T304 timeout

8.1.5.2.1 Definition

8.1.5.2.2 Conformance requirement

- 1. The UE CAPABILITY ENQUIRY message is sent by the UTRAN to request the UE to transmit its capability information related to any radio access network that is supported by the UE, if the UTRAN needs an update of the UE's UMTS capability information or of its inter-system classmark.
- 2. After the UE receives a UE CAPABILITY ENQUIRY message, it transmits a UE CAPABILITY INFORMATION message on the uplink DCCH. If it fails to receive a UE CAPABILITY INFORMATION CONFIRM message, the UE re-transmits another UE CAPABILITY INFORMATION message after T304 expires until V304 is greater than N304.

Reference

3GPP TS 25.331 clause 8.1.6 and 8.1.7.

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8.1.5.2.3 Test purpose

To confirm that the UE re-transmits a UE CAPABILITY INFORMATION message until V304 is greater than N304, after the expiry of timer T304 when the UE cannot receive a UE CAPABILITY INFORMATION CONFIRM message in response to a UE CAPABILITY INFORMATION message.

8.1.5.2.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CELL_DCH state (state 6-9 or state 6-10) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE is brought to CELL_DCH state. When the SS transmits a UE CACAPABILITY ENQUIRY message which includes the "Capability update requirement" IE, the UE shall reply with a UE CAPABILITY INFORMATION message on the uplink DCCH which includes the "UE radio access capability" IE. The SS does not transmits a UE CAPABILITY INFORMATION CONFIRM message to the UE, resulting in the T304 timer to expire. SS shall observe that the UE attempts to transmit a UE CAPABILITY INFORMATION message again. The UE shall re-transmit N304 times, and SS transmits a UE CAPABILITY INFORMATION CONFIRM message to answer the last request and completes this test procedure.

Expected sequence

Step	Direc	tion	Message	Comment
	UE	SS		
1				The UE is brought to
				CELL_DCH state.
				SS sets internal counter K
				=0
2	+	-	UE CAPABILITY ENQUIRY	Including the IE "Capability
				update requirement".
3	-	>	UE CAPABILITY INFORMATION	Including the "UE radio
				access capability".
4				If K is equal to N304, then
				proceed to step 6.
5				The SS does not transmit
				a response and wait for
				T304 timer to expire.
				K=K+1 and goes to step 3.
6	+	-	UE CAPABILITY INFORMATION CONFIRM	Use default message
				contents

Specific Message Contents

None

8.1.5.2.5 Test requirement

After step 3 the UE shall re-transmits a UE CAPABILITY INFORMATION message on the uplink DCCH, after each expiry of timer T304. The UE CAPABILITY INFORMATION message shall contain IE "UE radio access capability" indicating the settings found in PIC/PIXIT statements. After (N304) re-transmissions, the UE shall receive a UE CAPABILITY INFORMATION CONFIRM message.

8.1.5.3 UE Capability in CELL_DCH state: Failure (After N304 re-transmissions)

8.1.5.3.1 Definition

8.1.5.3.2 Conformance requirement

- 1. The UE CAPABILITY ENQUIRY message is sent by the UTRAN to request the UE to transmit its capability information related to any radio access network that is supported by the UE if the UTRAN needs an update of the UE's UMTS capability information or of its inter-system classmark.
- 2. In the case of a failure to If UE re-transmits a-UE CAPABILITY INFORMATION in excess of N304 times, the UE initiates the cell update procedure.

Reference

3GPP TS 25.331 clauses 8.1.6 and 8.1.7.

8.1.5.3.3 Test purpose

To confirm that the UE stops retrying to transmit a UE CAPABILITY INFORMATION message if V304 is greater than N304. It then initiates cell update procedure.

8.1.5.3.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CELL_DCH state (state 6-9 or state 6-10) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE is brought to CELL_DCH state. When the SS transmits a UE CAPABILITY ENQUIRY message which includes the "Capability update requirement" IE, the UE receives this message and transmits a UE CAPABILITY INFORMATION message on the uplink DCCH which includes the "UE radio access capability" IE. The SS does not respond with a UE CAPABILITY INFORMATION CONFIRM message but keeps a count on the number of messages received. When the T304 timer expires, the UE shall transmit a UE CAPABILITY INFORMATION message again. After sending (N304+1) messages, the UE shall stop sending UE CAPABILITY INFORMATION messages and initiates the cell update procedure. SS allows UE to return to "connected state" by issuing CELL UPDATE CONFIRM message on the downlink DCCH. Then UE shall reconfigured its physical channel according to the CELL UPDATE CONFIRM message and respond with PHYSICAL CHANNEL RECONFIGURATION COMPLETE message to SS.

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Expected sequence

Step	Direction	Message	Comment
	UE SS		
1			The UE starts from
			CELL_DCH state.
	,	LIE OARABII ITV FNOLIIRV	SS sets counter K to 0
2	(UE CAPABILITY ENQUIRY	Use default message
3	\rightarrow	UE CAPABILITY INFORMATION	Use default message
4			The SS does not transmit
			a response and allows
			T304 timer to expire.
			SS increments counter K
			If K is greater than N304,
			proceeds to step 5 else returns to 3.
5	→	CELL UPDATE	The UE assumes that
5	7	CELL OPDATE	radio link failure has
			occurred and transmits
			this message which
			includes IE "Cell update
			cause" set to "radio link
			failure".
6	←	CELL UPDATE CONFIRM	This message include IE
			"Physical channel
			information elements".
7			The SS configure the
			dedicated physical
			channel according to the
			IE "Physical channel
			information elements"
			included in the CELL
			UPDATE CONFIRM
			message.
8	\rightarrow	PHYSICAL CHANNEL RECONFIGURATION	
		COMPLETE	

Specific Message Contents

CELL UPDATE CONFIRM (Step 6)

The contents of CELL UPDATE CONFIRM message is identical as "CELL UPDATE CONFIRM message" as found in Annex \underline{A} with the following exceptions:

Information Element	Value/remark
U-RNTI	Same as CELL UPDATE message in step 5
RRC State indicator	CELL_DCH
Frequency info	
 UARFCN uplink(Nu) 	Reference to TS34.108 clause 5.1 Test frequencies
 - UARFCN downlink(Nd) 	Reference to TS34.108 clause 5.1 Test frequencies
Maximum allowed UL TX power	33dBm
CHOICE Mode	FDD
Downlink information for each radio links - Primary CPICH info	
- Primary scrambling code	100
- PDSCH with SHO DCH info	Not Present
- PDSCH code mapping	Not Present
- Downlink DPCH info for each RL	
 Primary CPICH usage for channel estimation 	Primary CPICH may be used
- DPCH frame offset	0 chips
- Secondary CPICH info	Not Present
 DL channelisation code 	
 Secondary scrambling code 	2
 Spreading factor 	Reference to TS34.108 clause 6.10 Parameter Set
- Code number	SF-1(SF is reference to TS34.108 clause 6.10 Parameter
	Set)
 Scrambling code change 	No change
 TPC combination index 	0
- SSDT Cell Identity	-a
 Closed loop timing adjustment mode 	Not Present
 SCCPCH information for FACH 	Not Present

8.1.5.3.5 Test requirement

After step 2, the UE shall transmit a UE CAPABILITY INFORMATION message on the uplink DCCH. The UE shall re-transmit this message for N304 times.

After step 4, the UE shall initiate the cell update procedure.

After step 6, UE shall respond with a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message after it has configured L1 according to the CELL UPDATE CONFIRM message in step 6.

8.1.5.4 UE Capability in CELL_FACH state: Success

8.1.5.4.1 Definition

8.1.5.4.2 Conformance requirement

- 1. The UE CAPABILITY ENQUIRY message is sent by the UTRAN to request the UE to transmit its capability information related to any radio access network(s) supported by the UE. UTRAN initiates this procedure when it needs an update of the UE's UMTS capability information or of its inter-system classmark.
- 2. When the UE receives a UE CAPABILITY ENQUIRY message, the UE shall transmit a UE CAPABILITY INFORMATION message on the uplink DCCH.
- 3. If during the execution of UE capability update procedure, an invalid UE CAPABILITY INFORMATION CONFIRM is received, the UE shall respond with RRC STATUS message and decide whether to re-transmit UE CAPABILITY INFORMATION message by comparing its internal counter against N304.

Reference

3GPP TS 25.331 clauses 8.1.6 and 8.1.7.

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8.1.5.4.3 Test purpose

To confirm that the UE transmits an UE CAPABILITY INFORMATION message after it receives a UE CAPABILITY ENQUIRY message from the SS. To confirm that the UE indicates an invalid message reception when <u>invalid</u> erroneous downlink-UE CAPABILITY ENQUIRY and UE CAPABILITY INFORMATION CONFIRM messages are received. The UE shall transmit RRC STATUS message with the correct error cause value to SS.

8.1.5.4.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CELL_FACH state (state 6-11) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE is brought to the CELL_FACH state after a successful outgoing call attempt. The SS transmits an invalid erroneous. UE CAPABILITY ENQUIRY message containing invalid value in the IE "Capability update requirement". After receiving such a message, the UE shall report an error using RRC STATUS message with the appropriate error cause specified. Then SS transmits a UE CAPABILITY ENQUIRY message which includes the IE "Capability update requirement". The After UE receives this message, it and transmits a UE CAPABILITY INFORMATION message on the uplink DCCH, which includes the IE "UE radio access capability". The SS transmits a UE CAPABILITY INFORMATION CONFIRM message to the UE to complete the UE capability enquiry procedure. Then SS initiates another UE capability enquiry procedure by transmitting the same UE CAPABILITY ENQUIRY message as in step 4. The UE shall reply with a UE CAPABILITY INFORMATION message on the uplink DCCH. When SS receives this message, it transmits an invalid erroneous-UE CAPABILITY INFORMATION CONFIRM message. The content of this message is-lacks of all IEs except IE "Message Type". The UE shall detect a protocol error and send RRC STATUS message to report this event. After receiving the RLC layer acknowledgement PDU for this message, the UE shall retransmit UE CAPABILITY INFORMATION message on the uplink DCCH by-upon the expiry of T304. SS completes this test by sending an error-free UE CAPABILITY INFORMATION CONFIRM message similar to the message sent in step 6.

Expected sequence

Step	Direction	Message	Comment
	UE SS		
1			The UE is brought to
			CELL_FACH state after
			an outgoing call has been
		LIE OADADII ITV ENOLIIDV	established successfully.
2	←	UE CAPABILITY ENQUIRY	See specific message
	,	DDO OTATUO	contents for this message
3	\rightarrow	RRC STATUS	The IE "Protocol error
			cause" found in IE
			"Protocol error
			information" shall be set
			to "ASN.1 violation or
			encoding errorInformation element value not
	+	UE CAPABILITY ENQUIRY	comprehended"
5	→	UE CAPABILITY INFORMATION	Use default message.
6	<i>→</i>	UE CAPABILITY INFORMATION UE CAPABILITY INFORMATION CONFIRM	Use default message.
7	-		Use default message.
8	<u></u>	UE CAPABILITY ENQUIRY UE CAPABILITY INFORMATION	Same as in step 4.
8	7	UE CAPABILITY INFORMATION	The message content shall be the same as in
9	+	UE CAPABILITY INFORMATION CONFIRM	step 5. See specific message
9		UE CAPABILITY INFORMATION CONFIRM	contents for this message
10	→	RRC STATUS	UE shall detect an error
10	'	I KKC STATUS	and then transmit this
			message on uplink
			DCCH.
11	→	UE CAPABILITY INFORMATION	UE shall re-transmit this
			message after T304's
			expiryexpires.
12	←	UE CAPABILITY INFORMATION CONFIRM	SS sends an error-free
			message to acknowledge
			the receipt of the uplink
			message.

Specific Message Contents

UE CAPABILITY ENQUIRY (Step 2)

Information Element	Value/remark
Capability update requirement	
- UE radio access FDD capability update	TRUE
requirement	
— - UE radio access TDD capability update	FALSE
requirement	
System specific capability update requirement list	invalid valueNot Present
 System specific capability update requirement <u>All</u> 	
<u>IEs</u>	

RRC STATUS (Step 3)

Check to is the same message type found in Annex A is received, with the following exceptions:

Information Element	Value/remark
Identification of received messag type	
- Received message type	Checked to see if set to "UE CAPABILITY ENQUIRY"
- RRC transaction identifier	Checked to see if set to the same value in the UE
	CAPABILITY ENQUIRY message
Protocol Error Information	
- Protocol Error Cause	Checked to see if set to "ASN.1 violation or encoding
	error Information element not comprehended"

UE CAPABILITY INFORMATION CONFIRM (Step 9)

Information Element	Value/remark
All IEs	Not Present

RRC STATUS (Step 310)

Check to see if the same message type found in Annex A is received, with the following exceptions:

Information Element	Value/remark
Protocol Error Information	
- Protocol Error Cause	Checked to see if set to "ASN.1 violation or encoding
	error"

8.1.5.4.5 Test requirement

After step 2, the UE shall transmit a RRC STATUS message on the uplink DCCH, reporting the error with protocol error cause set to "ASN.1 violation or encoding error Information element value not comprehended".

After step 4 and 7 the UE shall transmit a UE CAPABILITY INFORMATION message on the uplink DCCH to respond to the downlink UE CAPABILITY ENQUIRY message.

After step 9, the UE shall transmit a RRC STATUS message on the uplink DCCH. The protocol error cause shall be set to "ASN.1 violation or encoding error".

After step 10, the UE shall re-transmit the UE CAPABILITY INFORMATION message with a similar content as in step 8 upon the expiry of T304.

8.1.5.5 UE Capability in CELL_FACH state: Success after T304 timeout

8.1.5.5.1 Definition

8.1.5.5.2 Conformance requirement

- 1. The UE CAPABILITY ENQUIRY message is sent by the UTRAN to request the UE to transmit its capability information related to any radio access network(s) supported by the UE. UTRAN initiates this action when it needs an update of the UE's UMTS capability information or of its inter-system classmark.
- 2. After the UE receives a UE CAPABILITY ENQUIRY message, it transmits a UE CAPABILITY INFORMATION message on the uplink DCCH. If it fails to receive a UE CAPABILITY INFORMATION CONFIRM message, the UE re-transmits another UE CAPABILITY INFORMATION message until its internal counter V304 is greater than N304.

Reference

3GPP TS 25.331 clauses 8.1.6 and 8.1.7.

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8.1.5.5.3 Test purpose

To confirm that the UE re-transmits a UE CAPABILITY INFORMATION message until V304 is greater than N304, after the expiry of timer T304 when it fails to receive a downlink UE CAPABILITY INFORMATION CONFIRM message in response to the uplink UE CAPABILITY INFORMATION message sent.

8.1.5.5.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CELL_FACH state (state 6-11) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE is brought to CELL_FACH state. When the SS transmits a UE CAPABILITY ENQUIRY message which includes the IE "Capability update requirement", the UE shall reply with a UE CAPABILITY INFORMATION message on the uplink DCCH that contains the IE "UE radio access capability". The SS waits and does not transmit a UE CAPABILITY INFORMATION CONFIRM message to the UE, resulting in the T304 timer to expire. SS shall observe that the UE attempts to transmit a UE CAPABILITY INFORMATION message again. The UE shall re-transmit N304 times, and SS transmits a UE CAPABILITY INFORMATION CONFIRM message to answer the last request and completes this test procedure.

Expected sequence

Step	Direc	tion	Message	Comment
	UE	SS		
1				The UE is brought to
				CELL_FACH state.
				SS sets internal counter K
				=0
2	•	\leftarrow	UE CAPABILITY ENQUIRY	Including the IE "Capability
				update requirement".
3		\rightarrow	UE CAPABILITY INFORMATION	Including the IE "UE radio
				access capability".
4				If K equals N304, then
				proceeds to step 6. Else,
				continue with step 5.
5				The SS does not transmit
				a response and wait for
				T304 timer to expire.
				K=K+1 and goes to step 3.
6	•	(UE CAPABILITY INFORMATION CONFIRM	Use default message
				contents

Specific Message Contents

None

8.1.5.5.5 Test requirement

After step 3 the UE shall re-transmit a UE CAPABILITY INFORMATION message on the uplink DCCH, after each expiry of timer T304. The UE CAPABILITY INFORMATION message shall contain IE "UE radio access capability" with the value matching those stated in the ICS/IXIT statements. After (N304) re-transmissions, the UE shall receive a UE CAPABILITY INFORMATION CONFIRM message.

8.1.6 Direct Transfer

8.1.6.1 Direct Transfer in CELL DCH state (invalid message reception and no signalling connection exists)

8.1.6.1.1 Definition

8.1.6.1.2 Conformance requirement

The UE shall transmit an RRC STATUS message stating the reason "protocol error" in IE "failure cause" and also set value "ASN.1 violation or encoding error" in IE "Protocol error cause" when the UE receives a DOWNLINK DIRECT TRANFER message, which does not include any IEs except IE "Message Type" the IE "NAS message". The UE shall transmit an RRC STATUS message including the IE "Protocol error information" with the IE "Protocol error cause" set to "Message not compatible with receiver state" when the UE receives a DOWNLINK DIRECT TRANSFER message, with invalid IE"CN domain identity".

Reference

3GPP TS 25.331 clause 8.1.9.

8.1.6.1.3 Test purpose

To confirm that the UE transmits an RRC STATUS message on the DCCH using AM RLC if it receives a DOWNLINK DIRECT TRANSFER message which does not include any IEs except IE "Message Type". the IE "NAS message" To confirm that the UE transmits an RRC STATUS message on the DCCH using AM RLC if it receives a DOWNLINK DIRECT TRANSFER message which includes an invalid IE "CN domain identity".

8.1.6.1.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CELL_DCH (state 6-9 or state 6-10) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE is in the CELL_DCH state. The SS transmits an invalid DOWNLINK DIRECT TRANSFER message to the UE. The UE shall transmit an RRC STATUS message on the DCCH using AM RLC, setting the value "protocol error" in IE "failure cause". The error type "ASN.1 violation or encoding error" shall also be indicated in IE "Protocol error cause". The SS transmits a DOWNLINK DIRECT TRANSFER message that contains an invalid IE "CN domain identity" to the UE. The UE shall transmit an RRC STATUS message on the DCCH using AM RLC, setting the value "protocol error" in IE "failure cause". The error type "Message not compatible with receiver state" shall also be indicated in IE "Protocol error cause".

Expected sequence

Step	Dire	ection	Message	Comment
	UE	SS		
1		←	DOWNLINK DIRECT TRANSFER	Only message type is provided.
2		\rightarrow	RRC STATUS	
3		←	DOWNLINK DIRECT TRANSFER	
4		\rightarrow	RRC STATUS	

Specific Message Contents

DOWNLINK DIRECT TRANSFER (Step 1)

The contents of DOWNLINK DIRECT TRANSFER message in this test case is identical to those in default contents of layer 3 messages for RRC tests with the following exceptions.

Information Element	Value/remark
NAS message All IEs	Not Present

RRC STATUS (Step 2)

Check to see if same message type found in Annex A is received, with the following exceptions:

Information Element	Value/remark
Message Type	
Protocol error information	ASN.1 violation or encoding error
Other information element - Protocol error cause	Not checked ASN.1 violation or encoding error

DOWNLINK DIRECT TRANSFER (Step 3)

Use the same message type found in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
CN domain identity	CS domain or PS domain as unselected domain
NAS message	Arbitrary message.

RRC STATUS (Step 4)

Check to see if same message type found in Annex A is received, with the following exceptions:

Information Element	Value/remark
Message Type	
Identification of received messag type	
- Received message type	DOWNLINK DIRECT TRANSFER
- RRC transaction identifier	Same value in the DOWNLINK DIRECT TRANSFER
	message in step 3.
Protocol error information	Message not compatible with receiver state
Other information element - Protocol error cause	Not checked Message not compatible with receiver state

8.1.6.1.5 Test requirement

After step 1 the UE shall transmit an RRC STATUS message on the DCCH using AM RLC setting "protocol error" in IE "failure cause" and setting "ASN.1 violation or encoding error" in IE "Protocol error cause".

After step 3 the UE shall transmit a n RRC STATUS message on the DCCH using AM RLC setting "protocol error" in IE "failure cause" and setting "Message not compatible with receiver state" in IE "Protocol error cause".

8.1.6.2 Direct Transfer in CELL FACH state (invalid message reception and no signalling connection exists)

8.1.6.2.1 Definition

8.1.6.2.2 Conformance requirement

The UE shall transmit an RRC STATUS message stating the reason "protocol error" in IE "failure cause" and also set value "ASN.1 violation or encoding error" in IE "Protocol error cause" when the UE receives a DOWNLINK DIRECT TRANSFER message, which does not include any IEs except IE "Message Type" the IE "NAS message". The UE shall transmit an RRC STATUS message including the IE "Protocol error information" with the IE "Protocol error cause" set

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to "Message not compatible with receiver state" when the UE receives a DOWNLINK DIRECT TRANSFER message, with invalid IE "CN domain identity".

Reference

3GPP TS 25.331 clause 8.1.9.

8.1.6.2.3 Test purpose

To confirm that the UE transmits an RRC STATUS message on the DCCH using AM RLC if it receives a DOWNLINK DIRECT TRANSFER message which does not include any IEs except IE "Message Type" the IE "NAS message". To confirm that the UE transmits an RRC STATUS message on the DCCH using AM RLC if it receives a DOWNLINK DIRECT TRANSFER message which includes an invalid IE "CN domain identity".

8.1.6.2.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CELL_FACH (state 6-11) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE is in the CELL_FACH state. The SS transmits a DOWNLINK DIRECT TRANSFER message to the UE and does not include all IEs except IE "Message Type" the IE "NAS message". The UE shall transmit an RRC STATUS message on the DCCH using AM RLC, setting the value "protocol error" in IE "failure cause". The error type "ASN.1 violation or encoding error" shall also be indicated in IE "Protocol error cause". The SS transmits a DOWNLINK DIRECT TRANSFER message that contains an invalid IE "CN domain identity" to the UE. The UE shall transmit an RRC STATUS message on the DCCH using AM RLC, setting the value "protocol error" in IE "failure cause". The error type "Message not compatible with receiver state" shall also be indicated in IE "Protocol error cause".

Expected sequence

Step	Direction		Step Direction Message	Comment
	UE	SS		
1		-	DOWNLINK DIRECT TRANSFER	Only message type is provided
2		\rightarrow	RRC STATUS	
3		(DOWNLINK DIRECT TRANSFER	
4		\rightarrow	RRC STATUS	

Specific Message Contents

DOWNLINK DIRECT TRANSFER (Step 1)

The contents of DOWNLINK DIRECT TRANSFER message in this test case is identical to those in default contents of layer 3 messages for RRC tests with the following exceptions.

Information Element	Value/remark
All IEsNAS message	Not Present

RRC STATUS (Step 2)

Check to see if the same message type found in Annex A is received, with the following exceptions:

Information Element	Value/remark
Message Type	
Protocol error information	ASN.1 violation or encoding error
Other information element - Protocol error cause	Not checked ASN.1 violation or encoding error

DOWNLINK DIRECT TRANSFER (Step 3)

Information Element	Value/remark
CN domain identity	CS domain or PS domain as unselected domain
NAS message	Arbitrary message.

RRC STATUS (Step 4)

Check to see if the same message type found in Annex A is received, with the following exceptions:

Information Element	Value/remark
Message Type	
Identification of received message type	
- Received message type	DOWNLINK DIRECT TRANSFER
- RRC transaction identifier	Same value in the DOWNLINK DIRECT TRANSFER
	message in step 3.
Protocol error information	Message not compatible with receiver state
Other information element - Protocol error cause	Not checked Message not compatible with receiver state

8.1.6.2.5 Test requirement

After step 1 the UE shall transmit an RRC STATUS message on the DCCH using AM RLC setting "protocol error" in IE "failure cause" and setting "ASN.1 violation or encoding error" in IE "Protocol error cause".

After step 3 the UE shall transmit a n RRC STATUS message on the DCCH using AM RLC setting "protocol error" in IE "failure cause" and setting "Message not compatible with receiver state" in IE "Protocol error cause".

8.1.7 Security mode command

8.1.7.1 Security mode command in CELL_DCH state

8.1.7.1.1 Definition

8.1.7.1.2 Conformance requirement

- 1. This procedure is used to trigger the stop or start of ciphering or to command the restart of ciphering with the new ciphering configuration for the signalling radio bearers and any of radio bearers. It is also used to start integrity protection or modify integrity protection configuration, both for the signalling links and any of radio bearers.
- 2. When the UE receives a SECURITY MODE COMMAND message from the UTRAN, which indicates the downlink activation time and new integrity protectionciphering mode configuration, the UE shall apply the old ciphering configuration before the stated downlink activation time. It shall start to decipher using the new ciphering configuration at the downlink activation time.
- 3. After the UE <u>has transmittransmitted</u> the <u>a SECURITY MODE COMPLETE</u> message using the new integrity protection configuration which includes uplink activation time, it <u>shall</u> starts to cipher transmission in the uplink using the new configuration at the uplink activation time.

Reference

3GPP TS 25.331 clause 8.1.12.

8.1.7.1.3 Test purpose

To confirm that the UE correctly communicates to the UTRAN and activates the new ciphering configurations after the stated activation time. To confirm that after the UE receives a SECURITY MODE COMMAND message, it transmits a SECURITY MODE COMPLETE message to the UTRAN using the old ciphering configuration together with the application of the new integrity protection configuration. To confirm that UE sends a SECURITY MODE FAILURE message when SS transmits an incompatible simultaneous SECURITY MODE COMMAND messages to UE. To confirm that UE send SECURITY MODE FAILURE message when SS transmits a SECURITY MODE COMMAND message that causes invalid configuration. To confirm that UE send SECURITY MODE FAILURE message when UE receives an invalid SECURITY MODE COMMAND message.

8.1.7.1.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CELL_DCH (state 6-9 or state 6-10) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE is in the RRC connected state CELL_DCH state. The SS transmits a SECURITY MODE COMMAND message in-which does not include any IEs except IE "Message Type" ciphering is requested to be activated, but the IE "Ciphering algorithm capability" is set to an unknown value. The UE shall not trigger any ciphering algorithm and it shall-respond by sending SECURITY MODE FAILURE message on the DCCH. Then SS transmits a SECURITY MODE COMMAND message without IE "Ciphering mode infocommand" and IE "Integrity protection mode info"set to "stop". Again the UE shall not trigger any ciphering algorithm and it shall respond by sending SECURITY MODE FAILURE message on the DCCH. Next, SS transmits a valid SECURITY MODE COMMAND message which includes the "Downlink activation time" IE for RB2 and "Integrity check info" IE. Following that, SS immediately transmit another valid SECURITY MODE COMMAND message to UE. Then the UE shall check the integrity check info and shall start to configure ciphering in downlink according to the first valid SECURITY MODE COMMAND message. Upon the reception of the subsequent SECURITY MODE COMMAND message, the UE shall transmit SECURITY MODE FAILURE message to SS with IE "failure cause" set to "incompatible simultaneous reconfiguration". Then UE shall transmit a SECURITY MODE COMPLETE message which contains the uplink activation time for RB2 and also "Integrity check info" IE using the new integrity protection configuration. SS records the uplink ciphering activation time for RB 2. Next, SS transmits UE CAPABILITY ENQUIRY message repeatedly on the downlink DCCH using RLC-AM mode. The UE shall respond to each downlink message with a UE CAPABILITY INFORMATION message on the uplink DCCH using RLC-AM. SS then send UE CAPABILITY INFORMATION CONFIRM message to UE. This cycle repeats itself until both the uplink and downlink ciphering activation time for RB 2 has elapsed. SS checks all uplink UE CAPABILITY ENQUIRY-INFORMATION messages are integrity-protected by UIA algorithm, and that the messages contain the correct values for "Integrity mode-check info" IE. This can be verified in SS through the reception of a correctly ciphered and integrity-protected UE CAPABILITY INFORMATION message.

Expected sequence

Step	Direction UE SS	Message	Comment
1	02 00		RRC connected state on DCH_state.
2	←	SECURITY MODE COMMAND	See message content.
3	→	SECURITY MODE FAILURE	IE "Failure Cause" shall be set to "Protocol Error" and IE "Protocol Error Information" shall be set to "ASN.1 violation or encoding error Information element value not comprehended".
4	←	SECURITY MODE COMMAND	IE "Ciphering mode info" and IE "Integrity mode info" are set to "Not Present" See message content.
5	→	SECURITY MODE FAILURE	IE "Failure Cause" shall be set to "invalid configuration".
6	+	SECURITY MODE COMMAND	See specific message contents.
7	+	SECURITY MODE COMMAND	See specific message contents.
8	\rightarrow	SECURITY MODE FAILURE	IE "Failure Cause" shall be set to "Incompatible simultaneous reconfiguration"
9	→	SECURITY MODE COMPLETE	SS verifies that this message is sent unciphered. SS records the uplink ciphering activation time for RB 2.
10	←	UE CAPABILITY ENQUIRY	SS repeats step 8,910, 11 and 40-12 until its internal uplink and downlink RLC SN have both surpassed the uplink and downlink ciphering activation time specified for RB2. This message is sent on the downlink DCCH using RLC-AM. See specific message content.
11	→	UE CAPABILITY INFORMATION	UE shall send this message on the uplink DCCH using RLC-AM. See specific message content.—SS verifies that the last UE CAPABILITY INFORMATION message is both integrity-protected and ciphered correctly.
12	←	UE CAPABILITY INFORMATION CONFIRM	
			Step 10 to 12 is repeated for at least one cycle.

Specific Message Contents

SECURITY MODE COMMAND (Step 2)

See notes below for the value of Y.

Information Element	Value/remark
RRC transaction identifier	0
Integrity check info	
 Message authentication code 	Calculated result in SS
RRC Message sequence number	0
Security Capability	
Ciphering algorithm capability	"111111111111111B
— Integrity protection algorithm capability	"11111111111111"B
Ciphering mode info	
— Ciphering mode command	Start
— Ciphering algorithm	Use one of the supported ciphering algorithms
Activation time for DPCH	Not Present
Radio bearer downlink ciphering activation time info	
RB Identity	2
RLC sequence number	Current RLC SN + Y
Integrity protection mode info	
Integrity protection mode command	Start
— Downlink integrity protection activation info	Not Present
Integrity protection algorithm	If integrity is indicated to be active on IXIT statements in
	TS 34.123-2, use one of the supported integrity
	algorithms
Integrity protection initialisation number	0000 0000 0000 0000 H (FRESH)
CN domain identityAll IEs	Supported domainNot Present

SECURITY MODE FAILURE (Step 3)

The same message found in Annex A shall be transmitted by the UE on the uplink DCCH, with the exception of the following IEs:

Information Element	Value/remark
Failure cause Failure cause Protocol error information	Protocol error
Protocol error cause	ASN.1 violation or encoding errorInformation element value not comprehended

SECURITY MODE COMMAND (Step 4)

Information Element	Value/remark
RRC transaction identifier	0
Integrity check info	
Message authentication code	Calculated result in SS
RRC Message sequence number	0
Security Capability	
Ciphering algorithm capability	
UEA0	FALSE
UEA1	TRUE
Spare	FALSE
Integrity protection algorithm capability	
UIA1	TRUE
Spare	FALSE
Ciphering mode info	Not Present
- Ciphering mode command	Stop
Integrity protection mode info	Not Present
 Integrity protection mode command 	Start
 Downlink integrity protection activation info 	Not Present
 Integrity protection algorithm 	UIA1
 Integrity protection initialisation number 	0000 0000 0000 0000H (FRESH)
CN domain identity	Supported domain

SECURITY MODE FAILURE (Step 5)

The same message found in Annex A shall be transmitted by the UE on the uplink DCCH, with the exception of the following IEs:

Information Element	Value/remark
Failure cause	
Failure cause	Invalid configuration

SECURITY MODE COMMAND (Step 6 and 7)

See notes below for the value of Y.

Information Element	Value/remark
RRC transaction identifier	0
Integrity check info	
Message authentication code	Calculated result in SS
RRC Message sequence number	0
Security Capability	
Ciphering algorithm capability	
	If ciphering is not indicated to be active on IXIT
	statements in TS 34.123-2, set this to TRUE.
UEA0	If ciphering is indicated to be active on IXIT statements
	in TS 34.123-2, set this to TRUE.
UEA1	FALSE
	TRUE
Spare	FALSE
Integrity protection algorithm capability	
UIA1	TRUE
Spare	FALSE
Ciphering mode info	
Ciphering mode command	Start/restart
Ciphering algorithm	Use one of the supported ciphering algorithms
Activation time for DPCH	Not Present
Radio bearer downlink ciphering activation time info	
RB Identity	2
RLC sequence number	Current RLC SN + Y
Integrity protection mode info	
Integrity protection mode command	Start
Downlink integrity protection activation info	Not Present
Integrity protection algorithm	If integrity is indicated to be active on IXIT statements in
	TS 34.123-2, use one of the supported integrity
	algorithmsUIA1
Integrity protection initialisation number	0000 0000 0000 0000 H (FRESH)
CN domain identity	Supported domain

Note Y=4 (Step 6), Y= 100 (Step 7)

SECURITY MODE FAILURE (Step 8)

The same message found in Annex A shall be transmitted by the UE on the uplink DCCH, with the exception of the following IEs:

Information Element	Value/remark
Failure cause	
Failure cause	Incompatible simultaneous reconfiguration

SECURITY MODE COMPLETE (Step 9)

Information Element	Value/remark
RRC transaction identifier	0
Integrity check info	
- Message Authentication code	Checked to see if present
- RRC Message sequence number	Checked to see if present
Uplink integrity protection activation info	
- RRC message sequence number list	Check to see if it the RRC SN for RB 0 to RB 4 are present
Radio bearer uplink ciphering activation info	
- RB Identity	2
- RLC sequence number	SS records this value. See step 8 in 'expected sequence'

UE CAPABILITY REQUIRY (Step 10)

The contents of UE CAPABILITY REQUIRY message in this test case is identical to the message sub-type title found in annex A.

UE CAPABILITY INFORMATION (Step 11)

The contents of UE CAPABILITY INFORMATION message in this test case is identical to the message sub-type title found in annex A.

UE CAPABILITY INFORMATION CONFIRM(Step 12)

The contents of UE CAPABILITY INFORMATION CONFIRM message in this test case is identical to the message sub-type title found in annex A.

NOTE: Y = 2 * (size of COUNTER CHECK message, after PER encoding). The unit of Y is the number of RLC-AM PDU:

8.1.7.1.5 Test requirement

After step 2 the UE shall transmit a SECURITY MODE FAILURE message to report the protocol error detected in the first SECURITY MODE COMMAND message. The UE shall be able to communicate normally with the SS, with all control data on the signalling radio bearers unciphered.

After step 4 the UE shall transmit a SECURITY MODE FAILURE message to report on the invalid configuration detected in the second SECURITY MODE COMMAND message.

After step 7, UE shall transmit SECURITY MODE FAILURE to SS to indicate an error due to incompatible simultaneous reconfiguration.

After step 8 the UE shall RLC-acknowledge the receipt of the first valid <u>SECRUITY SECURITY MODE COMMAND</u> message using unciphered mode and which includes calculated integrity check info. SS checks that the SECURITY MODE COMPLETE message is received unciphered and that the calculated "integrity check info" IE is correct.

After step 9 SS verifies that all uplink signalling messages on RB1, RB2, RB3 and RB4 are integrity protected with UIA1 algorithm.

After uplink ciphering activation time has lapsed, SS verifies that the UE CAPABILITY INFORMATION message received is integrity protected with UIA algorithm and ciphered with the algorithm indicated in the second-SECURITY MODE COMMAND (Step 46) message.

After downlink ciphering activation time has lapsed, <u>SS shall apply ciphering to all downlink messages At least one more cycle between step 10 and step 12 shall be repeated correctly after activation time on both directions has lapsed and the messages on both direction shall be ciphered and integrity protected. <u>UE CAPABILITY INFORMATION message received that is integrity protected with UIA algorithm and ciphered with the algorithm indicated in the second SECURITY MODE COMMAND (Step 4) message shall be transmitted. UE shall transmit the <u>UE CAPABILITY INFORMATION message</u>.</u></u>

8.1.7.2 Security mode command in CELL_FACH state

8.1.7.2.1 Definition



8.1.7.2.2 Conformance requirement

- 1. This procedure is used to trigger the stop or start of ciphering, or to command the restart of ciphering with the new ciphering configuration for the signalling radio bearers and any of radio bearers. It is also used to start integrity protection or modify integrity protection configuration, both for signalling radio bearers link(s) and any radio access bearer(s).
- 2. When the UE receives a SECURITY MODE COMMAND message from the UTRAN, which indicates the downlink activation time and new integrity protectionciphering mode configuration, the UE shall apply the old ciphering configuration before the stated downlink activation time. It shall start to decipher using the new ciphering configuration at the downlink activation time.
- 3. The UE shall transmit SECURITY MODE COMPLETE message using the new integrity protection configuration stated in the received SECURITY MODE COMMAND message. The SECURITY MODE COMPLETE message shall include the ciphering uplink activation time. The UE shall start to apply the new ciphering configuration on the uplink direction, after the uplink activation time has elapsed.

Reference

3GPP TS 25.331 clause 8.1.12.

8.1.7.2.3 Test purpose

To confirm that after the UE receives a SECURITY MODE COMMAND message, it transmits a SECURITY MODE COMPLETE message to the UTRAN using the old ciphering configuration together with the application of the new integrity protection configuration. To confirm that the UE applies the old ciphering configuration in the downlink prior to the activation time; and uses the new ciphering configuration on and after the activation time. To confirm that the UE starts to cipher its uplink transmissions after the uplink activation time stated in SECURITY MODE COMPLETE message is reached. To confirm that UE aborts ciphering and integrity protection configuration when it reselect to a new cell and performs cell update procedure. To confirm that UE send SECURITY MODE FAILURE message when UE receives an invalid SECURITY MODE COMMAND message.

8.1.7.2.4 Method of test

Initial Condition

System Simulator: 2 cells Cell 1 is active, with the downlink transmission power shown in column marked "T0" in Table 8.1.7.2, while cell 2 is inactive 1 cell.

UE: CELL_FACH (state 6-11) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

The UE is in the CELL_FACH state, camping onto cell 1. SS starts to broadcast BCCH on the primary CCPCH in cell 2. The UE shall find cell 2 to be more suitable for service and hence perform a cell reselection. After the completion of cell reselection, the UE shall transmits a CELL UPDATE message to the SS on the uplink CCCH of cell 2 and set IE "Cell update cause" to "Cell Reselection". After the SS receives this message, it transmits a CELL UPDATE.

Test Procedure

Table 8.1.7.2

Parameter Parame	Unit	Cell 1		Ce	II 2
		T0	T1	T0	T1
UTRA RF Channel Number		Ch. 1		Ch	. 1
CPICH RSCP	dBm	-73	-79	switched off	-73

Table 8.1.7.2 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. Columns marked "T0" denote the initial conditions, while columns marked "T1" is to be applied subsequently.

The UE is in the RRC connected state CELL FACH state camping onto cell 1. The SS transmits a SECURITY MODE COMMAND message in-which does not include any IEs except IE "Message Type" eiphering is requested to be activated, but the IE "Ciphering algorithm capability" is set to an unknown value. The UE shall not trigger any ciphering algorithm and it shall respond by sending SECURITY MODE FAILURE message on the DCCH. Next, SS transmits a valid SECURITY MODE COMMAND message which includes IE "Downlink activation time" for RB2 and IE "Integrity check info". The UE shall check the integrity check info. It shall start to configure ciphering in downlink. Then SS configures its downlink transmission power settings according to columns "T1" in Table 8.1.7.2. UE shall abort ongoing integrity and ciphering reconfiguration. UE shall re select to cell 2 and transmit CELL UPDATE message to SS with IE "cell update cause" set to "cell reselection". Then SS transmit a CELL UPDATE CONFIRM message to UE. UE shall not responds to this message. SS then transmits a SECURITY MODE COMMAND message to UE. The UE shall check the integrity check info. It shall start to configure ciphering in downlink and transmit a SECURITY MODE COMPLETE message, which contains the uplink activation time for RB2 using the new integrity protection configuration.. This message shall contain the IE "Integrity check info". SS records the uplink ciphering activation time for RB 2. Next, SS transmits UE CAPABILITY ENQUIRY message repeatedly on the downlink DCCH using RLC-AM mode. The UE shall respond to each downlink message with a UE CAPABILITY INFORMATION message on the uplink DCCH using RLC-AM. SS confirms that the uplink UE CAPABILITY INFORMATION messages are not ciphered. SS also-checks all uplink messages are integrity-protected by UIA1 algorithm, and that the messages contain the correct values for "Integrity mode-check info" IE. This cycle repeats itself until both the uplink and downlink ciphering activation time for RB 2 have elapsed. After both the uplink and downlink ciphering activation time for RB 2 have passed, the UE shall be able to communicate with the SS using the new ciphering configurations. This can be verified in SS through the reception of a correctly ciphered and integrity-protected UE CAPABILITY INFORMATION message.

Expected sequence

Step	Direction UE SS	Message	Comment
1	<u> </u>		UE is initially in CELL_FACH state.
2	+	SECURITY MODE COMMAND	See specific message content
3	` →	SECURITY MODE FAILURE	IE "Failure Cause" shall be se to "Protocol Error Information" shall be set to "ASN.1 violation or encoding error Information element value not comprehended".
4	- ←	SECURITY MODE COMMANDVoid	See specific message contents.
5		Void	SS configures the downlink power transmission setting according to column "T1" in Table 8.1.7.2.
6	\rightarrow	CELL UPDATE Void	UE re-selects to cell 2 and sends this message.
7	+	CELL UPDATE CONFIRM Void	
8	\	SECURITY MODE COMMAND	See specific message contents.
9	→	SECURITY MODE COMPLETE	SS verifies that this message is sent unciphered. SS record the uplink ciphering activation time for RB 2.
10	÷	UE CAPABILITY INFORMATION	SS repeats step 10,11 and 12 until its internal uplink and downlink RLC SN have both surpassed the uplink and downlink ciphering activation time specified for RB2. This message is sent on the downlink DCCH using RLC- AM. SS repeats step 10, 11 and 12 until its internal uplink and downlink RLC sequence numbers have both surpasse the uplink and downlink ciphering activation times specified for RB2. This message is sent on the downlink DCCH using RLC- AM. See specific message content. UE shall send this message
11	7	CE CAPADILITY INPORTION	on the uplink DCCH using RLC-AM. SS verifies that the last UE CAPABILITY INFORMATION message is both integrity-protected and ciphered correctly. UE shall send this message on the uplink DCCH using RLC-AM. See specific message contents verifies that the last COUNTER CHECK RESPONSE message is both integrity-protected and
12	←	UE CAPABILITY INFORMATION CONFIRM	ciphered correctly. SS verifies that the last COUNTER CHECK RESPONSE message is both integrity-protected and ciphered correctly.

Specific Message Contents

SECURITY MODE COMMAND (Step 2)

See notes below for the value of Y.

Information Element	Value/remark
RRC transaction identifier	0
Integrity check info	
 Message authentication code 	Calculated result in SS
RRC Message sequence number	0
Security Capability	
Ciphering algorithm capability	"11111111111111"B "11111111111111"B
 Integrity protection algorithm capability 	
Ciphering mode info	
Ciphering mode command	Start
— Ciphering algorithm	Use one of the supported ciphering algorithms
— Activation time for DPCH	Not Present
 Radio bearer downlink ciphering activation time info 	
— RB Identity	2
RLC sequence number	Current RLC SN + Y
Integrity protection mode info	
Integrity protection mode command	Start
Downlink integrity protection activation info	Not Present
Integrity protection algorithm	If integrity is indicated to be active on IXIT statements in
	TS 34.123-2, use one of the supported integrity
	algorithms
Integrity protection initialisation number	0000 0000 0000 0000 H (FRESH)
CN domain identityAll IEs	Supported domainNot Present

SECURITY MODE COMMAND (Step 4 and 8)

See notes below for the value of Y.

Information Element	Value/remark
RRC transaction identifier	0
Integrity check info	
Message authentication code	Calculated result in SS
RRC Message sequence number	0
Security Capability	
Ciphering algorithm capability	
	If ciphering is not indicated to be active on IXIT
	statements in TS 34.123-2, set this to TRUE.
UEA0	If ciphering is indicated to be active on IXIT statements
	in TS 34.123-2, set this to TRUE.
UEA1	FALSE
	TRUE
Spare	<u>FALSE</u>
Integrity protection algorithm capability	
UIA1	TRUE
Spare	FALSE
Ciphering mode info	
Ciphering mode command	Start/restart
Ciphering algorithm	Use one of the supported ciphering algorithms
Activation time for DPCH	Not Present
Radio bearer downlink ciphering activation time info	
RB Identity	2
RLC sequence number	Current RLC SN + ¥4
Integrity protection mode info	
Integrity protection mode command	Start
Downlink integrity protection activation info	Not Present
Integrity protection algorithm	If integrity is indicated to be active on IXIT statements in
	TS 34.123-2, use one of the supported integrity
	algorithmsUIA1
Integrity protection initialisation number	0000 0000 0000 0000 H (FRESH)
CN domain identity	Supported domain

CELL UPDATE

Use the same message sub type found in Annex A, with the following exceptions:

Information Element	Value/remark
U-RNTI	
- SRNC Identity	Check to see if set to '0000 0000 0001'
- S-RNTI	Check to see if set to '0000 0000 0000 0000 0001'.
Cell Update Cause	Check to see if set to 'Cell Reselection'

CELL UPDATE CONFIRM (Step 4 and 18)

Use the same message sub type found in Annex A, with the following exceptions:

Information Element	Value/remark
RRC State Indicator	CELL_FACH

SECURITY MODE COMPLETE (Step 9)

Information Element	Value/remark
RRC transaction identifier	0
Integrity check info	
 Message Authentication code 	Checked to see if present
 RRC Message sequence number 	Checked to see if present
Uplink integrity protection activation info	·
- RRC message sequence number list	Check to see if it the RRC SN for RB 0 to RB 4 are present
Radio bearer uplink ciphering activation info	procent
- RB Identity	2
- RLC sequence number	SS records this value. See step 8 in 'expected sequence'

UE CAPABILITY REQUIRY (Step 10)

The contents of UE CAPABILITY REQUIRY message in this test case is identical to the message sub-type title found in Annex A.

UE CAPABILITY INFORMATION (Step 11)

The contents of UE CAPABILITY INFORMATION message in this test case is identical to the message sub-type title found in Annex A.

UE CAPABILITY INFORMATION CONFIRM(Step 12)

The contents of UE CAPABILITY INFORMATION CONFIRM message in this test case is identical to the message sub-type title found in Annex A.

NOTE: Y = 2 * (size of COUNTER CHECK message, after PER encoding). The unit of Y is the number of RLC-AM PDU.

8.1.7.2.5 Test requirement

After step 2 the UE shall transmit a SECURITY MODE FAILURE message to report the protocol error detected in the first SECURITY MODE COMMAND message. The UE shall be able to communicate normally with the SS, with all control data on the signalling radio bearers unciphered.

After step 5, UE shall reselect to cell 2 and transmit CELL UPDATE message to SS with IE "cell update cause" set to "cell reselection".

After step 8 the UE shall RLC-acknowledge the receipt of the SECRUITY MODE COMMAND message using unciphered mode and which includes calculated integrity check info. SS checks that the SECURITY MODE COMPLETE message is received unciphered and that the calculated MAC-I values in "integrity check info" IE is correct.

After step 9 SS verifies that all uplink signalling messages on RB1, RB2, RB3 and RB4 are integrity protected with UIA1 algorithm.

After uplink ciphering activation time has lapsed, SS verifies that the UE CAPABILITY INFORMATION message received is integrity protected with UIA algorithm and ciphered with the algorithm indicated in the SECURITY MODE COMMAND (Step 8) message.

After downlink ciphering activation time has lapsed, SS shall apply ciphering to all downlink messages. At least one more cycle between step 10 and step 12 shall be repeated correctly after activation time on both directions has lapsed and the messages on both directions shall be ciphered and integrity protected.

After step 11 SS verifies that the last UE CAPABILITY INFORMATION message received is integrity protected with UIA1 algorithm and ciphered with the algorithm indicated in the second SECURITY MODE COMMAND (Step 4) message.

8.1.8 Counter check

8.1.8.1 Counter check in CELL DCH state

8.1.8.1.1 Definition

8.1.8.1.2 Conformance requirement

When the UE receives a COUNTER CHECK message that includes matched COUNT-C MSB values, the UE shall transmit a COUNTER CHECK RESPONSE message on the uplink DCCH and omitting "RB COUNT-C information" IE in this message.

When the UE receives a COUNTER CHECK message that includes any mismatched COUNT-C MSB values, the UE shall transmit a COUNTER CHECK RESPONSE message on the uplink DCCH and specifies the current COUNT-C information of the RAB(s) with mismatched values.

When the UE receives an invalid COUNTER CHECK message, the UE shall perform procedure specific error handling.

Reference

3GPP TS 25.331 clause 8.1.15.

8.1.8.1.3 Test purpose

To confirm that the UE transmits a COUNTER CHECK RESPONSE message after it receives a COUNTER CHECK message from the SS. To confirm that the UE responds to the reception of an invalid downlink COUNTER CHECK message by transmitting a RRC STATUS message on the uplink DCCH, stating the correct error cause value in message.

8.1.8.1.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: CELL_DCH state (state 6-10) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE is brought to the CELL_DCH state after a successful outgoing call attempt. The SS transmits an invalid erroneous-COUNTER CHECK message. The content of this message is-lacks of all mandatory-IEs except IE "Message Type". The UE shall detect a protocol error and send RRC STATUS message to report this event. Next, the SS transmits a COUNTER CHECK message that includes the current COUNT-C MSB information in each radio access bearer. The UE shall react by sending a COUNTER CHECK RESPONSE message on the uplink DCCH, which does not include "RB COUNT-C information" IE. The SS transmits a COUNTER CHECK message which includes the current COUNT-C MSB information reversed all the bits in each radio bearer. The UE shall send a COUNTER CHECK RESPONSE message on the uplink DCCH, specifying the current COUNT-C information for each radio access bearer established. The SS transmits a COUNTER CHECK message which includes a different radio bearer. The UE shall send a COUNTER CHECK RESPONSE message on the uplink DCCH, specifying the current COUNT-C information for each radio access bearer established.

Expected sequence

Step	Direction		Message	Comment
	UE	SS	-	
1				The UE is brought to CELL_DCH state after an outgoing call has been established successfully.
2	+		COUNTER CHECK	See specific message contents for this message
3	_)	RRC STATUS	UE shall detect a protocol error and then transmit this message.
4	•	(-	COUNTER CHECK	See specific message content.
5	_)	COUNTER CHECK RESPONSE	The message shall not include the IE "RB COUNT-C information".
6	•	(-	COUNTER CHECK	See specific message content.
7	-)	COUNTER CHECK RESPONSE	The message shall include the IE "RB COUNT-C information".
8	•	(COUNTER CHECK	See specific message content.
9	→		COUNTER CHECK RESPONSE	The message shall include the IE "RB COUNT-C information".

Specific Message Contents

COUNTER CHECK (Step 2)

Information Element	Value/remark	
All IEsRRC transaction identifier	Not Present	

RRC STATUS (Step 3)

Use the same message type found in Annex A, with the following exception.

Value/remark
Checked to see if set to "ASN.1 violation or encoding error"

COUNTER CHECK (Step 4)

Information Element	Value/remark
Message Type	
RRC transaction identifier	0
Integrity check info	Calculated value
RB COUNT-C MSB information	
- RB identity	20
- COUNT-C MSB uplink	Current COUNT-C MSB for RB#20 in uplink
- COUNT-C MSB downlink	Current COUNT-C MSB for RB#20 in downlink

COUNTER CHECK RESPONSE (Step 5)

	Information Element	Value/remark	
	Message Type		
	RRC transaction identifier	0	
	Integrity check info	Not checked	
	RB COUNT-C information	Check to if this IE is absent	
•			

COUNTER CHECK (Step 6)

Information Element	Value/remark
Message Type	
RRC transaction identifier	0
Integrity check info	Calculated value
RB COUNT-C MSB information	
- RB identity	Check to see if set to 20
- COUNT-C MSB uplink	Toggle all bits of the current COUNT-C MSB in uplink
	for RB#20
- COUNT-C MSB downlink	Toggle all bits of the current COUNT-C MSB in downlink
	for RB#20

COUNTER CHECK RESPONSE (Step 7)

Information Element	Value/remark
Message Type	
RRC transaction identifier	0
Integrity check info	Not checked
RB COUNT-C information	
- RB identity	Check to see if set to 20
- COUNT-C uplink	Check to see if set to Current COUNT-C for RB#20 in
	uplink
- COUNT-C downlink	Check to see if set to COUNT-C for RB#20 in downlink

COUNTER CHECK (Step 8)

Information Element	Value/remark
Message Type	
RRC transaction identifier	0
Integrity check info	Calculated value
RB COUNT-C MSB information	
- RB identity	Check to see if set to 25
- COUNT-C MSB uplink	Arbitrary COUNT-C MSB in uplink for RB#25
- COUNT-C MSB downlink	Arbitrary COUNT-C MSB in downlink for RB#25

COUNTER CHECK RESPONSE (Step 9)

Information Element	Value/remark
Message Type	
RRC transaction identifier	0
Integrity check info	Not checked
RB COUNT-C information	
- RB identity	Check to see if set to 20
- COUNT-C uplink	Check to see if set to Current COUNT-C for RB#20 in uplink
- COUNT-C downlink	Check to see if set to COUNT-C for RB#20 in downlink
- RB identity	Check to see if set to 25
- COUNT-C uplink	Check to see if COUNT-C MSB is set to COUNT-C
'	MSG-MSB in uplink for RB#25 in step 8 and LSB is fill
- COUNT-C downlink	with '0'
	Check to see if COUNT-C MSB is set to COUNT-C
	MSG-MSB in downlink for RB#25 in step 8 and LSB is
	fill with '0'

8.1.8.1.5 Test requirement

After step 2, the UE shall transmit a RRC STATUS message on the uplink DCCH. The protocol error cause shall be set to "ASN.1 violation or encoding error".

After step 4 the UE shall transmit a COUNTER CHECK RESPONSE message which does not includes the IE "RB COUNT-C information" to indicates that a matched comparison result is obtained.

After step 6, the UE shall transmit a COUNTER CHECK RESPONSE message which includes the IE "RB COUNT-C information" to report that a mismatch in COUNT-C value is detected in RB#20.

After step 8, the UE shall transmit a COUNTER CHECK RESPONSE message which includes the IE "RB COUNT-C information" to report that RB#25 is not found in variable ESTABLISHED_RABS and RB#20 is not found in IE "RB COUNT-C MSB information".

8.1.8.2 Counter check in CELL_FACH state

8.1.8.2.1 Definition



8.1.8.2.2 Conformance requirement

When the UE receives a COUNTER CHECK message that includes matched COUNT-C MSB values, the UE shall transmit a COUNTER CHECK RESPONSE message on the uplink DCCH and omitting "RB COUNT-C information" IE in this message.

When the UE receives a COUNTER CHECK message that includes any mismatched COUNT-C MSB values, the UE shall transmit a COUNTER CHECK RESPONSE message on the uplink DCCH and specifies the current COUNT-C information of the RAB(s) with mismatched values.

When the UE receives an invalid COUNTER CHECK message, the UE shall perform procedure specific error handling.

Reference

3GPP TS 25.331 clause 8.1.15.

8.1.8.2.3 Test purpose

To confirm that the UE transmits a COUNTER CHECK RESPONSE message after it receives a COUNTER CHECK message from the SS. To confirm that the UE responds to the reception of an invalid downlink COUNTER CHECK message by transmitting a RRC STATUS message on the uplink DCCH, stating the correct error cause value in message.

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8.1.8.2.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CELL_FACH state (state 6-11) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE is brought to the CELL_FACH state after a successful outgoing call attempt. The SS transmits an invalid erroneous-COUNTER CHECK message. The content of this message is lacks of all mandatory-IEs. The UE shall detect a protocol error and send RRC STATUS message to report this event. Next, the SS transmits a COUNTER CHECK message that includes the current COUNT-C MSB information in each radio access bearer. The UE shall react by sending a COUNTER CHECK RESPONSE message on the uplink DCCH, which does not include "RB COUNT-C information" IE. The SS transmits a COUNTER CHECK message, which includes the current COUNT-C MSB information for each radio bearer but with all the bits reversed. The UE shall send a COUNTER CHECK RESPONSE message on the uplink DCCH, specifying the current COUNT-C information for each radio access bearer established. The SS transmits a COUNTER CHECK message which includes a different radio bearer. The UE shall send a COUNTER CHECK RESPONSE message on the uplink DCCH, specifying the current COUNT-C information for each radio access bearer established.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is brought to CELL_FACH state after an outgoing call has been established successfully.
2	\	•	COUNTER CHECK	See specific message contents for this message
3	→	•	RRC STATUS	UE shall detect a protocol error and then transmit this message.
4	+	•	COUNTER CHECK	See specific message content.
5	→	•	COUNTER CHECK RESPONSE	The message shall not include the IE "RB COUNT-C information".
6	+		COUNTER CHECK	See specific message content.
7		•	COUNTER CHECK RESPONSE	The message shall include the IE "RB COUNT-C information".
8	+	•	COUNTER CHECK	See specific message content.
9	→		COUNTER CHECK RESPONSE	The message shall include the IE "RB COUNT-C information".

Specific Message Contents

COUNTER CHECK (Step 2)

Information Element	Value/remark
All IEsRRC transaction identifier	Not Present

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RRC STATUS (Step 3)

Information Element	Value/remark
Message Type	
Protocol Error Information	
- Protocol Error Cause	Checked to see if set to "ASN.1 violation or encoding"

COUNTER CHECK (Step 4)

	Information Element	Value/remark
	Message Type	
•	RRC transaction identifier	0
	Integrity check info	Calculated value
	RB COUNT-C MSB information	
	- RB identity	20
	- COUNT-C MSB uplink	Current COUNT-C MSB for RB#20 in uplink
	- COUNT-C MSB downlink	Current COUNT-C MSB for RB#20 in downlink

COUNTER CHECK RESPONSE (Step 5)

Information Element	Value/remark
Message Type	
RRC transaction identifier	0
Integrity check info	Not checked
RB COUNT-C information	Check to if this IE is absent

COUNTER CHECK (Step 6)

Information Element	Value/remark
Message Type	
RRC transaction identifier	0
Integrity check info	Calculated value
RB COUNT-C MSB information	
- RB identity	20
- COUNT-C MSB uplink	Toggle all bits of the current COUNT-C MSB in uplink
	for RB#20
- COUNT-C MSB downlink	Toggle all bits of the current COUNT-C MSB in downlink
	for RB#20

COUNTER CHECK RESPONSE (Step 7)

Information Element	Value/remark
Message Type	
RRC transaction identifier	0
Integrity check info	Not checked
RB COUNT-C information	
- RB identity	Check to see if set to 20
- COUNT-C uplink	Check to see if set to Current COUNT-C for RB#20 in
·	uplink
- COUNT-C downlink	Check to see if set to COUNT-C for RB#20 in downlink

COUNTER CHECK (Step 8)

Information Element	Value/remark
Message Type	
RRC transaction identifier	0
Integrity check info	Calculated value
RB COUNT-C MSB information	
- RB identity	Check to see if set to 25
- COUNT-C MSB uplink	Arbitrary COUNT-C MSB in uplink for RB#25
- COUNT-C MSB downlink	Arbitrary COUNT-C MSB in downlink for RB#25

COUNTER CHECK RESPONSE (Step 9)

Information Element	Value/remark
RRC transaction identifier	0
Integrity check info	Not checked
RB COUNT-C information	
- RB identity	Check to see if set to 20
- COUNT-C uplink	Check to see if set to Current COUNT-C for RB#20 in uplink
- COUNT-C downlink	Check to see if set to COUNT-C for RB#20 in downlink
- RB identity	Check to see if set to 25
- COUNT-C uplink	Check to see if COUNT-C MSB is set to COUNT-C
	MSG MSB in uplink for RB#25 in step 8 and LSB is fill
- COUNT-C downlink	with '0'
	Check to see if COUNT-C MSB is set to COUNT-C
	MSG-MSB in downlink for RB#25 in step 8 and LSB is
	fill with '0'

8.1.8.2.5 Test requirement

After step 2, the UE shall transmit a RRC STATUS message on the uplink DCCH. The protocol error cause shall be set to "ASN.1 violation or encoding error".

After step 4 the UE shall transmit a COUNTER CHECK RESPONSE message which does not includes the IE "RB COUNT-C information" to indicates that a matched comparison result is obtained.

After step 6, the UE shall transmit a COUNTER CHECK RESPONSE message which includes the IE "RB COUNT-C information" to report that a mismatch in COUNT-C value is detected in RB#20.

After step 8, the UE shall transmit a COUNTER CHECK RESPONSE message which includes the IE "RB COUNT-C information" to report that RB#25 is not found in variable ESTABLISHED_RABS and RB#20 is not found in IE "RB COUNT-C MSB information".

8.1.9 Signalling Connection Release Request

8.1.9.1 Definition

8.1.9.2 Conformance requirement

The UE shall initiate the signalling connection release procedure when the higher layer entities in the UE request to release one or more signalling session (one example of such case is location update failure). In this case, the UE shall transmit a SIGNALLING CONNECTION RELEASE REQUEST message, which includes the CN domain identity of the connection flow to be released.

Reference

3GPP TS 25.331 clause 8.1.14.

8.1.9.3 Test purpose

To confirm that the UE transmits a SIGNALLING CONNECTION RELEASE REQUEST message after it fails to receive a response for the LOCATION UPDATING REQUEST message.

8.1.9.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: Switched off (state 1) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is turned on and it shall find a suitable cell to camp on. The UE shall initiate a location updating procedure. The UE shall establish an RRC connection and transmits a LOCATION UPDATING REQUEST message using the INITIAL DIRECT TRANSFER message. The SS does not respond to this message, and the UE shall send a SIGNALLING CONNECTION RELEASE REQUEST message which includes the CN domain identity with the same value as that in the INITIAL DIRECT TRANSFER message.

Expected sequence

Step	Direction	Message	Comment
	UE SS		
1			The UE is powered on.
2	\rightarrow	RRC CONNECTION REQUEST	UE shall initiate the location
			updating procedure.
3	+	RRC CONNECTION SETUP	
4			The UE configures the layer 2
			and layer 1.
5	\rightarrow	RRC CONNECTION SETUP COMPLETE	
6	\rightarrow	INITIAL DIRECT TRANSFER (LOCATION	LOCATION UPDATE
		UPDATING REQUEST)	REQUEST is embedded in this
			message transmission.
7			The SS does not respond and
			waits until the timer for location
			update procedure expires.
8	\rightarrow	SIGNALLING CONNECTION RELEASE	

Specific Message Content

SIGNALLING CONNECTION RELEASE REQUEST (Step 8)

Information Element	Value/remark
CN domain identity	Check to see if this value is the as same as in the uplink
	INITIAL DIRECT TRANSFER message.

8.1.9.5 Test requirement

After step 1 the UE shall initiate the LOCATION UPDATING procedure and establish an RRC connection.

After step 7 the UE shall transmit a SIGNALLING CONNECTION RELEASE REQUEST message which includes the same CN domain identity as that found in the INITIAL DIRECT TRANSFER message.

8.2 Radio Bearer control procedure

8.2.1 Radio Bearer Establishment

8.2.1.1 Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH: Success (Data integrity protection algorithm is not applied)

8.2.1.1.1 Definition

8.2.1.1.2 Conformance requirement

The UE shall correctly set up a <u>new</u> radio bearer according to a RADIO BEARER SETUP message and <u>responds with a RADIO BEARER SETUP COMPLETE</u> message on the DCCH using AM RLC communicate with the UTRAN for its implementation.

(This is the case where data integrity protection algorithm is not applied.)

Reference

3GPP TS 25.331 clause 8.2.1.

8.2.1.1.3 Test purpose

To confirm that the UE establishes a new radio bearer according to a RADIO BEARER SETUP message-received from the SS.

8.2.1.1.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: CS-DCCH_DCH (state 6-5) or PS_DCCH_DCH (state 6-7) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE is in the CELL_DCH state, after the test operator is prompted to make an out-going call. Before step 1, only signalling radio bearers have been established. The SS transmits a RADIO BEARER SETUP message to the UE after it sets up L1 including the start of tx/rx. This message requests the establishment of RABs for carrying the traffic of the speech callradio access bearer. After the UE receives this message, it configures them and establishes a radio access

bearer. Finally the UE transmits a RADIO BEARER SETUP COMPLETE message using AM RLC. Then the UE and the SS enters the communicating state.

Expected sequence

Step	Direction	Direction Message	Comment
	UE SS		
1	÷	RADIO BEARER SETUP	This message do not contain IE "integrity check info" and "integrity protection mode info"
2	→	RADIO BEARER SETUP COMPLETE	This message do not contain "integrity check info" and "Uplink integrity activation info
3			To confirm the communication.

Specific Message Contents

For RADIO BEARER SETUP in step 1, using the message sub-type indicated as "Speech in CS" or "Non-speech in CS" found in annex A.None.

8.2.1.1.5 Test requirement

After step 2-1 the UE shall communicate with the SS on the radio bearer for its implementation transmit a RADIO BEARER SETUP COMPLETE message.

8.2.1.2 Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH: Success (Effected Data integrity protection algorithm) Void

8.2.1.2.1 Definition

8.2.1.2.2 Conformance requirement

The UE shall correctly set up a radio bearer according to a RADIO BEARER SETUP message, which applies data integrity function, and then communicate with the UTRAN for its implementation.

Reference

3GPP TS 25.331 clauses 8.2.1 and 8.5.11.

8.2.1.2.3 Test purpose

To confirm that the UE establishes a new radio bearer according to a RADIO BEARER SETUP message which contains IE "Integrity check info" and IE "Integrity protection mode info" received from the SS.

8.2.1.2.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CS DCCH_DCH (state 6-5) as specified in clause 7.4 of TS 34.108 and data integrity algorithm is not applied.

Test Procedure

The UE is in the CELL_DCH state, after the test operator is prompted to make an out-going data call. Before step 1, only signalling radio bearers have been established. The SS transmits a RADIO BEARER SETUP message which is including IE "integrity check info" and "integrity protection mode info" to the UE after it sets up L1 including the start of tx/rx. This message requests the establishment of RABs for carrying the traffic of the call. After the UE receives this message, it configures them and establishes a radio bearer. Finally the UE transmits a RADIO BEARER SETUP

COMPLETE message which is including IE "integrity check info" using AM RLC. Then the UE and the SS enters the communicating state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
4	+	_	RADIO BEARER SETUP	This message contain IE "integrity check info" and "integrity protection mode info"
2	-	}	RADIO BEARER SETUP COMPLETE	This message contain "integrity check info"
3				To confirm the communication.

Specific Message Contents

For RADIO BEARER SETUP in step 1, using the message sub-types indicated as "Speech in CS" or "Non-speech in CS" as found in annex A.

