Source: **T1**

Title: **CR's to TS 34.122 v3.9.0 and v4.5.0 for approval**

Agenda item: **5.1.3**

Document for: **Approval**

This document contains 6 CRs to TS 34.122 v3.9.0 and 8 CRs to TS 34.122 v4.5.0. These CRs have been agreed by T1 and are put forward to TSG T for approval.

CRs related to maintenance of R99:

Spec	CR	Rev	Release	Subject	Cat	Version Current	Version -New	Doc-2nd-Level	Work item
34.122	110	-	R99	Inclusion of TDD RRC re-establishment delay test cases	F	3.9.0	3.10.0	T1-020760	-
34.122	111	-	R99	Correction to power control accuracy test cases in 34.122	F	3.9.0	3.10.0	T1-020895	-
34.122	112	-	R99	Averaging period for ACLR	F	3.9.0	3.10.0	T1-020647	-
34.122	113	-	R99	Various updates to 34.122 based on RAN4 CRs	F	3.9.0	3.10.0	T1-020897	-
34.122	114	-	R99	Correction to downlink power control requirements in 34.122	F	3.9.0	3.10.0	T1-020643	-
34.122	121	-	R99	Corrections of TDD out-of Synchronisation Output power	F	3.9.0	3.10.0	T1-020899	-

CRs related to maintenance of Rel-4:

Spec	CR	Rev	Release	Subject	Cat	Version Current	Version -New	Doc-2nd-Level	Work item
34.122	115	-	Rel-4	Corrections of TDD out-of Synchronisation Output power	F	4.5.0	4.6.0	T1-020762	LCRTDD, TEI
34.122	116	-	Rel-4	Addition of LCR sub-section of TDD/TDD Intra- and Inter- frequency handover test cases.	F	4.5.0	4.6.0	T1-020764	LCRTDD
34.122	117	-	Rel-4	Correction to power control accuracy test cases in 34.122	A	4.5.0	4.6.0	T1-020896	TEI
34.122	118	-	Rel-4	Averaging period for ACLR	A	4.5.0	4.6.0	T1-020648	TEI
34.122	119	-	Rel-4	Various updates to 34.122 based on RAN4 CRs	A	4.5.0	4.6.0	T1-020898	TEI
34.122	120	-	Rel-4	Inclusion of TDD RRC re-establishment delay test cases	F	4.5.0	4.6.0	T1-020761	LCRTDD, TEI
34.122	122	-	Rel-4	Correction to downlink power control requirements in 34.122	A	4.5.0	4.6.0	T1-020644	TEI
34.122	123	-	Rel-4	P-CCPCH RSCP Test Cases for LCRTDD	F	4.5.0	4.6.0	T1-020765	LCRTDD

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Tdoc ⌘T1-020643

CR-Form-v7

CHANGE REQUEST

⌘ **34.122** **CR** **114** ⌘ **rev** **-** ⌘ Current version: **3.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	Correction to downlink power control requirements in 34.122
Source:	⌘	T1/RF
Work item code:	⌘	-
Date:	⌘	7/11/2002
Category:	⌘	**F**
Release:	⌘	R99

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.

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)
Rel-6 (Release 6)

Reason for change:	⌘	Downlink power control requirements have been updated in RAN4 CR R4-021124.
Summary of change:	⌘	Measurement period is now explicitly specified as one timelot and performance requirement corrected.
Consequences if not approved:	⌘	Conformance specification would be inconsistent with core specification.
Clauses affected:	⌘	7.5.2

	Y	N		
Other specs affected: ⌘		X	Other core specifications	⌘
		X	Test specifications	
		X	O&M Specifications	

Other comments: ⌘

How to create CRs using this form:
Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.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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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.

7.5 Power control in downlink

7.5.1 Definition and applicability

Power control in the uplink is the ability of the UE to converge to the required link quality set by the network while using minimum uplink power. The requirements of this test shall apply to the UTRA-TDD UE.

7.5.2 Minimum requirements

For the parameters specified in table 7.5.1 the ~~average~~ downlink $\hat{I}_{or}/I_{oc}$ averaged over one timeslot ~~power~~ shall be below the specified value in table 7.5.2 more than 90% of the time. BLER shall be as shown in table 7.5.2. Downlink power control is ON during the test.

Table 7.5.1: Test parameters for downlink power control

Parameter	Unit	Test 1
$\frac{DPCH\_E_c}{I_{or}}$	dB	0
I_{oc}	dBm/3,84 MHz	-60
Information Data Rate	kbps	12,2
Target quality value on DTCH	BLER	0,01
Propagation condition		Case 1
DL Power Control step size, Δ_{TPC}	dB	1
Maximum_DL_power (note)	dB	0
Minimum_DL_power (note)	dB	-27
NOTE: Refer to TS 25.224 for description and definition.		

Note: DL power is relative to P-CCPCH power.

Table 7.5.2: Requirements for downlink power control

Parameter	Unit	Test 1
$\hat{I}_{or}/I_{oc}$	dB	~~8,0~~8,5
Measured quality on DTCH	BLER	0,01±30%

The reference for this requirement is TS 25.102 [1] clause 8.5.1.

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Tdoc ⌘T1-020644

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CHANGE REQUEST

⌘ **34.122** **CR** **122** ⌘ **rev** **-** ⌘ Current version: **4.5.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	Correction to downlink power control requirements in 34.122
Source:	⌘	T1/RF
Work item code:	⌘	TEI
Date:	⌘	7/11/2002
Category:	⌘	**A**
Release:	⌘	Rel-4

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.

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)*
Rel-6	*(Release 6)*

Reason for change:	⌘	Downlink power control requirements have been updated in RAN4 CR R4-021124.
Summary of change:	⌘	Measurement period is now explicitly specified as one timelot and performance requirement corrected.
Consequences if not approved:	⌘	Conformance specification would be inconsistent with core specification.
Clauses affected:	⌘	7.5.2

	Y	N		
Other specs affected: ⌘		X	Other core specifications	⌘
		X	Test specifications	
		X	O&M Specifications	

Other comments: ⌘

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7.5 Power control in downlink

7.5.2 Power control in downlink for 3.84 Mcps TDD option, constant BLER Target

7.5.2.1 Minimum requirements

For the parameters specified in table 7.5.2.1 the ~~average~~ downlink $\hat{I}_{or}/I_{oc}$ ~~power~~ averaged over one timeslot shall be below the specified value in table 7.5.2 more than 90% of the time. BLER shall be as shown in table 7.5.2.2 Downlink power control is ON during the test.

Table 7.5.2.1: Test parameters for downlink power control - constant BLER Target

Parameter	Unit	Test 1
$\frac{DPCH\_E_c}{I_{or}}$	dB	0
I_{OC}	dBm/3,84 MHz	-60
Information Data Rate	kbps	12,2
Target quality value on DTCH	BLER	0,01
Propagation condition		Case 1
DL Power Control step size, Δ_{TPC}	dB	1
Maximum_DL_power (note)	dB	0
Minimum_DL_power (note)	dB	-27
NOTE: Refer to TS 25.224 for description and definition		

NOTE: DL power is relative to P-CCPCH power.

Table 7.5.2.2: Requirements for downlink power control - constant BLER Target

Parameter	Unit	Test 1
$\hat{I}_{or}/I_{oc}$	dB	~~8,0~~8,5
Measured quality on DTCH	BLER	0,01±30%

The reference for this requirement is TS 25.102 [1] clause 8.5.1.

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Tdoc ⌘T1-020647

CR-Form-v7

CHANGE REQUEST

⌘ **34.122** **CR** **112** ⌘ **rev** **-** ⌘ Current version: **3.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	Averaging period for ACLR
Source:	⌘	T1-RF
Work item code:	⌘	-
Date:	⌘	07/11/2002
Category:	⌘	**F**
Release:	⌘	R99

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.

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)
Rel-6 (Release 6)

Reason for change:	⌘	The averaging period for ACLR is TBD.
Summary of change:	⌘	Removed averaging steps in test procedure. ACLR is defined as the ratio of RRC filter mean power, where the mean power is already defined in section 3.1 as the "The period of measurement shall be a transmit timeslot excluding the guard period"
Consequences if not approved:	⌘	Test case would be incomplete.

Clauses affected:	⌘	5.5.2.2.4.2

	Y	N		
Other specs affected: ⌘		X	Other core specifications	⌘
		X	Test specifications	
		X	O&M Specifications	

Other comments: ⌘

How to create CRs using this form:
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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

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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.

5.5.2.2 Adjacent Channel Leakage power Ratio (ACLR)

5.5.2.2.1 Definition and applicability

Adjacent Channel Leakage power Ratio (ACLR) is the ratio of the RRC filtered mean power centered on the assigned channel frequency to the RRC filtered mean power centered on an adjacent channel frequency.

The requirements in this clause shall apply to all types of UTRA-UE.

5.5.2.2.2 Minimum Requirements

If the adjacent channel RRC filtered mean power is greater than –50dBm then the ACLR shall be higher than the value specified in table 5.5.2.2.2.

The normative reference for this requirement is TS 25.102 [1] clause 6.6.2.2.1

Table 5.5.2.2.2: UE ACLR

Power Class	Adjacent channel	ACLR limit
2, 3	UE-channel ± 5 MHz	33 dB
2, 3	UE-Channel ± 10 MHz	43 dB

5.5.2.2.3 Test purpose

The test purpose is to verify the ability of the UE to limit the interference produced by the transmitted signal to other UTRA receivers operating at the first or second adjacent RF channel.

5.5.2.2.4 Method of test

5.5.2.2.4.1 Initial conditions

Test environment: normal, TL/VL, TL/VH, TH/VL, TH/VH; see clauses G.2.1 and G.2.2.

Frequencies to be tested: low range, mid range, high range; see clause G.2.4.

1) Connect the SS to the UE antenna connector as shown in figure A.1.
2) A call is set up according to the generic call setup procedure using parameters as specified in table E.3.1.2.
3) Enter the UE into loopback test mode and start the loopback test.

5.5.2.2.4.2 Procedure

1) Measure the RRC filtered mean power centered on the assigned channel frequency.

~~2) Average over TBD time slots.~~

~~3~~2) Measure the RRC filtered mean power centered on the first lower adjacent channel frequency.

~~4) Average over TBD time slots.~~

~~5~~3) Calculate the ACLR by dividing the power measured in (1) by the power measured in (2).

~~Power acc. to 2) / Power acc. to 4).~~

~~6~~4) Repeat steps ~~3), 4) and 5)~~ (2) and (3) for the second lower adjacent RF channel (center frequency 10 MHz below the assigned channel frequency of the transmitted signal) and also for the first and second upper adjacent RF channel (center frequency 5 MHz and 10 MHz, respectively).

7) Run step 1) to ~~6~~4) for RF channels Low/Mid/High.

5.5.2.2.5 Test requirements

The ACLR calculated in steps ~~5) and 6)~~ (3) and (4) of clause 5.5.2.2.4.2 shall be equal or greater than the limits given in table 5.5.2.2.5.

Table 5.5.2.2.5: UE ACLR

Power Class	Adjacent channel	ACLR limit
2, 3	UE-channel ± 5 MHz	32.2 dB
2, 3	UE-Channel ± 10 MHz	42.2 dB

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in annex F clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in annex F.

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Luton, UK 4th - 8st November 2002

Tdoc ⌘T1-020648

CR-Form-v7

CHANGE REQUEST

⌘ **34.122** **CR** **118** ⌘ **rev** **-** ⌘ Current version: **4.5.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	Averaging period for ACLR
Source:	⌘	T1-RF
Work item code:	⌘	TEI
Date:	⌘	07/11/2002
Category:	⌘	**A**
Release:	⌘	Rel-4

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.

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)*
Rel-6	*(Release 6)*

Reason for change:	⌘	The averaging period for ACLR is TBD.
Summary of change:	⌘	Removed averaging steps in test procedure. ACLR is defined as the ratio of RRC filter mean power, where the mean power is already defined in section 3.1 as the “The period of measurement shall be a transmit timeslot excluding the guard period”
Consequences if not approved:	⌘	Test case would be incomplete.

Clauses affected:	⌘	5.5.2.2.4.2

	Y	N		
Other specs affected: ⌘		X	Other core specifications	⌘
		X	Test specifications	
		X	O&M Specifications	

Other comments: ⌘

How to create CRs using this form:
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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.

5.5.2.2 Adjacent Channel Leakage power Ratio (ACLR)

5.5.2.2.1 Definition and applicability

Adjacent Channel Leakage power Ratio (ACLR) is the ratio of the RRC filtered mean power centered on the assigned channel frequency to the RRC filtered mean power centered on an adjacent channel frequency.

The requirements in this clause shall apply to all types of UTRA-UE.

5.5.2.2.2 Minimum Requirements

5.5.2.2.2.1 3,84Mcps TDD Option

If the adjacent channel RRC filtered mean power is greater than –50 dBm then the ACLR shall be higher than the value specified in table 5.5.2.2.2.1.

The normative reference for this requirement is TS 25.102 [1] clause 6.6.2.2.1.1.

Table 5.5.2.2.2.1: UE ACLR (3,84 Mcps TDD Option)

Power Class	Adjacent channel	ACLR limit
2, 3	UE-channel ± 5 MHz	33 dB
2, 3	UE-Channel ± 10 MHz	43 dB

5.5.2.2.2.2 1,28Mcps TDD Option

If the adjacent channel RRC filtered mean power is greater than –55 dBm then the ACLR shall be better than the value specified in table 5.5.2.2.2.2.

The normative reference for this requirement is TS 25.102 [1] clause 6.6.2.2.1.2.

Table 5.5.2.2.2.2: UE ACLR (1,28Mcps TDD Option)

Power Class	adjacent channel	ACLR limit
2, 3	UE channel ± 1.6 MHz	33 dB
2, 3	UE channel ± 3.2 MHz	43 dB

NOTE 1: The requirement shall still be met in the presence of switching transients.

NOTE 2: The ACLR requirements reflect what can be achieved with present state of the art technology.

NOTE 3: Requirement on the UE shall be reconsidered when the state of the art technology progresses.

5.5.2.2.3 Test purpose

The test purpose is to verify the ability of the UE to limit the interference produced by the transmitted signal to other UTRA receivers operating at the first or second adjacent RF channel.

5.5.2.2.4 Method of test

5.5.2.2.4.1 Initial conditions

Test environment: normal, TL/VL, TL/VH, TH/VL, TH/VH; see clauses G.2.1 and G.2.2.

Frequencies to be tested: low range, mid range, high range; see clause G.2.4.

1) Connect the SS to the UE antenna connector as shown in figure A.1.
2) A call is set up according to the generic call setup procedure using parameters as specified in table E.3.1.2.
3) Enter the UE into loopback test mode and start the loopback test.

5.5.2.2.4.2 Procedure

1) Measure the RRC filtered mean power centered on the assigned channel frequency.

~~2) Average over TBD time slots.~~

~~3~~2) Measure RRC filtered mean power centered on the first lower adjacent channel frequency.

~~4) Average over TBD time slots.~~

~~5~~3) Calculate the ACLR by dividing the power measured in (1) by the power measured in (2)..

~~Power acc. to 2) / Power acc. to 4).~~

~~6~~4) Repeat steps ~~3), 4) and 5)~~(2) and (3) for the second lower adjacent RF channel (center frequency 10 MHz for the 3,84 Mcps TDD Option and 3,2 MHz for the 1,28 Mcps TDD Option, respectively, below the assigned channel frequency of the transmitted signal) and also for the first and second upper adjacent RF channel (center frequency 5 MHz for the 3,84 Mcps TDD Option and 1,6 MHz for the 1,28 Mcps TDD Option, respectively, and 10 MHz, for the 3,84 Mcps TDD Option and 3,2 MHz for the 1,28 Mcps TDD Option, respectively).

7) Run step 1) to ~~6~~4) for RF channels Low/Mid/High.

5.5.2.2.5 Test requirements

5.5.2.2.5.1 3,84 Mcps TDD Option

The ACLR calculated in steps ~~5) and 6)~~ (3) and (4) of clause 5.5.2.2.4.2 shall be equal or greater than the limits given in table 5.5.2.2.5.1 for the 3,84 Mcps TDD Option.

Table 5.5.2.2.5.1: UE ACLR (3,84 Mcps TDD Option)

Power Class	Adjacent channel	ACLR limit
2, 3	UE-channel ± 5 MHz	32.2 dB
2, 3	UE-Channel ± 10 MHz	42.2 dB

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in annex F clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in annex F.

5.5.2.2.5.2 1,28 Mcps TDD Option

The ACLR calculated in steps ~~5) and 6)~~ (3) and (4) of clause 5.5.2.2.4.2 shall be equal or greater than the limits given in table 5.5.2.2.5.2 for the 1,28 Mcps TDD Option.

Table 5.5.2.2.5.2: UE ACLR (1,28 Mcps TDD Option)

Power Class	Adjacent channel	ACLR limit
2, 3	UE-channel ± 1.6 MHz	32.2 dB
2, 3	UE-Channel ± 3.2 MHz	42.2 dB

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in annex F clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in annex F.

3GPP TSG-T1 Meeting 17
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Tdoc ⌘T1-020760

CR-Form-v7

CHANGE REQUEST

⌘ **34.122** **CR** **110** ⌘ **rev** **-** ⌘ Current version: **3.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ [ ] ME [X] Radio Access Network [ ] Core Network [ ]

Title:	⌘	Inclusion of TDD RRC re-establishment delay test cases
Source:	⌘	T1/RF
Work item code:	⌘	-
Date:	⌘	08/11/2002
Category:	⌘	**F**
Release:	⌘	R99

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.

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)*
Rel-6	*(Release 6)*

Reason for change:	⌘	Updating to be consistent with core specifications
Summary of change:	⌘	Addition of clauses for reconnection times, to cover behaviour of TDD when the radio link is lost
Consequences if not approved:	⌘	Incomplete test documentation, with no sections covering reconnection after lost radio link in TDD cases.

Clauses affected:	⌘	8.4.1 to 8.4.2			
Other specs affected:	⌘	**Y**	**N**	Other core specifications	⌘
				Test specifications	
				O&M Specifications	
Other comments:	⌘	Clauses included for the compatibility with Rel 4 CR, T1R-020324 This document is a revised version of T1R020323.			

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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.

8.4 RRC Connection Control

8.4.1 RRC connection re-establishment delay

8.4.1.1 To a known target cell,

(FFS)

8.4.1.2 To an unknown target cell,

(FFS)

3GPP TSG-T1 Meeting 17
LUTON , UK, 4th - 8th Nov. 2002

Tdoc ⌘T1-020761

CR-Form-v7

CHANGE REQUEST

⌘ **34.122** **CR** **120** ⌘ **rev** **-** ⌘ Current version: **4.5.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ [ ] ME [X] Radio Access Network [ ] Core Network [ ]

Title:	⌘	Inclusion of RRC re-establishment delay test cases
Source:	⌘	T1/RF
Work item code:	⌘	LCRTDD
Date:	⌘	08/11/2002
Category:	⌘	**F**
Release:	⌘	Rel-4

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.

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)*
Rel-6	*(Release 6)*

Reason for change:	⌘	Updating to be consistent with core specifications
Summary of change:	⌘	Addition of tests of reconnection times, to cover behaviour of LCR TDD when the radio link is lost
Consequences if not approved:	⌘	Incomplete test documentation, not covering reconnection after lost radio link in TDD cases.

Clauses affected:	⌘	8.4.1			
Other specs affected:	⌘	**Y**	**N**		⌘
		[ ]	[ ]	Other core specifications	
		[ ]	[ ]	Test specifications	
		[ ]	[ ]	O&M Specifications	
Other comments:	⌘	As far as possible this has been made similar to the FDD case.			

How to create CRs using this form:
Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.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.

8.4 RRC Connection Control

8.4.1 RRC connection re-establishment delay

8.4.1.1 To a known target cell, 3,84Mcps option

(FFS)

8.4.1.2 To an unknown target cell, 3,84Mcps option

(FFS)

8.4.1.3 Test 1 :1,28Mcps option

8.4.1.3.1 Definition and applicability

The UE Re-establishment delay requirement ($T_{UE\text{-}RE\text{-}ESTABLISH\text{-}REQ}$) is defined as the time between the moment when radio link failure is considered by the UE, to when the UE starts to send preambles on the PRACH.