RADIO BEARER SETUP

The contents of RADIO BEARER SETUP message in this test case is identical with the following exceptions:

Information Element	Value/remark
Integrity check info	
— - Message authentication code	Bit string (32) MAC-I See TS 33.102
- RRC Message sequence number	0
Integrity protection mode info	Present
- Integrity protection mode command	"Start"
- Downlink integrity protection activation info	Not present (It is needed only when the IE "Integrity
	protection mode command" has the value "modify".)
- integrity protection algorithm	UIA1
- integrity protection initialisation number	Bit string (32) FRESH See TS 33.102

RADIO BEARER SETUP COMPLETE

	Information Element	Value/remark
	Integrity check info	
	- Message authentication code	Not checked(MAC-I See TS 33.102)
	- RRC Message sequence number	Not checked
	Uplink Integrity protection activation info	Not checked
١	Hyper Frame Number	Not checked

8.2.1.2.5 Test requirement

After step 2 the UE shall communicate with the SS on the radio bearer for its implementation. This can be verified by the correct reproduction of the u plane data transmitted and received between the test operator and SS.

8.2.1.3 Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH: Failure (Unsupported configuration)

8.2.1.3.1 Definition

8.2.1.3.2 Conformance requirement

The UE shall keep its old <u>current</u> configuration when the UE receives a RADIO BEARER SETUP message which includes unsupported configuration parameters and transmit a RADIO BEARER SETUP FAILURE message on the DCCH using AM RLC which is set to "configuration unsupported" in IE "failure cause".

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Reference

3GPP TS 25.331 clause 8.2.1.

8.2.1.3.3 Test purpose

To confirm that the UE keeps its configuration and transmits a RADIO BEARER SETUP FAILURE message in case of receiving a RADIO BEARER SETUP message which includes parameters of its unsupported configuration.

8.2.1.3.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CS-DCCH_DCH (state 6-5) or PS_DCCH_DCH (state 6-7) as specified in clause 7.4 of TS 34.108, depending on the domain(s) supported by the UE.

Test Procedure

The UE is in the CELL_DCH state. The SS transmits a RADIO BEARER SETUP message as in which the frequency cannot be supported by the UE. After the UE receives this message, it transmits a RADIO BEARER SETUP FAILURE message on the DCCH using AM RLC which is set to "configuration unsupported" in IE "failure cause".

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	+	-	RADIO BEARER SETUP	Including the unsupported configuration for the UE.
2	T	>	RADIO BEARER SETUP FAILURE	The UE does not change the configuration.

Specific Message Contents

RADIO BEARER SETUP

The contents of RADIO BEARER SETUP message in this test case is indicated as "Speech in CS" or "Non-speech in CS" as found in Annex A or the RADIO BEARER SETUP message as found in clause 9 of TS 34.108 with the following exceptions:

Information Element	Value/remark
Frequency info	
- UARFCN uplink_(Nu)	16383 0-
- UARFCN downlink (Nd)	Not Present.950

RADIO BEARER SETUP FAILURE

The contents of RADIO BEARER SETUP FAILURE message in this test case is the same as the RADIO BEARER SETUP FAILURE message as found in Annex A, with the following exceptions:

Information Element	Value/remark
Message Type	
Failure cause	Configuration unsupported
Other information element	Not checked

8.2.1.3.5 Test requirement

After step 1 the UE shall keep its configuration and transmit a RADIO BEARER SETUP FAILURE message on the DCCH using AM RLC which is set to "configuration unsupported" in IE "failure cause".

8.2.1.4 Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH: Failure (Physical channel Failure and successful reversion to old configuration)

8.2.1.4.1 Definition

8.2.1.4.2 Conformance requirement

The UE shall revert to the old configuration when the UE fails to configure the new radio bearer by the before T312 expiry expires and transmit a RADIO BEARER SETUP FAILURE message on the DCCH using AM RLC which is set to "physical channel failure" in IE "failure cause".

Reference

3GPP TS 25.331 clause 8.2.1.

8.2.1.4.3 Test purpose

To confirm that the UE reverts to the old configuration and transmits a RADIO BEARER SETUP FAILURE message on the DCCH using AM RLC, if the UE fails to reconfigure the radio bearer according to the RADIO BEARER RECONFIGURATION message before timer T312 expires when the UE fails to configure the new radio bearer following detection of physical channel failure after T312 expiry.

8.2.1.4.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: CS-DCCH_DCH (state 6-5) or PS_DCCH_DCH (state 6-7) as specified in clause 7.4 of TS 34.108, depending on the domain(s) supported by the UE.

Test Procedure

The UE is in the CELL_DCH state. The SS transmits a RADIO BEARER SETUP message to the UE and SS keep its old dedicated channel configuration does not configure the new radio bearer. Then after T312 expiry, the UE reverts to the old configuration and transmits a RADIO BEARER SETUP FAILURE message on the DCCH using AM RLC which is set to "physical channel failure" in IE "failure cause".

Expected sequence

Step	Direction		Message	Comment
-	UE	SS	7	
1	(RADIO BEARER SETUP	The SS keeps its old L1 configuration after transmitting this messagedees not configure the new radio bearer stated in the message.
2				The UE does not configure the new radio access bearer and reverts to the old configuration.
3	→		RADIO BEARER SETUP FAILURE	UE shall transmit this message using the old RRC signalling bearer operating in RLC-AM modeconfiguration.

Specific Message Contents

RADIO BEARER SETUP

The contents of RADIO BEARER SETUP message in this test case is indicated as "Speech in CS" or "Non-speech in CS" as found in annex A or the RADIO BEARER SETUP message as found in clause 9 of TS 34.108.

RADIO BEARER SETUP FAILURE

The contents of RADIO BEARER SETUP FAILURE message in this test case is the same as the RADIO BEARER SETUP FAILURE message as found in Annex A, with the following exceptions:

Information Element	Value/remark
Message Type	
Failure cause	Physical channel failure
Other information element	Not checked

8.2.1.4.5 Test requirement

After step 2 the UE shall revert to the old configuration and transmit a RADIO BEARER SETUP FAILURE message on the DCCH using AM RLC which is set to "physical channel failure" in IE "failure cause".

8.2.1.5 Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH: Failure (Physical channel Failure and reversion failure)

8.2.1.5.1 Definition

8.2.1.5.2 Conformance requirement

The UE shall perform a cell update procedure when the UE fails to revert to the old configuration after the detection of physical channel failure in the radio bearer establishment procedure. After the UE complete cell update procedure, the UE transmits a RADIO BEARER SETUP FAILURE message on the DCCH using AM RLC which is set to "physical channel failure" in IE "failure cause".

Reference

3GPP TS 25.331 clause 8.2.1.

8.2.1.5.3 Test purpose

To confirm that UE transmits RADIO BEARER SETUP FAILURE message after it completes a cell update procedure <u>due to a physical channel failure in the radio bearer establishment procedure</u>.

8.2.1.5.4 Method of test

Initial Condition

System Simulator: 1_cell.

UE: CS-DCCH_DCH (state 6-5) or PS_DCCH_DCH (state 6-7) as specified in clause 7.4 of TS 34.108, in cell No.1depending on the domain(s) supported by the UE.

Test Procedure

The UE is in the CELL_DCH state in cell 1. SS transmits a RADIO BEARER SETUP message to the UE. After transmitting the RADIO BEARER SETUP message, the SS shall not configure its dedicated physical channel L1-in accordance to with the settings in the message and release the old configuration after the RLC acknowledgement. The UE recognizes that it cannot configure-synchronise on the new radio bearerphysical channel and wants to revert to the old configuration, but the UE cannot revert to the old configuration because the SS shall not use the old configuration. The UE transmits a CELL UPDATE message on uplink CCCH with IE "Cell update cause" set to "radio link failure". The SS shall transmit a CELL UPDATE CONFIRM message on downlink CCCH after receiving a CELL UPDATE message. The UE transmits PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC and subsequently transmits a RADIO BEARER SETUP FAILURE message on the DCCH using AM RLC, setting the value of IE "failure cause" to "physical channel failure".

Expected sequence

Step	Direction	Message	Comment
	UE SS		
1	←	RADIO BEARER SETUP	
2			The SS does not configure new
			radio access bearerthe dedicated
			physical channel in accordance
			with the RADIO BEARER SETUP
			message and shall not use release
			the old-configuration.
3	\rightarrow	CELL UPDATE	The value "radio link failure" shall
			be set in IE "Cell update cause".
4	←	CELL UPDATE CONFIRM	This message includes IE
			"Physical channel information
			elements".
5			The SS configures the dedicated
			physical channel according to the
			IE "Physical channel information
			elements" included in the CELL
			UPDATE CONFIRM message.
6	\rightarrow	PHYSICAL CHANNEL	
		RECONFIGURATION COMPLETE	
7	\rightarrow	RADIO BEARER SETUP FAILURE	The IE "failure cause" shall be set
			to "physical channel failure"

Specific Message Contents

RADIO BEARER SETUP (Step 1)

The contents of RADIO BEARER SETUP message in this test case is indicated as "Speech in CS" or "Non-speech in CS" as found in annex-Annex A or the RADIO BEARER SETUP message as found in clause 9 of TS 34.108.

CELL UPDATE (Step 3)

The contents of CELL UPDATE message is identical as "Contents of CELL UPDATE message" as found in Annex \underline{A} with the following exceptions:

Information Element	Value/remark
U-RNTI	
- SRNC Identity	Check to see if set to '0000 0000 0001'
- S-RNTI	Check to see if set to '0000 0000 0000 0000 0001'
Cell Update Cause	"radio link failure"

CELL UPDATE CONFIRM (Step 4)

The contents of CELL UPDATE CONFIRM message is identical as "CELL UPDATE CONFIRM message" as found in Annex \underline{A} with the following exceptions:

Information Element	Value/remark
	1 3.10.07.1 3.113.11
U-RNTI	Same as CELL UPDATE message in step 3
RRC State indicator	CELL_DCH
UplinkDPCH Info	Same as RRC CONNECTION SETUP message used to
	move to initial condition
Downlink information for each radio links	Same as RRC CONNECTION SETUP message used to
	move to initial condition
Frequency info	
UARFCN uplink(Nu)	Reference to TS34.108 clause 5.1 Test frequencies
	Reference to TS34.108 clause 5.1 Test frequencies
Maximum allowed UL TX power	33dBm
CHOICE Mode	FDD
Downlink information for each radio links	
- Primary CPICH info	
	100
- PDSCH with SHO DCH info	Not Present
- PDSCH code mapping	Not Present
- Downlink DPCH info for each RL	
- Primary CPICH usage for channel estimation	Primary CPICH may be used
	0 chips
O I ORIOUT (N (B)
- Secondary CPICH info	Not Present
- DL channelisation code	
	2
	Reference to TS34.108 clause 6.10 Parameter Set
Code number	SF-1(SF is reference to TS34.108 clause 6.10 Parameter
	Set)
	No change
- TPC combination index	0
- SSDT Cell Identity	-a
- Closed loop timing adjustment mode	Not Present
- SCCPCH information for FACH	Not Present

RADIO BEARER SETUP FAILURE (Step 7)

The contents of RADIO BEARER SETUP FAILURE message in this test case is the same as the RADIO BEARER SETUP FAILURE message as found in Annex A, with the following exceptions:

Information Element	Value/remark
Message Type	"RADIO BEARER SETUP FAILURE"
Failure cause	"physical channel failure"
Other information element	Not checked

8.2.1.5.5 Test requirement

After step 2 the UE shall transmit CELL UPDATE message on the CCCH with IE "Cell update cause" set to "radio link failure".

After step 5 the UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.

After step 6 the UE shall transmit RADIO BEARER SETUP FAILURE message on the DCCH using AM RLC, setting the IE "failure cause" to "physical channel failure".

8.2.1.6 Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH: Failure (Incompatible simultaneous reconfiguration)

8.2.1.6.1 Definition

8.2.1.6.2 Conformance requirement

If the UE receives a RADIO BEARER SETUP message whilst reconfiguring due to a radio bearer message other than RADIO BEARER SETUP, then it shall keep its configuration as if the RADIO BEARER SETUP message had not been received.during a reconfiguring procedure due to a radio bearer message other than RADIO BEARER SETUP message, it shall transmit a RADIO BEARER SETUP FAILURE message on the DCCH using AM RLC

Reference

3GPP TS 25.331 clause 8.2.1, clause 8.6.3.11.

8.2.1.6.3 Test purpose

To confirm that if the UE receives a RADIO BEARER SETUP message whilst during a reconfiguring procedure due to a radio bearer message other than RADIO BEARER SETUP, it shall keep its configuration as if the RADIO BEARER SETUP message had not been received and complete the reconfiguration procedure according to the previously received message.

8.2.1.6.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CS-DCCH+DTCH_DCH (state 6-9) or PS_DCCH+DTCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE is in the-CELL_DCH state. The SS transmits a RADIO BEARER RECONFIGURATION message to the UE. The SS transmits a RADIO BEARER SETUP message before the "activation time" indicated in the RADIO BEARER RECONFIGURATION message expires. When the UE receives the RADIO BEARER SETUP message, the UE shall keep the-its current configuration as if it had not received the RADIO BEARER SETUP message and shall transmit a RADIO BEARER SETUP FAILURE message on the DCCH using AM RLC with IE "failure cause" set to "incompatible simultaneous reconfiguration". After the SS receives acknowledges the RADIO BEARER SETUP FAILURE message, the UE reconfigures the new physical channel parameters upon the specified activation time and transmits a RADIO BEARER RECONFIGURATION COMPLETE message on DCCH using AM RLC.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	+		RADIO BEARER RECONFIGURATION	Including IE " <u>Activation</u> <u>TimeUplink DPCH info</u> "
2	+		RADIO BEARER SETUP	The SS send this message before the expiry of activation time specified in the message of step 1.
3	→		RADIO BEARER SETUP FAILURE	The UE does not change the configuration according to the RADIO BEARER SETUP messagebecause of receiving the RADIO BEARER SETUP
4	→		RADIO BEARER RECONFIGURATION COMPLETE	This message is on DCCH using AM RLC.

Specific Message Contents

RADIO BEARER RECONFIGURATION (Step 1)

For RADIO BEARER RECONFIGURATION <u>message</u> in step 1, use the message sub-type indicated as "Speech in CS" <u>or "Non speech in CS" or "Packet to CELL DCH from CELL DCH in PS" as found in Annex Afound in Annex A</u>, with the exception of the following Information Elements:

RADIO BEARER RECONFIGURATION (Step 1)

Information Element	Value/remark
Activation Time	[256+Current CFN-[current CFN mod 8 + 8]]MOD 256
Uplink DPCH Info	
- Scrambling code number	<u>1</u>

RADIO BEARER SETUP (Step 2)

The contents of RADIO BEARER SETUP message in this test case is indicated as "Speech in CS" or "Non-speech in CS" as found in Annex A or the RADIO BEARER SETUP message as found in clause 9 of TS 34.108 with the following exceptions:

Information Element	Value/remark
Activation Time	Not Present
Uplink DPCH Info	
- Scrambling code number	<u>2</u>

RADIO BEARER SETUP FAILURE

The contents of RADIO BEARER SETUP FAILURE message in this test case is the same as the RADIO BEARER SETUP FAILURE message as found in Annex A, with the following exceptions:

Information Element	Value/remark
Message Type	
Failure case	Incompatible simultaneous reconfiguration
Other information element	Not checked

8.2.1.6.5 Test requirement

After step 1 The SS transmits a RADIO BEARER SETUP message before the expiry of the activation time specified in the message of step 1.

After step 2 the UE shall keep its configuration as if the UE had not received the RADIO BEARER SETUP message and shall transmit a RADIO BEARER SETUP FAILURE message on the DCCH using AM RLC with IE "failure cause" set to "Incompatible simultaneous reconfiguration".

After step 3 the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message on the DCCH using AM RLC.

After step 4 the UE communicates with the SS on the DCCH and DTCH using the new physical channel parameters reconfigured as a result of the RADIO BEARER RECONFIGURATION message.

8.2.1.7 Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH: Failure (Invalid message reception and Invalid configuration)

8.2.1.7.1 Definition

8.2.1.7.2 Conformance requirement

The UE shall keep its old configuration when the UE receives an invalid RADIO BEARER SETUP message, which does not includes any the IEs except IE "Message Type" undefined value in the mandatory IE "UTRAN cycle length coefficient" and criticality is defined as "Reject". Then it transmits a RADIO BEARER SETUP FAILURE message which is set to "protocol error" in IE "failure cause" and is set to "ASN.1 violation or encoding error Information element value not comprehended" in IE "Protocol error cause".

The UE shall keep existing configuration before upon reception of a RADIO BEARER SETUP message which includes some IEs set to give an invalid value configuration, and then the UE shall transmit a RADIO BEARER SETUP FAILURE message including IE "failure cause" set to "invalid configuration".

Reference

3GPP TS 25.331 clause 8.2.1

8.2.1.7.3 Test purpose

To confirm that the UE transmits a RADIO BEARER SETUP FAILURE message on the DCCH using AM RLC if it receives an invalid RADIO BEARER SETUP message which does not include any IEs except IE "Message Type" indicates the undefined value in the mandatory IE "UTRAN DRX cycle length coefficient" whose criticality is defined as "Reject".

To confirm that the UE transmits a RADIO BEARER SETUP FAILURE message on the DCCH using AM RLC if it receives a RADIO BEARER SETUP message including some IEs set to give an invalid value configuration.

8.2.1.7.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: CS-DCCH_DCH (state 6-5) or PS-DCCH_DCH (state 6-7) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE is in the-CELL_DCH state. The SS transmits an invalid RADIO BEARER SETUP message to the UE which does not includes any IEs except IE "Message Type" indicates a undefined value in the mandatory IE "UTRAN DRX eycle length coefficient" whose criticality is defined as "Reject". The UE keeps the old configuration and transmits a RADIO BEARER SETUP FAILURE message on the DCCH using AM RLC which is set to "protocol error" in IE "failure cause", and is set to "ASN.1 violation or encoding error Information element value not comprehended" in IE "Protocol error cause". The UE keeps initial current configuration when after SS transmits a RADIO BEARER SETUP message including some IEs set to give an invalid valueconfiguration. Then UE transmits a RADIO BEARER SETUP FAILURE message on the DCCH using AM RLC, setting the value "-invalid configuration" to IE "failure cause".

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	+		RADIO BEARER SETUP	See specific message content.
2	2 >		RADIO BEARER SETUP FAILURE	The UE does not change the its configuration.
3	+		RADIO BEARER SETUP	This message includes IE set to invalid value.
4	≥		RADIO BEARER SETUP FAILURE	The UE does not change the its configuration.
5	→		RADIO BEARER SETUP FAILURE	The IE "failure cause" shall be set to "invalid configuration"

Specific Message Contents

RADIO BEARER SETUP (Step 1)

The contents of RADIO BEARER SETUP message in this test case is identical as "Speech in CS" or "Non speech in CS" as found in annex A with the following exceptions:

Information Element	Value/remark
UTRAN DRX cycle length coefficientAll IEs	Out of range value. Not Present

RADIO BEARER SETUP FAILURE (Step 2)

Information Element	Value/remark
Message Type	
Failure cause	
- Failure cause	Protocol error
- Protocol error information	
- Protocol error cause	ASN.1 violation or encoding errorInformation element
	value not comprehended
Other information element	Not checked

RADIO BEARER SETUP (Step 3)

The contents of RADIO BEARER SETUP message in this test case is identical as "Speech in CS" or "Non-speech in CS" as found in Annex A or the RADIO BEARER SETUP message as found in clause 9 of TS 34.108 with the following exceptions:

Information Element	Value/remark
- Default DPCH Offset Value	<u>512</u>
- DPCH frame offset	<u>1024</u>
Added or Reconfigured UL TrCH information	
- Uplink transport channel type	DCH
- UL Transport channel identity	1
——- TFS	
— - Dynamic Transport format information	(This IE is repeated for TFI number)
	Reference to TS34.108 clause 6.10 Parameter Set
- CHOICE Logical Channel list	Explicit List
	2
- LogicalChannel	Reference to TS34.108 clause 6.10 Parameter Set

RADIO BEARER SETUP FAILURE (Step 5)

The contents of RADIO BEARER SETUP FAILURE message in this test case is the same as the RADIO BEARER SETUP FAILURE message as found in Annex A, with the following exceptions:

Information Element	Value/remark
Message Type	
Failure cause	Invalid configuration
Other information element	Not checked

8.2.1.7.5 Test requirement

After step 1 the UE shall keep its old configuration and transmit a RADIO BEARER SETUP FAILURE message on the DCCH using AM RLC which is set to "protocol error" in IE "failure cause" and set to "ASN.1 violation or enoding error Information element value not comprehended" in IE "Protocol error cause".

After step 3 the UE shall keep its old configuration

After step 4-3 the UE shall keep its old configuration and transmit a RADIO BEARER SETUP FAILURE message on the DCCH using AM RLC, setting the value "invalid configuration" to IE "failure cause".

8.2.1.8 Radio Bearer Establishment for transition from CELL_DCH to CELL_FACH: Success

8.2.1.8.1 Definition

8.2.1.8.2 Conformance requirement

The UE shall correctly set up a radio bearer according to a RADIO BEARER SETUP message and <u>responds with a RADIO BEARER SETUP COMPLETE</u> message on the <u>DCCH using AM RLC</u>communicate with the UTRAN for its implementation.

Reference

3GPP TS 25.331 clause 8.2.1.

8.2.1.8.3 Test purpose

To confirm that the UE establishes a new radio bearer according to a RADIO BEARER SETUP message-received from the SS.

8.2.1.8.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: PS-DCCH_DCH (state 6-7) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is in the CELL_DCH state, after the test operator is asked to initiate a packet-switched data call. The SS transmits a RADIO BEARER SETUP message to the UE after it sets up L1. After the UE receives this message, it transits from CELL_DCH to CELL_FACH stateconfigures them and establishes a radio bearer. Finally the UE transmits a RADIO BEARER SETUP COMPLETE message using AM RLC. Then the UE and the SS enters the communicating state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	1 ←		RADIO BEARER SETUP	SS requests test operator to make an outgoing packet-switched data call.
2	<u>→</u>		RADIO BEARER SETUP COMPLETE	The UE selects PRACH and S- CCPCH using indicated in SIB5 or SIB6 after entering CELL FACH state.
3			RADIO BEARER SETUP COMPLETE	
4	4			To confirm the communication between UE and SS, based on the exchange of packets.

Specific Message Contents

For RADIO BEARER SETUP message in step 1, use the message sub-type indicated as "Packet to CELL_FACH from CELL_DCH in PS" found in annex-Annex A.

8.2.1.8.5 Test requirement

After step 1 the UE shall transmit a RADIO BEARER SETUP COMPLETE message. After step 3 the UE shall communicate with the SS on the radio bearer for its implementation.

8.2.1.9 Radio Bearer Establishment for transition from CELL_DCH to CELL_FACH: Success (Cell re-selection)

8.2.1.9.1 Definition

8.2.1.9.2 Conformance requirement

The UE shall initiate the cell update procedure when the UE performs cell reselection during a radio bearer establishment procedure. After the UE completes cell update procedure, the UE shall continue to perform the radio bearer establishment procedure and correctly establish the radio bearer.

Reference

3GPP TS 25.331 clause 8.2.1.

8.2.1.9.3 Test purpose

To confirm that the UE transmits RADIO BEARER SETUP COMPLETE message in cell 2 after it completes a cell update procedure.

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8.2.1.9.4 Method of test

Initial Condition

System Simulator: 2-1 cells- Cell 1 is active, Cell 2 is inactive.

UE: PS-DCCH_DCH (state 6-7) as specified in clause 7.4 of TS 34.108.

Test Procedure

Table 8.2.1.9

Parameter	Unit	Cell 1		Cell 2	
		T0	T1	T0	T1
UTRA RF Channel Number		Ch. 1		Ch. 1	
CPICH RSCP	dBm	-73	-79	switch ed off	-73

Table 8.2.1.9 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. SS switches the power settings from columns "T0" to "T1", whenever the description in multi-cell condition specifies the transmission power settings for cell 1 and cell 2.

The UE is in the CELL_DCH state in cell 1. The SS configures its downlink transmission power settings according to columns "T1" in Table 8.2.1.9 and broadcast BCCH on the primary CCPCH in cell 2. The SS transmits a RADIO BEARER SETUP message which includes IE"Primary CPICH info" and no dedicated physical channel information, to request the UE to transit from CELL_DCH to CELL_FACH. As the UE cannot detect the specified cell as the transition occurs from CELL_DCH to CELL_FACH, and then the UE shall initiate the cell update procedure in cell 2. The UE transmits a CELL UPDATE message on uplink CCCH with IE "Cell update cause" set to "cell reselection". The SS shall transmit a CELL UPDATE CONFIRM message on downlink CCCH after receiving CELL UPDATE message. The UE transmits UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH using AM RLC and subsequently transmita RADIO BEARER SETUP COMPLETE message on the DCCH using AM RLC.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1			<u>Void</u>	The SS applies the downlink
				transmission power settings,
				according to the values in
				columns "T1" of Table 8.2.1.9.
2			BCCHVoid	The SS starts to broadcast
				BCCH on the primary CCPCH in
				cell 2.
3	•	÷	RADIO BEARER SETUP	Assigned the transition from
				CELL_DCH to CELL_FACH
4	-	>	CELL UPDATE	The value "cell reselection" set
				in IE "Cell update cause".
5	•	÷	CELL UPDATE CONFIRM	This message include IE "new
				U-RNTI" and IE "new C-RNTI"".
				In the CELL_FACH state
6	_	>	UTRAN MOBILITY INFORMATION	
			CONFIRMVoid	
7	_	>	RADIO BEARER SETUP COMPLETE	

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Specific Message Contents

RADIO BEARER SETUP (Step 3)

The contents of RADIO BEARER SETUP message in this test case is identical as "Packet to CELL_FACH from CELL_DCH in PS" as found in Annex A with the following exceptions:

Information Element	Value/remark
Downlink information for each radio links	
- Primary CPICH info	
- Primary scrambling code	150

CELL UPDATE (Step 4)

The contents of CELL UPDATE message is identical as "Contents of CELL UPDATE message" as found in Annex \underline{A} with the following exceptions:

Information Element	Value/remark
U-RNTI	
- SRNC Identity	Assigned previously in cell 1
- S-RNTI	Assigned previously in cell 1
Cell Update Cause	"cell reselection"

CELL UPDATE CONFIRM (Step 5)

The contents of CELL UPDATE CONFIRM message is identical as "CELL UPDATE CONFIRM message" as found in Annex <u>A.</u> with the following exceptions:

Information Element	Value/remark
U-RNTI	Same as CELL UPDATE message in step 4
New U-RNTI	
- SRNC Identity	' 0000 0000 0000 0001'
- S-RNTI	Different from previous S-RNTI
New C-RNTI	Different from previous C-RNTI

8.2.1.9.5 Test requirement

After step 3 the UE shall transmit <u>a_CELL UPDATE</u> message on the CCCH with IE "Cell update cause" set to "cell reselection".

After step 5 the UE shall transmit UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH using AM RLC.

After step 6 the UE shall transmit a RADIO BEARER SETUP COMPLETE message on the DCCH using AM RLC.

After step 7 the UE communicate with the SS on the DCCH and DTCH, using the common physical channel.

8.2.1.10 Radio Bearer Establishment for transition from CELL_FACH to CELL_DCH: Success

8.2.1.10.1 Definition

8.2.1.10.2 Conformance requirement

The UE shall correctly set up a radio bearer according to a RADIO BEARER SETUP message and <u>responds with a RADIO BEARER SETUP COMPLETE</u> message on the DCCH using <u>AM RLC</u> eommunicate with the <u>UTRAN for its implementation</u>.

Release 4103 3GPP TS 34.123-1 V4.0.0 (2001-09)

Reference

3GPP TS 25.331 clause 8.2.1.

8.2.1.10.3 Test purpose

To confirm that the UE establishes a new radio bearer according to a RADIO BEARER SETUP message-received from the SS.

8.2.1.10.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: PS-DCCH FACH (state 6-8) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is in the CELL_FACH state, after SS prompts the test operator to initiate a packet-switched data call. The SS transmits a RADIO BEARER SETUP message to the UE after it sets up L1 including the start of tx/rx. After the UE receives this message, it configures them and establishes the required radio bearers. Finally the UE transmits a RADIO BEARER SETUP COMPLETE message using AM RLC. Then the UE and the SS enters the communicating state.

Expected sequence

Step	Direction		Message	Comment
	UE SS			
1	+		RADIO BEARER SETUP	
2	→		RADIO BEARER SETUP	
			COMPLETE	
3				To confirm the communication

Specific Message Contents

RADIO BEARER SETUP

The contents of RADIO BEARER SETUP message in this test case is identical the message sub-type indicated by "Packet to CELL_DCH from CELL_FACH in PS" in <a href="maintex-Anne

8.2.1.10.5 Test requirement

After step 1 the UE shall transmit a RADIO BEARER SETUP COMPLETE message on the DCCH using AM RLC. After step 2 the UE shall communicate with the SS using the radio bearer indicated in RADIO BEARER SETUP message. Particularly, SS shall be able to receive packet data using a terminal equipment (TE) attached to the UE.

8.2.1.11 Radio Bearer Establishment for transition from CELL_FACH to CELL_DCH: Failure (Unsupported configuration)

8.2.1.11.1 Definition

8.2.1.11.2 Conformance requirement

The UE shall keep its old configuration when the UE receives a RADIO BEARER SETUP message which includes an unsupported configuration and then transmit a RADIO BEARER SETUP FAILURE message on the DCCH using AM RLC, which sets value "configuration unsupported" in IE "failure cause".

Release 4104 3GPP TS 34.123-1 V4.0.0 (2001-09)

Reference

3GPP TS 25.331 clause 8.2.1.

8.2.1.11.3 Test purpose

To confirm that the UE keeps its configuration and transmits a RADIO BEARER SETUP FAILURE message in case of it receiving a RADIO BEARER SETUP message, which includes parameters of an unsupported configuration.

8.2.1.11.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CSPS-DCCH_FACH (state 6-68) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is in the CELL_FACH state. The SS transmits a RADIO BEARER SETUP message with a stated frequency that cannot be supported by the UE. After the UE receives this message, it shall transmit a RADIO BEARER SETUP FAILURE message on the DCCH using AM RLC setting value "configuration unsupported" in IE "failure cause".

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	+		RADIO BEARER SETUP	This message includes an unsupported configuration for the UE.
2	→		RADIO BEARER SETUP FAILURE	The UE shall transmit this message using RLC-AM mode and do not change the current configuration.

Specific Message Contents

RADIO BEARER SETUP

The contents of RADIO BEARER SETUP message in this test case is indicated as "<u>Packet to CELL_DCH from CELL_FACH in PS Speech in CS"</u> or "Non speech in CS" as found in Annex A with the following exceptions:

Information Element	Value/remark
Frequency info	
- UARFCN uplink_(Nu)	0
- UARFCN downlink (Nd)	Not Present950

RADIO BEARER SETUP FAILURE

The contents of RADIO BEARER SETUP FAILURE message in this test case is the same as the RADIO BEARER SETUP FAILURE message as found in Annex A, with the following exceptions:

Information Element	Value/remark
Message Type	
Failure cause	Configuration unsupported
Other information element	Not checked

8.2.1.11.5 Test requirement

After step 1 the UE shall keep its configuration and transmit a RADIO BEARER SETUP FAILURE message on the DCCH using AM RLC which is set to "configuration unsupported" in IE "failure cause".

8.2.1.12 Radio Bearer Establishment for transition from CELL_FACH to CELL_DCH: Failure (Physical channel Failure and successful reversion to old configuration)

8.2.1.12.1 Definition

8.2.1.12.2 Conformance requirement

The UE shall attempt to revert to the old configuration when the UE fails to configure the new radio bearer by the before T312 expiryexpires and detects the same serving cell only. It shall transmit a RADIO BEARER SETUP FAILURE message on the DCCH using AM RLC containing value "physical channel failure" in IE "failure cause".

Reference

3GPP TS 25.331 clause 8.2.1.

8.2.1.12.3 Test purpose

To confirm that the UE reverts to the old configuration and transmits a RADIO BEARER SETUP FAILURE message when the UE fails to configure the new radio bearer when after it detects physical channel failure, followed by the T312 expiry.

8.2.1.12.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: PS-DCCH_FACH (state 6-8) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is in the CELL_FACH state. The SS transmits a RADIO BEARER SETUP message to the UE and keeps its old physical channel configuration does not configure the new radio bearer. After T312 expiry, the UE shall perform cell reselection procedure and detect the same serving cell only. Then the UE shall revert to the old configuration and transmit a RADIO BEARER SETUP FAILURE message on the DCCH using AM RLC. The content of the message shall indicate "physical channel failure" in IE "failure cause".

Expected sequence

Step	Direction		Message	Comment
	UE SS			
1	+		RADIO BEARER SETUP	The SS keep its old configuration. The SS does not configure a new radio bearer.
2	2	<u> </u>	RADIO BEARER SETUP FAILURE	The UE does not configure a new radio bearer but and reverts to the old configuration.
3	\rightarrow		RADIO BEARER SETUP FAILURE	-

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Specific Message Contents

RADIO BEARER SETUP

The contents of RADIO BEARER SETUP message in this test case is identical the message sub-type indicated by "Packet to CELL_DCH from CELL_FACH in PS" in annex-Annex A.

RADIO BEARER SETUP FAILURE

The contents of RADIO BEARER SETUP FAILURE message in this test case is the same as the RADIO BEARER SETUP FAILURE message as found in Annex A, with the following exceptions:

Information Element	Value/remark
Message Type	
Failure cause	Physical channel failure
Other information element	Not checked

8.2.1.12.5 Test requirement

After step 2-1 the UE shall revert to the old configuration and transmit a RADIO BEARER SETUP FAILURE message on the DCCH using AM RLC which is set to "physical channel failure" in IE "failure cause".

8.2.1.13 Radio Bearer Establishment for transition from CELL_FACH to CELL_DCH: Failure (Physical channel Failure and reversion failure)

8.2.1.13.1 Definition

8.2.1.13.2 Conformance requirement

The UE shall perform a cell update procedure when the UE selects another cell after the detection of physical channel failure in the radio bearer establishment procedure. After the UE completes cell update procedure, the UE transmits <u>a</u> RADIO BEARER SETUP FAILURE message on the DCCH using AM RLC which <u>is set to "physical channel failure" value to in IE "failure cause" to "physical channel failure".</u>

Reference

3GPP TS 25.331 clause 8.2.1.

8.2.1.13.3 Test purpose

To confirm that the UE transmit <u>a RADIO BEARER SETUP FAILURE</u> message after it completes a cell update <u>for the physical channel failure in the radio bearer establishment procedure</u>.

8.2.1.13.4 Method of test

Initial Condition

System Simulator: 2 cells - Cell 1 and 2 is are active, Cell 2 is inactive.

UE: PS-DCCH_FACH_(state 6-8) as specified in clause 7.4 of TS 34.108 in cell 1.

Test Procedure

Table 8.2.1.13

Parameter	Unit	Cell 1		Cell 2	
		T0	T1	T0	T1
UTRA RF Channel Number		Ch. 1		Ch. 1	
CPICH RSCPEc	dBm	- 73 <u>60</u>	- 79 <u>75</u>	switch ed off- 75	- 73 <u>60</u>

Table 8.2.1.13 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. SS switches the power settings <u>from between columns "T0" to and "T1"</u>, whenever the description in multi-cell condition specifies reverse of the transmission power settings for cell 1 and cell 2.

The UE is in the-CELL_FACH state in cell 1. The SS transmits a RADIO BEARER SETUP message to the UE. After transmitting the RADIO BEARER SETUP message, the SS shall not configure its DL dedicated physical channel in accordance with the setting in the message and release its current configurationconfigure L1 in accordance to the settings in the message. At the same time, the SS configures its downlink transmission power settings according to columns "T1" in Table 8.2.1.13-and begins to broadcast the BCCH on the primary CCPCH in a cell 2. The UE recognize that it cannot synchronize with the SS on configure the new radio bearer-and wants to revert to the old configuration. The UE performs cell re-selection and transmits a CELL UPDATE message on uplink CCCH with IE "Cell update cause" which is set to "cell reselection". The SS shall transmit a CELL UPDATE CONFIRM message on downlink CCCH after receiving a CELL UPDATE message. The UE transmits a UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH using AM RLC and subsequently transmits a RADIO BEARER SETUP FAILURE message on the DCCH using AM RLC, setting the value "-physical channel failure" to IE "failure cause".

Expected sequence

Step	Direction	Message	Comment
	UE SS		
1	←	RADIO BEARER SETUP	
2			The SS does not configure the new radio bearer in accordance with the settings in the message and applies the downlink transmission power settings, according to the values in columns "T1" of Table 8.2.1.13.
3	+	BCCH <u>Void</u>	The SS starts to transmit the BCCH on the primary CCPCH in cell 2.
4			The UE select the cell 2.
5	\rightarrow	CELL UPDATE	The value "cell reselection" shall be set in IE "Cell update cause".
6	+	CELL UPDATE CONFIRM	This message include IE "new U-RNTI" and IE "new C-RNTI"".
7	→	UTRAN MOBILITY INFORMATION CONFIRM	
8	→	RADIO BEARER SETUP FAILURE	The IE "failure cause" shall be set to "physical channel failure"

Specific Message Contents

RADIO BEARER SETUP (Step 1)

The contents of RADIO BEARER SETUP message in this test case is identical to the message sub-type "Packet to CELL_DCH from CELL_FACH in PS" found in <a href="maintenance.com/annex-Annex-

CELL UPDATE (Step 5)

The contents of CELL UPDATE message is identical as "Contents of CELL UPDATE message" as found in Annex \underline{A} with the following exceptions:

Information Element	Value/remark
U-RNTI	
- SRNC Identity	Assigned previously in cell 1
- S-RNTI	Assigned previously in cell 1
Cell Update Cause	"cell reselection"

CELL UPDATE CONFIRM (Step 76)

The contents of CELL UPDATE CONFIRM message is identical as "CELL UPDATE CONFIRM" message" as found in Annex A with the following exceptions:

Information Element	Value/remark	
U-RNTI	Same as CELL UPDATE message in step 5	
New U-RNTI		
- SRNC Identity	'0000 0000 0000 0001'	
- S-RNTI	Different from previous S-RNTI	
New C-RNTI	Different from previous C-RNTI	

RADIO BEARER SETUP FAILURE (Step 8)

The contents of RADIO BEARER SETUP FAILURE message in this test case is the same as the RADIO BEARER SETUP FAILURE message as found in Annex A, with the following exceptions:

Information Element	Value/remark		
Message Type	"RADIO BEARER RECONFIGURATION FAILURE"		
Failure cause	"physical channel failure"		
Other information element	Not checked		

8.2.1.13.5 Test requirement

- After step 4 the UE shall transmit <u>a CELL UPDATE</u> message on the CCCH with IE "Cell update cause" set to "cell reselection"
- After step 6 the UE shall transmit <u>a</u> UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH using AM RLC.
- After step 7 the UE shall transmit <u>a RADIO BEARER SETUP FAILURE</u> message on the DCCH using AM RLC, setting the IE "failure cause" to "physical channel failure".

8.2.1.14 Radio Bearer Establishment for transition from CELL_FACH to CELL_DCH: Failure (Incompatible simultaneous reconfiguration)

8.2.1.14.1 Definition

8.2.1.14.2 Conformance requirement

If the UE receives a RADIO BEARER SETUP message during a reconfiguring procedure due to a radio bearer message other than RADIO BEARER SETUP message, it shall transmit a RADIO BEARER SETUP FAILURE message on the DCCH using AM RLC.

If the UE receives a RADIO BEARER SETUP message whilst reconfiguring due to a radio bearer message other than RADIO BEARER SETUP, it shall keep its configuration as if the RADIO BEARER SETUP message had not been received.

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Reference

3GPP TS 25.331 clause 8.2.1, clause 8.6.3.11.

8.2.1.14.3 Test purpose

To confirm that if the UE receives a RADIO BEARER SETUP message whilst-during a reconfiguring procedure due to a radio bearer message other than RADIO BEARER SETUP, it shall keep its configuration as if the RADIO BEARER SETUP message had not been received and complete the reconfiguration procedure according to the previously received message.

8.2.1.14.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: PS-DCCH+DTCH_FACH (state 6-11) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is in the-CELL_FACH state. The SS transmits a RADIO BEARER RECONFIGURATION message to the UE. The SS transmits a RADIO BEARER SETUP message before the "activation time" indicated in the RADIO BEARER RECONFIGURATION message expires. When the UE receives the RADIO BEARER SETUP message, the UE shall keep the-its current configuration as if it had not received the RADIO BEARER SETUP message and shall transmit a RADIO BEARER SETUP FAILURE message on the DCCH using AM RLC with IE "failure cause" set to "incompatible simultaneous reconfiguration". After the SS receives acknowledges the RADIO BEARER SETUP FAILURE message, the UE reconfigures the new physical channel parameters upon the specified activation time and transmits a RADIO BEARER RECONFIGURATION COMPLETE message on DCCH using AM RLC.

Expected sequence

Step	Direction	Message	Comment
	UE SS		
1	+	RADIO BEARER RECONFIGURATION	Including IE " <u>Activation Time</u> Uplink DPCH info"
2	+	RADIO BEARER SETUP	The SS send this message before the expiry of activation time specified in the message of step 1.
3	÷	RADIO BEAER SETUP FAILURE	The UE does not change the configuration because of receiving the RADIO BEARER SETUP message, and transmit this message on its uplink DCCH using the same RLC-AM mode radio bearer before step 1.
4	→	RADIO BEARER RECONFIGURATION COMPLETE	This message is on DCCH using AM RLC.

Specific Message Contents

RADIO BEARER RECONFIGURATION (Step 1)

The contents of RADIO BEARER RECONFIGURATION message in this test case are identical as "Packet to CELL_DCH from CELL_FACH in PS" as found in Annex A with the following exceptions:

Information Element	Value/remark
Activation Time	Current CFN-[current CFN mod 8 + 8]
Uplink DPCH Info	
- Scrambling code number	<u>1</u>

RADIO BEARER SETUP (for Step 2)

For this message, use the message sub-type entitled "Packet to CELL_DCH from CELL_FACH in PS" in the default message content. Information element(s) to be changed are listed below:

Information Element	Value/remark
Activation Time	Not present
Uplink DPCH Info	
- Scrambling code number	2

RADIO BEARER SETUP FAILURE

The contents of RADIO BEARER SETUP FAILURE message in this test case is the same as the RADIO BEARER SETUP FAILURE message as found in Annex A, with the following exceptions:

Information Element	Value/remark
Message Type	
Failure cause	Incompatible simultaneous reconfiguration
Other information element	Not checked

8.2.1.14.5 Test requirement

After step 1 The SS transmits a RADIO BEARER SETUP message before the expiry of the activation time specified in the message of step 1.

After step 2 the UE shall keep its configuration as if the UE had not received the RADIO BEARER SETUP message and shall-transmit a RADIO BEARER SETUP FAILURE message on the DCCH using AM RLC with IE "failure cause" set to "Incompatible simultaneous reconfiguration".

After step 3 the UE shall configure the new configuration on the activation time and transmit a RADIO BEARER RECONFIGURATION COMPLETE message on the DCCH using AM RLC.

After step 4 the UE communicates with the SS on the DCCH and DTCH using the new physical channel parameters reconfigured as a result of the RADIO BEARER RECONFIGURATION message.

8.2.1.15 Radio Bearer Establishment for transition from CELL_FACH to CELL_DCH: Failure (Invalid message reception and Invalid configuration)

8.2.1.15.1 Definition

8.2.1.15.2 Conformance requirement

The UE shall keep its old configuration when the UE receives an invalid RADIO BEARER SETUP message, which does not includes undefined value in the mandatory IE "UTRAN DRX cycle length coefficient" having criticality defined as "Reject" any IEs except IE "Message Type". It shall transmit a RADIO BEARER SETUP FAILURE message which set value "protocol error" in IE "failure cause" and also value "ASN.1 violation or encoding error Information element value not comprehended" in IE "Protocol error cause". The UE shall keep existing the old configuration before upon reception of a RADIO BEARER SETUP message when the RADIO BEARER SETUP message, which includes some IEs set to give an invalid value configuration, and then the UE shall transmit a RADIO BEARER SETUP FAILURE including IE "failure cause" set to "invalid configuration".

Reference

3GPP TS 25.331 clause 8.2.1.

8.2.1.15.3 Test purpose

To confirm that the UE transmits a RADIO BEARER SETUP FAILURE message on the DCCH using AM RLC if it receives an invalid RADIO BEARER SETUP message, with an undefined value in the mandatory IE "UTRAN DRX"

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eycle length coefficient" and having criticality defined as "Reject" which does not include any IEs except IE "Message Type".

To confirm that the UE transmits a RADIO BEARER SETUP FAILURE message on the DCCH using AM RLC if it receives a RADIO BEARER SETUP message including some IEs set to give an invalid value configuration.

8.2.1.15.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: PS-DCCH_FACH (state 6-8) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is in CELL_FACH state. The SS transmits an invalid RADIO BEARER SETUP message to the UE which <u>does not</u> includes an undefined value in the mandatory IE "UTRAN DRX cycle length coefficient" with criticality defined as "Reject" all IEs except IE "Message Type". The UE keeps the old configuration and transmits a RADIO BEARER SETUP FAILURE message on the DCCH using AM RLC. This message shall specify "protocol error" in IE "failure cause" and also set the value "ASN.1 violation or encoding error Information element value not comprehended" in IE "Protocol error cause". The UE keeps initial current configuration when after SS transmits RADIO BEARER SETUP message including some IEs set to give an invalid value configuration. Then UE transmits a RADIO BEARER SETUP FAILURE message on the DCCH using AM RLC, setting the value "invalid configuration" to IE "failure cause".

Expected sequence

Step	Direction	Message	Comment
	UE SS		
1	+	RADIO BEARER SETUP	See specific message content.
2	→	RADIO BEARER SETUP FAILURE	The UE does not change the configuration.
3	+	RADIO BEARER SETUP	This message includes IE set to give an invalid value conifguration.
4	<u> </u>	RADIO BEARER SETUP FAILURE	The UE does not change the configuration.
5	†	RADIO BEARER SETUP FAILURE	The IE "failure cause" shall be set to "invalid configuration

Specific Message Contents

RADIO BEARER SETUP (Step 1)

The contents of RADIO BEARER SETUP message in this test case is identical as "Packet to CELL_DCH from CELL_FACH in PS" as found in Annex with the following exceptions:

Information Element	Value/remark
UTRAN DRX cycle length coefficientAll IEs	Out of range value Not Present

RADIO BEARER SETUP FAILURE (Step 2)

The contents of RADIO BEARER SETUP FAILURE message in this test case is the same as the RADIO BEARER SETUP FAILURE message as found in Annex A, with the following exceptions:

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Information Element	Value/remark
Message Type	
Failure cause	
- Failure cause	Protocol error
- Protocol error information	
- Protocol error cause	ASN.1 violation or encoding errorInformation element
	value not comprehended
Other information element	Not checked

RADIO BEARER SETUP (Step 3)

The contents of RADIO BEARER SETUP message in this test case is identical as "Packet to CELL_DCH from CELL_FACH in PS" as found in Annex <u>A</u> with the following exceptions:

Information Element	Value/remark
- Default DPCH Offset Value	512
- DPCH frame offset	1024
	1024
Added or Reconfigured UL TrCH information	DOLL
Uplink transport channel type	DCH
- UL Transport channel identity	4
	
 - Dynamic Transport format information 	(This IE is repeated for TFI number)
	Reference to TS34.108 clause 6.10 Parameter Set
- CHOICE Logical Channel list	Explicit List
- RB identity	2
	Reference to TS34.108 clause 6.10 Parameter Set

RADIO BEARER SETUP FAILURE (Step 54)

The contents of RADIO BEARER SETUP FAILURE message in this test case is the same as the RADIO BEARER SETUP FAILURE message as found in Annex A, with the following exceptions:

[Information Element	Value/remark
	Message Type	
	Failure cause	Invalid configuration
	Other information element	Not checked

8.2.1.15.5 Test requirement

After step 1 the UE shall keep its old configuration and transmits a RADIO BEARER SETUP FAILURE message on the DCCH using AM RLC. The message shall indicate the reason of failure as "protocol error" in IE "failure cause" and set the value "ASN.1 violation or encoding error Information element value not comprehended" in IE "Protocol error cause".

After step 3 the UE shall keep its old configuration

After step 4-3 the UE shall transmit RADIO BEARER SETUP FAILURE message on the DCCH using AM RLC, setting the value of IE "failure cause" to "invalid configuration".

8.2.1.16 Radio Bearer Establishment for transition from CELL_FACH to CELL_FACH: Success

8.2.1.16.1 Definition

8.2.1.16.2 Conformance requirement

The UE shall correctly set up a radio <u>access</u> bearer according to a RADIO BEARER SETUP message and <u>responds</u> with a RADIO BEARER SETUP COMPLETE message on the DCCH using AM RLC communicate with the UTRAN for its implementation.

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Reference

3GPP TS 25.331 clause 8.2.1.

8.2.1.16.3 Test purpose

To confirm that the UE establishes a new radio <u>access</u> bearer according to a RADIO BEARER SETUP message received from the SS.

8.2.1.16.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: PS-DCCH FACH (state 6-8) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is in the CELL_FACH state, after the test operator is being prompted to make an outgoing packet-switched call. The SS transmits a RADIO BEARER SETUP message to the UE after it sets up L1 including the start of tx/rx. After the UE receives this message, it configures them and establishes a new radio access bearer. Finally the UE transmits a RADIO BEARER SETUP COMPLETE message on the DCCH using AM RLC. Then the UE and the SS enters the communicating state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	•	-	RADIO BEARER SETUP	
2	<u>→</u>		RADIO BEARER SETUP COMPLETE	The UE select PRACH and S-CCPCH using SIB5 or SIB6.
3			RADIO BEARER SETUP COMPLETE	-
4				To confirm the proper establishment of the new radio bearer by checking the packet data exchanged between the SS and a TE attached to the UE.

Specific Message Contents

RADIO BEARER SETUP

For this message, use the message sub-type entitled "Packet to CELL_FACH from CELL_FACH in PS" in $\frac{\text{Annex}}{\text{Annex}}$ A.

8.2.1.16.5 Test requirement

After step 1, the UE shall transmit a RADIO BEARER SETUP COMPLETE message3 the UE shall communicate with the SS using the new radio bearer, this can be confirmed by the exchange of packet data between a terminal equipment (TE) attached to the UE and the SS.

8.2.1.17 Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH: success (Subsequently received)

8.2.1.17.1 Definition

8.2.1.17.2 Conformance requirement

If the UE receives a RADIO BEARER SETUP message before the UE <u>completes configures</u> the <u>configuration of</u> the radio bearers according to the previous RADIO BEARER SETUP message, the UE shall ignore the new RADIO BEARER SETUP message and configure according to the previous RADIO BEARER SETUP message. Finally, the UE shall transmit <u>a</u> RADIO BEARER SETUP COMPLETE message on the DCCH using AM RLC.

Reference

3GPP TS 25.331 clause 8.2.1, clause 8.6.3.11.

8.2.1.17.3 Test purpose

To confirm that if the UE receives a new RADIO BEARER SETUP message before the UE configures completes the configuration of the radio bearer according to a previous RADIO BEARER SETUP message, it ignores the new RADIO BEARER SETUP message and configures according to the previous RADIO BEARER SETUP message received.

8.2.1.17.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CS-DCCH_DCH (state 6-5) or PS-DCCH_DCH (state 6-7) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE is in the-CELL_DCH state. SS transmits a RADIO BEARER SETUP message to the UE before the UE configures completes the configuration of the radio bearer according to the RADIO BEARER SETUP message prior to this new message. The UE ignores the new RADIO BEARER SETUP message and configures according to the former RADIO BEARER SETUP message. On completion of radio bearer configuration, the UE shall transmit a RADIO BEARER SETUP COMPLETE message on the DCCH using AM RLC.

Expected sequence

Step	Direction	Message	Comment
	UE SS		
1	\	RADIO BEARER SETUP	The "Secondary scrambling code is set to "1". Including IE "Uplink DPCH info"
•a			The SS set its Downlink DPCH scrambling code to "1".
2	←	RADIO BEARER SETUP	SS send this message before the expiry of activation time specified in RADIO BEARER SETUP message of step 1. The IE "Secondary scrambling code" is set to "2".
3)	RADIO BEARER SETUP COMPLETE	The UE ignores the RADIO BEARER SETUP message in step 2 and confirms completes configuration according to the RADIO BEARER SETUP message in step 1.

Specific Message Contents

RADIO BEARER SETUP (Step 1)

For RADIO BEARER SETUP in step 1, use the message sub-type indicated as ""Non speech in CS The other of speech in CS" found in Annex A or the RADIO BEARER SETUP message as found in clause 9 of TS 34.108, with the exception of the following Information Elements:

RADIO BEARER SETUP (Step 1)

Information Element	Value/remark
Activation Time	[256+Current CFN-[current CFN mod 8 + 8]]MOD 256
- Uplink DPCH Info	
 Secondary scrambling code 	<u>1</u>

RADIO BEARER SETUP (Step 2)

For RADIO BEARER SETUP in step 2, use the message sub-type indicated as ""Non speech in CS The other of speech in CS" found in Annex A or the RADIO BEARER SETUP message as found in clause 9 of TS 34.108, with the exception of the following:

Information Element	Value/remark
Activation Time	Not Present
- <u>Uplink DPCH InfoDL channelisation code</u>	
- Secondary scrambling code	2

8.2.1.17.5 Test requirement

After step <u>2</u>3 the UE shall communicate with the <u>SS</u> on the radio bearer specified in the <u>transmit a RADIO BEARER SETUP COMPLETE</u> message on the <u>DCCH using AM RLCin step 1</u>.

8.2.1.18 Radio Bearer Establishment for transition from CELL_FACH to CELL_DCH: Success (Subsequently received)

8.2.1.18.1 Definition

8.2.1.18.2 Conformance requirement

If the UE receives a RADIO BEARER SETUP message before the UE <u>completes the configuration of configures</u> the radio bearers according to the previous RADIO BEARER SETUP message, the UE shall ignore the new RADIO BEARER SETUP message and configure according to the previous RADIO BEARER SETUP message. Finally, the UE shall transmit <u>a RADIO BEARER SETUP COMPLETE</u> message on the DCCH using AM RLC.

Reference

3GPP TS 25.331 clause 8.2.1, clause 8.6.3.11.

8.2.1.18.3 Test purpose

To confirm that if the UE receives a new RADIO BEARER SETUP message before the UE <u>completes the configuration of eonfigures</u> the radio bearer according to a previous RADIO BEARER SETUP message, it ignores the new RADIO BEARER SETUP message and configures according to the previous RADIO BEARER SETUP message received.

8.2.1.18.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: PS-DCCH FACH (state 6-8) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is in the CELL_FACH state. The SS transmits a RADIO BEARER SETUP message, requesting the UE to setup radio bearers using DPCH physical channels. The activation time of this event is specified to be 255 frames from the SS's current CFN. However, SS sends transmits another RADIO BEARER SETUP message before 255 framesthe activation time specified in the first message has lapsed. The UE ignores the new RADIO BEARER SETUP message and configures the radio bearers according to the former RADIO BEARER SETUP message. On completion of radio bearer configuration, the UE shall transmit a RADIO BEARER SETUP COMPLETE message on the DCCH using AM RLC.

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER SETUP	The "Secondary scrambling code is set to "1" Including IE "Uplink DPCH info"
1a				The SS set its Downlink DPCH scrambling code to "1".
2	+		RADIO BEARER SETUP	SS send this message before the expiry of activation time specified in RADIO BEARER SETUP message of step 1. The IE "Secondary scrambling code" is set to "2".
3	→		RADIO BEARER SETUP COMPLETE	The UE ignores the RADIO BEARER SETUP message in step 2 and confirms configuration according to the RADIO BEARER SETUP message in step 1.

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Specific Message Contents

RADIO BEARER SETUP (Step 1)

For this message, use the message sub-type entitled "Packet to CELL_DCH from CELL_FACH in PS" in Annex A.

Information element(s) to be changed are listed below:

Information Element	Value/remark
Activation Time	[256+Current CFN-[current CFN mod 8 + 8]]MOD 256
- Uplink DPCH Info	
- Secondary scrambling code	1

RADIO BEARER SETUP (for Step 2)

For this message, use the message sub-type entitled "Packet to CELL_DCH from CELL_FACH in PS" in Annex A. Information element(s) to be changed are listed below:

Information Element	Value/remark
Activation Time	Not Present
- Uplink DPCH InfoDL channelisation code	
- Secondary scrambling code	2

8.2.1.18.5 Test requirement

After step 2 the UE shall keep its configuration and transmit a RADIO BEARER SETUP COMPLETE message on the DCCH using AM RLC specified in step 1.

After step 3 the UE shall communicate with the SS on the radio bearer specified in the RADIO BEARER SETUP message in step 1.

8.2.1.19 Radio Bearer Establishment from CELL_DCH to CELL_PCH: Success

8.2.1.19.1 Definition

8.2.1.19.2 Conformance requirement

The UE shall configure radio bearers <u>so as to and transitiontransit</u> from CELL_DCH state to CELL_PCH state according to the received RADIO BEARER SETUP message <u>and responds with a RADIO BEARER SETUP COMPLETE</u> message on the DCCH using AM RLC.

Reference

3GPP TS 25.331 clause 8.2.21.

8.2.1.19.3 Test purpose

To conform that the UE transmits a RADIO BEARER SETUP COMPLETE message and enters CELL_PCH state after it received a RADIO BEARER SETUP message for the transition from CELL_DCH to CELL_PCH from SS-and configured new radio bearers.

8.2.1.19.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: PS-DCCH_DCH (state 6-7) as specified in clause 7.4 of TS 34.108.

Release 4118 3GPP TS 34.123-1 V4.0.0 (2001-09)

Test Procedure

The UE is in the-CELL_DCH state. The SS transmits a RADIO BEARER SETUP message. The UE transmits RADIO BEARER SETUP COMPLETE message to the UE using AM RLC and enters into-CELL_PCH state. The SS transmits a PAGING TYPE 1 message, causing the UE to enter CELL_FACH state and the UE shall transmit CELL UPDATE message on uplink CCCH with IE "Cell update cause" set to "paging response".

Expected sequence

Step	Direction		Message	Comment
	UE SS			
1	+		RADIO BEARER SETUP	
2	\rightarrow		RADIO BEARER SETUP COMPLETE	
3				The UE is in CELL PCH stateConfiguration of Radio Bearer after state transition.
4	+	-	PAGING TYPE 1	The SS transmits this message included a matched identity.
5	\rightarrow		CELL UPDATE	The UE is in CELL_FACH state.

Specific Message Contents

RADIO BEARER SETUP (Step 1)

Use the same message sub-type titled "Packet to CELL_FACH from CELL_DCH in PS" in Annex A with following exceptions:

Information Element	Value/remark
RRC State Indicator	CELL PCH
Downlink information for each radio link	
- Primary CPICH info	
- Primary scrambling code	<u>100</u>

PAGING TYPE 1 (Step 4)

Use the same message sub-type titled "TM (SMS in PS)" in Annex A with following exceptions:

Information Element	Value/remark
Paging record list	
Paging record	
- CHOICE Used paging identity	UTRAN identity
——- U-RNTI	
- SRNC Identity	Previously assigned SRNC identity in Initial Condition
	Previously assigned S-RNTI in Initial Condition

8.2.1.19.5 Test requirement

After step 1, the UE <u>shall</u> transmits a RADIO BEARER SETUP COMPLETE message to the UE on uplink DCCH using AM RLC.

After step 42, the UE shall transmit CELL UPDATE message on the CCCHenter CELL_PCH state.

8.2.1.20 Radio Bearer Establishment from CELL_DCH to URA_PCH: Success

8.2.1.20.1 Definition

8.2.1.20.2 Conformance requirement

The UE shall configure radio bearers and transitions as to transit from CELL_DCH state to URA_PCH state according to the receiveding RADIO BEARER SETUP message and responds with a RADIO BEARER SETUP COMPLETE message on the DCCH using AM RLC.

Reference

3GPP TS 25.331 clause 8.2.21.

8.2.1.20.3 Test purpose

To <u>conform confirm</u> that the UE transmits a RADIO BEARER SETUP COMPLETE message and enters URA_PCH state after it received a RADIO BEARER SETUP message <u>for the transition from CELL_DCH to URA_PCH</u> from SS and configured the new radio bearers.

8.2.1.20.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: PS-DCCH_DCH (state 6-7) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is in the-CELL_DCH state. The SS transmits a RADIO BEARER SETUP message. The UE transmits a RADIO BEARER SETUP COMPLETE message to the UE using AM RLC and enters URA_PCH state. The SS transmits a PAGING TYPE 1 message, causing the UE to enter CELL_FACH state and the UE shall transmit CELL UPDATE message on uplink CCCH with IE "Cell update cause" set to "paging response".

Expected sequence

Step	Direction	Message	Comment
	UE SS		
1	+	RADIO BEARER SETUP	
2	\rightarrow	RADIO BEARER SETUP COMPLETE	
3			The UE is in URA_PCH stateConfiguration of Radio Bearer after state transition.
4	+	PAGING TYPE 1	The SS transmits this message included a matched identity.
5	\rightarrow	CELL UPDATE	The UE is in CELL_FACH state.

Specific Message Contents

RADIO BEARER SETUP (Step 1)

Use the same message sub-type titled "Packet to CELL_FACH from CELL_DCH in PS" in Annex A with following exceptions:

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Information Element	Value/remark
RRC State Indicator	URA PCH
Downlink information for each radio link	
- Primary CPICH info	
- Primary scrambling code	<u>100</u>

PAGING TYPE 1 (Step 4)

Use the same message sub-type titled "TM (SMS in PS)" in Annex A with following exceptions:

Information Element	Value/remark
Paging record list	
Paging record	
- CHOICE Used paging identity	UTRAN identity
- SRNC Identity	Previously assigned SRNC identity in Initial Condition
	Previously assigned S-RNTI in Initial Condition

8.2.1.20.5 Test requirement

After step 1, the UE shall transmits a RADIO BEARER SETUP COMPLETE message to the UE on uplink DCCH using AM RLC.

After step 32, the UE shall transmit CELL UPDATE message on the CCCHenter URA_PCH state.

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8 Radio Resource Control RRC

8.1 RRC Connection Management Procedure

8.1.1 Paging

8.1.1.1 Paging for Connection in idle mode

8.1.1.1.1 Definition

8.1.1.1.2 Conformance requirement

In idle mode, UE monitors the paging occasions determined using parameters from SYSTEM INFORMATION BLOCK messages. When the UE receives a PAGING TYPE 1 message transmitted on PCCH during one of its assigned paging occasions, it shall attempt to establish an RRC connection.

Reference

3GPP TS 25.331 clause 8.1.2, 3GPP TS 25.211 clause 5.3.3.7 (FDD), 3GPP TS25.221 (TDD), 3GPP TS 25.304 clause 8.

8.1.1.1.3 Test purpose

To confirm that the UE establishes an RRC connection after it receives a PAGING TYPE 1 message which includes IE "Paging Record" (UE identity) set to the IMSI of the UE.

8.1.1.1.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: Idle state (state 2 or state 3 or state 7) as specified in clause 7.4 of TS 34.108 with a CN UE identity (set to IMSI), depending on the CN domain(s) supported by the UE.

Test Procedure

SS transmits SYSTEM INFORMATION BLOCK TYPE 1 or 13 messages, depending on the CN type supported by the UE. The SS transmits a PAGING TYPE 1 message, which includes an unmatched CN UE identity for the UE in the idle state. The UE shall not change its state. The SS transmits a PAGING TYPE 1 message, which includes a matched CN UE identity for the UE in the idle state. During transmission of PAGING TYPE 1 messages, SS selects the correct paging indicator on the PICH in order to allow the UE to respond to paging. Then the UE transmits an RRC CONNECTION REQUEST to the SS, the SS transmits an RRC CONNECTION SETUP to the UE. When the UE receives this message, the UE establishes an RRC connection and transmits an RRC CONNECTION SETUP COMPLETE message on the uplink DCCH.

NOTE: For UEs supporting GSM-MAP CN type only, SYSTEM INFORMATION TYPE 1 messages are to be sent by SS in this test case. On the other hand, SS transmits SYSTEM INFORMATION TYPE 13 messages if the UE under test supports only ANSI-41 CN type.

Expected sequence

Step	Direction	Message	Comment		
	UE SS				
1	+	SYSTEM INFORMATION BLOCK TYPE 13 or SYSTEM INFORMATION BLOCK TYPE 1	Transmit these messages on the BCCH, in addition to the normal BCCH transmissions. See specific message contents.		
2	←	PAGING TYPE 1	The SS transmits the message, which includes an unmatched identity (incorrect IMSI), and the UE does not change its state.		
3	+	PAGING TYPE 1	The SS transmits the message, which includes a matched identity (test-SIM IMSI).		
4	\rightarrow	RRC CONNECTION REQUEST			
5	+	RRC CONNECTION SETUP	SS assigns DPCH resources to allow UE to establish an RRC connection.		
6	\rightarrow	RRC CONNECTION SETUP COMPLETE			

Specific Message Contents

SYSTEM INFORMATION BLOCK TYPE 1 (Step 1) – for UEs supporting GSM-MAP core networks

Information Element	Value/remark
CN common GSM-MAP NAS system information	Location Area Information (LAI)
CN domain system information list	
- CN domain system information	
- CN domain identity	Supported Domain (PS Domain or CS Domain)
- CHOICE CN Type	Supported CN type
 CN domain specific NAS system information 	00 00(CS) or 1E 01(PS)
- CN domain specific DRX cycle length coefficient	7
UE Timers and constants in idle mode	
- T300	4000 milliseconds
- N300	3
- T312	10 seconds
- N312	200

SYSTEM INFORMATION TYPE 13 (Step 1) – for UEs supporting ANSI-41 core networks

Information Element	Value/remark	
CN domain system information list	Only 1 entry	
CN domain system information		
- CN domain identity	Supported Domain (PS Domain or CS Domain)	
- CHOICE CN Type	Supported CN type	
 CN domain specific NAS system information 	Default	
 CN domain specific DRX cycle length coefficient 	6	
UE Timers and constants in idle mode		
- T300	6000 milliseconds	
- N300	3	
- T312	10 sec	
- N312	200	

PAGING TYPE 1 (Step 2)

Information Element	Value/remark
Paging record list	Only 1 entry
Paging record	
CHOICE Used paging identity	CN identity
- Paging cause	Terminating Call with one of the supported services
- CN domain identity	Supported Domain (PS Domain or CS Domain)
- CHOICE UE Identity	IMSI
- IMSI	Set to an arbitrary octet string of length 7 bytes which is
	different from the IMSI value stored in the TEST USIM
	card.

PAGING TYPE 1 (Step 3)

Information Element	Value/remark
Paging record list	Only 1 entry
Paging record	
CHOICE Used paging identity	CN identity
- Paging cause	Terminating Call with one of the supported services
- CN domain identity	Supported Domain (PS Domain or CS Domain)
- CHOICE UE Identity	IMSI
- IMSI	Set to the same octet string as in the IMSI stored in the
	TEST USIM card

RRC CONNECTION REQUEST (Step 4)

Information Element	Value/remark
Initial UE identity	Same as the IMSI stored in the TEST USIM card, or the registered TMSI or P-TMSI
Establishment Cause	Check to see if it is set to the same value as "Paging Cause" IE in the PAGING TYPE 1 message transmitted
Protocol Error Indicator	on step 3.
Measured results on RACH	Check to see if it is set to FALSE Not checked.

8.1.1.1.5 Test requirement

After step 2 the UE shall not transmit on the uplink CCCH in order to establish a RRC connection.

After step 5 the UE shall have an RRC connection based on dedicated physical channel resources and transmit an RRC CONNECTION SETUP COMPLETE message on the uplink DCCH.

8.1.1.2 Paging for Connection in connected mode (CELL_PCH)

8.1.1.2.1 Definition

8.1.1.2.2 Conformance requirement

In CELL_PCH state, a UE can respond to a paging request from UTRAN. In this case, the UTRAN has requested to establish a connection with the UE. The UE shall then attempt to perform a cell update procedure and move to CELL_FACH state in order to respond to the paging using uplink CCCH.

Reference

3GPP TS 25.331 clause 8.1.2.

8.1.1.2.3 Test purpose

To confirm that the UE enters the CELL_FACH state after it receives a PAGING TYPE 1 message which indicates that the paging has originated from UTRAN. To verify that the UE performs cell update procedure after entering the CELL_FACH state.

8.1.1.2.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: CELL_PCH state (state 6-12) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE with a valid U-RNTI already assigned by the SS.

Test Procedure

SS transmits SYSTEM INFORMATION BLOCK TYPE 1 or 13 messages, depending on the CN type supported by the UE. The SS transmits a PAGING TYPE 1 message, which includes an unmatched U-RNTI in CELL_PCH state. The UE does not change its state. Then SS transmits a PAGING TYPE 1 message with a matched identifier but originates from the CN instead of UTRAN. The UE shall not change state after receiving this message. The SS transmits a PAGING TYPE 1 message, which includes a matched U-RNTI in the connected state. Then the UE enters the CELL_FACH state and performs the cell updating procedure.

NOTE: For UEs supporting GSM-MAP CN type only, SYSTEM INFORMATION TYPE 1 messages are to be sent by SS in this test case. On the other hand, SS transmits SYSTEM INFORMATION TYPE 13 messages if the UE under test supports only ANSI-41 CN type.

Step	Direction	Message	Comment
	UE SS		
1	+	SYSTEM INFORMATION BLOCK TYPE 13 or SYSTEM INFORMATION BLOCK TYPE 1	Transmit these messages on the BCCH, in addition to the normal BCCH transmissions. See specific message contents
2	+	PAGING TYPE 1	The SS transmits a message including an unmatched identifier. UE shall not respond to the paging.
3	+	PAGING TYPE 1	The SS transmits a message includes a matched identifier but with the originator being the CN, UE shall not respond to the paging.
4	+	PAGING TYPE 1	The SS transmits the message with the UTRAN being the originator and including the UE's assigned U-RNTI
5	→	CELL UPDATE	The UE enters the CELL_FACH state. UE performs cell updating procedure. The CELL UPDATE message shall contain the value "Cell Update Cause" set to "paging response".
6	+	CELL UPDATE CONFIRM	Use the default message specified in Annex A.

Specific Message Contents

PAGING TYPE 1 (Step 2)

Information Element	Value/remark
Paging record list	Only 1 entry
Paging record	
 CHOICE Used paging identity 	UTRAN identity
- U-RNTI	
- SRNC Identity	Set to an arbitrary 16-bit string which is different from
	the SRNC identity assigned.
- S-RNTI	Set to an arbitrary 20-bit string which is different from
	the S-RNTI assigned.

PAGING TYPE 1 (Step 3)

Same as the PAGING TYPE 1 message as in Clause 8.1.1.1.4, with the exception that the "BCCH modification info" IE shall be omitted in the message.

PAGING TYPE 1 (Step 4)

Information Element	Value/remark
Paging record list	Only 1 entry
Paging record	
- CHOICE Used paging identity	UTRAN identity
- U-RNTI	
- SRNC Identity	Set to the same SRNC identity as previously assigned.
- S-RNTI	Set to the same S-RNTI as previously assigned.

SYSTEM INFORMATION BLOCK TYPE 13

Use the same SYSTEM INFORMATION BLOCK TYPE 13 message as specified in clause 8.1.1.1.4.

SYSTEM INFORMATION BLOCK TYPE 1

Use the same SYSTEM INFORMATION BLOCK TYPE 1 message as specified in clause 8.1.1.1.4.

8.1.1.2.5 Test requirement

After step 2 the UE shall not respond to the PAGING TYPE 1 message sent in step 2.

After step 3 the UE shall not respond to the PAGING TYPE 1 message sent in step 2.

After step 4 the UE shall enter the CELL FACH state and send a CELL UPDATE message with "Cell Update Cause" IE set to "paging response".

8.1.1.3 Paging for Connection in connected mode(URA_PCH)

8.1.1.3.1 Definition

8.1.1.3.2 Conformance requirement

This procedure is used to transmit a PAGING TYPE 1 message from the network to selected UEs in URA_PCH state using the paging control channel (PCCH). The UE listens to it and then enters the CELL_FACH state.

Reference

3GPP TS 25.331 clause 8.1.2.

8.1.1.3.3 Test purpose

To confirm that the UE enters the CELL_FACH state after it receives a PAGING TYPE 1 message which includes IE "Paging Record"(U-RNTI) for the UE and which is set to "UTRAN originator" in IE "paging originator".

8.1.1.3.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: URA_PCH state (state 6-13) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE with a valid U-RNTI assigned by the SS.

Test Procedure

The SS transmits a PAGING TYPE 1 message, which includes an unmatched U-RNTI in URA_PCH state. The UE does not change its current state. The SS transmits a PAGING TYPE 1 message which includes a matched U-RNTI in the connected state. Then the UE listens to it and enters the CELL_FACH state to transmit a CELL UPDATE message using uplink CCCH in respond to the paging.

Expected sequence

Step	Direction	Message	Comment
	UE SS		
1	(PAGING TYPE 1	The SS transmits the message that includes an unmatched identifier, then the UE does not change its state.
2	←	PAGING TYPE 1	The SS transmits the message that includes a matched identifier.
3	\rightarrow	CELL UPDATE	The UE enters the CELL_FACH state.
4	+	CELL UPDATE CONFIRM	Use the default message specified in Annex A.

Specific Message Contents

PAGING TYPE 1 (Step 1)

Information Element	Value/remark
Paging record list	Only 1 entry
Paging record	
 CHOICE Used paging identity 	UTRAN identity
- U-RNTI	·
- SRNC Identity	Set to an unused SRNC identity which is different from
	the SRNC identity assigned.
- S-RNTI	Set to an arbitrary 20-bit string which is different from
	the S-RNTI assigned.
	_

PAGING TYPE 1 (Step 2)

Information Element	Value/remark
Paging record list	Only 1 entry
Paging record	
- CHOICE Used paging identity	UTRAN identity
- U-RNTI	
- SRNC Identity	Set to the previously assigned SRNC identity
- S-RNTI	Set to previously assigned S-RNTI

8.1.1.3.5 Test requirement

After step 1 the UE shall not respond to the paging.

After step 2 the UE shall enter the CELL FACH state, and transmit CELL UPDATE message to initiate the cell updating procedure with the paging cause set to "paging response".

8.1.1.4 Paging for Notification in idle mode

8.1.1.4.1 Definition

8.1.1.4.2 Conformance requirement

When a system information block on the BCCH is modified, the PAGING TYPE 1 message can be sent on the PCCH to inform the UE about the changes, which are currently taking place in the idle mode. The PAGING TYPE 1 message includes the IE "BCCH Modification Information". Upon receiving this notification from the UTRAN, the UE shall read the relevant MIB and/or SIB(s) subsequently during idle mode.

Reference

3GPP TS 25.331 clause 8.1.1.2.

8.1.1.4.3 Test purpose

To confirm that the UE checks the new value tag of the master information block and reads the updated SYSTEM INFORMATION BLOCK messages after it receives a PAGING TYPE 1 message which includes the IE "BCCH Modification Information".

8.1.1.4.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: Idle state (state 2 or state 3 or state 7) as specified in clause 7.4 of TS 34.108 with a CN UE identity, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE is in the idle state before SS starts to change the SYSTEM INFORMATION BLOCK TYPE 1 or 13 messages, depending on the CN type supported by the UE. The SS transmits a PAGING TYPE 1 message on the paging occasions assigned to the UE. The message shall include the IE "BCCH Modification Information" indicating the time when the first modified master information block is available. Before the starting time, SS continuously broadcast the original MASTER INFORMATION BLOCK and various types of SYSTEM INFORMATION BLOCK on the BCCH mapped to BCH transport channel. SS maintains this status until the SFN which corresponds to the starting time is reached. Then it transmits the new master information block followed by the new SYSTEM INFORMATION BLOCK TYPE 1 or 13 messages. In the new SIB TYPE 1 or 13 messages, the IE "DRX Cycle Length Coefficient" is altered when compared to the original SIB TYPE 1 or 13 messages. At the next paging occasion, SS transmits a new PAGING TYPE 1 message. The message addresses the UE using its IMSI and the "paging cause" IE set to a terminating call type that is supported by the UE. The UE shall react to the PAGING TYPE 1 message and then send a RRC CONNECTION REQUEST message to SS.

NOTE: For UEs supporting GSM-MAP CN type only, SYSTEM INFORMATION TYPE 1 messages are to be sent by SS in this test case. On the other hand, SS transmits SYSTEM INFORMATION TYPE 13 messages if the UE under test supports only ANSI-41 CN type.

Step	Direction	Message	Comment
	UE SS		
1	+	MASTER INFORMATION BLOCK SYSTEM INFORMATION BLOCK TYPE 1 or SYSTEM INFORMATION BLOCK TYPE 13	SS transmits information on BCCH in order for UE to listen to one of the S-CCPCH physical channel, which carries PAGING TYPE 1 or 13 messages on PCCH. Relevant paging parameters are also broadcasted.
2	+	PAGING TYPE 1	SS transmits the message includes the IE "BCCH Modification Information", with the "Value Tag" changed from the "MIB Value Tag" of the current Master Information Block. Also the modification time is set to 4088 radio frame from the current SFN. SS continuously broadcast the same MASTER INFORMATION BLOCK and various types of SYSTEM INFORMATION BLOCK on BCCH for a period stretching 4087 frames.
3	+	MASTER INFORMATION BLOCK	SS starts to transmit the MIB with the "MIB Value Tag" IE different from the original setting.
	←	SYSTEM INFORMATION BLOCK TYPE 1 or SYSTEM INFORMATION BLOCK TYPE 13	At the same time, SS starts to transmit the affected SIB TYPE 1 or TYPE 13 messages continuously. The value of IE "DRX Cycle Length Coefficient" is changed in this message. SS starts to monitor the uplink RACH after approximately 4087 frames from step 2.
4	+	PAGING TYPE 1	SS starts to transmit this message continuously on the PCCH according to the new value of "DRX Cycle Length Coefficient", at the next paging occasion immediately following step 3.
5	→	RRC CONNECTION REQUEST	UE transmits a request due to answer to the PAGING TYPE 1 received in step 4. The IE "Establishment Cause" shall be set to "Terminating Call" supported by the UE and the "Initial UE Identity" set to UE's IMSI.
6	+	RRC CONNECTION REJECT	UE shall return to idle mode after receiving this message

Specific Message Contents

SYSTEM INFORMATION BLOCK TYPE 1 (Step 1) – for UEs supporting GSM-MAP core networks

Information Element	Value/remark
CN common GSM-MAP NAS system information	
CN domain system information list	Location Area Information (LAI)
- CN domain system information	Supports both CS and PS domains
- CN domain identity	
- CHOICE CN Type	CS domain
 CN domain specific NAS system information 	00 00
	7
 CN domain specific DRX cycle length coefficient 	
- CN domain system information	PS domain
- CN domain identity	1E 01
- CHOICE CN Type	7
- CN domain specific NAS system information	
	4000 milliseconds
- CN domain specific DRX cycle length coefficient	7
UE Timers and constants in idle mode	10 seconds
- T300	200
- N300	Not Present
- T312	
- N312	
UE Timers and constants in connected mode	

SYSTEM INFORMATION BLOCK TYPE 13 (Step 1) – for UEs supporting ANSI-41 core networks

Information Element	Value/remark
CN domain system information list	Supports both CS and PS domains
CN domain system information	
- CN domain identity	CS
- CHOICE CN Type	ANSI-41
- CN domain specific NAS system information	
- ANSI-41 NAS System Information	
- ANSI-41 NAS Parameter	Set to an ANSI-41 user zone information
- CN domain specific DRX cycle length coefficient	12
- CN domain identity	PS
- CHOICE CN Type	ANSI-41
- CN domain specific NAS system information	
- ANSI-41 NAS System Information	
- ANSI-41 NAS Parameter	Set to an ANSI-41 user zone information
- CN domain specific DRX cycle length coefficient	12
UE Capability update requirement	Not Present

PAGING TYPE 1 (Step 2)

Information Element	Value/remark
BCCH modification info	
MIB Value Tag	2
BCCH Modification time	4088

MASTER INFORMATION BLOCK (Step 3)

Information Element	Value/remark	
MIB Value tag	2	

SYSTEM INFORMATION BLOCK TYPE 1 (Step 3) – for UEs supporting GSM-MAP core networks

Information Element	Value/remark
References to other system information blocks	Not Present
CN common GSM-MAP NAS system information	Location Area Information (LAI)
CN domain system information list	Supports both CS and PS domains
- CN domain system information	
- CN domain identity	CS domain
- CHOICE CN Type	00 00
- CN domain specific NAS system information	6
- CN domain specific DRX cycle length coefficient - CN domain system information - CN domain identity - CHOICE CN Type - CN domain specific NAS system information	PS domain 1E 01 6 4000 milliseconds 6
- CN domain specific DRX cycle length coefficient	10 seconds
UE Timers and constants in idle mode	200
- T300	Not Present
- N300	
- T312	
- N312	
UE Timers and constants in connected mode	

SYSTEM INFORMATION BLOCK TYPE 13 (Step 3) – for UEs supporting ANSI-41 core networks

Information Element	Value/remark
References to other system information blocks	Not Present
CN domain system information list	Supports both CS and PS domains
CN domain system information	
- CN domain identity	CS domain
- CHOICE CN Type	ANSI-41
- CN domain specific NAS system information	
 ANSI-41 NAS system information 	
- ANSI-41 NAS Parameter	Set to an ANSI-41 user zone information
- CN domain specific DRX cycle length coefficient	6
- CN domain identity	PS domain
- CHOICE CN Type	ANSI-41
- CN domain specific NAS system information	
- ANSI-41 NAS system information	
- ANSI-41 NAS Parameter	Set to an ANSI-41 user zone information
 CN domain specific DRX cycle length coefficient 	6

PAGING TYPE 1 (Step 4)

Information Element	Value/remark
Paging record list	Only 1 entry
Paging record	
- CHOICE Used paging identity	CN identity
- Paging Cause Terminating Call with one of the supported serv	
- CN Domain Identity Supported Domain (PS Domain or CS Domain)	
- CHOICE UE Identity IMSI	
- IMSI	Set to the same octet string as in the IMSI value stored
	in the TEST USIM card

RRC CONNECTION REJECT (Step 6)

Information Element	Value/remark
Initial UE identity	
- CHOICE UE id type	IMSI
- IMSI	Set to the same octet string as in the IMSI value stored
	in the TEST USIM card
Rejection cause	Unspecified
Wait time	0
Redirection info	Not Present

8.1.1.4.5 Test requirement

After step 5 the UE shall transmit RRC CONNECTION REQUEST message in response to the PAGING TYPE 1 messages sent in step 4.

8.1.1.5 Paging for Notification in connected mode (CELL_PCH)

8.1.1.5.1 Definition

8.1.1.5.2 Conformance requirement

When a system information block on the BCCH is modified, the message PAGING TYPE 1 can be sent on the PCCH to inform the UE about this change in the CELL_PCH state. This message includes the IE "BCCH Modification Information". Upon receiving this notification from the UTRAN, the UE shall read the relevant MIB and/or SIB(s) subsequently while in CELL_PCH state.

Reference

3GPP TS 25.331 clause 8.1.1.2.

8.1.1.5.3 Test purpose

To confirm that the UE enters the CELL_FACH state, checks the new value tag of the master information block, and read the SYSTEM INFORMATION messages after it receives a PAGING TYPE 1 message which includes the IE "BCCH Modification Information".

8.1.1.5.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CELL_PCH state (state 6-12) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE with valid a U-RNTI assigned to it.

Test Procedure

Identical test steps 1 to 4 in Clause 8.1.1.4 are applied to this test. However, the PAGING TYPE 1 messages used in step 2 and step 4 are altered. The changes are indicated in the specific message content paragraph under this clause. At step 5, UE shall send the CELL UPDATE message indicating the "cell update cause" to be "paging response". SS then replies with a CELL UPDATE CONFIRM message to allow the UE to transit to CELL FACH state.

NOTE: For UEs supporting GSM-MAP CN type only, SYSTEM INFORMATION TYPE 1 messages are to be sent by SS in this test case. On the other hand, SS transmits SYSTEM INFORMATION TYPE 13 messages if the UE under test supports only ANSI-41 CN type.

Step	Direction	Message	Comment
	UE SS		
1	÷	MASTER INFORMATION BLOCK SYSTEM INFORMATION BLOCK TYPE 1 or SYSTEM INFORMATION BLOCK TYPE 13	SS transmits information on BCCH in order for UE to listen to one of the S-CCPCH physical channel, which carries PAGING TYPE 1 or 13 messages on PCCH. Relevant paging parameters are also broadcasted.
2	←	PAGING TYPE 1	SS transmits the paging message which comprises IE "BCCH Modification Information", with the "Value Tag" changed from the "MIB Value Tag" of the current Master Information Block. Also the modification time is set to 4088 radio frame from the current SFN. SS continuously broadcast the same MASTER INFORMATION BLOCK and various types of SYSTEM INFORMATION BLOCK on BCCH for a period stretching 4087 frames.
3	+	MASTER INFORMATION BLOCK	SS starts to transmit the MIB with the "MIB Value Tag" IE different from the original setting.
	←	SYSTEM INFORMATION BLOCK TYPE 1 or SYSTEM INFORMATION BLOCK TYPE 13	At the same time, SS starts to transmit the affected SIB TYPE 1 or TYPE 13 messages continuously. The value of IE "DRX Cycle Length Coefficient" is changed in this message. SS starts to monitor the uplink RACH after approximately 4087 SFN from step 2.
4	+	PAGING TYPE 1	SS transmits this message continuously on the PCCH according to the new value of "DRX Cycle Length Coefficient", at the next paging occasion immediately following step 3. This message shall page the UE with its U-RNTI and setting the UTRAN as the paging originator.
5	→	CELL UPDATE	The IE "Cell Update Cause" shall be set to "Paging Response" and the IE "U-RNTI" shall be similar to the UE's U-RNTI value. The "Protocol Error Indicator" IE shall be set to FALSE.
6	←	CELL UPDATE CONFIRM	UE shall transit to CELL_FACH state after receiving this message.

Specific Message Contents

SYSTEM INFORMATION BLOCK TYPE 1 or TYPE 13 (Step 1)

The content of this message is the same in the message used in step 1 specified in clause 8.1.1.4.4.

PAGING TYPE 1 (Step 2)

Information Element	Value/remark
Paging record list	Only 1 entry
Paging record	
- CHOICE Used paging identity	UTRAN identity
- U-RNTI	Equal to the U-RNTI assigned earlier.
- SRNC Identity	
- S-RNTI	
BCCH modification info	
- MIB Value Tag	2
- BCCH Modification time	4088

MASTER INFORMATION BLOCK (Step 3) and

SYSTEM INFORMATION BLOCK TYPE 1 or TYPE 13 (Step 3)

The content of these messages is the same in the message used in step 3 specified in clause 8.1.1.4.4.

PAGING TYPE 1 (Step 4)

Information Element	Value/remark
Paging record list	Only 1 entry
Paging record	
- CHOICE Used paging identity	UTRAN identity
- U-RNTI	Equal to the U-RNTI assigned earlier.
- SRNC Identity	
- S-RNTI	Not Present
BCCH modification info	

CELL UPDATE CONFIRM (Step 6)

Use the same message type found in annex A, with the following exception:

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Information Element	Value/remark	
- U-RNTI	Equal to the U-RNTI assigned earlier.	
- SRNC Identity		
- S-RNTI		
- RRC State Indicator	CELL FACH	

8.1.1.5.5 Test requirement

After step 5 the UE shall transmit a CELL UPDATE message with "cell update cause" IE set to "paging response". Upon receiving CELL UPDATE CONFIRM message, the UE shall enter the CELL_FACH state.

8.1.1.6 Paging for Notification in connected mode (URA_PCH)

8.1.1.6.1 Definition

8.1.1.6.2 Conformance requirement

When a system information block on the BCCH is modified, the UTRAN can send a PAGING TYPE 1 message on the PCCH to inform UE about the changes while the UE is in the URA_PCH state. This message includes the IE "BCCH Modification Information". When receiving this message in URA_PCH state, the UE shall read the relevant MIB and/or SIB(s).

Reference

3GPP TS 25.331 clause 8.1.1.2.

8.1.1.6.3 Test purpose

To confirm that the UE enters the CELL_FACH state, checks the included new value tag of the master information block and reads the relevant SYSTEM INFORMATION block(s) after it receives a PAGING TYPE 1 message which includes the IE "BCCH Modification Information".

8.1.1.6.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: URA_PCH state (state 6-13) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE with a valid U-RNTI assigned.

Test Procedure

Identical test steps 1 to 4 in clause 8.1.1.4 are applied to this test. However, the PAGING TYPE 1 messages used in step 2 and step 4 are altered. The changes are indicated in the specific message content paragraph under this clause. At step 5, UE shall send the CELL UPDATE message indicating the "cell update cause" to be "paging response". SS then replies with a CELL UPDATE CONFIRM message to allow the UE to transit to CELL_FACH state.

NOTE: For UEs supporting GSM-MAP CN type only, SYSTEM INFORMATION TYPE 1 messages are to be sent by SS in this test case. On the other hand, SS transmits SYSTEM INFORMATION TYPE 13 messages if the UE under test supports only ANSI-41 CN type.

Step	Direction	Message	Comment
2.06	UE SS		
1	+	MASTER INFORMATION BLOCK SYSTEM INFORMATION BLOCK TYPE 1 or SYSTEM INFORMATION BLOCK TYPE 13	SS transmits information on BCCH in order for UE to listen to one of the S-CCPCH physical channel, which carries PAGING TYPE 1 or 13 messages on PCCH. Relevant paging parameters are also broadcasted.
2	←	PAGING TYPE 1	SS transmits the paging message which comprises IE "BCCH Modification Information", with the "Value Tag" changed from the "MIB Value Tag" of the current Master Information Block. Also the modification time is set to 4088 radio frame from the current SFN. SS continuously broadcast the same MASTER INFORMATION BLOCK and various types of SYSTEM INFORMATION BLOCK on BCCH for a period stretching 4087 frames.
3	+	MASTER INFORMATION BLOCK	SS starts to transmit the MIB with the "MIB Value Tag" IE different from the original setting.
	←	SYSTEM INFORMATION BLOCK TYPE 1 or SYSTEM INFORMATION BLOCK TYPE 13	At the same time, SS starts to transmit the affected SIB TYPE 1 or TYPE 13 messages continuously. The value of IE "DRX Cycle Length Coefficient" is changed in this message. SS starts to monitor the uplink RACH after approximately 4087
4	-	PAGING TYPE 1	SFN from step 2. SS transmits this message continuously on the PCCH according to the new value of "DRX Cycle Length Coefficient", at the next paging occasion immediately following step 3. This message shall page the UE with its U-RNTI and setting the UTRAN as the paging originator.
5	→	CELL UPDATE	The IE "Cell Update Cause" shall be set to "Paging Response" and the IE "U-RNTI" shall be similar to the UE's U-RNTI value. The "Protocol Error Indicator" IE shall be set to FALSE.
6	+	CELL UPDATE CONFIRM	UE shall transit to CELL_FACH state after receiving this message.

Specific Message Contents

SYSTEM INFORMATION BLOCK TYPE 1 or TYPE 13 (Step 1)

The content of this message is the same in the message used in step 1 specified in clause 8.1.1.4.4.

PAGING TYPE 1 (Step 2)

Information Element	Value/remark	
Paging record list	Only 1 entry	
Paging record		
- CHOICE Used paging identity	UTRAN identity	
- U-RNTI	Equal to the U-RNTI assigned earlier.	
- SRNC Identity		
- S-RNTI		
BCCH modification info		
- MIB Value Tag	2	
- BCCH Modification time	4088	

MASTER INFORMATION BLOCK (Step 3) and

SYSTEM INFORMATION BLOCK TYPE 1 or TYPE 13 (Step 3)

The content of these messages is the same in the message used in step 3 specified in clause 8.1.1.4.4.

PAGING TYPE 1 (Step 4)

Information Element	Value/remark
Paging record list	Only 1 entry
Paging record	
- CHOICE Used paging identity	UTRAN identity
- U-RNTI	Equal to the U-RNTI assigned earlier.
- SRNC Identity	
- S-RNTI	Not Present
BCCH modification info	

CELL UPDATE CONFIRM (Step 6)

Use the same message type found in Annex A, with the following exception:

Information Element	Value/remark
- U-RNTI	Equal to the U-RNTI assigned earlier.
- SRNC Identity	
- S-RNTI	
- RRC State Indicator	CELL_FACH

8.1.1.6.5 Test requirement

After step 2 the UE shall enter the CELL_FACH state and read the SYSTEM INFORMATION message and follow it.

8.1.1.7 Paging for Connection in connected mode (CELL_DCH)

8.1.1.7.1 Definition

8.1.1.7.2 Conformance requirement

This procedure is used to transmit a PAGING TYPE 2 message from the network to selected UEs in CELL_DCH state using the dedicated control channel (DCCH). The UE listens to it and responds to this message accordingly.

Reference

3GPP TS 25.331 clause 8.1.11.

8.1.1.7.3 Test purpose

To confirm that the UE responds this message after it receives a PAGING TYPE 2 message which includes IE "Paging Record Type Identifier" for the UE.

8.1.1.7.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CELL_DCH state (state 6-9 or state 6-10) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE, after executing a location registration or attach procedure followed by the release of the TMSI of P-TMSI allocated.

Test Procedure

The SS transmits a PAGING TYPE 2 message which includes an unmatched Paging Record Type Identifier in CELL_DCH state. The UE shall not respond to this message. SS pages the UE again, this time with an invalid PAGING TYPE 2. UE shall respond by transmitting a RRC STATUS message on the DCCH using RLC-AM mode. Finally, SS transmits a PAGING TYPE 2 message, which includes a matched Paging Record Type Identifier. Then the UE shall responds to this message by the transmission of an upper layer message.

Step	Direction	Message	Comment
	UE SS		
1	←	PAGING TYPE 2	The SS transmits the message includes an unmatched identifier, then the UE does not respond.
2	+	PAGING TYPE 2	See message content.
3	\rightarrow	RRC STATUS	The UE shall respond by reporting the protocol error to the SS.
4	+	PAGING TYPE 2	SS pages the UE with a matched identifier and with a valid "paging cause" IE.
5	\rightarrow	UPLINK DIRECT TRANSFER	The UE shall respond to the paging message sent in step 4.

Specific Message Contents

PAGING TYPE 2 (Step 1)

Information Element	Value/remark	
Paging cause	Terminating Call supported by the UE	
CN domain identity	Domain supported by the UE	
Paging record type identifier	Set to "TMSI" or "P-TMSI" allocated during the	
	execution of location registration or attach procedure	
	respectively	

PAGING TYPE 2 (Step 2)

Information Element	Value/remark
All IEs	Not Present

RRC STATUS (Step 3)

Information Element	Value/remark	
Protocol error information	Checked to see if set to "ASN.1 violation or encoding	
	error"	

PAGING TYPE 2 (Step 4)

Information Element	Values/Remarks	
Paging cause	Terminating Call supported by the UE	
CN domain identity	Domain supported by the UE	
Paging record type identifier	Set to "IMSI (GSM-MAP)" for UEs supporting GSM-MAP	
	core network type or "IMSI (DS-41)" for UEs supporting	
	ANSI-41 core network type.	

UPLINK DIRECT TRANSFER (Step 5)

Only the message type IE for this message is checked.

8.1.1.7.5 Test requirement

After step 1 the UE shall not respond to the paging message on the DCCH.

After step 2 the UE shall respond to the paging message by transmitting RRC STATUS on the DCCH, stating the protocol error as "ASN.1 violation or encoding error".

After step 4 the UE shall respond to the paging message by transmitting an UPLINK DIRECT TRANSFER message on the uplink DCCH.

8.1.1.8 Paging for Connection in connected mode (CELL_FACH)

8.1.1.8.1 Definition

8.1.1.8.2 Conformance requirement

This procedure is used to transmit a PAGING TYPE 2 message from the network to selected UEs in CELL_FACH state using the dedicated control channel (DCCH). The UE shall listen to it and responds to this message accordingly.

Reference

3GPP TS 25.331 clause 8.1.11.

8.1.1.8.3 Test purpose

To confirm that the UE responds to a PAGING TYPE 2 message, which includes a matching value for IE "Paging Record Type Identifier".

8.1.1.8.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CELL_FACH state (state 6-11) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The SS transmits a PAGING TYPE 2 message, which includes an unmatched Paging Record Type Identifier in CELL_FACH state. The UE shall not respond to this message. The SS transmits a PAGING TYPE 2 message, which includes a matched Paging Record Type Identifier. Then the UE shall respond by transmitting an upper layer message to answer this page.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	+		PAGING TYPE 2	The SS transmits the message
				includes an unmatched identifier,
				then the UE does not respond.
2	+		PAGING TYPE 2	The SS transmits the message
				includes a matched identifier.
3	\rightarrow		UPLINK DIRECT TRANSFER	The UE responds by sending an
				upper layer message.

Specific Message Content

PAGING TYPE 2 (Step 1)

Use the same message content as in step 1 from 8.1.1.7.4.

PAGING TYPE 2 (Step 2)

Use the same message content as in step 4 from 8.1.1.7.4.

8.1.1.8.5 Test requirement

After step 1 the UE shall not respond.

After step 2 the UE shall respond to the second PAGING TYPE 2 message by transmitting an UPLINK DIRECT TRANSFER message on the uplink DCCH.

8.1.2 RRC Connection Establishment

8.1.2.1 RRC Connection Establishment in CELL_DCH state: Success

8.1.2.1.1 Definition

8.1.2.1.2 Conformance requirement

- 1. The RRC connection establishment is initiated by the UE, which leaves the idle mode and transmits an RRC CONNECTION REQUEST message. This message shall include the IE "Initial UE identity" and is to be transmitted on the uplink CCCH.
- 2. After the UE receives an RRC CONNECTION SETUP message which includes the same value of the IE "initial UE identity", radio resource parameters (i.e. Signalling link type and multiplexing info) and U-RNTI, UE then configures the layer 2 and layer 1 processing so as to support the DCCH according to the radio resource parameters specified. The procedure successfully ends when the network receives an RRC CONNECTION SETUP COMPLETE message on the uplink DCCH.

Reference

3GPP TS 25.331 clause 8.1.3.

8.1.2.1.3 Test purpose

To confirm that the UE leaves the Idle Mode and correctly establishes a signalling link on the DCCH.

8.1.2.1.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: Idle state (state 2 or state 3 or state 7) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE transmits an RRC CONNECTION REQUEST message to the SS on the uplink CCCH by attempting to make an outgoing call. After SS receives this message, it assigns the necessary radio resources and U-RNTI to be used by the UE. SS then transmits an RRC CONNECTION SETUP message containing an IE "Initial UE Identity" that does not match the IE "Initial UE Identity" in the most recent RRC CONNECTION REQUEST message sent by the UE. UE receives the RRC CONNECTION SETUP message within timer T300 but discards it due to the IE "Initial UE Identity" mismatch. UE shall wait for timer T300 to time out before re-transmitting a RRC CONNECTION REQUEST message to the SS. SS again assigns the necessary radio resources and U-RNTI. SS then follows by transmitting a RRC CONNECTION SETUP message containing an IE "Initial UE Identity" that matches the IE "Initial UE Identity" in the most recent RRC CONNECTION REQUEST sent by the UE. SS then waits for the UE to transmit an RRC CONNECTION SETUP COMPLETE message on the DCCH.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1		\rightarrow	RRC CONNECTION REQUEST	By outgoing call operation
2		←	RRC CONNECTION SETUP	This message is not addressed to the UE.
3		→	RRC CONNECTION REQUEST	UE shall re-transmit the request message again after a time out of T300 from step 1.
4		-	RRC CONNECTION SETUP	
5				The UE configures the layer 2 and layer 1.
6		\rightarrow	RRC CONNECTION SETUP COMPLETE	

Specific Message Content

RRC CONNECTION SETUP (Step 2)

Information Element	Value/remark
Initial UE Identity	
CHOICE UE id type	IMSI
IMSI	Set to an arbitrary octet string of length 7 which different
	from the IMSI value stored in the TEST USIM card.

8.1.2.1.5 Test requirement

After step 2 the UE shall re-transmit the RRC CONNECTION REQUEST message again in order to continue the RRC connection establishment procedure.

After step 6 the UE shall establish an RRC connection and continue the procedure of the outgoing call on the DCCH.

8.1.2.2 RRC Connection Establishment: Success after T300 timeout

8.1.2.2.1 Definition

8.1.2.2.2 Conformance requirement

1. The RRC connection establishment is initiated by the UE, which leaves the idle mode. The UE shall transmit an RRC CONNECTION REQUEST message which includes the IE "Initial UE identity". This message shall be sent on the uplink CCCH.

When there are more than one PRACHs available, the UE shall select one PRACH randomly and transmit an RRC CONNECTION REQUEST message by use of selected PRACH.

2. In the case of a failure to establish the RRC connection at the expiry of timer T300 ,the UE retries to establish the RRC connection until V300 is greater than N300

When the UE receives a RRC CONNECTION SETUP message, which contains a protocol error and causing the internal variable PROTOCOL_ERROR_REJECT set to TRUE, it shall perform the appropriate error handling procedure.

Reference

3GPP TS 25.331 clause 8.1.3.

8.1.2.2.3 Test purpose

To confirm that the UE retries to establish the RRC connection until V300 is greater than N300 after the expiry of timer T300 when the SS transmits no response for an RRC CONNECTION REQUEST message.

8.1.2.2.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: Idle state (state 2 or state 3 or state 7) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

Before the test starts, an internal counter K in SS is initialized to a value = 0. Following this, the UE shall transmit an RRC CONNECTION REQUEST message to the SS on the uplink CCCH by use of selected PRACH from the available PRACH No.1 and PRACH No.2, after the operator attempts to make an outgoing call. SS ignores this message, increments K every time such a message is received and waits for T300 timer to expire. This cycle is repeated until K reaches N300. When K is equal to N300, the SS transmits the RRC CONNECTION SETUP message specified in step 6 to the UE and wait until T300 expires. The UE shall send another RRC CONNECTION REQUEST message on the uplink CCCH. SS verifies that the UE does not access the radio resource allocated in step 6. After confirming this restriction is observed, SS replies with a valid RRC CONNECTION SETUP message. The UE shall then acknowledge the establishment of RRC connection by sending the RRC CONNECTION SETUP COMPLETE message on uplink DCCH.

Step	Direction	Message	Comment
	UE SS		
1	←	SYSTEM INFORMATION BLOCK TYPE 5	Transmit these messages on the BCCH. See specific message contents.
2			SS initializes counter K to 0. Operator is asked to make an outgoing call and SS starts to wait for RRC CONNECTION REQUEST on uplink CCCH.
3	\rightarrow	RRC CONNECTION REQUEST	·
4			SS checks to see if K is equal to N300. If so, goes to step 6. Else, continues to execute step 5.
5			SS increments K. The next step is step 3.
6	+	RRC CONNECTION SETUP	Use an invalid message in ASN.1. SS waits for T300 to expire again.
7	→	RRC CONNECTION REQUEST	UE shall not access the radio resource indicated in RRC CONNECTION SETUP message sent in step 6.
8	+	RRC CONNECTION SETUP	This is a legal message. See the clause 9 in TS 34.108 on default message content for RRC.
9			The UE configures the layer 1 and layer 2.
10	\rightarrow	RRC CONNECTION SETUP COMPLETE	

SYSTEM INFORMATION TYPE 5 (Step 1) - FDD

l.		
	- PRACH system information	2PRACHs
	- PRACH info (PRACH No.1)	
	- CHOICE mode	FDD
	- Available Signature	'0000 0000 1111 1111'B
	- Available SF	64
	- Preamble scrambling code number	0
	- Puncturing Limit	100
	- Available Sub Channel number	'1111 1111 1111'B
	- Transport Channel Identity	15
	- RACH TFS	
	 CHOICE Transport channel type 	Common transport channels
	 Dynamic Transport format information 	
	- RLC size	168
	 Number of TB and TTI List 	
	- Number of Transport blocks	1
	- CHOICE Mode	FDD
	- CHOICE Logical Channel List	ALL
	- RLC size	360
	 Number of TB and TTI List 	
	- Number of Transport blocks	1
	- CHOICE Mode	FDD
	- CHOICE Logical Channel List	ALL
	- Semi-static Transport Format information	
	- Transmission time interval	20 ms
	- Type of channel coding	Convolutional
	- Coding Rate	1/2
	- Rate matching attribute	150
	- CRC size	16
	- RACH TFCS	(This IE is repeated for TFC number.)
	- Normal	
	- TFCI Field 1 information	
	- CHOICE TFCS representation	Complete
	- TFCS addition information	O hit
	- CHOICE CTFC Size	2 bit
	- CTFC information	0
	- Power offset information	Community of Colon Footon
	- CHOICE Gain Factors	Computed Gain Factor
	- Power offset Pp-m	-5 dB Refer to clause 6.10 Parameter Set
	 CTFC information Power offset information 	Refer to clause 6. To Parameter Set
	- CHOICE Gain Factors	Signalled Cain Factor
	- Gain factor &c	Signalled Gain Factor 10
	- Gain factor ßd	15
	- Reference TFC ID	Not Present
	- Power offset Pp-m	-5dB
	- PRACH partitioning	-305
	- Access Service Class	
	- ASC Setting	
	- CHOICE mode	FDD
	- Available signature Start Index	0 (ASC#0)
	- Available signature End Index	7 (ASC#0)
	-	
	 Assigned Sub-channel Number 	'1111'B
	- ASC Setting	
	- CHOICE mode	FDD
	- Available signature Start Index	0 (ASC#1)
	- Available signature End Index	7 (ASC#1)
	•	

'1111'B
FDD
0 (ASC#2)
7 (ASC#2)
'1111'B
FDD
0 (ASC#3)
7 (ASC#3)
'1111'B ´
FDD
0 (ASC#4)
7 (ASC#4)
'1111'B
FDD
0 (ASC#5)
7 (ASC#5)
'1111'B
FDD
0 (ASC#6)
7 (ASC#6)
'1111'B
FDD
0 (ASC#7)
7 (ASC#7)
'1111'B
0.9 (for ASC#2)
0.9 (for ASC#3)
0.9 (for ASC#4)
0.9 (for ASC#5)
0.9 (for ASC#6)
0.9 (for ASC#7)
0 (400 0)
6 (AC0-9)
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- Assigned Sub-channel Number - ASC Setting - CHOICE mode - Available signature Start Index - Available signature End Index - Assigned Sub-channel Number - ASC Setting - CHOICE mode - Available signature Start Index - Available signature Start Index - Available signature Start Index - Available signature End Index - Available signature End Index - Available signature End Index - Available Signature End Index - Available Signature End Index - Available Signature End Index - Available Signature End Index - Available Signature End Index - Available Signature End Index - Available Signature End Index - Available Signature End Index - Available Signature End Index - Available Signature End Index - Available Signature End Index - Available Signature End Index - Available Signature End Index - Available Signature End Index - Available Signature End Index - Available Signature End Index - Available Signature End Index	- Available signature End Index	7 (ASC#0)
- ASC Setting - CHOICE mode - Available signature Start Index - Available signature End Index - Assigned Sub-channel Number - ASC Setting - CHOICE mode - Available signature Start Index - Available signature Start Index - Available signature End Index - Available signature End Index - Available signature End Index - ASC Setting - CHOICE mode - Available signature Start Index - Available signature End Index - Available Signature End Index - ASC Setting - CHOICE mode - Available signature Start Index - Available signature Thomas Start Index - Available Signature End Index - AVAILABLE START	_	,
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- CHOICE mode - Available signature Start Index - Available signature End Index 7 (ASC#2)	~	11111'B
- Available signature Start Index - Available signature End Index 0 (ASC#2) 7 (ASC#2)		EDD
- Available signature End Index 7 (ASC#2)		
- Assigned Sub-channel Number '1111'B	_	
	- Assigned Sub-channel Number	'1111'B

- ASC Setting	
- CHOICE mode	FDD
- Available signature Start Index	0 (ASC#3)
- Available signature End Index	7 (ASC#3)
- Assigned Sub-channel Number	'1111'B
- ASC Setting	
- CHOICE mode	FDD
- Available signature Start Index	0 (ASC#4)
Available signature End Index	7 (ASC#4)
_	
- Assigned Sub-channel Number	'1111'B
- ASC Setting	FDD
- CHOICE mode	FDD
- Available signature Start Index	0 (ASC#5)
 Available signature End Index 	7 (ASC#5)
- Assigned Sub-channel Number	'1111'B
- ASC Setting	
- CHOICE mode	FDD
 Available signature Start Index 	0 (ASC#6)
 Available signature End Index 	7 (ASC#6)
- Assigned Sub-channel Number	'1111'B
- ASC Setting	
- CHOICE mode	FDD
 Available signature Start Index 	0 (ASC#7)
- Available signature End Index	7 (ASC#7)
- Assigned Sub-channel Number	'1111'B
- Persistence scaling factor	
- Persistence scaling factor	0.9 (for ASC#2)
- Persistence scaling factor	0.9 (for ASC#3)
- Persistence scaling factor	0.9 (for ASC#4)
- Persistence scaling factor	0.9 (for ASC#5)
- Persistence scaling factor	0.9 (for ASC#6)
- Persistence scaling factor	0.9 (for ASC#7)
- AC-to-ASC mapping table	()
- AC-to-ASC mapping	6 (AC0-9)
- AC-to-ASC mapping	5 (AC10)
- AC-to-ASC mapping	4 (AC11)
- AC-to-ASC mapping	3 (AC12)
- AC-to-ASC mapping	2 (AC13)
- AC-to-ASC mapping	1 (AC14)
- AC-to-ASC mapping	0 (AC15)
CHOICE mode	FDD
- Primary CPICH DL TX power	31
- Constant value	-10
- PRACH power offset	
- Power Ramp Step	3dB
- Preamble Retrans Max	2
- RACH transmission parameters	
- Mmax	2
- NB01min	3 slot
- NB01max	10 slot
- AICH info	
- Channelisation code	4
- STTD indicator	FALSE
- AICH transmission timing	0

SYSTEM INFORMATION TYPE 5 (Step 1) – 3.84 Mcps TDD

- PRACH system information	2PRACHs
- PRACH info (PRACH No.1)	
- CHOICE mode	<u>TDD</u>
- CHOICE TDD option	3.84 Mcps TDD
- Timeslot Number	14
- PRACH Channelisation Code	14
- CHOICE SF	<u>8</u>
- Channelisation Code List	
- Channelisation Code	<u>8/1</u>
- Channelisation Code	<u>8/2</u>
- Channelisation Code	<u>8/3</u>
- Channelisation Code	8/4
DD A CLU Midomble	
- PRACH Midamble	Direct
-PNBSCH allocation	Not Present
- Transport Channel Identity	<u>15</u>
- RACH TFS	
- CHOICE Transport channel type	Common transport channels
- Dynamic Transport format information	COMMON MANAGER CHAINTOIC
- RLC size	168
	100
- Number of TB and TTI List	N. D.
- Transport Time Interval	Not Present
- Number of Transport Blocks	<u>1</u>
- CHOICE Logical Channel List	ĀLL
- Semi-static Transport Format information	
- Transmission time interval	10 ms
- Type of channel coding	Convolutional
- Coding Rate	<u>1/2</u>
- Rate matching attribute	<u>150</u>
- CRC size	16
- RACH TFCS	Not Present
- PRACH partitioning	
- Access Service Class	
- ASC Setting	
- CHOICE mode	<u>TDD</u>
- CHOICE TDD option	3.84 Mcps TDD
- Available SYNC UL codes indices	<u>'11110000'B (ASC#0)</u>
- CHOICE subchannel size	Size1
- ASC Setting	01201
- CHOICE mode	TDD
	TDD
- CHOICE TDD option	3.84 Mcps TDD
- Available SYNC UL codes indices	<u>'11110000'B (ASC#1)</u>
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
	3.84 MCPS 100 '11110000'B (ASC#2)
- Available SYNC_UL codes indices	
- CHOICE subchannel size	<u>Size1</u>
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
 Available SYNC_UL codes indices 	<u>'11110000'B (ASC#3)</u>
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
	'11110000'B (ASC#4)
- Available SYNC, LIL codes indices	
- Available SYNC_UL codes indices	
- Available SYNC_UL codes indices - CHOICE subchannel size - ASC Setting	Size1

CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
- Available SYNC_UL codes indices	'11110000'B (ASC#5)
- CHOICE subchannel size	Size1
- ASC Setting	<u> </u>
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
- Available SYNC_UL codes indices	<u>'11110000'B (ASC#6)</u>
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	<u>TDD</u>
- CHOICE TDD option	3.84 Mcps TDD
- Available SYNC_UL codes indices	'11110000'B (ASC#7)
- CHOICE subchannel size	Size1
- Persistence scaling factor	<u></u>
- Persistence scaling factor	0.9 (for ASC#2)
- Persistence scaling factor	0.9 (for ASC#3)
- Persistence scaling factor	0.9 (for ASC#4)
- Persistence scaling factor	0.9 (for ASC#5)
- Persistence scaling factor	0.9 (for ASC#6)
 Persistence scaling factor 	0.9 (for ASC#7)
- AC-to-ASC mapping table	
- AC-to-ASC mapping	6 (AC0-9)
- AC-to-ASC mapping	5 (AC10)
- AC-to-ASC mapping	4 (AC11)
- AC-to-ASC mapping	3 (AC12)
- AC-to-ASC mapping	2 (AC13)
- AC-to-ASC mapping	<u>1 (AC14)</u>
- AC-to-ASC mapping	<u>0 (AC15)</u>
- CHOICE mode	TDD
- PRACH info (PRACH No.2)	100
	TDD
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
- Timeslot Number	<u>14</u>
- PRACH Channelisation Code	
- CHOICE SF	<u>8</u>
- Channelisation Code List	_
- Channelisation Code	8/5 where i denotes an unassigned code
- Channelisation Code	8/6 where i denotes an unassigned code
- Channelisation Code	8/7 where i denotes an unassigned code
- Channelisation Code	8/8 where i denotes an unassigned code
- PRACH Midamble	Direct
-PNBSCH allocation	Not Present
· · · · · · · · · · · · · · · · · · ·	
- RACH TFS	Operation to a second of the s
- CHOICE Transport channel type	Common transport channels
- Dynamic Transport format information	
- RLC size	<u>168</u>
- Number of TB and TTI List	
- Transport Time Interval	Not Present
- Number of Transport Blocks	1
- CHOICE Logical Channel List	ÄLL
- Semi-static Transport Format information	
- Transmission time interval	10 ms
- Type of channel coding	Convolutional
- Coding Rate	1/2
- Rate matching attribute	150
- CRC size	<u>16</u>
- RACH TFCS	Not Present
- PRACH partitioning	
- Access Service Class	

	1
- ASC Setting	
- CHOICE mode	<u>TDD</u>
- CHOICE TDD option	3.84 Mcps TDD
- Available SYNC_UL codes indices	'00001111'B (ASC#0)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
- Available SYNC UL codes indices	(00001111'B (ASC#1)
- CHOICE subchannel size	Size1
- ASC Setting	<u> </u>
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
- Available SYNC UL codes indices	(00001111'B (ASC#2)
CHOICE authorized aire	
- CHOICE subchannel size	Size1
- ASC Setting	TDD
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
- Available SYNC_UL codes indices	(00001111'B (ASC#3)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	<u>TDD</u>
- CHOICE TDD option	3.84 Mcps TDD
- Available SYNC UL codes indices	'00001111'B (ASC#4)
 CHOICE subchannel size 	Size1
- ASC Setting	
- CHOICE mode	<u>TDD</u>
- CHOICE TDD option	3.84 Mcps TDD
 Available SYNC UL codes indices 	'00001111'B (ASC#5)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	<u>TDD</u>
- CHOICE TDD option	3.84 Mcps TDD
- Available SYNC UL codes indices	'00001111'B (ASC#6)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
- Available SYNC UL codes indices	(00001111'B (ASC#7)
- CHOICE subchannel size	Size1
- Persistence scaling factor	
- Persistence scaling factor	0.9 (for ASC#2)
- Persistence scaling factor	0.9 (for ASC#3)
- Persistence scaling factor	0.9 (for ASC#4)
- Persistence scaling factor	0.9 (for ASC#5)
- Persistence scaling factor	0.9 (for ASC#6)
- Persistence scaling factor	0.9 (for ASC#7)
- AC-to-ASC mapping table	0.9 (101 AOO#1)
- AC-to-ASC mapping table	6 (AC0-9)
- AC-to-ASC mapping - AC-to-ASC mapping	5 (AC10)
- AC-to-ASC mapping - AC-to-ASC mapping	4 (AC11)
- AC-to-ASC mapping - AC-to-ASC mapping	3 (AC12)
- AC-to-ASC mapping	2 (AC13) 1 (AC14)
- AC-to-ASC mapping	
AC-to-ASC mapping CHOICE mode	<u>0 (AC15)</u>
- CHOICE Mode	TDD

SYSTEM INFORMATION TYPE 5 (Step 1) – 1.28 Mcps TDD

	•
- PRACH system information	2PRACHs
- PRACH info (PRACH No.1)	
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
	1.26 WCPS TDD
- SYNC_UL info	
 SYNC_UL codes bitmap 	<u>'11110000'B</u>
- PRX _{UpPCHdes}	10
- Power Ramping Step	$\frac{1}{3}$
- Max SYNC_UL Transmissions	10 3 8 32
	0 22
- Mmax	<u>32</u>
- PRACH Definition	
- Timeslot Number	
- CHOICE TDD option	1.28 Mcps TDD
- Timeslot number	1
- PRACH Channelisation Code	-
- Channelisation Code List	
	0/4
- Channelisation Code	<u>8/1</u>
 Midamble shift and burst type 	
- CHOICE TDD option	1.28 Mcps TDD
- Midamble Allocation Mode	Default
- Midamble Configuration	8
	Not Present
- Midamble Shift	INOUT LESCUE
- FPACH info	
- Timeslot number	<u>6</u>
- Channelisation code	16/16
- Midamble Shift and burst type	
- CHOICE TDD option	1.28 Mcps TDD
- Midamble Allocation Mode	
	<u>Default</u>
- Midamble Configuration	<u>16</u>
- Midamble Shift	Not Present
I WAT	
<u>- WT</u>	<u>4</u>
- PNBSCH allocation	Not Present
- Transport Channel Identity	15
	<u>10</u>
- RACH TFS	
- CHOICE Transport channel type	Common transport channels
- Dynamic Transport format information	
- RLC size	168
- Number of TB and TTI List	100
- Transport Time Interval	Not Present
- Number of Transport Blocks	1
- CHOICE Logical Channel List	ÄLL
- Semi-static Transport Format information	
	40
- Transmission time interval	<u>10 ms</u>
- Type of channel coding	Convolutional
- Coding Rate	<u>½</u>
- Rate matching attribute	150 150
- CRC size	<u>16</u>
- RACH TFCS	Not Present
- PRACH partitioning	
- Access Service Class	
- ASC Setting	1
- CHOICE mode	<u>TDD</u>
- CHOICE TDD option	1.28 Mcps TDD
-1	
Available CVNC III, and an indiana	(44440000P (ACC#0)
- Available SYNC_UL codes indices	(11110000'B (ASC#0)
- CHOICE subchannel size	'11110000'B (ASC#0) Size1
- CHOICE subchannel size - ASC Setting	
- CHOICE subchannel size	

- CHOICE TDD option	1.28 Mcps TDD
- Available SYNC_UL codes indices	'11110000'B (ASC#1)
- CHOICE subchannel size	Size1
- ASC Setting	<u> </u>
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- Available SYNC UL codes indices	<u>'11110000'B (ASC#2)</u>
- CHOICE subchannel size	<u>Size1</u>
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- Available SYNC UL codes indices	<u>'11110000'B (ASC#3)</u>
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- Available SYNC UL codes indices	<u>'11110000'B (ASC#4)</u>
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- Available SYNC UL codes indices	<u>'11110000'B (ASC#5)</u>
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- Available SYNC_UL codes indices	<u>'11110000'B (ASC#6)</u>
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- Available SYNC_UL codes indices	<u>'11110000'B (ASC#7)</u>
- CHOICE subchannel size	<u>Size1</u>
- Persistence scaling factor	
- Persistence scaling factor	0.9 (for ASC#2)
- Persistence scaling factor	0.9 (for ASC#3)
- Persistence scaling factor	0.9 (for ASC#4)
- Persistence scaling factor	0.9 (for ASC#5)
- Persistence scaling factor	0.9 (for ASC#6)
- Persistence scaling factor	0.9 (for ASC#7)
- AC-to-ASC mapping table	0 (4.00 0)
- AC-to-ASC mapping	<u>6 (AC0-9)</u>
- AC-to-ASC mapping	<u>5 (AC10)</u>
- AC-to-ASC mapping	4 (AC11)
- AC-to-ASC mapping	3 (AC12)
- AC-to-ASC mapping	2 (AC13)
- AC-to-ASC mapping	1 (AC14)
- AC-to-ASC mapping	<u>0 (AC15)</u>
- CHOICE mode	<u>TDD</u>
- PRACH info (PRACH No.2)	
- CHOICE mode	<u>TDD</u>
	1.28 Mcps TDD
- CHOICE TDD option	
- CHOICE TDD option	
- SYNC UL info	
- SYNC UL info - SYNC UL codes bitmap	<u>'11110000'B</u>
- SYNC_UL_info - SYNC_UL_codes bitmap - PRXUpPCHdes	<u>'11110000'B</u>
- SYNC_UL_info - SYNC_UL_codes bitmap - PRX_UpPCHdes - Power Ramping Step	'11110000'B 10 1
- SYNC_UL_info - SYNC_UL_codes bitmap - PRX _{UpPCHdes} - Power Ramping Step - Max SYNC_UL Transmissions	'11110000'B 10 1 8
- SYNC_UL info - SYNC_UL codes bitmap - PRX _{UpPCHdes} - Power Ramping Step - Max SYNC_UL Transmissions - Mmax	'11110000'B 10 1
- SYNC_UL_info - SYNC_UL_codes bitmap - PRX _{UpPCHdes} - Power Ramping Step - Max SYNC_UL Transmissions - Mmax - PRACH Definition	'11110000'B 10 1 8
- SYNC_UL info - SYNC_UL codes bitmap - PRX_UpPCHdes - Power Ramping Step - Max SYNC_UL Transmissions - Mmax	'11110000'B 10 1 8

- CHOICE TDD option	1.28 Mcps TDD
- Timeslot number	1
- PRACH Channelisation Code	
- Channelisation Code List	
- Channelisation Code	<u>8/2</u>
- Midamble shift and burst type	1,0011 TDD
- CHOICE TDD option	1.28 Mcps TDD
- Midamble Allocation Mode	<u>Default</u>
- Midamble Configuration	8
- Midamble Shift	Not Present
- FPACH info - Timeslot number	An available down-link timeslot
- Channelisation code	<u>16/15</u>
- Midamble Shift and burst type - CHOICE TDD option	1.28 Mcps TDD
- Midamble Allocation Mode	Default
- Midamble Configuration	16
- Midamble Shift	
- WT	Not Present 4
- PNBSCH allocation	Not Present
- RACH TFS	<u>1101 1 1000 11</u>
- CHOICE Transport channel type	Common transport channels
- Dynamic Transport format information	
- RLC size	168
- Number of TB and TTI List	
- Transport Time Interval	Not Present
 Number of Transport Blocks 	1
- CHOICE Logical Channel List	ALL
- Semi-static Transport Format information	
- Transmission time interval	<u>10 ms</u>
- Type of channel coding	Convolutional
- Coding Rate	<u>½</u>
- Rate matching attribute - CRC size	150 16
- RACH TFCS	Not Present
- PRACH partitioning	Not Fresch
- Access Service Class	
- ASC Setting	
- CHOICE mode	<u>TDD</u>
- CHOICE TDD option	1.28 Mcps TDD
- Available SYNC UL codes indices	(00001111'B (ASC#0)
- CHOICE subchannel size - ASC Setting	Size1
- ASC Setting - CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- Available SYNC UL codes indices	(00001111'B (ASC#1)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- Available SYNC UL codes indices - CHOICE subchannel size	(00001111'B (ASC#2)
- CHOICE SUbchannel Size - ASC Setting	Size1
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- Available SYNC_UL codes indices	'00001111'B (ASC#3)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD

 Available SYNC UL codes indices 	<u>'00001111'B (ASC#4)</u>
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- Available SYNC UL codes indices	'00001111'B (ASC#5)
- CHOICE subchannel size	Size1
- ASC Setting	<u> </u>
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- Available SYNC_UL codes indices	'00001111'B (ASC#6)
- CHOICE subchannel size	Size1
- ASC Setting	<u>Size i</u>
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- Available SYNC_UL codes indices	<u>'00001111'B (ASC#7)</u>
- CHOICE subchannel size	Size1
- Persistence scaling factor	0.0 (6. 400 (10)
- Persistence scaling factor	0.9 (for ASC#2)
- Persistence scaling factor	0.9 (for ASC#3)
- Persistence scaling factor	0.9 (for ASC#4)
- Persistence scaling factor	<u>0.9 (for ASC#5)</u>
- Persistence scaling factor	<u>0.9 (for ASC#6)</u>
- Persistence scaling factor	<u>0.9 (for ASC#7)</u>
- AC-to-ASC mapping table	
- AC-to-ASC mapping	<u>6 (AC0-9)</u>
- AC-to-ASC mapping	<u>5 (AC10)</u>
- AC-to-ASC mapping	4 (AC11)
- AC-to-ASC mapping	3 (AC12)
- AC-to-ASC mapping	<u>2 (AC13)</u>
- AC-to-ASC mapping	1 (AC14)
- AC-to-ASC mapping	0 (AC15)
- CHOICE mode	TDD
	· ——

RRC CONNECTION SETUP (Step 6)

Information Element	Value/remark
UTRAN DRX cycle length coefficient	Out of range value

8.1.2.2.5 Test requirement

After step 2 the UE shall select either PRACH No.1 or PRACH No.2 and transmit an RRC CONNECTION REQUEST message.

After step 6 the UE shall re-send another RRC CONNECTION REQUEST message and not access any radio resources specified in RRC CONNECTION SETUP message sent in step 6.

After step 9 the UE shall transmit an RRC CONNECTION SETUP COMPLETE message and establish an RRC connection on the DCCH logical channel.

8.1.2.3 RRC Connection Establishment: Failure (V300 is greater than N300)

8.1.2.3.1 Definition

8.1.2.3.2 Conformance requirement

- 1. The RRC connection establishment is initiated by the UE, which leaves the idle mode and transmits an RRC CONNECTION REQUEST message. This message shall include the IE "Initial UE identity" on the uplink CCCH.
- 2. In the case of a failure to establish the RRC connection after (N300+1) attempts, the UE goes back to idle mode.

Reference

3GPP TS 25.331 clause 8.1.3.

8.1.2.3.3 Test purpose

To confirm that the UE stops retrying to establish the RRC connection if V300 is greater than N300 and goes back to idle mode.

8.1.2.3.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: Idle state (state 2 or state 3 or state 7) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE

Test Procedure

Before the test starts, SS initializes an internal counter K to 0. The UE transmits an RRC CONNECTION REQUEST message to the SS on the uplink CCCH by an outgoing call operation. SS shall not respond to any RRC CONNECTION REQUEST message, instead the counter K is increased by 1 every time such a message is received. To arrive at the verdict, the SS checks that a total of (N300+1) such messages are received.

Step	Direc	ction	Message	Comment
	UE	SS		
1				SS initializes counter K to 0 and
				then prompts the operator to make
				an outgoing call.
2		>	RRC CONNECTION REQUEST	
3				SS increments K by 1.
4				If K is greater than N300, goes to
				step 5 else proceed to step 2.
5				SS monitor the uplink CCCH for a
				time period enough for UE to goes
				back to normal service. The exact
				amount of time to wait shall be
				derived from TS related to cell
				selection. If any uplink
				transmission is detected, the test
				fails.

Specific Message Contents

None

8.1.2.3.5 Test requirement

After step 5, counter K shall be equal to (N300+1) and there shall be no uplink transmission in the monitoring period specified in step 5.

8.1.2.4 RRC Connection Establishment: Reject ("wait time" is not equal to 0)

8.1.2.4.1 Definition

8.1.2.4.2 Conformance requirement

- 1. The RRC connection establishment is initiated by the UE, which leaves the idle mode and transmits an RRC CONNECTION REQUEST message . This message shall include the IE "Initial UE identity" and is to be sent on the uplink CCCH.
- 2. After the UE receives an RRC CONNECTION REJECT message which includes IE "wait time" not set to 0, and neither IE "frequency info" nor IE "system info" is present, the UE shall wait for a period specified in the IE "wait time". Thereafter re-transmit an RRC CONNECTION REQUEST message to attempt to establish the RRC connection again. However, either IE "frequency info" or IE "system info" is available in the message, the UE shall attempt to perform cell reselection using these information.

Reference

3GPP TS 25.331 clause 8.1.3.

8.1.2.4.3 Test purpose

To confirm that the UE retries to establish the RRC connection after the "wait time" if the UE receives an RRC CONNECTION REJECT message which includes the IE "wait time" not set to 0.

To confirm that the UE performs a cell reselection when receiving an RRC CONNECTION REJECT message, containing relevant frequency information of the target cell to be re-selected.

8.1.2.4.4 Method of test

Initial Condition

System Simulator: 2 cells – both cell 1 and cell 2 are active and suitable for camping, but cell 1 is transmitted using a larger power. Cell 1 and cell 2 are being transmitted from different 2 UARFCNs.

UE: Idle state (state 2 or state 3 or state 7) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE transmits an RRC CONNECTION REQUEST message to the SS on the uplink CCCH by an outgoing call operation in cell 1. SS rejects the first request by transmitting an RRC CONNECTION REJECT message which indicates a non-zero wait time. In this message, frequency information for cell 2 is available. SS then waits for RRC CONNECTION REQUEST message on the uplink CCCH of cell 2. SS will also monitor the uplink of cell 1 simultaneously to ensure that all transmission activities from cell 1 have ceased. When the UE has successfully camp onto cell 2, it shall send an RRC CONNECTION REQUEST with the same establishment cause as its previous attempt in cell 1. SS responds with an RRC CONNECTION REJECT message, indicating a non-zero "wait time" and omitting the IE "Redirection Info". The UE shall observe the wait time period indicated. After the wait time has elapsed, the UE shall retransmit RRC CONNECTION REEQUEST again. Finally, SS transmits an RRC CONNECTION SETUP message to establish an RRC connection with the UE, and the UE replies with an RRC CONNECTION SETUP COMPLETE message and enters CELL_DCH state.

Step	Direction	Message	Comment
	UE SS	7	
1	\rightarrow	RRC CONNECTION REQUEST	SS prompts the operator to make an outgoing call in cell 1.
2	←	RRC CONNECTION REJECT	This message shall includes the IE "wait time" set to 15 seconds and IE "frequency info" set to the UARFCN of cell 2.
3			SS waits for a period of time sufficient for UE to reselect to cell 2. At the same time, it monitors the uplink of cell 1 to make sure that all transmissions have ceased.
4	→	RRC CONNECTION REQUEST	UE shall attempt to re-start an RRC connection establishment procedure in cell 2. The establishment cause shall remain unchanged.
5	+	RRC CONNECTION REJECT	This message shall include the IE "wait time" set to 15 seconds, but with IE "Redirection Info" absent.
6	÷	RRC CONNECTION REQUEST	SS waits until the duration specified in IE "wait time" has elapsed and then listens to the uplink CCCH for a second RRC CONNECTION REQUEST message.
7	+	RRC CONNECTION SETUP	SS sends the message to UE, to setup an RRC connection with the UE.
8			The UE shall configure the layer 2 and layer 1 in order to access the uplink and downlink DCCH assigned.
9	\rightarrow	RRC CONNECTION SETUP COMPLETE	

Specific Message Contents

RRC CONNECTION REQUEST (Step 1)

Information Element	Value/remark
Initial UE Identity	Must be equal to U-RNTI assigned previously
Initial UE Capability	Must be compatible with UE settings in TS25.306
Establishment Cause	Must be "Originating Call"

RRC CONNECTION REJECT (Step 2) - FDD

Information Element	Value/remark
Wait time	15 seconds
Redirection Info	
Frequency Info	
CHOICE mode	FDD
UARFCN uplink (Nu)	Set to a different UARFCN from uplink carrier of cell 1
UARFCN downlink (Nd)	Not present – assuming a duplex distance of 190MHz.

RRC CONNECTION REJECT (Step 2) - TDD

Information Element	Value/remark
Wait time	15 seconds
Redirection Info	
Frequency Info	
CHOICE Mode	<u>TDD</u>
UARFCN (Nt)	Set to a different UARFCN from the carrier of cell 1

RRC CONNECTION REQUEST (Step 4 and step 6)

Same requirement as in step 1.

RRC CONNECTION REJECT (Step 5)

Information Element	Value/remark
Wait time	15 seconds
Redirection Info	Not present

8.1.2.4.5 Test requirement

After step 3 the UE shall have successfully re-selected to cell 2, using information transmitted in IE "frequency info" of RRC CONNECTION REJECT message. UE shall trigger the start of RRC connection establishment by transmitting RRC CONNECTION REQUEST. The establishment cause shall be similar to the message sent in step 1.

After step 5 the UE shall observe the period specified in IE "wait time" of an RRC CONNECTION REJECT message and not transmit an RRC CONNECTION REQUEST message in this period.

After step 7 the UE shall transmit an RRC CONNECTION SETUP COMPLETE message to SS on uplink DCCH and then establish an RRC connection.

8.1.2.5 RRC Connection Establishment: Reject ("wait time" is not equal to 0 and V300 is greater than N300)

8.1.2.5.1 Definition

8.1.2.5.2 Conformance requirement

The RRC connection establishment is initiated by the UE, which leaves the idle mode and transmits an RRC CONNECTION REQUEST message . This message shall include the IE "Initial UE identity" and is to be sent on the uplink CCCH.

After the UE receives an RRC CONNECTION REJECT message which includes IE "wait time" not set to 0, and neither IE "frequency info" nor IE "system info" is present, the UE shall wait for a period specified in the IE "wait time". Thereafter it re-transmits an RRC CONNECTION REQUEST message to attempt to establish the RRC connection again. In the case of a failure to establish the RRC connection after (N300+1) attempts, the UE goes back to idle mode.

Reference

3GPP TS 25.331 clause 8.1.3.

8.1.2.5.3 Test purpose

To confirm that the UE retries to establish the RRC connection after the "wait time" if the UE receives an RRC CONNECTION REJECT message which specifies a non-zero IE "wait time".

To confirm that the UE stops retrying to establish the RRC connection if V300 is greater than N300 and goes back to idle mode.