$T_{UE\text{-}RE\text{-}ESTABLISH\text{-}REQ}$ is depending on whether the target cell is known by the UE or not. A cell is known if either or both of the following conditions are true:

- the UE has had radio links connected to the cell in the previous (old) active set.
- the cell has been measured by the UE during the last 5 seconds.

The requirements of this test apply to the TDD UE, 1.28 Mcps option..

8.4.1.3.2 Minimum requirement

The Re-establishment delay $T_{RE\text{-}ESTABLISH}$ to a known cell shall be less than 1.9 s.

The rate of correct RRC re-establishments observed during repeated tests shall be at least 90%.

NOTE: The Re-establishment delay in this case can be expressed as

$$T_{RE\text{-}ESTABLISH} = T_{RRC\text{-}RE\text{-}ESTABLISH} + T_{UE\text{-}RE\text{-}ESTABLISH\text{-}REQ\text{-}KNOWN}.$$

where

$T_{RRC\text{-}RE\text{-}ESTABLISH}$= $160ms+(N_{313}-1)*10ms+T_{313}$

$T_{UE\text{-}RE\text{-}ESTABLISH\_REQ\text{-}KNOWN}=50ms+T_{search} + T_{SI} + T_{RA}$,

N_{313}= 20

T_{313}= 0s

T_{search}= 100ms

T_{RA} = The additional delay caused by the random access procedure. 40 ms is assumed in this test case.

T_{SI} is the time required for receiving all the relevant system information data according to the reception procedure and the RRC procedure delay of system information blocks defined in 25.331 for a UTRAN cell (ms). 1280 ms is assumed in this test case.

This gives a total of 1820ms, allow 1.9s in the test case.

8.4.1.3.3 Test purpose

To verify that the UE meets the minimum requirement.

8.4.1.3.4 Method of test

8.4.1.3.4.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G2.2

Frequencies to be tested: mid range; see clause G.2.4

The test parameters are given in table 8.4.1.3.4.1 and table 8.4.1.3.4.2 below. The maximum repetition period of the relevant system info blocks that needs to be received by the UE to camp on a cell shall be 1280 ms. And DRX cycle length shall be 1280ms. In the measurement control information it is indicated to the UE that periodic reporting shall be used. The test consist of 2 successive time periods, with a time duration of T1 and T2 respectively. At the start of time period T2, the dedicated channel is removed.

Table 8.4.1.3.4.1 General test parameters for RRC re-establishment delay, Test 1

Parameter	Unit	Value	Comment
DCH Parameters		DL and UL Reference measurement channel 12.2 kbps	As specified in clause C.3.1 and C.2.1
Power Control		On	
Active cell, Initial condition		Cell 1	
Active cell, Final condition		Cell 2	
N313		20	
N315		1	
T313	Seconds	0	
Monitored cell list size		24	Monitored set shall only include intra frequency neighbours.
Cell 2			Included in the monitored set
Reporting frequency	Seconds	4	
T1	s	10	
T2	s	6	

Table 8.4.1.3.4.2 Cell specific parameters for RRC re-establishment delay test, Test 1

Parameter	Unit	Cell 1		Cell 2	
		T1	T2	T1	T2
Cell Frequency	ChNr	1		1	
CPICH_Ec/Ior	DB	-10		-10	
PCCPCH_Ec/Ior	DB	-12		-12	
PICH_Ec/Ior	DB	-15		-15	
DCH_Ec/Ior	dB	-17	-Infinity	Not applicable	
OCNS_Ec/Ior	dB	-1.049	-0.941	-0.941	
$\hat{I}_{or}/I_{oc}$	dB	2,39	-Infinity	4,39	
I_{oc}	dBm/ 1.28 MHz	-70			
CPICH_Ec/Io	dB	-15	-Infinity	-13	
Propagation Condition		AWGN			

8.4.1.3.4.2 Procedure

1) The RF parameters are set up according to column T1 in table 8.4.1.3.4.2.
2) The UE is switched on.
3) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.4
4) The SS waits for random access requests from the UE on cell 2.

5) 10 s after step3 has completed, the parameters are changed to that as described for column T2.

6) If the UE responds on cell 2 within 2.0 s from the beginning of time period T2 with a CELL_UPDATE command then the number of successful tests is increased by one.

7) SS shall transmit a RRC CONNECTION RELEASE message to make the UE transit to idle mode.

8) After 6 seconds from the beginning of time period T2, the RF parameters are set up according to T1.

9) The SS shall wait for 30s to make the UE complete cell reselection to cell1.

10) Repeat step 3-9 [TBD] times.

NOTE: The time required for receiving all the relevant system information data according to the reception procedure and the RRC procedure delay of system information blocks defined in 25.331 for a UTRAN cell. Since the maximum repetition period of the relevant system info blocks that needs to be received by the UE to camp on a cell is 1280ms and the maximum RRC procedure delay for reception system information block is 100ms, 1380 ms is assumed in this test case. Therefore this gives a total of 1920ms(Minimum requirement + 100ms), allow 2s in the test case.

8.4.1.3.5 Test requirements

For the test to pass, the total number of successful tests shall be more than 90% with a confidence level of [FFS]% of the cases.

Note: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.4.1.4 Test 2: 1,28Mcps option

8.4.1.4.1 Definition and applicability

The UE Re-establishment delay requirement ($T_{UE\text{-}E\text{-}ESTABLISH\text{-}REQ}$) is defined as the time between the moment when radio link failure is considered by the UE, to when the UE starts to send preambles on the PRACH.

$T_{UE\text{-}RE\text{-}ESTABLISH\text{-}REQ}$ is depending on whether the target cell is known by the UE or not. A cell is NOT known if both of the following conditions are true:

- the UE has NOT had radio links connected to the cell in the previous (old) active set.
- the cell has NOT been measured by the UE during the last 5 seconds.

The requirements of this test apply to the TDD UE, 1.28 Mcps option..

8.4.1.4.2 Minimum requirement

The rate of correct RRC re-establishments observed during repeated tests shall be at least 90%.

NOTE: The Re-establishment delay in this case can be expressed as

$$T_{RE\text{-}ESTABLISH} = T_{RRC\text{-}RE\text{-}ESTABLISH} + T_{UE\text{-}RE\text{-}ESTABLISH\text{-}REQ\text{-}UNKNOWN}.$$

where

$T_{RRC\text{-}RE\text{-}ESTABLISH} = 160ms + (N_{313}-1)*10ms + T_{313}$

$T_{UE\text{-}RE\text{-}ESTABLISH\text{-}REQ\text{-}UNKNOWN} = 50ms + T_{search}*NF + T_{SI} + T_{RA}$,

$N_{313} = 20$

T_{313}= 0s

T_{search}= 800ms

NF is the number of different frequencies in the monitored set. 3 frequencies are assumed in this test case.

T_{RA} = The additional delay caused by the random access procedure. 40 ms is assumed in this test case.

T_{SI} is the time required for receiving all the relevant system information data according to the reception procedure and the RRC procedure delay of system information blocks defined in 25.331 for a UTRAN cell (ms).1280 ms is assumed in this test case.

This gives a total of 4120ms, allow 4.2s in the test case.

8.4.1.4.3 Test purpose

To verify that the UE meets the minimum requirement

8.4.1.4.4 Method of test

8.4.1.4.4.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G2.2

Frequencies to be tested: mid range; see clause G.2.4

The test parameters are given in table 8.4.1.4.1 and table 8.4.1.4.2 below. The maximum repetition period of the relevant system info blocks that needs to be received by the UE to camp on a cell shall be 1280 ms. And DRX cycle length shall be 1280ms. In the measurement control information it is indicated to the UE that periodic reporting shall be used. The test consists of 2 successive time periods, with a time duration of T1 and T2 respectively. At the start of time period T2, the dedicated channel is removed.

Table 8.4.1.4.1. General test parameters for RRC re-establishment delay, Test 2

Parameter	Unit	Value	Comment
DCH Parameters		DL and UL Reference measurement channel 12.2 kbps	As specified in clause A.3.1 and A.2.1
Power Control		On	
Active cell, initial condition		Cell 1	
Active cell, final condition		Cell 2	
N313		20	
N315		1	
T313	Seconds	0	
Monitored cell list size		24	Monitored set shall include 2 additional frequencies.
Cell 2			Cell 2 is not included in the monitored set. Cell 2 is located on one of the 2 additional frequencies of the monitored set.
Reporting frequency	Seconds	4	
T1	s	10	
T2	s	6	

Table 8.4.1.4.2 Cell specific parameters for RRC re-establishment delay test, Test 2

Parameter	Unit	Cell 1		Cell 2	
		T1	T2	T1	T2
Cell Frequency	ChNr	1		2	
CPICH_Ec/Ior	DB	-10		-10	
PCCPCH_Ec/Ior	DB	-12		-12	
PICH_Ec/Ior	DB	-15		-15	
DCH_Ec/Ior	DB	-17	-Infinity	Not applicable	
OCNS_Ec/Ior	DB	-1.049	-0.941	-0.941	
$\hat{I}_{or}/I_{oc}$	DB	-3,35	-Infinity	-Infinity	0,02
I_{oc}	dBm/ 1.28 MHz	-70			
CPICH_Ec/Io	DB	-15	-Infinity	-Infinity	-13
Propagation Condition		AWGN			

8.4.1.4.4.2 Procedure

1) The RF parameters are set up according to column T1 in table 8.4.1.4.2.
2) The UE is switched on.
3) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.4
4) The SS waits for random access requests from the UE on cell 2.
5) 10 s after step3 has completed, the parameters are changed to that as described for column T2.
6) If the UE responds on cell 2 within 4.3 s from the beginning of time period T2 with a CELL_UPDATE command then the number of successful tests is increased by one.
7) SS shall transmit a RRC CONNECTION RELEASE message to make the UE transit to idle mode.
8) After 6 seconds the RF parameters are set up according to T1.
9) The SS shall wait for 30s to make the UE complete cell reselection to cell1.
10) Repeat step 3-9 [TBD] times

NOTE: The time required for receiving all the relevant system information data according to the reception procedure and the RRC procedure delay of system information blocks defined in 25.331 for a UTRAN cell. Since the maximum repetition period of the relevant system info blocks that needs to be received by the UE to camp on a cell is 1280ms and the maximum RRC procedure delay for reception system information block is 100ms, 1380 ms is assumed in this test case. Therefore this gives a total of 4220ms(Minimum requirement + 100ms), allow 4.3s in the test case.

8.4.1.4.5 Test requirements

For the test to pass, the total number of successful tests shall be more than 90% with a confidence level of [FFS]% of the cases.

Note: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

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LUTON , UK, 4th - 8th Nov. 2002

Tdoc ⌘ T1-020762

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CHANGE REQUEST

⌘ **34.122** **CR** **115** ⌘ **rev** **-** ⌘ Current version: **4.5.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ [ ] ME [X] Radio Access Network [ ] Core Network [ ]

Title:	⌘	Corrections of TDD out-of Synchronisation Output power
Source:	⌘	T1/RF
Work item code:	⌘	LCRTDD
Date:	⌘	08/11/2002
Category:	⌘	**F**
Release:	⌘	Rel-4

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.

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)*
Rel-6	*(Release 6)*

Reason for change:	⌘	Updates to reflect latest version core specification
Summary of change:	⌘	Addition of Discontinous case to out-of synchronisation output power tests
Consequences if not approved:	⌘	Incomplete testing, not reflecting latest core specification.

Clauses affected:	⌘	5.4.5 and 5.4.6

		Y	N		
Other specs affected:	⌘	[ ]	[ ]	Other core specifications	⌘
		[ ]	[ ]	Test specifications	
		[ ]	[ ]	O&M Specifications	

Other comments:	⌘	

How to create CRs using this form:
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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.

5.4.5 Out-of-synchronisation handling of output power for continuous transmission

5.4.5.1 Definition and applicability

The UE shall monitor the DPCH quality in order to detect a loss of the signal on Layer 1, as specified in TS 25.224. [5] The thresholds Q_{out} and Q_{in} specify at what DPCH quality levels the UE shall shut its power off and when it shall turn its power on, respectively. The thresholds are not defined explicitly, but are defined by the conditions under which the UE shall shut its transmitter off and turn it on, as stated in this clause.

The requirement of this clause shall apply to all types of UTRA-UE.

5.4.5.2 Minimum Requirement

5.4.5.2.1 3,84 Mcps TDD Option

When the UE estimates the DPCH quality over the last 160 ms period to be worse than a threshold Q_{out}, the UE shall shut its transmitter off within 40 ms. The UE shall not turn its transmitter on again until the DPCH quality exceeds an acceptable level Q_{in}. When the UE estimates the DPCH quality over the last 160 ms period to be better than a threshold Q_{in}, the UE shall again turn its transmitter on within 40 ms.

The quality levels at the thresholds Q_{out} and Q_{in} correspond to different signal levels depending on the downlink conditions DCH parameters. For the conditions in table 5.4.5.2.1, a signal with the quality at the level Q_{out} is generated by a ΣDPCH_Ec/Ior ratio of -13 dB, and a signal with Q_{in} by a ΣDPCH_Ec/Ior ratio of -9 dB. In this test, the DL reference measurement channel (12,2) kbps specified in clause C.3.1, where the CRC bits are replaced by data bits, and with static propagation conditions is used.

Table 5.4.5.2.1: DCH parameters the of Out-of-synch handling test case test case – 3.84 Mcps TDD option – continuous transmission

Parameter	Unit	Value
$\hat{I}_{or}/I_{oc}$	dB	-1.1
I_{oc}	dBm/3,84 MHz	-60
$\frac{\Sigma DPCH\_E_c}{I_{or}}$	dB	See figure 5.4.5.2.1
Information Data Rate	kbps	13
TFCI	-	On

~~The quality levels at the thresholds Qout and Qin correspond to different signal levels depending on the downlink conditions DCH parameters. For the conditions in table 6.4, a signal with the quality at the level Qout can be generated by a ΣDPCH_Ec/Ior ratio of -13 dB, and a signal with Qin by a ΣDPCH_Ec/Ior ratio of -9 dB. In this test, the DL reference measurement channel (12.2) kbps specified in subclauseA.2.2, where the CRC bits are replaced by data bits, and with static propagation conditions is used~~

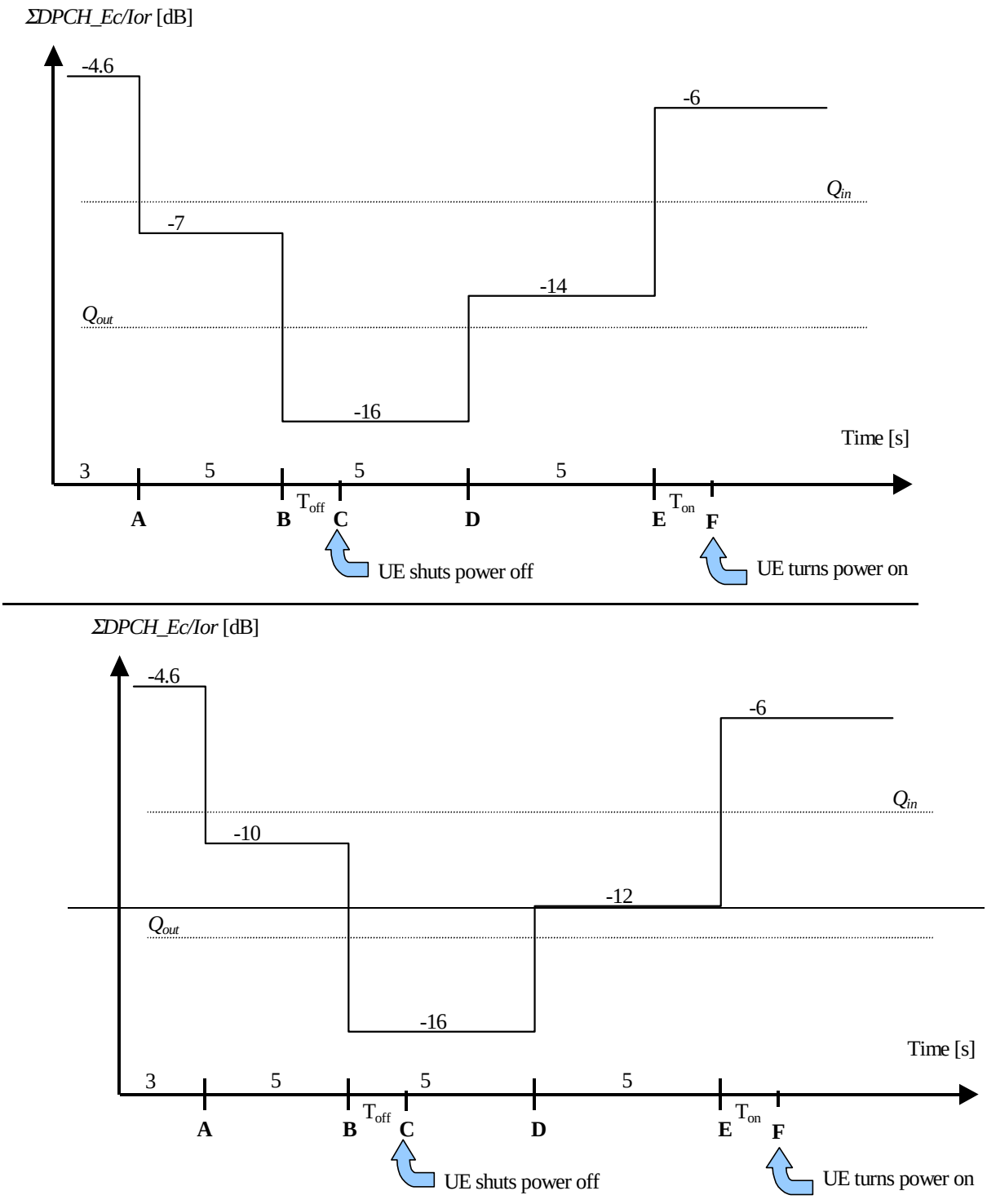

Figure 5.4.5.2.1: Test case for out-of-synch handling in the UE. Conditions apply for 3,84 Mcps TDD Option – continuous transmission

The requirements for the UE are that:

1) The UE shall not shut its transmitter off before point B.
2) The UE shall shut its transmitter off before point C, which is T_{off} = 200 ms after point B
3) The UE shall not turn its transmitter on between points C and E.
4) The UE shall turn its transmitter on before point F, which is Ton = 200 ms after Point E.

The normative reference for this test is TS 25.102 [1] clause 6.4.3.1.1.

5.4.5.2.2 1,28 Mcps TDD Option

The parameters in table 5.4.5.2.2 are defined using the DL reference measurement channel (12,2) kbps specified in annex C where the CRC bits are replaced by data bits, and with static propagation conditions.

Table 5.4.5.2.2: DCH parameters for test of Out-of-synch handling

Parameter	Unit	Value
$\hat{I}_{or}/I_{oc}$	dB	-1
I_{oc}	dBm/1,28 MHz	-60
$\frac{\Sigma DPCH\_E_c}{I_{or}}$	dB	See figure 5.4.5.2.2
Information Data Rate	kbps	12,2
TFCI	-	On

The conditions for when the UE shall shut its transmitter off and when it shall turn it on are defined by the parameters in table 5.4.5.1.2 together with the DPCH power level as defined in figure 5.4.5.1.