8.1.2.5.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: Idle state (state 2 or state 3 or state 7) as specified in clause 7.4 of TS 34.108 ,depending on the CN domain(s) supported by the UE

Test Procedure

Before the test starts, SS initializes an internal counter K to 0. The UE transmits an RRC CONNECTION REQUEST message to the SS on the uplink CCCH, triggered by an outgoing data call operation. SS rejects all requests by transmitting an RRC CONNECTION REJECT message which indicates a non-zero wait time and the counter K is increased by 1 every time such a message is received. To arrive at the verdict, the SS checks that a total of (N300+1) such messages are received.

Expected sequence

Step	Direction		Message	Comment
_	UE	SS	_	
1				SS initializes counter K to 0 and then prompts the operator to make an outgoing data call.
2		\rightarrow	RRC CONNECTION REQUEST	Shall be sent on CCCH and contain the correct establishment cause.
3		(RRC CONNECTION REJECT	This message includes the IE "wait time" set to 15 seconds.
4				SS increments K by 1.
5				If K is greater than N300, goes to step 6. Else SS waits for 15 sec before proceeding to step 2.
6				SS monitor the uplink CCCH for a time period enough for UE to goes back to normal service. The exact amount of time to wait shall be derived from TS related to cell selection. If any uplink transmission is detected, the test fails.

Specific Message Contents

RRC CONNECTION REQUEST (Step 2)

Information Element	Value/remark
Initial UE Identity Initial UE Capability	Must be equal to U-RNTI assigned previously Must be compatible with UE settings in TR25.926
Establishment Cause	Must be "Originating Call"

RRC CONNECTION REJECT (Step 3)

Information Element	Value/remark
Wait time	15 seconds

8.1.2.5.5 Test requirement

After step 6, counter K shall be equals to (N300+1) and there shall be no uplink transmission in the monitoring period specified in step 6.

8.1.2.6 RRC Connection Establishment: Reject ("wait time" is set to 0)

8.1.2.6.1 Definition

8.1.2.6.2 Conformance requirement

- 1. The RRC connection establishment is initiated by the UE, which leaves the idle mode and transmits an RRC CONNECTION REQUEST message on the uplink CCCH.
- In the case of a failure to establish the RRC connection by the reception of a RRC CONNECTION REJECT message which contains IE "wait time" equals to 0, the UE shall go back to idle mode immediately.

Reference

3GPP TS 25.331 clause 8.1.3.

8.1.2.6.3 Test purpose

To confirm that the UE goes back to idle mode, if the SS transmits an RRC CONNECTION REJECT message which includes IE "wait time" set to 0. To confirm that the UE ignores an RRC CONNECT REJECT message not addressed to it. To confirm that the UE is capable of handling an erroneous RRC CONNECTION REJECT message correctly.

8.1.2.6.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: Idle state (state 2 or state 3 or state 7) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE transmits an RRC CONNECTION REQUEST message to the SS on the uplink CCCH by making an outgoing call. After the SS receives this message, it transmits an RRC CONNECTION REJECT message which is not addressed to the UE. The UE shall disregard this message and proceed to re-transmit RRC CONNECTION REQUEST message upon T300 timer expiry. SS answers the second RRC CONNECTION REQUEST message by transmitting an RRC CONNECTION REJECT message with IE "wait time" set to 15 seconds, but without the mandatory IE "rejection cause". The UE shall continue to send the third RRC CONNECTION REQUEST message after a 15 second lapse. Next, the SS sends a legal RRC CONNECTION REJECT message which is expected to cause the UE to move to idle mode spontaneously. To confirm that finally the UE goes back to idle mode immediately after receiving the reject message, SS shall monitor the uplink CCCH for the next 60 second and verify that there is no further transmission in the uplink direction.

Step	Direction		Message	Comment
	UE	SS		
1		\rightarrow	RRC CONNECTION REQUEST	Test operator is prompted to make an out-going call,
2		←	RRC CONNECTION REJECT	IE "Initial UE identity" contains an identity different from any of the UE identities available.
3		\rightarrow	RRC CONNECTION REQUEST	UE shall continue to send this message after T300 time-out.
4		←	RRC CONNECTION REJECT	IE "Reject Cause" is omitted, IE "wait time" is set to 15 seconds (maximum).
5		→	RRC CONNECTION REQUEST	UE shall continue to send this message after the expiry of "wait time" IE indicated in RRC CONNECTION REJECT message in step 4.
6		-	RRC CONNECTION REJECT	IE "wait time" is set to 0.
7				The UE goes back to idle mode

Specific Message Contents

RRC CONNECTION REQUEST (Step 1)

Information Element	Value/remark
Initial UE Identity	Checked to see if it is set to IMSI stored in the test
	TEST USIM card.
Establishment Cause	Checked to see if set to one of the supported originating
	call types
Protocol Error Indicator	Checked to see if set to "FALSE"
Measured Results on RACH	Checked to see if it is absent

RRC CONNECTION REJECT (Step 2)

Information Element	Value/remark
Initial UE Identity	
IMSI	Set to an arbitrary octet string of length 7 bytes, which is different from the IMSI stored in TEST USIM.
Wait time	15 seconds
Redirection Info	Not present

RRC CONNECTION REQUEST (Step 3)

Information Element	Value/remark
Initial UE Identity	Checked to see if it is set to IMSI stored in the test
	TEST USIM card.
Establishment Cause	Checked to see if set to one of the supported originating
	call types
Protocol Error Indicator	Checked to see if set to "FALSE"
Measured Results on RACH	Checked to see if it is absent

RRC CONNECTION REJECT (Step 4)

Information Element	Value/remark
Initial UE Identity	
IMSI	Set to the identical octet string as the IMSI stored in the TEST USIM card.
Reject Cause	Not Present
Wait time	15 seconds (Maximum)
Redirection Info	Not Present

RRC CONNECTION REQUEST (Step 5)

Information Element	Value/remark
Initial UE Identity	Checked to see if it is set to IMSI stored in the test
	TEST USIM card.
Establishment Cause	Checked to see if set to one of the supported originating
	call types
Protocol Error Indicator	Checked to see if set to "TRUE"
Measured Results on RACH	Checked to see if it is absent

RRC CONNECTION REJECT (Step 6)

Information Element	Value/remark
Initial UE Identity	
IMSI	Set to the identical octet string as the IMSI stored in the TEST USIM card.
Reject Cause	Congestion
Wait time	0 second
Redirection Info	Not present

8.1.2.6.5 Test requirement

After step 2 the UE shall transmit an RRC CONNECTION REQUEST message on uplink CCCH.

After step 4 the UE shall re-transmit an RRC CONNECTION REQUEST message on the uplink CCCH 15 seconds after the transmission of the second downlink RRC CONNECTION REJECT message. In this message, the "protocol error indicator" IE shall be set to "TRUE".

After step 6 the UE shall stop sending an RRC CONNECTION REQUEST message, go back to idle mode immediately and not transmit in the uplink direction again.

8.1.2.7 RRC Connection Establishment in CELL_FACH state: Success

8.1.2.7.1 Definition

8.1.2.7.2 Conformance requirement

During the RRC connection establishment, the UTRAN might assign common physical resource to the UE using an RRC CONNECTION SETUP message. When no information about the physical channels accessible is available from the message, the UE shall utilize the PRACH and S-CCPCH information transmitted on the BCCH and then enter the CELL_FACH. Subsequently, the UE shall establish the required signalling links with the UTRAN using common physical resources.

Reference

3GPP TS 25.331 clause 8.1.3.

8.1.2.7.3 Test Purpose

To confirm that the UE is able to enter CELL_FACH state and setup signalling links using common physical channels.

8.1.2.7.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: Idle state (state 2 or state 3 or state 7) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE transmits an RRC CONNECTION REQUEST message to the SS on the uplink CCCH by attempting to make an outgoing call. After the SS receives this message, it assigns the necessary radio resources and U-RNTI to be used by the UE, and then transmits an RRC CONNECTION SETUP message to the UE within timer T300. SS then waits for the UE to transmit an RRC CONNECTION SETUP COMPLETE message on the DCCH.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1		\rightarrow	RRC CONNECTION REQUEST	Test operator is requested to make an outgoing call. The UE shall transmit this message, indicating the correct establishment cause.
2		←	RRC CONNECTION SETUP	SS omits both IE "Uplink DPCH Info" and IE "Downlink DPCH Info" from the message.
3				The UE shall configure the layer 2 and layer 1.
4		→	RRC CONNECTION SETUP COMPLETE	UE shall send this message on the DCCH, carried by the assigned PRACH resources.

Specific Message Content

RRC CONNECTION REQUEST

Information Element	Value/remark	
Establishment Cause	Originating Interactive Call	

RRC CONNECTION SETUP

For this message, the contents of the message to be used are basically identical to the message sub-type entitled "RRC CONNECTION SETUP message (Transition to CELL_FACH)" found in the default message content part. The following exceptions are applicable in this test:

Information Element	Value/remark
Uplink DPCH Info	Not Present
Downlink information common for all radio links	Not Present
Downlink information per radio link list	Not Present

RRC CONNECTION SETUP COMPLETE

Information Element	Value/remark
UE Radio Access Capability	Checked to see if compatible with the stated capability
	in PIXIT/PICS statements.

8.1.2.7.5 Test requirements

After step 3 the UE shall establish the RRC connection, and transmit RRC CONNECTION SETUP COMPLETE message on the DCCH using PRACH physical resource specified in system information block messages.

8.1.2.8 RRC Connection Establishment: Invalid system information message reception

8.1.2.8.1 Definition

8.1.2.8.2 Conformance requirement

The UE shall ignore the message and shall not select the cell, if the associated a SYSTEM INFORMATION message on the BCCH which includes an invalid value in the mandatory information element which in the master information block is broadcasting.

Reference

3GPP TS 25.331 clause 8.1.1 and clause 9.

8.1.2.8.3 Test purpose

To confirm that the UE does not select the cell if the transmitted SYSTEM INFORMATION message on the BCCH which includes an invalid value in the information element in the master information block is broadcasting.

8.1.2.8.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: Power off (state 1) as specified in clause 7.4 of TS 34.108.

Test Procedure

The SS broadcasts the SYSEM INFORMATION message on the BCCH which includes the PLMN Type information element having an invalid value in the master information block. When the UE is supplied the power, it finds that the SYSTEM INFORMATION message on the BCCH includes the unknown value in the mandatory information element and the UE shall ignore this message. When an outgoing call is attempted, the test operator shall be informed that the UE is in a "No Service" state. The UE shall not transmit an RRC CONNECTION REQUEST message on the uplink CCCH.

Step	Direction	Message	Comment
	UE SS		
1	←	SYSTEM INFORMATION	The SS broadcasts the SYSTEM INFORMATION message on the BCCH which includes an invalid value in the master information block.
2			The UE is supplied the power.
3			SS waits for 1 minute and then asks the test operator to attempt to make an outgoing call.
4			SS checks that no uplink transmission on CCCH is detected.

Specific Message Contents

SYSTEM INFORMATION (master information block)

The contents of a SYSTEM INFORMATION message in this test case is identical to the corresponding message found in the default contents of layer 3 messages for RRC tests, with the following exceptions:

Information Element	Value/remark	
Supported PLMN Types	invalid value which is not defined	

8.1.2.8.5 Test requirement

After step 3 the UE shall not transmit an RRC CONNECTION REQUEST message on the uplink CCCH.

8.1.2.9 RRC Connection Establishment: Success after Physical channel failure, Invalid message reception and Invalid configuration

8.1.2.9.1 Definition

8.1.2.9.2 Conformance requirement

- The RRC connection establishment is initiated by the UE, which leaves the idle mode. The UE shall transmit an RRC CONNECTION REQUEST message which includes the IE "Initial UE identity". This message shall be sent on the uplink CCCH.
- 2. In the case of a failure to establish the RRC connection at the physical channel failure after the UE receives an RRC CONNECTION SETUP message ,the UE retries to establish the RRC connection until V300 is greater than N300
- 3. In the case of an invalid RRC CONNECTION SETUP message is received by UE, the UE retries to establish the RRC connection until V300 is greater than N300
- 4. In the case of a RRC CONNECTION SETUP message is received by UE causes invalid configuration, the UE retries to establish the RRC connection until V300 is greater than N300

Reference

3GPP TS 25.331 clause 8.1.3.

8.1.2.9.3 Test purpose

To confirm that the UE retries to establish the RRC connection until V300 is greater than N300 for the physical channel failure as the SS does not configure the physical channel which is specified in the transmitted RRC CONNECTION SETUP message. To confirm that the UE retries to establish the RRC connection until V300 is greater than N300 when the transmitted RRC CONNECTION SETUP message causes invalid configuration in the UE.

8.1.2.9.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: Idle state (state 2 or state 3 or state 7) as specified in clause 7.4 of TS 34.108 , depending on the CN domain(s) supported by the UE

Test Procedure

Before the test starts, an internal counter K in SS is initialised to a value = 0. Following this, the UE shall transmit an RRC CONNECTION REQUEST message to the SS on the uplink CCCH, after the operator attempts to make an outgoing call. SS increments K every time such a message is received. Then, SS shall send a RRC CONNECTION SETUP message that contain an invalid configuration. UE shall then send RRC CONNECTION REQUEST message to SS again. Next SS transmits an RRC CONNECTION SETUP message to make the UE configure the physical channel in order to communicate on the DCCH but SS does not configure the physical channel. Then the UE detects the physical channel failure and transmits an RRC CONNECTION REQUEST message. This cycle is repeated until K reaches N300. When K is equal to N300, the SS transmits the RRC CONNECTION SETUP message and configures the physical channel. The UE shall detect "in-sync" from physical layer and then acknowledge the establishment of RRC connection by sending the RRC CONNECTION SETUP COMPLETE message on uplink DCCH.

Step	Direction		Message	Comment
	UE	SS		
1				SS initialises counter K to 0. Operator is asked to make an outgoing call and SS starts to wait for RRC CONNECTION REQUEST on uplink CCCH.
2		>	RRC CONNECTION REQUEST	SS increments K.
3				SS checks to see if K is equal to N300+1. If so, goes to step 6. Else, continues to execute step 4.
4	*	-	RRC CONNECTION SETUP	See message content below. SS does not configure the physical channel.
5				The next step is step 2.
6	+	-	RRC CONNECTION SETUP	See the clause 9 in TS 34.108 on default message content for RRC. SS configures the physical channel.
7				The UE configures the layer 1 and layer 2.
8	-		RRC CONNECTION SETUP COMPLETE	

Specific Message Contents

RRC CONNECTION SETUP (Step 4)

Use the same message sub-type found in Clause 9 of TS34.108, with the following exceptions:

Information Element	Value/remark
RRC State Indicator	CELL_DCH
Uplink DPCH info	Not present

RRC CONNECTION SETUP (Step 4 and K>2)

Use the same message sub-type found in clause 9 of TS 34.108.

RRC CONNECTION REQUEST (Step 2 and K>1)

Use the same message sub-type found in clause 9 of TS34.108, with the following exceptions:

Information Element	Value/remark	
Protocol error indicator	TRUE	

8.1.2.9.5 Test requirement

After step 4 the UE shall re-send RRC CONNECTION REQUEST message.

After step 8 the UE shall transmit an RRC CONNECTION SETUP COMPLETE message and establish an RRC connection.

8.1.3 RRC Connection Release

8.1.3.1 RRC Connection Release in CELL_DCH state: Success

8.1.3.1.1 Definition

8.1.3.1.2 Conformance requirement

In case of an RRC connection release from CELL_DCH state, the UTRAN transmits an RRC CONNECTION RELEASE message to the UE using unacknowledged mode on the DCCH. The UE then responds by transmitting an RRC CONNECTION RELEASE COMPLETE message using unacknowledged mode to UTRAN for N308 times, each time at the expiry of T308 timer. Then the UE leaves the RRC connected mode and initiates release of the layer 2 signalling link. The RRC Connection Release procedure ends when all UE dedicated resources (such as radio resources and radio access bearers) associated with the RRC connection are released and the UE returns to idle mode.

Reference

3GPP TS 25.331 clause 8.1.4.

8.1.3.1.3 Test purpose

To confirm that the UE releases the L2 signalling link and dedicated resources and goes back to the idle state after it receives an RRC CONNECTION RELEASE message from the SS and transmits an RRC CONNECTON RELEASE COMPLETE message to the SS for N308 times at the interval specified by the value of T308 timer.

8.1.3.1.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: CELL_DCH state (state 6-1 or state 6-3) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE

Test Procedure

The UE is brought to the CELL_DCH state by prompting the operator to initiate an outgoing call. After the DCCH is established, SS transmits an RRC CONNECTION RELEASE message to the UE to disconnect the connection. SS then waits for the UE to transmit an RRC CONNECTION RELEASE COMPLETE message using unacknowledged mode. SS checks to see if P such messages has been received at each expiry of T308 timer. P is equal to the value of IE "Number of RRC Message Transmissions" in an RRC CONNECTION RELEASE message.

Step	Direction		Message	Comment
	UE	SS		
1				The UE is in the CELL_DCH state after a successful RRC connection establishment by virtue of the operator making an outgoing call.
2		←	RRC CONNECTION RELEASE	SS disconnect the connection established. The value in IE "Number of RRC Message Transmissions" is arbitrarily chosen from 4 to 8 and denoted by P.
3		\rightarrow	RRC CONNECTION RELEASE COMPLETE	SS waits for the arrival of N308 such message at the expiry of each T308 timer, using unacknowledged mode.
4				The UE releases L2 signalling link and dedicated resources. Then the UE goes to idle mode.

Specific Message Content

RRC CONNECTION RELEASE (Step 2)

Information Element	Value/remark
Number of RRC Message Transmission	Arbitrarily chosen between 4 and 8

8.1.3.1.5 Test requirement

After step 2 the UE shall start to transmit P times RRC CONNECTION RELEASE COMPLETE messages at the expiry of each T308 timer.

After step 3 the UE shall initiate the release L2 signalling link and dedicated resources, then it shall go to idle mode.

8.1.3.2 RRC Connection Release using on DCCH in CELL_FACH state: Success

8.1.3.2.1 Definition

8.1.3.2.2 Conformance requirement

In CELL_FACH state, the RRC layer entity in the network may issue an RRC CONNECTION RELEASE message using unacknowledged mode on the DCCH. Upon the reception of this message, the UE transmits an RRC CONNECTION RELEASE COMPLETE message using acknowledged mode to UTRAN on the DCCH and goes back to idle mode after it receives an RLC confirmation from the UTRAN.

Reference

3GPP TS 25.331 clause 8.1.4.

8.1.3.2.3 Test purpose

To confirm that the UE releases the L2 signalling link and resources and goes back to the idle state after it receives an RRC CONNECTION RELEASE message on downlink DCCH from the SS. It shall transmit an RRC CONNECTON RELEASE COMPLETE message using acknowledged mode on uplink DCCH to the SS.

8.1.3.2.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CELL_FACH state (state 6-2 or state 6-4) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE is brought to an initial state of CELL_FACH. After the successful establishment of the RRC connection, the SS transmits an RRC CONNECTION RELEASE message to the UE to disconnect the radio link. When the UE receives this message the UE transmits an RRC CONNECTION RELEASE COMPLETE message using acknowledged mode to the SS. Finally, SS checks that the UE performs proper release of all radio resources and then goes back to idle mode.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is brought to the CELL_FACH state.
2	•	ξ-	RRC CONNECTION RELEASE	SS sends this message using unacknowledged mode RLC operations on the uplink DCCH.
3)	RRC CONNECTION RELEASE COMPLETE	The UE transmits this message using acknowledged mode.
4				The UE releases L2 signalling link and radio resources. Then the UE goes to idle mode.

Specific Message Contents

None.

8.1.3.2.5 Test requirement

After step 2 the UE shall transmit an RRC CONNECTION RELEASE COMPLETE message using acknowledged mode then it shall receive a response for this message from the SS-RLC.

After step 3 the UE shall release its L2 signalling link and radio resources, then it shall go back to idle mode.

8.1.3.3 RRC Connection Release using on CCCH in CELL_FACH state: Success

8.1.3.3.1 Definition

8.1.3.3.2 Conformance requirement

In CELL_FACH state, the RRC layer entity in the network may issue an RRC CONNECTION RELEASE message using unacknowledged mode on the CCCH. Upon the reception of this message, the UE shall release the RRC connection immediately, without replying with a RRC CONNECTION RELEASE COMPLETE message on the uplink.

Reference

3GPP TS 25.331 clause 8.1.4.

8.1.3.3.3 Test purpose

To confirm that the UE releases all its radio resources upon the reception of a RRC CONNECTION RELEASE message on the downlink CCCH, without transmitting RRC CONNECTION RELEASE COMPLETE message on the uplink.

8.1.3.3.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CELL_FACH state (state 6-2 or state 6-4) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE is brought to an initial state of CELL_FACH. After the successful establishment of the RRC connection, SS transmits RRC CONNECTION RELEASE message on the downlink CCCH. The UE shall terminate the RRC connection and release all radio resources allocated to it. SS monitors the uplink DCCH and CCCH to verify that no transmission is detected.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is brought to the
				CELL_FACH state.
2	+	-	RRC CONNECTION RELEASE	SS transmits this message with
				the contents identical to that
				found in TS 34.108 clause 9 on
				downlink CCCH.
3				SS waits for a period equivalent
				to 60 seconds. The UE shall not
				send any response message on
				uplink direction during this
				period. It shall release the radio
				resources allocated and return to
				idle mode.

Specific Message Contents

None.

8.1.3.3.5 Test requirement

After step 2 the UE shall release all its radio resources, return to idle mode, without transmitting RRC CONNECTION RELEASE COMPLETE message on the uplink direction.

8.1.3.4 RRC Connection Release in CELL FACH state: Failure

8.1.3.4.1 Definition

8.1.3.4.2 Conformance requirement

In case of RRC connection release from CELL_FACH state, the RRC layer entity in the network issues an RRC CONNECTION RELEASE message using unacknowledged mode on the DCCH. When the UE does not succeed to transmit the RRC CONNECTION RELEASE COMPLETE message using acknowledged mode, it shall release all its radio resources, enter idle mode and the procedure ends on the UE side.

Reference

3GPP TS 25.331 clause 8.1.4

8.1.3.4.3 Test purpose

To confirm that the UE releases all its radio resources and enters idle mode when the UE does not succeed in transmitting the RRC CONNECTION RELEASE COMPLETE message using acknowledged mode to the SS (i.e. the UE-RLC cannot receive acknowledgement for the transmission of the RRC CONNECTION RELEASE COMPLETE message from SS).

8.1.3.4.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: CELL_FACH state (state 6-2 or state 6-4) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE

Test Procedure

At the start of the test, the UE is brought to CELL_FACH state. When the RRC connection has been established, the SS transmits an RRC CONNECTION RELEASE message to the UE to disconnect the radio link. When the UE receives this message the UE transmits an RRC CONNECTION RELEASE COMPLETE message using acknowledged mode to the SS. The SS ignores the message and does not transmit a STATUS PDU of RLC for this message. SS checks to see that UE continues to release all its radio resources and then enters idle mode.

Step	Direction		Message	Comment
	UE	SS		
1				The UE is brought into CELL_FACH state by asking the operator to perform an outgoing call attempt. clause
2	+	(-	RRC CONNECTION RELEASE	SS ask to disconnect the radio link
3	-	→	RRC CONNECTION RELEASE COMPLETE	The UE transmits this message using acknowledged mode. The SS ignores this message and shall not transmit a STATUS PDU of RLC for this message.
4				SS checks to make sure that UE releases its all radio resources and enter idle mode.

Specific Message Contents

None

8.1.3.4.5 Test requirement

After step 3 the UE shall release its L2 signalling link and radio resources then it shall go to idle mode.

8.1.3.5 RRC Connection Release in CELL_FACH state: Invalid message

8.1.3.5.1 Definition

8.1.3.5.2 Conformance requirement

In CELL_FACH state, the RRC layer entity in UTRAN may issue an RRC CONNECTION RELEASE message using unacknowledged mode on the DCCH. If an invalid RRC CONNECTION RELEASE message is received by the UE, the UE shall activate the appropriate error-handling mechanism and report the error to the UTRAN. After this, the UE shall release the RRC connection.

Reference

3GPP TS 25.331 clause 8.1.4

8.1.3.5.3 Test purpose

When the UE receives an invalid RRC CONNECTION RELEASE message on the downlink DCCH, it shall transmit an RRC CONNECTON RELEASE COMPLETE message that includes the appropriate error cause on the uplink DCCH. Thereafter, it shall release the RRC connection.

8.1.3.5.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: CELL_FACH state (state 6-2 or state 6-4) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE

Test Procedure

The UE is brought to an initial state of CELL_FACH. SS transmits an RRC CONNECTION RELEASE message on the DCCH to request to disconnect the RRC connection. However, the message contains an invalid value in the IE "Release cause". As a result, the UE shall transmit an RRC CONNECTION RELEASE COMPLETE message on the uplink DCCH, which includes the IE "Error indication". This IE shall contain "Failure cause" IE which is set to "Protocol error" and "Protocol error information" IE which is set to "Information element value not comprehended". The UE shall release the RRC connection and go back to idle mode after transmitting the RRC CONNECTION RELEASE COMPLETE message.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is brought to the CELL_FACH state.
2	+	-	RRC CONNECTION RELEASE	See specific message contents for this message
3	-2	>	RRC CONNECTION RELEASE COMPLETE	The IE "Protocol error cause" found in IE "Protocol error information" shall be set to "Information element value not comprehended".
4				The UE shall release the signalling link and radio resources, and then return to idle mode.

Specific Message Contents

RRC CONNECTION RELEASE (Step 2)

Information Element	Value/remark
Release cause	invalid value

RRC CONNECTION RELEASE COMPLETE

Information Element	Value/remark
Error Indication	
Failure cause	Protocol error
Protocol error information	
Protocol error cause	Information element value not comprehended

8.1.3.5.5 Test requirement

After step2 the UE shall transmit an RRC CONNECTION RELEASE COMPLETE message which includes the appropriate cause values in IE "Error Indication".

After step3 the UE shall release its L2 signalling link and radio resources, then it shall go back to idle mode.

- 8.1.4 Void
- 8.1.5 UE capability
- 8.1.5.1 UE Capability in CELL_DCH state: Success
- 8.1.5.1.1 Definition

8.1.5.1.2 Conformance requirement

1. The UE CAPABILITY ENQUIRY message is sent by the UTRAN to request the UE to transmit its capability information related to any radio access network that is supported by the UE or if the UTRAN needs an update of the UE's UMTS capability information or of its inter-system classmark.

When the UE receives a UE CAPABILITY ENQUIRY message, the UE transmits a UE CAPABILITY INFORMATION message on the uplink DCCH. Then the UTRAN transmits a UE CAPABILITY INFORMATION CONFIRM message.

If during the execution of UE capability update procedure, an invalid UE CAPABILITY INFORMATION CONFIRM is received, the UE shall respond with RRC STATUS message and decide whether to re-transmit UE CAPABILITY INFORMATION message by comparing its internal counter against N304.

Reference

3GPP TS 25.331 clauses 8.1.6 and 8.1.7.

8.1.5.1.3 Test purpose

To confirm that the UE transmits a UE CAPABILITY INFORMATION message after it receives a UE CAPABILITY ENQUIRY message from the SS. To confirm that the UE indicate an invalid message reception when erroneous downlink UE CAPABILITY ENQUIRY and UE CAPABILITY INFORMATION CONFIRM messages are received. The UE shall transmit RRC STATUS message with the correct error cause value to SS.

8.1.5.1.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CELL_DCH state (state 6-9 or state 6-10) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE is brought to the CELL_DCH state after a successful outgoing call attempt. The SS transmits an erroneous UE CAPABILITY ENQUIRY message containing invalid value in the IE "Capability update requirement". After receiving such a message, the UE shall report the error using RRC STATUS message with the appropriate error cause specified. Then SS transmits a UE CAPABILITY ENQUIRY message which includes the IE "Capability update requirement", the UE receives this message and transmits a UE CAPABILITY INFORMATION message on the uplink DCCH which includes the "UE radio access capability" IE. The SS transmits a UE CAPABILITY INFORMATION CONFIRM message to the UE to complete the test. Then SS initiates another UE capability update procedure by transmitting the same UE CAPABILITY ENQUIRY using as in step 4. The UE shall reply with a UE CAPABILITY

INFORMATION message on the uplink DCCH. When SS receives this message, it transmit an erroneous UE CAPABILITY INFORMATION CONFIRM message. The content of this message is lack of all IE. The UE shall detect a protocol error and send RRC STATUS message to report this event. After receiving RLC acknowledgement for this message, the UE shall re-transmit UE CAPABILITY INFORMATION message on the uplink DCCH by the expiry of T304. SS completes this test by an error-free UE CAPABILITY INFORMATION CONFIRM message similar to the message sent in step 6.

Expected sequence

Step	Direction	Message	Comment
	UE SS		
1			The UE is brought to CELL_DCH state after an outgoing call has been established successfully.
2	+	UE CAPABILITY ENQUIRY	See specific message contents for this message
3	→	RRC STATUS	The IE "Protocol error cause" found in IE "Protocol error information" shall be set to "Information element value not comprehended"
4	+	UE CAPABILITY ENQUIRY	Use default message.
5	\rightarrow	UE CAPABILITY INFORMATION	Use default message.
6	+	UE CAPABILITY INFORMATION CONFIRM	Use default message.
7	+	UE CAPABILITY ENQUIRY	Same as in step 4.
8	→	UE CAPABILITY INFORMATION	Shall be the same message content as in step 5.
9	+	UE CAPABILITY INFORMATION CONFIRM	See specific message contents for this message
10	→	RRC STATUS	UE shall detect an error and then transmit this message.
11	→	UE CAPABILITY INFORMATION	UE shall re-transmit this message after T304's expiry.
12	+	UE CAPABILITY INFORMATION CONFIRM	SS sends an error-free message to acknowledge the receipt of the uplink message.

Specific Message Contents

UE CAPABILITY ENQUIRY (Step 2)

Information Element	Value/remark
Capability update requirement	
 UE radio access FDD capability update 	TRUE
requirement	
 UE radio access TDD capability update 	FALSE
requirement	
 System specific capability update requirement list 	
 System specific capability update requirement 	
	invalid value

RRC STATUS (Step 3)

Information Element	Value/remark
Identification of received messag type	
 Received message type 	Checked to see if set to "UE CAPABILITY ENQUIRY"
- RRC transaction identifier	Checked to see if set to the same value in the UE
	CAPABILITY ENQUIRY message
Protocol Error Information	Checked to see if set to "Information element not
- Protocol Error Cause	comprehended"

UE CAPABILITY INFORMATION CONFIRM (Step 9)

Information Element	Value/remark
All IEs	Not Present

RRC STATUS (Step 10)

Information Element	Value/remark
Protocol Error Information	
- Protocol Error Cause	Checked to see if set to "ASN.1 violation or encoding
	error"

8.1.5.1.5 Test requirement

After step 2, the UE shall transmit a RRC STATUS message on the uplink DCCH, reporting the error with protocol error cause set to "Information element value not comprehended".

After step 4 the UE shall transmit a UE CAPABILITY INFORMATION message on the uplink DCCH to respond to the UE CAPABILITY ENQUIRY message.

After step 9, the UE shall transmit a RRC STATUS message on the uplink DCCH. The protocol error cause shall be set to "ASN.1 violation or encoding error".

After step 10, the UE shall re-transmit the UE CAPABILITY INFORMATION message with a similar content as in step 8.

8.1.5.2 UE Capability in CELL_DCH state: Success after T304 timeout

8.1.5.2.1 Definition

8.1.5.2.2 Conformance requirement

- 1. The UE CAPABILITY ENQUIRY message is sent by the UTRAN to request the UE to transmit its capability information related to any radio access network that is supported by the UE, if the UTRAN needs an update of the UE's UMTS capability information or of its inter-system classmark.
- 2. After the UE receives a UE CAPABILITY ENQUIRY message, it transmits a UE CAPABILITY INFORMATION message on the uplink DCCH. If it fails to receive a UE CAPABILITY INFORMATION CONFIRM message, the UE re-transmits another UE CAPABILITY INFORMATION message until V304 is greater than N304.

Reference

3GPP TS 25.331 clause 8.1.6 and 8.1.7.

8.1.5.2.3 Test purpose

To confirm that the UE re-transmits a UE CAPABILITY INFORMATION message until V304 is greater than N304, after the expiry of timer T304 when the UE cannot receive a UE CAPABILITY INFORMATION CONFIRM message in response to a UE CAPABILITY INFORMATION message.

8.1.5.2.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CELL_DCH state (state 6-9 or state 6-10) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE is brought to CELL_DCH state. When the SS transmits a UE CACAPABILITY ENQUIRY message which includes the "Capability update requirement" IE, the UE shall reply with a UE CAPABILITY INFORMATION message on the uplink DCCH which includes the "UE radio access capability" IE. The SS does not transmits a UE CAPABILITY INFORMATION CONFIRM message to the UE, resulting in the T304 timer to expire. SS shall observe that the UE attempts to transmit a UE CAPABILITY INFORMATION message again. The UE shall re-transmit N304 times, and SS transmits a UE CAPABILITY INFORMATION CONFIRM message to answer the last request and completes this test procedure.

Expected sequence

Step	Direc	tion	Message	Comment
	UE	SS	_	
1				The UE is brought to
				CELL_DCH state.
				SS sets internal counter K
				=0
2		(UE CAPABILITY ENQUIRY	Including the IE "Capability
				update requirement".
3	-	\rightarrow	UE CAPABILITY INFORMATION	Including the "UE radio
				access capability".
4				If K is equal to N304, then
				proceed to step 6.
5				The SS does not transmit
				a response and wait for
				T304 timer to expire.
				K=K+1 and goes to step 3.
6	•	(UE CAPABILITY INFORMATION CONFIRM	Use default message
				contents

Specific Message Contents

None

8.1.5.2.5 Test requirement

After step 3 the UE shall re-transmits a UE CAPABILITY INFORMATION message on the uplink DCCH, after each expiry of timer T304. The UE CAPABILITY INFORMATION message shall contain IE "UE radio access capability" indicating the settings found in PIC/PIXIT statements. After (N304) re-transmissions, the UE shall receive a UE CAPABILITY INFORMATION CONFIRM message.

8.1.5.3 UE Capability in CELL_DCH state: Failure (After N304 retransmissions)

8.1.5.3.1 Definition

8.1.5.3.2 Conformance requirement

- 1. The UE CAPABILITY ENQUIRY message is sent by the UTRAN to request the UE to transmit its capability information related to any radio access network that is supported by the UE if the UTRAN needs an update of the UE's UMTS capability information or of its inter-system classmark.
- 2. In the case of a failure to transmit a UE CAPABILITY INFORMATION in excess of N304 times, the UE initiates the cell update procedure.

Reference

3GPP TS 25.331 clauses 8.1.6 and 8.1.7.

8.1.5.3.3 Test purpose

To confirm that the UE stops retrying to transmit a UE CAPABILITY INFORMATION message if V304 is greater than N304. It then initiates cell update procedure.

8.1.5.3.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CELL_DCH state (state 6-9 or state 6-10) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE is brought to CELL_DCH state. When the SS transmits a UE CAPABILITY ENQUIRY message which includes the "Capability update requirement" IE, the UE receives this message and transmits a UE CAPABILITY INFORMATION message on the uplink DCCH which includes the "UE radio access capability" IE. The SS does not respond with a UE CAPABILITY INFORMATION CONFIRM message but keeps a count on the number of messages received. When the T304 timer expires, the UE shall transmit a UE CAPABILITY INFORMATION message again. After sending (N304+1) messages, the UE shall stop sending UE CAPABILITY INFORMATION messages and initiates the cell update procedure. SS allows UE to return to "connected state" by issuing CELL UPDATE CONFIRM message on the downlink DCCH. Then UE shall reconfigured its physical channel according to the CELL UPDATE CONFIRM message and respond with PHYSICAL CHANNEL RECONFIGURATION COMPLETE message to SS.

Step	Direction	Message	Comment
	UE SS		
1			The UE starts from
			CELL_DCH state.
		LIE CARABILITY ENGLISHY	SS sets counter K to 0
2	(UE CAPABILITY ENQUIRY	Use default message
3	\rightarrow	UE CAPABILITY INFORMATION	Use default message
4			The SS does not transmit
			a response and allows
			T304 timer to expire.
			SS increments counter K
			If K is greater than N304,
			proceeds to step 5 else returns to 3.
5	→	CELL UPDATE	The UE assumes that
3		CELLOFDATE	radio link failure has
			occurred and transmits
			this message which
			includes IE "Cell update
			cause" set to "radio link
			failure".
6	+	CELL UPDATE CONFIRM	This message include IE
			"Physical channel
			information elements".
7			The SS configure the
			dedicated physical
			channel according to the
			IE "Physical channel
			information elements"
			included in the CELL
			UPDATE CONFIRM
		PUNCTION OF ANIME DECOMESONE AT TO SE	message.
8	\rightarrow	PHYSICAL CHANNEL RECONFIGURATION	
		COMPLETE	

Specific Message Contents

CELL UPDATE CONFIRM (Step 6) - FDD

The contents of CELL UPDATE CONFIRM message is identical as "CELL UPDATE CONFIRM message" as found in Annex with the following exceptions:

Information Element	Value/remark
U-RNTI	Same as CELL UPDATE message in step 5
RRC State indicator	CELL_DCH
Frequency info	
- CHOICE mode	<u>FDD</u>
- UARFCN uplink(Nu)	Reference to TS34.108 clause 5.1 Test frequencies
 - UARFCN downlink(Nd) 	Reference to TS34.108 clause 5.1 Test frequencies
Maximum allowed UL TX power	33dBm
CHOICE Mode	FDD
Downlink information for each radio links	
- Primary CPICH info	
- Primary scrambling code	100
- PDSCH with SHO DCH info	Not Present
- PDSCH code mapping	Not Present
- Downlink DPCH info for each RL	
- CHOICE mode	<u>FDD</u>
 Primary CPICH usage for channel estimation 	Primary CPICH may be used
- DPCH frame offset	0 chips
- Secondary CPICH info	Not Present
- DL channelisation code	
- Secondary scrambling code	2
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set
- Code number	SF-1(SF is reference to TS34.108 clause 6.10 Parameter
	Set)
 Scrambling code change 	No change
- TPC combination index	0
- SSDT Cell Identity	-a
 Closed loop timing adjustment mode 	Not Present
 SCCPCH information for FACH 	Not Present

CELL UPDATE CONFIRM (Step 6) - 3.84 Mcps TDD

Information Element	Value/remark
<u>U-RNTI</u>	Same as CELL UPDATE message in step 5
RRC State indicator	CELL_DCH
Frequency info	
- CHOICE mode	TDD
<u> - UARFCN (Nt)</u>	Reference to TS34.108 clause 5.1 Test frequencies
Maximum allowed UL TX power	<u>30dBm</u>
CHOICE Mode	<u>TDD</u>
Downlink information for each radio links	
- Primary CCPCH info	
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
- CHOICE SyncCase	Not Present
- Cell Parameters ID	Not Present
- Block STTD indicator	<u>FALSE</u>
- Downlink DPCH info for each RL	
- CHOICE mode	TDD
- DL CCTrCh List	
- TFCS ID	1
- Time info	Not Propert (default)
- Activation time - Duration	Not Present (default) Not Present (default)
- Common timeslot info	Not Present (default)
- Downlink DPCH timeslots and codes	Not Present (default)
- UL CCTrCH TPC List	Not Present (default)

CELL UPDATE CONFIRM (Step 6) - 1.28 Mcps TDD

The contents of CELL UPDATE CONFIRM message is identical as "CELL UPDATE CONFIRM message" as found in Annex A with the following exceptions:

Information Element	Value/remark
U-RNTI	Same as CELL UPDATE message in step 5
RRC State indicator	CELL_DCH
Frequency info	
- CHOICE mode	TDD
<u> - UARFCN (Nt)</u>	Reference to TS34.108 clause 5.1 Test frequencies
Maximum allowed UL TX power	<u>30dBm</u>
CHOICE Mode	<u>TDD</u>
Downlink information for each radio links	
- Primary CCPCH info	
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- TSTD indicator	FALSE
- Cell Parameters ID	Not Present
- Block STTD indicator	<u>FALSE</u>
- Downlink DPCH info for each RL	TDD
- CHOICE mode	TDD
- DL CCTrCh List	
- TFCS ID	1
- Time info	Not Droppet (defoult)
- Activation time	Not Present (default)
- Duration	Not Present (default)
- Common timeslot info - Downlink DPCH timeslots and codes	Not Present (default) Not Present (default)
- UL CCTrCH TPC List	Not Present (default)

8.1.5.3.5 Test requirement

After step 2, the UE shall transmit a UE CAPABILITY INFORMATION message on the uplink DCCH. The UE shall re-transmit this message for N304 times.

After step 4, the UE shall initiate the cell update procedure.

After step 6, UE shall respond with a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message after it has configured L1 according to the CELL UPDATE CONFIRM message in step 6.

8.1.5.4 UE Capability in CELL_FACH state: Success

8.1.5.4.1 Definition

8.1.5.4.2 Conformance requirement

- 1. The UE CAPABILITY ENQUIRY message is sent by the UTRAN to request the UE to transmit its capability information related to any radio access network(s) supported by the UE. UTRAN initiates this procedure when it needs an update of the UE's UMTS capability information or of its intersystem classmark.
- 2. When the UE receives a UE CAPABILITY ENQUIRY message, the UE shall transmit a UE CAPABILITY INFORMATION message on the uplink DCCH.
- 3. If during the execution of UE capability update procedure, an invalid UE CAPABILITY INFORMATION CONFIRM is received, the UE shall respond with RRC STATUS message and

decide whether to re-transmit UE CAPABILITY INFORMATION message by comparing its internal counter against N304.

Reference

3GPP TS 25.331 clauses 8.1.6 and 8.1.7.

8.1.5.4.3 Test purpose

To confirm that the UE transmits an UE CAPABILITY INFORMATION message after it receives a UE CAPABILITY ENQUIRY message from the SS. To confirm that the UE indicates an invalid message reception when erroneous downlink UE CAPABILITY ENQUIRY and UE CAPABILITY INFORMATION CONFIRM messages are received. The UE shall transmit RRC STATUS message with the correct error cause value to SS.

8.1.5.4.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CELL_FACH state (state 6-11) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE is brought to the CELL_FACH state after a successful outgoing call attempt. The SS transmits an erroneous UE CAPABILITY ENQUIRY message containing invalid value in the IE "Capability update requirement". After receiving such a message, the UE shall report an error using RRC STATUS message with the appropriate error cause specified. Then SS transmits a UE CAPABILITY ENQUIRY message which includes the IE "Capability update requirement". The UE receives this message and transmits a UE CAPABILITY INFORMATION message on the uplink DCCH, which includes the IE "UE radio access capability". The SS transmits a UE CAPABILITY INFORMATION CONFIRM message to the UE to complete the UE capability enquiry procedure. Then SS initiates another UE capability enquiry procedure by transmitting the same UE CAPABILITY ENOUIRY message as in step 4. The UE shall reply with a UE CAPABILITY INFORMATION message on the uplink DCCH. When SS receives this message, it transmits an erroneous UE CAPABILITY INFORMATION CONFIRM message. The content of this message is lack of all IEs. The UE shall detect a protocol error and send RRC STATUS message to report this event. After receiving the RLC layer acknowledgement PDU for this message, the UE shall re-transmit UE CAPABILITY INFORMATION message on the uplink DCCH by the expiry of T304. SS completes this test by sending an error-free UE CAPABILITY INFORMATION CONFIRM message similar to the message sent in step 6.

Step	Direction	Message	Comment
	UE SS		
1			The UE is brought to CELL_FACH state after an outgoing call has been established successfully.
2	+	UE CAPABILITY ENQUIRY	See specific message contents for this message
3	→	RRC STATUS	The IE "Protocol error cause" found in IE "Protocol error information" shall be set to "Information element value not comprehended"
4	←	UE CAPABILITY ENQUIRY	Use default message.
5	\rightarrow	UE CAPABILITY INFORMATION	Use default message.
6	+	UE CAPABILITY INFORMATION CONFIRM	Use default message.
7	←	UE CAPABILITY ENQUIRY	Same as in step 4.
8	→	UE CAPABILITY INFORMATION	The message content shall be the same as in step 5.
9	←	UE CAPABILITY INFORMATION CONFIRM	See specific message contents for this message
10	→	RRC STATUS	UE shall detect an error and then transmit this message on uplink DCCH.
11	\rightarrow	UE CAPABILITY INFORMATION	UE shall re-transmit this message after T304's expiry.
12	+	UE CAPABILITY INFORMATION CONFIRM	SS sends an error-free message to acknowledge the receipt of the uplink message.

Specific Message Contents

UE CAPABILITY ENQUIRY (Step 2)

Information Element	Value/remark
Capability update requirement	
- UE radio access FDD capability update	TRUE
requirement	
 UE radio accessTDD capability update 	FALSE
requirement	
 System specific capability update requirement list 	
 System specific capability update requirement 	invalid value

RRC STATUS (Step 3)

Information Element	Value/remark
Identification of received messag type	
 Received message type 	Checked to see if set to "UE CAPABILITY ENQUIRY"
- RRC transaction identifier	Checked to see if set to the same value in the UE
	CAPABILITY ENQUIRY message
Protocol Error Information	Checked to see if set to "Information element not
- Protocol Error Cause	comprehended"

UE CAPABILITY INFORMATION CONFIRM (Step 9)

Information Element	Value/remark
All IEs	Not Present

RRC STATUS (Step 3)

Information Element	Value/remark
Protocol Error Information	
- Protocol Error Cause	Checked to see if set to "ASN.1 violation or encoding error"

8.1.5.4.5 Test requirement

After step 2, the UE shall transmit a RRC STATUS message on the uplink DCCH, reporting the error with protocol error cause set to "Information element value not comprehended".

After step 4 the UE shall transmit a UE CAPABILITY INFORMATION message on the uplink DCCH to respond to the downlink UE CAPABILITY ENQUIRY message.

After step 9, the UE shall transmit a RRC STATUS message on the uplink DCCH. The protocol error cause shall be set to "ASN.1 violation or encoding error".

After step 10, the UE shall re-transmit the UE CAPABILITY INFORMATION message with a similar content as in step 8.

8.1.5.5 UE Capability in CELL_FACH state: Success after T304 timeout

8.1.5.5.1 Definition

8.1.5.5.2 Conformance requirement

- 1. The UE CAPABILITY ENQUIRY message is sent by the UTRAN to request the UE to transmit its capability information related to any radio access network(s) supported by the UE. UTRAN initiates this action when it needs an update of the UE's UMTS capability information or of its inter-system classmark.
- 2. After the UE receives a UE CAPABILITY ENQUIRY message, it transmits a UE CAPABILITY INFORMATION message on the uplink DCCH. If it fails to receive a UE CAPABILITY INFORMATION CONFIRM message, the UE re-transmits another UE CAPABILITY INFORMATION message until its internal counter V304 is greater than N304.

Reference

3GPP TS 25.331 clauses 8.1.6 and 7.

8.1.5.5.3 Test purpose

To confirm that the UE re-transmits a UE CAPABILITY INFORMATION message until V304 is greater than N304, after the expiry of timer T304 when it fail to receive a downlink UE CAPABILITY INFORMATION CONFIRM message in response to the uplink UE CAPABILITY INFORMATION message sent.

8.1.5.5.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CELL_FACH state (state 6-11) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE is brought to CELL_FACH state. When the SS transmits a UE CAPABILITY ENQUIRY message which includes the IE "Capability update requirement", the UE shall reply with a UE CAPABILITY INFORMATION message on the uplink DCCH that contains the IE "UE radio access capability". The SS waits and does not transmit a UE CAPABILITY INFORMATION CONFIRM message to the UE, resulting in the T304 timer to expire. SS shall observe that the UE attempts to transmit a UE CAPABILITY INFORMATION message again. The UE shall re-transmit N304 times, and SS transmits a UE CAPABILITY INFORMATION CONFIRM message to answer the last request and completes this test procedure.

Expected sequence

Step	Direc	tion	Message	Comment
	UE	SS		
1				The UE is brought to CELL_FACH state. SS sets internal counter K =0
2	•	←	UE CAPABILITY ENQUIRY	Including the IE "Capability update requirement".
3	-)	UE CAPABILITY INFORMATION	Including the IE "UE radio access".
4				If K equals N304,then proceeds to step 6. Else, continue with step 5.
5				The SS does not transmit a response and wait for T304 timer to expire. K=K+1 and goes to step 3.
6	*	-	UE CAPABILITY INFORMATION CONFIRM	Use default message contents

Specific Message Contents

None

8.1.5.5.5 Test requirement

After step 3 the UE shall re-transmit a UE CAPABILITY INFORMATION message on the uplink DCCH, after each expiry of timer T304. The UE CAPABILITY INFORMATION message shall contain IE "UE radio access capability" with the value matching those stated in the ICS/IXIT statements. After (N304) re-transmissions, the UE shall receive a UE CAPABILITY INFORMATION CONFIRM message.

8.1.6 Direct Transfer

8.1.6.1 Direct Transfer in CELL DCH state (invalid message reception and no signalling connection exists)

8.1.6.1.1 Definition

8.1.6.1.2 Conformance requirement

The UE shall transmit an RRC STATUS message stating the reason "protocol error" in IE "failure cause" and also set value "ASN.1 violation or encoding error" in IE "Protocol error cause" when the UE receives a DOWNLINK DIRECT TRANFER message, which does not include the IE "NAS message". The UE shall transmit an RRC STATUS message including the IE "Protocol error information" with the IE "Protocol error cause" set to "Message not compatible with receiver state" when the UE receives a DOWNLINK DIRECT TRANSFER message, with invalid IE"CN domain identity".

Reference

3GPP TS 25.331 clause 8.1.9.

8.1.6.1.3 Test purpose

To confirm that the UE transmits an RRC STATUS message on the DCCH using AM RLC if it receives a DOWNLINK DIRECT TRANSFER message which does not include the IE "NAS message" To confirm that the UE transmits an RRC STATUS message on the DCCH using AM RLC if it receives a DOWNLINK DIRECT TRANSFER message which include invalid IE "CN domain identity".

8.1.6.1.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CELL_DCH (state 6-9 or state 6-10) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE is in the CELL_DCH state. The SS transmits an invalid DOWNLINK DIRECT TRANSFER message to the UE. The UE shall transmit an RRC STATUS message on the DCCH using AM RLC, setting the value "protocol error" in IE "failure cause". The error type "ASN.1 violation or encoding error" shall also be indicated in IE "Protocol error cause". The SS transmits a DOWNLINK DIRECT TRANSFER message that contains invalid IE "CN domain identity" to the UE. The UE shall transmit an RRC STATUS message on the DCCH using AM RLC, setting the value "protocol error" in IE "failure cause". The error type "Message not compatible with receiver state" shall also be indicated in IE "Protocol error cause".

Expected sequence

Step	Dire	ction	Message	Comment
	UE	SS		
1		-	DOWNLINK DIRECT TRANSFER	Only message type is provided.
2		\rightarrow	RRC STATUS	
3		←	DOWNLINK DIRECT TRANSFER	
4		\rightarrow	RRC STATUS	

Specific Message Contents

DOWNLINK DIRECT TRANSFER (Step 1)

The contents of DOWNLINK DIRECT TRANSFER message in this test case is identical to those in default contents of layer 3 messages for RRC tests with the following exceptions.

Information Element	Value/remark
NAS message	Not Present

RRC STATUS (Step 2)

Information Element	Value/remark
Message Type	
Protocol error information	ASN.1 violation or encoding error
Other information element	Not checked

DOWNLINK DIRECT TRANSFER (Step 3)

Information Element	Value/remark
CN domain identity	CS domain or PS domain as unselected domain
NAS message	Arbitrary message.

RRC STATUS (Step 4)

Information Element	Value/remark
Message Type	
Protocol error information	Message not compatible with receiver state
Other information element	Not checked

8.1.6.1.5 Test requirement

After step 1 the UE shall transmit an RRC STATUS message on the DCCH using AM RLC setting "protocol error" in IE "failure cause" and setting "ASN.1 violation or encoding error" in IE "Protocol error cause".

After step 3 the UE shall transmit a n RRC STATUS message on the DCCH using AM RLC setting "protocol error" in IE "failure cause" and setting "Message not compatible with receiver state" in IE "Protocol error cause".

8.1.6.2 Direct Transfer in CELL FACH state (invalid message reception and no signalling connection exists)

8.1.6.2.1 Definition

8.1.6.2.2 Conformance requirement

The UE shall transmit an RRC STATUS message stating the reason "protocol error" in IE "failure cause" and also set value "ASN.1 violation or encoding error" in IE "Protocol error cause" when the UE receives a DOWNLINK DIRECT TRANSFER message, which does not include the IE "NAS message". The UE shall transmit an RRC STATUS message including the IE "Protocol error information" with the IE "Protocol error cause" set to "Message not compatible with receiver state" when the UE receives a DOWNLINK DIRECT TRANSFER message, with invalid IE "CN domain identity".

Reference

3GPP TS 25.331 clause 8.1.9.

8.1.6.2.3 Test purpose

To confirm that the UE transmits an RRC STATUS message on the DCCH using AM RLC if it receives a DOWNLINK DIRECT TRANSFER message which does not include the IE "NAS message". To confirm that the UE transmits an RRC STATUS message on the DCCH using AM RLC if it receives a DOWNLINK DIRECT TRANSFER message which include invalid IE "CN domain identity".

8.1.6.2.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CELL_FACH (state 6-11) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE is in the CELL_FACH state. The SS transmits a DOWNLINK DIRECT TRANSFER message to the UE and does not include the IE "NAS message". The UE shall transmit an RRC STATUS message on the DCCH using AM RLC, setting the value "protocol error" in IE "failure cause". The error type "ASN.1 violation or encoding error" shall also be indicated in IE "Protocol error cause". The SS transmits a DOWNLINK DIRECT TRANSFER message that contain invalid IE "CN domain identity" to the UE. The UE shall transmit an RRC STATUS message on the DCCH using AM RLC, setting the value "protocol error" in IE "failure cause". The error type "Message not compatible with receiver state" shall also be indicated in IE "Protocol error cause".

Expected sequence

Step	Dire	ction	Message	Comment
	UE	SS	_	
1		-	DOWNLINK DIRECT TRANSFER	Only message type is provided
2		\rightarrow	RRC STATUS	
3		←	DOWNLINK DIRECT TRANSFER	
4		\rightarrow	RRC STATUS	

Specific Message Contents

DOWNLINK DIRECT TRANSFER (Step 1)

The contents of DOWNLINK DIRECT TRANSFER message in this test case is identical to those in default contents of layer 3 messages for RRC tests with the following exceptions.

Information Element	Value/remark
NAS message	Not Present

RRC STATUS (Step 2)

Information Element	Value/remark
Message Type	
Protocol error information	ASN.1 violation or encoding error
Other information element	Not checked

DOWNLINK DIRECT TRANSFER (Step 3)

Information Element	Value/remark	
CN domain identity	CS domain or PS domain as unselected domain	
NAS message	Arbitrary message.	

RRC STATUS (Step 4)

Information Element	Value/remark
Message Type	
Protocol error information	Message not compatible with receiver state
Other information element	Not checked

8.1.6.2.5 Test requirement

After step 1 the UE shall transmit an RRC STATUS message on the DCCH using AM RLC setting "protocol error" in IE "failure cause" and setting "ASN.1 violation or encoding error" in IE "Protocol error cause".

After step 3 the UE shall transmit a n RRC STATUS message on the DCCH using AM RLC setting "protocol error" in IE "failure cause" and setting "Message not compatible with receiver state" in IE "Protocol error cause".

8.1.7 Security mode command

8.1.7.1 Security mode command in CELL_DCH state

8.1.7.1.1 Definition

8.1.7.1.2 Conformance requirement

- 1. This procedure is used to trigger the stop or start of ciphering or to command the restart of ciphering with the new ciphering configuration. It is also used to start integrity protection or modify integrity protection configuration, both for the signalling links and any of radio bearers.
- 2. When the UE receives a SECURITY MODE COMMAND message from the UTRAN, which indicates the downlink activation time and new integrity protection configuration, the UE shall apply the old ciphering configuration before the stated downlink activation time. It shall start to decipher using the new ciphering configuration at the downlink activation time.
- 3. After the UE transmit the SECURITY MODE COMPLETE message using the new integrity protection configuration which includes uplink activation time, it starts to cipher transmission in the uplink using the new configuration at the uplink activation time.

Reference

3GPP TS 25.331 clause 8.1.12.

8.1.7.1.3 Test purpose

To confirm that the UE correctly communicates to the UTRAN and activates the new ciphering configurations after the stated activation time. To confirm that after the UE receives a SECURITY MODE COMMAND message, it transmits a SECURITY MODE COMPLETE message to the UTRAN using the old ciphering configuration together with the application of the new integrity protection configuration. To confirm that UE send SECURITY MODE FAILURE message when SS transmits incompatible simultaneous SECURITY MODE COMMAND messages to UE. To confirm that UE send SECURITY

MODE FAILURE message when SS transmits SECURITY MODE COMMAND message that causes invalid configuration.

8.1.7.1.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CELL_DCH (state 6-9 or state 6-10) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE is in the RRC connected state CELL_DCH. The SS transmits a SECURITY MODE COMMAND message in which ciphering is requested to be activated, but the IE "Ciphering algorithm capability" is set to an unknown value. The UE shall not trigger any ciphering algorithm and it shall respond by sending SECURITY MODE FAILURE message on the DCCH. Then SS transmits a SECURITY MODE COMMAND message without IE "Ciphering mode info" and IE "Integrity protection mode info". Again the UE shall not trigger any ciphering algorithm and it shall respond by sending SECURITY MODE FAILURE message on the DCCH. Next, SS transmits a valid SECURITY MODE COMMAND message which includes the "Downlink activation time" IE for RB2 and "Integrity check info" IE. Following that, SS immediately transmit another valid SECURITY MODE COMMAND message to UE. Then the UE shall check the integrity check info and shall start to configure ciphering in downlink according to the first valid SECURITY MODE COMMAND message. Upon the reception of the subsequent SECURITY MODE COMMAND message, the UE shall transmit SECURITY MODE FAILURE message to SS with IE "failure cause" set to "incompatible simultaneous reconfiguration". Then UE shall transmit a SECURITY MODE COMPLETE message which contains the uplink activation time for RB2 and also "Integrity check info" IE using the new integrity protection configuration. SS records the uplink ciphering activation time for RB 2. Next, SS transmits UE CAPABILITY ENQUIRY message repeated on the downlink DCCH using RLC-AM mode. The UE shall respond to each downlink message with a UE CAPABILITY INFORMATION message on the uplink DCCH using RLC-AM. SS then send UE CAPABILITY INFORMATION CONFIRM message to UE. This cycle repeats itself until both the uplink and downlink ciphering activation time for RB 2 has elapsed. SS checks all uplink UE CAPABILITY ENQUIRY messages are integrity-protected by UIA algorithm, and that the messages contain the correct values for "Integrity mode info" IE. This can be verified in SS through the reception of a correctly ciphered and integrity-protected UE CAPABILITY INFORMATION message.

Expected sequence

Step	Direction		p Direction Message		Message	Comment
0.00	UE SS					
1				RRC connected state on DCH_state.		
2		+	SECURITY MODE COMMAND	See message content.		
3	3 →		SECURITY MODE FAILURE	IE "Failure Cause" shall be set to "Protocol Error" and IE "Protocol Error Information" shall be set to "Information element value not comprehended".		
4		←	SECURITY MODE COMMAND	IE "Ciphering mode info" and IE "Integrity mode info" are set to "Not Present"		
5		\rightarrow	SECURITY MODE FAILURE	IE "Failure Cause" shall be set to "invalid configuration".		
6		←	SECURITY MODE COMMAND	See specific message contents.		
7	+		SECURITY MODE COMMAND	See specific message contents.		
8	→		SECURITY MODE FAILURE	IE "Failure Cause" shall be set to "Incompatible simultaneous reconfiguration".		
9			SECURITY MODE COMPLETE	SS verifies that this message is sent unciphered. SS records the uplink ciphering activation time for RB 2.		
10	10 ←		UE CAPABILITY ENQUIRY	SS repeats step 8,9 and 10 until its internal uplink and downlink RLC SN have both surpassed the uplink and downlink ciphering activation time specified for RB2. This message is sent on the downlink DCCH using RLC-AM. See specific message content.		
11	1 →		UE CAPABILITY INFORMATION	UE shall send this message on the uplink DCCH using RLC-AM. See specific message content. SS verifies that the last UE CAPABILITY INFORMATION message is both integrity-protected and ciphered correctly.		
12	•	(UE CAPABILITY INFORMATION CONFIRM			
				Step 10 to 12 is repeated for at least one cycle.		

Specific Message Contents

SECURITY MODE COMMAND (Step 2)

See notes below for the value of Y.

Information Element	Value/remark
RRC transaction identifier	0
Integrity check info	
Message authentication code	Calculated result in SS
RRC Message sequence number	0
Security Capability	
Ciphering algorithm capability	"111111111111111B
Integrity protection algorithm capability	"111111111111111B
Ciphering mode info	
Ciphering mode command	Start
Ciphering algorithm	Use one of the supported ciphering algorithms
Activation time for DPCH	Not Present
Radio bearer downlink ciphering activation time info	
RB Identity	2
RLC sequence number	Current RLC SN + Y
Integrity protection mode info	
Integrity protection mode command	Start
Downlink integrity protection activation info	Not Present
Integrity protection algorithm	If integrity is indicated to be active on IXIT statements in
	TS 34.123-2, use one of the supported integrity
	algorithms
Integrity protection initialisation number	0000 0000 0000 0000 H (FRESH)
CN domain identity	Supported domain

SECURITY MODE FAILURE (Step 3)

The same message found in Annex A shall be transmitted by the UE on the uplink DCCH, with the exception of the following IEs:

Information Element	Value/remark
Failure cause	
Failure cause	Protocol error
Protocol error information	
Protocol error cause	Information element value not comprehended

SECURITY MODE COMMAND (Step 4)

Information Element	Value/remark
RRC transaction identifier	0
Integrity check info	
Message authentication code	Calculated result in SS
RRC Message sequence number	0
Security Capability	
Ciphering algorithm capability	
UEA0	FALSE
UEA1	TRUE
Spare	FALSE
Integrity protection algorithm capability	
UIA1	TRUE
Spare	FALSE
Ciphering mode info	Not Present
Integrity protection mode info	Not Present
CN domain identity	Supported domain

SECURITY MODE FAILURE (Step 5)

The same message found in Annex A shall be transmitted by the UE on the uplink DCCH, with the exception of the following IEs:

Information Element	Value/remark	
Failure cause		
Failure cause	Invalid configuration	

SECURITY MODE COMMAND (Step 6 and 7)

See notes below for the value of Y.

Information Element	Value/remark
RRC transaction identifier	0
Integrity check info	
Message authentication code	Calculated result in SS
RRC Message sequence number	0
Security Capability	
Ciphering algorithm capability	
UEA0	If ciphering is not indicated to be active on IXIT statements in TS 34.123-2, set this to TRUE. If ciphering is indicated to be active on IXIT statements in TS 34.123-2, set this to TRUE.
UEA1	FALSE
Spare Integrity protection algorithm capability UIA1	TRUE FALSE
Spare	Start/restart
Ciphering mode info	Use one of the supported ciphering algorithms
Ciphering mode command	Not Present
Ciphering algorithm	
Activation time for DPCH	2
Radio bearer downlink ciphering activation time info RB Identity	Current RLC SN + Y
RLC sequence number	Start
Integrity protection mode info	Not Present
Integrity protection mode command	If integrity is indicated to be active on IXIT statements in
Downlink integrity protection activation info	TS 34.123-2, use one of the supported integrity
Integrity protection algorithm	algorithms
	0000 0000 0000 0000 H (FRESH)
	Supported domain
Integrity protection initialisation number	
CN domain identity	

SECURITY MODE FAILURE (Step 8)

The same message found in Annex A shall be transmitted by the UE on the uplink DCCH, with the exception of the following IEs:

Information Element	Value/remark
Failure cause	
Failure cause	Incompatible simultaneous reconfiguration

SECURITY MODE COMPLETE (Step 9)

Information Element	Value/remark		
RRC transaction identifier	0		
Integrity check info			
- Message Authentication code	Checked to see if present		
- RRC Message sequence number Uplink integrity protection activation info	Checked to see if present		
- RRC message sequence number list	Check to see if it the RRC SN for RB 0 to RB 4 are present		
Radio bearer uplink ciphering activation info	l'		
- RB Identity	2		
- RLC sequence number	SS records this value. See step 8 in 'expected sequence'		

UE CAPABILITY REQUIRY (Step 10)

The contents of UE CAPABILITY REQUIRY message in this test case is identical to the message sub-type title found in annex A.

UE CAPABILITY INFORMATION (Step 11)

The contents of UE CAPABILITY INFORMATION message in this test case is identical to the message sub-type title found in annex A.

UE CAPABILITY INFORMATION CONFIRM(Step 12)

The contents of UE CAPABILITY INFORMATION CONFIRM message in this test case is identical to the message sub-type title found in annex A.

NOTE: Y = 2 * (size of COUNTER CHECK message, after PER encoding). The unit of Y is the number of RLC-AM PDU.

8.1.7.1.5 Test requirement

After step 2 the UE shall transmit a SECURITY MODE FAILURE message to report the protocol error detected in the first SECURITY MODE COMMAND message. The UE shall be able to communicate normally with the SS, with all control data on the signalling radio bearers unciphered.

After step 7, UE shall transmit SECURITY MODE FAILURE to SS to indicate an error due to incompatible simultaneous reconfiguration.

After step 8 the UE shall RLC-acknowledge the receipt of the first valid SECRUITY MODE COMMAND message using unciphered mode and which includes calculated integrity check info. SS checks that the SECURITY MODE COMPLETE message is received unciphered and that the calculated "integrity check info" IE is correct.

After step 9 SS verifies that all uplink signalling messages on RB1, RB2, RB3 and RB4 are integrity protected with UIA1 algorithm.

After uplink ciphering activation time has lapsed, SS verifies that the UE CAPABILITY INFORMATION message received is integrity protected with UIA algorithm and ciphered with the algorithm indicated in the second SECURITY MODE COMMAND (Step 4) message.

After downlink ciphering activation time has lapsed, UE CAPABILITY INFORMATION message received that is integrity protected with UIA algorithm and ciphered with the algorithm indicated in the second SECURITY MODE COMMAND (Step 4) message shall be transmitted. UE shall transmit the UE CAPABILITY INFORMATION message.

8.1.7.2 Security mode command in CELL_FACH state

8.1.7.2.1 Definition



8.1.7.2.2 Conformance requirement

- 1. This procedure is used to trigger the stop or start of ciphering, or to command the restart of ciphering with the new ciphering configuration. It is also used to start integrity protection or modify integrity protection configuration, both for signalling link(s) and any radio access bearer(s).
- 2. When the UE receives a SECURITY MODE COMMAND message from the UTRAN, which indicates the downlink activation time and new integrity protection configuration, the UE shall apply the old ciphering configuration before the stated downlink activation time. It shall start to decipher using the new ciphering configuration at the downlink activation time.
- 3. The UE shall transmit SECURITY MODE COMPLETE message using the new integrity protection configuration stated in the received SECURITY MODE COMMAND message. The SECURITY MODE COMPLETE message shall include the ciphering uplink activation time. The UE shall start to apply the new ciphering configuration on the uplink direction, after the uplink activation time has elapsed.