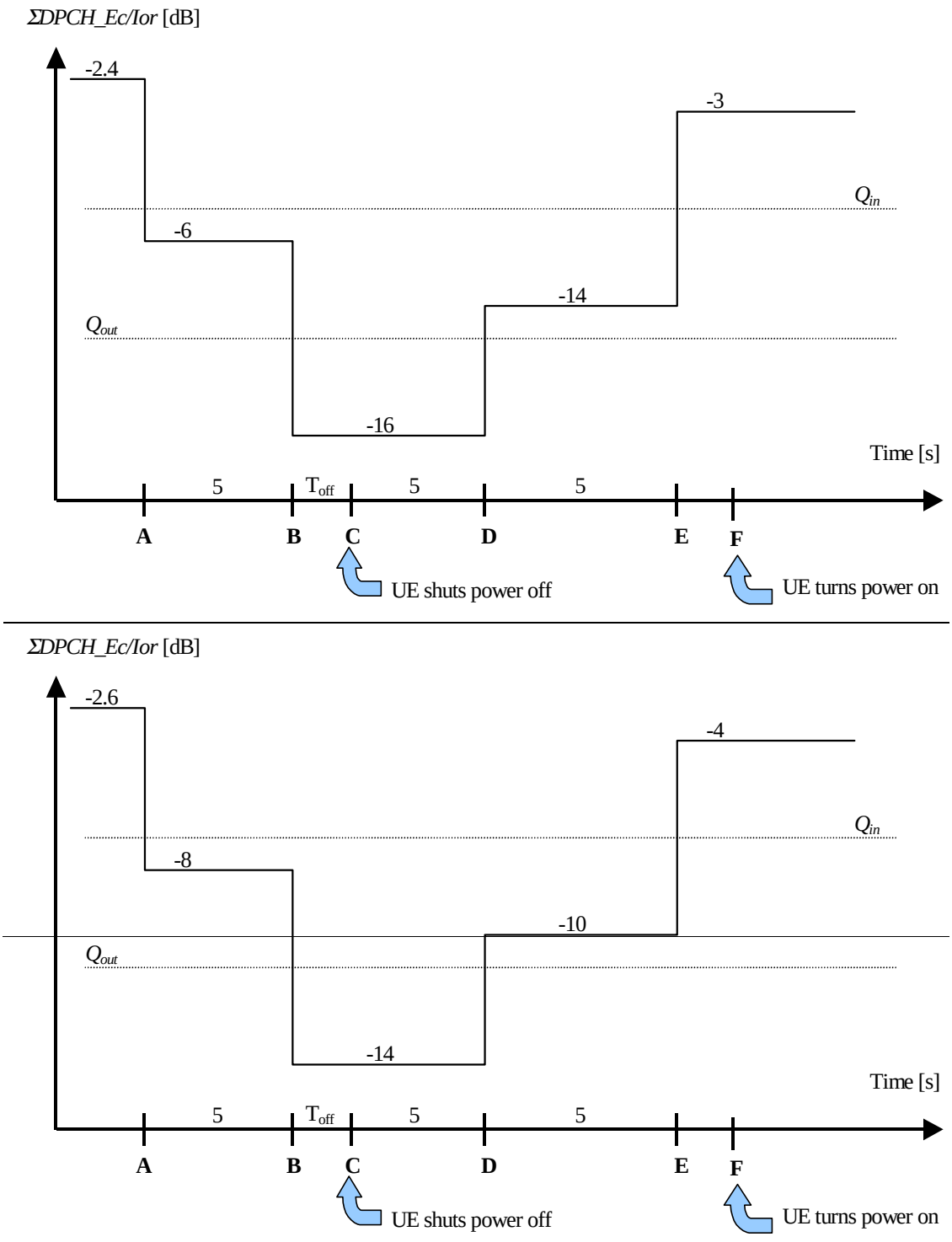

Figure 5.4.5.2.2: Conditions for out-of-synch handling in the UE. The indicated thresholds Q_{out} andQ_{in} are only informative. Conditions apply for 1,28 Mcps TDD Option– continuous transmission

The requirements for the UE are that:

1. The UE shall not shut its transmitter off before point B.
2. The UE shall shut its transmitter off before point C, which is T_{off} = 200 ms after point B
3. The UE shall not turn its transmitter on between points C and E.
4. The UE shall turn its transmitter on before point F, which is T_{on} = 200 ms after Point E.

The normative reference for this test is TS 25.102 [1] clause 6.4.3.1.2.

5.4.5.3 Test purpose

To verify that the UE monitors the DPCH quality and turns its transmitter on or off according to DPCH level diagram specified in figure5.4.5.1

5.4.5.4 Method of test

5.4.5.4.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

1) Connect the SS to the UE antenna connector as shown in figure A.1.
2) Calls are set up according to the Generic call setup procedure using parameters as specified in table 5.4.5.1
3) Enter the UE into loopback test mode and start the loopback test.
4) The handover triggering level shall be set very high [TBD] to ensure that the beacon channel power never exceeds the value of 10dB above it. Therefore the averaging time for signal quality will always be 160 milliseconds.

5.4.5.4.2 Procedure

5.4.5.4.2.1 3,84 Mcps TDD Option

1) SS level and signalling values are set that the UE transmits maximum power (see annex E clause E.3.1)
2) Set the SS TX signal quality to $\frac{\Sigma DPCH\_E_c}{I_{or}}$ = -4.6[+0~~,~~.4 – 0] dB and verify that the UE TX signal is on.
3) Set the SS TX signal quality to $\frac{\Sigma DPCH\_E_c}{I_{or}}$ = -~~10~~7[+0~~,~~.4 –0] dB and verify that the UE TX signal remains on continuously for at least 5 seconds.
4) Set the SS TX signal quality to $\frac{\Sigma DPCH\_E_c}{I_{or}}$ = -16[+0 -0~~,~~.4] dB and verify that the UE TX signal turns off 200 ms or earlier with respect to that instant.
5) Set the SS TX signal quality to $\frac{\Sigma DPCH\_E_c}{I_{or}}$ = -~~12~~14[+0 -0~~,~~.4] dB and verify that the UE TX signal remains off continuously for at least 5 seconds.
6) Set the SS TX signal quality to $\frac{\Sigma DPCH\_E_c}{I_{or}}$ = -6[+0~~,~~.4 –0] dB and verify that the UE TX signal is switched on 200 ms or earlier with respect to that instant.

5.4.5.4.2.2 1,28 Mcps TDD Option

1) The SS sends continuously Up power control commands to the UE until the UE transmitter power reaches maximum level

2) Set the SS TX signal quality to $\frac{\Sigma DPCH\_E_c}{I_{or}}$ = -2.~~6~~4~~+~~[~~+~~0~~,~~.3 -0] dB and verify that the UE TX signal is on.

3) Set the SS TX signal quality to $\frac{\Sigma DPCH\_E_c}{I_{or}}$ = -~~8~~6~~+~~[~~+~~0~~,~~.3 -0] dB and verify that the UE TX signal remains on continuously for at least 5 seconds.

4) Set the SS TX signal quality to $\frac{\Sigma DPCH\_E_c}{I_{or}}$ = -~~14~~16~~-~~[+0 -0~~,~~.3] dB and verify that the UE TX signal turns off 200 ms or earlier with respect to that instant.

5) Set the SS TX signal quality to $\frac{\Sigma DPCH\_E_c}{I_{or}}$ = -~~10~~14~~-~~[+0 -0~~,~~.3] dB and verify that the UE TX signal remains off continuously for at least 5 seconds.

6) Set the SS TX signal quality to $\frac{\Sigma DPCH\_E_c}{I_{or}}$ = -~~4~~3~~+~~[~~+~~0~~,~~.3 -0] dB and verify that the UE TX signal is switched on 200 ms or earlier with respect to that instant.

5.4.5.5 Test Requirements

The UE TX on-criterion including tolerance window is derived from the initial conditions and is verified with the method of 5.4.2.4 minimum transmit power related to minimum requirements according to clause 5.4.2.2.1 for 3,84 Mcps TDD Option and 5.4.2.2.2 for 1,28 Mcps TDD Option, respectively. The UE transmitter is considered to be on if the UE transmitted power is higher than the minimum output power.

The UE TX off criterion including tolerance is verified according to clause 5.4.3 of the present document (Transmit off power). The UE transmitter is considered to be off if the UE transmitted power is lower than the transmit OFF power.

To pass the test, steps 1 through 6 of the procedure must be fulfilled.

5.4.6 Out-of-synchronisation handling of output power for discontinuous transmission

5.4.6.1 Definition and applicability

Normally the UE monitors the DPCH quality in order to detect a loss of the signal on Layer 1, as specified in TS 25.224. [5] The thresholds Q_{out} and Q_{in} specify at what DPCH quality levels the UE shall shut its power off and when it shall turn its power on, respectively. The thresholds are not defined explicitly, but are defined by the conditions under which the UE shall shut its transmitter off and turn it on, as stated in this clause.

However, during DTX, there are periods when the UE will receive no data from the UTRAN. As specified in TS 25.224, in order to keep synchronization, Special Bursts shall be transmitted by the UTRAN during these periods of no data.

During these periods, the conditions for when the UE shall shut its transmitter on or off are defined by the power level of the received Special Bursts.

When the UE does not detect at least one special burst with a quality above a threshold Q_{sbout} over the last 160 ms period, the UE shall shut its transmitter off within 40 ms. The UE shall not turn its transmitter on again until the special burst quality exceeds an acceptable level Q_{sbin}. When the UE estimates the special burst quality to be better than a threshold Q_{sbin} over the last 160 ms, the UE shall again turn its transmitter on within 40 ms.

The requirement of this clause shall apply to all types of UTRA-UE.

5.4.6.2 Minimum Requirement

5.4.6.2.1 3,84 Mcps TDD Option

When the UE estimates the DPCH quality over the last 160 ms period to be worse than a threshold Q_{out}, the UE shall shut its transmitter off within 40 ms. The UE shall not turn its transmitter on again until the DPCH quality exceeds an acceptable level Q_{in}. When the UE estimates the DPCH quality over the last 160 ms period to be better than a threshold Q_{in}, the UE shall again turn its transmitter on within 40 ms.

The quality levels at the thresholds Q_{out} and Q_{in} correspond to different signal levels depending on the downlink conditions DCH parameters. For the conditions in table 5.4.6.2.1, a signal with the quality at the level Q_{out} is generated by a DPCH Ec/Ior ratio of -16 dB during special bursts, and a signal with Q_{in} by a DPCH Ec/Ior ratio of -12 dB.

Table 5.4.6.2.1: DCH parameters the of Out-of-synch handling test case test case – 3.84 Mcps TDD option – discontinuous transmission

Parameter	Unit	Value
$\hat{I}_{or}/I_{oc}$	dB	1.1
I_{oc}	dBm/3,84 MHz	-60
$\frac{\Sigma DPCH\_E_c}{I_{or}}$	dB	See figure 5.4.6.2.1
Bits/burst (including TFCI bits)	bits	244
TFCI	-	On

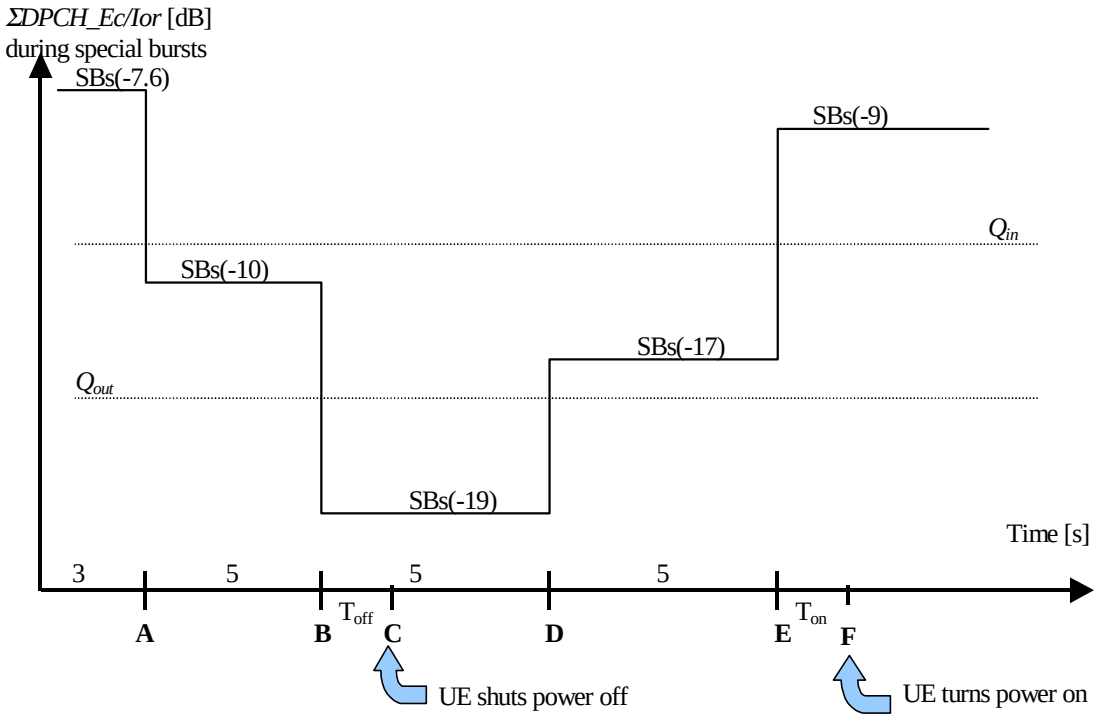

Figure 5.4.6.2.1: Test case for out-of-synch handling in the UE. Conditions apply for 3,84 Mcps TDD Option – discontinuous transmission

The requirements for the UE are that:

1) The UE shall not shut its transmitter off before point B.

2) The UE shall shut its transmitter off before point C, which is T_{off} = 200 ms after point B

3) The UE shall not turn its transmitter on between points C and E.

4) The UE shall turn its transmitter on before point F, which is Ton = 200 ms after Point E.

The normative reference for this test is TS 25.102 [1] clause 6.4.3.1.1.

5.4.6.2.2 1,28 Mcps TDD Option

When the UE estimates the DPCH quality over the last 160 ms period to be worse than a threshold Q_{out}, the UE shall shut its transmitter off within 40 ms. The UE shall not turn its transmitter on again until the DPCH quality exceeds an acceptable level Q_{in}. When the UE estimates the DPCH quality over the last 160 ms period to be better than a threshold Q_{in}, the UE shall again turn its transmitter on within 40 ms.

The quality levels at the thresholds Q_{out} and Q_{in} correspond to different signal levels depending on the downlink conditions DCH parameters. For the conditions in table 5.4.6.2.2, a signal with the quality at the level Q_{out} is generated by a DPCH Ec/Ior ratio of -16 dB during special bursts, and a signal with Q_{in} by a DPCH Ec/Ior ratio of -12 dB.

Table 5.4.6.2.2: DCH parameters for test of Out-of-synch handling

Parameter	Unit	Value
$\hat{I}_{or}/I_{oc}$	dB	-1
I_{oc}	dBm/1,28 MHz	-60
$\frac{\Sigma DPCH\_E_c}{I_{or}}$	dB	See figure 5.4.6.2.2
Bits/burst (including TFCI bits)	bits	88 per subframe
TFCI	-	On

The conditions for when the UE shall shut its transmitter off and when it shall turn it on are defined by the parameters in table 5.4.6.2.2 together with the DPCH power level as defined in figure 5.4.6.2.

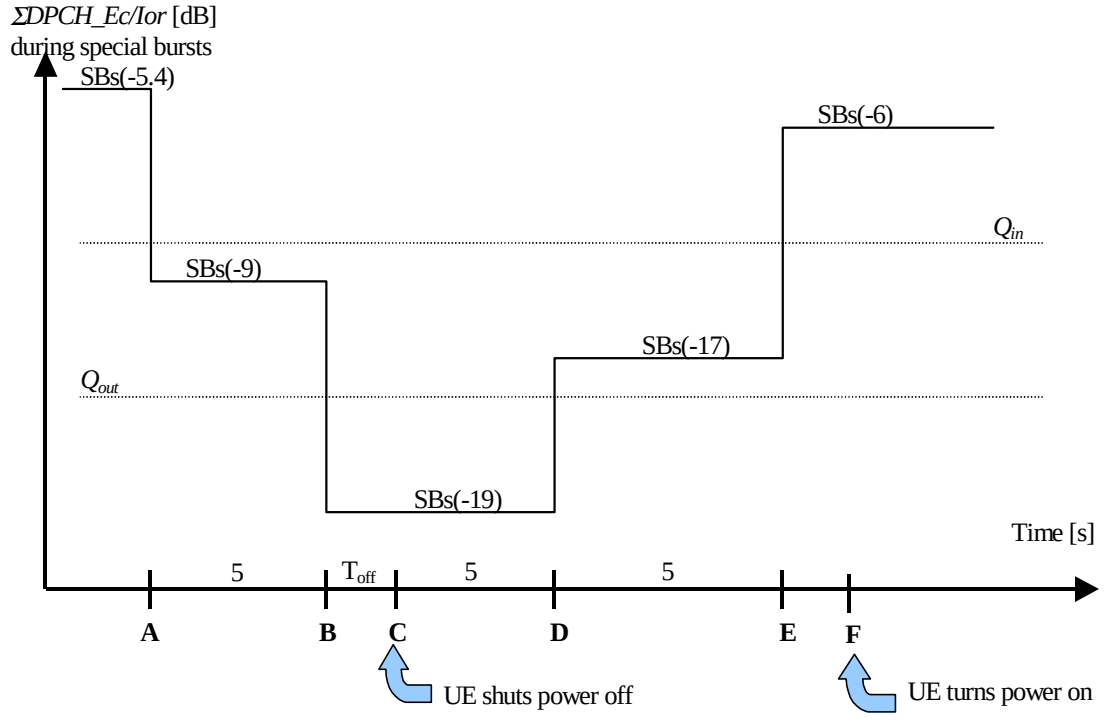

Figure 5.4.6.2.2: Conditions for out-of-synch handling in the UE. The indicated thresholds Q_{out} and Q_{in} are only informative. Conditions apply for 1,28 Mcps TDD Option– discontinuous transmission

The requirements for the UE are that:

1. The UE shall not shut its transmitter off before point B.
2. The UE shall shut its transmitter off before point C, which is T_{off} = 200 ms after point B
3. The UE shall not turn its transmitter on between points C and E.
4. The UE shall turn its transmitter on before point F, which is T_{on} = 200 ms after Point E.

The normative reference for this test is TS 25.102 [1] clause 6.4.3.1.2.

5.4.6.3 Test purpose

To verify that the UE monitors the DPCH quality and turns its transmitter on or off according to DPCH level diagram specified in figure5.4.6.1

5.4.6.4 Method of test

5.4.6.4.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

1) Connect the SS to the UE antenna connector as shown in figure A.1.
2) Calls are set up according to the Generic call setup procedure using parameters as specified in table 5.4.6.1
3) Enter the UE into loopback test mode and start the loopback test.
4) The handover triggering level shall be set very high [TBD] to ensure that the beacon channel power never exceeds the value of 10dB above it. Therefore the averaging time for signal quality will always be 160 milliseconds.

5.4.6.4.2 Procedure

5.4.6.4.2.1 3,84 Mcps TDD Option

1) SS level and signalling values are set that the UE transmits maximum power (see annex E clause E.3.1)
2) Set the SS TX signal quality to $\frac{DPCH\_E_c}{I_{or}}$ = -7.6[+0.4 –0] dB and verify that the UE TX signal is on.
3) Set the SS TX signal quality to $\frac{DPCH\_E_c}{I_{or}}$ = -10[+0.4 –0] dB and verify that the UE TX signal remains on continuously for at least 5 seconds.
4) Set the SS TX signal quality to $\frac{DPCH\_E_c}{I_{or}}$ = -19[+0 –0.4] dB and verify that the UE TX signal turns off 200 ms or earlier with respect to that instant.
5) Set the SS TX signal quality to $\frac{DPCH\_E_c}{I_{or}}$ = -17[+0 –0.4] dB and verify that the UE TX signal remains off continuously for at least 5 seconds.
6) Set the SS TX signal quality to $\frac{DPCH\_E_c}{I_{or}}$ = -9[+0.4 –0] dB and verify that the UE TX signal is switched on 200 ms or earlier with respect to that instant.

5.4.6.4.2.2 1,28 Mcps TDD Option

1) The SS sends continuously Up power control commands to the UE until the UE transmitter power reaches maximum level

2) Set the SS TX signal quality to $\frac{DPCH\_E_c}{I_{or}}$ = -5.4[+0.3 - 0] dB and verify that the UE TX signal is on.

3) Set the SS TX signal quality to $\frac{DPCH\_E_c}{I_{or}}$ = -9+[+0,3-0] dB and verify that the UE TX signal remains on continuously for at least 5 seconds.

4) Set the SS TX signal quality to $\frac{DPCH\_E_c}{I_{or}}$ = -19-[+0-0,3] dB and verify that the UE TX signal turns off 200 ms or earlier with respect to that instant.

5) Set the SS TX signal quality to $\frac{DPCH\_E_c}{I_{or}}$ = -17-[=0-0,3] dB and verify that the UE TX signal remains off continuously for at least 5 seconds.

6) Set the SS TX signal quality to $\frac{DPCH\_E_c}{I_{or}}$ = -6~~+~~[+0,3-0] dB and verify that the UE TX signal is switched on 200 ms or earlier with respect to that instant.

5.4.6.5 Test Requirements

The UE TX on-criterion including tolerance window is derived from the initial conditions and is verified with the method of 5.4.2.4 minimum transmit power related to minimum requirements according to clause 5.4.2.2.1 for 3,84 Mcps TDD Option and 5.4.2.2.2 for 1,28 Mcps TDD Option, respectively. The UE transmitter is considered to be on if the UE transmitted power is higher than the minimum output power.

The UE TX off criterion including tolerance is verified according to clause 5.4.3 of the present document (Transmit off power). The UE transmitter is considered to be off if the UE transmitted power is lower than the transmit OFF power.

To pass the test, steps 1 through 6 of the procedure must be fulfilled.

3GPP TSG-T1 Meeting 17
Luton, UK, 4-8 November 2002

Tdoc ⌘T1-020764

CR-Form-v7

CHANGE REQUEST

⌘ **34.122** **CR** **116** ⌘ **rev** **-** ⌘ Current version: **4.5.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	Addition of LCR sub-section of TDD/TDD Intra- and Inter- frequency handover test cases.
Source:	⌘	T1/RF
Work item code:	⌘	LCRTDD
Date:	⌘	08/11/2002
Category:	⌘	**F**
Release:	⌘	Rel-4

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.

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)
Rel-6 (Release 6)

Reason for change:	⌘	LCR TDD/TDD Intra-frequency Handover test cases + LCR TDD/TDD Inter-frequency Handover test cases missing
Summary of change:	⌘	The test case for LCRTDD is largely the same as the one for HCR. 1.28Mcps option has been added as sub-section 8.3.1A, with the same structure as sub-section 8.3.1.(HCR) Addition of Contents of MEASUREMENT REPORT message for Intra frequency 1.28 Mcps option TDD test cases and Contents of MEASUREMENT REPORT message for Inter frequency 1.28 Mcps option TDD test cases in Annex I.
Consequences if not approved:	⌘	Conformance tests would be incomplete, and inconsistent with core specifications.

Clauses affected:	⌘	8.3.1A(new); Annex I

Other specs affected:	⌘	Y	N		⌘
			X	Other core specifications	
				Test specifications	
				O&M Specifications	

Other comments:	⌘	

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.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.

8.3.1A TDD/TDD Handover for 1,28 Mcps Option

8.3.1A.1 Handover to intra-frequency cell

8.3.1A.1.1 Definition and applicability

Handover delay of the UE is defined as the time from the end of the last TTI containing an RRC message implying hard handover to the transmission of the new uplink DPCH, excluding the RRC procedure delay as defined in [9].

The requirements and this test apply to the UTRA TDD UE 1.28 Mcps option.

8.3.1A.1.2 Minimum requirement

The hard handover delay shall be less than 40 ms in the single carrier case when the cell is known by the UE and the SFN of the target cell does not need to be decoded. The rate of correct handovers observed during repeated tests shall be at least 90% with a confidence level of [FFS]%.

The normative reference for this requirement is TS 25.123 [2] clauses 5.1.2 and A.5.1.2.

8.3.1A.1.3 Test purpose

The purpose of this test is to verify the requirement for the intra-frequency handover delay in CELL_DCH state in the single carrier case.

8.3.1A.1.4 Method of test

8.3.1A.1.4.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

The test parameters are given in table 8.3.1A.1.1 and 8.3.1A.1.2. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 1G shall be used, and that P-CCPCH RSCP and SFN-CFN observed timed difference shall be reported together with Event 1G. The test consists of three successive time periods, with a time duration of T1, T2 and T3 respectively. At the start of time duration T1, the UE may not have any timing information of cell 2.

UTRAN shall send a Physical Channel reconfiguration message with activation time at the beginning of T3 with a new active cell, cell 2. The Physical Channel reconfiguration message shall be sent to the UE such that the delay between the end of the last received TTI containing the message and the beginning of T3 is at least equal to the RRC procedure delay as defined in [9].

Table 8.3.1A.1.1: General test parameters for Handover to intra-frequency cell

Parameter		Unit	Value	Comment
DCH parameters			DL Reference Measurement Channel 12.2 kbps	As specified in TS 25.102 clause A.2.2
Power Control			On	
Target quality value on DTCH		BLER	0.01	
Initial conditions	Active cell		Cell 1	
	Neighbour cell		Cell 2	
Final condition	Active cell		Cell 2	
HCS			Not used	
O		dB	0	Cell individual offset. This value shall be used for all cells in the test.
Hysteresis		dB	0	
Time to Trigger		ms	0	
Filter coefficient			0	
Monitored cell list size			6 TDD neighbours on Channel 1	
T1		s	10	
T2		s	10	
T3		s	10	

Table 8.3.1A.1.2: Cell specific test parameters for Handover to intra-frequency cell

Parameter	Unit	Cell 1						Cell 2					
Timeslot Number		0			5			0			5		
		T1	T2	T3	T1	T2	T3	T1	T2	T3	T1	T2	T3
UTRA RF Channel Number		Channel 1						Channel 1					
PCCPCH Ec/Ior	dB	-3			n.a.			-3			n.a.		
DPCH Ec/Ior	dB	n.a.			Note1		n.a.	n.a.			n.a.		Note1
OCNS Ec/Ior	dB	Note2			Note2			Note2			Note2		
$\hat{I}_{or}/I_{oc}$	dB	3			3			-Inf.	5		-Inf.		5
I_{oc}	dBm/ 1.28 MHz	-70											
PCCPCH RSCP	dBm	-70			n.a.			-Inf.	-68		n.a.		
Propagation Condition		AWGN											

Note 1: The DPCH level is controlled by the power control loop
Note 2: The power of the OCNS channel that is added shall make the total power from the cell to be equal to I_{or}

8.3.1A.1.4.2 Procedure

1) The RF parameters are set up according to T1.

2) The UE is switched on.

3) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.4.

4) SS shall transmit a MEASUREMENT CONTROL message.

5) After 10 seconds, the SS shall switch the power settings from T1 to T2.

6) UE shall transmit a MEASUREMENT REPORT message triggered by event 1G.

7) SS shall transmit a PHYSICAL CHANNEL RECONFIGURATION message with activation time at T3.

8) After 10 seconds, the SS shall switch the power settings from T2 to T3

9) UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the UL DCCH of cell 2. If the UE transmits the UL DPCH to cell 2 less than 40 ms from the beginning of time period T3 then the number of successful tests is increased by one.

10) After 10 seconds, the UE is switched off. Any timing information of cell 2 is deleted in the UE.

11) Repeat step 1-10 [TBD] times.

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3] with the following exceptions:

MEASUREMENT CONTROL message (step 4):

Information Element/Group name	Value/Remark
Message Type (10.2.17)	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	Not Present
Measurement Information elements	
-Measurement Identity	1
-Measurement Command (10.3.7.46)	Modify
-Measurement Reporting Mode (10.3.7.49)	
-Measurement Report Transfer Mode	AM RLC
-Periodical Reporting / Event Trigger Reporting Mode	Event trigger
-Additional measurements list (10.3.7.1)	Not Present
-CHOICE *Measurement type*	Intra-frequency measurement
-Intra-frequency measurement (10.3.7.36)	
-Intra-frequency measurement objects list (10.3.7.33)	Not Present
-Intra-frequency measurement quantity (10.3.7.38)	
-Filter coefficient (10.3.7.9)	0
-CHOICE *mode*	TDD
-Measurement quantity list	1
-Measurement quantity	Primary CCPCH
-Intra-frequency reporting quantity (10.3.7.41)	
-Reporting quantities for active set cells (10.3.7.5)	
-SFN-SFN observed time difference reporting indicator	No report
-Cell synchronisation information reporting indicator	TRUE (Note 1)
-Cell Identity reporting indicator	TRUE
-CHOICE *mode*	TDD
-Timeslot ISCP reporting indicator	TRUE
-Primary CCPCH RSCP reporting indicator	TRUE
-Pathloss reporting indicator	TRUE
-Reporting quantities for monitored set cells (10.3.7.5)	
-SFN-SFN observed time difference reporting indicator	No report
-Cell synchronisation information reporting indicator	TRUE (Note 1)
-Cell Identity reporting indicator	TRUE
-CHOICE *mode*	TDD
-Timeslot ISCP reporting indicator	TRUE
-Proposed TGSN reporting required	FALSE
-Primary CCPCH RSCP reporting indicator	TRUE
-Pathloss reporting indicator	TRUE
-Reporting quantities for detected set cells (10.3.7.5)	Not Present
-Reporting cell status (10.3.7.61)	
-CHOICE *reported cell*	Report all active set cells + cells within monitored set on used frequency
-Maximum number of reported cells	2
-Measurement validity (10.3.7.51)	Not Present
-CHOICE *report criteria*	Intra-frequency measurement reporting criteria
-Intra-frequency measurement reporting criteria (10.3.7.39)	
-Parameters required for each event	1
-Intra-frequency event identity	Event 1G
-Triggering condition 2	Not Present
-Reporting Range Constant	Not Present
-Cells forbidden to affect Reporting Range	Not Present
-CHOICE *mode*	TDD
-Primary CCPCH info (10.3.6.57)	
-CHOICE *mode*	TDD
-CHOICE *TDD option*	1.28 Mcps
TSTD indicator	TRUE
-Cell parameters ID	0
-SCTD indicator	FALSE
-W	Not Present
-Hysteresis	0 dB
-Threshold used frequency	Not Present
-Reporting deactivation threshold	Not Present
-Replacement activation threshold	Not Present
-Time to trigger	0 ms
-Amount of reporting	Infinity

Information Element/Group name	Value/Remark
-Reporting interval	0 ms (Note 2)
-Reporting cell status	Not Present
Physical channel information elements	
-DPCH compressed mode status info (10.3.6.34)	Not Present
Note 1: The SFN-CFN observed time difference is calculated from the OFF and Tm parameters contained in the IE "Cell synchronisation information ", TS 25.331, clause 10.3.7.6. According to TS 25.331, 8.6.7.7, this IE is included in MEASUREMENT REPORT if IE "Cell synchronisation information reporting indicator" in IE "Cell reporting quantities" TS 25.331, clause 10.3.7.5 is set to TRUE in MEASUREMENT CONTROL.	
Note 2: Reporting interval = 0 ms means no periodical reporting	

PHYSICAL CHANNEL RECONFIGURATION message (step 7):

Information Element	Value/Remark
Message Type	
UE Information Elements	
-RRC transaction identifier	0
-Integrity check info	Not Present
-Integrity protection mode info	Not Present
-Ciphering mode info	Not Present
-Activation time	At T3
-New U-RNTI	Not Present
-New C-RNTI	Not Present
-RRC State Indicator	CELL_DCH
-UTRAN DRX cycle length coefficient	Not Present
CN Information Elements	
-CN Information info	Not Present
UTRAN mobility information elements	
-URA identity	Not Present
RB information elements	
-Downlink counter synchronisation info	Not Present
-RB with PDCP information list	Not Present
-RB with PDCP information	Not Present
PhyCH information elements	
-Frequency info (10.3.6.36)	
-CHOICE *mode*	TDD
-UARFCN (Nt)	Same UARFCN as used for cell 2
Uplink radio resources	
-Maximum allowed UL TX power	30 dBm
-CHOICE *channel requirement*	Uplink DPCH info
-Uplink DPCH info (10.3.6.88)	
-Uplink DPCH power control info (10.3.6.91)	
-CHOICE *mode*	TDD
-CHOICE *TDD option*	1.28 Mcps TDD
-$PRX_{PDPCHdes}$	Not Present
-CHOICE *UL OL PC info*	Individually signalled
-CHOICE *TDD option*	1.28 Mcps TDD
-Indivdual Timeslot interference info	1
-Individual timeslot interference (10.3.6.38)	
-Timeslot Number (10.3.6.84)	
-CHOICE *TDD option*	1.28 Mcps TDD
-TPC step size	1
-UL Timeslot Interference	-90 dBm
-CHOICE *mode*	TDD
-Uplink timing advance control (10.3.6.96)	
-CHOICE *Timing Advance*	Disabled
-UL CCTrCH list	1
-UL Target SIR	TBD dB
-Time Info (10.3.6.83)	
-Activation Time	T3
-Duration	Infinite
-Common timeslot info	Not Present
-Uplink DPCH timeslots and codes (10.3.6.94)	
-Dynamic SF Usage	False
-First individual timeslot info (10.3.6.37)	
-Timeslot Number (10.3.6.84)	
-CHOICE *TDD option*	1.28 Mcps
-Timeslot number	2
-TFCI existence	True
-Midamble shift and burst type (10.3.6.41)	
-Choice *TDD option*	1.28 Mcps
-Midamble Allocation Mode	Default
-Midamble configuration	16
-Midamble shift	Not present
-CHOICE *TDD option*	1.28 Mcps
-Modulation	QPSK
- SS-TPC Symbols	
-Additional TPC-SS Symbols	

Information Element	Value/Remark
-First timeslot code list	1
-Channelisation code	8/1
-Choice more timeslots	No more timeslots
Downlink radio resources	
-CHOICE *mode*	TDD
-Downlink information common for all radio links (10.3.6.24)	
-Downlink DPCH info common for all RL (10.3.6.18)	
-Timing indicator	Initialise
-CFN-targetSFN frame offset	Not Present
-Downlink DPCH power control information (10.3.6.23)	
-CHOICE *mode*	TDD
-TPC Step size	1 dB
-CHOICE *mode*	TDD
-CHOICE *mode*	TDD
-CHOICE *TDD option*	1.28 Mcps
-TX Diversity mode (10.3.6.86)	None
-Default DPCH Offset Value (10.3.6.16)	0
-Downlink information per radio link list	1
-Downlink information for each radio link (10.3.6.27)	
-CHOICE *mode*	TDD
-Primary CCPCH info (10.3.6.57)	
-CHOICE *mode*	TDD
-CHOICE *TDD option*	1.28 Mcps
TSTD indicator	TRUE
-Cell parameters ID	0
-SCTD indicator	False
-Downlink DPCH info for each RL (10.3.6.21)	
-CHOICE *mode*	TDD
-DL CCTrCH list	1
-TFCS ID	Not Present
-Time Info (10.3.6.83)	
-Activation Time	T3
-Duration	Infinite
-Common timeslot info	Not Present
-Downlink DPCH timeslots and codes (10.3.6.32)	
-First individual timeslot info (10.3.6.37)	
-Timeslot Number (10.3.6.84)	
-CHOICE *TDD option*	1.28 Mcps
-Timeslot number	5
-TFCI existence	True
-Midamble shift and burst type (10.3.6.41)	
-CHOICE *TDD option*	1.28 Mcps
-Midamble Allocation Mode	Default
-Midamble configuration	16
-Midamble shift	Not present
-CHOICE *TDD option*	1.28 Mcps
-Modulation	QPSK
-SS-TPC Symbols	
-Additional TPC-SS Symbols	
-First timeslot channelisation codes (10.3.6.17)	
-CHOICE *codes representation*	Consecutive codes
-First channelisation code	16/1
-Last channelisation code	16/2
-CHOICE *more timeslots*	No more timeslots
-SCCPCH information for FACH (10.3.6.70)	Not Present

MEASUREMENT REPORT message for Intra frequency test cases

This message is common for all intra frequency test cases in clause 8.7 and is described in Annex I.

8.3.1A.1.5 Test requirements

For the test to pass, the total number of successful tests shall be more than [FFS] of the cases.

Note: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.3.1A.2 Handover to inter-frequency cell

8.3.1A.2.1 Definition and applicability

Handover delay of the UE is defined as the time from the end of the last TTI containing an RRC message implying hard handover to the transmission of the new uplink DPCH, excluding the RRC procedure delay as defined in [9].

The requirements and this test apply to the UTRA TDD UE 1.28 Mcps option.

8.3.1A.2.2 Minimum requirement

The hard handover delay shall be less than 40 ms in the dual carrier case when the cell is known by the UE and the SFN of the target cell needs to be decoded. The rate of correct handovers observed during repeated tests shall be at least 90% with a confidence level of [FFS]%.

The normative reference for this requirement is TS 25.123 [2] clauses 5.1.2 and A.5.1.2.

8.3.1A.2.3 Test purpose

The purpose of this test is to verify the requirement for the inter-frequency handover delay in CELL_DCH state in the dual carrier case.

8.3.1A.2.4 Method of test

8.3.1A.2.4.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

The test parameters are given in table 8.3.1A.2.1 and 8.3.1A.2.2. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 2C shall be used. The PCCPCH RSCP and SFN-CFN observed time difference of the best cell on the unused frequency shall be reported together with Event 2C reporting. At the start of time duration T1, the UE may not have any timing information of cell 2.

UTRAN shall send a Physical Channel reconfiguration message with activation time at beginning of T3 with one active cell, cell 2. The Physical Channel reconfiguration message shall be sent to the UE such that the delay between the end of the last received TTI containing the message and the beginning of T3 is at least equal to the RRC procedure delay as defined in [9].

Table 8.3.1A.2.1: General test parameters for Handover to inter-frequency cell

Parameter		Unit	Value	Comment
DCH parameters			DL Reference Measurement Channel 12.2 kbps	As specified in TS 25.102 clause A.2.2
Power Control			On	
Target quality value on DTCH		BLER	0.01	
Initial conditions	Active cell		Cell 1	
	Neighbour cell		Cell 2	
Final condition	Active cell		Cell 2	
HCS			Not used	
O		dB	0	Cell individual offset. This value shall be used for all cells in the test.
Hysteresis		dB	0	Hysteresis parameter for event 2C
Time to Trigger		ms	0	
Threshold non-used frequency		dBm	-80	Applicable for Event 2C
Filter coefficient			0	
Monitored cell list size			6 TDD neighbours on Channel 1 6 TDD neighbours on Channel 2	
T_{SI}		s	1,28	The value shall be used for all cells in the test.
T1		s	10	
T2		s	10	
T3		s	10	

Table 8.3.1A.2.2: Cell Specific parameters for Handover to inter-frequency cell

Parameter	Unit	Cell 1						Cell 2					
Timeslot Number		0			5			0			5		
		T1	T2	T3	T1	T2	T3	T1	T2	T3	T1	T2	T3
UTRA RF Channel Number		Channel 1						Channel 2					
PCCPCH Ec/Ior	dB	-3			n.a.			-3			n.a.		
DPCH Ec/Ior	dB	n.a.			Note1		n.a.	n.a.			n.a		Note1
OCNS Ec/Ior	dB	-3			Note2			-3			Note2		
$\hat{I}_{or}/I_{oc}$	dB	3			3			-Inf	9		-Inf		9
I_{oc}	dBm/1.28 MHz	-70											
PCCPCH RSCP	dBm	-70			n.a.			-Inf	-64		n.a.		
Propagation Condition		AWGN											
Note 1: The DPCH level is controlled by the power control loop Note 2: The power of the OCNS channel that is added shall make the total power from the cell to be equal to I_{or}													

8.3.1A.2.4.2 Procedure

1) The RF parameters are set up according to T1.

2) The UE is switched on.

3) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.4.

4) SS shall transmit a MEASUREMENT CONTROL message.

5) After 10 seconds, the SS shall switch the power settings from T1 to T2.

6) UE shall transmit a MEASUREMENT REPORT message triggered by event 2C.

7) SS shall transmit a PHYSICAL CHANNEL RECONFIGURATION message with activation time at T3.

8) After 10 seconds, the SS shall switch the power settings from T2 to T3

9) UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the UL DCCH of cell 2. If the UE transmits the UL DPCH to cell 2 less than 40 ms from the beginning of time period T3 then the number of successful tests is increased by one.

10) After 10 seconds, the UE is switched off. Any timing information of cell 2 is deleted in the UE.

11) Repeat step 1-10 [TBD] times.