Reference

3GPP TS 25.331 clause 8.1.12.

8.1.7.2.3 Test purpose

To confirm that after the UE receives a SECURITY MODE COMMAND message, it transmits a SECURITY MODE COMPLETE message to the UTRAN using the old ciphering configuration together with the application of the new integrity protection configuration. To confirm that the UE applies the old ciphering configuration in the downlink prior to the activation time; and uses the new ciphering configuration on and after the activation time. To confirm that the UE starts to cipher its uplink transmissions after the uplink activation time stated in SECURITY MODE COMPLETE message is reached. To confirm that UE aborts ciphering and integrity protection configuration when it reselect to a new cell and performs cell update procedure.

8.1.7.2.4 Method of test

Initial Condition

System Simulator: 2 cells - Cell 1 is active, with the downlink transmission power shown in column marked "T0" in Table 8.1.7.2, while cell 2 is inactive.

UE: CELL_FACH (state 6-11) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

The UE is in the CELL_FACH state, camping onto cell 1. SS starts to broadcast BCCH on the primary CCPCH in cell 2. The UE shall find cell 2 to be more suitable for service and hence perform a cell reselection. After the completion of cell reselection, the UE shall transmits a CELL UPDATE message to the SS on the uplink CCCH of cell 2 and set IE "Cell update cause" to "Cell Reselection". After the SS receives this message, it transmits a CELL UPDATE.

Test Procedure

Parameter	Unit	Cell 1		Cell 2	
		T0 T1		T0	T1
UTRA RF Channel		Ch. 1		Ch. 1	
Number					
CPICH RSCP	dBm	-73 -79		switched off	-73

I

Table 8.1.7.2 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. Columns marked "T0" denote the initial conditions, while columns marked "T1" is to be applied subsequently.

The UE is in the RRC connected state CELL_FACH camping onto cell 1. The SS transmits a SECURITY MODE COMMAND message in which ciphering is requested to be activated, but the IE "Ciphering algorithm capability" is set to an unknown value. The UE shall not trigger any ciphering algorithm and it shall respond by sending SECURITY MODE FAILURE message on the DCCH. Next, SS transmits a valid SECURITY MODE COMMAND message which includes IE "Downlink activation time" for RB2 and IE "Integrity check info". The UE shall check the integrity check info. It shall start to configure ciphering in downlink. Then SS configures its downlink transmission power settings according to columns "T1" in Table 8.1.7.2. UE shall abort ongoing integrity and ciphering reconfiguration. UE shall re-select to cell 2 and transmit CELL UPDATE message to SS with IE "cell update cause" set to "cell reselection". Then SS transmit a CELL UPDATE CONFIRM message to UE. UE shall not responds to this message. SS then transmits a SECURITY MODE COMMAND message to UE. The UE shall check the integrity check info. It shall start to configure ciphering in downlink and transmit a SECURITY MODE COMPLETE message, which contains the uplink activation time for RB2 using the new integrity protection configuration.. This message shall contain the IE "Integrity check info". SS records the uplink ciphering activation time for RB 2. Next, SS transmits UE CAPABILITY ENQUIRY message repeated on the downlink DCCH using RLC-AM mode. The UE shall respond to each downlink message with a UE CAPABILITY INFORMATION message on the uplink DCCH using RLC-AM. SS confirms that the uplink UE CAPABILITY INFORMATION messages are not ciphered. SS also checks all uplink messages are integrity-protected by UIA1 algorithm, and that the messages contain the correct values for "Integrity mode info" IE. This cycle repeats itself until both the uplink and downlink ciphering activation time for RB 2 have elapsed. After both the uplink and downlink ciphering activation time for RB 2 have passed, the UE shall be able to communicate with the SS using the new ciphering configurations. This can be verified in SS through the reception of a correctly ciphered and integrity-protected UE CAPABILITY INFORMATION message.

Expected sequence

Step	p Direction UE SS		Message	Comment
1				UE is initially in CELL_FACH state.
2	+	•	SECURITY MODE COMMAND	See message content
3	3 →		SECURITY MODE FAILURE	IE "Failure Cause" shall be set to "Protocol Error" and IE "Protocol Error Information" shall be set to "Information element value not comprehended".
4	+	•	SECURITY MODE COMMAND	See specific message contents.
5				SS configures the downlink power transmission setting according to column "T1" in Table 8.1.7.2.
6	\rightarrow		CELL UPDATE	UE re-selects to cell 2 and sends this message.
7	←		CELL UPDATE CONFIRM	
8	←		SECURITY MODE COMMAND	See specific message contents.
9	9 -		SECURITY MODE COMPLETE	SS verifies that this message is sent unciphered. SS records the uplink ciphering activation time for RB 2.
10	10 ←		UE CAPABILITY ENQUIRY	SS repeats step 10, 11 and 12 until its internal uplink and downlink RLC sequence numbers have both surpassed the uplink and downlink ciphering activation times specified for RB2. This message is sent on the downlink DCCH using RLC-AM. See specific message content.
11	→		UE CAPABILITY INFORMATION	UE shall send this message on the uplink DCCH using RLC-AM. See specific message content. SS verifies that the last COUNTER CHECK RESPONSE message is both integrity-protected and ciphered correctly.
12	+		UE CAPABILITY INFORMATION	SS verifies that the last COUNTER CHECK RESPONSE message is both integrity-protected and ciphered correctly.

Specific Message Contents

SECURITY MODE COMMAND (Step 2)

See notes below for the value of Y.

Information Element	Value/remark
RRC transaction identifier	0
Integrity check info	
Message authentication code	Calculated result in SS
RRC Message sequence number	0
Security Capability	
Ciphering algorithm capability	"111111111111111"B "111111111111111"B
Integrity protection algorithm capability	
Ciphering mode info	
Ciphering mode command	Start
Ciphering algorithm	Use one of the supported ciphering algorithms
Activation time for DPCH	Not Present
Radio bearer downlink ciphering activation time info	
RB Identity	2
RLC sequence number	Current RLC SN + Y
Integrity protection mode info	
Integrity protection mode command	Start
Downlink integrity protection activation info	Not Present
Integrity protection algorithm	If integrity is indicated to be active on IXIT statements in
	TS 34.123-2, use one of the supported integrity
	algorithms
Integrity protection initialisation number	0000 0000 0000 0000 H (FRESH)
CN domain identity	Supported domain

SECURITY MODE COMMAND (Step 4 and 8)

See notes below for the value of Y.

Information Element	Value/remark
RRC transaction identifier	0
Integrity check info	
Message authentication code	Calculated result in SS
RRC Message sequence number	0
Security Capability	
Ciphering algorithm capability	
	If ciphering is not indicated to be active on IXIT
LIFAO	statements in TS 34.123-2, set this to TRUE.
UEA0	If ciphering is indicated to be active on IXIT statements
UEA1	in TS 34.123-2, set this to TRUE.
UEAT	FALSE
Spare	TRUE
Integrity protection algorithm capability	FALSE
UIA1	
Spare	Start/restart
Ciphering mode info	Use one of the supported ciphering algorithms
Ciphering mode command	Not Present
Ciphering algorithm	
Activation time for DPCH	2
Radio bearer downlink ciphering activation time info	Current RLC SN + Y
RB Identity	
RLC sequence number	Start
Integrity protection mode info	Not Present
Integrity protection mode command	If integrity is indicated to be active on IXIT statements in
Downlink integrity protection activation info	TS 34.123-2, use one of the supported integrity
Integrity protection algorithm	algorithms
	0000 0000 0000 0000 H (FRESH)
Integrity protection initialization number	Supported domain
Integrity protection initialisation number CN domain identity	
Civ domain identity	

CELL UPDATE

Use the same message sub-type found in Annex A, with the following exceptions:

Information Element	Value/remark
U-RNTI	
- SRNC Identity	Check to see if set to '0000 0000 0001'
- S-RNTI	Check to see if set to '0000 0000 0000 0000 0001'.
Cell Update Cause	Check to see if set to 'Cell Reselection'

CELL UPDATE CONFIRM (Step 4 and 18)

Use the same message sub-type found in Annex A, with the following exceptions:

Information Element	Value/remark	
RRC State Indicator	CELL_FACH	

SECURITY MODE COMPLETE (Step 9)

Information Element	Value/remark
RRC transaction identifier	0
Integrity check info	
- Message Authentication code	Checked to see if present
- RRC Message sequence number	Checked to see if present
Uplink integrity protection activation info	·
- RRC message sequence number list	Check to see if it the RRC SN for RB 0 to RB 4 are
	present
Radio bearer uplink ciphering activation info	
- RB Identity	2
- RLC sequence number	SS records this value. See step 8 in 'expected sequence'

UE CAPABILITY REQUIRY (Step 10)

The contents of UE CAPABILITY REQUIRY message in this test case is identical to the message sub-type title found in Annex A.

UE CAPABILITY INFORMATION (Step 11)

The contents of UE CAPABILITY INFORMATION message in this test case is identical to the message sub-type title found in Annex A.

UE CAPABILITY INFORMATION CONFIRM(Step 12)

The contents of UE CAPABILITY INFORMATION CONFIRM message in this test case is identical to the message sub-type title found in Annex A.

NOTE: Y = 2 * (size of COUNTER CHECK message, after PER encoding). The unit of Y is the number of RLC-AM PDU.

8.1.7.2.5 Test requirement

After step 2 the UE shall transmit a SECURITY MODE FAILURE message to report the protocol error detected in the first SECURITY MODE COMMAND message. The UE shall be able to communicate normally with the SS, with all control data on the signalling radio bearers unciphered.

After step 5, UE shall reselect to cell 2 and transmit CELL UPDATE message to SS with IE "cell update cause" set to "cell reselection".

After step 8 the UE shall RLC-acknowledge the receipt of the SECRUITY MODE COMMAND message using unciphered mode and which includes calculated integrity check info. SS checks that the SECURITY

MODE COMPLETE message is received unciphered and that the calculated MAC-I values in "integrity check info" IE is correct.

After step 9 SS verifies that all uplink signalling messages on RB1, RB2, RB3 and RB4 are integrity protected with UIA1 algorithm.

After step 11 SS verifies that the last UE CAPABILITY INFORMATION message received is integrity protected with UIA1 algorithm and ciphered with the algorithm indicated in the second SECURITY MODE COMMAND (Step 4) message.

8.1.8 Counter check

8.1.8.1 Counter check in CELL_DCH state

8.1.8.1.1 Definition

8.1.8.1.2 Conformance requirement

When the UE receives a COUNTER CHECK message that includes matched COUNT-C MSB values, the UE shall transmit a COUNTER CHECK RESPONSE message on the uplink DCCH and omitting "RB COUNT-C information" IE in this message.

When the UE receives a COUNTER CHECK message that includes any mismatched COUNT-C MSB values, the UE shall transmit a COUNTER CHECK RESPONSE message on the uplink DCCH and specifies the current COUNT-C information of the RAB(s) with mismatched values.

Reference

3GPP TS 25.331 clause 8.1.15.

8.1.8.1.3 Test purpose

To confirm that the UE transmits a COUNTER CHECK RESPONSE message after it receives a COUNTER CHECK message from the SS. To confirm that the UE responds to the reception of an invalid downlink COUNTER CHECK message by transmitting a RRC STATUS message on the uplink DCCH, stating the correct error cause value in message.

8.1.8.1.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: CELL_DCH state (state 6-10) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE is brought to the CELL_DCH state after a successful outgoing call attempt. The SS transmits an erroneous COUNTER CHECK message. The content of this message is lack of a mandatory IE. The UE shall detect a protocol error and send RRC STATUS message to report this event. Next, the SS transmits a COUNTER CHECK message that includes the current COUNT-C MSB information in each radio access bearer. The UE shall react by sending a COUNTER CHECK RESPONSE message on the uplink DCCH, which does not include "RB COUNT-C information" IE. The SS transmits a COUNTER CHECK message which includes the current COUNT-C MSB information reversed all the bits in each radio bearer. The UE shall send a COUNTER CHECK RESPONSE message on the uplink DCCH, specifying the current COUNT-C information for each radio access bearer established. The SS transmits a COUNTER CHECK

message which includes a different radio bearer. The UE shall send a COUNTER CHECK RESPONSE message on the uplink DCCH, specifying the current COUNT-C information for each radio access bearer established.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is brought to CELL_DCH state after an outgoing call has been established successfully.
2	•	-	COUNTER CHECK	See specific message contents for this message
3	_	>	RRC STATUS	UE shall detect a protocol error and then transmit this message.
4	•		COUNTER CHECK	See specific message content.
5	-)	COUNTER CHECK RESPONSE	The message shall not include the IE "RB COUNT-C information".
6	•	_	COUNTER CHECK	See specific message content.
7	-)	COUNTER CHECK RESPONSE	The message shall include the IE "RB COUNT-C information".
8	•		COUNTER CHECK	See specific message content.
9	_)	COUNTER CHECK RESPONSE	The message shall include the IE "RB COUNT-C information".

Specific Message Contents

COUNTER CHECK (Step 2)

Information Element	Value/remark
RRC transaction identifier	Not Present

RRC STATUS (Step 3)

Information Element	Value/remark
Protocol Error Information - Protocol Error Cause	Checked to see if set to "ASN.1 violation or encoding error"

COUNTER CHECK (Step 4)

Information Element	Value/remark
RRC transaction identifier	0
Integrity check info	Calculated value
RB COUNT-C MSB information	
- RB identity	20
- COUNT-C MSB uplink	Current COUNT-C MSB for RB#20 in uplink
- COUNT-C MSB downlink	Current COUNT-C MSB for RB#20 in downlink

COUNTER CHECK RESPONSE (Step 5)

Information Element	Value/remark
RRC transaction identifier	0
Integrity check info	Not checked
RB COUNT-C information	Check to if this IE is absent

COUNTER CHECK (Step 6)

Information Element	Value/remark
RRC transaction identifier	0
Integrity check info	Calculated value
RB COUNT-C MSB information	
- RB identity	Check to see if set to 20
- COUNT-C MSB uplink	Toggle all bits of the current COUNT-C MSB in uplink
	for RB#20
- COUNT-C MSB downlink	Toggle all bits of the current COUNT-C MSB in downlink
	for RB#20

COUNTER CHECK RESPONSE (Step 7)

Information Element	Value/remark
RRC transaction identifier	0
Integrity check info	Not checked
RB COUNT-C information	
- RB identity	Check to see if set to 20
- COUNT-C uplink	Check to see if set to Current COUNT-C for RB#20 in
·	uplink
- COUNT-C downlink	Check to see if set to COUNT-C for RB#20 in downlink

COUNTER CHECK (Step 8)

Information Element	Value/remark
RRC transaction identifier	0
Integrity check info	Calculated value
RB COUNT-C MSB information	
- RB identity	Check to see if set to 25
- COUNT-C MSB uplink	Arbitrary COUNT-C MSB in uplink for RB#25
- COUNT-C MSB downlink Arbitrary COUNT-C MSB in downlink for RB#25	

COUNTER CHECK RESPONSE (Step 9)

Information Element	Value/remark
RRC transaction identifier	0
Integrity check info	Not checked
RB COUNT-C information	
- RB identity	Check to see if set to 20
- COUNT-C uplink	Check to see if set to Current COUNT-C for RB#20 in uplink
- COUNT-C downlink	Check to see if set to COUNT-C for RB#20 in downlink
- RB identity	Check to see if set to 25
- COUNT-C uplink	Check to see if COUNT-C MSB is set to COUNT-C
·	MSG in uplink for RB#25 in step 8 and LSB is fill with '0'
- COUNT-C downlink	Check to see if COUNT-C MSB is set to COUNT-C
	MSG in downlink for RB#25 in step 8 and LSB is fill with
	'0'

8.1.8.1.5 Test requirement

After step 2, the UE shall transmit a RRC STATUS message on the uplink DCCH. The protocol error cause shall be set to "ASN.1 violation or encoding error".

After step 4 the UE shall transmit a COUNTER CHECK RESPONSE message which does not includes the IE "RB COUNT-C information" to indicates that a matched comparison result is obtained.

After step 6, the UE shall transmit a COUNTER CHECK RESPONSE message which includes the IE "RB COUNT-C information" to report that a mismatch in COUNT-C value is detected in RB#20.

After step 8, the UE shall transmit a COUNTER CHECK RESPONSE message which includes the IE "RB COUNT-C information" to report that RB#25 is not found in variable ESTABLISHED_RABS and RB#20 is not found in IE "RB COUNT-C MSB information".

8.1.8.2 Counter check in CELL_FACH state

8.1.8.2.1 Definition



8.1.8.2.2 Conformance requirement

When the UE receives a COUNTER CHECK message that includes matched COUNT-C MSB values, the UE shall transmit a COUNTER CHECK RESPONSE message on the uplink DCCH and omitting "RB COUNT-C information" IE in this message.

When the UE receives a COUNTER CHECK message that includes any mismatched COUNT-C MSB values, the UE shall transmit a COUNTER CHECK RESPONSE message on the uplink DCCH and specifies the current COUNT-C information of the RAB(s) with mismatched values.

Reference

3GPP TS 25.331 clause 8.1.15.

8.1.8.2.3 Test purpose

To confirm that the UE transmits a COUNTER CHECK RESPONSE message after it receives a COUNTER CHECK message from the SS. To confirm that the UE responds to the reception of an invalid downlink COUNTER CHECK message by transmitting a RRC STATUS message on the uplink DCCH, stating the correct error cause value in message.

8.1.8.2.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CELL_FACH state (state 6-11) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE is brought to the CELL_FACH state after a successful outgoing call attempt. The SS transmits an erroneous COUNTER CHECK message. The content of this message is lack of a mandatory IE. The UE shall detect a protocol error and send RRC STATUS message to report this event. Next, the SS transmits a COUNTER CHECK message that includes the current COUNT-C MSB information in each radio access bearer. The UE shall react by sending a COUNTER CHECK RESPONSE message on the uplink DCCH, which does not include "RB COUNT-C information" IE. The SS transmits a COUNTER CHECK message, which includes the current COUNT-C MSB information for each radio bearer but with all the bits reversed. The UE shall send a COUNTER CHECK RESPONSE message on the uplink DCCH, specifying the current COUNT-C information for each radio access bearer established.

Expected sequence

Step	Direc	tion	Message	Comment
	UE	SS		
1				The UE is brought to CELL_FACH state after an outgoing call has been established successfully.
2	•	-	COUNTER CHECK	See specific message contents for this message
3	_	>	RRC STATUS	UE shall detect a protocol error and then transmit this message.
4	+		COUNTER CHECK	See specific message content.
5	-	>	COUNTER CHECK RESPONSE	The message shall not include the IE "RB COUNT-C information".
6	+		COUNTER CHECK	See specific message content.
7	-)	COUNTER CHECK RESPONSE	The message shall include the IE "RB COUNT-C information".
8	+	-	COUNTER CHECK	See specific message content.
9	_)	COUNTER CHECK RESPONSE	The message shall include the IE "RB COUNT-C information".

Specific Message Contents

COUNTER CHECK (Step 2)

Information Element	Value/remark	
RRC transaction identifier	Not Present	

RRC STATUS (Step 3)

Information Element	Value/remark
Protocol Error Information	
- Protocol Error Cause	Checked to see if set to "ASN.1 violation or encoding"

COUNTER CHECK (Step 4)

Information Element	Value/remark
RRC transaction identifier	0
Integrity check info	Calculated value
RB COUNT-C MSB information	
- RB identity	20
- COUNT-C MSB uplink	Current COUNT-C MSB for RB#20 in uplink
- COUNT-C MSB downlink	Current COUNT-C MSB for RB#20 in downlink

COUNTER CHECK RESPONSE (Step 5)

Information Element	Value/remark
RRC transaction identifier	0
Integrity check info	Not checked
RB COUNT-C information	Check to if this IE is absent

COUNTER CHECK (Step 6)

Information Element	Value/remark
RRC transaction identifier	0
Integrity check info	Calculated value
RB COUNT-C MSB information	
- RB identity	20
- COUNT-C MSB uplink	Toggle all bits of the current COUNT-C MSB in uplink
	for RB#20
- COUNT-C MSB downlink	Toggle all bits of the current COUNT-C MSB in downlink
	for RB#20

COUNTER CHECK RESPONSE (Step 7)

Information Element	Value/remark
RRC transaction identifier	0
Integrity check info	Not checked
RB COUNT-C information	
- RB identity	Check to see if set to 20
- COUNT-C uplink	Check to see if set to Current COUNT-C for RB#20 in
	uplink
- COUNT-C downlink	Check to see if set to COUNT-C for RB#20 in downlink

COUNTER CHECK (Step 8)

Information Element	Value/remark
RRC transaction identifier	0
Integrity check info	Calculated value
RB COUNT-C MSB information	
- RB identity	Check to see if set to 25
- COUNT-C MSB uplink	Arbitrary COUNT-C MSB in uplink for RB#25
- COUNT-C MSB downlink	Arbitrary COUNT-C MSB in downlink for RB#25

COUNTER CHECK RESPONSE (Step 9)

Information Element	Value/remark
RRC transaction identifier	0
Integrity check info	Not checked
RB COUNT-C information	
- RB identity	Check to see if set to 20
- COUNT-C uplink	Check to see if set to Current COUNT-C for RB#20 in uplink
- COUNT-C downlink	Check to see if set to COUNT-C for RB#20 in downlink
- RB identity	Check to see if set to 25
- COUNT-C uplink	Check to see if COUNT-C MSB is set to COUNT-C
·	MSG in uplink for RB#25 in step 8 and LSB is fill with '0'
- COUNT-C downlink	Check to see if COUNT-C MSB is set to COUNT-C
	MSG in downlink for RB#25 in step 8 and LSB is fill with
	'0'

8.1.8.2.5 Test requirement

After step 2, the UE shall transmit a RRC STATUS message on the uplink DCCH. The protocol error cause shall be set to "ASN.1 violation or encoding error".

After step 4 the UE shall transmit a COUNTER CHECK RESPONSE message which does not includes the IE "RB COUNT-C information" to indicates that a matched comparison result is obtained.

After step 6, the UE shall transmit a COUNTER CHECK RESPONSE message which includes the IE "RB COUNT-C information" to report that a mismatch in COUNT-C value is detected in RB#20.

After step 8, the UE shall transmit a COUNTER CHECK RESPONSE message which includes the IE "RB COUNT-C information" to report that RB#25 is not found in variable ESTABLISHED_RABS and RB#20 is not found in IE "RB COUNT-C MSB information".

8.1.9 Signalling Connection Release Request

8.1.9.1 Definition

8.1.9.2 Conformance requirement

The UE shall initiate the signalling connection release procedure when the higher layer entities in the UE request to release one or more signalling session (one example of such case is location update failure). In this case, the UE shall transmit a SIGNALLING CONNECTION RELEASE REQUEST message, which includes the CN domain identity of the connection flow to be released.

Reference

3GPP TS 25.331 clause 8.1.14.

8.1.9.3 Test purpose

To confirm that the UE transmits a SIGNALLING CONNECTION RELEASE REQUEST message after it fails to receive a response for the LOCATION UPDATING REQUEST message.

8.1.9.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: Switched off (state 1) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is turned on and it shall find a suitable cell to camp on. The UE shall initiate a location updating procedure. The UE shall establish an RRC connection and transmits a LOCATION UPDATING REQUEST message using the INITIAL DIRECT TRANSFER message. The SS does not respond to this message, and the UE shall send a SIGNALLING CONNECTION RELEASE REQUEST message which includes the CN domain identity with the same value as that in the INITIAL DIRECT TRANSFER message.

Expected sequence

Step	Direction	Message	Comment
	UE SS		
1			The UE is powered on.
2	→	RRC CONNECTION REQUEST	UE shall initiate the location updating procedure.
3	+	RRC CONNECTION SETUP	
4			The UE configures the layer 2 and layer 1.
5	\rightarrow	RRC CONNECTION SETUP COMPLETE	
6	\rightarrow	INITIAL DIRECT TRANSFER (LOCATION UPDATING REQUEST)	LOCATION UPDATE REQUEST is embedded in this message transmission.
7			The SS does not respond and waits until the timer for location update procedure expires.
8	→	SIGNALLING CONNECTION RELEASE REQUEST	

Specific Message Content

SIGNALLING CONNECTION RELEASE REQUEST (Step 8)

Information Element	Value/remark
CN domain identity	Check to see if this value is the as same as in the uplink
·	INITIAL DIRECT TRANSFER message.

8.1.9.5 Test requirement

After step 1 the UE shall initiate the LOCATION UPDATING procedure and establish an RRC connection.

After step 7 the UE shall transmit a SIGNALLING CONNECTION RELEASE REQUEST message which includes the same CN domain identity as that found in the INITIAL DIRECT TRANSFER message.

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CR-Form-v3 CHANGE REQUEST		
 	# Current version: 4.0.0	
For HELD on		
For MELP on	using this form, see bottom of this page or look at the pop-up text over the ℜ symbols.	
Proposed change affe	Core Network Core Network	
Title: 第 De	fault RRC message contents for 1.28 Mcps TDD	
Source:		
Work item code: 第 LC	RTDD	
Category: # F	Release: # REL-4	
Use one of the following categories: F (essential correction) A (corresponds to a correction in an earlier release) B (Addition of feature), C (Functional modification of feature) D (Editorial modification) Detailed explanations of the above categories can be found in 3GPP TR 21.900. Use one of the following releases: (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) REL-4 (Release 4) REL-5 (Release 5)		
Reason for change: 3	Introduces default RRC message contents for 1.28 Mcps TDD	
Summary of change: 9	New annex proposed containing default RRC message contents for TDD. This annex has been labelled A1.	
	Structure proposed:	
	 Annex A (normative): Default RRC Message Contents Annex A.1: Default RRC Message Contents (FDD) Annex A.2: 	
Default RRC Message Contents (3.84 Mcps TDD)		
 Annex A.3: Default RRC Message Contents (1.28 Mcps TDD) 		
Consequences if not approved:	Test procedures will not be defined for the TDD 1.28 Mcps option.	
Clauses affected:	€ Annex	
Other specs affected:	Other core specifications Test specifications O&M Specifications TS34.123-2	
Other comments:	This CR affects Release 4	

Annex A (normative):

Default RRC Message Contents

Annex A.1:

Default RRC Message Contents (FDD)

- - -

Annex A.2:

Default RRC Message Contents (3.84 Mcps TDD)

[FFS]

Annex A.3:

Default RRC Message Contents (1.28 Mcps TDD)

This clause contains the default values of RRC messages, other than those specified in TS 34.108 clauses 6 and 9. Unless indicated otherwise in specific test cases, they shall be transmitted by the system simulator in RRC messages, and which are required to be received from the UE under test.

The necessary L3 messages are listed in alphabetic order, with the exception of the SYSTEM INFORMATION messages, where it is the information elements which are listed in alphabetic order (this is because some information elements occur in several SYSTEM INFORMATION types).

In this clause, decimal values are normally used. However, sometimes a hexadecimal value, indicated by an "H", or a binary value, indicated by a "B" is used.

Default SYSTEM INFORMATION:

NOTE 1: SYSTEM INFORMATION BLOCK TYPE 1 (except for PLMN type "GSM-MAP"), SYSTEM
INFORMATION BLOCK TYPE 8, SYSTEM INFORMATION BLOCK TYPE 9, SYSTEM
INFORMATION BLOCK TYPE 10, SYSTEM INFORMATION BLOCK TYPE 14, SYSTEM
INFORMATION BLOCK TYPE 15 and SYSTEM INFORMATION BLOCK TYPE 16 messages are not used.

Contents of CELL UPDATE message: TM

Information Element	Value/remark
Message Type	
U-RNTI	Checked to see if it is set to the following values
- SRNC identity	0000 0000 0001B
- S-RNTI	0000 0000 0000 0000 0001B
RRC transaction identifier	Checked to see if it is absent
Integrity check info	The presence of this IE is dependent on IXIT statements
	in TS 34.123-2. If integrity protection is indicated to be
	active, this IE shall be present with the values of the sub
	IEs as stated below. Else, this IE and the sub-IEs shall be
	absent.
- Message authentication code	This IE is checked to see if it is present. The value is
	compared against the XMAC-I value computed by SS.
- RRC Message sequence number	This IE is checked to see if it is present. The value is
	used by SS to compute the XMAC-I value.
START List	Checked to see if the 'CN domain identity' and 'START'
	IEs are present for all CN domains supported by the UE
- CN domain identity	Checked to see if it is one of the supported CN domains
<u>START</u>	Checked to see if it is present
AM_RLC error indication (RB2 or RB3)	Checked to see if it is set to 'FALSE'
AM_RLC error indication (RB>3)	Checked to see if it is set to 'FALSE'
Cell update cause	See the test content
Failure cause	Checked to see if it is absent
RB timer indicator	
- T314 expired	Checked to see if it is set to 'FALSE'
- T315 expired	Checked to see if it is set to 'FALSE'
Measured results on RACH	Not checked

Contents of CELL UPDATE CONFIRM message: UM

Information Element	Value/remark		
Message Type			
<u>U-RNTI</u>	If this message is sent on CCCH, use the following		
	values. Else, this IE is absent.		
- SRNC identity	0000 0000 0001B		
- S-RNTI	0000 0000 0000 0000 0001B		
RRC transaction identifier	Selects an arbitrary integer between 0 to 3		
Integrity check info	The presence of this IE is dependent on IXIT statements		
	in TS 34.123-2. If integrity protection is indicated to be		
	active, this IE is present with the values of the sub IEs as		
	stated below. Else, this IE and the sub-IEs are omitted.		
 message authentication code 	SS calculates the value of MAC-I for this message and		
	writes to this IE.		
 - RRC message sequence number 	SS provides the value of this IE, from its internal counter.		
Integrity protection mode info	Not Present		
Ciphering mode info	Not Present		
Activation time	Not Present – use default value		
New U-RNTI	Not Present		
New C-RNTI	Not Present		
RRC State indicator	CELL FACH		
UTRAN DRX cycle length coefficient	Not Present		
RLC re-establish indicator (RB2 or RB3)	FALSE		
RLC re-establish indicator (RB>3)	FALSE		
CN information info	Not Present		
<u>URA identity</u>	0000 0000 0001B		
RB information to release list	Not Present		
RB information to reconfigure list	Not Present		
RB information to be affected list	Not Present		
Downlink counter synchronisation info	Not Present		
UL Transport channel information common for all	Not Present		
transport channels	Not Descript		
Deleted TrCH information list	Not Present		
Added or Reconfigured TrCH information list	Not Present		
CHOICE mode DL Transport channel information common for all	TDD Net Broomt		
transport channels	Not Present		
Deleted TrCH information list	Not Propert		
Added or Reconfigured TrCH information list	Not Present Not Present		
Frequency info	Not Present		
Maximum allowed UL TX power	Not Present		
CHOICE channel requirement	Not Present		
CHOICE mode	TDD		
Downlink information common for all radio links	Not Present		
Downlink information per radio link list	Not Present		
2			
L	1		

Contonio di Meriodite Menti dell'interessago. 7111			
Information Element	<u>Value/remark</u>		
Message Type			
RRC transaction identifier	Arbitrarily selects an unused integer between 0 to 3		
Integrity check info	The presence of this IE is dependent on IXIT statements in TS 34.123-2. If integrity protection is indicated to be		
	active, this IE is present with the values of the sub IEs as		
	stated below. Else, this IE and the sub-IEs are omitted.		
- Message authentication code	SS calculates the value of MAC-I for this message and		
moccago damentodae	writes to this IE.		
- RRC message sequence number	SS provides the value of this IE, from its internal counter.		
Measurement Identity	1		
Measurement Command	<u>Setup</u>		
Measurement Reporting Mode			
- Measurement Report Transfer Mode	Acknowledged mode RLC		
- Measurement Reporting/Event Trigger Reporting Mode	Periodical reporting		
Additional measurement list	Not Present		
CHOICE Measurement type	Intra-frequency measurement		
- Intra-frequency measurement	Inta requestey measurement		
- Intra-frequency cell info			
- New intra-frequency cell			
- Intra-frequency cell-id	<u>0</u>		
- Cell info			
- Cell individual offset	0dB		
- Reference time difference to cell	Not Present FALSE		
- Read SFN number - CHOICE mode	TDD		
- Primary CCPCH info	100		
-CHOICE mode	TDD		
-CHOICE TDD option	1.28 Mcps TDD		
-TSTD indicator	TRUE		
-Cell parameters ID	4		
-Block STTD indicator	TRUE		
- Primary CCPCH TX power - Timeslot List	Not Present Not Present		
- Intra-frequency measurement quantity	Not Piesent		
- Filter coefficient	<u>0</u>		
- CHOICE mode	TDD		
- Measurement quantity list			
- Measurement quantity	Primary CCPCH RSCP		
- Intra-frequency reporting quantity			
- Reporting quantities for active set cells	No report		
 SFN-SFN observed time difference reporting indicator 	No report		
- Cell synchronisation information reporting	FALSE		
indicator	<u></u>		
- Cell Identity reporting indicator	TRUE		
- CHOICE mode	TDD		
- Timeslot ISCP reporting indicator	FALSE		
- Proposed TGSN Reporting required	FALSE		
- Primary CCPCH RSCP reporting indicator	TRUE FALSE		
- Pathloss reporting indicator - Reporting quantities for monitored cells	FALSE		
- SFN-SFN observed time difference reporting	No report		
indicator			
- Cell synchronisation information reporting	<u>FALSE</u>		
indicator			
- Cell Identity reporting indicator	TRUE		
- CHOICE mode	TDD		
- Timeslot ISCP reporting indicator	FALSE		
- Proposed TGSN Reporting required - Primary CCPCH RSCP reporting indicator	FALSE TRUE		
- Pathloss reporting indicator	FALSE		
- Reporting quantities for detected set cells	Not Present		
- Reporting cell status			
- CHOICE reported cell	Report cell within active set and/or monitored cells on		
	<u> </u>		

	used frequency.
 Maximum number of reported cells 	<u>2</u>
- Measurement validity	Not Present
- CHOICE report criteria	Periodic reporting criteria
- Amount of reporting	<u>Infinity</u>
- Reporting interval	<u>64 sec</u>
DPCH Compressed mode status info	Not Present

Contents of MEASUREMENT CONTROL FAILURE message: AM

Information Element	<u>Value/remark</u>	
Message Type		
RRC transaction identifier	Checked to see if it's set to the identical value for the	
	same IE in the downlink MEASUREMENT CONTROL	
	<u>message</u>	
Integrity check info	The presence of this IE is dependent on IXIT statements	
	in TS 34.123-2. If integrity protection is indicated to be	
	active, this IE shall be present with the values of the sub	
	IEs as stated below. Else, this IE and the sub-IEs shall be	
	absent.	
 Message authentication code 	This IE is checked to see if it is present. The value is	
	compared against the XMAC-I value computed by SS.	
 RRC Message sequence number 	This IE is checked to see if it is present. The value is	
	used by SS to compute the XMAC-I value.	
Failure cause	See the test content	

Contents of MEASUREMENT REPORT message: AM

Information Element	<u>Value/remark</u>
Message Type	
Integrity check info	The presence of this IE is dependent on IXIT statements
	in TS 34.123-2. If integrity protection is indicated to be
	active, this IE shall be present with the values of the sub
	IEs as stated below. Else, this IE and the sub-IEs shall be
	absent.
 Message authentication code 	This IE is checked to see if it is present. The value is
	compared against the XMAC-I value computed by SS.
- RRC Message sequence number	This IE is checked to see if it is present. The value is
	used by SS to compute the XMAC-I value.
Measurement identity	<u>1</u>
Measured Results	
 Intra-frequency measured results 	
- Cell measured results	
- Cell Identity	Not present
 SFN-SFN observed time difference 	Checked that this IE is absent
 Cell synchronisation information 	Checked that this IE is absent
- CHOICE mode	Checked that this is TDD
- Cell parameters Id	<u>4</u>
- Proposed TGSN	Checked that this IE is absent
- Primary CCPCH RSCP	Checked that this IE is present.
- Pathloss	Checked that this IE is absent
- Timeslot list	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	Checked that this IE is absent

Contents of PAGING TYPE 1 message: TM (SMS in CS)

Information Element	<u>Value/remark</u>
Message Type	
Paging record	
 CHOICE Used paging identity 	CN identity
- Paging cause	Terminating Low Priority Signalling
 CN domain identity 	CS domain
- CHOICE UE identity	
- IMSI (GSM-MAP)	Set to the same octet string as in the IMSI stored in the
	USIM card
BCCH modification info	Not Present

Contents of PAGING TYPE 1 message: TM (SMS in PS)

Information Element	<u>Value/remark</u>
Message Type	
Paging record	
- CHOICE Used paging identity	CN identity
- Paging cause	Terminating Low Priority Signalling
- CN domain identity	PS domain
- CHOICE UE identity	
- IMSI (GSM-MAP)	Set to the same octet string as in the IMSI stored in the
	USIM card
BCCH modification info	Not Present

Contents of PAGING TYPE 2 message: AM (Speech in CS)

Information Element	<u>Value/remark</u>
Message Type	
RRC transaction identifier	Arbitrarily selects an integer between 0 and 3
Integrity check info	The presence of this IE is dependent on IXIT statements
	in TS 34.123-2. If integrity protection is indicated to be
	active, this IE is present with the values of the sub IEs as
	stated below. Else, this IE and the sub-IEs are omitted.
 message authentication code 	SS calculates the value of MAC-I for this message and
	writes to this IE.
 RRC message sequence number 	SS provides the value of this IE, from its internal counter.
Paging cause	Terminating Conversational Call
CN domain identity	CS domain
Paging record type identifier	Select the same type as in the IE "Initial UE Identity" in
	RRC CONNECTION REQUEST" message.

Contents of PHYSICAL CHANNEL RECONFIGURATION message: AM or UM

Information Element	Condition	Value/remark
Message Type		
RRC transaction identifier		Arbitrarily selects an integer between 0 and 3
Integrity check info		The presence of this IE is dependent on IXIT
		statements in TS 34.123-2. If integrity
		protection is indicated to be active, this IE is
		with the values of the sub IEs as stated
		below. Else, this IE and the sub-IEs are
anne and and and and and a		omitted.
- message authentication code		SS calculates the value of MAC-I for this message and writes to this IE.
- RRC message sequence number		SS provides the value of this IE, from its
- KIKO message sequence number		internal counter.
Integrity protection mode info		Not Present
Ciphering mode info		Not Present
Activation time		(256+CFN-(CFN MOD 8 + 8))MOD 256
New U-RNTI		Not Present
New C-RNTI		Not Present
RRC State indicator	A1, A2, A3,	CELL DCH
	<u>A4</u>	0511 54011
RRC State indicator	A5, A6	CELL FACH
UTRAN DRX cycle length coefficient		Not Present
CN information info		Not Present
URA identity Downlink counter synchronisation info		Not Present Not Present
Frequency info		Not Fresent
-CHOICE mode		TDD
- UARFCN(Nt)		Reference to TS34.108 clause 5.1 Parameter
		set.
Maximum allowed UL TX power		<u>30dBm</u>
CHOICE channel requirement		Uplink DPCH info
Uplink DPCH info	A1, A2, A3,	
	<u>A4</u>	
- CHOICE mode		TDD
- Uplink DPCH power control info		Deference to TCO4 400
- UL Target SIR - CHOICE UL OL PC info		Reference to TS34.108 Individually signalled
- CHOICE TDD option		1.28 Mcps TDD
- TPC step size		1 dB
- Primary CCPCH Tx Power		Reference to TS34.108
- CHOICE mode		TDD
 Uplink Timing Advance Control 		Not Present
- UL CCTrCH List		
- TFCS ID		1 1
- Time info		(050 · 05N / 05N MOD 0 · 0\\MOD 050
- Activation time - Duration		(256+CFN-(CFN MOD 8 + 8))MOD 256 infinite
- Duration - Common timeslot info		innine in incident
- 2 nd interleaving mode		Reference to TS34.108 clause 6 Parameter
		Set.
- TFCI coding		Reference to TS34.108 clause 6 Parameter
		Set.
- Puncturing Limit		Reference to TS34.108 clause 6 Parameter
-		Set.
- Repetition Period		Reference to TS34.108 clause 6 Parameter
		Set.
- Repetition Length		Reference to TS34.108 clause 6 Parameter
Unlink DDCH timeslate and codes		<u>Set</u>
- Uplink DPCH timeslots and codes - First timeslot information		
- First timestot information - CHOICE TDD option		1.28 Mcps
- Timeslot number		The number of an uplink timeslot that has
- Innode Humber		unassigned codes.
- TFCI existence		TRUE
- Midamble shift and burst type		_
- CHOICE TDD option		1.28 Mcps

- Midamble Allocation Mode		Default
- Midamble configuration		16
: I · 		—
- CHOICE TDD option		1.28 Mcps
- Modulation		<u>QPSK</u>
- SS-TPC Symbols		<u>1</u>
 First timeslot code list 		Repeated (1,2) for each channelisation code
		assigned in the slot to meet the needs of
		TS34.108 clause 6 Parameter Set.
- Channelisation Code		(i/SF) where i denotes an unassigned code
		matching the SF specified in TS34.108
		clause 6 Parameter Set.
0110105 ti		
- CHOICE more timeslots		The presence of this IE depends on the
		number of resources specified in TS34.108
		section 6 and the number of slots in which
		they are assigned.
CHOICE Mode		TDD
Downlink information common for all radio links	A1, A2, A3,	
	A4	
- Downlink DPCH info common for all RL	1	
- Timing indicator		Maintain
- CFN-targetSFN frame offset		Not Present
		INOLFIESCIL
- Downlink DPCH power control information		TDD
-CHOICE mode		TDD
-TPC Step Size		1
- CHOICE mode		TDD
- CHOICE TDD option		1.28 Mcps
- TSTD indicator		TRUE
- Default DPCH Offset Value		Not Present
Downlink information for each radio links		
- CHOICE mode		TDD
- Primary CCPCH info		155
- CHOICE mode		TDD
- CHOICE TDD option		1.28 Mcps
- TSTD indicator		TRUE
- Cell parameters ID		<u>0</u>
- Block STTD indicator		<u>FALSE</u>
 - Downlink DPCH info for each RL 		
- CHOICE mode		TDD
- DL CCTrCH List		
- TFCS ID		1
- Activation time		(256+CFN-(CFN MOD 8 + 8))MOD 256
- Duration		Infinite
- Common timeslot info		I IIIIIIC
- 2 nd interleaving mode		Deference to TS24 100
		Reference to TS34.108
- TFCI coding		TRUE
- Puncturing limit		Reference to TS34.108 clause 6 Parameter
		<u>Set</u>
- Repetition period		1 1
- Repetition length		<u>Empty</u>
 Downlink DPCH timeslots and codes 		
- First Individual timeslot info		
- Individual timeslot info		
- Timeslot number		The number of an downlink timeslot that has
		unassigned codes.
- TFCI existence		TRUE
- Midamble shift and burst type		THOE
		1 29 Mans
- CHOICE TDD option		1.28 Mcps
- Midamble allocation mode		<u>Default</u>
- Midamble configuration		16
- CHOICE TDD option		1.28 Mcps TDD
Modulation		<u>QPSK</u>
- SS-TPC Symbols		1
- First timeslot channelisation codes		
- First channelisation code		(i/SF) where i is the lowest numbered code
		that is being assigned and SF is specified in
		TS34.108 clause 6 Parameter Set.
- Last channelisation code		(j/SF) where j is the highest numbered code
Last orial mensation code		that is being assigned in the slot.
I <u>L</u>		man is being assigned in the SIUL

- Bitmap - CHOICE more timeslots	Bitmap of codes that are assigned in the slot. The presence of this IE depends upon
	whether the requirements of TS34.108
	Parameter Set can be met by the codes that
	have been assigned in the first timeslot.
 Secondary CCPCH info 	Not Present
 References to system information blocks 	Not Present

<u>Condition</u>	<u>Explanation</u>	
A1 A2 A3 A4 A5 A6	This IE need for "Non speech in CS"	
<u>A2</u>	This IE need for "Speech in CS"	
<u>A3</u>	This IE need for "Packet to CELL_DCH from CELL_DCH in PS"	
<u>A4</u>	This IE need for "Packet to CELL_DCH from CELL_FACH in PS"	
<u>A5</u>	This IE need for "Packet to CELL_FACH from CELL_DCH in PS"	
A6	This IE need for "Packet to CELL_FACH from CELL_FACH in PS"	

Contents of PHYSICAL CHANNEL RECONFIGURATION COMPLETE message: AM

Information Element	<u>Value/remark</u>
Message Type	
RRC transaction identifier	Checked to see if it's set to identical value of the same IE
	in the downlink PHYSICAL CHANNEL
	RECONFIGURATION message
Integrity check info	The presence of this IE is dependent on IXIT statements
	in TS 34.123-2. If integrity protection is indicated to be
	active, this IE shall be present with the values of the sub
	IEs as stated below. Else, this IE and the sub-IEs shall be
	absent.
 Message authentication code 	This IE is checked to see if it is present. The value is
	compared against the XMAC-I value computed by SS.
- RRC Message sequence number	This IE is checked to see if it is present. The value is
	used by SS to compute the XMAC-I value.
Uplink integrity protection activation info	Not checked
CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps
COUNT-C activation time	The presence of this IE depends on the following 2
	factors: (a) There exists RB(s) mapped to RLC-TM, (b)
	UE is transiting to CELL DCH state after the
	reconfiguration procedure. Else, this IE is absent.
Radio bearer uplink ciphering activation time info	Not checked
<u>Uplink counter synchronisation info</u>	Not checked

Contents of RADIO BEARER SETUP message: AM or UM

Information Element	Condition	<u>Value/remark</u>
Message Type		
RRC transaction identifier		Arbitrarily selects an integer between 0 and 3
Integrity check info		The presence of this IE is dependent on IXIT
		statements in TS 34.123-2. If integrity
		protection is indicated to be active, this IE is
		present with the values of the sub IEs as
		stated below. Else, this IE and the sub-IEs are
		omitted.
 message authentication code 		SS calculates the value of MAC-I for this
		message and writes to this IE.
- RRC message sequence number		SS provides the value of this IE, from its
		internal counter.
Integrity protection mode info		Not Present
Ciphering mode info		The presence of this IE is dependent on IXIT
		statements in TS 34.123-2. If ciphering is
		indicated to be active, this IE present with the
		values of the sub IEs as stated below. Else, this IE is omitted.
- Ciphering mode command		
- Ciphering mode command - Ciphering algorithm		Start Use one of the supported ciphering algorithms
- Ciphering argonitim - Ciphering activation time for DPCH		(256+CFN-(CFN MOD 8 + 8))MOD 256
- Radio bearer downlink ciphering activation time		Not Present
info		Not i resent
Activation time		(256+CFN-(CFN MOD 8 + 8))MOD 256
New U-RNTI		Not Present
New C-RNTI		Not Present
RRC State indicator	A1, A2,	CELL DCH
Titto State Maleator	A3, A4	<u> </u>
RRC State indicator	A5, A6	CELL FACH
UTRAN DRX cycle length coefficient		Not Present
CN information info		Not Present
URA identity		Not Present
Signalling RB information to setup		Not Present
RAB information for setup	<u>A1</u>	
- RAB info		
- RAB identity		<u>0000 0001B</u>
- CN domain identity		CS domain
- NAS Synchronization Indicator		Not Present
- Re-establishment timer		
- T314		20 seconds
- RB information to setup		40
- RB identity		10 Not Present
- PDCP info - CHOICE RLC info type		RLC info
- CHOICE Uplink RLC mode		TM RLC
- Transmission RLC discard		Not Present
- Segmentation indication		TRUE
- CHOICE Downlink RLC mode		TM RLC
- Segmentation indication		TRUE
- RB mapping info		
- Information for each multiplexing option		
- RLC logical channel mapping indicator		Not Present
- Number of uplink RLC logical channels		<u>1</u>
- Uplink transport channel type		DCH
- UL Transport channel identity		1
 Logical channel identity 		7 AII 1
- CHOICE RLC size list		<u>All</u>
- MAC logical channel priority		<u>1</u>
- Downlink RLC logical channel info		
- Number of downlink RLC logical channels		1 2011
- Downlink transport channel type		<u>DCH</u>
- DL DCH Transport channel identity		6 7
- Logical channel identity	100	<u> </u>
RAB information for setup	<u>A2</u>	
- RAB info	I	ı

- RAB identity	0000 0001B
- CN domain identity	CS domain
- NAS Synchronisation Indicator	Not Present
- Re-establishment timer	Not i lesent
	20 accords
- T314	20 seconds
- RB information to setup	
- RB identity	<u>10</u>
- PDCP info	Not Present
- CHOICE RLC info type	RLC info
- CHOICE Uplink RLC mode	TM RLC
- Transmission RLC discard	Not Present
- Segmentation indication	TRUE
- CHOICE Downlink RLC mode	TM RLC
- Segmentation indication	TRUE
- RB mapping info	
- Information for each multiplexing option	
- Number of RLC logical channels	1
- Uplink transport channel type	1 DCH
- UL Transport channel identity	1 7 <u>All</u> 1
- Logical channel identity	
- CHOICE RLC size list	<u>All</u>
- MAC logical channel priority	<u>1</u>
- Downlink RLC logical channel info	
- Number of RLC logical channels	1 DCH
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	<u>6</u>
- Logical channel identity	<u>6</u> <u>7</u>
- RB information to setup	_
- RB identity	11
- PDCP info	Not Present
- CHOICE RLC info type	RLC info
- CHOICE Uplink RLC mode	TM RLC
- Transmission RLC discard	Not Present
- Segmentation indication	TRUE
- CHOICE Downlink RLC mode	TM RLC
- Segmentation indication	TRUE
- RB mapping info	
 Information for each multiplexing option 	
- Number of RLC logical channels	1 1
 Uplink transport channel type 	<u>DCH</u>
 - UL Transport channel identity 	<u>2</u> 8
 Logical channel identity 	<u>8</u>
- CHOICE RLC size list	<u>All</u>
- MAC logical channel priority	<u>All</u> 1
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	1 DCH
- DL DCH Transport channel identity	7
- Logical channel identity	<u>7</u> 8
- RB information to setup	This IE is needed for 12.2 kbps and 10.2
	kbps)
- RB identity	12
- PDCP info	Not Present
- CHOICE RLC info type	RLC info
- CHOICE REC IIIIO type - CHOICE Uplink REC mode	TM RLC
- Transmission RLC discard	Not Present
- Segmentation indication	TRUE
- CHOICE Downlink RLC mode	TM RLC
- Segmentation indication	TRUE
- RB mapping info	
- Information for each multiplexing option	
- Number of RLC logical channels	<u>1</u>
 Uplink transport channel type 	DCH
- UL Transport channel identity	<u>3</u>
- Logical channel identity	3 9 <u>All</u>
- CHOICE RLC size list	<u>AII</u>
- MAC logical channel priority	1 1
- Downlink RLC logical channel info	-
	•

1	1	
 Number of RLC logical channels 		<u>1</u>
- Downlink transport channel type		<u>DCH</u>
- DL DCH Transport channel identity		8
- Logical channel identity		$\frac{3}{9}$
RAB information for setup	A3, A4	<u> ×</u>
	A3, A4	
- RAB info		
- RAB identity		<u>0000 0001B</u>
- CN domain identity		PS domain
- NAS Synchronization Indicator		Not Present
- Re-establishment timer		<u>110t i 1000iit</u>
<u>- T314</u>		20 seconds
- RB information to setup		
- RB identity		<u>20</u>
- PDCP info		Not Present
- CHOICE RLC info type		RLC info
- CHOICE Uplink RLC mode		AM RLC
- Transmission RLC discard		
- SDU discard mode		Max DAT retransmissions
- MAX DAT		<u>4</u>
- Timer_MRW		100
- MaxMRW		
		$\left \frac{4}{8} \right $
- Transmission window size		0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 -
- Timer_RST		<u>500</u>
- Max_RST	1	<u>4</u>
- Polling info		
- Timer_poll_prohibit		200
		200
- Timer_poll		
- Poll_SDU		<u>1</u>
 Last transmission PDU poll 		TRUE
- Last retransmission PDU poll		<u>TRUE</u>
- Poll_Windows		99
- CHOICE Downlink RLC mode		AM RLC
- In-sequence delivery		TRUE
- Receiving window size		<u>8</u>
- Downlink RLC status info		
- Timer_status_prohibit		200
- Timer_EPC		200
- Missing PDU indicator		TRUE
		IKUE
- RB mapping info		
 Information for each multiplexing option 		
- RLC logical channel mapping indicator		Not Present
- Number of uplink RLC logical channels		1
- Uplink transport channel type		<u>DCH</u>
	1	
- UL Transport channel identity		1 7 All 1
- Logical channel identity		<u>/</u>
- CHOICE RLC size list	1	All
- MAC logical channel priority		1
- Downlink RLC logical channel info	1	_
- Number of downlink RLC logical channels		1
		PCH
- Downlink transport channel type		<u>DCH</u>
 - DL DCH Transport channel identity 		<u>6</u>
 Logical channel identity 		<u>7</u>
RAB information for setup	A5, A6	
- RAB info	1,	(AM DTCH for PS domain)
- RAB identity		0000 0001B
- CN domain identity	1	PS domain
 NAS Synchronization Indicator 		Not Present
- Re-establishment timer		
- T314	1	20 seconds
- RB information to setup		<u>=====================================</u>
		20
- RB identity		20
PDCP info		Not Present
- CHOICE RLC info type	1	RLC info
- CHOICE Uplink RLC mode		AM RLC
- Transmission RLC discard		
		May DAT retransmissions
- CHOICE SDU discard mode		Max DAT retransmissions
- MAX_DAT		4
	1	<u>100</u>
- Timer_MRW		100

- MaxMRW		4
- Transmission window size		$\frac{4}{8}$
- Timer_RST		500
- Max_RST		4
- Polling info		_
- Timer poll prohibit		200
- Timer_poll		200
- Poll_SDU		1
- Last transmission PDU poll		TRUE
- Last retransmission PDU poll		TRUE
- Poll Windows		99
- CHOICE Downlink RLC mode		AM RLC
- In-sequence delivery		TRUE
- Receiving window size		<u>8</u>
- Downlink RLC status info		
- Timer_status_prohibit		<u>200</u>
- Timer_EPC		<u>200</u>
 Missing PDU indicator 		<u>TRUE</u>
- RB mapping info		
- Information for each multiplexing option		
- RLC logical channel mapping indicator		Not Present
- Number of uplink RLC logical channels		1
- Uplink transport channel type		RACH
- Logical channel identity		7
- CHOICE RLC size list		Explicit
- RLC size index		Reference to TS34.108 clause 6 Parameter
The size index		Set
MAC logical channel priority		<u> </u>
- MAC logical channel priority		0
- Downlink RLC logical channel info		
- Number of downlink RLC logical channels		
- Downlink transport channel type		FACH/PCH
- Logical channel identity		6
RB information to be affected	A1, A2,	(UM DCCH for RRC)
ll	A3, A4	
- RB identity	A3, A4	1
- RB mapping info	A3, A4	1
- RB mapping info - Information for each multiplexing option	A3, A4	
RB mapping info Information for each multiplexing option RLC logical channel mapping indicator	A3, A4	Not Present
RB mapping info Information for each multiplexing option RLC logical channel mapping indicator Number of uplink RLC logical channels	<u>A3, A4</u>	Not Present 1
RB mapping info Information for each multiplexing option RLC logical channel mapping indicator Number of uplink RLC logical channels Uplink transport channel type	A3, A4	Not Present
- RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels	A3, A4	Not Present 1 DCH 5
- RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type	A3, A4	Not Present 1
- RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type - UL Transport channel identity	A3, A4	Not Present 1 DCH 5 1
- RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type - UL Transport channel identity - Logical channel identity	A3, A4	Not Present 1 DCH 5 1
- RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type - UL Transport channel identity - Logical channel identity - CHOICE RLC size list	A3, A4	Not Present 1 DCH 5
- RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type - UL Transport channel identity - Logical channel identity - CHOICE RLC size list - MAC logical channel priority - Downlink RLC logical channel info	A3, A4	Not Present 1 DCH 5 1 All 1
- RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type - UL Transport channel identity - Logical channel identity - CHOICE RLC size list - MAC logical channel priority - Downlink RLC logical channel info - Number of downlink RLC logical channels	A3, A4	Not Present 1 DCH 5 1 All 1
- RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type - UL Transport channel identity - Logical channel identity - CHOICE RLC size list - MAC logical channel priority - Downlink RLC logical channel info - Number of downlink RLC logical channels - Downlink transport channel type	A3, A4	Not Present 1 DCH 5 1 All 1 DCH
- RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type - UL Transport channel identity - Logical channel identity - CHOICE RLC size list - MAC logical channel priority - Downlink RLC logical channel info - Number of downlink RLC logical channels - Downlink transport channel type - DL DCH Transport channel identity	A3, A4	Not Present 1 DCH 5 1 All 1
- RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type - UL Transport channel identity - Logical channel identity - CHOICE RLC size list - MAC logical channel priority - Downlink RLC logical channel info - Number of downlink RLC logical channels - Downlink transport channel type - DL DCH Transport channel identity - Logical channel identity		Not Present 1 DCH 5 1 All 1 DCH 1 DCH 10 1
- RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type - UL Transport channel identity - Logical channel identity - CHOICE RLC size list - MAC logical channel priority - Downlink RLC logical channel info - Number of downlink RLC logical channels - Downlink transport channel type - DL DCH Transport channel identity	A1, A2,	Not Present 1 DCH 5 1 All 1 DCH 1 DCH 1 DCH 10
- RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type - UL Transport channel identity - Logical channel identity - CHOICE RLC size list - MAC logical channel priority - Downlink RLC logical channel info - Number of downlink RLC logical channels - Downlink transport channel type - DL DCH Transport channel identity - Logical channel identity RB information to be affected		Not Present 1 DCH 5 1 All 1 DCH 1 DCH 10 1 (AM DCCH for RRC)
- RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type - UL Transport channel identity - Logical channel identity - CHOICE RLC size list - MAC logical channel priority - Downlink RLC logical channel info - Number of downlink RLC logical channels - Downlink transport channel type - DL DCH Transport channel identity - Logical channel identity RB information to be affected - RB identity	A1, A2,	Not Present 1 DCH 5 1 All 1 DCH 1 DCH 10 1
- RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type - UL Transport channel identity - Logical channel identity - CHOICE RLC size list - MAC logical channel priority - Downlink RLC logical channel info - Number of downlink RLC logical channels - Downlink transport channel type - DL DCH Transport channel identity - Logical channel identity RB information to be affected - RB identity - RB mapping info	A1, A2,	Not Present 1 DCH 5 1 All 1 DCH 1 DCH 10 1 (AM DCCH for RRC)
- RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type - UL Transport channel identity - Logical channel identity - CHOICE RLC size list - MAC logical channel priority - Downlink RLC logical channel info - Number of downlink RLC logical channels - Downlink transport channel type - DL DCH Transport channel identity - Logical channel identity RB information to be affected - RB identity - RB mapping info - Information for each multiplexing option	A1, A2,	Not Present 1 DCH 5 1 All 1 DCH 10 1 (AM DCCH for RRC)
- RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type - UL Transport channel identity - Logical channel identity - CHOICE RLC size list - MAC logical channel priority - Downlink RLC logical channel info - Number of downlink RLC logical channels - Downlink transport channel type - DL DCH Transport channel identity - Logical channel identity RB information to be affected - RB identity - RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator	A1, A2,	Not Present 1 DCH 5 1 All 1 DCH 1 DCH 10 1 (AM DCCH for RRC)
- RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type - UL Transport channel identity - Logical channel identity - Logical channel priority - CHOICE RLC size list - MAC logical channel priority - Downlink RLC logical channel info - Number of downlink RLC logical channels - Downlink transport channel type - DL DCH Transport channel identity - Logical channel identity RB information to be affected - RB identity - RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels	A1, A2,	Not Present 1 DCH 5 1 All 1 DCH 10 1 (AM DCCH for RRC) 2 Not Present 1
- RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type - UL Transport channel identity - Logical channel identity - Logical channel priority - CHOICE RLC size list - MAC logical channel priority - Downlink RLC logical channel info - Number of downlink RLC logical channels - Downlink transport channel type - DL DCH Transport channel identity - Logical channel identity RB information to be affected - RB identity - RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type	A1, A2,	Not Present 1 DCH 5 1 All 1 DCH 10 1 (AM DCCH for RRC) 2 Not Present 1 DCH 1 DCH
- RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type - UL Transport channel identity - Logical channel identity - CHOICE RLC size list - MAC logical channel priority - Downlink RLC logical channel info - Number of downlink RLC logical channels - Downlink transport channel type - DL DCH Transport channel identity - Logical channel identity RB information to be affected - RB identity - RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type - UL Transport channel identity	A1, A2,	Not Present 1 DCH 5 1 All 1 DCH 10 1 (AM DCCH for RRC) 2 Not Present 1 DCH 1 DCH
- RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type - UL Transport channel identity - Logical channel identity - CHOICE RLC size list - MAC logical channel priority - Downlink RLC logical channel info - Number of downlink RLC logical channels - Downlink transport channel type - DL DCH Transport channel identity - Logical channel identity RB information to be affected - RB identity - RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type - UL Transport channel identity - Logical channel identity - Logical channel identity	A1, A2,	Not Present 1 DCH 5 1 All 1 DCH 10 1 (AM DCCH for RRC) 2 Not Present 1 DCH 1 DCH
- RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type - UL Transport channel identity - Logical channel identity - CHOICE RLC size list - MAC logical channel priority - Downlink RLC logical channel info - Number of downlink RLC logical channels - Downlink transport channel type - DL DCH Transport channel identity - Logical channel identity RB information to be affected - RB identity - RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type - UL Transport channel identity - Logical channel identity - Logical channel identity - Logical channel identity - Logical channel identity - CHOICE RLC size list	A1, A2,	Not Present 1 DCH 5 1 All 1 DCH 10 1 (AM DCCH for RRC) 2 Not Present 1 DCH 1 DCH
- RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type - UL Transport channel identity - Logical channel identity - CHOICE RLC size list - MAC logical channel priority - Downlink RLC logical channel info - Number of downlink RLC logical channels - Downlink transport channel type - DL DCH Transport channel identity - Logical channel identity RB information to be affected - RB identity - RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type - UL Transport channel identity - Logical channel identity - Logical channel identity - Logical channel identity - Logical channel identity - CHOICE RLC size list - MAC logical channel priority	A1, A2,	Not Present 1 DCH 5 1 All 1 DCH 10 1 (AM DCCH for RRC) 2 Not Present 1 DCH 1 DCH
- RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type - UL Transport channel identity - Logical channel identity - CHOICE RLC size list - MAC logical channel priority - Downlink RLC logical channel info - Number of downlink RLC logical channels - Downlink transport channel type - DL DCH Transport channel identity - Logical channel identity RB information to be affected - RB identity - RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type - UL Transport channel identity - Logical channel identity - Logical channel identity - Logical channel identity - Logical channel identity - Logical channel priority - Downlink RLC logical channel info	A1, A2,	Not Present 1 DCH 5 1 All 1 DCH 10 1 (AM DCCH for RRC) 2 Not Present 1
- RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type - UL Transport channel identity - Logical channel identity - CHOICE RLC size list - MAC logical channel priority - Downlink RLC logical channel info - Number of downlink RLC logical channels - Downlink transport channel type - DL DCH Transport channel identity - Logical channel identity RB information to be affected - RB identity - RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type - UL Transport channel identity - Logical channel identity - Logical channel identity - Logical channel identity - Logical channel identity - Logical channel priority - Downlink RLC logical channel info - Number of downlink RLC logical channels	A1, A2,	Not Present 1 DCH 5 1 All 1 DCH 10 1 (AM DCCH for RRC) 2 Not Present 1 DCH 5 2 All 2 All 2 1
- RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type - UL Transport channel identity - Logical channel identity - CHOICE RLC size list - MAC logical channel priority - Downlink RLC logical channel info - Number of downlink RLC logical channels - Downlink transport channel type - DL DCH Transport channel identity - Logical channel identity RB information to be affected - RB identity - RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type - UL Transport channel identity - Logical channel identity - Logical channel identity - Logical channel identity - Logical channel identity - Logical channel priority - Downlink RLC logical channel info	A1, A2,	Not Present 1 DCH 5 1 AII 1 1 DCH 10 1 (AM DCCH for RRC) 2 Not Present 1 DCH 5 2 AII 2 AII 2
- RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type - UL Transport channel identity - Logical channel identity - CHOICE RLC size list - MAC logical channel priority - Downlink RLC logical channel info - Number of downlink RLC logical channels - Downlink transport channel type - DL DCH Transport channel identity - Logical channel identity RB information to be affected - RB identity - RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type - UL Transport channel identity - Logical channel identity - Logical channel identity - Logical channel identity - Logical channel identity - Logical channel priority - Downlink RLC logical channel info - Number of downlink RLC logical channels	A1, A2,	Not Present 1 DCH 5 1 All 1 DCH 10 1 (AM DCCH for RRC) 2 Not Present 1 DCH 5 2 All 2 All 2 1
- RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type - UL Transport channel identity - Logical channel identity - CHOICE RLC size list - MAC logical channel priority - Downlink RLC logical channel info - Number of downlink RLC logical channels - Downlink transport channel type - DL DCH Transport channel identity - Logical channel identity RB information to be affected - RB identity - RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type - UL Transport channel identity - Logical channel identity - Logical channel identity - Logical channel identity - Logical channel priority - Downlink RLC logical channel info - Number of downlink RLC logical channels - Downlink RLC logical channel type	A1, A2,	Not Present 1 DCH 5 1 All 1 DCH 10 1 (AM DCCH for RRC) 2 Not Present 1 DCH 5 2 All 2 All 2 1 DCH
- RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type - UL Transport channel identity - Logical channel identity - Logical channel priority - Downlink RLC logical channel info - Number of downlink RLC logical channels - Downlink transport channel type - DL DCH Transport channel identity - Logical channel identity RB information to be affected - RB identity - RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type - UL Transport channel identity - Logical channel identity - Logical channel identity - Logical channel identity - Logical channel priority - Downlink RLC logical channel info - Number of downlink RLC logical channels - Downlink RLC logical channel type - DL DCH Transport channel identity	A1, A2,	Not Present 1 DCH 5 1 All 1 DCH 10 1 (AM DCCH for RRC) 2 Not Present 1 DCH 5 2 All 2 All 2 1 DCH 10 1 DCH 5 1 DCH 5 1 DCH 5 2 All 1 DCH 10 1
- RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type - UL Transport channel identity - Logical channel identity - CHOICE RLC size list - MAC logical channel priority - Downlink RLC logical channel info - Number of downlink RLC logical channels - Downlink transport channel type - DL DCH Transport channel identity - Logical channel identity RB information to be affected - RB identity - RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type - UL Transport channel identity - Logical channel identity - Logical channel identity - CHOICE RLC size list - MAC logical channel priority - Downlink RLC logical channels - Downlink RLC logical channel type - Number of downlink RLC logical channels - Downlink transport channel type - DL DCH Transport channel identity - Logical channel identity - Logical channel identity - Downlink transport channel type - DL DCH Transport channel identity - Logical channel identity	A1, A2, A3, A4	Not Present 1 DCH 5 1 All 1 DCH 10 1 (AM DCCH for RRC) 2 Not Present 1 DCH 5 2 All 2 All 2 1 DCH 10 0 2

- RB identity		3
- RB mapping info		
- Information for each multiplexing option		
- RLC logical channel mapping indicator		Not Present
- Number of uplink RLC logical channels		1
- Uplink transport channel type		DCH _
- UL Transport channel identity		5 3 AII 3
 Logical channel identity 		<u>3</u>
- CHOICE RLC size list		<u>All</u>
- MAC logical channel priority		<u>3</u>
- Downlink RLC logical channel info		
- Number of downlink RLC logical channels		1
- Downlink transport channel type		1 DCH
- DL DCH Transport channel identity		
		$\frac{10}{3}$
- Logical channel identity		
RB information to be affected	<u>A1, A2,</u>	(AM DCCH for NAS DT Low priority)
	<u>A3, A4</u>	
- RB identity		4
- RB mapping info		-
- Information for each multiplexing option		
		Not Procent
- RLC logical channel mapping indicator		Not Present
- Number of uplink RLC logical channels		$\frac{1}{2}$
 Uplink transport channel type 		<u>DCH</u>
 - UL Transport channel identity 		<u>5</u>
- Logical channel identity		4
- CHOICE RLC size list		AII
- MAC logical channel priority		5 4 All 4
		-
- Downlink RLC logical channel info		
- Number of downlink RLC logical channels		$\frac{1}{2}$
 Downlink transport channel type 		<u>DCH</u>
 - DL DCH Transport channel identity 		<u>10</u>
- Logical channel identity		$\frac{1}{4}$
RB information to be affected	A5, A6	(UM DCCH for RRC)
- RB identity	710, 710	· · · · · · · · · · · · · · · · · · ·
		1
- RB mapping info		
 Information for each multiplexing option 		
 RLC logical channel mapping indicator 		Not Present
- Number of uplink RLC logical channels		1
- Uplink transport channel type		RACH
- Logical channel identity		1
- CHOICE RLC size list		Explicit
- RLC size index		Reference to TS34.108 clause 6 Parameter
		Set
 MAC logical channel priority 		2
- Downlink RLC logical channel info		
- Number of downlink RLC logical channels		1
- Downlink transport channel type		FACH/PCH
- Logical channel identity		1
	A.F. A.O.	(AM DCCH for DDC)
RB information to be affected	<u>A5, A6</u>	(AM DCCH for RRC)
- RB identity		2
- RB mapping info		
 Information for each multiplexing option 		
- RLC logical channel mapping indicator		Not Present
- Number of uplink RLC logical channels		1
The state of th		
		DACH .
 Uplink transport channel type 		RACH
- Uplink transport channel type - Logical channel identity		<u>2</u>
- Uplink transport channel type - Logical channel identity - CHOICE RLC size list		2 Explicit
- Uplink transport channel type - Logical channel identity		<u>2</u>
- Uplink transport channel type - Logical channel identity - CHOICE RLC size list		2 Explicit
- Uplink transport channel type - Logical channel identity - CHOICE RLC size list - RLC size index		Explicit Reference to TS34.108 clause 6 Parameter Set
- Uplink transport channel type - Logical channel identity - CHOICE RLC size list - RLC size index - MAC logical channel priority		Explicit Reference to TS34.108 clause 6 Parameter
- Uplink transport channel type - Logical channel identity - CHOICE RLC size list - RLC size index - MAC logical channel priority - Downlink RLC logical channel info		Explicit Reference to TS34.108 clause 6 Parameter Set
- Uplink transport channel type - Logical channel identity - CHOICE RLC size list - RLC size index - MAC logical channel priority - Downlink RLC logical channel info - Number of downlink RLC logical channels		Explicit Reference to TS34.108 clause 6 Parameter Set 3
- Uplink transport channel type - Logical channel identity - CHOICE RLC size list - RLC size index - MAC logical channel priority - Downlink RLC logical channel info - Number of downlink RLC logical channels - Downlink transport channel type		Explicit Reference to TS34.108 clause 6 Parameter Set 3 1 FACH/PCH
- Uplink transport channel type - Logical channel identity - CHOICE RLC size list - RLC size index - MAC logical channel priority - Downlink RLC logical channel info - Number of downlink RLC logical channels - Downlink transport channel type - Logical channel identity		Explicit Reference to TS34.108 clause 6 Parameter Set 3 1 FACH/PCH 2
- Uplink transport channel type - Logical channel identity - CHOICE RLC size list - RLC size index - MAC logical channel priority - Downlink RLC logical channel info - Number of downlink RLC logical channels - Downlink transport channel type	A5, A6	Explicit Reference to TS34.108 clause 6 Parameter Set 3 1 FACH/PCH
- Uplink transport channel type - Logical channel identity - CHOICE RLC size list - RLC size index - MAC logical channel priority - Downlink RLC logical channel info - Number of downlink RLC logical channels - Downlink transport channel type - Logical channel identity RB information to be affected	A5, A6	2 Explicit Reference to TS34.108 clause 6 Parameter Set 3 1 FACH/PCH 2 (AM DCCH for NAS_DT High priority)
- Uplink transport channel type - Logical channel identity - CHOICE RLC size list - RLC size index - MAC logical channel priority - Downlink RLC logical channel info - Number of downlink RLC logical channels - Downlink transport channel type - Logical channel identity RB information to be affected - RB identity	A5, A6	Explicit Reference to TS34.108 clause 6 Parameter Set 3 1 FACH/PCH 2
- Uplink transport channel type - Logical channel identity - CHOICE RLC size list - RLC size index - MAC logical channel priority - Downlink RLC logical channel info - Number of downlink RLC logical channels - Downlink transport channel type - Logical channel identity RB information to be affected - RB identity - RB mapping info	<u>A5, A6</u>	2 Explicit Reference to TS34.108 clause 6 Parameter Set 3 1 FACH/PCH 2 (AM DCCH for NAS_DT High priority)
- Uplink transport channel type - Logical channel identity - CHOICE RLC size list - RLC size index - MAC logical channel priority - Downlink RLC logical channel info - Number of downlink RLC logical channels - Downlink transport channel type - Logical channel identity RB information to be affected - RB identity	<u>A5, A6</u>	2 Explicit Reference to TS34.108 clause 6 Parameter Set 3 1 FACH/PCH 2 (AM DCCH for NAS_DT High priority)

 RLC logical channel mapping indicator 		Not Present
 Number of uplink RLC logical channels 		1
- Uplink transport channel type		RACH
- Logical channel identity		3
- CHOICE RLC size list		Explicit
- RLC size index		Reference to TS34.108 clause 6 Parameter
- INEO SIZE IIIUEX		Set
- MAC logical channel priority		<u>4</u>
 - Downlink RLC logical channel info 		
 Number of downlink RLC logical channels 		<u>1</u>
 Downlink transport channel type 		FACH/PCH
- Logical channel identity		3
RB information to be affected	A5, A6	(AM DCCH for NAS_DT Low priority)
- RB identity	710,710	1 7
		<u>4</u>
- RB mapping info		
 Information for each multiplexing option 		
 RLC logical channel mapping indicator 		Not Present
 Number of uplink RLC logical channels 		<u>1</u>
- Uplink transport channel type		RACH
- Logical channel identity		4
- CHOICE RLC size list		Explicit
- RLC size index		Reference to TS34.108 clause 6 Parameter
- KLO SIZE IIIQEX		
		Set _
- MAC logical channel priority		<u>5</u>
- Downlink RLC logical channel info		
- Number of downlink RLC logical channels		<u>1</u>
- Downlink transport channel type		FACH/PCH
- Logical channel identity		4
RB information to be affected	A5, A6	(TM BCCH for RRC)
- RB identity	A3, A0	
		<u>6</u>
- RB mapping info		
 Information for each multiplexing option 		
 Number of downlink RLC logical channels 		<u>1</u>
- Downlink transport channel type		FACH/PCH
- Logical channel identity		5
- Downlink RLC logical channel info		Not Present
RB information to be affected	A5 or A6	(TM PCCH for RRC)
	A3 01 A0	-
- RB identity		<u>7</u>
- RB mapping info		
 Information for each multiplexing option 		
- Number of downlink RLC logical channels		<u>1</u>
- Downlink transport channel type		FACH/PCH
- Logical channel identity		1
- Downlink RLC logical channel info		Not Present
Downlink counter synchronisation info	A4 A0	Not Present
UL Transport channel information for all transport	A1, A2,A3,	
<u>channels</u>	<u>A4</u>	
- PRACH TFCS		Not Present
- CHOICE mode		TDD
- Individual UL CCTrCH information		
- TFCS ID		1
		L L
- Shared Channel Indicator		<u>FALSE</u>
- UL TFCS		
- CHOICE TFCI signalling		<u>Normal</u>
- TFCI Field 1 information		
- CHOICE TFCS representation		Complete
- TFCS complete reconfigure information		
- CHOICE CTFC Size		Refer to TS34.108 clause 6.
- CTFC information		Refer to TS34.108 clause 6 Parameter Set
		Telef to 1004. Too clause o Farameter Set
- TFC subset		
- CHOICE Subset representation		Allowed transport format combination list
 - Allowed Transport Format combination list 		Refer to TS34.108 clause 6 Parameter Set
UL Transport channel information for all transport	A5, A6	
channels		
		(This IF is seened 14, TEO
- TFC subset		(This IE is repeated for TFC number.)
- Allowed Transport Format combination		0 to MaxTFCvalue-1 (MaxTFCValue is refer to
		TS34.108 clause 6 Parameter Set.)
II DDAOUTEOC	I	(This IE is repeated for TFC number.)
- PRACH TFCS		(This is is repeated for it o humber.)

- CHOICE TFCI signalling		Normal
- TFCI Field 1 information		
- CHOICE TFCS representation		
- TFCS complete reconfigure information		
- CHOICE TFCS Size		Number of used bits must be enough to cover
- CHOICE TECS SIZE		
		all combinations of CTFC from clauses 6.
		Refer to TS34.108 clause 6 Parameter Set
- CTFC information		Not Present
- CHOICE mode		TDD
- Individual UL CCTrCH information		Not Present
	Λ 4	<u>140CT TOOOTIC</u>
Deleted UL TrCH information	<u>A4</u>	BOLL
 Uplink transport channel type 		<u>DCH</u>
- Transport channel identity		<u>15</u>
Deleted UL TrCH information	<u>A5</u>	
- Uplink transport channel type		DCH
- UL Transport channel identity		1
		DCH
- Uplink transport channel type		<u> </u>
- UL Transport channel identity		<u> 5</u>
Added or Reconfigured UL TrCH information	A1, A2,	
	A3, A4	
- Uplink transport channel type		<u>DCH</u>
- UL Transport channel identity		1
- TFS		-
		Dedicated transport als
- CHOICE Transport channel type		Dedicated transport channels
 Dynamic Transport format information 		(This IE is repeated for TFI number)
- RLC Size		Reference to TS34.108 clause 6 Parameter
		Set
- Number of TBs and TTI List		(This IE is repeated for TFI number.)
- Transmission Time Interval		Not Present
 Number of Transport blocks 		Reference to TS34.108 clause 6 Parameter
		<u>Set</u>
 CHOICE Logical Channel list 		<u>ALL</u>
- Semi-static Transport Format information		
- Transmission time interval		Reference to TS34.108 clause 6 Parameter
		Set
Type of changel anding		
- Type of channel coding		Reference to TS34.108 clause 6 Parameter
		<u>Set</u>
- Coding Rate		Reference to TS34.108 clause 6 Parameter
		Set
- Rate matching attribute		Reference to TS34.108 clause 6 Parameter
		Set
- CRC size		Reference to TS34.108 clause 6 Parameter
- CRC SIZE		
		<u>Set</u>
Added or Reconfigured UL TrCH information	<u>A1, A2,</u>	If TrCH reconfiguration is executed then this is
	A3, A4	needed (e.g. The rate of SRB for DCCH is
		changed.).
- Uplink transport channel type		DCH
- UL Transport channel identity		
		<u>5</u>
- CHOICE Transport channel type		Dedicated transport channels
 Dynamic Transport format information 		(This IE is repeated for TFI number)
- RLC Size		Reference to TS34.108 clause 6 Parameter
		Set
- Number of TBs and TTI List		(This IE is repeated for TFI number.)
- Transmission Time Interval		Not Present
- Number of Transport blocks		Reference to TS34.108 clause 6 Parameter
		Set
- CHOICE Logical Channel list		ALL
- Semi-static Transport Format information		
- Transmission time interval		Reference to TS34.108 clause 6 Parameter
		Set
Type of channel coding		
- Type of channel coding		Reference to TS34.108 clause 6 Parameter
		Set
- Coding Rate		Reference to TS34.108 clause 6 Parameter
		<u>Set</u>
- Rate matching attribute		Reference to TS34.108 clause 6 Parameter
		Set
- CRC size		Reference to TS34.108 clause 6 Parameter
- OIVO 3126	1	Note to 1004. 100 clause 0 Fatallielel

		Set
Added or Reconfigured UL TrCH information	<u>A2</u>	
- Uplink transport channel type		<u>DCH</u>
 - UL Transport channel identity 		<u>2</u>
<u>- TFS</u>		
- CHOICE Transport channel type		Dedicated transport channels
 Dynamic Transport format information 		(This IE is repeated for TFI number)
- RLC size		Reference to clause 6 Parameter Set
 Number of TBs and TTI List 		Reference to clause 6 Parameter Set
- Transmission Time Interval		Not Present
 Number of transport blocks 		Reference to clause 6 Parameter Set
- CHOICE Logical Channel List		<u>All</u>
 Semi-static Transport Format information 		
- Transmission time interval		Reference to clause 6 Parameter Set
- Type of channel coding		Reference to clause 6 Parameter Set
- Coding Rate		Reference to clause 6 Parameter Set
- Rate matching attribute		Reference to clause 6 Parameter Set
- CRC size		Reference to clause 6 Parameter Set
Added or Reconfigured UL TrCH information	<u>A2</u>	(This IE is needed for 12.2 kbps and 10.2
		kbps)
 Uplink transport channel type 		<u>DCH</u>
 UL Transport channel identity 		<u>3</u>
TFS		(This IE is repeated for TFI number)
- CHOICE Transport channel type		Dedicated transport channels
 Dynamic Transport format information 		
- RLC size		Reference to clause 6 Parameter Set
 Number of TBs and TTI List 		Reference to clause 6 Parameter Set
- Transmission Time Interval		Not Present
 Number of transport blocks 		Reference to clause 6 Parameter Set
- CHOICE Logical Channel List		All
 Semi-static Transport Format information 		
- Transmission time interval		Reference to clause 6 Parameter Set
 Type of channel coding 		Reference to clause 6 Parameter Set
- Coding Rate		Reference to clause 6 Parameter Set
 Rate matching attribute 		Reference to clause 6 Parameter Set
- CRC size		Reference to clause 6 Parameter Set
DL Transport channel information common for all	A1,A2,A3,	
transport channel	<u>A4</u>	
- SCCPCH TFCS		Not Present
- CHOICE mode		TDD
- Individual DL CCTrCH information		
- DL TFCS Identity		
- TFCS ld		<u>1</u>
- Shared Channel Indicator		FALSE
- CHOICE DL parameters		<u>Independent</u>
- DL DCH TFCS		(This IE is repeated for TFC number.)
- CHOICE TFCI signalling		<u>Normal</u>
- TFCI Field 1 information		
- CHOICE TFCS representation		<u>Complete</u>
- TFCS complete reconfigure information		_ ,
- CHOICE CTFC Size		Refer to TS34.108 clause 6.
- CTFC information		Refer to TS34.108 clause 6.
DL Transport channel information common for all	<u>A5, A6</u>	
transport channel		
- SCCPCH TFCS		(This IE is repeated for TFC number.)
- CHOICE TFCI signalling		<u>Normal</u>
- TFCI Field 1 information		
- CHOICE TFCS representation		Addition
- TFCS addition information		
- CHOICE CTFC Size		Number of bits used must be enough to cover
0770 : ()		all combinations of CTFC from clause 6.
- CTFC information		Refer to TS34.108 clause 6 Parameter Set
- Power offset information		Not Present
- CHOICE mode		TDD
- IndividualDL CCTrCH information		Not Present
Deleted DL TrCH information	A4	1
	<u> </u>	2011
- Downlink transport channel type - Transport channel identity	//4	DCH 12

- Downlink transport channel type		DCH
- Transport channel identity		13
- Downlink transport channel type		DCH
- Transport channel identity		14
Deleted DL TrCH information	A5	<u> 12</u>
	<u>A3</u>	DCII
- Downlink transport channel type		<u>DCH</u>
 DL Transport channel identity 		<u>6</u>
 - Downlink transport channel type 		DCH
 Transport channel identity 		10
Added or Reconfigured DL TrCH information	A1,A2	
- Downlink transport channel type		DCH
- DL Transport channel identity		<u>6</u>
- CHOICE DL parameters		
		Same as UL
- Uplink transport channel type		<u>DCH</u>
- UL TrCH identity		<u>1</u>
 DCH quality target 		
- BLER Quality value		-6.3
- Transparent mode signalling info		Not Present
Added or Reconfigured DL TrCH information	A1, A2,	If TrCH reconfiguration is executed then this is
Added of Reconligated BE TIGHT Information	A3, A4	needed(e.g. The rate of SRB for DCCH is
	A3, A4	
		changed.).
 Downlink transport channel type 		<u>DCH</u>
- DL Transport channel identity		10
- CHOICE DL parameters		Explicit
- TFS		
- CHOICE Transport channel type		Dedicated transport channels
- Dynamic Transport format information		(This IE is repeated for TFI number)
- RLC Size		Reference to TS34.108 clause 6 Parameter
		<u>Set</u>
 Number of TBs and TTI List 		(This IE is repeated for TFI number.)
- Transmission Time Interval		Not Present
- Number of Transport blocks		Reference to TS34.108 clause 6 Parameter
- Number of Transport blocks		
		Set
- CHOICE Logical Channel list		ALL
 Semi-static Transport Format information 		
- Transmission time interval		Reference to TS34.108 clause 6 Parameter
		Set
- Type of channel coding		Reference to TS34.108 clause 6 Parameter
- Type of charmer county		
		Set Too 4 400 I To 5
- Coding Rate		Reference to TS34.108 clause 6 Parameter
		<u>Set</u>
 Rate matching attribute 		Reference to TS34.108 clause 6 Parameter
		Set
- CRC size		Reference to TS34.108 clause 6 Parameter
- OI(O 3126		
DOLL mustifus toward		<u>Set</u>
- DCH quality target		
- BLER Quality value		<u>-6.3</u>
 Transparent mode signalling info 		Not Present
Added or Reconfigured DL TrCH information	<u>A2</u>	
- Downlink transport channel type		<u>DCH</u>
- Transport channel identity		7
- CHOICE DL parameters		SameAsUL BOUL
- Uplink transport channel type		<u>DCH</u>
- UL TrCH identity		<u>2</u>
Added or Reconfigured DL TrCH information	<u>A2</u>	(This IE is needed for 12.2 kbps and 10.2
		kbps)
- Downlink transport channel type		DCH
- Transport channel identity		8
- CHOICE DL parameters		SameAsUL
 Uplink transport channel type 		<u>DCH</u>
- UL TrCH identity		<u>3</u>
- DCH quality target		
- BLER Quality value		-6.3
		Not Present
- Transparent mode signalling info	40.44	NOT FIESEIIT
Added or Reconfigured DL TrCH information	<u>A3, A4</u>	
 Downlink transport channel type 		DCH
- DL Transport channel identity		6
- CHOICE DL parameters		Explicit
	l	- Apriloit

TFS		
- CHOICE Transport channel type		Dedicated transport channels
- Dynamic Transport format information		(This IE is repeated for TFI number)
- RLC Size		Reference to TS34.108 clause 6 Parameter
		Set
- Number of TBs and TTI List		(This IE is repeated for TFI number.)
- Transmission Time Interval		Not Present
- Number of Transport blocks		Reference to TS34.108 clause 6 Parameter
Transcr of Transport blooks		Set
- CHOICE Logical Channel list		ALL
		ALL
- Semi-static Transport Format information		Deference to TC24 400 slaves C Dever-
- Transmission time interval		Reference to TS34.108 clause 6 Parameter
		Set Tool 1 100 L
- Type of channel coding		Reference to TS34.108 clause 6 Parameter
		<u>Set</u>
- Coding Rate		Reference to TS34.108 clause 6 Parameter
		<u>Set</u>
 Rate matching attribute 		Reference to TS34.108 clause 6 Parameter
		Set
- CRC size		Reference to TS34.108 clause 6 Parameter
		Set
- DCH quality target		<u> </u>
- BLER Quality value		-6.3
		Not Present
- Transparent mode signalling info	-	INOL FIESEIIL
Frequency info		TDD
- CHOICE mode		TDD
<u> - UARFCN (Nt)</u>		Reference to TS34.108 clause 6 Parameter
		<u>Set</u>
Maximum allowed UL TX power		<u>30dBm</u>
CHOICE channel requirement	A1, A3, A4	Uplink DPCH info
- Uplink DPCH power control info		
- CHOICE mode		TDD
- UL Target SIR		Reference to TS34.108 Parameter set.
- CHOICE UL OL PC info		Individually signalled
- CHOICE TDD option		1.28 Mcps
- TPC step size		1 dB
- Primary CCPCH Tx Power		Not Present
- CHOICE mode		TDD
- Uplink Timing Advance Control		Not Present
- UL CCTrCH List		
- TFCS Id		1
Time info		(050, 051) (051) (051)
Activation time		(256+CFN-(CFN MOD 8 + 8))MOD 256
Duration		<u>infinite</u>
- Common timeslot info		
- 2 nd interleaving mode		Reference to TS34.108 clause 6 Parameter
		Set.
- TFCI coding		Reference to TS34.108 clause 6 Parameter
		set.
- Puncturing Limit		Reference to TS34.108 clause 6 Parameter
		set.
- Repetition Period		Reference to TS34.108 clause 6 Parameter
- Nepetition Fellou		
Depatition Langett		Set.
- Repetition Length		Reference to TS34.108 clause 6 Parameter
		set.
 Uplink DPCH timeslots and code 		
 First individual timeslot info 		
- Timeslot number		The number of an uplink timeslot that has
		unassigned codes.
- TFCI existence		TRUE
- Midamble shift and burst type		_
- CHOICE TDD option		1.28 Mcps
- Midamble allocation mode		Default
- Midamble configuration		16
- CHOICE TDD option		1.28 Mcps TDD
- Modulation		
		QPSK 1
		<u>1</u>
- SS-TPC Symbols - First timeslot channelisation codes		Repeated (1,2) for each channelisation code

ı F		1
		assigned in the slot to meet the needs of
		TS34.108 clause 6 Parameter Set.
Changeliantian and		
- Channelisation code		(i/SF) where i denotes an unassigned code
		matching the SF specified in TS34.108 clause
		6 Parameter Set.
- CHOICE more timeslots		The presence of this IE depends upon the
- Of IOIOL Hibre timesiots		
		number of resources specified in TS34.108
		section 6 and the number of slots in which they
		are being assigned.
CHOICE channel requirement	A2	Uplink DPCH info
	<u>AZ</u>	Opilitik DPCH IIIIO
 Uplink DPCH power control info 		
- CHOICE mode		TDD
- UL Target SIR		Reference to TS34.108 Parameter set.
- CHOICE UL OL PC info		Individually signalled
- CHOICE TDD option		1.28 Mcps
- TPC step size		1 dB
- Primary CCPCH Tx Power		Not Present
		<u> </u>
- CHOICE mode		TDD
 Uplink Timing Advance Control 		Not Present
- UL CCTrCH List		
- TFCS Id		1
		-
- Time info		
- Activation time		(256+CFN-(CFN MOD 8 + 8))MOD 256
- Duration		infinite
- Common timeslot info		
		D (
- 2 nd interleaving mode		Reference to TS34.108 section 6 Parameter
		set.
- TFCI coding		Reference to TS34.108 section 6 Parameter
		set.
- Puncturing Limit		Reference to TS34.108 section 6 Parameter
		set.
Popotition Poriod		
- Repetition Period		Reference to TS34.108 clause 6 Parameter
		set.
- Repetition Length		Reference to TS34.108 clause 6 Parameter
		set.
Linlink DDCH timeslate and code		<u> </u>
- Uplink DPCH timeslots and code		
- First individual timeslot info		The number of an uplink timeslot that has
		unassigned codes.
- Timeslot number		
- TFCI existence		TRUE
		INOL
 Midamble shift and burst type 		
- CHOICE TDD option		1.28 Mcps
- Midamble allocation mode		<u>Default</u>
- Midamble configuration		16
- CHOICE TDD option		1.28 Mcps TDD
- Modulation		<u>QPSK</u>
- SS-TPC Symbols		1
- First timeslot channelisation codes		Repeated (1,2) for each channelisation code
		assigned in the slot to meet the needs of
		TS34.108 clause 6 Parameter Set.
- Channelisation code		(i/SF) where i denotes an unassigned code
		matching the SF specified in TS34.108 clause
		6 Parameter Set.
- CHOICE more timeslots		The presence of this IE depends upon the
		number of resources specified in TS34.108
		section 6 and the number of slots in which they
	1	are being assigned.
CHOICE Mode		TDD
Downlink information common for all radio links	A1, A2,	
25 THIRIN THE STREET COMMON TOT AIR TAGIO IIING	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	
D # 1 BBC	<u>A3, A4</u>	
 Downlink DPCH info common for all RL 		
- Timing indicator		Maintain
- CFN-targetSFN frame offset		Not Present
		INOCTICOCIL
- Downlink DPCH power control information		
- CHOICE mode		<u>TDD</u>
- TPC step size		1 dB
- CHOICE mode		TDD
- CHOICE TDD option		1.28 Mcps

- TSTD indicator		TRUE
- Default DPCH offset value		0
Downlink information for each radio link list	A1, A2,	_
	A3, A4	
- Downlink information for each radio link		
- CHOICE mode		TDD
- Primary CCPCH info		
- CHOICE mode		TDD
- CHOICE TDD option		1.28 Mcps
- TSTD indicator		TRUE
- Cell parameters ID		0
- Block STTD indicator		FALSE
- Downlink DPCH info for each RL		IALGE
- CHOICE mode		TDD
- DL CCTrCH List		100
- TFCS ID		1
- Time info		'
- Activation time		(256+CFN-(CFN mod 8 + 8))mod 256
- Duration		infinite
- Common timeslot info		D (T004.400
- 2 nd interleaving mode		Reference to TS34.108
- TFCI coding		TRUE
- Puncturing limit		Reference to TS34.108 clause 6 Parameter
		<u>Set</u>
- Repetition period		<u>1</u>
- Repetition length		<u>Empty</u>
 Downlink DPCH timeslots and codes 		
 Individual timeslot info 		
- Timeslot number		The number of a downlink timeslot that has
		unassigned codes.
- TFCI existence		TRUE
- Midamble shift and burst type		
- CHOICE TDD option		1.28 Mcps
- Midamble allocation mode		Default
- Midamble configuration		16
- CHOICE TDD option		1.28 Mcps TDD
- Modulation		QPSK
- SS-TPC Symbols		1
- First timeslot channelisation codes		-
- First channelisation code		(i/SF) where i is the lowest numbered code
- I list charmensation code		that is being assigned and SF is specified in
		TS34.108 clause 6 Parameter Set
- Last channelisation code		(j/SF) where j is the highest numbered code
- Last charmensation code		
- Bitmap		that is being assigned in the slot. Bitmap of the codes that are being assigned in
<u>- ышар</u>		the slot.
CHOICE mara timestate		The presence of this IE depends upon whether
- CHOICE more timeslots		
		the requirements of TS34.108 clause 6
		Parameter Set could be met by the codes that
III OOT-CUITDOU:		have been assigned in the first timeslot
- UL CCTrCH TPC List		Not Present
-SCCPCH information for FACH	ļ	Not Present
Downlink information for each radio link list	<u>A5, A6</u>	
- Downlink information for each radio link		
- Choice mode		<u>TDD</u>
- Primary CCPCH info		
- CHOICE mode		<u>TDD</u>
- CHOICE TDD option		1.28 Mcps
- TSTD indicator		TRUE
- Cell parameters ID		0
		TRUE
- Block STTD indicator		
- Block STTD indicator - Downlink DPCH info for each RL		
- Block STTD indicator - Downlink DPCH info for each RL - SCCPCH information for FACH		Not Present Not Present

Condition	<u>Explanation</u>
<u>A1</u>	This IE need for "Non speech in CS"
<u>A2</u>	This IE need for "Speech in CS"
<u>A3</u>	This IE need for "Packet to CELL DCH from CELL DCH in PS"
<u>A4</u>	This IE need for "Packet to CELL_DCH from CELL_FACH in PS"
<u>A1</u> <u>A2</u> <u>A3</u> <u>A4</u> <u>A5</u> <u>A6</u>	This IE need for "Packet to CELL FACH from CELL DCH in PS"
<u>A6</u>	This IE need for "Packet to CELL FACH from CELL FACH in PS"

Contents of RADIO BEARER RECONFIGURATION message: AM or UM

Information Element Condition Value/remark	O a m al O
RRC transaction identifier Integrity check info Arbitrarily selects an integer between of The presence of this IE is dependent of statements in TS 34.123-2. If integrity protection is indicated to be active, this present with the values of the sub IEs stated below. Else, this IE and the sul omitted. - message authentication code - RRC message sequence number Integrity protection mode info Ciphering mode info Ciphering mode info Ciphering mode info Activation time New U-RNTI New C-RNTI RRC State indicator RRC State indicator RRC State indicator A1, A2, A3, A4 RRC State indicator A5, A6 CELL FACH UTRAN DRX cycle length coefficient CN information info URA identity RAB information to reconfigure list RB information to reconfigure list RB information to reconfigure list RB information to reconfigure list RB information to reconfigure list RB information to reconfigure list RB information to reconfigure list RB information to reconfigure list RB information to reconfigure list RB information to reconfigure	2 2
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Ciphering mode info Not Present Activation time (256+CFN-(CFN MOD 8 + 8))MOD 25 New U-RNTI Not Present New C-RNTI Not Present RRC State indicator A1, A2, A3, A4 CELL DCH UTRAN DRX cycle length coefficient Not Present CN information info Not Present URA identity Not Present RB information to reconfigure list Not Present RB information to reconfigure list A1, A2, A3 RB information to reconfigure A4 - RB identity 1 - PDCP info Not Present - CHOICE RLC info type Not Present Not Present Not Present	
Activation time New U-RNTI New C-RNTI RRC State indicator RRC State indicator RRC State indicator A1, A2, A3, A4 RRC State indicator A5, A6 UTRAN DRX cycle length coefficient CN information info URA identity RAB information to reconfigure list RB information to reconfigure list RB information to reconfigure list - RB information to reconfigure - RB identity - PDCP info - CHOICE RLC info type - RB mapping info A1, A2, A3 (2ELL DCH Not Present Not Present Not Present Not Present Not Present (UM DCCH for RRC) Not Present Not Present Not Present Not Present Not Present Not Present Not Present Not Present Not Present Not Present Not Present Not Present Not Present Not Present Not Present Not Present	
Not Present RRC State indicator A1, A2, A3, A4 RRC State indicator A5, A6 CELL FACH UTRAN DRX cycle length coefficient Not Present CN information info Not Present URA identity Not Present RAB information to reconfigure list Not Present RB information to reconfigure list A1, A2, A3 Not Present RB information to reconfigure - RB information to reconfigure - RB identity 1	6
RRC State indicator RRC State indicator A1, A2, A3, A4 RRC State indicator UTRAN DRX cycle length coefficient CN information info URA identity RAB information to reconfigure list RB information to reconfigure list RB information to reconfigure list - RB information to reconfigure - RB identity - PDCP info - CHOICE RLC info type - RB mapping info	
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CN information info URA identity RAB information to reconfigure list RB information to reconfigure list RB information to reconfigure list - RB information to reconfigure - RB information to reconfigure - RB identity - PDCP info - CHOICE RLC info type - RB mapping info	
URA identity Not Present Not Present Not Present	
RAB information to reconfigure list RB information to reconfigure list A1, A2, A3 RB information to reconfigure list A4 - RB information to reconfigure - RB identity - PDCP info - CHOICE RLC info type - RB mapping info	
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- RB identity - PDCP info - CHOICE RLC info type - RB mapping info	
- PDCP info - CHOICE RLC info type - RB mapping info	
- RB mapping info	
Information for each multiplexing option	
- RLC logical channel mapping indicator Not Present	
- Number of uplink RLC logical channels - Uplink transport channel type DCH	
- UL Transport channel identity - Logical channel identity 1	
- CHOICE RLC size list	
- MAC logical channel priority 1	
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels 1	
- Downlink transport channel type DCH	
- DL DCH Transport channel identity 10	
- Logical channel identity 1	
- RB stop/continue Not Present	
- RB information to reconfigure (AM DCCH for RRC) - RB identity	
- RB Identity - PDCP info Not Present	
- CHOICE RLC info type Not Present	
- RB mapping info	
- Information for each multiplexing option	
- RLC logical channel mapping indicator Not Present	
- Number of uplink RLC logical channels 5	
- Uplink transport channel type DCH	
- UL Transport channel identity	
- Logical channel identity - CHOICE RLC size list - MAC logical channel priority 2 All 2	
- CHOICE RLC size list - MAC logical channel priority All 2	
- MAC logical channel priority - Downlink RLC logical channel info	
- Number of downlink RLC logical channels 1	
- Downlink transport channel type DCH	
- DL DCH Transport channel identity 10	
- Logical channel identity 2	
- RB stop/continue Not Present	
- RB information to reconfigure (AM DCCH for NAS_DT High priority)	

- RB identity		3
- PDCP info		Not Present
- CHOICE RLC info type		Not Present
- RB mapping info		140t i iosoni
- Information for each multiplexing option		
		l N v B
 RLC logical channel mapping indicator 		Not Present
 Number of uplink RLC logical channels 		<u>1</u>
 Uplink transport channel type 		<u>DCH</u>
- UL Transport channel identity		5
- Logical channel identity		$\frac{1}{3}$
- CHOICE RLC size list		5 3 AII 3 1
		
- MAC logical channel priority		\ \frac{3}{4}
- Number of downlink RLC logical channels		
 Downlink transport channel type 		<u>DCH</u>
 DL DCH Transport channel identity 		10
- Logical channel identity		3
- RB stop/continue		Not Present
- RB information to reconfigure		(AM DCCH for NAS DT Low priority)
<u>-</u>		
- RB identity		$\frac{4}{N}$
- PDCP info		Not Present
- RLC info	1	Not Present
- RB mapping info		
 Information for each multiplexing option 		
- RLC logical channel mapping indicator		Not Present
- Number of uplink RLC logical channels		1
- Uplink transport channel type		DCH
- UL Transport channel identity		
		<u>5</u> <u>4</u>
 Logical channel identity 		$\frac{4}{3}$
- CHOICE RLC size list		<u>All</u>
 MAC logical channel priority 		$\frac{4}{4}$
 Downlink RLC logical channel info 		
 Number of downlink RLC logical channels 		1
- Downlink transport channel type		<u>DCH</u>
- DL DCH Transport channel identity		1 <u>0</u>
- Logical channel identity		$\frac{10}{4}$
- RB information to reconfigure		(AM DTCH)
		20
- RB identity		_ I
- PDCP info		Not Present
- CHOICE RLC info type		Not Present
- RB mapping info		
 Information for each multiplexing option 		
 RLC logical channel mapping indicator 		Not Present
 Number of uplink RLC logical channels 		<u>1</u>
- Uplink transport channel type		DCH
- UL Transport channel identity		
- Logical channel identity		+
- CHOICE RLC size list		' AII
	1	1
- MAC logical channel priority		<u> </u>
- Downlink RLC logical channel info		
 Number of downlink RLC logical channels 		<u>1</u>
 Downlink transport channel type 		<u>DCH</u>
- DL DCH Transport channel identity	1	6
- Logical channel identity		$\frac{1}{7}$
- RB stop/continue	1	Not Present
RB information to reconfigure list	A5,A6	HOLFFOOR
	<u> </u>	(LIM DCCH for BBC)
- RB information to reconfigure		(UM DCCH for RRC)
- RB identity		$\left \frac{1}{N} \right $
- PDCP info		Not Present
- CHOICE RLC info type		Not Present
 RB mapping info 		
 Information for each multiplexing option 		
 RLC logical channel mapping indicator 		Not Present
- Number of uplink RLC logical channels		<u> 1</u>
- Uplink transport channel type	1	RACH
- Logical channel identity	1	1
- CHOICE RLC size list	1	Explicit list
- RLC size index		Reference to TS34.108 clause 6 Parameter
TREO SIZO IIIGOA	1	Set
	1	<u> </u>

- MAC logical channel priority	2
- Downlink RLC logical channel info	-
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- Logical channel identity	1
	$\frac{1}{N}$
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for RRC)
- RB identity	<u>2</u>
- PDCP info	Not Present
- CHOICE RLC info type	Not Present
- RB mapping info	
- Information for each multiplexing option	
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	<u> </u>
- Logical channel identity	2
- CHOICE RLC size list	∠ Evalicit Liet
	Explicit List
- RLC size index	Reference to TS34.108 clause 6 Parameter
	Set
 MAC logical channel priority 	<u>3</u>
 Downlink RLC logical channel info 	
 Number of downlink RLC logical channels 	<u>1</u>
 Downlink transport channel type 	FACH
- Logical channel identity	2
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS_DT High priority)
- RB identity	3
- PDCP info	Not Present
- CHOICE RLC info type	Not Present
- RB mapping info	Not Flesent
- Information for each multiplexing option	N · B
- RLC logical channel mapping indicator	Not Present
 Number of uplink RLC logical channels 	1 1
 Uplink transport channel type 	<u>RACH</u>
 Logical channel identity 	<u>3</u>
- CHOICE RLC size list	Explicit list
- RLC size index	Reference to TS34.108 clause 6 Parameter
	<u>Set</u>
- MAC logical channel priority	4
- Downlink RLC logical channel info	-
- Number of downlink RLC logical channels	1
	FACH
- Downlink transport channel type	
- Logical channel identity	$\frac{3}{2}$
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS_DT Low priority)
- RB identity	<u>4</u>
- PDCP info	Not Present
- CHOICE RLC info type	Not Present
- RB mapping info	
- Information for each multiplexing option	
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- Logical channel identity	4
- CHOICE RLC size list	Explicit list
- RLC size index	Reference to TS34.108 clause 6 Parameter
	<u>Set</u>
- MAC logical channel priority	<u>5</u>
- Downlink RLC logical channel info	
 Number of downlink RLC logical channels 	<u> 1</u>
 Downlink transport channel type 	FACH
- Logical channel identity	<u>4</u>
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DTCH)
- RB identity	20
- PDCP info	Not Present
- CHOICE RLC info type	Not Present
- RB mapping info	THOU I TOOGHE
- По тарріну ітіо	<u> </u>

- Information for each multiplexing option		
- RLC logical channel mapping indicator		Not Present
- Number of uplink RLC logical channels		'
		$\frac{1}{2}$
 Uplink transport channel type 		RACH
 Logical channel identity 		<u>7</u>
- CHOICE RLC size list		Explicit list
- RLC size index		Reference to TS34.108 clause 6 Parameter
THE GIZO HINGK		Set
MAGILIA I I I		
 MAC logical channel priority 		<u>6</u>
 Downlink RLC logical channel info 		
 Number of downlink RLC logical channels 		1
- Downlink transport channel type		FACH
- Logical channel identity		6
- RB stop/continue		Not Present
 RB information to reconfigure 		(TM BCCH for RRC)
- RB identity		5
- PDCP info		Not Present
		RLC info
- CHOICE RLC info type		
- CHOICE Uplink RLC mode		Not Present
- CHOICE Downlink RLC mode	1	TM RLC
- Segmentation Indication	1	TRUE
- RB mapping info		
- Information for each multiplexing option		
- Downlink RLC logical channel info		
 Number of downlink RLC logical channels 		1 1
- Downlink transport channel type		<u>FACH</u>
- Logical channel identity		5
- RB stop/continue		Not Proport
		Not Present
 RB information to reconfigure 		(TM PCCH for RRC)
- RB identity		<u>7</u>
- PDCP info		Not Present
- CHOICE RLC info type		RLC info
- CHOICE Uplink RLC mode		Not Present
- CHOICE Downlink RLC mode		TM RLC
- Segmentation Indication		TRUE
- RB mapping info		
- Information for each multiplexing option		
 Downlink RLC logical channel info 		
 Number of downlink RLC logical channels 		<u>1</u>
 Downlink transport channel type 		PCH
- Logical channel identity		1
- RB stop/continue		Not Present
	1 1 10 10	
RB information to be affected	A1, A2, A3	(UM DCCH for RRC)
- RB identity		<u>1</u>
- RB mapping info		
- Information for each multiplexing option		
- RLC logical channel mapping indicator	1	Not Present
		1
- Number of uplink RLC logical channels	1	1 = 0
 Uplink transport channel type 		<u>DCH</u>
- UL Transport channel identity		<u> 5</u>
- Logical channel identity	1	5 1 <u>AII</u> 1 1
- CHOICE RLC size list		
- MAC logical channel priority	1	1 1
 Number of downlink RLC logical channels 		<u>1</u>
- Downlink transport channel type	1	<u>DCH</u>
- DL DCH Transport channel identity		10
- Logical channel identity		'
	1 1 1 2 1 5	<u> </u>
RB information to be affected	A1, A2, A3	(AM DCCH for RRC)
- RB identity		2
- RB mapping info	1	<u> </u>
- Information for each multiplexing option		
		Not Dropont
- RLC logical channel mapping indicator	1	Not Present
 Number of uplink RLC logical channels 		<u>1</u>
- Uplink transport channel type		<u>DCH</u>
- UL Transport channel identity		5
		= 2
- Logical channel identity	1	<u>4</u>
- CHOICE RLC size list		5 2 All 2
 MAC logical channel priority 		2
- MAC logical channel priority		

- Downlink RLC logical channel info		
- Number of downlink RLC logical channels		10
- Downlink transport channel type		DCH
- DL DCH Transport channel identity		
- Logical channel identity		$\left \frac{1}{2} \right $
RB information to be affected	A1, A2, A3	(AM DCCH for NAS_DT High priority)
	A1, A2, A3	(AM DCCH for NAS_DT High phonty)
- RB identity		<u>3</u>
- RB mapping info		
 Information for each multiplexing option 		
 RLC logical channel mapping indicator 		Not Present
 Number of uplink RLC logical channels 		<u>1</u>
- Uplink transport channel type		<u>DCH</u>
- UL Transport channel identity		
- Logical channel identity		5 3 <u>All</u> 3
- CHOICE RLC size list		
- MAC logical channel priority		7.11
- Downlink RLC logical channel info		2
- Number of downlink RLC logical channels		<u>1</u> <u>DCH</u>
- Downlink transport channel type		
 - DL DCH Transport channel identity 		<u>10</u>
 Logical channel identity 	<u></u>	<u>3</u>
RB information to be affected	A1, A2, A3	(AM DCCH for NAS DT Low priority)
- RB identity		4
- RB mapping info		_
- Information for each multiplexing option		
- RLC logical channel mapping indicator		Not Present
- Number of uplink RLC logical channels		<u> </u>
		$\frac{1}{2}$
- Uplink transport channel type		<u>DCH</u>
- UL Transport channel identity		<u>5</u>
 Logical channel identity 		<u>5</u>
- CHOICE RLC size list		<u>All</u>
- MAC logical channel priority		4
- Downlink RLC logical channel info		
- Number of downlink RLC logical channels		1
- Downlink transport channel type		<u>DCH</u>
- DL DCH Transport channel identity		10
- Logical channel identity		$\left \frac{10}{4} \right $
	A4 A0 A0	(TM DTCH)
RB information to be affected	A1, A2, A3	
- RB identity		10
- RB mapping info		
 Information for each multiplexing option 		
 RLC logical channel mapping indicator 		Not Present
 Number of uplink RLC logical channels 		1
- Uplink transport channel type		DCH
- UL Transport channel identity		
- Logical channel identity		7
- CHOICE RLC size list		ÄII
- MAC logical channel priority		1
		'
- Downlink RLC logical channel info		4
- Number of downlink RLC logical channels		1 DCH
- Downlink transport channel type		
- DL DCH Transport channel identity		<u>6</u> 7
- Logical channel identity		_
RB information to be affected	<u>A2</u>	(DTCH TM)
- RB identity		11
- RB mapping info		_
- Information for each multiplexing option		
- RLC logical channel mapping indicator		Not Present
- Number of uplink RLC logical channels		1
		1 -
- Uplink transport channel type		DCH 2
- UL Transport channel identity		2 <u>8</u> <u>All</u> <u>1</u>
- Logical channel identity		<u>8</u>
- CHOICE RLC size list		AII
 MAC logical channel priority 		<u> 1</u>
- Downlink RLC logical channel info		
- Number of downlink RLC logical channels		1
- Downlink transport channel type		<u>DCH</u>
		7
 - DL DCH Transport channel identity 		

 Logical channel identity 		<u>8</u>
RB information to be affected	A2	This IE is needed for 12.2 kbps and 10.2
		kbps)
RB identity		12
- RB mapping info		_
- Information for each multiplexing option		
- RLC logical channel mapping indicator		Not Present
- Number of uplink RLC logical channels		1
- Uplink transport channel type		DCH
- UL Transport channel identity		$\frac{3}{2}$
- Logical channel identity		9
- CHOICE RLC size list		3 9 <u>All</u> 1
- MAC logical channel priority		<u>1</u>
- Downlink RLC logical channel info		
 Number of downlink RLC logical channels 		1 1
 Downlink transport channel type 		<u>DCH</u>
 DL DCH Transport channel identity 		8
 Logical channel identity 		9
UL Transport channel information for all transport	A1, A2, A3,	
channels	<u>A4</u>	
	<u> </u>	
PRACH TFCS		Not Present
- CHOICE mode		TDD
- Individual UL CCTrCH information		
- TFCS ID		1
- Shared channel indicator		FALSE
- UL TFCS		INCOL
- CHOICE TFCI signalling		Normal
- TFCI Field 1 information		INOTHIAL
		Addition
- CHOICE TFCS representation		Addition
- TFCS addition information		Defends T004 400 sleves 0
- CHOICE CTFC Size		Refer to TS34.108 clause 6
- CTFC information		Refer to TS34.108 clause 6 Parameter Set
- TFC subset		
- CHOICE Subset representation		Allowed transport format combination list
- Allowed Transport Format combination list		Refer to TS34.108 clause 6 Parameter Set
UL Transport channel information for all transport	<u>A5, A6</u>	
<u>channels</u>		
- PRACH TFCS		
- CHOICE TFCI signalling		<u>Normal</u>
- TFCI Field 1 information		
- CHOICE TFCS representation		<u>Addition</u>
- TFCS addition information		_
- CHOICE CTFC Size		Refer to TS34.108 clause 6
- CTFC information		Refer to TS34.108 clause 6 Parameter Set
- CHOICE mode		TDD
- Individual UL CCTrCH information		Not Present
Deleted UL TrCH information	A1, A2, A3	Not Present
Deleted UL TrCH information	A1, A2, A3	TOUT TOUGHT
- Uplink transport channel type	\ \frac{\tau_4}{1}	DCH
		DCH 15
- Transport channel identity	٨٥	<u>15</u>
Deleted UL TrCH information	<u>A5</u>	DOLL
- Uplink transport channel type		DCH
- Transport channel identity		$\frac{1}{2}$
 Uplink transport channel type 		<u>DCH</u>
- Transport channel identity		<u>5</u>
Added or Reconfigured UL TrCH information	A1, A2, A3,	
	<u>A4</u>	
 Uplink transport channel type 		<u>DCH</u>
 - UL Transport channel identity 		<u>5</u>
- TFS		
- CHOICE Transport channel type		Dedicated transport channels
- Dynamic Transport format information		(This IE is repeated for TFI number)
- RLC Size		Reference to TS34.108 clause 6 Parameter
		Set
- Number of TBs and TTI List		(This IE is repeated for TFI number.)
- Transmission Time Interval		Not Present
		Reference to TS34.108 clause 6 Parameter
- Number of Transport blocks		

		<u>Set</u>
- CHOICE Logical Channel list		ALL
- Semi-static Transport Format information		
- Transmission time interval		Reference to TS34.108 clause 6 Parameter
		Set
- Type of channel coding		Reference to TS34.108 clause 6 Parameter
- Type of charmer coding		
		Set Control of Part 1
- Coding Rate		Reference to TS34.108 clause 6 Parameter
		<u>Set</u>
- Rate matching attribute		Reference to TS34.108 clause 6 Parameter
		<u>Set</u>
- CRC size		Reference to TS34.108 clause 6 Parameter
		Set
Added or Reconfigured UL TrCH information	<u>A4</u>	<u> </u>
- Uplink transport channel type	177	<u>DCH</u>
- UL Transport channel identity		1
<u>- TFS</u>		
 CHOICE Transport channel type 		Dedicated transport channels
- Dynamic Transport format information		(This IE is repeated for TFI number)
- RLC Size		Reference to TS34.108 clause 6 Parameter
		Set
Number of TDs and TTLL int		
- Number of TBs and TTI List		(This IE is repeated for TFI number.)
- Transmission Time Interval		Not Present
- Number of Transport blocks		Reference to TS34.108 clause 6 Parameter
		Set
- CHOICE Logical Channel list		ALL
- Semi-static Transport Format information		'
		D-f t- T004 400 -l 0 D
- Transmission time interval		Reference to TS34.108 clause 6 Parameter
		<u>Set</u>
 Type of channel coding 		Reference to TS34.108 clause 6 Parameter
		Set
Coding Rate		Reference to TS34.108 clause 6 Parameter
		Set
D		
- Rate matching attribute		Reference to TS34.108 clause 6 Parameter
		Set
- CRC size		
		Set Reference to TS34.108 clause 6 Parameter
- CRC size	A1 A3	Set
- CRC size DL Transport channel information common for all	A1, A3	Set Reference to TS34.108 clause 6 Parameter
- CRC size DL Transport channel information common for all transport channel	A1, A3	Set Reference to TS34.108 clause 6 Parameter Set
- CRC size DL Transport channel information common for all transport channel - SCCPCH TFCS	A1, A3	Set Reference to TS34.108 clause 6 Parameter Set Not Present
- CRC size DL Transport channel information common for all transport channel - SCCPCH TFCS - CHOICE mode	A1, A3	Set Reference to TS34.108 clause 6 Parameter Set
- CRC size DL Transport channel information common for all transport channel - SCCPCH TFCS	A1, A3	Set Reference to TS34.108 clause 6 Parameter Set Not Present
- CRC size DL Transport channel information common for all transport channel - SCCPCH TFCS - CHOICE mode - Individual DL CCTrCH information	A1, A3	Set Reference to TS34.108 clause 6 Parameter Set Not Present
- CRC size DL Transport channel information common for all transport channel - SCCPCH TFCS - CHOICE mode - Individual DL CCTrCH information - DL TFCS Identity	A1, A3	Set Reference to TS34.108 clause 6 Parameter Set Not Present
- CRC size DL Transport channel information common for all transport channel - SCCPCH TFCS - CHOICE mode - Individual DL CCTrCH information - DL TFCS Identity - TFCS ID	A1, A3	Set Reference to TS34.108 clause 6 Parameter Set Not Present TDD
- CRC size DL Transport channel information common for all transport channel - SCCPCH TFCS - CHOICE mode - Individual DL CCTrCH information - DL TFCS Identity - TFCS ID - Shared Channel Indicator	A1, A3	Set Reference to TS34.108 clause 6 Parameter Set Not Present TDD 1 FALSE
- CRC size DL Transport channel information common for all transport channel - SCCPCH TFCS - CHOICE mode - Individual DL CCTrCH information - DL TFCS Identity - TFCS ID - Shared Channel Indicator - CHOICE DL parameters	<u>A1, A3</u>	Set Reference to TS34.108 clause 6 Parameter Set Not Present TDD
- CRC size DL Transport channel information common for all transport channel - SCCPCH TFCS - CHOICE mode - Individual DL CCTrCH information - DL TFCS Identity - TFCS ID - Shared Channel Indicator - CHOICE DL parameters - DL TFCS	A1, A3	Set Reference to TS34.108 clause 6 Parameter Set Not Present TDD 1 FALSE Independent
- CRC size DL Transport channel information common for all transport channel - SCCPCH TFCS - CHOICE mode - Individual DL CCTrCH information - DL TFCS Identity - TFCS ID - Shared Channel Indicator - CHOICE DL parameters - DL TFCS - CHOICE TFCI signalling	A1, A3	Set Reference to TS34.108 clause 6 Parameter Set Not Present TDD 1 FALSE
- CRC size DL Transport channel information common for all transport channel - SCCPCH TFCS - CHOICE mode - Individual DL CCTrCH information - DL TFCS Identity - TFCS ID - Shared Channel Indicator - CHOICE DL parameters - DL TFCS	A1, A3	Set Reference to TS34.108 clause 6 Parameter Set Not Present TDD 1 FALSE Independent
- CRC size DL Transport channel information common for all transport channel - SCCPCH TFCS - CHOICE mode - Individual DL CCTrCH information - DL TFCS Identity - TFCS ID - Shared Channel Indicator - CHOICE DL parameters - DL TFCS - CHOICE TFCI signalling - TFCI Field 1 Information	A1, A3	Set Reference to TS34.108 clause 6 Parameter Set Not Present TDD 1 FALSE Independent Normal
- CRC size DL Transport channel information common for all transport channel - SCCPCH TFCS - CHOICE mode - Individual DL CCTrCH information - DL TFCS Identity - TFCS ID - Shared Channel Indicator - CHOICE DL parameters - DL TFCS - CHOICE TFCI signalling - TFCI Field 1 Information - CHOICE TFCI representation	A1, A3	Set Reference to TS34.108 clause 6 Parameter Set Not Present TDD 1 FALSE Independent
- CRC size DL Transport channel information common for all transport channel - SCCPCH TFCS - CHOICE mode - Individual DL CCTrCH information - DL TFCS Identity - TFCS ID - Shared Channel Indicator - CHOICE DL parameters - DL TFCS - CHOICE TFCI signalling - TFCI Field 1 Information - CHOICE TFCI representation - TFCS addition information	A1, A3	Set Reference to TS34.108 clause 6 Parameter Set Not Present TDD 1 FALSE Independent Normal Addition
- CRC size DL Transport channel information common for all transport channel - SCCPCH TFCS - CHOICE mode - Individual DL CCTrCH information - DL TFCS Identity - TFCS ID - Shared Channel Indicator - CHOICE DL parameters - DL TFCS - CHOICE TFCI signalling - TFCI Field 1 Information - CHOICE TFCI representation - TFCS addition information - CHOICE CTFC size	A1, A3	Set Reference to TS34.108 clause 6 Parameter Set Not Present TDD 1 FALSE Independent Normal Addition Refer to TS34.108 clause 6
- CRC size DL Transport channel information common for all transport channel - SCCPCH TFCS - CHOICE mode - Individual DL CCTrCH information - DL TFCS Identity - TFCS ID - Shared Channel Indicator - CHOICE DL parameters - DL TFCS - CHOICE TFCI signalling - TFCI Field 1 Information - CHOICE TFCI representation - TFCS addition information - CHOICE CTFC size - CTFC information		Set Reference to TS34.108 clause 6 Parameter Set Not Present TDD 1 FALSE Independent Normal Addition
- CRC size DL Transport channel information common for all transport channel - SCCPCH TFCS - CHOICE mode - Individual DL CCTrCH information - DL TFCS Identity - TFCS ID - Shared Channel Indicator - CHOICE DL parameters - DL TFCS - CHOICE TFCI signalling - TFCI Field 1 Information - CHOICE TFCI representation - TFCS addition information - CHOICE CTFC size - CTFC information DL Transport channel information common for all	A1, A3	Set Reference to TS34.108 clause 6 Parameter Set Not Present TDD 1 FALSE Independent Normal Addition Refer to TS34.108 clause 6
- CRC size DL Transport channel information common for all transport channel - SCCPCH TFCS - CHOICE mode - Individual DL CCTrCH information - DL TFCS Identity - TFCS ID - Shared Channel Indicator - CHOICE DL parameters - DL TFCS - CHOICE TFCI signalling - TFCI Field 1 Information - CHOICE TFCI representation - TFCS addition information - CHOICE CTFC size - CTFC information		Set Reference to TS34.108 clause 6 Parameter Set Not Present TDD 1 FALSE Independent Normal Addition Refer to TS34.108 clause 6
- CRC size DL Transport channel information common for all transport channel - SCCPCH TFCS - CHOICE mode - Individual DL CCTrCH information - DL TFCS Identity - TFCS ID - Shared Channel Indicator - CHOICE DL parameters - DL TFCS - CHOICE TFCI signalling - TFCI Field 1 Information - CHOICE TFCI representation - TFCS addition information - CHOICE CTFC size - CTFC information DL Transport channel information common for all transport channel		Set Reference to TS34.108 clause 6 Parameter Set Not Present TDD 1 FALSE Independent Normal Addition Refer to TS34.108 clause 6 Refer to TS34.108 clause 6 Refer to TS34.108 clause 6 Parameter Set
- CRC size DL Transport channel information common for all transport channel - SCCPCH TFCS - CHOICE mode - Individual DL CCTrCH information - DL TFCS Identity - TFCS ID - Shared Channel Indicator - CHOICE DL parameters - DL TFCS - CHOICE TFCI signalling - TFCI Field 1 Information - CHOICE TFCI representation - TFCS addition information - CHOICE CTFC size - CTFC information DL Transport channel information common for all transport channel - SCCPCH TFCS		Set Reference to TS34.108 clause 6 Parameter Set Not Present TDD 1 FALSE Independent Normal Addition Refer to TS34.108 clause 6 Refer to TS34.108 clause 6 Refer to TS34.108 clause 6 Parameter Set
- CRC size DL Transport channel information common for all transport channel - SCCPCH TFCS - CHOICE mode - Individual DL CCTrCH information - DL TFCS Identity - TFCS ID - Shared Channel Indicator - CHOICE DL parameters - DL TFCS - CHOICE TFCI signalling - TFCI Field 1 Information - CHOICE TFCI representation - TFCS addition information - CHOICE CTFC size - CTFC information DL Transport channel information common for all transport channel - SCCPCH TFCS - CHOICE mode		Set Reference to TS34.108 clause 6 Parameter Set Not Present TDD 1 FALSE Independent Normal Addition Refer to TS34.108 clause 6 Refer to TS34.108 clause 6 Refer to TS34.108 clause 6 Parameter Set
- CRC size DL Transport channel information common for all transport channel - SCCPCH TFCS - CHOICE mode - Individual DL CCTrCH information - DL TFCS Identity - TFCS ID - Shared Channel Indicator - CHOICE DL parameters - DL TFCS - CHOICE TFCI signalling - TFCI Field 1 Information - CHOICE TFCI representation - TFCS addition information - CHOICE CTFC size - CTFC information DL Transport channel information common for all transport channel - SCCPCH TFCS - CHOICE mode - Individual DL CCTrCH information		Set Reference to TS34.108 clause 6 Parameter Set Not Present TDD 1 FALSE Independent Normal Addition Refer to TS34.108 clause 6 Refer to TS34.108 clause 6 Refer to TS34.108 clause 6 Parameter Set
- CRC size DL Transport channel information common for all transport channel - SCCPCH TFCS - CHOICE mode - Individual DL CCTrCH information - DL TFCS Identity - TFCS ID - Shared Channel Indicator - CHOICE DL parameters - DL TFCS - CHOICE TFCI signalling - TFCI Field 1 Information - CHOICE TFCI representation - TFCS addition information - CHOICE CTFC size - CTFC information DL Transport channel information common for all transport channel - SCCPCH TFCS - CHOICE mode - Individual DL CCTrCH information - DL TFCS Identity		Set Reference to TS34.108 clause 6 Parameter Set Not Present TDD 1 FALSE Independent Normal Addition Refer to TS34.108 clause 6 Refer to TS34.108 clause 6 Refer to TS34.108 clause 6 Parameter Set
- CRC size DL Transport channel information common for all transport channel - SCCPCH TFCS - CHOICE mode - Individual DL CCTrCH information - DL TFCS Identity - TFCS ID - Shared Channel Indicator - CHOICE DL parameters - DL TFCS - CHOICE TFCI signalling - TFCI Field 1 Information - CHOICE TFCI representation - TFCS addition information - CHOICE CTFC size - CTFC information DL Transport channel information common for all transport channel - SCCPCH TFCS - CHOICE mode - Individual DL CCTrCH information - DL TFCS ID		Set Reference to TS34.108 clause 6 Parameter Set Not Present TDD 1 FALSE Independent Normal Addition Refer to TS34.108 clause 6 Refer to TS34.108 clause 6 Refer to TS34.108 clause 6 Parameter Set Not Present TDD
- CRC size DL Transport channel information common for all transport channel - SCCPCH TFCS - CHOICE mode - Individual DL CCTrCH information - DL TFCS Identity - TFCS ID - Shared Channel Indicator - CHOICE DL parameters - DL TFCS - CHOICE TFCI signalling - TFCI Field 1 Information - CHOICE TFCI representation - TFCS addition information - CHOICE CTFC size - CTFC information DL Transport channel information common for all transport channel - SCCPCH TFCS - CHOICE mode - Individual DL CCTrCH information - DL TFCS Identity		Set Reference to TS34.108 clause 6 Parameter Set Not Present TDD 1 FALSE Independent Normal Addition Refer to TS34.108 clause 6 Refer to TS34.108 clause 6 Refer to TS34.108 clause 6 Parameter Set
- CRC size DL Transport channel information common for all transport channel - SCCPCH TFCS - CHOICE mode - Individual DL CCTrCH information - DL TFCS Identity - TFCS ID - Shared Channel Indicator - CHOICE DL parameters - DL TFCS - CHOICE TFCI signalling - TFCI Field 1 Information - CHOICE TFCI representation - TFCS addition information - CHOICE CTFC size - CTFC information DL Transport channel information common for all transport channel - SCCPCH TFCS - CHOICE mode - Individual DL CCTrCH information - DL TFCS ID - Shared Channel Indicator		Set Reference to TS34.108 clause 6 Parameter Set Not Present TDD 1 FALSE Independent Normal Addition Refer to TS34.108 clause 6 Refer to TS34.108 clause 6 Refer to TS34.108 clause 6 Parameter Set Not Present TDD 1 FALSE FALSE
- CRC size DL Transport channel information common for all transport channel - SCCPCH TFCS - CHOICE mode - Individual DL CCTrCH information - DL TFCS Identity - TFCS ID - Shared Channel Indicator - CHOICE DL parameters - DL TFCS - CHOICE TFCI signalling - TFCI Field 1 Information - CHOICE TFCI representation - TFCS addition information - CHOICE CTFC size - CTFC information DL Transport channel information common for all transport channel - SCCPCH TFCS - CHOICE mode - Individual DL CCTrCH information - DL TFCS ID - Shared Channel Indicator - CHOICE DL parameters		Set Reference to TS34.108 clause 6 Parameter Set Not Present TDD 1 FALSE Independent Normal Addition Refer to TS34.108 clause 6 Refer to TS34.108 clause 6 Refer to TS34.108 clause 6 Parameter Set Not Present TDD
- CRC size DL Transport channel information common for all transport channel - SCCPCH TFCS - CHOICE mode - Individual DL CCTrCH information - DL TFCS Identity - TFCS ID - Shared Channel Indicator - CHOICE DL parameters - DL TFCS - CHOICE TFCI signalling - TFCI Field 1 Information - CHOICE TFCI representation - TFCS addition information - CHOICE CTFC size - CTFC information DL Transport channel information common for all transport channel - SCCPCH TFCS - CHOICE mode - Individual DL CCTrCH information - DL TFCS ID - Shared Channel Indicator - CHOICE DL parameters - DL TFCS - CHOICE DL parameters - DL TFCS		Set Reference to TS34.108 clause 6 Parameter Set Not Present TDD 1 FALSE Independent Normal Addition Refer to TS34.108 clause 6 Refer to TS34.108 clause 6 Parameter Set Not Present TDD 1 FALSE Independent
- CRC size DL Transport channel information common for all transport channel - SCCPCH TFCS - CHOICE mode - Individual DL CCTrCH information - DL TFCS Identity - TFCS ID - Shared Channel Indicator - CHOICE DL parameters - DL TFCS - CHOICE TFCI signalling - TFCI Field 1 Information - CHOICE TFCI representation - TFCS addition information - CHOICE CTFC size - CTFC information DL Transport channel information common for all transport channel - SCCPCH TFCS - CHOICE mode - Individual DL CCTrCH information - DL TFCS ID - Shared Channel Indicator - CHOICE DL parameters - DL TFCS - CHOICE DL parameters - DL TFCS - CHOICE TFCI signalling		Set Reference to TS34.108 clause 6 Parameter Set Not Present TDD 1 FALSE Independent Normal Addition Refer to TS34.108 clause 6 Refer to TS34.108 clause 6 Refer to TS34.108 clause 6 Parameter Set Not Present TDD 1 FALSE FALSE
- CRC size DL Transport channel information common for all transport channel - SCCPCH TFCS - CHOICE mode - Individual DL CCTrCH information - DL TFCS Identity - TFCS ID - Shared Channel Indicator - CHOICE DL parameters - DL TFCS - CHOICE TFCI signalling - TFCI Field 1 Information - CHOICE TFCI representation - TFCS addition information - CHOICE CTFC size - CTFC information DL Transport channel information common for all transport channel - SCCPCH TFCS - CHOICE mode - Individual DL CCTrCH information - DL TFCS ID - Shared Channel Indicator - CHOICE DL parameters - DL TFCS - CHOICE TFCI signalling - TFCI Field 1 Information		Set Reference to TS34.108 clause 6 Parameter Set Not Present TDD 1 FALSE Independent Normal Addition Refer to TS34.108 clause 6 Refer to TS34.108 clause 6 Refer to TS34.108 clause 6 Parameter Set Not Present TDD 1 FALSE Independent Normal Normal
- CRC size DL Transport channel information common for all transport channel - SCCPCH TFCS - CHOICE mode - Individual DL CCTrCH information - DL TFCS Identity - TFCS ID - Shared Channel Indicator - CHOICE DL parameters - DL TFCS - CHOICE TFCI signalling - TFCI Field 1 Information - CHOICE TFCI representation - TFCS addition information - CHOICE CTFC size - CTFC information DL Transport channel information common for all transport channel - SCCPCH TFCS - CHOICE mode - Individual DL CCTrCH information - DL TFCS ID - Shared Channel Indicator - CHOICE DL parameters - DL TFCS - CHOICE TFCI signalling - TFCI Field 1 Information - CHOICE TFCI representation - CHOICE TFCI representation		Set Reference to TS34.108 clause 6 Parameter Set Not Present TDD 1 FALSE Independent Normal Addition Refer to TS34.108 clause 6 Refer to TS34.108 clause 6 Parameter Set Not Present TDD 1 FALSE Independent
- CRC size DL Transport channel information common for all transport channel - SCCPCH TFCS - CHOICE mode - Individual DL CCTrCH information - DL TFCS Identity - TFCS ID - Shared Channel Indicator - CHOICE DL parameters - DL TFCS - CHOICE TFCI signalling - TFCI Field 1 Information - CHOICE TFCI representation - TFCS addition information - CHOICE CTFC size - CTFC information DL Transport channel information common for all transport channel - SCCPCH TFCS - CHOICE mode - Individual DL CCTrCH information - DL TFCS ID - Shared Channel Indicator - CHOICE DL parameters - DL TFCS - CHOICE TFCI signalling - TFCI Field 1 Information		Set Reference to TS34.108 clause 6 Parameter Set Not Present TDD 1 FALSE Independent Normal Addition Refer to TS34.108 clause 6 Refer to TS34.108 clause 6 Refer to TS34.108 clause 6 Parameter Set Not Present TDD 1 FALSE Independent Normal Normal
- CRC size DL Transport channel information common for all transport channel - SCCPCH TFCS - CHOICE mode - Individual DL CCTrCH information - DL TFCS Identity - TFCS ID - Shared Channel Indicator - CHOICE DL parameters - DL TFCS - CHOICE TFCI signalling - TFCI Field 1 Information - CHOICE TFCI representation - TFCS addition information - CHOICE CTFC size - CTFC information DL Transport channel information common for all transport channel - SCCPCH TFCS - CHOICE mode - Individual DL CCTrCH information - DL TFCS Identity - TFCS ID - Shared Channel Indicator - CHOICE DL parameters - DL TFCS - CHOICE TFCI signalling - TFCI Field 1 Information - CHOICE TFCI representation		Set Reference to TS34.108 clause 6 Parameter Set Not Present TDD 1 FALSE Independent Normal Addition Refer to TS34.108 clause 6 Refer to TS34.108 clause 6 Refer to TS34.108 clause 6 Parameter Set Not Present TDD 1 FALSE Independent Normal Normal