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3] with the following exceptions:

MEASUREMENT CONTROL message, event 2C (step 4):

Information Element/Group name	Value/Remark
Message Type (10.2.17)	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	Not Present
Measurement Information elements	
-Measurement Identity	1
-Measurement Command (10.3.7.46)	Modify
-Measurement Reporting Mode (10.3.7.49)	
-Measurement Report Transfer Mode	AM RLC
-Periodical Reporting / Event Trigger Reporting Mode	Event trigger
-Additional measurements list (10.3.7.1)	Not Present
-CHOICE *Measurement type*	Inter-frequency measurement
-Inter-frequency measurement (10.3.7.16)	
-Inter-frequency measurement objects list (10.3.7.13)	Not Present
-Inter-frequency measurement quantity (10.3.7.18)	
-CHOICE *reporting criteria*	Inter-frequency reporting criteria
-Inter-frequency reporting criteria	
-Filter coefficient	0
-CHOICE *mode*	TDD
-Measurement quantity for frequency quality estimate	Primary CCPCH RSCP
-Inter-frequency reporting quantity (10.3.7.21)	
-UTRA Carrier RSSI	FALSE
-Frequency quality estimate	FALSE
-Non frequency related cell reporting quantities (10.3.7.5)	
-SFN-SFN observed time difference reporting indicator	Type 1
-Cell synchronisation information reporting indicator	TRUE
-Cell Identity reporting indicator	TRUE
-CHOICE *mode*	TDD
-Timeslot ISCP reporting indicator	TRUE
-Proposed TGSN reporting required	FALSE
-Primary CCPCH RSCP reporting indicator	TRUE
-Pathloss reporting indicator	TRUE
-Reporting cell status (10.3.7.61)	
-CHOICE *reported cell*	Report cells within monitored set on non-used frequency
-Maximum number of reported cells per reported non-used frequency	1
-Measurement validity (10.3.7.51)	Not Present
-Inter-frequency set update (10.3.7.22)	Not Present
-CHOICE *report criteria*	Inter-frequency measurement reporting criteria
-Inter-frequency measurement reporting criteria (10.3.7.19)	
-Parameters required for each event	1
-Inter-frequency event identity (10.3.7.14)	Event 2C
-Threshold used frequency	Not Present
-W used frequency	Not Present
-Hysteresis	0 dB
-Time to trigger	0 ms
-Reporting cell status (10.3.7.61)	
-CHOICE *reported cell*	Report cells within monitored set on non-used frequency
-Maximum number of reported cells per reported non-used frequency	1
-Parameters required for each non-used frequency	1
-Threshold non-used frequency	-80 dBm
-W non-used frequency	1
Physical channel information elements	
-DPCH compressed mode status info (10.3.6.34)	Not Present

PHYSICAL CHANNEL RECONFIGURATION message (step 7):

Information Element	Value/Remark
Message Type	
UE Information Elements	
-RRC transaction identifier	0
-Integrity check info	Not Present
-Integrity protection mode info	Not Present
-Ciphering mode info	Not Present
-Activation time	At T3
-New U-RNTI	Not Present
-New C-RNTI	Not Present
-RRC State Indicator	CELL_DCH
-UTRAN DRX cycle length coefficient	Not Present
CN Information Elements	
-CN Information info	Not Present
UTRAN mobility information elements	
-URA identity	Not Present
RB information elements	
-Downlink counter synchronisation info	Not Present
-RB with PDCP information list	Not Present
-RB with PDCP information	Not Present
PhyCH information elements	
-Frequency info (10.3.6.36)	
-CHOICE *mode*	TDD
-UARFCN (Nt)	Same UARFCN as used for cell 2
Uplink radio resources	
-Maximum allowed UL TX power	30 dBm
-CHOICE *channel requirement*	Uplink DPCH info
-Uplink DPCH info (10.3.6.88)	
-Uplink DPCH power control info (10.3.6.91)	
-CHOICE *mode*	TDD
-CHOICE *TDD option*	1.28 Mcps TDD
-$PRX_{PDPCHdes}$	Not Present
-CHOICE *UL OL PC info*	Individually signalled
-CHOICE *TDD option*	1.28 Mcps TDD
-Indivdual Timeslot interference info	1
-Individual timeslot interference (10.3.6.38)	
-Timeslot Number (10.3.6.84)	
-CHOICE *TDD option*	1.28 Mcps TDD
-TPC stepsize	1
- UL Timeslot Interference	-90 dBm
-CHOICE *mode*	TDD
-Uplink timing advance control (10.3.6.96)	
-CHOICE *Timing Advance*	Disabled
-UL CCTrCH list	1
-UL Target SIR	TBD dB
-Time Info (10.3.6.83)	
-Activation Time	T3
-Duration	Infinite
-Common timeslot info	Not Present
-Uplink DPCH timeslots and codes (10.3.6.94)	
-Dynamic SF Usage	False
-First individual timeslot info (10.3.6.37)	
-Timeslot Number (10.3.6.84)	
-CHOICE *TDD option*	1.28 Mcps
-Timeslot number	2
-TFCI existence	True
-Midamble shift and burst type (10.3.6.41)	
-CHOICE *TDD option*	1.28 Mcps
-Midamble Allocation Mode	Default
-Midamble configuration	16
-Midamble shift	Not present
-CHOICE *TDD option*	1.28 Mcps
-Modulation	QPSK
- SS-TPC Symbols	
-Additional TPC-SS Symbols	
-First timeslot code list	1

Information Element	Value/Remark
-Channelisation code	8/1
-CHOICE *more timeslots*	No more timeslots
Downlink radio resources	
-CHOICE *mode*	TDD
-Downlink information common for all radio links (10.3.6.24)	
-Downlink DPCH info common for all RL (10.3.6.18)	
-Timing indicator	Initialise
-CFN-targetSFN frame offset	Not Present
-Downlink DPCH power control information (10.3.6.23)	
-CHOICE *mode*	TDD
-TPC Step size	1 dB
-CHOICE *mode*	TDD
-CHOICE *mode*	TDD
-CHOICE *TDD option*	1.28 Mcps
-TX Diversity mode (10.3.6.86)	None
-Default DPCH Offset Value (10.3.6.16)	0
-Downlink information per radio link list	1
-Downlink information for each radio link (10.3.6.27)	
-CHOICE *mode*	TDD
-Primary CCPCH info (10.3.6.57)	
- CHOICE *mode*	TDD
- CHOICE *TDD option*	1.28 Mcps
TSTD indicator	TRUE
- Cell parameters ID	0
- SCTD indicator	False
-Downlink DPCH info for each RL (10.3.6.21)	
-CHOICE *mode*	TDD
- DL CCTrCH list	1
-TFCS ID	Not Present
-Time Info (10.3.6.83)	
-Activation Time	T3
-Duration	Infinite
-Common timeslot info	Not Present
- Downlink DPCH timeslots and codes (10.3.6.32)	
- First individual timeslot info (10.3.6.37)	
- Timeslot Number (10.3.6.84)	
- CHOICE *TDD option*	1.28 Mcps
- Timeslot number	5
- TFCI existence	True
- Midamble shift and burst type (10.3.6.41)	
- CHOICE *TDD option*	1.28 Mcps
- Midamble Allocation Mode	Default
- Midamble configuration	16
- Midamble shift	Not present
- CHOICE *TDD option*	1.28 Mcps
- First timeslot channelisation codes (10.3.6.17)	
-Modulation	QPSK
-SS-TPC Symbols	
-Additional TPC-SS Symbols	
- CHOICE *codes representation*	Consecutive codes
- First channelisation code	16/1
- Last channelisation code	16/2
- CHOICE *more timeslots*	No more timeslots
- SCCPCH information for FACH (10.3.6.70)	Not Present

MEASUREMENT REPORT message for Inter frequency test cases

This message is common for all inter frequency TDD test cases in clause 8.7 and is described in Annex I.

8.3.1A.2.5 Test requirements

For the test to pass, the total number of successful tests shall be more than [FFS] of the cases.

Note: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

- NEXT SECTION –

Annex I (normative): Default Message Contents

This Annex contains the default values of common messages, other than those described in TS 34.108. The messages are primarily concerning the RRM test cases in clause 8 and unless indicated otherwise in specific test cases, shall be transmitted and checked by the system simulator. The necessary messages are listed in alphabetical order.

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

Contents of MEASUREMENT REPORT message for Intra frequency 3,84 Mcps option TDD test cases

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 list	
- Cell measured results	
- Cell Identity	Not present
- SFN-SFN observed time difference	Checked that this IE is present
- Cell synchronisation information	
- CHOICE mode	TDD
- OFF	Checked that this IE is present
- CHOICE mode	TDD
- Cell Parameters ID	4
- Primary CCPCH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is present
- Timeslot ISCP	Checked that this IE is present
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 MEASUREMENT REPORT message for Intra frequency 1.28 Mcps option TDD test cases

Information Element/Group name	Semantics description
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 list	
- Cell measured results	
- Cell Identity	Not present
- Cell synchronisation information	
- CHOICE mode	TDD
- COUNT-C-SFN frame difference	Checked that this IE is present
- OFF	Checked that this IE is present
- CHOICE mode	TDD
- Cell Parameters ID	4
- Primary CCPCH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Timeslot ISCP	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 MEASUREMENT REPORT message for Inter frequency 3,84 Mcps option TDD test cases

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	
- Inter-frequency measured results list	
- UTRA Carrier RSSI	Checked that this IE is present
- Inter-frequency cell measurement results	
- Cell measured results	
- Cell Identity	Not present
- SFN-SFN observed time difference	Checked that this IE is present
- Cell synchronisation information	
- CHOICE mode	TDD
- OFF	Checked that this IE is present
- CHOICE mode	TDD
- Cell Parameters ID	4
- Primary CCCPCH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is present
- Timeslot ISCP	Checked that this IE is present
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 MEASUREMENT REPORT message for Inter frequency 1.28 Mcps option TDD test cases

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	
- Inter-frequency measured results list	
- UTRA Carrier RSSI	Checked that this IE is present
- Inter-frequency cell measurement results	
- Cell measured results	
- Cell Identity	Not present
- SFN-SFN observed time difference	Checked that this IE is present
- Cell synchronisation information	
- CHOICE mode	TDD
- OFF	Checked that this IE is present
- CHOICE mode	TDD
- Cell Parameters ID	4
- Primary CCCPCH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is present
- Timeslot ISCP	Checked that this IE is present
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 MEASUREMENT REPORT message for Inter frequency FDD test cases

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	
- Inter-frequency measured results list	
- UTRA Carrier RSSI	Checked that this IE is present
- Inter-frequency cell measurement results	
- Cell measured results	
- Cell Identity	Not present
- SFN-SFN observed time difference	Checked that this IE is present
- Cell synchronisation information	
-Tm	Checked that this IE is present
- OFF	Checked that this IE is present
- CHOICE mode	FDD
- Primary CPICH info	Checked that this IE is present
- Primary scrambling code	150
- CPICH Ec/N0	Checked that this IE is present
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is present
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

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CR-Form-v7

CHANGE REQUEST

⌘ **34.122** **CR** **123** ⌘ **rev** **-** ⌘ Current version: **4.5.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	P-CCPCH RSCP Test Cases for LCRTDD
Source:	⌘	T1/RF
Work item code:	⌘	LCRTDD
Date:	⌘	08/11/02
Category:	⌘	**F**
Release:	⌘	Rel-4

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.

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)*
Rel-6	*(Release 6)*

Reason for change:	⌘	LCRTDD Test Cases missing from subsection 8.7.1
Summary of change:	⌘	Insertion of Test Cases for LCRTDD for Intra- and Inter- frequency P-CCPCH Received Signal Code Power accuracy (absolute and relative) test cases. Inserted test cases align with 25.123.
Consequences if not approved:	⌘	Test Cases would be incomplete, and inconsistent with core specs.

Clauses affected:	⌘	8.7.1.1A(new); 8.7.1.2A(new)

	Y	N		
Other specs affected: ⌘		X	Other core specifications	⌘
			Test specifications	
			O&M Specifications	

Other comments: ⌘

How to create CRs using this form:
Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.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.

8.7.1.1A Intra frequency measurement accuracy for 1.28 Mcps TDD Option

8.7.1.1A.1 Absolute accuracy requirement

8.7.1.1A.1.1 Definition and applicability

The absolute accuracy of P-CCPCH RSCP is defined as the P-CCPCH RSCP measured from one cell compared to the actual P-CCPCH RSCP power from the same cell.

The requirements and this test apply to all types of UTRA TDD UE 1.28 Mcps option.

8.7.1.1A.1.2 Minimum Requirements

The absolute accuracy requirements in table 8.7.1.1A.1.1 are valid under the following conditions:

P-CCPCH RSCP ≥ -102 dBm.

$$\left(\frac{P-CCPCH\_E_c}{I_o}\right)_{in\ dB} \geq -8dB$$

$$\left(\frac{DwPCH\_E_c}{I_o}\right)_{in\ dB} \geq -5dB$$

Table 8.7.1.1A.1.1: P-CCPCH RSCP absolute accuracy

Parameter	Unit	Accuracy [dB]		Conditions
		Normal condition	Extreme condition	Io [dBm]
P-CCPCH_RSCP	dBm	± 6	± 9	-94...-70
	dBm	± 8	± 11	-70...-50

The rate of correct measurements observed during repeated tests shall be at least 90%.

The normative reference for this requirement is TS 25.123 [2] clauses 9.1.1.1.1 and A.9.2.1.1.1.

8.7.1.1A.1.3 Test Purpose

The purpose of this test is to verify that the absolute P-CCPCH RSCP measurement accuracy is within the specified limits.

8.7.1.1A.1.4 Method of test

8.7.1.1A.1.4.1 Initial conditions

Test environment: normal, TL/VL, TL/VH, TH/VL, TH/VH; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

In this case all cells are on the same frequency. Cell 1 and cell 2 shall be synchronised, i.e. share the same frame and timeslot timing. The DL DPCH shall be transmitted in timeslot 5 and the UL DPCH shall be transmitted in timeslot 2. P-CCPCH RSCP intra frequency absolute accuracy requirements are tested by using test parameters in table 8.7.1.1A.1.2.

Table 8.7.1.1A.1.2: P-CCPCH RSCP Intra frequency test parameters

		Test 1			
Parameter	**Unit**	**Cell 1**		**Cell 2**	
Timeslot Number		0	DwPTS	0	DwPTS
UTRA RF Channel Number		Channel 1		Channel 1	
PCCPCH_Ec/Ior	dB	-3		-3	
DwPCH_Ec/Ior	dB		0		0
OCNS_Ec/Ior	dB	-3		-3	
$\hat{I}_{or}/I_{oc}$	dB	5		2	
I_{oc}	dBm/ 1.28 MHz	-76.6			
PCCPCH RSCP, Note 1	dBm	-74.6		-77.6	
Io, Note 1	dBm/ 1.28 MHz	-69			
Propagation condition		AWGN			
		Test 2			
Parameter	**Unit**	**Cell 1**		**Cell 2**	
Timeslot Number		0	DwPTS	0	DwPTS
UTRA RF Channel Number		Channel 1		Channel 1	
PCCPCH_Ec/Ior	dB	-3		-3	
DwPCH_Ec/Ior	dB		0		0
OCNS_Ec/Ior	dB	-3		-3	
$\hat{I}_{or}/I_{oc}$	dB	9		2	
I_{oc}	dBm/ 1.28 MHz	-60.2			
PCCPCH RSCP, Note 1	dBm	-54.2		-61.2	
Io, Note 1	dBm/ 1.28 MHz	-50			
Propagation condition		AWGN			
		Test 3			
Parameter	**Unit**	**Cell 1**		**Cell 2**	
Timeslot Number		0	DwPTS	0	DwPTS
UTRA RF Channel Number		Channel 1		Channel 1	
PCCPCH_Ec/Ior	dB	-3		-3	
DwPCH_Ec/Ior	dB		0		0
OCNS_Ec/Ior	dB	-3		-3	
$\hat{I}_{or}/I_{oc}$	dB	5		3	
I_{oc}	dBm/ 1.28 MHz	-101.9			
PCCPCH RSCP, Note 1	dBm	-99.9		-101.9	
Io, Note 1	dBm/ 1.28 MHz	-94			
Propagation condition		AWGN			
NOTE 1: PCCPCH RSCP and Io levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.					

1) A call is set up according to the test procedure specified in TS 34.108 [3] clause 7.3.2.3. The RF parameters for Test 1 are set up according to table 8.7.1.1A.1.2.

8.7.1.1A.1.4.2 Procedure

1) SS shall transmit MEASUREMENT CONTROL message.

2) UE shall transmit periodically MEASUREMENT REPORT messages.

3) SS shall check PCCPCH_RSCP value in MEASUREMENT REPORT messages. PCCPCH_RSCP power of Cell 1 reported by UE is compared to actual PCCPCH_RSCP power for each MEASUREMENT REPORT message.

4) SS shall count number of MEASUREMENT REPORT messages transmitted by UE. After 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.1.1A.1.2 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, step 3) above is repeated. After further 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.1.1A.1.2 for Test 3. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, step 3) above is repeated.

5) After further 1000 MEASUREMENT REPORT messages have been received from UE, the SS shall transmit RRC CONNECTION RELEASE message.

6) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

8.7.1.1A.1.5 Test requirements

The PCCPCH RSCP measurement accuracy shall meet the requirements in clause 8.7.1.1A.1.2 for at least 900 of the measurement reports at each input level in step 4.

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.7.1.1A.2 Relative accuracy requirement for 1.28 Mcps TDD Option

8.7.1.1A.2.1 Definition and applicability

The relative accuracy of PCCPCH RSCP is defined as the PCCPCH RSCP measured from one cell compared to the PCCPCH RSCP measured from another cell on the same frequency.

The requirements and this test apply to all types of UTRA TDD UE 1.28 Mcps option.

8.7.1.1A.2.2 Minimum Requirements

The relative accuracy requirements in table 8.7.1.1A.2.1 are valid under the following conditions:

P-CCPCH RSCP ≥ -102 dBm.

$$\left(\frac{P-CCPCH\_E_c}{I_o}\right)_{in\ dB} \geq -8dB$$

$$\left(\frac{DwPCH\_E_c}{I_o}\right)_{in\ dB} \geq -5dB$$

$$\left|\text{P - CCPCH RSCP1}\right|_{in\ dB} - \text{P - CCPCH RSCP2}\Big|_{in\ dB}\Big| \leq 20dB$$

Relative Io difference [dB] ≤ relative RSCP difference [dB]

It is assumed that the measurements of P-CCPCH RSCP1 and P-CCPCH RSCP2 can be performed within 20ms due to slot allocations in the cells concerned.

Table 8.7.1.1A.2.1: P-CCPCH_RSCP intra-frequency relative accuracy

Parameter	Unit	Accuracy [dB]		Conditions	
		Normal condition	Extreme condition	Io [dBm]	relative RSCP difference [dbB]
P-CCPCH_RSCP	dBm	±1	±1	-94...-50	<2
		±2	±2		2...14
		±3	± 3		>14

The rate of correct measurements observed during repeated tests shall be at least 90%.

The normative reference for this requirement is TS 25.123 [2] clauses 9.1.1.1.2 and A.9.2.1.1.1.

8.7.1.1A.2.3 Test Purpose

The purpose of this test is to verify that the relative P-CCPCH RSCP measurement accuracy is within the specified limits.

8.7.1.1A.2.4 Method of test

8.7.1.1A.2.4.1 Initial conditions

Test environment: normal, TL/VL, TL/VH, TH/VL, TH/VH; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

In this case all cells are on the same frequency. Cell 1 and cell 2 shall be synchronised, i.e. share the same frame and timeslot timing. The DL DPCH shall be transmitted in timeslot 5 and the UL DPCH shall be transmitted in timeslot 2. P-CCPCH RSCP intra frequency relative accuracy requirements are tested by using test parameters in table 8.7.1.1A.1.2.

1) A call is set up according to the test procedure specified in TS 34.108 [3] clause 7.3.2.3. The RF parameters for Test 1 are set up according to table 8.7.1.1A.1.2.

8.7.1.1A.2.4.2 Procedure

1) SS shall transmit MEASUREMENT CONTROL message.

2) UE shall transmit periodically MEASUREMENT REPORT messages.