	T	T =
- CTFC information		Refer to TS34.108 clause 6 Parameter Set
DL Transport channel information common for all	<u>A5, A6</u>	
transport channel		
- SCCPCH TFCS		(This IE is repeated for TFC number.)
- CHOICE TFCI signalling		Normal
- TFCI Field 1 information		
- CHOICE TFCS representation		Addition
- TFCS addition information		
- CHOICE CTFC Size		Number of bits used must be enough to cover
		all combinations of CTFC from clause 6.
- CTFC information		Refer to TS34.108 clause 6 Parameter Set
- Power offset information		Not Present
- CHOICE mode		TDD
- Individual DL CCTrCH information		
	14 10 10	Not Present
<u>iDeleted DL TrCH information</u>	A1, A2, A3,	Not Present
	<u>A6</u>	
Deleted DL TrCH information	<u>A4</u>	
 Downlink transport channel type 		<u>DCH</u>
 Transport channel identity 		12
- Downlink transport channel type		DCH
- Transport channel identity		13
- Downlink transport channel type		DCH
- Transport channel identity		14
Deleted DL TrCH information	<u>A5</u>	
- Downlink transport channel type	7.0	<u>DCH</u>
- Transport channel identity		6
- Downlink transport channel type		
- Transport channel identity		<u>DCH</u> 10
	1 1 1	10
Added or Reconfigured DL TrCH information	<u>A1</u>	BOLL
- Downlink transport channel type		DCH 10
- Transport channel identity		10
- CHOICE DL parameters		Same as UL
 Uplink transport channel type 		<u>DCH</u>
- UL TrCH Identity		<u>5</u>
 DCH quality target 		
- BLER Quality value		-6.3
- Transparent mode signalling info		Not Present
Added or Reconfigured DL TrCH information	A2, A3, A4	
- Downlink transport channel type	<u> </u>	<u>DCH</u>
- DL Transport channel identity		10
- CHOICE DL parameters		Independent
- TFS		macpendent
- CHOICE Transport channel type		Dedicated transport channels
- Dynamic Transport format information		(This IE is repeated for TFI number)
- RLC Size		Reference to TS34.108 clause 6 Parameter
North an of TD		Set
- Number of TBs and TTI List		(This IE is repeated for TFI number.)
- Transmission Time Interval		Not Present
- Number of Transport blocks		Reference to TS34.108 clause 6 Parameter
		<u>Set</u>
- CHOICE Logical Channel list		<u>ALL</u>
 Semi-static Transport Format information 		
- Transmission time interval		Reference to TS34.108 clause 6 Parameter
		Set
- Type of channel coding		Reference to TS34.108 clause 6 Parameter
		Set
- Coding Rate		Reference to TS34.108 clause 6 Parameter
		Set
- Rate matching attribute		Reference to TS34.108 clause 6 Parameter
Trate matering attribute		Set
- CRC size		Reference to TS34.108 clause 6 Parameter
- 01/0 3/25		· ·
DCH quality torget		Set
- DCH quality target		
- BLER Quality value		-6.3
- Transparent mode signalling info		Not Present
Frequency info		
- CHOICE mode		TDD
- UARFCN (Nt)		Reference to TS34.108 clause 6

15	1	I
Maximum allowed UL TX power		<u>30dBm</u>
CHOICE channel requirement	A1, A2, A3,	Uplink DPCH info
	<u>A4</u>	
-Uplink DPCH power control info		
- CHOICE mode		TDD
- UL Target SIR		Reference to TS34.108
- CHOICE UL OL PC info		Individually signalled
- CHOICE TDD option		1.28 Mcps TDD
- TPC step size		1 dB
		l
- Primary CCPCH Tx Power		Reference to TS34.108
- CHOICE mode		TDD
 Uplink Timing Advance Control 		Not Present
- UL CCTrCH List		
- TFCS ID		<u>1</u>
Time info		
- Activation time		(256+CFN-(CFNmod 8 + 8))MOD256
- Duration		infinite
- Common timeslot info		
- 2 nd interleaving mode		Reference to TS34.108 clause 6 Parameter
- 2 interieaving mode		Set.
TECL anding		
- TFCI coding	1	Reference to TS34.108 clause 6 Parameter
		Set
- Puncturing Limit	1	Reference to TS34.108 clause 6 Parameter
		<u>Set</u>
- Repetition Period	1	1 1
- Repetition Length		Empty
 Uplink DPCH timeslots and codes 		
- First timeslot information		
- CHOICE TDD option		1.28 Mcps
- Timeslot number		The number of an uplink timeslot that has
- Timesiot number		unassigned codes.
TECL aviotance		
- TFCI existence		TRUE
- Midamble shift and burst type		
- CHOICE TDD option		1.28 Mcps
 Midamble Allocation Mode 		<u>Default</u>
 Midamble configuration 		<u>16</u>
- CHOICE TDD option		1.28 Mcps
- Modulation		QPSK
- SS-TPC Symbols		1
- First timeslot code list		Repeated (1,2) for each channelisation code
T not timodiot dodo not		that is assigned in the slot.
Channelisation Code		(i/SF) where i denotes the code that is being
- Channelisation Code		
	1	assigned and SF is specified in TS34.108
0110105	1	clause 6 Parameter Set.
- CHOICE more timeslots	1	The presence of this IE depends on number of
	1	resources specified in TS34.108 section 6 and
	1	whether they are being assigned in more than
	<u> </u>	one timeslot.
CHOICE channel requirement	A5, A6	Not Present
CHOICE Mode		TDD
Downlink information common for all radio links	A1, A2, A4	
- Downlink DPCH info common for all RL	///, ///// // //	
	1	Maintain
- Timing indicator	1	Maintain Nat Broomt
- CFN-targetSFN frame offset	1	Not Present
- Downlink DPCH power control information	1	TDD
-CHOICE mode	1	TDD
-TPC Step Size	1	l <u>1</u>
- CHOICE mode		<u>TDD</u>
- CHOICE TDD option		1.28 Mcps
- TSTD indicator		TRUE
- Default DPCH Offset Value		Not Present
-Downlink information for each radio link	A1, A2, A3,	
	A4	
- Downlink information for each radio links	/ //-	
	1	TDD
- CHOICE mode	1	<u>TDD</u>
- Primary CCPCH info	1	TDD
- CHOICE mode		<u>TDD</u>

	,	
- CHOICE TDD option		1.28 Mcps
- TSTD indicator		TRUE
- Cell parameters ID		0
- Block STTD indicator		FALSE
		FALSE
 Downlink DPCH info for each RL 		
- CHOICE mode		TDD
- DL CCTrCH List		
- TFCS ID		1
- Activation time		(256+CFN-(CFN MOD 8 + 8))MOD 256
		, , , , , , , , , , , , , , , , , , , ,
- Duration		<u>Infinite</u>
- Common timeslot info		
- 2 nd interleaving mode		Reference to TS34.108
- TFCI coding		TRUE
- Puncturing limit		Reference to TS34.108 clause 6 Parameter
- r direturing iiriit		
		<u>Set</u>
- Repetition period		<u>1</u>
- Repetition length		Empty
- Downlink DPCH timeslots and codes		
- Individual timeslot info		
- Timeslot number		The number of a downlink timeslot that has
- Timesiot number		
		unassigned codes
- TFCI existence		TRUE
 Midamble shift and burst type 		
- CHOICE TDD option		1.28 Mcps
- Midamble allocation mode		Default
- Midamble configuration		16
- CHOICE TDD option		1.28 Mcps TDD
- Modulation		<u>QPSK</u>
- SS-TPC Symbols		1
- First timeslot channelisation codes		_
- First channelisation code		(i/SF) where i is the lowest numbered code
- Thist charmensation code		•
		assigned within the timeslot and SF is
		specified in TS34.108 clause 6 Parameter Set.
 Last channelisation code 		(j/SF) where j is the highest numbered code
		assigned in the timeslot.
- Bitmap		Bitmap of the codes assigned in this timeslot.
- CHOICE more timeslots		The presence of this IE depends upon slot
- CHOICE More timesiots		
		allocations used in the test.
- Secondary CCPCH info		Not Present
- Downlink information for each radio link	A5, A6	
- Choice mode		<u>TDD</u>
- Primary CCPCH info		·
- CHOICE mode		TDD
		TDD 1 CO M
- CHOICE TDD option		1.28 Mcps TDD
- TSTD indicator		TRUE
- Cell parameters ID		0
- Block STTD indicator		TRUE
- Downlink DPCH info for each RL		Not present
		
SCCPCH information for FACH		Not present

<u>Condition</u>	<u>Explanation</u>
<u>A1</u>	This IE need for "Non speech in CS"
<u>A2</u>	This IE need for "Speech in CS"
<u>A3</u>	This IE need for "Packet to CELL_DCH from CELL_DCH in PS"
<u>A4</u>	This IE need for "Packet to CELL_DCH from CELL_FACH in PS"
<u>A5</u>	This IE need for "Packet to CELL_FACH from CELL_DCH in PS"
<u>A1</u> <u>A2</u> <u>A3</u> <u>A4</u> <u>A5</u> <u>A6</u>	This IE need for "Packet to CELL FACH from CELL FACH in PS"

Contents of RADIO BEARER RECONFIGURATION COMPLETE message: AM

Information Element	<u>Value/remark</u>
Message Type	
RRC transaction identifier	Checked to see if the value is identical to the same IE in
	the downlink RADIO BEARER RECONFIGURATION
	COMPLETE message
Integrity check info	The presence of this IE is dependent on IXIT statements
	in TS 34.123-2. If integrity protection is indicated to be
	active, this IE shall be present with the values of the sub
	IEs as stated below. Else, this IE and the sub-IEs shall
	be absent.
 Message authentication code 	This IE is checked to see if it is present. The value is
	compared against the XMAC-I value computed by SS.
- RRC Message sequence number	This IE is checked to see if it is present. The value is
	used by SS to compute the XMAC-I value.
Uplink integrity protection activation info	Not checked
CHOICE mode	<u>TDD</u>
- CHOICE TDD option	1.28 Mcps
COUNT-C activation time	The presence of this IE depends on the following 2
	factors: (a) There exists RB(s) mapped to RLC-TM and
	(b) UE is transiting to CELL_DCH state after the
	reconfiguration procedure. Else, this IE is absent.
Radio bearer uplink ciphering activation time info	Not checked
Uplink counter synchronisation info	Not checked

Contents of RADIO BEARER RELEASE message: A	and of Olvi (The others of speech in CS)
Information Element	<u>Value/remark</u>
Message Type	
RRC transaction identifier	Arbitrarily selects an integer between 0 and 3.
Integrity check info	The presence of this IE is dependent on IXIT statements in
	TS 34.123-2. If integrity protection is indicated to be active,
	this IE is present with the values of the sub IEs as stated
	below. Else, this IE and the sub-IEs are omitted.
- message authentication code	SS calculates the value of MAC-I for this message and
	writes to this IE.
- RRC message sequence number	SS provides the value of this IE, from its internal counter.
Integrity protection mode info	Not Present
Ciphering mode info	Not Present
Activation time	(256+CFN-(CFN MOD 8 + 8))MOD 256
New U-RNTI	Not Present
New C-RNTI RDC State indicator	Not Present
RRC State indicator	CELL_DCH Not Present
UTRAN DRX cycle length coefficient CN information info	Not Present Not Present
URA identity	Not Present
RAB information to reconfigure list	Not Present
RB information to release	Not i resent
- RB identity	10
RB information to be affected	(UM DCCH for RRC)
- RB identity	1
- RB mapping info	
- Information for each multiplexing option	
 RLC logical channel mapping indicator 	Not Present
- Number of uplink RLC logical channels	<u>1</u>
 Uplink transport channel type 	<u>DCH</u>
 UL Transport channel identity 	<u>5</u>
 Logical channel identity 	1
- CHOICE RLC size list	5 1 All 1
- MAC logical channel priority	<u> 1</u>
- Downlink RLC logical channel info	4
- Number of downlink RLC logical channels - Downlink transport channel type	1 DCH
- DL DCH Transport channel identity	10
- Logical channel identity	1
RB information to be affected	(AM DCCH for RRC)
- RB identity	2
- RB mapping info	
- Information for each multiplexing option	
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	<u>1</u>
- Uplink transport channel type	DCH DCH
- UL Transport channel identity	DCH 5 2 All 2
 Logical channel identity 	<u>2</u>
- CHOICE RLC size list	All
- MAC logical channel priority	<u>2</u>
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1 DCH
- Downlink transport channel type	<u>DCH</u>
- DL DCH Transport channel identity - Logical channel identity	$\frac{10}{2}$
RB information to be affected	(AM DCCH for NAS_DT High priority)
- RB identity	3
- RB mapping info	~
- Information for each multiplexing option	
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	DCH
- UL Transport channel identity	<u>5</u>
- Logical channel identity	<u>3</u>
- CHOICE RLC size list	DCH 5 3 All 3
 MAC logical channel priority 	<u>3</u>
- Downlink RLC logical channel info	

 Number of downlink RLC logical channels 	<u>1</u>
 Downlink transport channel type 	DCH
- DL DCH Transport channel identity	10
- Logical channel identity	3
RB information to be affected	(AM DCCH for NAS_DT Low priority)
- RB identity	4
- RB mapping info	-
- Information for each multiplexing option	
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	·
	1 000
- Uplink transport channel type	DCH _
- UL Transport channel identity	5 4 All 4
- Logical channel identity	$\left \frac{4}{4} \right $
- CHOICE RLC size list	All
 MAC logical channel priority 	<u>4</u>
 Downlink RLC logical channel info 	
 Number of downlink RLC logical channels 	<u> 1</u>
 Downlink transport channel type 	<u>DCH</u>
 DL DCH Transport channel identity 	<u>10</u>
- Logical channel identity	$\frac{1}{4}$
Downlink counter synchronisation info	Not Present
UL Transport channel information for all transport	
channels	
- PRACH TFCS	Not Present
- CHOICE mode	TDD
- Individual UL CCTrCH information	100
- TFCS ID	
- Shared channel indicator	FALSE
- UL TFCS	
- CHOICE TFCI signalling	Normal
- TFCI Field 1 information	
- CHOICE TFCI representation	Addition
 TFCS addition information 	
- CHOICE CTFC Size	Refer to TS34.108 clause 6
- CTFC information	Refer to TS34.108 clause 6 Parameter Set
- TFC subset	
- CHOICE Subset representation	Allowed transport format combination list
- Allowed Transport Format combination list	Refer to TS34.108 clause 6 Parameter Set
Deleted UL TrCH Information	
- Transport channel identity	1
Added or Reconfigured UL TrCH information	If TrCH reconfiguration is executed then this is needed(e.g.
Added of Recorningared of Profit information	The rate of SRB for DCCH is changed.).
- Uplink transport channel type	DCH
- UL Transport channel identity	
- OL Transport channel identity - TFS	<u>5</u>
	Dadicated transport channels
- CHOICE Transport channel type	Dedicated transport channels (This IE is reported for TEI number)
- Dynamic Transport format information	(This IE is repeated for TFI number)
- RLC Size	Reference to TS34.108 clause 6 Parameter Set
- Number of TBs and TTI List	(This IE is repeated for TFI number.)
- Transmission Time Interval	Not Present
 Number of Transport blocks 	Reference to TS34.108 clause 6 Parameter Set
- CHOICE Logical Channel list	ALL
 Semi-static Transport Format information 	
- Transmission time interval	Reference to TS34.108 clause 6 Parameter Set
- Type of channel coding	Reference to TS34.108 clause 6 Parameter Set
- Coding Rate	Reference to TS34.108 clause 6 Parameter Set
- Rate matching attribute	Reference to TS34.108 clause 6 Parameter Set
- CRC size	Reference to TS34.108 clause 6 Parameter Set
CHOICE mode	TDD
DL Transport channel information common for all	
transport channel	
- SCCPCH TFCS	Not Present
- CHOICE mode	
- Individual DL CCTrCH information	<u>TDD</u>
- Individual DE COTTON Information - DL TFCS Identity	
- DL TFCS Identity - TFCS ID	1
- IFCS ID - Shared Channel Indicator	1 FALSE
	LEALOE

- CHOICE DL parameters	Independent
- DL TFCS	
- CHOICE TFCI signalling	<u>Normal</u>
- TFCI Field 1 Information	
- CHOICE TFCI representation	Addition
- TFCS addition information	
- CHOICE CTFC size	Refer to TS34.108 clause 6
- CTFC information	Refer to TS34.108 clause 6 Parameter Set
Deleted DL TrCH Information	
- Transport channel identity	<u>6</u>
Added or Reconfigured DL TrCH information	If TrCH reconfiguration is executed then this is needed(e.g.
	The rate of SRB for DCCH is changed.).
- Downlink transport channel type	DCH
- DL Transport channel identity	10
- CHOICE DL parameters	Independent
- TFS	
- CHOICE Transport channel type	Dedicated transport channels
- Dynamic Transport format information	(This IE is repeated for TFI number)
- RLC Size	Reference to TS34.108 clause 6 Parameter Set
- Number of TBs and TTI List	(This IE is repeated for TFI number.)
- Transmission Time Interval	Not Present
- Number of Transport blocks	Reference to TS34.108 clause 6 Parameter Set
- CHOICE Logical Channel list	ALL
- Semi-static Transport Format information	
- Transmission time interval	Reference to TS34.108 clause 6 Parameter Set
- Type of channel coding	Reference to TS34.108 clause 6 Parameter Set
- Coding Rate	Reference to TS34.108 clause 6 Parameter Set
- Rate matching attribute	Reference to TS34.108 clause 6 Parameter Set
- CRC size	Reference to TS34.108 clause 6 Parameter Set
- DCH quality target	
- BLER Quality value	-6.3
- Transparent mode signalling info	Not Present
Frequency info	
- CHOICE mode	TDD
- UARFCN (Nt)	Reference to TS34.108 clause 6 Parameter Set
Maximum allowed UL TX power	30dBm
Heliak DDCH info	
Oplink DPCH inio	
Uplink DPCH info - CHOICE mode	
- CHOICE mode - Uplink DPCH power control info	TDD
- CHOICE mode	
- CHOICE mode - Uplink DPCH power control info	<u>TDD</u>
- CHOICE mode - Uplink DPCH power control info - UL Target SIR	TDD Reference to TS34.108
- CHOICE mode - Uplink DPCH power control info - UL Target SIR - CHOICE UL OL PC info	TDD Reference to TS34.108 Individually signalled
- CHOICE mode - Uplink DPCH power control info - UL Target SIR - CHOICE UL OL PC info - CHOICE TDD option	TDD Reference to TS34.108 Individually signalled 1.28 Mcps TDD
- CHOICE mode - Uplink DPCH power control info - UL Target SIR - CHOICE UL OL PC info - CHOICE TDD option - TPC step size	TDD Reference to TS34.108 Individually signalled 1.28 Mcps TDD 1
- CHOICE mode - Uplink DPCH power control info - UL Target SIR - CHOICE UL OL PC info - CHOICE TDD option - TPC step size - Primary CCPCH Tx Power - CHOICE mode - Uplink Timing Advance Control	TDD Reference to TS34.108 Individually signalled 1.28 Mcps TDD 1 Reference to TS34.108
- CHOICE mode - Uplink DPCH power control info - UL Target SIR - CHOICE UL OL PC info - CHOICE TDD option - TPC step size - Primary CCPCH Tx Power - CHOICE mode - Uplink Timing Advance Control - UL CCTrCH List	TDD Reference to TS34.108 Individually signalled 1.28 Mcps TDD 1 Reference to TS34.108 TDD Not Present
- CHOICE mode - Uplink DPCH power control info - UL Target SIR - CHOICE UL OL PC info - CHOICE TDD option - TPC step size - Primary CCPCH Tx Power - CHOICE mode - Uplink Timing Advance Control - UL CCTrCH List - TFCS ID	TDD Reference to TS34.108 Individually signalled 1.28 Mcps TDD 1 Reference to TS34.108 TDD
- CHOICE mode - Uplink DPCH power control info - UL Target SIR - CHOICE UL OL PC info - CHOICE TDD option - TPC step size - Primary CCPCH Tx Power - CHOICE mode - Uplink Timing Advance Control - UL CCTrCH List - TFCS ID - Time info	Reference to TS34.108 Individually signalled 1.28 Mcps TDD 1 Reference to TS34.108 TDD Not Present 1
- CHOICE mode - Uplink DPCH power control info - UL Target SIR - CHOICE UL OL PC info - CHOICE TDD option - TPC step size - Primary CCPCH Tx Power - CHOICE mode - Uplink Timing Advance Control - UL CCTrCH List - TFCS ID - Time info - Activation time	Reference to TS34.108 Individually signalled 1.28 Mcps TDD 1 Reference to TS34.108 TDD Not Present 1 (256+CFN-(CFN MOD 8 + 8) MOD 256
- CHOICE mode - Uplink DPCH power control info - UL Target SIR - CHOICE UL OL PC info - CHOICE TDD option - TPC step size - Primary CCPCH Tx Power - CHOICE mode - Uplink Timing Advance Control - UL CCTrCH List - TFCS ID - Time info - Activation time - Duration	Reference to TS34.108 Individually signalled 1.28 Mcps TDD 1 Reference to TS34.108 TDD Not Present 1
- CHOICE mode - Uplink DPCH power control info - UL Target SIR - CHOICE UL OL PC info - CHOICE TDD option - TPC step size - Primary CCPCH Tx Power - CHOICE mode - Uplink Timing Advance Control - UL CCTrCH List - TFCS ID - Time info - Activation time - Duration - Common timeslot info	Reference to TS34.108 Individually signalled 1.28 Mcps TDD 1 Reference to TS34.108 TDD Not Present 1 (256+CFN-(CFN MOD 8 + 8) MOD 256 Infinite
- CHOICE mode - Uplink DPCH power control info - UL Target SIR - CHOICE UL OL PC info - CHOICE TDD option - TPC step size - Primary CCPCH Tx Power - CHOICE mode - Uplink Timing Advance Control - UL CCTrCH List - TFCS ID - Time info - Activation time - Duration - Common timeslot info - 2 nd interleaving mode	Reference to TS34.108 Individually signalled 1.28 Mcps TDD 1 Reference to TS34.108 TDD Not Present 1 (256+CFN-(CFN MOD 8 + 8) MOD 256 Infinite Reference to TS34.108 clause 6 Parameter Set .
- CHOICE mode - Uplink DPCH power control info - UL Target SIR - CHOICE UL OL PC info - CHOICE TDD option - TPC step size - Primary CCPCH Tx Power - CHOICE mode - Uplink Timing Advance Control - UL CCTrCH List - TFCS ID - Time info - Activation time - Duration - Common timeslot info - 2 nd interleaving mode - TFCI coding	Reference to TS34.108 Individually signalled 1.28 Mcps TDD 1 Reference to TS34.108 TDD Not Present 1 (256+CFN-(CFN MOD 8 + 8) MOD 256 Infinite Reference to TS34.108 clause 6 Parameter Set . Reference to TS34.108 clause 6 Parameter Set .
- CHOICE mode - Uplink DPCH power control info - UL Target SIR - CHOICE UL OL PC info - CHOICE TDD option - TPC step size - Primary CCPCH Tx Power - CHOICE mode - Uplink Timing Advance Control - UL CCTrCH List - TFCS ID - Time info - Activation time - Duration - Common timeslot info - 2 nd interleaving mode - TFCI coding - Puncturing Limit	Reference to TS34.108 Individually signalled 1.28 Mcps TDD 1 Reference to TS34.108 TDD Not Present 1 (256+CFN-(CFN MOD 8 + 8) MOD 256 Infinite Reference to TS34.108 clause 6 Parameter Set . Reference to TS34.108 clause 6 Parameter Set. Reference to TS34.108 clause 6 Parameter Set. Reference to TS34.108 clause 6 Parameter Set.
- CHOICE mode - Uplink DPCH power control info - UL Target SIR - CHOICE UL OL PC info - CHOICE TDD option - TPC step size - Primary CCPCH Tx Power - CHOICE mode - Uplink Timing Advance Control - UL CCTrCH List - TFCS ID - Time info - Activation time - Duration - Common timeslot info - 2 nd interleaving mode - TFCI coding - Puncturing Limit - Repetition Period	Reference to TS34.108 Individually signalled 1.28 Mcps TDD 1 Reference to TS34.108 TDD Not Present 1 (256+CFN-(CFN MOD 8 + 8) MOD 256 Infinite Reference to TS34.108 clause 6 Parameter Set . Reference to TS34.108 clause 6 Parameter Set. Reference to TS34.108 clause 6 Parameter Set. Reference to TS34.108 clause 6 Parameter Set. Reference to TS34.108 clause 6 Parameter Set. Reference to TS34.108 clause 6 Parameter Set.
- CHOICE mode - Uplink DPCH power control info - UL Target SIR - CHOICE UL OL PC info - CHOICE TDD option - TPC step size - Primary CCPCH Tx Power - CHOICE mode - Uplink Timing Advance Control - UL CCTrCH List - TFCS ID - Time info - Activation time - Duration - Common timeslot info - 2 nd interleaving mode - TFCI coding - Puncturing Limit - Repetition Period - Repetition Length	Reference to TS34.108 Individually signalled 1.28 Mcps TDD 1 Reference to TS34.108 TDD Not Present 1 (256+CFN-(CFN MOD 8 + 8) MOD 256 Infinite Reference to TS34.108 clause 6 Parameter Set . Reference to TS34.108 clause 6 Parameter Set. Reference to TS34.108 clause 6 Parameter Set. Reference to TS34.108 clause 6 Parameter Set.
- CHOICE mode - Uplink DPCH power control info - UL Target SIR - CHOICE UL OL PC info - CHOICE TDD option - TPC step size - Primary CCPCH Tx Power - CHOICE mode - Uplink Timing Advance Control - UL CCTrCH List - TFCS ID - Time info - Activation time - Duration - Common timeslot info - 2 nd interleaving mode - TFCI coding - Puncturing Limit - Repetition Period - Repetition Length - Uplink DPCH timeslots and codes	Reference to TS34.108 Individually signalled 1.28 Mcps TDD 1 Reference to TS34.108 TDD Not Present 1 (256+CFN-(CFN MOD 8 + 8) MOD 256 Infinite Reference to TS34.108 clause 6 Parameter Set . Reference to TS34.108 clause 6 Parameter Set. Reference to TS34.108 clause 6 Parameter Set. Reference to TS34.108 clause 6 Parameter Set. Reference to TS34.108 clause 6 Parameter Set. Reference to TS34.108 clause 6 Parameter Set.
- CHOICE mode - Uplink DPCH power control info - UL Target SIR - CHOICE UL OL PC info - CHOICE TDD option - TPC step size - Primary CCPCH Tx Power - CHOICE mode - Uplink Timing Advance Control - UL CCTrCH List - TFCS ID - Time info - Activation time - Duration - Common timeslot info - 2 nd interleaving mode - TFCI coding - Puncturing Limit - Repetition Period - Repetition Length - Uplink DPCH timeslots and codes - First timeslot information	Reference to TS34.108 Individually signalled 1.28 Mcps TDD 1 Reference to TS34.108 TDD Not Present 1 (256+CFN-(CFN MOD 8 + 8) MOD 256 Infinite Reference to TS34.108 clause 6 Parameter Set . Reference to TS34.108 clause 6 Parameter Set. Reference to TS34.108 clause 6 Parameter Set. Reference to TS34.108 clause 6 Parameter Set. Reference to TS34.108 clause 6 Parameter Set. Reference to TS34.108 clause 6 Parameter Set. Reference to TS34.108 clause 6 Parameter Set. Reference to TS34.108 clause 6 Parameter Set.
- CHOICE mode - Uplink DPCH power control info - UL Target SIR - CHOICE UL OL PC info - CHOICE TDD option - TPC step size - Primary CCPCH Tx Power - CHOICE mode - Uplink Timing Advance Control - UL CCTrCH List - TFCS ID - Time info - Activation time - Duration - Common timeslot info - 2 nd interleaving mode - TFCI coding - Puncturing Limit - Repetition Period - Repetition Length - Uplink DPCH timeslots and codes - First timeslot information - CHOICE TDD option	Reference to TS34.108 Individually signalled 1.28 Mcps TDD 1 Reference to TS34.108 TDD Not Present 1 (256+CFN-(CFN MOD 8 + 8) MOD 256 Infinite Reference to TS34.108 clause 6 Parameter Set . Reference to TS34.108 clause 6 Parameter Set. Reference to TS34.108 clause 6 Parameter Set. Reference to TS34.108 clause 6 Parameter Set. Reference to TS34.108 clause 6 Parameter Set. Reference to TS34.108 clause 6 Parameter Set. Reference to TS34.108 clause 6 Parameter Set. Reference to TS34.108 clause 6 Parameter Set.
- CHOICE mode - Uplink DPCH power control info - UL Target SIR - CHOICE UL OL PC info - CHOICE TDD option - TPC step size - Primary CCPCH Tx Power - CHOICE mode - Uplink Timing Advance Control - UL CCTrCH List - TFCS ID - Time info - Activation time - Duration - Common timeslot info - 2 nd interleaving mode - TFCI coding - Puncturing Limit - Repetition Period - Repetition Length - Uplink DPCH timeslots and codes - First timeslot information	Reference to TS34.108 Individually signalled 1.28 Mcps TDD 1 Reference to TS34.108 TDD Not Present 1 (256+CFN-(CFN MOD 8 + 8) MOD 256 Infinite Reference to TS34.108 clause 6 Parameter Set . Reference to TS34.108 clause 6 Parameter Set. Reference to TS34.108 clause 6 Parameter Set. Reference to TS34.108 clause 6 Parameter Set. Reference to TS34.108 clause 6 Parameter Set. Reference to TS34.108 clause 6 Parameter Set. Reference to TS34.108 clause 6 Parameter Set. Reference to TS34.108 clause 6 Parameter Set. Reference to TS34.108 clause 6 Parameter Set. The number of an uplink timeslot that has unassigned
- CHOICE mode - Uplink DPCH power control info - UL Target SIR - CHOICE UL OL PC info - CHOICE TDD option - TPC step size - Primary CCPCH Tx Power - CHOICE mode - Uplink Timing Advance Control - UL CCTrCH List - TFCS ID - Time info - Activation time - Duration - Common timeslot info - 2 nd interleaving mode - TFCI coding - Puncturing Limit - Repetition Period - Repetition Length - Uplink DPCH timeslots and codes - First timeslot information - CHOICE TDD option - Timeslot number	Reference to TS34.108 Individually signalled 1.28 Mcps TDD 1 Reference to TS34.108 TDD Not Present 1 (256+CFN-(CFN MOD 8 + 8) MOD 256 Infinite Reference to TS34.108 clause 6 Parameter Set . Reference to TS34.108 clause 6 Parameter Set. Reference to TS34.108 clause 6 Parameter Set. Reference to TS34.108 clause 6 Parameter Set. Reference to TS34.108 clause 6 Parameter Set. Reference to TS34.108 clause 6 Parameter Set. Reference to TS34.108 clause 6 Parameter Set. Reference to TS34.108 clause 6 Parameter Set. Reference to TS34.108 clause 6 Parameter Set. The number of an uplink timeslot that has unassigned codes.
- CHOICE mode - Uplink DPCH power control info - UL Target SIR - CHOICE UL OL PC info - CHOICE TDD option - TPC step size - Primary CCPCH Tx Power - CHOICE mode - Uplink Timing Advance Control - UL CCTrCH List - TFCS ID - Time info - Activation time - Duration - Common timeslot info - 2 nd interleaving mode - TFCI coding - Puncturing Limit - Repetition Period - Repetition Length - Uplink DPCH timeslots and codes - First timeslot information - CHOICE TDD option - Timeslot number	Reference to TS34.108 Individually signalled 1.28 Mcps TDD 1 Reference to TS34.108 TDD Not Present 1 (256+CFN-(CFN MOD 8 + 8) MOD 256 Infinite Reference to TS34.108 clause 6 Parameter Set . Reference to TS34.108 clause 6 Parameter Set. Reference to TS34.108 clause 6 Parameter Set. Reference to TS34.108 clause 6 Parameter Set. Reference to TS34.108 clause 6 Parameter Set. Reference to TS34.108 clause 6 Parameter Set. Reference to TS34.108 clause 6 Parameter Set. Reference to TS34.108 clause 6 Parameter Set. Reference to TS34.108 clause 6 Parameter Set. The number of an uplink timeslot that has unassigned
- CHOICE mode - Uplink DPCH power control info - UL Target SIR - CHOICE UL OL PC info - CHOICE TDD option - TPC step size - Primary CCPCH Tx Power - CHOICE mode - Uplink Timing Advance Control - UL CCTrCH List - TFCS ID - Time info - Activation time - Duration - Common timeslot info - 2 nd interleaving mode - TFCI coding - Puncturing Limit - Repetition Period - Repetition Length - Uplink DPCH timeslots and codes - First timeslot information - CHOICE TDD option - Timeslot number - TFCI existence - Midamble shift and burst type	Reference to TS34.108 Individually signalled 1.28 Mcps TDD 1 Reference to TS34.108 TDD Not Present 1 (256+CFN-(CFN MOD 8 + 8) MOD 256 Infinite Reference to TS34.108 clause 6 Parameter Set . Reference to TS34.108 clause 6 Parameter Set. Reference to TS34.108 clause 6 Parameter Set. Reference to TS34.108 clause 6 Parameter Set. Reference to TS34.108 clause 6 Parameter Set. Reference to TS34.108 clause 6 Parameter Set. Reference to TS34.108 clause 6 Parameter Set. Reference to TS34.108 clause 6 Parameter Set. Reference to TS34.108 clause 6 Parameter Set. TRUE
- CHOICE mode - Uplink DPCH power control info - UL Target SIR - CHOICE UL OL PC info - CHOICE TDD option - TPC step size - Primary CCPCH Tx Power - CHOICE mode - Uplink Timing Advance Control - UL CCTrCH List - TFCS ID - Time info - Activation time - Duration - Common timeslot info - 2 nd interleaving mode - TFCI coding - Puncturing Limit - Repetition Period - Repetition Length - Uplink DPCH timeslots and codes - First timeslot information - CHOICE TDD option - TFCI existence - Midamble shift and burst type - CHOICE TDD option	Reference to TS34.108 Individually signalled 1.28 Mcps TDD 1 Reference to TS34.108 TDD Not Present 1 (256+CFN-(CFN MOD 8 + 8) MOD 256 Infinite Reference to TS34.108 clause 6 Parameter Set . Reference to TS34.108 clause 6 Parameter Set. Reference to TS34.108 clause 6 Parameter Set. Reference to TS34.108 clause 6 Parameter Set. Reference to TS34.108 clause 6 Parameter Set. Reference to TS34.108 clause 6 Parameter Set. Reference to TS34.108 clause 6 Parameter Set. Reference to TS34.108 clause 6 Parameter Set. Reference to TS34.108 clause 6 Parameter Set. TRUE 1.28 Mcps The number of an uplink timeslot that has unassigned codes. TRUE
- CHOICE mode - Uplink DPCH power control info - UL Target SIR - CHOICE UL OL PC info - CHOICE TDD option - TPC step size - Primary CCPCH Tx Power - CHOICE mode - Uplink Timing Advance Control - UL CCTrCH List - TFCS ID - Time info - Activation time - Duration - Common timeslot info - 2 nd interleaving mode - TFCI coding - Puncturing Limit - Repetition Period - Repetition Length - Uplink DPCH timeslots and codes - First timeslot information - CHOICE TDD option - Timeslot number - TFCI existence - Midamble shift and burst type - CHOICE TDD option - Midamble Allocation Mode	Reference to TS34.108 Individually signalled 1.28 Mcps TDD 1 Reference to TS34.108 TDD Not Present 1 (256+CFN-(CFN MOD 8 + 8) MOD 256 Infinite Reference to TS34.108 clause 6 Parameter Set . Reference to TS34.108 clause 6 Parameter Set. Reference to TS34.108 clause 6 Parameter Set. Reference to TS34.108 clause 6 Parameter Set. Reference to TS34.108 clause 6 Parameter Set. Reference to TS34.108 clause 6 Parameter Set. Reference to TS34.108 clause 6 Parameter Set. Reference to TS34.108 clause 6 Parameter Set. Reference to TS34.108 clause 6 Parameter Set. 1.28 Mcps The number of an uplink timeslot that has unassigned codes. TRUE 1.28 Mcps Default
- CHOICE mode - Uplink DPCH power control info - UL Target SIR - CHOICE UL OL PC info - CHOICE TDD option - TPC step size - Primary CCPCH Tx Power - CHOICE mode - Uplink Timing Advance Control - UL CCTrCH List - TFCS ID - Time info - Activation time - Duration - Common timeslot info - 2 nd interleaving mode - TFCI coding - Puncturing Limit - Repetition Period - Repetition Length - Uplink DPCH timeslots and codes - First timeslot information - CHOICE TDD option - TFCI existence - Midamble shift and burst type - CHOICE TDD option	Reference to TS34.108 Individually signalled 1.28 Mcps TDD 1 Reference to TS34.108 TDD Not Present 1 (256+CFN-(CFN MOD 8 + 8) MOD 256 Infinite Reference to TS34.108 clause 6 Parameter Set . Reference to TS34.108 clause 6 Parameter Set. Reference to TS34.108 clause 6 Parameter Set. Reference to TS34.108 clause 6 Parameter Set. Reference to TS34.108 clause 6 Parameter Set. Reference to TS34.108 clause 6 Parameter Set. Reference to TS34.108 clause 6 Parameter Set. Reference to TS34.108 clause 6 Parameter Set. Reference to TS34.108 clause 6 Parameter Set. TRUE 1.28 Mcps The number of an uplink timeslot that has unassigned codes. TRUE

- Modulation	QPSK
- SS-TPC Symbols	1
- First timeslot code list	Repeated (1,2) for each channelisation code that is
That timedat adda not	assigned in the timeslot.
- Channelisation Code	(i/SF) where i denotes an unassigned code and SF is
CHAINTONGAROTT GGGG	specified in TS34.108 clause 6 Parameter Set.
- CHOICE more timeslots	The presence of this IE depends on number of resources
STORE MORE AMORAGO	specified in TS34.108 section 6 and whether they are
	assigned in more than one timeslot.
CHOICE Mode	TDD
Downlink information common for all radio links	100
- Downlink DPCH info common for all RL	
- Timing indicator	Maintain
- CFN-targetSFN frame offset	Not Present
- Downlink DPCH power control information	NOT TOSOIL
-CHOICE mode	TDD
-TPC Step Size	1
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps
- TSTD indicator	TRUE
- Default DPCH Offset Value	0
Downlink information for each radio link list	<u> </u>
- Downlink information for each radio links	
- CHOICE mode	TDD
- Primary CCPCH info	100
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps
- TSTD indicator	TRUE
- Cell parameters ID	0
- Block STTD indicator	FALSE
- Downlink DPCH info for each RL	177202
- CHOICE mode	TDD
- DL CCTrCH List	100
- TFCS ID	1
- Activation time	(256+CFN-(CFN MOD 8 + 8))MOD 256
- Duration	Infinite
- Common timeslot info	minute.
- 2 nd Interleaving mode	Reference to TS34.108 clause 6 Parameter Set
-TFCI coding	Reference to TS34.108 clause 6 Parameter Set
- Puncturing limit	Reference to TS34.108 clause 6 Parameter Set
- Repetition period	1
- Repetition length	Ėmpty
- Downlink DPCH timeslots and codes	
- Individual timeslot info	
- Timeslot number	The number of a downlink timeslot that has unassigned
THIOGICE HAMBOI	codes.
- TFCI existence	TRUE
- Midamble shift and burst type	
- CHOICE TDD option	1.28 Mcps
- Midamble allocation mode	Default
- Midamble configuration	16
- CHOICE TDD option	1.28 Mcps TDD
- Modulation	QPSK
- SS-TPC Symbols	$\frac{1}{1}$
- First timeslot channelisation codes	-
- First channelisation code	(i/SF) where i is the lowest numbered unused code that is
	assigned in the timeslot and SF is specified in TS34.108
	Parameter Set.
- Last channelisation code	(j/SF) where j is the highest numbered code that is
	assigned in the timeslot.
B**	Bitmap of codes assigned in the slot.
- Bitmap	
- Bitmap - CHOICE more timeslots	The presence of this IE depends upon whether the
- Bitmap - CHOICE more timeslots	The presence of this E depends upon whether the resources specified in the TS34.108 clause 6 Parameter
	The presence of this IE depends upon whether the resources specified in the TS34.108 clause 6 Parameter Set require the use of more than one timeslot.

Contents of RADIO BEARER RELEASE message: AM or UM (Speech in CS)

Information Element		Value/remark
Message Type		varaonemark
RRC transaction identifier		Arbitrarily selects an integer between 0 and 3
Integrity check info		The presence of this IE is dependent on IXIT
		statements in TS 34.123-2. If integrity
		protection is indicated to be active, this IE is
		present with the values of the sub IEs as
		stated below. Else, this IE and the sub-IEs are omitted.
- message authentication code		SS calculates the value of MAC-I for this
moodage admonitoration odde		message and writes to this IE.
- RRC message sequence number		SS provides the value of this IE, from its
		internal counter.
Integrity protection mode info		Not Present
Ciphering mode info		Not Present
Activation time		(256+CFN-(CFN MOD 8 + 8))MOD 256
New U-RNTI New C-RNTI		Not Present Not Present
RRC State indicator	A2, A3, A4	CELL DCH
RRC State indicator	A5, A6	CELL FACH
UTRAN DRX cycle length coefficient		Not Present
CN information info		Not Present
Signalling Connection release indication		Not Present
URA identity		Not Present
RAB information to reconfigure list		Not Present
RB information to release - RB identity	<u>A2</u>	10
RB information to release	A2	10
- RB identity	<u> </u>	11
RB information to release	<u>A2</u>	
- RB identity		<u>12</u>
RB information to release	A3, A4, A5,	
DD identity	<u>A6</u>	20
- RB identity RB information to release	A4	<u>20</u>
- RB identity	144	<u>6</u>
RB information to release	<u>A4</u>	_
- RB identity		<u>7</u>
RB information to be affected	A2, A3, A4	(UM DCCH for RRC)
- RB identity		<u>1</u>
- RB mapping info - Information for each multiplexing option		
- RLC logical channel mapping indicator		Not Present
- Number of uplink RLC logical channels		1
- Uplink transport channel type		DCH
- UL Transport channel identity		
 Logical channel identity 		1
- CHOICE RLC size list		<u>5</u>
- MAC logical channel priority		<u>1</u>
- Downlink RLC logical channel info - Number of downlink RLC logical channels		1
- Downlink transport channel type		1 DCH
- DL DCH Transport channel identity		1 <u>0</u>
- Logical channel identity		$\frac{1}{1}$
RB information to be affected	A2, A3, A4	(AM DCCH for RRC)
- RB identity		2
- RB mapping info		
- Information for each multiplexing option - RLC logical channel mapping indicator		Not Present
- Number of uplink RLC logical channels		1
- Uplink transport channel type		DCH
 UL Transport channel identity 		
- Logical channel identity		<u>2</u>
- CHOICE RLC size list		5 2 <u>All</u> 2
- MAC logical channel priority		<u>2</u>
- Downlink RLC logical channel info		

- Number of downlink RLC logical channels		1
- Downlink transport channel type		<u>DCH</u>
- DL DCH Transport channel identity		
- Logical channel identity		$\left \begin{array}{c} \frac{10}{2} \end{array} \right $
RB information to be affected	A2, A3, A4	(AM DCCH for NAS_DT High priority)
- RB identity	<u>AZ, AJ, A4</u>	
		3
- RB mapping info		
 Information for each multiplexing option 		
 RLC logical channel mapping indicator 		Not Present
 Number of uplink RLC logical channels 		<u>1</u>
 Uplink transport channel type 		<u>DCH</u>
- UL Transport channel identity		5
- Logical channel identity		$\overline{3}$
- CHOICE RLC size list		All
- MAC logical channel priority		5 3 All 3
- Downlink RLC logical channel info		-
- Number of downlink RLC logical channels		1
- Downlink transport channel type		1 DCH
- DL DCH Transport channel identity		10
- Logical channel identity	1.0	3
RB information to be affected	A2, A3, A4	(AM DCCH for NAS_DT Low priority)
- RB identity		4
- RB mapping info		
 Information for each multiplexing option 		
 RLC logical channel mapping indicator 		Not Present
- Number of uplink RLC logical channels		1
- Uplink transport channel type		<u>DCH</u>
- UL Transport channel identity		
- Logical channel identity		$\frac{\sigma}{\Lambda}$
- CHOICE RLC size list		<u>5</u> <u>4</u> <u>All</u> <u>4</u>
- MAC logical channel priority		 <u>A</u> <u>A</u>
		<u> </u>
- Downlink RLC logical channel info		
- Number of downlink RLC logical channels		$\frac{1}{5}$
- Downlink transport channel type		<u>DCH</u>
- DL DCH Transport channel identity		<u>10</u>
ll _ l ogical channel identity		
 Logical channel identity 		<u>4</u>
RB information to be affected	A5, A6	
	<u>A5, A6</u>	<u>4</u>
RB information to be affected	A5, A6	4 (UM DCCH for RRC)
RB information to be affected - RB identity - RB mapping info	<u>A5, A6</u>	4 (UM DCCH for RRC)
RB information to be affected - RB identity - RB mapping info - Information for each multiplexing option	<u>A5, A6</u>	4 (UM DCCH for RRC) 1
RB information to be affected - RB identity - RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator	<u>A5, A6</u>	4 (UM DCCH for RRC) 1 Not Present
RB information to be affected - RB identity - RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels	A5, A6	4 (UM DCCH for RRC) 1 Not Present 1
RB information to be affected - RB identity - RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type	A5, A6	4 (UM DCCH for RRC) 1 Not Present 1 RACH
RB information to be affected - RB identity - RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type - Logical channel identity	A5, A6	4 (UM DCCH for RRC) 1 Not Present 1 RACH 1
RB information to be affected - RB identity - RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type - Logical channel identity - CHOICE RLC size list	A5, A6	4 (UM DCCH for RRC) 1 Not Present 1 RACH 1 Explicit list
RB information to be affected - RB identity - RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type - Logical channel identity	A5, A6	4 (UM DCCH for RRC) 1
RB information to be affected - RB identity - RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type - Logical channel identity - CHOICE RLC size list - RLC size index	A5, A6	4 (UM DCCH for RRC) 1
RB information to be affected - RB identity - RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type - Logical channel identity - CHOICE RLC size list - RLC size index - MAC logical channel priority	A5, A6	4 (UM DCCH for RRC) 1
RB information to be affected - RB identity - RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type - Logical channel identity - CHOICE RLC size list - RLC size index - MAC logical channel priority - Downlink RLC logical channel info	A5, A6	4 (UM DCCH for RRC) 1
RB information to be affected - RB identity - RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type - Logical channel identity - CHOICE RLC size list - RLC size index - MAC logical channel priority - Downlink RLC logical channel info - Number of downlink RLC logical channels	A5, A6	4 (UM DCCH for RRC) 1
RB information to be affected - RB identity - RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type - Logical channel identity - CHOICE RLC size list - RLC size index - MAC logical channel priority - Downlink RLC logical channel info - Number of downlink RLC logical channels - Downlink transport channel type	A5, A6	4 (UM DCCH for RRC) 1
RB information to be affected - RB identity - RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type - Logical channel identity - CHOICE RLC size list - RLC size index - MAC logical channel priority - Downlink RLC logical channel info - Number of downlink RLC logical channels	A5, A6	4 (UM DCCH for RRC) 1
RB information to be affected - RB identity - RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type - Logical channel identity - CHOICE RLC size list - RLC size index - MAC logical channel priority - Downlink RLC logical channel info - Number of downlink RLC logical channels - Downlink transport channel type	A5, A6	4 (UM DCCH for RRC) 1
RB information to be affected - RB identity - RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type - Logical channel identity - CHOICE RLC size list - RLC size index - MAC logical channel priority - Downlink RLC logical channel info - Number of downlink RLC logical channels - Downlink transport channel type - Logical channel identity RB information to be affected		4 (UM DCCH for RRC) 1
RB information to be affected - RB identity - RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type - Logical channel identity - CHOICE RLC size list - RLC size index - MAC logical channel priority - Downlink RLC logical channel info - Number of downlink RLC logical channels - Downlink transport channel type - Logical channel identity RB information to be affected - RB identity		4 (UM DCCH for RRC) 1
RB information to be affected - RB identity - RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type - Logical channel identity - CHOICE RLC size list - RLC size index - MAC logical channel priority - Downlink RLC logical channel info - Number of downlink RLC logical channels - Downlink transport channel type - Logical channel identity RB information to be affected - RB identity - RB mapping info		4 (UM DCCH for RRC) 1
RB information to be affected - RB identity - RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type - Logical channel identity - CHOICE RLC size list - RLC size index - MAC logical channel priority - Downlink RLC logical channel info - Number of downlink RLC logical channels - Downlink transport channel type - Logical channel identity RB information to be affected - RB identity - RB mapping info - Information for each multiplexing option		4 (UM DCCH for RRC) 1
RB information to be affected - RB identity - RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type - Logical channel identity - CHOICE RLC size list - RLC size index - MAC logical channel priority - Downlink RLC logical channel info - Number of downlink RLC logical channels - Downlink transport channel type - Logical channel identity RB information to be affected - RB identity - RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator		4 (UM DCCH for RRC) 1
RB information to be affected - RB identity - RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type - Logical channel identity - CHOICE RLC size list - RLC size index - MAC logical channel priority - Downlink RLC logical channel info - Number of downlink RLC logical channels - Downlink transport channel type - Logical channel identity RB information to be affected - RB identity - RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels		4 (UM DCCH for RRC) 1
RB information to be affected - RB identity - RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type - Logical channel identity - CHOICE RLC size list - RLC size index - MAC logical channel priority - Downlink RLC logical channel info - Number of downlink RLC logical channels - Downlink transport channel type - Logical channel identity RB information to be affected - RB identity - RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type		4 (UM DCCH for RRC) 1 Not Present 1 RACH 1 Explicit list Reference to TS34.108 clause 6 Parameter Set 2 1 FACH 1 (AM DCCH for RRC) 2 Not Present 1 RACH
RB information to be affected - RB identity - RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type - Logical channel identity - CHOICE RLC size list - RLC size index - MAC logical channel priority - Downlink RLC logical channel info - Number of downlink RLC logical channels - Downlink transport channel type - Logical channel identity RB information to be affected - RB identity - RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type - Logical channels		4 (UM DCCH for RRC) 1
RB information to be affected - RB identity - RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type - Logical channel identity - CHOICE RLC size list - RLC size index - MAC logical channel priority - Downlink RLC logical channel info - Number of downlink RLC logical channels - Downlink transport channel type - Logical channel identity RB information to be affected - RB identity - RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type - Logical channel identity - CHOICE RLC size list		4 (UM DCCH for RRC) 1 Not Present 1 RACH 1 Explicit list Reference to TS34.108 clause 6 Parameter Set 2 1 FACH 1 (AM DCCH for RRC) 2 Not Present 1 RACH 2 Explicit list 2 Explicit list
RB information to be affected - RB identity - RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type - Logical channel identity - CHOICE RLC size list - RLC size index - MAC logical channel priority - Downlink RLC logical channel info - Number of downlink RLC logical channels - Downlink transport channel type - Logical channel identity RB information to be affected - RB identity - RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type - Logical channels		4 (UM DCCH for RRC) 1
RB information to be affected - RB identity - RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type - Logical channel identity - CHOICE RLC size list - RLC size index - MAC logical channel priority - Downlink RLC logical channel info - Number of downlink RLC logical channels - Downlink transport channel type - Logical channel identity RB information to be affected - RB identity - RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type - Logical channel identity - CHOICE RLC size list - RLC size index		4 (UM DCCH for RRC) 1
RB information to be affected - RB identity - RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type - Logical channel identity - CHOICE RLC size list - RLC size index - MAC logical channel priority - Downlink RLC logical channel info - Number of downlink RLC logical channels - Downlink transport channel type - Logical channel identity RB information to be affected - RB identity - RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type - Logical channel identity - CHOICE RLC size list - RLC size index - MAC logical channel priority		4 (UM DCCH for RRC) 1
RB information to be affected - RB identity - RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type - Logical channel identity - CHOICE RLC size list - RLC size index - MAC logical channel priority - Downlink RLC logical channel info - Number of downlink RLC logical channels - Downlink transport channel type - Logical channel identity RB information to be affected - RB identity - RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type - Logical channel identity - CHOICE RLC size list - RLC size index - MAC logical channel priority - Downlink RLC logical channel info		4 (UM DCCH for RRC) 1
RB information to be affected - RB identity - RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type - Logical channel identity - CHOICE RLC size list - RLC size index - MAC logical channel priority - Downlink RLC logical channel info - Number of downlink RLC logical channels - Downlink transport channel type - Logical channel identity RB information to be affected - RB identity - RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type - Logical channel identity - CHOICE RLC size list - RLC size index - MAC logical channel priority - Downlink RLC logical channel info - Number of downlink RLC logical channels		4 (UM DCCH for RRC) 1
RB information to be affected - RB identity - RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type - Logical channel identity - CHOICE RLC size list - RLC size index - MAC logical channel priority - Downlink RLC logical channel info - Number of downlink RLC logical channels - Downlink transport channel type - Logical channel identity RB information to be affected - RB identity - RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type - Logical channel identity - CHOICE RLC size list - RLC size index - MAC logical channel priority - Downlink RLC logical channel info		4 (UM DCCH for RRC) 1
RB information to be affected - RB identity - RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type - Logical channel identity - CHOICE RLC size list - RLC size index - MAC logical channel priority - Downlink RLC logical channel info - Number of downlink RLC logical channels - Downlink transport channel type - Logical channel identity RB information to be affected - RB identity - RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type - Logical channel identity - CHOICE RLC size list - RLC size index - MAC logical channel priority - Downlink RLC logical channel info - Number of downlink RLC logical channels		4 (UM DCCH for RRC) 1

RB information to be affected	A5, A6	(AM DCCH for NAS_DT High priority)
- RB identity	·, , , , , ,	3
- RB mapping info		<u> =</u>
- Information for each multiplexing option		
 RLC logical channel mapping indicator 		Not Present
 Number of uplink RLC logical channels 		<u>1</u>
 Uplink transport channel type 		RACH
- Logical channel identity		3
- CHOICE RLC size list		Explicit list
- RLC size index		Reference to TS34.108 clause 6 Parameter
- INLO SIZE IIIUEX		
		<u>Set</u>
- MAC logical channel priority		<u>4</u>
 Downlink RLC logical channel info 		
 Number of downlink RLC logical channels 		1 1
- Downlink transport channel type		FACH
- Logical channel identity		3
	ΛΕ ΛC	(AM DCCH for NAS DT Low priority)
RB information to be affected	<u>A5, A6</u>	1 7
- RB identity		<u>4</u>
- RB mapping info		
 Information for each multiplexing option 		
- RLC logical channel mapping indicator		Not Present
- Number of uplink RLC logical channels		1
- Uplink transport channel type		RACH
		10011
- Logical channel identity		4
- CHOICE RLC size list		Explicit list
- RLC size index		Reference to TS34.108 clause 6 Parameter
		<u>Set</u>
- MAC logical channel priority		<u></u>
- Downlink RLC logical channel info		<u>×</u>
		4
- Number of downlink RLC logical channels		1
 Downlink transport channel type 		<u>FACH</u>
 DL Transport channel identity 		<u>1</u>
 Logical channel identity 		<u>4</u>
RB information to be affected	A5, A6	(TM BCCH for RRC)
- RB identity	110,110	<u>6</u>
- RB mapping info		<u> </u>
- Information for each multiplexing option		
 Downlink RLC logical channel info 		
 Number of downlink RLC logical channels 		<u>1</u>
 Downlink transport channel type 		FACH
- Logical channel identity		5
RB information to be affected	A5, A6	(TM PCCH for RRC)
	<u> </u>	
- RB identity		<u>7</u>
- RB mapping info		
 Information for each multiplexing option 		
- Downlink RLC logical channel info		
- Number of downlink RLC logical channels		1
- Downlink transport channel type		РСН
- Logical channel identity		1 1
	+	Not Droppet
Downlink counter synchronisation info	1	Not Present
UL Transport channel information for all transport	<u>A2, A4</u>	
<u>channels</u>		
- PRACH TFCS		Not Present
- CHOICE mode		TDD
- Individual UL CCTrCH information		
- TFCS ID		1
		1 1 5 1 CF
- Shared channel indicator		<u>FALSE</u>
- UL TFCS		
- CHOICE TFCI signalling		<u>Normal</u>
- TFCI Field 1 information		
- CHOICE TFCS representation		Addition
- TFCS addition information		
- CHOICE CTFC Size		Refer to TS34.108 clause 6
- CTFC information		Refer to TS34.108 clause 6 Parameter Set
- TFC subset		
- CHOICE Subset representation		Allowed transport format combination list
- Allowed Transport Format combination list		Refer to TS34.108 clause 6 Parameter Set
UL Transport channel information for all transport	A3	
	1	1