3) SS shall check PCCPCH_RSCP value of Cell 1 and Cell 2 in MEASUREMENT REPORT messages. PCCPCH RSCP power value measured from Cell 1 is compared to PCCPCH RSCP power value measured from Cell 2 for each MEASUREMENT REPORT message.

4) The result of step 3) is compared to actual power level difference of PCCPCH RSCP of Cell 1 and Cell 2.

5) SS shall count number of MEASUREMENT REPORT messages transmitted by UE. After 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.1.1A.1.2 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 3) and 4) above are repeated. After further 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.1.1A.1.2 for Test 3. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 3) and 4) above are repeated.

6) After further 1000 MEASUREMENT REPORT messages have been received from UE, the SS shall transmit RRC CONNECTION RELEASE message.

7) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

8.7.1.1A.2.5 Test requirements

The PCCPCH RSCP measurement accuracy shall meet the requirements in clause 8.7.1.1A.2.2 for at least 900 of the measurement reports at each input level in step 4.

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

-NEXT SECTION-

8.7.1.2A Inter frequency measurement accuracy for 1.28 Mcps TDD Option

8.7.1.2A.1 Relative accuracy requirement

8.7.1.2A.1.1 Definition and applicability

The P-CCPCH_RSCP inter-frequency relative accuracy is defined as the P-CCPCH_RSCP measured from one cell compared to the P-CCPCH_RSCP measured from another cell on a different frequency.

The requirements and this test apply to all types of UTRA TDD UE 1.28 Mcps option.

8.7.1.2A.1.2 Minimum Requirements

The relative accuracy requirements in table 8.7.1.2A.1.1 are valid under the following conditions:

P-CCPCH RSCP ≥ -102 dBm.

$$\left|\text{P - CCPCH RSCP1}\right|_{in\ dB} - \text{P - CCPCH RSCP2}\left|_{in\ dB}\right| \leq 20dB$$

$$\left(\frac{P-CCPCH\_E_c}{I_o}\right)_{in\ dB} \geq -8dB$$

$$\left(\frac{DwPCH\_E_c}{I_o}\right)_{in\ dB} \geq -5dB$$

Table 8.7.1.2A.1.1 P-CCPCH_RSCP inter-frequency relative accuracy

Parameter	Unit	Accuracy [dB]		Conditions
		Normal condition	Extreme condition	Io [dBm]
P-CCPCH_RSCP	dBm	± 6	± 6	-94...-50

The rate of correct measurements observed during repeated tests shall be at least 90%.

The normative reference for this requirement is TS 25.123 [2] clauses 9.1.1.1.2 and A.9.2.1.

8.7.1.2A.1.3 Test Purpose

The purpose of this test is to verify that the relative P-CCPCH RSCP measurement accuracy is within the specified limits for the inter frequency case.

8.7.1.2A.1.4 Method of test

8.7.1.2A.1.4.1 Initial conditions

Test environment: normal, TL/VL, TL/VH, TH/VL, TH/VH; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

In this case both cells are on different frequencies. P-CCPCH RSCP inter frequency relative accuracy requirements are tested by using test parameters in table 8.7.1.2A.1.2.

Table 8.7.1.2A.1.2: P-CCPCH RSCP Intra frequency test parameters

		Test 1			
Parameter	**Unit**	**Cell 1**		**Cell 2**	
Timeslot Number		0	DwPTS	0	DwPTS
UTRA RF Channel Number		Channel 1		Channel 2	
PCCPCH_Ec/Ior	dB	-3		-3	
DwPCH_Ec/Ior	dB		0		0
OCNS_Ec/Ior	dB	-3		-3	
$\hat{I}_{or}/I_{oc}$	dB	5		5	
I_{oc}	dBm/ 1.28 MHz	-75.2		-75.2	
PCCPCH RSCP, Note 1	dBm	-73.2		-73.2	
Io, Note 1	dBm/ 1.28 MHz	-69			
Propagation condition		AWGN			
		Test 2			
Parameter	**Unit**	**Cell 1**		**Cell 2**	
Timeslot Number		0	DwPTS	0	DwPTS
UTRA RF Channel Number		Channel 1		Channel 2	
PCCPCH_Ec/Ior	dB	-3		-3	
DwPCH_Ec/Ior	dB		0		0
OCNS_Ec/Ior	dB	-3		-3	
$\hat{I}_{or}/I_{oc}$	dB	7		2	
I_{oc}	dBm/ 1.28 MHz	-57.8		-54.1	
PCCPCH RSCP, Note 1	dBm	-53.8		-55.1	
Io, Note 1	dBm/ 1.28 MHz	-50			
Propagation condition		AWGN			
		Test 3			
Parameter	**Unit**	**Cell 1**		**Cell 2**	
Timeslot Number		0	DwPTS	0	DwPTS
UTRA RF Channel Number		Channel 1		Channel 2	
PCCPCH_Ec/Ior	dB	-3		-3	
DwPCH_Ec/Ior	dB		0		0
OCNS_Ec/Ior	dB	-3		-3	
$\hat{I}_{or}/I_{oc}$	dB	3		0	
I_{oc}	dBm/ 1.28 MHz	-98.7		-97	
PCCPCH RSCP, Note 1	dBm	-98.7		-100	
Io, Note 1	dBm/ 1.28 MHz	-94			
Propagation condition		AWGN			
NOTE 1: PCCPCH RSCP and Io levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.					

1) A call is set up according to the test procedure specified in TS 34.108 [3] clause 7.3.2.3. The RF parameters for Test 1 are set up according to table 8.7.1.2A.1.2.

8.7.1.2A.1.4.2 Procedure

1) SS shall transmit PHYSICAL CHANNEL RECONFIGURATION message.

2) UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.

3) SS shall transmit MEASUREMENT CONTROL message.

4) UE shall transmit periodically MEASUREMENT REPORT messages.

5) SS shall check PCCPCH_RSCP value of Cell 1 and Cell 2 in MEASUREMENT REPORT messages. PCCPCH RSCP power value measured from Cell 1 is compared to PCCPCH RSCP power value measured from Cell 2 for each MEASUREMENT REPORT message.

6) The result of step 5) is compared to actual power level difference of PCCPCH RSCP of Cell 1 and Cell 2.

7) SS shall count number of MEASUREMENT REPORT messages transmitted by UE. After 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.1.2A.1.2 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 5) and 6) above are repeated.

8) After further 1000 MEASUREMENT REPORT messages have been received from UE, the SS shall transmit RRC CONNECTION RELEASE message.

9) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

8.7.1.2A.1.5 Test requirements

The PCCPCH RSCP measurement accuracy shall meet the requirements in clause 8.7.1.2A.1.2 for at least 900 of the measurement reports at each input level in step 4.

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

3GPP TSG-T1 Meeting #17
Luton, UK 4th - 8st November 2002

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CR-Form-v7

CHANGE REQUEST

⌘ **34.122** **CR** **111** ⌘ **rev** **-** ⌘ Current version: **3.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	Correction to power control accuracy test cases in 34.122
Source:	⌘	T1-RF
Work item code:	⌘	***Date:*** ⌘ 18/09/2002
Category:	⌘ **F**	***Release:*** ⌘ R99

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.

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)
Rel-6 (Release 6)

Reason for change: ⌘

1. Uplink power control requirements were previously modified in RAN4 CR R4-010164.

2. Test parameters for differential accuracy, controlled input have not been finalized.

3. Test procedure for differential accuracy, controlled input uses SIR $_{Target}$ to sweep UE dynamic range, but signaling range for SIR $_{Target}$ is only 31 dB.

4. Test procedure for differential accuracy, measured input requirement in 25.102 is missing.

5. General editorial clean-up needed.

Summary of change: ⌘

1. Added I_{BTS} and DPCH Constant Value to definition and requirement.

2. Removed brackets in Test Parameters table in Initial Conditions.

3. Added DPCH Constant Value to test procedure to increase control range of signaling.

4. Added new section for differential accuracy, measured input with statement that it is not tested. Testing is already covered by the differential accuracy, controlled input test and the PCCPCH RSCP measurement accuracy test.

5. Cleaned up editorial errors.

Consequences if not approved:	⌘	Conformance specification would be inconsistent with core specification. UE power control may not be properly tested.

Clauses affected:	⌘	5.4.1.1.1, 5.4.1.1.3, 5.4.1.1.4.1, 5.4.1.2.1, 5.4.1.2.2, 5.4.1.2.3, 5.4.1.2.4.1, 5.4.1.2.4.2, 5.4.1.2A (new clause)			
Other specs affected:	⌘	**Y**	**N**		
			X	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘				

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

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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.

5.4 Output Power Dynamics

Power control is used to limit the interference level.

5.4.1 Uplink power control

Uplink power control is the ability of the UE transmitter to sets its output power in accordance with measured downlink path loss, values determined by higher layer signalling and path loss weighting parameter α as defined in TS 25.331 [9]. The output power is defined as the RRC filtered mean power of the transmit timeslot.

5.4.1.1 Initial accuracy

5.4.1.1.1 Definition and applicability

Initial Uplink power control is the ability of the UE transmitter to sets its output power in accordance with measured downlink path loss, and signalling values: I_{BTS} and Constant value, received from the BCH and applicable for the PRACH.

The requirements and this test apply to all types of UTRA - UEs.

5.4.1.1.2 Minimum requirements

The UE power control, initial accuracy, is given in table 5.4.1.1.2.

Table 5.4.1.1.2: Initial uplink power control tolerance

Normal conditions	±9 dB
Extreme conditions	±12 dB

The reference for this requirement is TS 25.102 [1] clause 6.4.1.1.

5.4.1.1.3 Test purpose

The power of the received signal at the UE and the B~~C~~CH information control the power of the transmitted UE signal with the target to transmit at lowest power, acceptable for proper communication.

The test stresses the ability of the receiver to measure the received power over the receiver dynamic range and to derive from this correct transmitter-power.

5.4.1.1.4 Method of test

5.4.1.1.4.1 Initial conditions

Test environment: normal, TL/VL, TL/VH, TH/VL, TH/VH; see clauses G.2.1 and G.2.2.

Frequencies to be tested: low range, mid range, high range; see clause G.2.4.

Connect the SS to the MS antenna connector as shown in figure A.1.

A call is set up according to the generic call setup procedure [3] using parameters as specified in table 5.4.1.1.4. The RACH procedure within the call setup is used for the test.

Table 5.4.1.1.4: Test parameters for uplink Power Control

	RX-Upper dynamic end	RX-middle	RX-Sensitivity level
SS transmit power	-25 dBm/3,84 MHz	-65 dBm/3,84 MHz	-105 dBm/3,84 MHz
Broadcasted transmit-power PCCPCH	35 dBm	35 dBm	24 dBm
Simulated path loss = Broadcasted TX – SS TX Power	60 dB	100 dB	129 dB
I_{BTS} (UL interference)	-75 dBm	-100 dBm	-110 dBm
Constant value	-10 dB	-10 dB	-10 dB
Nominal expected UE TX power	-25 dBm	-10 dBm	+9 dBm 2)
NOTE 1: While the SS transmit power shall cover the UE receiver input dynamic range, the logical parameters: broadcasted transmit power, I_{BTS}, and RACH constant value are chosen to achieve a UE TX power, located within the TX output power dynamic range of a class 3 UE.			
NOTE 2: Nominal TX output power 9 dBm allows to check the uplink power control algorithm within the entire tolerance range (9 dBm +-12 dB: 9 dBm +12 dB =21 dBm = max power class 3).			

5.4.1.1.4.2 Procedure

1) Set the SS transmit power according to table 5.4.1.1.4.
2) Measure the RACH output power of the UE according to annex B.
3) Repeat the test for all SS transmit powers and parameters in table 5.4.1.1.4.

5.4.1.1.5 Test requirements

The deviation with respect to the nominal expected UE TX power (table 5.4.1.1.2), derived in step 2, shall not exceed the prescribed tolerance in table 5.4.1.1.5.

Table 5.4.1.1.5: Test parameters for uplink Power Control

Expected UE TX power, normal conditions	-25 dBm ±10 dB	-10 dBm±10 dB	+9 dBm ±10 dB
Expected UE TX power, extreme conditions	-25 dBm ±13 dB	-10 dBm±13 dB	+9 dBm ±13 dB

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in annex F clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in annex F clause F.4.

5.4.1.2 Differential accuracy, controlled input

5.4.1.2.1 Definition and applicability

Uplink power control, differential accuracy, is the ability of the UE transmitter to sets its output power in accordance with measured downlink path loss, and the signalling values: I_{BTS}, SIR_{Target}, Constant Value, received from higher layers and applicable for the DPCH.

Specifically, the uplink power control, differential accuracy, controlled input, is defined as the error in the UE transmitter power step as a result of a step in SIR_{TARGET} , I_{BTS} or DPCH Constant Value when the path loss weighting parameter α=0~~, α calculated in the UE~~.

The requirements of this test apply to all types of UTRA -UE.

5.4.1.2.2 Minimum requirements

The step in SIR_{TARGET} shall be rounded to the closest integer dB value. The power control error resulting from a change in SIR_{TARGET}, I_{BTS} or DPCH Constant Value ~~The error~~ shall not exceed the values in table 5.4.1.2.2.

Table 5.4.1.2.2: Transmitter power step tolerance as a result of control power step

ΔSIR_{TARGET} [dB]	Transmitter power step tolerance [dB]
$\Delta SIR_{TARGET} \leq 1$	± 0,5
$1 < \Delta SIR_{TARGET} \leq 2$	± 1
$2 < \Delta SIR_{TARGET} \leq 3$	± 1,5
$3 < \Delta SIR_{TARGET} \leq 10$	± 2
$10 < \Delta SIR_{TARGET} \leq 20$	± 4
$20 < \Delta SIR_{TARGET} \leq 30$	± 6
$30 < \Delta SIR_{TARGET}$	± 9 (note)
NOTE: Value is given for normal conditions. For extreme conditions value is ±12.	

The reference for this requirement is TS 25.102 [1] clause 6.4.1.2.

5.4.1.2.3 Test purpose

It is verified if the UE sets correct uplink power steps in response to steps in the signalling value SIR_{Target}, and DPCH Constant Value, signalled via the downlink to the UE~~,~~ under the following conditions: keeping the other signalling parameters constant and deactivating any influence due to varying pathloss.

5.4.1.2.4 Method of test

5.4.1.2.4.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

1) Connect the SS to the MS antenna connector as shown in figure A.1.

2) A call is set up according to the generic call setup procedure using parameters as specified in table 5.4.1.2.4.

Table 5.4.1.2.4: Test parameters for Uplink Power Control, Differential Accuracy, Controlled Input

Parameter	Value/description
UL reference measurement channel	12,2 kbps according to annex C clause C.2.1.
BS Transmit to UE Transmit delay	7 TSs--> α=0
SSTransmit power	~~[~~-65 dBm~~]~~
Reference transmit power broadcast on BCH	~~[~~35 dBm~~]~~
I_{BTS}	~~[~~-100~~]~~
Constant value	~~[~~-10~~]~~
Data content	real life (sufficient irregular)

5.4.1.2.4.2 Procedure

Using ~~the~~ a combination of SIR_{Target} ~~value~~ and DPCH constant value signaled in the downlink,

cover the UE-transmitter dynamic range by commanding the UEs power with the signalling value SIR_{Target} in a step resolution (positive and negative direction) of:

1 dB approx. 68 steps up and 68 steps down

2 dB approx. 34 steps up and 34 steps down

3 dB approx. 22 steps up and 22 steps down

10 dB approx. 7 steps up and 7 steps down

20 dB approx. 3 steps up and 3 steps down

30 dB approx. 2 step up and 2 step down

maximum stepsize 1 step up and 1 step down

Measure the power according to annex B.

5.4.1.2.5 Test requirements

For the UE output power laying between

Max Power minus tolerance and Min Power

the step response shall not exceed the prescribed tolerance in table 5.4.1.2.5.

Table 5.4.1.2.5: Transmitter power step tolerance as a result of control power step

ΔSIR_{TARGET} [dB]	Transmitter power step tolerance [dB]
$\Delta SIR_{TARGET} \leq 1$	± 0,6
$1 < \Delta SIR_{TARGET} \leq 2$	± 1,15
$2 < \Delta SIR_{TARGET} \leq 3$	± 1,7
$3 < \Delta SIR_{TARGET} \leq 10$	± 2,5
$10 < \Delta SIR_{TARGET} \leq 20$	± 4,7
$20 < \Delta SIR_{TARGET} \leq 30$	± 6,7
$30 < \Delta SIR_{TARGET}$	± 10

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in annex F clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in Annex F clause F.4.

5.4.1.2A Differential accuracy, controlled input

This is not tested.

3GPP TSG-T1 Meeting #17
Luton, UK 4th - 8st November 2002

Tdoc ⌘T1-020896

CR-Form-v7

CHANGE REQUEST

⌘ **34.122** **CR** **117** ⌘ **rev** **-** ⌘ Current version: **4.5.0** ⌘

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Proposed change affects: UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	Correction to power control accuracy test cases in 34.122
Source:	⌘	T1-RF
Work item code:	⌘	TEI
Date:	⌘	18/09/2002
Category:	⌘	**A**
Release:	⌘	Rel-4

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.

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)*
Rel-6	*(Release 6)*

Reason for change: ⌘

1. Uplink power control requirements were previously modified in RAN4 CR R4-010164.

2. Test parameters for differential accuracy, controlled input have not been finalized.

3. Test procedure for differential accuracy, controlled input uses SIR_{Target} to sweep UE dynamic range, but signaling range for SIR_{Target} is only 31 dB.

4. Test procedure for differential accuracy, measured input requirement in 25.102 is missing.

5. General editorial clean-up needed.

Summary of change: ⌘

1. Added I_{BTS} and DPCH Constant Value to definition and requirement.

2. Removed brackets in Test Parameters table in Initial Conditions.

3. Added DPCH Constant Value to test procedure to increase control range of signaling.

4. Added new section for differential accuracy, measured input with statement that it is not tested. Testing is already covered by the differential accuracy, controlled input test and the PCCPCH RSCP measurement accuracy test.

5. Cleaned up editorial errors.

Consequences if not approved:	⌘	Conformance specification would be inconsistent with core specification. UE power control may not be properly tested.

Clauses affected:	⌘	5.4.1.1.1, 5.4.1.1.3, 5.4.1.1.4.1, 5.4.1.2.1, 5.4.1.2.2, 5.4.1.2.3, 5.4.1.2.4.1, 5.4.1.2.4.2, 5.4.1.2A (new clause)			
Other specs affected:	⌘	**Y**	**N**		
			X	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘				

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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.

5.4 Output Power Dynamics

Power control is used to limit the interference level.

5.4.1 Uplink power control

Uplink power control is the ability of the UE transmitter to sets its output power in accordance with measured downlink path loss, values determined by higher layer signalling and path loss weighting parameter α as defined in TS 25.331 [9]. The output power is defined as the RRC filtered mean power of the transmit timeslot.

5.4.1.1 Initial accuracy (3,84 Mcps TDD Option)

5.4.1.1.1 Definition and applicability

Initial Uplink power control is the ability of the UE transmitter to sets its output power in accordance with measured downlink path loss, and signalling values: I_{BTS} and Constant value, received from the BCH and applicable for the PRACH.

The requirements and this test apply to all types of UTRA - UEs.

5.4.1.1.2 Minimum requirements

The UE power control, initial accuracy, is given in table 5.4.1.1.2.

Table 5.4.1.1.2: Initial uplink power control tolerance

Normal conditions	±9 dB
Extreme conditions	±12 dB

The reference for this requirement is TS 25.102 [1] clause 6.4.1.1.

5.4.1.1.3 Test purpose

The power of the received signal at the UE and the B~~C~~CH information control the power of the transmitted UE signal with the target to transmit at lowest power, acceptable for proper communication.

The test stresses the ability of the receiver to measure the received power over the receiver dynamic range and to derive from this correct transmitter-power.

5.4.1.1.4 Method of test

5.4.1.1.4.1 Initial conditions

Test environment: normal, TL/VL, TL/VH, TH/VL, TH/VH; see clauses G.2.1 and G.2.2.

Frequencies to be tested: low range, mid range, high range; see clause G.2.4.

Connect the SS to the MS antenna connector as shown in figure A.1.

A call is set up according to the generic call setup procedure [3] using parameters as specified in table 5.4.1.1.4. The RACH procedure within the call setup is used for the test.

Table 5.4.1.1.4: Test parameters for uplink Power Control

	RX-Upper dynamic end	RX-middle	RX-Sensitivity level
SS transmit power	-25 dBm/3,84 MHz	-65 dBm/3,84 MHz	-105 dBm/3,84 MHz
Broadcasted transmit-power PCCPCH	35 dBm	35 dBm	24 dBm
Simulated path loss = Broadcasted TX – SS TX Power	60 dB	100 dB	129 dB
I_{BTS} (UL interference)	-75 dBm	-100 dBm	-110 dBm
Constant value	-10 dB	-10 dB	-10 dB
Nominal expected UE TX power	-25 dBm	-10 dBm	+9 dBm 2)
NOTE 1: While the SS transmit power shall cover the UE receiver input dynamic range, the logical parameters: broadcasted transmit power, I_{BTS}, and RACH constant value are chosen to achieve a UE TX power, located within the TX output power dynamic range of a class 3 UE.			
NOTE 2: Nominal TX output power 9 dBm allows to check the uplink power control algorithm within the entire tolerance range (9 dBm +-12 dB: 9 dBm +12 dB =21 dBm = max power class 3).			

5.4.1.1.4.2 Procedure

1) Set the SS transmit power according to table 5.4.1.1.4.
2) Measure the RACH output power of the UE according to annex B.
3) Repeat the test for all SS transmit powers and parameters in table 5.4.1.1.4.

5.4.1.1.5 Test requirements

The deviation with respect to the nominal expected UE TX power (table 5.4.1.1.2), derived in step 2, shall not exceed the prescribed tolerance in table 5.4.1.1.5.

Table 5.4.1.1.5: Test parameters for uplink Power Control

Expected UE TX power, normal conditions	-25 dBm ±10 dB	-10 dBm±10 dB	+9 dBm ±10 dB
Expected UE TX power, extreme conditions	-25 dBm ±13 dB	-10 dBm±13 dB	+9 dBm ±13 dB

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in annex F clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in annex F clause F.4.

5.4.1.2 Differential accuracy, controlled input (3,84 Mcps TDD Option)

5.4.1.2.1 Definition and applicability

Uplink power control, differential accuracy, is the ability of the UE transmitter to sets its output power in accordance with measured downlink path loss, and the signalling values: I_{BTS}, SIR_{Target}, Constant Value, received from higher layers and applicable for the DPCH.

Specifically, the uplink power control, differential accuracy, controlled input, is defined as the error in the UE transmitter power step as a result of a step in SIR_{TARGET} , I_{BTS} or DPCH Constant Value when the path loss weighting parameter α=0~~, α calculated in the UE~~.

The requirements of this test apply to all types of UTRA -UE.

5.4.1.2.2 Minimum requirements

The step in SIR_{TARGET} shall be rounded to the closest integer dB value. The power control error resulting from a change in SIR_{TARGET}, I_{BTS} or DPCH Constant Value ~~The error~~ shall not exceed the values in table 5.4.1.2.2.

Table 5.4.1.2.2: Transmitter power step tolerance as a result of control power step

ΔSIR_{TARGET} [dB]	Transmitter power step tolerance [dB]
$\Delta SIR_{TARGET} \leq 1$	± 0,5
$1 < \Delta SIR_{TARGET} \leq 2$	± 1
$2 < \Delta SIR_{TARGET} \leq 3$	± 1,5
$3 < \Delta SIR_{TARGET} \leq 10$	± 2
$10 < \Delta SIR_{TARGET} \leq 20$	± 4
$20 < \Delta SIR_{TARGET} \leq 30$	± 6
$30 < \Delta SIR_{TARGET}$	± 9 (note)
NOTE: Value is given for normal conditions. For extreme conditions value is ±12.	

The reference for this requirement is TS 25.102 [1] clause 6.4.1.2.

5.4.1.2.3 Test purpose

It is verified if the UE sets correct uplink power steps in response to steps in the signalling value SIR_{Target}, and DPCH Constant Value, signalled via the downlink to the UE~~.~~, under the following conditions: keeping the other signalling parameters constant and deactivating any influence due to varying pathloss.

5.4.1.2.4 Method of test

5.4.1.2.4.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

1) Connect the SS to the MS antenna connector as shown in figure A.1.

2) A call is set up according to the generic call setup procedure using parameters as specified in table 5.4.1.2.4.

Table 5.4.1.2.4: Test parameters for Uplink Power Control, Differential Accuracy, Controlled Input

Parameter	Value/description
UL reference measurement channel	12,2 kbps according to annex C clause C.2.1.
BS Transmit to UE Transmit delay	7 TSs--> α=0
SSTransmit power	~~[~~-65 dBm~~]~~
Reference transmit power broadcast on BCH	~~[~~35 dBm~~]~~
I_{BTS}	~~[~~-100~~]~~
Constant value	~~[~~-10~~]~~
Data content	real life (sufficient irregular)

5.4.1.2.4.2 Procedure

Using ~~the~~ a combination of SIR_{Target} ~~value~~ and DPCH constant value signaled in the downlink,

cover the UE-transmitter dynamic range by commanding the UEs power with the signalling value SIR_{Target} in a step resolution (positive and negative direction) of:

1 dB approx. 68 steps up and 68 steps down

2 dB approx. 34 steps up and 34 steps down

3 dB approx. 22 steps up and 22 steps down

10 dB approx. 7 steps up and 7 steps down

20 dB approx. 3 steps up and 3 steps down

30 dB approx. 2 step up and 2 step down

maximum stepsize 1 step up and 1 step down

Measure the power according to annex B.

5.4.1.2.5 Test requirements

For the UE output power laying between

Max Power minus tolerance and Min Power

the step response shall not exceed the prescribed tolerance in table 5.4.1.2.5.

Table 5.4.1.2.5: Transmitter power step tolerance as a result of control power step

ΔSIR_{TARGET} [dB]	Transmitter power step tolerance [dB]
$\Delta SIR_{TARGET} \leq 1$	± 0,6
$1 < \Delta SIR_{TARGET} \leq 2$	± 1,15
$2 < \Delta SIR_{TARGET} \leq 3$	± 1,7
$3 < \Delta SIR_{TARGET} \leq 10$	± 2,5
$10 < \Delta SIR_{TARGET} \leq 20$	± 4,7
$20 < \Delta SIR_{TARGET} \leq 30$	± 6,7
$30 < \Delta SIR_{TARGET}$	± 10

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in annex F clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in Annex F clause F.4.

5.4.1.2A Differential accuracy, controlled input

This is not tested.

3GPP TSG-T1 Meeting #17
Luton, UK 4th - 8st November 2002

Tdoc ⌘T1-020897

CR-Form-v7

CHANGE REQUEST

⌘ **34.122** **CR** **113** ⌘ **rev** **-** ⌘ Current version: **3.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	Various updates to 34.122 based on RAN4 CRs
Source:	⌘	T1-RF
Work item code:	⌘	***Date:*** ⌘ 18/09/2002
Category:	⌘ **F**	***Release:*** ⌘ R99

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.

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)
Rel-6 (Release 6)

Reason for change:	⌘	1. UARFCN numbering added in RAN4 CR R4-010545. 2. EVM definition was updated in RAN4 CR R4-010524. 3. Performance requirements updated in RAN4 CR R4-010567 4. UL reference measurement channel (12.2 kbps) puncturing rate and bit length updated in R4-020064
Summary of change:	⌘	1. Added UARFCN numbering. 2. Corrected EVM definition. 3. Updated performance requirements. 4. Corrected 12.2 kbps UL reference measurement channel.
Consequences if not approved:	⌘	Conformance specification would be inconsistent with core specification.

Clauses affected:	⌘	4.4.4 (New clause), 5.7.1.1, 7.2.1, C.2.1

Other specs affected: ⌘	Y	N		⌘
		X	Other core specifications	
		X	Test specifications	
		X	O&M Specifications	

Other comments: ⌘	

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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.

4.4.3 Channel number

The carrier frequency is designated by the UTRA absolute radio frequency channel number (UARFCN). The value of the UARFCN in the IMT2000 band is defined as follows:

$N_t = 5 * F$ 0,0 MHz ≤ F ≤ 3276,.6 MHz where F is the carrier frequency in MHz

4.4.4 UARFCN

The following UARFCN range shall be supported for each band.

Table 4.1: UTRA Absolute Radio Frequency Channel Number

Frequency Band	Frequency Range	UARFCN Uplink and Downlink transmission
For operation in frequency band as defined in subclause 5.2 (a)	1900-1920 MHz 2010-2025 MHz	9512 to 9588 10062 to 10113
For operation in frequency band as defined in subclause 5.2 (b)	1850-1910 MHz 1930-1990 MHz	9262 to 9538 9662 to 9938
For operation in frequency band as defined in subclause 5.2 (c)	1910-1930 MHz	9562 to 9638

<Next Changed Section>

5.7 Transmit Modulation

5.7.1 Error Vector Magnitude

5.7.1.1 Definition and applicability

The Error Vector Magnitude (EVM) is a measure of the difference between the measured waveform and the theoretical modulated waveform (the error vector). Both waveforms pass through a matched Root Raised Cosine filter with bandwidth 3,84 MHz and roll-off α =0,22. Both waveforms are then further modified by selecting the frequency, absolute phase, absolute amplitude and chip clock timing so as to minimise the error vector. The EVM result is defined as ~~It is~~ the square root of the ratio of the mean error vector power to the mean reference signal power expressed as a %. The measurement interval is one timeslot.

The requirement of this clause shall apply to all types of UTRA-UE.

5.7.1.2 Minimum Requirements

The Error Vector Magnitude shall not exceed 17,5 % for the parameters specified in table 5.7.1.2.

Table 5.7.1.2: Test parameters for Error Vector Magnitude/Peak Code Domain Error

Parameter	Level	Unit
UE Output Power	≥-20	dBm
Operating conditions	Normal conditions	
Power control step size	1	dB

The normative reference for this requirement is TS 25.102 [1] clause 6.8.2.

<Next Changed Section>

7.2.1 Demodulation of DCH

7.2.1.1 Definition and applicability

The performance requirement of DCH in static propagation conditions is determined by the maximum Block Error Ratio (BLER). The BLER is specified for each individual data rate of the DCH. DCH is mapped into the Dedicated Physical Channel (DPCH).

The UE shall be tested only according to the datarates, supported. The data-rate-corresponding requirements shall apply to the UE.

7.2.1.2 Minimum requirements

For the parameters specified in table 7.2.1.2a the BLER shall not exceed the piece-wise linear BLER curve specified in table 7.2.1.2b. These requirements are applicable for TFCS size 16.

The reference for this requirement is TS 25.102 [1] clause 8.2.1.1.

Table 7.2.1.2a: DCH parameters in static propagation conditions

Parameters	Unit	Test 1	Test 2	Test 3	Test 4
$\frac{\Sigma DPCH\_E_c}{I_{or}}$	dB	-6	-3	0	0
I_{oc}	dBm/3.84 MHz	-60			
Cell Parameter*		0,1			
DPCH Channelization Codes*	C(k,Q)	C(i,16) i=1,2	C(i,16) i=1 . .5	C(i,16) i=1 . .9	C(i,16) i=1 . .8
OCNS Channelization Code*	C(k,Q)	C(3,16)	C(6,16)	-	-
Information Data Rate	kbps	12.2	64	144	384
*Note: Refer to TS 25.223 for definition of channelization codes and cell parameter.					

Table 7.2.1.2.b: Performance requirements in AWGN channel

Test Number	$\frac{\hat{I}_{or}}{I_{oc}}$ [dB]	BLER
1	~~0,1~~1,1	10^{-2}
2	~~2,3~~3,5	10^{-1}
	~~2,6~~3,8	10^{-2}
3	~~2,2~~3,4	10^{-1}
	~~2,4~~3,6	10^{-2}
4	~~1,6~~2,7	10^{-1}
	~~1,8~~3,0	10^{-2}

7.2.1.3 Test purpose

While the receiver tests in clause 6 aims for the RF hardware, this performance requirement aims for the receiver's signal processing.

The test purpose is to verify the ability of the receiver to receive a predefined test signal ,representing a static propagation channel for the wanted and for the co-channel signals from serving and adjacent cells, with a block error ratio (BLER) not exceeding a specified value.

7.2.1.4 Method of test

7.2.1.4.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

1) Connect the SS, AWGN Generator and additional components to the UE antenna connector as shown in figure A.9.
2) A call is set up according to the Generic call setup procedure. The characteristic of the call shall be according to the DL reference measurement channels (12,2 kbit/s) (64 kbit/s), (144 kbit/s), and (384 kbit/s) specified in annex C.
3) Enter the UE into loopback test mode and start the loopback test. (test 1) and/or activate the Ack/Nack test mode (test 1 to test 4).
4) The levels of the wanted signal and the co-channel signals are set according to table 7.2.1.2a and b.

7.2.1.4.2 Procedure

Measure the BLER of DCH received from the UE at the SS for all 4 tests.

7.2.1.5 Test requirements

The measured BLER shall not exceed the values indicated in table 7.2.1.2b.

7.3 Demodulation of DCH in multipath fading conditions

7.3.1 Multipath fading Case 1

7.3.1.1 Definition and applicability

The performance requirement of DCH is determined by the maximum Block Error Ratio (BLER). The BLER is specified for each individual data ratio of the DCH. DCH is mapped into the Dedicated Physical Channel (DPCH).

The UE shall be tested only according to the dataratios, supported. The data-ratio-corresponding requirements shall apply to the UE.

7.3.1.2 Minimum requirements

For the parameters specified in table 7.3.1.2a the BLER shall not exceed the piece-wise linear BLER curve specified in table 7.3.1.2b. These requirements are applicable for TFCS size 16.

The reference for this requirement is TS 25.102 [1] clause 8.3.1.1.

Table 7.3.1.2a: DCH parameters in multipath Case 1 channel

Parameters	Unit	Test 1	Test 2	Test 3	Test 4
$\frac{\Sigma DPCH\_E_c}{I_{or}}$	DB	-6	-3	0	0
I_{oc}	dBm/3.84 MHz	-60			
Cell Parameter*		0,1			
DPCH Channelization Codes*	C(k,Q)	C(i,16) i=1,2	C(i,16) i=1 . .5	C(i,16) i=1 . .9	C(i,16) i=1 . .8
OCNS Channelization Code*	C(k,Q)	C(3,16)	C(6,16)	-	-
Information Data Rate	kbps	12.2	64	144	384
*Note: Refer to TS 25.223 for definition of channelization codes and cell parameter.					

Table 7.3.1.2b: Performance requirements in multipath Case 1 channel

Test Number	$\frac{\hat{I}_{or}}{I_{oc}}$ [dB]	BLER
1	~~13,5~~13,9	10^{-2}
2	~~13,3~~13,7	10^{-1}
	~~19,6~~19,8	10^{-2}
3	~~13,3~~14,1	10^{-1}
	~~19,7~~20,6	10^{-2}
4	~~13,5~~13,8	10^{-1}
	~~20,2~~20,0	10^{-2}

7.3.1.3 Test purpose

While the receiver tests in clause 6 aims for the RF hardware, this performance requirement aims for the receiver's signal processing.

The test purpose is to verify the ability of the receiver to receive a predefined test signal, representing a multipath propagation channel for the wanted and for the co-channel signals from serving and adjacent cells, with a block error ratio (BLER) not exceeding a specified value.

7.3.1.4 Method of test

7.3.1.4.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

1) Connect the SS, , the fading simulator, the AWGN generator and additional components to the UE antenna connector as shown in figure A.10.

2) A call is set up according to the Generic call setup procedure. The characteristic of the call shall be according to the DL reference measurement channels (12,2 kbit/s), (64 kbit/s), (144 kbit/s), and (384 kbit/s) specified in annex C.

3) Enter the UE into loopback test mode and start the loopback test. (test 1) and/or activate the Ack/Nack test mode (test 1 to test 4).

4) The levels of the wanted signal and the co-channel signals are set according to table 7.3.1.2a and b.

7.3.1.4.2 Procedure

Measure the BLER of DCH received from the UE at the SS for all 4 tests.

7.3.1.5 Test requirements

The measured BLER shall not exceed the values indicated in table 7.3.1.2b.

7.3.2 Multipath fading Case 2

7.3.2.1 Definition and applicability

The performance requirement of DCH is determined by the maximum Block Error Ratio (BLER). The BLER is specified for each individual data rate of the DCH. DCH is mapped into the Dedicated Physical Channel (DPCH).

The UE shall be tested only according to the datarates, supported. The data-rate-corresponding requirements shall apply to the UE.

7.3.2.2 Minimum requirement

For the parameters specified in table 7.3.2.2a the BLER should not exceed the piece-wise linear BLER curve specified in table 7.3.2.2b. . These requirements are applicable for TFCS size 16.

The reference for this requirement is TS 25.102 [1] clause 8.3.2.1.

Table 7.3.2.2a: DCH parameters in multipath Case 2 channel

Parameters	Unit	Test 1	Test 2	Test 3	Test 4
$\frac{\Sigma DPCH\_E_c}{I_{or}}$	dB	-3	0	0	0
I_{oc}	dBm/3.84 MHz	-60			
Cell Parameter*		0,1			
DPCH Channelization Codes*	C(k,Q)	C(i,16) i=1,2	C(i,16) i=1 . .5	C(i,16) i=1 . .9	C(i,16) i=1 . .8
OCNS Channelization Code*	C(k,Q)	C(3,16)	-	-	-
Information Data Rate	kbps	12.2	64	144	384
*Note: Refer to TS 25.223 for definition of channelization codes and cell parameter.					

Table 7.3.2.2b: Performance requirements in multipath Case 2 channel

Test Number	$\frac{\hat{I}_{or}}{I_{oc}}$ [dB]	BLER
1	~~5,5~~5,8	10^{-2}
2	~~5,8~~5,7	10^{-1}
	~~9,7~~9.2	10^{-2}
3	~~9,5~~9,3	10^{-1}
	~~13,2~~12,7	10^{-2}
4	~~8,5~~8,8	10^{-1}
	~~12,6~~12,0	10^{-2}

7.3.2.3 Test purpose

While the receiver tests in clause 6 aims for the RF hardware, this performance requirement aims for the receiver's signal processing.

The test purpose is to verify the ability of the receiver to receive a predefined test signal, representing a multipath propagation channel for the wanted and for the co-channel signals from serving and adjacent cells, with a block error ratio (BLER) not exceeding a specified value.

7.3.2.4 Method of test

7.3.2.4.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

1) Connect the SS, the fading simulator, the AWGN generator and additional components to the UE antenna connector as shown in figure A.10.

2) A call is set up according to the Generic call setup procedure. The characteristic of the call shall be according to the DL reference measurement channels (12,2 kbit/s) (64 kbit/s), (144 kbit/s), and (384 kbit/s) specified in annex C.

3) Enter the UE into loopback test mode and start the loopback test. (test 1) and/or activate the Ack/Nack test mode (test 1 to test 4).

4) The levels of the wanted signal and the co-channel signals are set according to table 7.3.2.2a and b.

7.3.2.4.2 Procedure

Measure the BLER of DCH received from the UE at the SS for all 4 tests.

7.3.2.5 Test requirements

The measured BLER shall not exceed the values indicated in table 7.3.2.2b.

7.3.3 Multipath fading Case 3

7.3.3.1 Definition and applicability

The performance requirement of DCH is determined by the maximum Block Error Ratio (BLER). The BLER is specified for each individual data rate of the DCH. DCH is mapped into the Dedicated Physical Channel (DPCH).

The UE shall be tested only according to the datarates, supported. The data-rate-corresponding requirements shall apply to the UE.

7.3.3.2 Minimum requirements

For the parameters specified in table 7.3.3.2a the BLER should not exceed the piece-wise linear BLER curve specified in table 7.3.3.2b. These requirements are applicable for TFCS size 16.

The reference for this requirement is TS 25.102 [1] clause 8.3.3.1.