<u>channels</u>		
- PRACH TFCS		Not Present
- CHOICE mode		TDD
- Individual UL CCTrCH information		
- TFCS ID		1
- Shared channel indicator		FALSE
- UL TFCS		ITALOL
- CHOICE TFCI signalling		Normal
		<u>Normal</u>
- TFCI Field 1 information		
- CHOICE TFCS representation		Addition
- TFCS addition information		
- CHOICE CTFC Size		Refer to TS34.108 clause 6
- CTFC information		Refer to TS34.108 clause 6 Parameter Set
- TFC subset		
- CHOICE Subset representation		Allowed transport format combination list
- Allowed Transport Format combination list		Refer to TS34.108 clause 6 Parameter Set
UL Transport channel information for all transport	A5, A6	
channels	710,710	
- PRACH TFCS		N. I
- CHOICE TFCI signalling		<u>Normal</u>
- TFCI Field 1 information		
- CHOICE TFCS representation		Addition
- TFCS addition information		
- CHOICE CTFC Size		Refer to TS34.108 clause 6
- CTFC information		Refer to TS34.108 clause 6 Parameter Set
· · · · · · · · ·		·
- CHOICE mode		TDD
- Individual UL CCTrCH information		Not Present
Deleted UL TrCH Information	A2, A5	
 Uplink transport channel type 		<u>DCH</u>
- Transport channel identity		1
Deleted UL TrCH Information	A2	
- Uplink transport channel type		DCH
- Transport channel identity		2
	<u>A2</u>	<u> </u>
Deleted UL TrCH Information	I AZ	
		2011
- Uplink transport channel type	7.12	<u>DCH</u>
- Transport channel identity		DCH 3
	<u>A3</u>	
- Transport channel identity		3
- Transport channel identity Deleted UL TrCH Information - Uplink transport channel type		
- Transport channel identity Deleted UL TrCH Information - Uplink transport channel type - Transport channel identity	<u>A3</u>	3 DCH 6
- Transport channel identity Deleted UL TrCH Information - Uplink transport channel type		DCH 6 If TrCH reconfiguration is executed then this
- Transport channel identity Deleted UL TrCH Information - Uplink transport channel type - Transport channel identity	<u>A3</u>	DCH 6 If TrCH reconfiguration is executed then this is needed(e.g. The rate of SRB for DCCH is
- Transport channel identity Deleted UL TrCH Information - Uplink transport channel type - Transport channel identity Added or Reconfigured UL TrCH information	<u>A3</u>	DCH 6 If TrCH reconfiguration is executed then this is needed(e.g. The rate of SRB for DCCH is changed.).
- Transport channel identity Deleted UL TrCH Information - Uplink transport channel type - Transport channel identity Added or Reconfigured UL TrCH information - Uplink transport channel type	<u>A3</u>	DCH 6 If TrCH reconfiguration is executed then this is needed(e.g. The rate of SRB for DCCH is changed.). DCH
- Transport channel identity Deleted UL TrCH Information - Uplink transport channel type - Transport channel identity Added or Reconfigured UL TrCH information - Uplink transport channel type - UL Transport channel identity	<u>A3</u>	DCH 6 If TrCH reconfiguration is executed then this is needed(e.g. The rate of SRB for DCCH is changed.).
- Transport channel identity Deleted UL TrCH Information - Uplink transport channel type - Transport channel identity Added or Reconfigured UL TrCH information - Uplink transport channel type - UL Transport channel identity - TFS	<u>A3</u>	DCH 6 If TrCH reconfiguration is executed then this is needed(e.g. The rate of SRB for DCCH is changed.). DCH 5
- Transport channel identity Deleted UL TrCH Information - Uplink transport channel type - Transport channel identity Added or Reconfigured UL TrCH information - Uplink transport channel type - UL Transport channel identity - TFS - CHOICE Transport channel type	<u>A3</u>	DCH 6 If TrCH reconfiguration is executed then this is needed(e.g. The rate of SRB for DCCH is changed.). DCH 5 Dedicated transport channels
- Transport channel identity Deleted UL TrCH Information - Uplink transport channel type - Transport channel identity Added or Reconfigured UL TrCH information - Uplink transport channel type - UL Transport channel identity - TFS - CHOICE Transport channel type - Dynamic Transport format information	<u>A3</u>	DCH 6 If TrCH reconfiguration is executed then this is needed(e.g. The rate of SRB for DCCH is changed.). DCH 5 Dedicated transport channels (This IE is repeated for TFI number)
- Transport channel identity Deleted UL TrCH Information - Uplink transport channel type - Transport channel identity Added or Reconfigured UL TrCH information - Uplink transport channel type - UL Transport channel identity - TFS - CHOICE Transport channel type	<u>A3</u>	DCH 6 If TrCH reconfiguration is executed then this is needed(e.g. The rate of SRB for DCCH is changed.). DCH 5 Dedicated transport channels
- Transport channel identity Deleted UL TrCH Information - Uplink transport channel type - Transport channel identity Added or Reconfigured UL TrCH information - Uplink transport channel type - UL Transport channel identity - TFS - CHOICE Transport channel type - Dynamic Transport format information	<u>A3</u>	DCH 6 If TrCH reconfiguration is executed then this is needed(e.g. The rate of SRB for DCCH is changed.). DCH 5 Dedicated transport channels (This IE is repeated for TFI number)
- Transport channel identity Deleted UL TrCH Information - Uplink transport channel type - Transport channel identity Added or Reconfigured UL TrCH information - Uplink transport channel type - UL Transport channel identity - TFS - CHOICE Transport channel type - Dynamic Transport format information - RLC Size	<u>A3</u>	DCH 6 If TrCH reconfiguration is executed then this is needed(e.g. The rate of SRB for DCCH is changed.). DCH 5 Dedicated transport channels (This IE is repeated for TFI number) Reference to TS34.108 clause 6 Parameter Set
- Transport channel identity Deleted UL TrCH Information - Uplink transport channel type - Transport channel identity Added or Reconfigured UL TrCH information - Uplink transport channel type - UL Transport channel identity - TFS - CHOICE Transport channel type - Dynamic Transport format information - RLC Size - Number of TBs and TTI List	<u>A3</u>	DCH 6 If TrCH reconfiguration is executed then this is needed(e.g. The rate of SRB for DCCH is changed.). DCH 5 Dedicated transport channels (This IE is repeated for TFI number) Reference to TS34.108 clause 6 Parameter Set (This IE is repeated for TFI number.)
- Transport channel identity Deleted UL TrCH Information - Uplink transport channel type - Transport channel identity Added or Reconfigured UL TrCH information - Uplink transport channel type - UL Transport channel identity - TFS - CHOICE Transport channel type - Dynamic Transport format information - RLC Size - Number of TBs and TTI List - Transmission Time Interval	<u>A3</u>	DCH 6 If TrCH reconfiguration is executed then this is needed(e.g. The rate of SRB for DCCH is changed.). DCH 5 Dedicated transport channels (This IE is repeated for TFI number) Reference to TS34.108 clause 6 Parameter Set (This IE is repeated for TFI number.) Not Present
- Transport channel identity Deleted UL TrCH Information - Uplink transport channel type - Transport channel identity Added or Reconfigured UL TrCH information - Uplink transport channel type - UL Transport channel identity - TFS - CHOICE Transport channel type - Dynamic Transport format information - RLC Size - Number of TBs and TTI List	<u>A3</u>	DCH 6 If TrCH reconfiguration is executed then this is needed(e.g. The rate of SRB for DCCH is changed.). DCH 5 Dedicated transport channels (This IE is repeated for TFI number) Reference to TS34.108 clause 6 Parameter Set (This IE is repeated for TFI number.) Not Present Reference to TS34.108 clause 6 Parameter
- Transport channel identity Deleted UL TrCH Information - Uplink transport channel type - Transport channel identity Added or Reconfigured UL TrCH information - Uplink transport channel type - UL Transport channel identity - TFS - CHOICE Transport channel type - Dynamic Transport format information - RLC Size - Number of TBs and TTI List - Transmission Time Interval - Number of Transport blocks	<u>A3</u>	DCH 6 If TrCH reconfiguration is executed then this is needed(e.g. The rate of SRB for DCCH is changed.). DCH 5 Dedicated transport channels (This IE is repeated for TFI number) Reference to TS34.108 clause 6 Parameter Set (This IE is repeated for TFI number.) Not Present Reference to TS34.108 clause 6 Parameter Set
- Transport channel identity Deleted UL TrCH Information - Uplink transport channel type - Transport channel identity Added or Reconfigured UL TrCH information - Uplink transport channel type - UL Transport channel identity - TFS - CHOICE Transport channel type - Dynamic Transport format information - RLC Size - Number of TBs and TTI List - Transmission Time Interval - Number of Transport blocks - CHOICE Logical Channel list	<u>A3</u>	DCH 6 If TrCH reconfiguration is executed then this is needed(e.g. The rate of SRB for DCCH is changed.). DCH 5 Dedicated transport channels (This IE is repeated for TFI number) Reference to TS34.108 clause 6 Parameter Set (This IE is repeated for TFI number.) Not Present Reference to TS34.108 clause 6 Parameter
- Transport channel identity Deleted UL TrCH Information - Uplink transport channel type - Transport channel identity Added or Reconfigured UL TrCH information - Uplink transport channel type - UL Transport channel identity - TFS - CHOICE Transport channel type - Dynamic Transport format information - RLC Size - Number of TBs and TTI List - Transmission Time Interval - Number of Transport blocks - CHOICE Logical Channel list - Semi-static Transport Format information	<u>A3</u>	DCH 6 If TrCH reconfiguration is executed then this is needed(e.g. The rate of SRB for DCCH is changed.). DCH 5 Dedicated transport channels (This IE is repeated for TFI number) Reference to TS34.108 clause 6 Parameter Set (This IE is repeated for TFI number.) Not Present Reference to TS34.108 clause 6 Parameter Set ALL
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SCCPCH TFCS	1	Not Present
- CHOICE mode		
		TDD
- Individual DL CCTrCH information		
- DL TFCS Identity		
- TFCS ID		1
- Shared Channel Indicator		FALSE
- CHOICE DL parameters		Independent
		independent
- DL TFCS		
- CHOICE TFCI signalling		<u>Normal</u>
- TFCI Field 1 Information		
- CHOICE TFCI representation		Addition
- TFCS addition information		<u> </u>
		Defer to TC24 100 clause 6
- CHOICE CTFC size		Refer to TS34.108 clause 6
- CTFC information		Refer to TS34.108 clause 6 Parameter Set
DL Transport channel information common for all	A5, A6	
transport channel		
- SCCPCH TFCS		(This IE is repeated for TFC number.)
- CHOICE TFCI signalling		<u>Normal</u>
- TFCI Field 1 information		
0110105 7500		A LPC
 CHOICE TFCS representation 		Addition
 TFCS addition information 		
- CHOICE CTFC Size		Number of bits used must be enough to cover
35.52 511 5 5.25		all combinations of CTFC from clauses 6.
OTEO information		
- CTFC information		Refer to TS34.108 clause 6 Parameter Set
 Power offset information 		Not Present
- CHOICE mode		TDD
- Individual DL CCTrCH information		Not Present
Deleted DL TrCH Information	A2 A2 AE	<u>INOCT TOOCHE</u>
	A2, A3, A5	BOLL
 Downlink transport channel type 		<u>DCH</u>
- Transport channel identity		<u>6</u>
Deleted DL TrCH Information	A2	-
- Downlink transport channel type	<u> </u>	DCH
- Transport channel identity		
	_	<u>7</u>
Deleted DL TrCH Information	<u>A2</u>	_
Deleted DL TrCH Information	<u>A2</u>	_
Deleted DL TrCH Information - Downlink transport channel type	<u>A2</u>	<u>DCH</u>
Deleted DL TrCH Information - Downlink transport channel type - Transport channel identity		DCH <u>8</u>
<u>Deleted DL TrCH Information</u> - Downlink transport channel type	<u>A2</u> <u>A2, A3, A4</u>	DCH 8 If TrCH reconfiguration is executed then this
Deleted DL TrCH Information - Downlink transport channel type - Transport channel identity		DCH 8 If TrCH reconfiguration is executed then this is needed(e.g. The rate of SRB for DCCH is
Deleted DL TrCH Information - Downlink transport channel type - Transport channel identity		DCH 8 If TrCH reconfiguration is executed then this
Deleted DL TrCH Information - Downlink transport channel type - Transport channel identity Added or Reconfigured DL TrCH information		DCH 8 If TrCH reconfiguration is executed then this is needed(e.g. The rate of SRB for DCCH is changed.).
Deleted DL TrCH Information - Downlink transport channel type - Transport channel identity Added or Reconfigured DL TrCH information - Downlink transport channel type		DCH 8 If TrCH reconfiguration is executed then this is needed(e.g. The rate of SRB for DCCH is changed.). DCH
Deleted DL TrCH Information - Downlink transport channel type - Transport channel identity Added or Reconfigured DL TrCH information - Downlink transport channel type - DL Transport channel identity		DCH 8 If TrCH reconfiguration is executed then this is needed(e.g. The rate of SRB for DCCH is changed.). DCH 10
Deleted DL TrCH Information - Downlink transport channel type - Transport channel identity Added or Reconfigured DL TrCH information - Downlink transport channel type - DL Transport channel identity - CHOICE DL parameters		DCH 8 If TrCH reconfiguration is executed then this is needed(e.g. The rate of SRB for DCCH is changed.). DCH
Deleted DL TrCH Information - Downlink transport channel type - Transport channel identity Added or Reconfigured DL TrCH information - Downlink transport channel type - DL Transport channel identity - CHOICE DL parameters - TFS		B If TrCH reconfiguration is executed then this is needed(e.g. The rate of SRB for DCCH is changed.). DCH 10 Independent
Deleted DL TrCH Information - Downlink transport channel type - Transport channel identity Added or Reconfigured DL TrCH information - Downlink transport channel type - DL Transport channel identity - CHOICE DL parameters		DCH 8 If TrCH reconfiguration is executed then this is needed(e.g. The rate of SRB for DCCH is changed.). DCH 10
Deleted DL TrCH Information - Downlink transport channel type - Transport channel identity Added or Reconfigured DL TrCH information - Downlink transport channel type - DL Transport channel identity - CHOICE DL parameters - TFS - CHOICE Transport channel type		DCH 8 If TrCH reconfiguration is executed then this is needed(e.g. The rate of SRB for DCCH is changed.). DCH 10 Independent Dedicated transport channels
Deleted DL TrCH Information - Downlink transport channel type - Transport channel identity Added or Reconfigured DL TrCH information - Downlink transport channel type - DL Transport channel identity - CHOICE DL parameters - TFS - CHOICE Transport channel type - Dynamic Transport format information		DCH 8 If TrCH reconfiguration is executed then this is needed(e.g. The rate of SRB for DCCH is changed.). DCH 10 Independent Dedicated transport channels (This IE is repeated for TFI number)
Deleted DL TrCH Information - Downlink transport channel type - Transport channel identity Added or Reconfigured DL TrCH information - Downlink transport channel type - DL Transport channel identity - CHOICE DL parameters - TFS - CHOICE Transport channel type		DCH 8 If TrCH reconfiguration is executed then this is needed(e.g. The rate of SRB for DCCH is changed.). DCH 10 Independent Dedicated transport channels (This IE is repeated for TFI number) Reference to TS34.108 clause 6 Parameter
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Deleted DL TrCH Information - Downlink transport channel type - Transport channel identity Added or Reconfigured DL TrCH information - Downlink transport channel type - DL Transport channel identity - CHOICE DL parameters - TFS - CHOICE Transport channel type - Dynamic Transport format information - RLC Size - Number of TBs and TTI List		DCH 8 If TrCH reconfiguration is executed then this is needed(e.g. The rate of SRB for DCCH is changed.). DCH 10 Independent Dedicated transport channels (This IE is repeated for TFI number) Reference to TS34.108 clause 6 Parameter Set (This IE is repeated for TFI number.) Not Present Reference to TS34.108 clause 6 Parameter
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Frequency info		
- CHOICE mode		TDD
- UARFCN (Nt)		Reference to TS34.108 clause 6 Parameter
<u> </u>		Set
14 : " " 11 T)		
Maximum allowed UL TX power		<u>30dBm</u>
CHOICE channel requirement	A2, A2, A4	Uplink DPCH info
-Uplink DPCH power control info		
- CHOICE mode		TDD
- UL Target SIR		Reference to TS34.108
- CHOICE UL OL PC info		Individually signalled
- CHOICE TDD option		1.28 Mcps TDD
- TPC step size		<u>1</u>
- Primary CCPCH Tx Power		Reference to TS34.108
- CHOICE mode		TDD
- Uplink Timing Advance Control		Not Present
		Not Present
- UL CCTrCH List		
- TFCS ID		<u>1</u>
- Time info		
- Activation time		(256+CFN-(CFNmod 8 + 8))MOD256
- Duration		Infinite
		<u> </u>
- Common timeslot info		D / T0011100 1
- 2 nd interleaving mode		Reference to TS34.108 clause 6.
- TFCI coding		Reference to TS34.108 clause 6.
- Repetition Period		1
- Repetition Length		<u>Empty</u>
- Uplink DPCH timeslots and codes		
- First timeslot information		
- CHOICE TDD option		1.28 Mcps
- Timeslot number		The number of an uplink timeslot that has
		unassigned codes.
TECL evictories		TRUE
- TFCI existence		IRUE
 Midamble shift and burst type 		
- CHOICE TDD option		1.28 Mcps
- Midamble Allocation Mode		<u>Default</u>
- Midamble configuration		16
- CHOICE TDD option		1.28 Mcps
- Modulation		<u>QPSK</u>
- SS-TPC Symbols		<u>1</u>
 First timeslot code list 		Repeated (1,2) for each channelisation code
		that is assigned in the slot.
- Channelisation Code		(i/SF) where i denotes the code that is being
<u> </u>		
		assigned and SF is specified in TS34.108
		clause 6 Parameter Set.
- CHOICE more timeslots		The presence of this IE depends on the
		number of resources specified in TS34.108
		section 6 and whether they are assigned in
		more than one timeslot.
CHOICE Made		
CHOICE Mode	1	TDD
Downlink information common for all radio links	A2, A3, A4	
 Downlink DPCH info common for all RL 		
- Timing indicator		Maintain
- CFN-targetSFN frame offset		Not Present
		THE THEODILE
- Downlink DPCH power control information		TDD
-CHOICE mode		<u>TDD</u>
-TPC Step Size		1 1
- CHOICE mode		TDD
- CHOICE TDD option		1.28 Mcps
- TSTD indicator		TRUE
- Default DPCH Offset Value	1	Not Present
Downlink information for each radio link list	A2, A3, A4	
 Downlink information for each radio links 		
- CHOICE mode		<u>TDD</u>
- Primary CCPCH info		
		TDD
- CHOICE mode		TDD 4.00 Mars
- CHOICE TDD option		1.28 Mcps
- TSTD indicator		<u>TRUE</u>
- Cell parameters ID		0
- Block STTD indicator		FALSE
		1.7.EOE

 Downlink DPCH info for each RL 		
- CHOICE mode		TDD
- DL CCTrCH List		
- TFCS ID		1
- Activation time		(256+CFN-(CFN MOD 8 + 8))MOD 256
		-
- Duration		<u>Infinite</u>
- Common timeslot info		
- 2 nd Interleaving mode		Reference to TS34.108 clause 6
-TFCI coding		Reference to TS34.108 clause 6
- Puncturing limit		Reference to TS34.108 clause 6
- Repetition period		1
- Repetition length		<u>Empty</u>
		Limpty
- Downlink DPCH timeslots and codes		
- Individual timeslot info		
<u>Timeslot number</u>		The number of a downlink timeslot that has
		unassigned codes.
- TFCI existence		TRUE
- Midamble shift and burst type		
- CHOICE TDD option		1.28 Mcps
- Midamble allocation mode		Default
- Midamble configuration		<u>16</u>
- CHOICE TDD option		1.28 Mcps TDD
- Modulation		<u>QPSK</u>
- SS-TPC Symbols		1
- First timeslot channelisation codes		_
- First channelisation code		(i/SF) where i is the lowest numbered code
1 list Gharmensation code		assigned in the timeslot and SF is specified in
		TS34.108 clause 6 arameter Set.
 Last channelisation code 		(j/SF) where j is the highest numbered code
		assigned in the timeslot.
- Bitmap		Bitmap of the codes assigned in the timeslot.
- CHOICE more timeslots		The presence of this IE depends upon the
		number of resources required by the
		TS34.108 clause 6 Parameter Set and
		whether they are assigned using more than
		one timeslot.
- Secondary CCPCH info		Not Present
Downlink information common for all radio links	A5, A6	
- Downlink information for each radio link		
- Choice mode		TDD
- Primary CCPCH info		100
		TDD
- CHOICE mode		TDD 4.00 Mars TDD
- CHOICE TDD option		1.28 Mcps TDD
- TSTD indicator		TRUE
- Cell parameters ID		<u>0</u>
- Block STTD indicator		FALSE
- Downlink DPCH info for each RL		Not present
- SCCPCH information for FACH		Not present
- GOOT OF INIOINIALION OF LACE	1	INOT PIESEIIL

<u>Condition</u>	<u>Explanation</u>
A1 A2 A3 A4 A5 A6	This IE need for "Non speech in CS"
<u>A2</u>	This IE need for "Speech in CS"
<u>A3</u>	This IE need for "Packet to CELL_DCH from CELL_DCH in PS"
<u>A4</u>	This IE need for "Packet to CELL_DCH from CELL_FACH in PS"
A5	This IE need for "Packet to CELL FACH from CELL DCH in PS"
A6	This IE need for "Packet to CELL FACH from CELL FACH in PS"

Contents of UTRAN MOBILITY INFORMATION message: AM or UM

Information Element	Value/remark
Message Type	
Integrity check info	The presence of this IE is dependent on IXIT statements
	in TS 34.123-2. If integrity protection is indicated to be
	active, this IE is present with the values of the sub IEs as
	stated below. Else, this IE and the sub-IEs are omitted.
 message authentication code 	SS calculates the value of MAC-I for this message and
	writes to this IE.
 - RRC message sequence number 	SS provides the value of this IE, from its internal counter.
RRC transaction identifier	Arbitrarily selects an integer between 0 and 3
Integrity protection mode info	Not Present
Ciphering mode info	Not Present
New U-RNTI	See the test content
New C-RNTI	See the test content
UE Timers and constants in connected mode	
<u>- T301</u>	2000 milliseconds
<u>- N301</u>	<u>2</u>
<u>- T302</u>	4000 milliseconds
<u>- N302</u>	<u>3</u>
<u>- T304</u>	1000 milliseconds
<u>- N304</u>	<u>3</u>
<u>- T305</u>	60 minutes
<u>- T307</u>	50 seconds
<u>- T308</u>	320 milliseconds
<u>- T309</u>	8 seconds
<u>- T310</u>	320 milliseconds
<u>- N310</u>	<u>5</u>
<u>- T311</u>	500 milliseconds
<u>- T312</u>	5 seconds
<u>- N312</u>	200
<u>- T313</u>	10 seconds
<u>- N313</u>	200
<u>- T314</u>	20 seconds
<u>- T315</u>	30 seconds
- N315	200
<u>- T316</u>	50 seconds
<u>- T317</u>	1800 seconds
CN information info	Not Present
URA identity	Not present
Downlink counter synchronisation info	Not Present

Contents of UTRAN MOBILITY INFORMATION CONFIRM message: AM

Information Element	<u>Value/remark</u>
Message Type	
RRC transaction identifier	Checked to see if it matches the value of the same IE in
	downlink UTRAN MOBILITY INFORMATION message
Integrity check info	The presence of this IE is dependent on IXIT statements
	in TS 34.123-2. If integrity protection is indicated to be
	active, this IE shall be present with the values of the sub
	IEs as stated below. Else, this IE and the sub-IEs shall be
	absent.
 Message authentication code 	This IE is checked to see if it is present. The value is
	compared against the XMAC-I value computed by SS.
 - RRC Message sequence number 	This IE is checked to see if it is present. The value is
	used by SS to compute the XMAC-I value.
Uplink integrity protection activation info	Not checked
COUNT-C activation time	The presence of this IE depends on the following 2
	factors: (a) There exists RB(s) mapped to RLC-TM, (b)
	UE is transiting to CELL_DCH state after the
	reconfiguration procedure. Else, this IE is absent.
Radio bearer uplink ciphering activation time info	Not checked
Uplink counter synchronisation info	Not checked

Contents of RRC CONNECTION REJECT message: UM

Information Element	<u>Value/remark</u>
Message Type	
Initial UE identity	Set to the UE's IMSI (GSM-MAP) or TMSI.
RRC transaction identifier	Arbitrarily selects an integer between 0 and 3
Rejection cause	<u>Unspecified</u>
Wait Time	<u>0</u>
Redirection info	Not Present

Contents of RRC CONNECTION SETUP message: UM (Transition to CELL_FACH)

Information Element	<u>Value/remark</u>
Message Type	
Initial UE identity	Reference to TS34.108 clause 6 Parameter Set
RRC transaction identifier	Arbitrarily select a integer between 0 and 3
Activation time	(256+CFN-(CFN MOD 8 + 8))MOD 256
New U-RNTI	
- SRNC identity	<u>0000 0000 0001B</u>
<u>- S-RNTI</u>	<u>0000 0000 0000 0000 0001B</u>
New C-RNTI	<u>0000 0000 0000 0001B</u>
RRC state indicator	CELL FACH
UTRAN DRX cycle length coefficient	<u>5 (2 to 12)</u>
Capability update requirement	- N 05
- UE radio access FDD capability update	<u>FALSE</u>
requirement - UE radio access 3.84Mcps TDD capability update	FALSE
requirement	FALSE
- UE radio access 1.28Mcps TDD capability update	FALSE
requirement	TALOL
- System specific capability update requirement	Not Present
Signalling RB information to setup	(UM DCCH for RRC)
- RB identity	1
- CHOICE RLC info type	RLC info
- CHOICE Uplink RLC mode	UM RLC
- Transmission RLC discard	<u> </u>
- SDU discard mode	Max DAT retransmissions
- MAX_DAT	4
- Timer_MRW	100
- MaxMRW	4
- CHOICE Downlink RLC mode	UM RLC
- RB mapping info	
 Information for each multiplexing option 	
 RLC logical channel mapping indicator 	Not Present
 Number of uplink RLC logical channels 	1
 Uplink transport channel type 	RACH
 Logical channel identity 	1
- CHOICE RLC size list	Explicit list
- RLC size index	Reference to TS34.108 clause 6 Parameter Set
- MAC logical channel priority	2
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels - Downlink transport channel type	1 FACH
- Logical channel identity	
Signalling RB information to setup	1 (AM DCCH for RRC)
- RB identity	2
- CHOICE RLC info type	RLC info
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	Max DAT retransmissions
- MAX_DAT	4
- Timer_MRW	100
- MaxMRW	<u>4</u>
- Transmission window size	<u>4</u> <u>8</u> <u>500</u>
- Timer_RST	500
- Max_RST	$\overline{\underline{4}}$
- Polling info	
- Timer_poll_prohibit	200
- Timer_poll	<u>200</u>
- Poll SDU	1 7005
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll Windows	99
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	8
- Downlink RLC status info - Timer status prohibit	200
- Hiller_Status_profilbit	200

- Timer_EPC	200
- Missing PDU indicator	TRUE
- RB mapping info	
- Information for each multiplexing option	
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- Logical channel identity	2
- CHOICE RLC size list	Explicit list
- RLC size index	Reference to TS34.108 clause 6 Parameter Set
- MAC logical channel priority	3
- Downlink RLC logical channel info	<u> </u>
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- Logical channel identity	2
Signalling RB information to setup	(AM DCCH for NAS_DT High priority)
- RB identity	3
- CHOICE RLC info type	RLC info
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	AWINEO
- SDU discard mode	Max DAT retransmissions
- MAX_DAT	4
- Timer_MRW	100
- MaxMRW	
- Transmission window size	<u>4</u> <u>8</u>
- Transmission window size - Timer_RST	<u>0</u> 500
- Max_RST	
- Polling info	4
	200
- Timer poll prohibit - Timer poll	200
- Poll_SDU	200
- Last transmission PDU poll	<u>1</u>
	TRUE
- Last retransmission PDU poll	
- Poll_Windows	99 AM DI C
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	8
- Downlink RLC status info	200
- Timer status prohibit - Timer EPC	200
	200 TDUE
- Missing PDU indicator	TRUE
- RB mapping info	
- Information for each multiplexing option	Net Descrit
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	
- Uplink transport channel type	RACH
- Logical channel identity	3 Evaluate liet
- CHOICE RLC size list	Explicit list
- RLC size index	Reference to TS34.108 clause 6 Parameter Set
- MAC logical channel priority	4
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1 FACH
- Downlink transport channel type	
- Logical channel identity	(AM DOCH for NAS, DT Low priority)
Signalling RB information to setup	(AM DCCH for NAS_DT Low priority)
- RB identity	$\frac{4}{\text{DLC}}$ into
- CHOICE RLC info type	RLC info
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	May DAT retransmissions
- SDU discard mode	Max DAT retransmissions
- MAX_DAT	$\frac{4}{400}$
- Timer MRW	100
- MaxMRW	<u>4</u> <u>8</u>
- Transmission window size	<u>8</u>
- Timer_RST	<u>500</u>
- Max RST	4
- Polling info	
- Timer_poll_prohibit	<u>200</u>

- Timer_poll	<u>200</u>
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Windows	99
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	<u>8</u>
- Downlink RLC status info	
- Timer_status_prohibit	<u>200</u>
- Timer_EPC	<u>200</u>
- Missing PDU indicator	TRUE
- RB mapping info	
- Information for each multiplexing option	
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	$\frac{1}{2}$
 Uplink transport channel type 	RACH
 Logical channel identity 	<u>4</u>
- CHOICE RLC size list	Explicit list
- RLC size index	Reference to TS34.108 clause 6 Parameter Set
- MAC logical channel priority	5
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	$\frac{1}{2}$
 Downlink transport channel type 	<u>FACH</u>
 Logical channel identity 	<u>4</u>
UL Transport channel information for all transport	
channels	
- TFC subset	(This IE is repeated for TFC number.)
- Allowed Transport Format combination	0 to MaxTFCValue-1 (MaxTFCValue is refer to TS34.108
- Allowed Transport Format combination	
	clause 6 Parameter Set.)
- PRACH TFCS	Not Present
- CHOICE mode	FDD
- UL DCH TFCS	Not Present
Added or Reconfigured UL TrCH information	
- Transport channel identity	15
	<u>15</u>
TFS	1_
- CHOICE Transport channel type	Common transport channels
 Dynamic Transport format information 	(This IE is repeated for TFI number)
- RLC Size	Reference to TS34.108 clause 6 Parameter Set
- Number of TBs and TTI List	(This IE is repeated for TFI number.)
- Number of Transport blocks	Reference to TS34.108 clause 6 Parameter Set
- CHOICE mode	
	TDD
- CHOICE Logical Channel List	ALL
 Semi-static Transport Format information 	
- Transmission time interval	Reference to TS34.108 clause 6 Parameter Set
- Type of channel coding	Reference to TS34.108 clause 6 Parameter Set
- Coding Rate	Reference to TS34.108 clause 6 Parameter Set
- Rate matching attribute	Reference to TS34.108 clause 6 Parameter Set
- CRC size	Reference to TS34.108 clause 6 Parameter Set
DL Transport channel information common for all	Neigrande to 1004. Too diause o Faranneter Set
transport channel	
- SCCPCH TFCS	(This IE is repeated for TFC number.)
- CHOICE TFCI signalling	Normal
- TFCI Field 1 information	
CHOICE CTEC representation	Complete
- CHOICE CTFC representation	Complete
- TFCS complete reconfigure information	
- CHOICE CTFC Size	Number of bits used must be enough to cover all
	combinations of CTFC from clause 6.
- CTFC information	Refer to TS34.108 clause 6 Parameter Set
- Power offset information	Not Present
- CHOICE DL parameters	Independent
- DL DCH TFCS	Not Present
Frequency info	
- UARFCN uplink(Nu)	Reference to TS34.108 clause 6 Parameter Set
- UARFCN downlink(Nd)	Reference to TS34.108 clause 6 Parameter Set
Maximum allowed UL TX power	30dBm
CHOICE channel requirement	Not Present

Downlink information common for all radio links	Not Present
Downlink information for each radio link list	
- Downlink information for each radio link	
- Choice mode	TDD
- Primary CPICH info	Set to the default value of cell 1.
- PDSCH with SHO DCH info	Not Present
- PDSCH code mapping	Not Present
- Downlink DPCH info for each RL	Not present
- Secondary CCPCH info	
- Primary CPICH usage for channel estimation	Primary CPICH may be used
- Secondary CPICH info	Not Present
- Secondary scrambling code	Not Present
- STTD indicator	<u>FALSE</u>
- Spreading factor	Reference to clause 6 Parameter Set
- Code number	SF-1(SF is reference to clause 6 Parameter Set)
- Pilot symbol existence	<u>FALSE</u>
- TFCI existence	TRUE
- Fixed or Flexible position	<u>Flexible</u>
- Timing offset	<u>0</u>
- References to system information blocks	Not present

Contents of RRC STATUS message: AM

Information Element	<u>Value/remark</u>
Message Type	
Integrity check info	The presence of this IE is dependent on IXIT statements
	in TS 34.123-2. If integrity protection is indicated to be
	active, this IE shall be present with the values of the sub
	IEs as stated below. Else, this IE and the sub-IEs shall
	be absent.
 Message authentication code 	This IE is checked to see if it is present. The value is
	compared against the XMAC-I value computed by SS.
 - RRC Message sequence number 	This IE is checked to see if it is present. The value is
	used by SS to compute the XMAC-I value.
Identification of received message	Not Present
- Received message type	
- RRC transaction identifier	
Protocol error information	
- Protocol error cause	Value will be checked.

Contents of SECURITY MODE FAILURE message: AM

Information Element	<u>Value/remark</u>
Message Type	
RRC transaction identifier	Checked to see if the value is the identical to the same IE
	in the downlink SECURITY MODE COMMAND message.
Integrity check info	The presence of this IE is dependent on IXIT statements
	in TS 34.123-2. If integrity protection is indicated to be
	active, this IE shall be present with the values of the sub
	IEs as stated below. Else, this IE and the sub-IEs shall be
	absent.
 Message authentication code 	This IE is checked to see if it is present. The value is
	compared against the XMAC-I value computed by SS.
 - RRC Message sequence number 	This IE is checked to see if it is present. The value is
	used by SS to compute the XMAC-I value.
Failure cause	Value will be checked

Contents of TRANSPORT CHANNEL RECONFIGURATION message: AM or UM

Information Element	Condition	Value/remark
Message Type		
RRC transaction identifier		Arbitrarily selects an integer between 0 and 3
Integrity check info		The presence of this IE is dependent on IXIT
		statements in TS 34.123-2. If integrity
		protection is indicated to be active, this IE is
		present with the values of the sub IEs as
		stated below. Else, this IE and the sub-IEs
manage as the entire tion and		are omitted.
- message authentication code		SS calculates the value of MAC-I for this message and writes to this IE.
- RRC message sequence number		SS provides the value of this IE, from its
		internal counter.
Integrity protection mode info		Not Present
Ciphering mode info		Not Present
Activation time		(256+CFN-(CFN MOD 8 + 8))MOD 256
New U-RNTI		Not Present
New C-RNTI	A4 A0 A0	Not Present
RRC State indicator	A1, A2, A3, A4	CELL DCH
RRC State indicator	A5, A6	CELL_DCH should this be CELL_FACH ???
		because it indicates the state that is to be
		entered.
UTRAN DRX cycle length coefficient		Not Present
CN information info		Not Present
URA identity		Not Present
Downlink counter synchronisation info	144 40 40	Not Present
UL Transport channel information for all transport	A1, A2, A3,	
channels - PRACH TFCS	<u>A4</u>	Not Present
- CHOICE mode		TDD
- Individual UL CCTrCH information		100
- TFCS ID		<u>1</u>
- Shared channel indicator		<u>FALSE</u>
- UL TFCS		
- CHOICE TFCI signalling		Normal Normal
- TFCI Field 1 information		Addition
- CHOICE TFCS representation - TFCS addition information		Addition
- CHOICE CTFC Size		Refer to TS34.108 clause 6
- CTFC information		Refer to TS34.108 clause 6 Parameter Set
- TFC subset		
- CHOICE Subset representation		Allowed transport format combination list
- Allowed Transport Format combination list		Refer to TS34.108 clause 6 Parameter Set
UL Transport channel information for all transport	<u>A5, A6</u>	
<u>channels</u> - PRACH TFCS		
- CHOICE TFCI signalling		Normal Normal
- TFCI Field 1 information		11011101
- CHOICE TFCS representation		Addition
- TFCS addition information		
- CHOICE CTFC Size		Refer to TS34.108 clause 6
- CTFC information		Refer to TS34.108 clause 6 Parameter Set
- CHOICE mode		TDD Not Present
- Individual UL CCTrCH information Added or Reconfigured UL TrCH information	A1, A2, A3,	Not Present
Added of Neconinguied OE TROTTINIOTHIANOTI	A1, A2, A3, A4	
 Uplink transport channel type 		<u>DCH</u>
- UL Transport channel identity		<u>5</u>
TFS		
- CHOICE Transport channel type		Dedicated transport channels
- Dynamic Transport format information		(This IE is repeated for TFI number)
- RLC Size		Reference to TS34.108 clause 6 Parameter
- Number of TBs and TTI List		Set (This IE is repeated for TFI number.)
- Transmission Time Interval		Not Present
Tranomicoloff fillio linerval	1	1100 1 1000 III

- Number of Transport blocks		Reference to TS34.108 clause 6 Parameter
		Set
- CHOICE Logical Channel List		ALL
- Semi-static Transport Format information		Deference to TCO4 400 clause C Deservator
- Transmission time interval		Reference to TS34.108 clause 6 Parameter
- Type of channel coding		Set Reference to TS34.108 clause 6 Parameter
		Set
- Coding Rate		Reference to TS34.108 clause 6 Parameter
		Set
- Rate matching attribute		Reference to TS34.108 clause 6 Parameter
		Set
- CRC size		Reference to TS34.108 clause 6 Parameter
		Set
Added or Reconfigured UL TrCH information	<u>A4</u>	
 Uplink transport channel type 		<u>DCH</u>
- UL Transport channel identity		<u>1</u>
- CHOICE Transport channel type		Dedicated transport channels
- Dynamic Transport format information		(This IE is repeated for TFI number)
- RLC Size		Reference to TS34.108 clause 6 Parameter
- Number of TBs and TTI List		Set (This IE is repeated for TFI number.)
- Transmission Time Interval		Not Present
- Number of Transport blocks		Reference to TS34.108 clause 6 Parameter
Transci of Transport blocks		Set
- CHOICE Logical Channel list		ALL
- Semi-static Transport Format information		7122
- Transmission time interval		Reference to TS34.108 clause 6 Parameter
		Set
- Type of channel coding		Reference to TS34.108 clause 6 Parameter
		Set
- Coding Rate		Reference to TS34.108 clause 6 Parameter
		<u>Set</u>
- Rate matching attribute		Reference to TS34.108 clause 6 Parameter
		Set
- CRC size		Reference to TS34.108 clause 6 Parameter
DL Transport channel information common for all	A1 A2 A2	Set
transport channel	A1, A2, A3, A4	
- SCCPCH TFCS	<u>A4</u>	Not Present
- CHOICE mode		TDD
- Individual DL CCTrCH information		100
- DL TFCS Identity		
- TFCS ID		1
- Shared Channel Indicator		FALSE
- CHOICE DL parameters		<u>Independent</u>
- DL TFCS		
- CHOICE TFCI signalling		<u>Normal</u>
- TFCI Field 1 Information		
- CHOICE TFCI representation		Addition
- TFCS addition information		
- CHOICE CTFC size		Refer to TS34.108 clause 6
- CTFC information	AF AC	Refer to TS34.108 clause 6 Parameter Set
DL Transport channel information common for all	<u>A5, A6</u>	
transport channel - SCCPCH TFCS		Not Present
- CHOICE mode		Not Present TDD
- Individual DL CCTrCH information		Not Present
Added or Reconfigured DL TrCH information	A1, A2	TOUT TOUTE
- Downlink transport channel type	/\1, \f\\	<u>DCH</u>
- DL Transport channel identity		10
- CHOICE DL parameters		Same as UL
- Uplink transport channel type		DCH
- UL TrCH Identity		<u>5</u>
- DCH quality target		
- BLER Quality value		-6.3

Transporant mode signalling info	1	Not Droppet
- Transparent mode signalling info	Λ2 Λ4	Not Present
Added or Reconfigured DL TrCH information - Downlink transport channel type	A3, A4	DCH
- DL Transport channel identity		10
- CHOICE DL parameters		Independent
		<u>maoponaom</u>
- TFS		
- CHOICE Transport channel type		Dedicated transport channels
- Dynamic Transport format information		(This IE is repeated for TFI number)
- RLC Size		Reference to TS34.108 clause 6 Parameter
		<u>Set</u>
 Number of TBs and TTI List 		(This IE is repeated for TFI number.)
- Transmission Time Interval		Not Present
- Number of Transport blocks		Reference to TS34.108 clause 6 Parameter
CHOICE Laniage Channel list		Set
- CHOICE Logical Channel list		ALL
- Semi-static Transport Format information - Transmission time interval		Peteronee to TS24 109 eleune 6 Peremeter
- Transmission time interval		Reference to TS34.108 clause 6 Parameter Set
- Type of channel coding		Reference to TS34.108 clause 6 Parameter
		Set
- Coding Rate		Reference to TS34.108 clause 6 Parameter
		Set
- Rate matching attribute		Reference to TS34.108 clause 6 Parameter
		Set
- CRC size		Reference to TS34.108 clause 6 Parameter
		<u>Set</u>
- DCH quality target		
- BLER Quality value		<u>-6.3</u>
- Transparent mode signalling info		Not Present
Added or Reconfigured DL TrCH information	<u>A4</u>	POLL
- Downlink transport channel type		DCH
- DL Transport channel identity - CHOICE DL parameters		6 Independent
- TFS		<u>independent</u>
- CHOICE Transport channel type		Dedicated transport channels
- Dynamic Transport format information		(This IE is repeated for TFI number)
- RLC Size		Reference to TS34.108 clause 6 Parameter
		Set
 Number of TBs and TTI List 		(This IE is repeated for TFI number.)
- Transmission Time Interval		Not Present
 Number of Transport blocks 		Reference to TS34.108 clause 6 Parameter
		Set
- CHOICE Logical Channel list		ALL
- Semi-static Transport Format information		Deference to TCC4 400 elever - C Demand
- Transmission time interval		Reference to TS34.108 clause 6 Parameter
- Type of channel coding		Set Reference to TS34.108 clause 6 Parameter
		Set
- Coding Rate		Reference to TS34.108 clause 6 Parameter
		Set
- Rate matching attribute		Reference to TS34.108 clause 6 Parameter
<u> </u>		Set
- CRC size		Reference to TS34.108 clause 6 Parameter
		<u>Set</u>
- DCH quality target		
- BLER Quality value		<u>-6.3</u>
- Transparent mode signalling info		Not Present
Frequency info		TDD
- CHOICE mode - UARFCN (Nt)		TDD Reference to TS34.108 clause 6
Maximum allowed UL TX power		30dBm
CHOICE channel requirement	A1, A2, A3,	Uplink DPCH info
Onotoe onamic requirement	A1, A2, A3, A4	Spain Di Ottinio
-Uplink DPCH power control info	* * *	
- CHOICE mode		TDD
- UL Target SIR		Refrence to TS34.108
- CHOICE UL OL PC info	1	Individually signalled

- CHOICE TDD option		1.28 Mcps TDD
- TPC step size		1
- Primary CCPCH Tx Power		Reference to TS34.108
- CHOICE mode		TDD
- Uplink Timing Advance Control		
		Not Present
- UL CCTrCH List		
- TFCS ID		<u>1</u>
- Time info		
- Activation time		(256+CFN-(CFNmod 8 + 8))mod 256
- Duration		Infinite
- Common timeslot info		
- 2 nd interleaving mode		Reference to TS34.108 clause 6 Parameter
2 microaving mode		Set
TECL and in a		
- TFCI coding		Reference to TS34.108 clause 6 Parameter
		<u>Set</u>
- Repetition Period		<u> 1</u>
- Repetition Length		<u>Empty</u>
 Uplink DPCH timeslots and codes 		
- First timeslot information		
- CHOICE TDD option		1.28 Mcps
- Timeslot number		The number of an uplink timeslot that has
- Timesiot number		
TEOL : :		unassigned codes.
- TFCI existence		TRUE
 Midamble shift and burst type 		
- CHOICE TDD option		1.28 Mcps
- Midamble Allocation Mode		Default
- Midamble configuration		16
- CHOICE TDD option		1.28 Mcps
- Modulation		<u>QPSK</u>
- SS-TPC Symbols		<u> 1</u>
- First timeslot code list		Repeated (1,2) for each code that is assigned
		within the timeslot.
- Channelisation Code		(i/SF) where i denotes the number of the
- Charmensation Code		
		assigned code and SF is specified in
		TS34.108 clause 6 Parameter Set.
- CHOICE more timeslots		The presence of this IE depends on number
		of resources specified in TS34.108 section 6
		and whether they are assigned in more than
		one slot.
OHOLOE Mada		
CHOICE Mode	1 1 10 10	TDD
Downlink information common for all radio links	A1, A2, A3,	
	<u>A4</u>	
- Downlink DPCH info common for all RL		
- Timing indicator		Maintain
- CFN-targetSFN frame offset		Not Present
		140t 1 163GH
- Downlink DPCH power control information		TDD
-CHOICE mode		TDD
-TPC Step Size		<u>1</u>
- CHOICE mode		<u>TDD</u>
- CHOICE mode		TDD
- CHOICE TDD option		1.28 Mcps
- TSTD indicator		TRUE
- Default DPCH Offset Value		0
Downlink information for each radio link list	A1, A2, A3,	
	<u>A4</u>	
 Downlink information for each radio links 		
- CHOICE mode		TDD
- Primary CCPCH info		
		TOD
- CHOICE mode		TDD 4 00 Mars
- CHOICE TDD option		1.28 Mcps
- TSTD indicator		<u>FALSE</u>
- Cell parameters ID		<u>0</u>
- Block STTD indicator		FALSE
- Downlink DPCH info for each RL		
		TOD
- CHOICE mode		TDD
- DL CCTrCH List		
- TFCS ID		<u>1</u>
- Activation time		(256+CFN-(CFN MOD 8 + 8))MOD 256

- Duration	1	Infinito
		<u>Infinite</u>
- Common timeslot info		D (T004 400 1
- 2 nd Interleaving mode		Reference to TS34.108 clause 6
-TFCI coding		Reference to TS34.108 clause 6
- Puncturing limit		Reference to TS34.108 clause 6
- Repetition period		1
- Repetition length		<u>Empty</u>
 Downlink DPCH timeslots and codes 		
- Individual timeslot info		
- Timeslot number		The number of a downlink timeslot that has
		unassigned codes.
- TFCI existence		TRUE
- Midamble shift and burst type		INOL
- CHOICE TDD option		1.29 Mana
		1.28 Mcps
- Midamble allocation mode		<u>Default</u>
- Midamble configuration		16
- CHOICE TDD option	1	1.28 Mcps TDD
- Modulation		<u>QPSK</u>
- SS-TPC Symbols		<u>1</u>
 First timeslot channelisation codes 		
- First channelisation code		(i/SF) where i is the lowest numbered code
		assigned within the slot and SF is specified in
		the TS34.108 clause 6 Parameter Set
- Last channelisation code		(j/SF) where j is the highest numbered code
<u> </u>		assigned in the timeslot.
- Bitmap		Bitmap of codes assigned in the timeslot.
- CHOICE more timeslots		The presence of this IE depends upon the
- CHOICE More timesiots		
		number of resources required by the
		TS34.108 clause 6 Parameter Set and
		whether thay are allocated in more than one
		slot.
- Secondary CCPCH info		Not Present
Downlink information for each radio link list	A5, A6	
- Downlink information for each radio link		
- Choice mode		TDD
- Primary CCPCH info		Set to the default value of cell 1.
- CHOICE mode		TDD
- CHOICE TDD option		1.28 Mcps TDD
- TSTD indicator		TRUE
- Cell parameters ID		0
-		TRUE
- Block STTD indicator		
- Downlink DPCH info for each RL		Not present
- SCCPCH information for FACH		Not present

Condition	<u>Explanation</u>	
<u>A1</u>	This IE need for "Non speech in CS"	
<u>A2</u>	This IE need for "Speech in CS"	
<u>A3</u>	This IE need for "Packet to CELL_DCH from CELL_DCH in PS"	
<u>A4</u>	This IE need for "Packet to CELL_DCH from CELL_FACH in PS"	
<u>A5</u>	This IE need for "Packet to CELL_FACH from CELL_DCH in PS"	
A1 A2 A3 A4 A5 A6	This IE need for "Packet to CELL_FACH from CELL_FACH in PS"	

Contents of TRANSPORT CHANNEL RECONFIGURATION COMPLETE message: AM

Information Element	<u>Value/remark</u>
Message Type	
RRC transaction identifier	Checked to see if the value is identical to the same IE in
	the downlink TRANSPORT CHANNEL
	RECONFIGURATION message
Integrity check info	The presence of this IE is dependent on IXIT statements
	in TS 34.123-2. If integrity protection is indicated to be
	active, this IE shall be present with the values of the sub
	IEs as stated below. Else, this IE and the sub-IEs shall
	be absent.
- Message authentication code	This IE is checked to see if it is present. The value is
	compared against the XMAC-I value computed by SS.
- RRC Message sequence number	This IE is checked to see if it is present. The value is
	used by SS to compute the XMAC-I value.
Uplink integrity protection activation info	Not checked
CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps
COUNT-C activation time	The presence of this IE depends on the following 2
	factors: (a) There exists RB(s) mapped to RLC-TM and
	(b) UE is transiting to CELL_DCH state after the
	reconfiguration procedure. Else, this IE is absent.
Radio bearer uplink ciphering activation time info	Not checked
<u>Uplink counter synchronisation info</u>	Not checked

Contents of TRANSPORT FORMAT COMBINATION CONTROL message: AM or UM (in CELL DCH)

Information Element	<u>Value/remark</u>
Message Type	
RRC transaction identifier	Arbitrarily selects an integer between 0 and 3
Integrity check info	The presence of this IE is dependent on IXIT statements
	in TS 34.123-2. If integrity protection is indicated to be
	active, this IE is present with the values of the sub IEs as
	stated below. Else, this IE and the sub-IEs are omitted.
 Message authentication code 	SS calculates the value of MAC-I for this message and
	writes to this IE.
 - RRC Message sequence number 	SS provides the value of this IE, from its internal counter.
CHOICE mode	TDD
- TFCS ld	1
- Shared Channel Indicator	<u>FALSE</u>
DPCH TFCS in Uplink	
- Minimu allowed Transport format combination index	0 (The TFC is constructed from ALL TF0)

Contents of UE CAPABILITY ENQUIRY message: AM or UM

Information Element	<u>Value/remark</u>
Message Type	
RRC transaction identifier	Arbitrarily selects an integer between 0 and 3
Integrity check info	The presence of this IE is dependent on IXIT statements
	in TS 34.123-2. If integrity protection is indicated to be
	active, this IE is present with the values of the sub IEs as
	stated below. Else, this IE and the sub-IEs are omitted.
- Message authentication code	SS calculates the value of MAC-I for this message and
	writes to this IE.
- RRC Message sequence number	SS provides the value of this IE, from its internal counter.
Capability update requirement	
 - UE radio access FDD capability update requirement 	<u>FALSE</u>
 - UE radio access 3.84 Mcps TDD capability update 	<u>FALSE</u>
<u>requirement</u>	
 - UE radio access 1.28 Mcps TDD capability update 	TRUE
<u>requirement</u>	
 System specific capability update requirement list 	UE only supports 1 system
 System specific capability update requirement 	<u>GSM</u>

Contents of UE CAPABILITY INFORMATION message: AM

Information Element	<u>Value/remark</u>
Message Type	
RRC transaction identifier	Checked to see if the value is identical to the same IE in
	the downlink UE CAPABILITY ENQUIRY message.
Integrity check info	The presence of this IE is dependent on IXIT statements
	in TS 34.123-2. If integrity protection is indicated to be
	active, this IE shall be present with the values of the sub
	IEs as stated below. Else, this IE and the sub-IEs shall be
	absent.
 Message authentication code 	This IE is checked to see if it is present. The value is
5504	compared against the XMAC-I value computed by SS.
- RRC Message sequence number	This IE is checked to see if it is present. The value is
115 25	used by SS to compute the XMAC-I value.
UE radio access capability	Value will be checked. Stated capability must be
	compatible with 34.123-2 (ICS statements) and the user
- ICS Version	settings
- PDCP Capability	
- RLC Capability	
- Transport channel capability	
- RF Capability	
- Physical channel capability	
- UE multi-mode/multi-RAT capability	
- Security capability	
- UE positioning capability	
- Measurement capability	
UE system specific capability	
-Inter-RAT UE radio access capability	Choice and value will be checked. UE must include the
	classmark information for the supported RAT

Contents of UE CAPABILITY INFORMATION CONFIRM message: UM

Information Element	<u>Value/remark</u>
Message Type	
Integrity check info	The presence of this IE is dependent on IXIT statements
	in TS 34.123-2. If integrity protection is indicated to be
	active, this IE is present with the values of the sub IEs as
	stated below. Else, this IE and the sub-IEs are omitted.
 Message authentication code 	SS calculates the value of MAC-I for this message and
	writes to this IE.
- RRC Message sequence number	SS provides the value of this IE, from its internal counter.

Contents of URA UPDATE message: TM

Information Element	<u>Value/remark</u>
Message Type	
<u>U-RNTI</u>	
- SRNC identity	<u>0000 0000 0001B</u>
<u>- S-RNTI</u>	<u>0000 0000 0000 0000 0001B</u>
RRC transaction identifier	Checked to see if it is absent
Integrity check info	The presence of this IE is dependent on IXIT statements
	in TS 34.123-2. If integrity protection is indicated to be
	active, this IE shall be present with the values of the sub
	IEs as stated below. Else, this IE and the sub-IEs shall be
	absent.
 Message authentication code 	This IE is checked to see if it is present. The value is
	compared against the XMAC-I value computed by SS.
 - RRC Message sequence number 	This IE is checked to see if it is present. The value is
	used by SS to compute the XMAC-I value.
URA update cause	See the test content
Protocol error indicator	Checked to see if it is absent or set to 'FALSE'
Protocol error information	Checked to see if it is absent

Contents of URA UPDATE CONFIRM message: UM

Information Element	<u>Value/remark</u>
Message Type	
<u>U-RNTI</u>	If this message is sent on CCCH, use the following
	values. Else, this IE is absent.
- SRNC identity	<u>0000 0000 0001B</u>
<u>- S-RNTI</u>	0000 0000 0000 0000 0001B
RRC transaction identifier	Arbitrarily selects and integer between 0 and 3
Integrity check info	The presence of this IE is dependent on IXIT statements
	in TS 34.123-2. If integrity protection is indicated to be
	active, this IE is present with the values of the sub IEs as
	stated below. Else, this IE and the sub-IEs are omitted.
 message authentication code 	SS calculates the value of MAC-I for this message and
	writes to this IE.
 - RRC message sequence number 	SS provides the value of this IE, from its internal counter.
Integrity protection mode info	Not Present
Ciphering mode info	Not Present
New U-RNTI	Not Present
New C-RNTI	Not Present
RRC state indicator	<u>URA_PCH</u>
UTRAN DRX cycle length coefficient	Not Present
CN information info	Not Present
URA identity	See the test content
Downlink counter synchronisation info	Not Present



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	,		
	CHANGE REQU	JEST	CR-Form-v3
*	34.123-1 CR 129 ** rev	# Current version: 4.0	1.0 #
	using this form, see bottom of this page or lo		
Proposed chang	e affects:	Radio Access Network Cor	e Network
Title:	₩ RAB tests for LCRTDD		
Source:	₩ Siemens AG		
Work item code:	# LCRTDD	<i>Date:</i>	mber.2001
Category:	ж <mark> F</mark>	Release: REL-4	
	Use <u>one</u> of the following categories: F (essential correction) A (corresponds to a correction in an earlie B (Addition of feature), C (Functional modification of feature) D (Editorial modification) Detailed explanations of the above categories of the found in 3GPP TR 21.900.	R97 (Release 1 R98 (Release 1 R99 (Release 1	se 2) 996) 997) 998) 999)

Reason for change: ೫	Testing of RABs included in TS 34.108 for LCRTDD
Summary of change: ₩	RABs LCRTDD
	18.1 Radio Bearer Tests for 1.28 Mcps TDD option
	18.1.1 General information for radio bearer tests (1.28 Mcps TDD)
	18.1.2 Combinations on DPCH
	18.1.2.1 Stand-alone UL:1.7 DL:1.7 kbps SRBs for DCCH
	Implicitly tested. 18.1.2.2 Stand-alone UL:3.4 DL:3.4 kbps SRBs for DCCH
	Implicitly tested. 18.1.2.3 Stand-alone UL:13.6 DL:13.6 kbps SRBs for DCCH
	Implicitly tested.
	18.1.2.4 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH
	18.1.2.5 Conversational / speech / UL:10.2 DL:10.2 kbps / CS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH
	18.1.2.6 Conversational / speech / UL:7.95 DL:7.95 kbps / CS RAB + UL:3.4 DL:3.4
	kbps SRBs for DCCH 18.1.2.7 Conversational / speech / UL:7.4 DL:7.4 kbps / CS RAB+ UL:3.4 DL:3.4 kbps
	SRBs for DCCH
	18.1.2.8 Conversational / speech / UL:6.7 DL:6.7 kbps / CS RAB + UL:3.4 DL:3.4 kbps
	SRBs for DCCH
Consequences if # not approved:	1.28 Mcps TDD option is not tested properly

Other specs affected:	** Other core specifications	
Other comments:	Following the work already done, RABs test cases will be written according with procedures for FDD mode as far as possible. In these test cases included, transport channels are specified in the same way for FDD and TDD in TS 34.108, and according with this consideration, only references to TDD have been updated.	

18 Multi-Layer Functional Tests

The present clause specifies the multi-layer functional test cases that are not covered by the interoperability radio bearer test cases in clause 14 or by any other test cases in the present document.

18.1 Radio Bearer Tests for 1.28 Mcps TDD option

18.1.1 General information for radio bearer tests (1.28 Mcps TDD)

The purpose of these radio bearer test cases is to test properly the Reference Radio Bearer configurations included in TS34.108 [9], clause 6.11 for 1.28 Mcps TDD option.

The applicability of radio bearer tests is dependent on the UE uplink and downlink radio access capabilities and UE support tele- and bearer-services. See TS 34.123-2, annex B for applicability of the specific test cases.

18.1.1.1 Generic radio bearer test procedure

Initial conditions

UE in idle mode

Test procedure

- a) The SS setup the reference radio bearer configuration as specified in TS 34.108, clause 6.11 for the actual radio bearer test.
- b) The SS limits the UE allowed uplink transport format combinations according to the "Restricted UL TFCIs", as specified for the sub-test of the actual radio bearer test, using the RRC transport format combination control procedure.
- c) The SS closes the test loop using UE test loop mode 1 and setting the UL RLC SDU size parameter, for all radio bearers under test, according to the "UL RLC SDU size" value as specified for the sub-test of the actual radio bearer test.
- d) The SS transmits, for all radio bearers under test, an RLC SDU having the size equal to the "Test data size" as specified for the sub-test of the actual radio bearer test. See note 1.
- e) The SS checks that, for all radio bearers under test, the content of the received RLC SDU has the correct content and is received having the correct transport format. See TS 34.109 [10] clause 5.3.2.6.2 for details regarding the UE loopback of RLC SDUs.
- f) The SS opens the UE test loop.
- g) Steps b) to f) are repeated for all sub-tests
- h) The SS may optionally release the radio bearer.
- i) The SS may optionally deactivate the radio bearer test mode.
- NOTE: For the case when the reference radio bearer configuration under test uses RLC transperant mode in downlink then the radio bearer test case shall use a DL RLC SDU size (defined by the "Test data size" parameter) equal to the DL RLC PDU size. This is due to that the UE test loop function has no ability to perform reassembly of segmented DL RLC SDUs while the RLC is operated in transperent mode. See [7] TS 25.322 for details regarding UE operation in RLC transperent mode.

Expected sequence

Step	Direction	<u>Message</u>	Comments	
	UE SS			
1	<	SYSTEM INFORMATION (BCCH)	Broadcast	
2			Paging	
3	>	RRC CONNECTION REQUEST (CCCH)	RRC	
4	<	RRC CONNECTION SETUP (CCCH)	RRC	
5	>	RRC CONNECTION SETUP COMPLETE (DCCH)	RRC	
6	>	PAGING RESPONSE (DCCH)	RR	
7	<	ACTIVATE RB TEST MODE (DCCH)	TC	
8	>	ACTIVATE RB TEST MODE COMPLETE (DCCH)	TC	
9	<	RADIO BEARER SETUP (DCCH)	RRC	
10	>	RADIO BEARER SETUP COMPLETE (DCCH)	RRC	
11	<	TRANSPORT FORMAT COMBINATION CONTROL	RRC	
			Transport format combinations is limited to	
			"Restricted UL TFCIs", as specified for the	
			<u>sub-test</u>	
<u>12</u>	<u><</u>	CLOSE UE TEST LOOP	<u>TC</u>	
			UE test mode 1	
			RLC SDU size is for every active radio	
			bearer set to "UL RLC SDU size", as	
			specified for the sub-test.	
<u>13</u>	<u>></u>	CLOSE UE TEST LOOP COMPLETE (DCCH)	<u>TC</u>	
<u>14</u>	<u><</u>	DOWNLINK RLC SDU	Send test data using the downlink	
			transport format combination under test	
<u> </u>				
<u>15</u>	<u>></u>	<u>UPLINK RLC SDU</u>		
4.0		ODEN LIE TEGT LOOP	170	
<u>16</u>	<	OPEN UE TEST LOOP	TC	
<u>17</u>	<u>></u>	OPEN UE TEST LOOP COMPLETE	<u>TC</u>	
<u>18</u>		Repeat steps 11 to 17 for every sub-test.	DD0	
<u>19</u>		RB RELEASE	RRC	
- 00		DEACTIVATE DE TECT MODE	Optional step	
<u>20</u>	<u><</u>	DEACTIVATE RB TEST MODE	TC Ontinged atom	
0.4		DEACTIVATE DE TECT MODE COMBUSTS	Optional step	
<u>21</u>	<u>></u>	DEACTIVATE RB TEST MODE COMPLETE	TC Ontingel step	
			Optional step	

18.1.2 Combinations on DPCH

18.1.2.1 Stand-alone UL:1.7 DL:1.7 kbps SRBs for DCCH

Implicitly tested.

18.1.2.2 Stand-alone UL:3.4 DL:3.4 kbps SRBs for DCCH

Implicitly tested.

18.1.2.3 Stand-alone UL:13.6 DL:13.6 kbps SRBs for DCCH

Implicitly tested.

18.1.2.4 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.1..2.4.1 Conformance requirement

The UE shall be able to establish the UTRAN requested radio bearers within the UE's signaled radio access capabilities.

The UE shall correctly transfer user data from peer to peer RLC entitities according to the requested radio bearer configuration.

Reference(s)

3GPP TS 25.331, clause 8.2.1

3GPP TS 25.2xx series (Physical Layer)

3GPP TS 25.321 (MAC)

3GPP TS 25.322 (RLC)

18.1.2.4.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.4.

18.1.2.4.3 Method of test

Uplink TFS:

	<u>TFI</u>	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	DCCH
	TF0, bits	0x81(alt. 1x0)	<u>0x103</u>	<u>0x60</u>	<u>0x148</u>
<u>TFS</u>	TF1, bits	<u>1x39</u>	<u>1x103</u>	<u>1x60</u>	<u>1x148</u>
	TF2, bits	1x81	N/A	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0)
UL_TFC3	(TF0, TF0, TF1)
UL_TFC4	(TF1, TF0, TF0, TF1)
UL_TFC5	(TF2, TF1, TF1, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	<u>RB6</u> (RAB subflow #2)	<u>RB7</u> (RAB subflow #3)	DCCH
	TF0, bits	<u>1x0</u>	<u>0x103</u>	<u>0x60</u>	<u>0x148</u>
<u>TFS</u>	TF1, bits	<u>1x39</u>	<u>1x103</u>	<u>1x60</u>	<u>1x148</u>
	TF2, bits	1x81	N/A	N/A	N/A

Downlink TFCS:

<u>TFCI</u>	(RB5, RB6, RB7, DCCH)
DL TFC0	(TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0)
DL_TFC3	(TF0, TF0, TF1)
DL_TFC4	(TF1, TF0, TF0, TF1)
DL_TFC5	(TF2, TF1, TF1, TF1)

Sub-tests:

Sub- test	Downlink TFCS under test	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (note)	Test data size (note)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4	RB5: 39 bits RB6: 103 bits RB7: 60 bits	RB5: 39 bits RB6: No data RB7: No data
2 NOTE:	DL TFC2	UL TFC2	DL TFC0, DL TFC3, UL TFC0, UL TFC3	UL TFC0, UL TFC2, UL_TFC3, UL_TFC5	RB5: 81 bits RB6: 103 bits RB7: 60 bits	RB5: 81 bits RB6: 103 bits RB7: 60 bits

See 14.1.1 for test procedure.

18.1.2.4.4 Test requirements

See 18.1.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be
 - for sub-test 1: RB5/TF1 (1x39).
 - for sub-test 2: RB5/TF2 (1x81); RB6/TF1 (1x103); and RB7/TF1 (1x60).
- 3. At step 15 the UE shall return
 - for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6 or RB7.
 - for sub-test 2: an RLC SDU on each of RB5, RB6 and RB7 having the same content as sent by SS

18.1.2.5 Conversational / speech / UL:10.2 DL:10.2 kbps / CS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH

18.1.2.5.1 Conformance requirement

See clause 18.1.2.4.1.

18.1.2.5.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.5.

18.1.2.5.3 Method of test

<u>Uplink TFS:</u>

	<u>TFI</u>	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	DCCH
	TF0, bits	0x65(alt. 1x0)	<u>0x99</u>	<u>0x40</u>	<u>0x148</u>
<u>TFS</u>	TF1, bits	<u>1x39</u>	<u>1x99</u>	<u>1x40</u>	<u>1x148</u>
	TF2, bits	<u>1x65</u>	<u>N/A</u>	N/A	<u>N/A</u>

Uplink TFCS:

TFCI	(RB5, RB6, RB7,DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0)
UL_TFC3	(TF0, TF0, TF1)
UL_TFC4	(TF1, TF0, TF0, TF1)
UL_TFC5	(TF2, TF1, TF1, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	DCCH
	TF0, bits	1x0	0x99	0x40	0x148
<u>TFS</u>	TF1, bits	<u>1x39</u>	<u>1x99</u>	<u>1x40</u>	<u>1x148</u>
	TF2, bits	<u>1x65</u>	N/A	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0)
DL_TFC3	(TF0, TF0, TF1)
DL_TFC4	(TF1, TF0, TF0, TF1)
DL_TFC5	(TF2, TF1, TF1, TF1)

Sub-tests:

Sub- test	Downlink TFCS under test	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size	Test data size
					(note)	(note)
1	DL TFC1	UL TFC1	DL TFC0, DL TFC3, UL TFC0, UL TFC3	UL TFC0, UL TFC1, UL TFC3, UL_TFC4	RB5: 39 bits RB6: 99 bits RB7: 40 bits	RB5: 39 bits RB6: No data RB7: No data
2 NOTE:	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC2, UL_TFC3, UL_TFC5	RB5: 65 bits RB6: 99 bits RB7: 40 bits	RB5: 65 bits RB6: 99 bits RB7: 40 bits

See clause 18.1.1.1 for test procedure.

18.1.2.5.4 Test requirements

See 18.1.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be
 - for sub-test 1: RB5/TF1 (1x39).
 - for sub-test 2: RB5/TF2 (1x65); RB6/TF1 (1x99); and RB7/TF1 (1x40).
- 3. At step 15 the UE shall return
 - for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6 or RB7.
 - for sub-test 2: an RLC SDU on each of RB5, RB6 and RB7 having the same content as sent by SS.

18.1.2.6 Conversational / speech / UL:7.95 DL:7.95 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.1.2.6.1 Conformance requirement

See clause 18.1.2.4.1.

18.1.2.6.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.6.

18.1.2.6.3 Method of test

Uplink TFS:

	<u>TFI</u>	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	DCCH
	TF0, bits	0x75 (alt. 1x0)	<u>0x84</u>	<u>0x148</u>
<u>TFS</u>	TF1, bits	<u>1x39</u>	<u>1x84</u>	<u>1x148</u>
	TF2, bits	1x75	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, DCCH))
UL_TFC0	(TF0, TF0, TF0)	
UL_TFC1	(TF1, TF0, TF0)	
UL_TFC2	(TF2, TF1, TF0)	
UL TFC3	(TF0, TF0, TF1)	
UL_TFC4	(TF1, TF0, TF1)	
UL_TFC5	(TF2, TF1, TF1)	

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	DCCH
	TF0, bits	<u>1x0</u>	<u>0x84</u>	<u>0x148</u>
TFS	TF1, bits	<u>1x39</u>	<u>1x84</u>	<u>1x148</u>
	TF2, bits	<u>1x75</u>	N/A	N/A

Downlink TFCS:

TFCI		(RB5, RB6, DCCH)
DL_TFC0	(TF0, TF0, TF0)	
DL TFC1	(TF1, TF0, TF0)	
DL_TFC2	(TF2, TF1, TF0)	
DL_TFC3	(TF0, TF0, TF1)	
DL_TFC4	(TF1, TF0, TF1)	
DL_TFC5	(TF2, TF1, TF1)	

Sub-tests:

Sub- test	Downlink TFCS under test	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (note)	Test data size (note)
1	DL TFC1	UL TFC1	DL TFC0, DL TFC3, UL TFC0, UL_TFC3	UL TFC0, UL_TFC1, UL_TFC3, UL_TFC4	RB5: 39 bits RB6: 84 bits	RB5: 39 bits RB6: No data
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC2, UL_TFC3, UL_TFC5,	RB5: 75 bits RB6: 84 bits	RB5: 75 bits RB6: 84 bits
NOTE:	See TS 34.	109 [10] clause	5.3.2.6.2 for details regarding loop	pack of RLC SD	Us.	

See clause 18.1.1.1 for test procedure.

18.1.2.6.4 Test requirements

See 18.1.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be
 - for sub-test 1: RB5/TF1 (1x39).
 - for sub-test 2: RB5/TF2 (1x75) and RB6/TF1 (1x84).
- 3. At step 15 the UE shall return
 - for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6.
 - for sub-test 2: an RLC SDU on each of RB5 and RB6 having the same content as sent by SS.

18.1.2.7 Conversational / speech / UL:7.4 DL:7.4 kbps / CS RAB+ UL:3.4 DL:3.4 kbps SRBs for DCCH

18.1.2.7.1 Conformance requirement

See clause 18.1.2.4.1.

18.1.2.7.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.7.

<u>18.1.2.7.3</u> Method of test

Uplink TFS:

	<u>TFI</u>	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	<u>DCCH</u>
	TF0, bits	0x61 (alt. 1x0)	<u>0x87</u>	<u>0x148</u>
<u>TFS</u>	TF1, bits	<u>1x39</u>	<u>1x87</u>	<u>1x148</u>
	TF2, bits	<u>1x61</u>	N/A	N/A

Uplink TFCS:

TFCI		(RB5, RB6, DCCH)
UL_TFC0	(TF0, TF0, TF0)	
UL_TFC1	(TF1, TF0, TF0)	
UL_TFC2	(TF2, TF1, TF0)	
UL_TFC3	(TF0, TF0, TF1)	
UL_TFC4	(TF1, TF0, TF1)	
UL_TFC5	(TF2, TF1, TF1)	

Downlink TFS:

		RB5 (RAB subflow #1)	<u>RB6</u> (RAB subflow #2)	DCCH
	TF0, bits	<u>1x0</u>	<u>0x87</u>	<u>0x148</u>
<u>TFS</u>	TF1, bits	<u>1x39</u>	<u>1x87</u>	<u>1x148</u>
	TF2, bits	<u>1x61</u>	N/A	N/A

Downlink TFCS:

TFCI		(RB5, RB6, DCCH)
DL_TFC0	(TF0, TF0, TF0)	
DL_TFC1	(TF1, TF0, TF0)	
DL TFC2	(TF2, TF1, TF0)	
DL_TFC3	(TF0, TF0, TF1)	
DL_TFC4	(TF1, TF0, TF1)	
DL_TFC5	(TF2, TF1, TF1)	

Sub-tests:

Sub- test	Downlink TFCS under test	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size	Test data size (note)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4	RB5: 39 bits RB6: 87 bits	RB5: 39 bits RB6: No data
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC2, UL_TFC3, UL_TFC5,	RB5: 61 bits RB6: 87 bits	RB5: 61 bits RB6: 87 bits

See clause 18.1.1.1 for test procedure.

18.1.2.7.4 Test requirements

See 18.1.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be
 - for sub-test 1: RB5/TF1 (1x39).
 - for sub-test 2: RB5/TF2 (1x61) and RB6/TF1 (1x87).
- 3. At step 15 the UE shall return
 - for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6.
 - for sub-test 2: an RLC SDU on each of RB5 and RB6 having the same content as sent by SS

18.1.2.8 Conversational / speech / UL:6.7 DL:6.7 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.1.2.8.1 Conformance requirement

See clause 18.1.2.4.1.

18.1.2.8.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.8.

18.1.2.8.3 Method of test

Uplink TFS:

		<u>TFI</u>	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	DCCH
ı		TF0, bits	0x58 (alt. 1x0)	<u>0x76</u>	<u>0x148</u>
	<u>TFS</u>	TF1, bits	<u>1x39</u>	<u>1x76</u>	<u>1x148</u>
		TF2, bits	1x58	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, DCCH)	
UL_TFC0	(TF0, TF0, TF0)	
UL_TFC1	(TF1, TF0, TF0)	
UL_TFC2	(TF2, TF1, TF0)	
UL_TFC3	(TF0, TF0, TF1)	
UL_TFC4	(TF1, TF0, TF1)	
UL_TFC5	(TF2, TF1, TF1)	

Downlink TFS:

		RB5 (RAB subflow #1)	<u>RB6</u> (RAB subflow #2)	DCCH
	TF0, bits	<u>1x0</u>	<u>0x76</u>	<u>0x148</u>
<u>TFS</u>	TF1, bits	<u>1x39</u>	<u>1x76</u>	<u>1x148</u>
	TF2, bits	<u>1x58</u>	N/A	N/A

Downlink TFCS:

TFCI		(RB5, RB6, DCCH)
DL_TFC0	(TF0, TF0, TF0)	
DL_TFC1	(TF1, TF0, TF0)	
DL_TFC2	(TF2, TF1, TF0)	
DL_TFC3	(TF0, TF0, TF1)	
DL_TFC4	(TF1, TF0, TF1)	
DL_TFC5	(TF2, TF1, TF1)	

Sub-tests:

Sub- test	Downlink TFCS under test	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size	Test data size
		<u> </u>			(note)	(note)
1	DL TFC1	UL TFC1	DL TFC0, DL TFC3, UL TFC0, UL TFC3	UL TFC0, UL TFC1, UL TFC3, UL TFC4	RB5: 39 bits RB6: 76 bits	RB5: 39 bits RB6: No data
2	DL TFC2	UL TFC2	DL TFC0, DL TFC3, UL TFC0, UL_TFC3	UL_TFC0, UL_TFC2, UL_TFC3, UL_TFC5,	RB5: 58 bits RB6: 76 bits	RB5: 58 bits RB6: 76 bits
NOTE:	See TS 34.	109 [10] clause	5.3.2.6.2 for details regarding loopl	oack of RLC SE	Us.	

See clause 18.1.1.1 for test procedure.

18.1.2.8.4 Test requirements

- See clause 18.1.1.1 for definition of step 10 and step 15.

 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
 - 2. At step 15 the UE transmitted transport format shall be
 - for sub-test 1: RB5/TF1 (1x39).
 - for sub-test 2: RB5/TF2 (1x58) and RB6/TF1 (1x76).
 - 3. At step 15 the UE shall return
 - for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6.
 - for sub-test 2: an RLC SDU on each of RB5 and RB6 having the same content as sent by SS