Table 7.3.3.2a: DCH parameters in multipath Case 3 channel

Parameters	Unit	Test 1	Test 2	Test 3	Test 4
$\frac{\Sigma DPCH\_E_c}{I_{or}}$	dB	-3	0	0	0
I_{oc}	dBm/3.84 MHz	-60			
Cell Parameter*		0,1			
DPCH Channelization Codes*	C(k,Q)	C(i,16) i=1,2	C(i,16) i=1 . .5	C(i,16) i=1 . .9	C(i,16) i=1 . .8
OCNS Channelization Code*	C(k,Q)	C(3,16)	-	-	-
Information Data Rate	kbps	12.2	64	144	384
*Note: Refer to TS 25.223 for definition of channelization codes and cell parameter.					

Table 7.3.3.2b: Performance requirements in multipath Case 3 channel

Test Number	$\frac{\hat{I}_{or}}{I_{oc}}$ [dB]	BLER
12.2 kbps	~~4,7~~4,8	10^{-2}
64 kbps	~~5,2~~5,8	10^{-1}
	~~8,4~~8,5	10^{-2}
	~~12,1~~10,7	10^{-3}
144 kbps	~~11,7~~10,3	10^{-1}
	~~15,2~~13,3	10^{-2}
	~~17,8~~16,0	10^{-3}
384 kbps	~~8,2~~8,9	10^{-1}
	~~11,3~~11,5	10^{-2}
	~~13,0~~13,6	10^{-3}

7.3.3.3 Test purpose

While the receiver tests in clause 6 aims for the RF hardware, this performance requirement aims for the receiver's signal processing.

The test purpose is to verify the ability of the receiver to receive a predefined test signal ,representing a multipath propagation channel for the wanted and for the co-channel signals from serving and adjacent cells, with a block error ratio (BLER) not exceeding a specified value.

7.3.3.4 Method of test

7.3.3.4.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

1) Connect the SS, the fading simulator, the AWGN generator and additional components to the UE antenna connector as shown in figure A.10.

2) A call is set up according to the Generic call setup procedure. The characteristic of the call shall be according to the DL reference measurement channels (12.2 kbit/s)(64 kbit/s), (144 kbit/s), and (384 kbit/s) specified in annex C.

3) Enter the UE into loopback test mode and start the loopback test. (test 1) and/or activate the Ack/Nack test mode (test 1 to test 4).

4) The levels of the wanted signal and the co-channel signals are set according to table 7.3.3.2a and b.

7.3.3.4.2 Procedure

Measure the BLER of DCH received from the UE at the SS for all 4 tests.

7.3.3.5 Test requirements

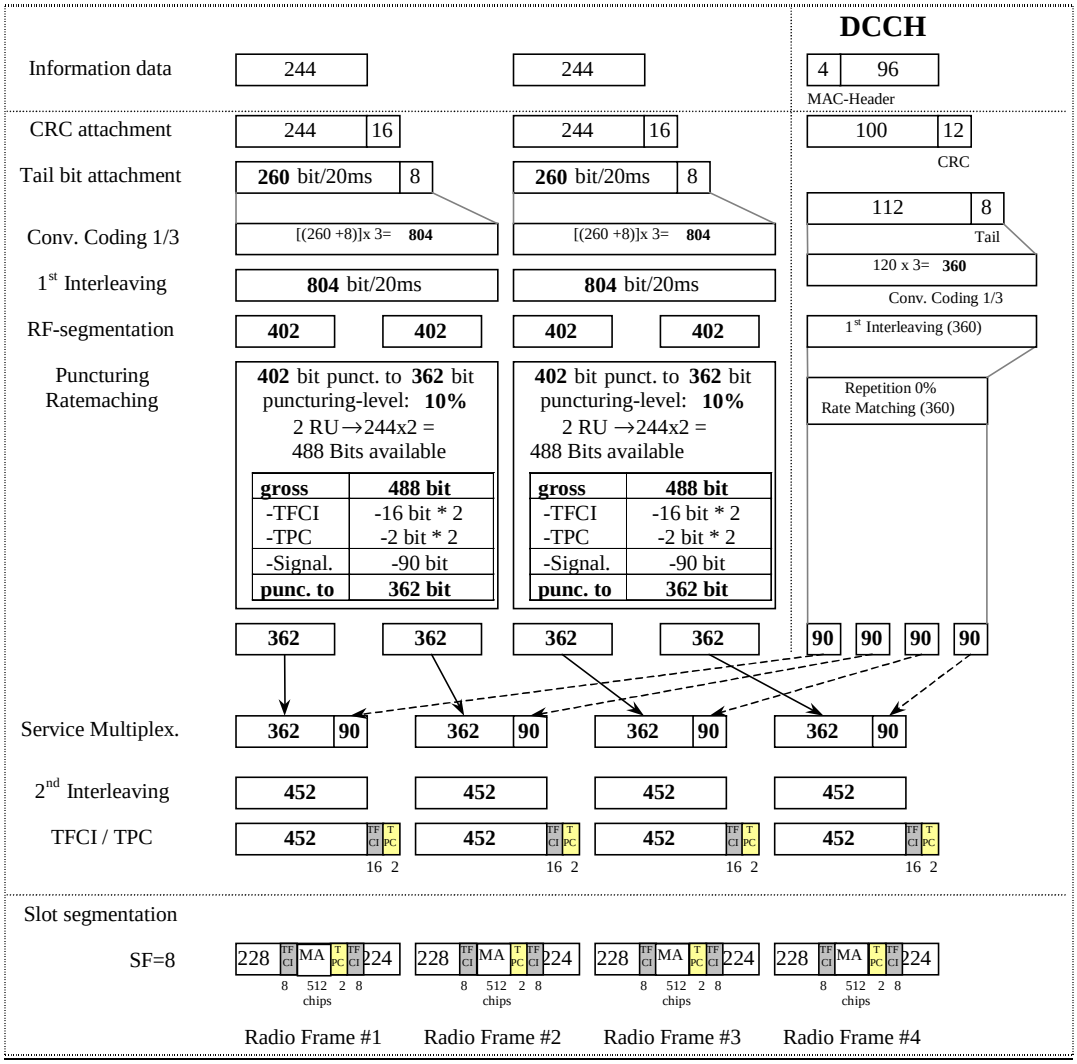
The measured BLER shall not exceed the values indicated in table 7.3.3.2.b.

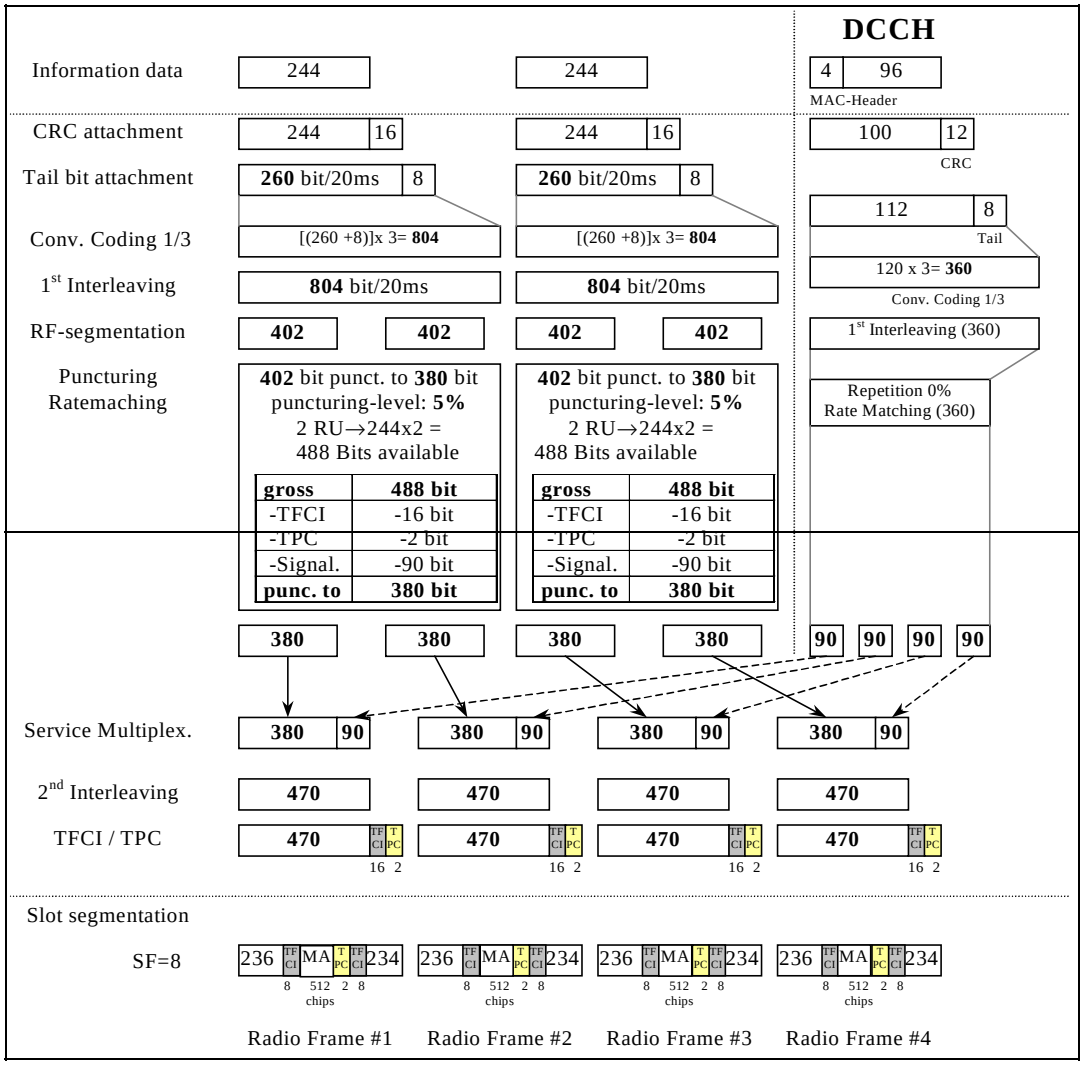
<Next Changed Section>

C.2 UL Reference measurement channels

C.2.1 UL reference measurement channel (12.2 kbps)

Parameter	
Information data rate	12.2 kbps
RU´s allocated	2 RU
Midamble	**512** chips
Interleaving	20 ms
Power control	2 Bit/user
TFCI	16 Bit/user
Inband signalling DCCH	2 kbps
Puncturing level at Code rate 1/3 : DCH / DCCH	~~5~~10% / 0%




DCCH
Information data
244
244
4
96
MAC-Header
CRC attachment
244
16
244
16
100
12
CRC
Tail bit attachment
260 bit/20ms
8
260 bit/20ms
8
112
8
Tail
Conv. Coding 1/3
[(260 +8)]x 3= 804
[(260 +8)]x 3= 804
120 x 3= 360
Conv. Coding 1/3
1st Interleaving
804 bit/20ms
804 bit/20ms
1st Interleaving (360)
RF-segmentation
402
402
402
402
Puncturing
Ratematching
402 bit punct. to 380 bit
puncturing-level: 5%
2 RU→244x2 =
488 Bits available
402 bit punct. to 380 bit
puncturing-level: 5%
2 RU→244x2 =
488 Bits available
Repetition 0%
Rate Matching (360)
gross 488 bit
-TFCI -16 bit
-TPC -2 bit
-Signal. -90 bit
punc. to 380 bit
gross 488 bit
-TFCI -16 bit
-TPC -2 bit
-Signal. -90 bit
punc. to 380 bit
380
380
380
380
90
90
90
90
Service Multiplex.
380
90
380
90
380
90
380
90
2nd Interleaving
470
470
470
470
TFCI / TPC
470
TFCI
TPC
16 2
470
TFCI
TPC
16 2
470
TFCI
TPC
16 2
470
TFCI
TPC
16 2
Slot segmentation
SF=8
236
TFCI
MA
TPC
TFCI
234
8 512 2 8
chips
Radio Frame #1
Radio Frame #2
Radio Frame #3
Radio Frame #4

3GPP TSG-T1 Meeting #17
Luton, UK 4th - 8st November 2002

Tdoc ⌘T1-020898

CR-Form-v7

CHANGE REQUEST

⌘ **34.122** **CR** **119** ⌘ **rev** **-** ⌘ Current version: **4.5.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	Various updates to 34.122 based on RAN4 CRs
Source:	⌘	T1/RF
Work item code:	⌘	TEI
Date:	⌘	21/11/2002
Category:	⌘	**A**
Release:	⌘	Rel-4

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.

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)*
Rel-6	*(Release 6)*

Reason for change:	⌘	1. UARFCN numbering added in RAN4 CR R4-010545. 2. EVM definition was updated in RAN4 CR R4-010524. 3. Performance requirements updated in RAN4 CR R4-010567 4. UL reference measurement channel (12.2 kbps) puncturing rate and bit length updated in R4-020064
Summary of change:	⌘	1. Added UARFCN numbering. 2. Corrected EVM definition. 3. Updated performance requirements. 4. Corrected 12.2 kbps UL reference measurement channel.
Consequences if not approved:	⌘	Conformance specification would be inconsistent with core specification.

Clauses affected:	⌘	4.4.4 (New clause), 5.7.1.1, 7.2.1, C.2.1

Other specs affected: ⌘	Y	N	
		X	Other core specifications
		X	Test specifications
		X	O&M Specifications

⌘

Other comments: ⌘	

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.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.

4.4.3 Channel number

The carrier frequency is designated by the UTRA absolute radio frequency channel number (UARFCN). The value of the UARFCN in the IMT2000 band is defined as follows:

$N_t = 5 * F$ $0,0 \text{ MHz} \leq F \leq 3276,6 \text{ MHz}$ where F is the carrier frequency in MHz

4.4.4 UARFCN (3,84 Mcps TDD Option)

The following UARFCN range shall be supported for each band.

Table 4.4.1: UTRA Absolute Radio Frequency Channel Number

Frequency Band	Frequency Range	UARFCN Uplink and Downlink transmission
For operation in frequency band as defined in subclause 5.2 (a)	1900-1920 MHz 2010-2025 MHz	9512 to 9588 10062 to 10113
For operation in frequency band as defined in subclause 5.2 (b)	1850-1910 MHz 1930-1990 MHz	9262 to 9538 9662 to 9938
For operation in frequency band as defined in subclause 5.2 (c)	1910-1930 MHz	9562 to 9638

5.7 Transmit Modulation

5.7.1 Error Vector Magnitude

5.7.1.1 Definition and applicability

The Error Vector Magnitude (EVM) is a measure of the difference between the measured waveform and the theoretical modulated waveform (the error vector). Both waveforms pass through a matched Root Raised Cosine filter with bandwidth 3,84 MHz and roll-off α =0,22. Both waveforms are then further modified by selecting the frequency, absolute phase, absolute amplitude and chip clock timing so as to minimise the error vector. The EVM result is defined as ~~It is~~ the square root of the ratio of the mean error vector power to the mean reference signal power expressed as a %. The measurement interval is one timeslot.

The requirement of this clause shall apply to all types of UTRA-UE.

5.7.1.2 Minimum Requirements

The Error Vector Magnitude shall not exceed 17,5 % for the parameters specified in table 5.7.1.2.

Table 5.7.1.2.: Test parameters for Error Vector Magnitude/Peak Code Domain Error

Parameter	Level	Unit
UE Output Power	≥-20	dBm
Operating conditions	Normal conditions	
Power control step size	1	dB

The normative reference for this requirement is TS 25.102 [1] clause 6.8.2.1.

7.2.1 Demodulation of DCH

7.2.1.1 Definition and applicability

The performance requirement of DCH in static propagation conditions is determined by the maximum Block Error Ratio (BLER). The BLER is specified for each individual data rate of the DCH. DCH is mapped into the Dedicated Physical Channel (DPCH).

The UE shall be tested only according to the datarates, supported. The data-rate-corresponding requirements shall apply to the UE.

7.2.1.2 Minimum requirements

7.2.1.2.1 3,84 Mcps TDD Option

For the parameters specified in table 7.2.1.2.1a the BLER shall not exceed the piece-wise linear BLER curve specified in table 7.2.1.2.1b. These requirements are applicable for TFCS size 16.

The reference for this requirement is TS 25.102 [1] clause 8.2.1.1.1.

Table 7.2.1.2.1a: DCH parameters in static propagation conditions (3,84 Mcps TDD Option)

Parameters	Unit	Test 1	Test 2	Test 3	Test 4	Test 5
$\frac{\Sigma DPCH\_E_c}{I_{or}}$	dB	-6	-3	0	0	0
I_{oc}	dBm/3,84 MHz	-60				
Cell Parameter*		0,1				
DPCH Channelization Codes*	C(k,Q)	C(i,16) i=1,2	C(i,16) i=1 . .5	C(i,16) i=1 . .9	C(i,16) i=1 . .8	-
OCNS Channelization Code*	C(k,Q)	C(3,16)	C(6,16)	-	-	-
Information Data Rate	kbps	12,2	64	144	384	2048
*Note: Refer to TS 25.223 for definition of channelization codes and cell parameter.						

Table 7.2.1.2.1b: Performance requirements in AWGN channel (3,84 Mcps TDD Option)

Test Number	$\frac{\hat{I}_{or}}{I_{oc}}$ [dB]	BLER
1	~~0,1~~1,1	10^{-2}
2	~~2,3~~3,5	10^{-1}
	~~2,6~~3,8	10^{-2}
3	~~2,2~~3,4	10^{-1}
	~~2,4~~3,6	10^{-2}
4	~~1,6~~2,7	10^{-1}
	~~1,8~~3,0	10^{-2}
5	~~3,5~~3,5	10^{-1}
	~~3,6~~3,6	10^{-2}

7.2.1.2.2 1,28 Mcps TDD Option

For the parameters specified in table 7.2.1.2.2a the BLER should not exceed the piece-wise linear BLER curve specified in table 7.2.1.2.2b.

Table 7.2.1.2.2a: DCH parameters in static propagation conditions (1,28Mcps TDD Option)

Parameters	Unit	Test 1	Test 2	Test 3	Test 4
Number of $DPCH_o$		8	2	2	0
$\frac{DPCH_o \_ E_c}{I_{or}}$	dB	-10	-10	-10	0
I_{oc}	DBm/1,28MHz	-60			
Information Data Rate	Kbps	12,2	64	144	384

Table 7.2.1.2.2b: Performance requirements in AWGN channel (1,28 Mcps TDD Option)

Test Number	$\frac{\hat{I}_{or}}{I_{oc}}$ [dB]	BLER
1	3,1	10^{-2}
2	2,1	10^{-1}
	2,4	10^{-2}
3	2,5	10^{-1}
	2,8	10^{-2}
4	2,8	10^{-1}

7.2.1.3 Test purpose

While the receiver tests in clause 6 aims for the RF hardware, this performance requirement aims for the receiver's signal processing.

The test purpose is to verify the ability of the receiver to receive a predefined test signal ,representing a static propagation channel for the wanted and for the co-channel signals from serving and adjacent cells, with a block error ratio (BLER) not exceeding a specified value.

7.2.1.4 Method of test

7.2.1.4.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

1) Connect the SS, AWGN Generator and additional components to the UE antenna connector as shown in figure A.9.

2) A call is set up according to the Generic call setup procedure. The characteristic of the call shall be according to the DL reference measurement channels (12,2 kbit/s) (64 kbit/s), (144 kbit/s), and (384 kbit/s) specified in annex C.

3) Enter the UE into loopback test mode and start the loopback test. (test 1) and/or activate the Ack/Nack test mode (test 1 to test 4).

4) The levels of the wanted signal and the co-channel signals are set according to table 7.2.1.2.1a and b for the 3,84 Mcps TDD Option and table 7.2.1.2.2a and b for the 1,28 Mcps TDD Option, respectively.

7.2.1.4.2 Procedure

Measure the BLER of DCH received from the UE at the SS for all tests specified in table 7.2.1.2.1a for the 3,84 Mcps TDD Option and table 7.2.1.2.2a for the 1,28 Mcps TDD Option, respectively.

7.2.1.5 Test requirements

The measured BLER shall not exceed the values indicated in table 7.2.1.2.1b for the 3,84 Mcps TDD Option and table 7.2.1.2.2b for the 1,28 Mcps TDD Option, respectively.

7.3 Demodulation of DCH in multipath fading conditions

7.3.1 Multipath fading Case 1

7.3.1.1 Definition and applicability

The performance requirement of DCH is determined by the maximum Block Error Ratio (BLER). The BLER is specified for each individual data ratio of the DCH. DCH is mapped into the Dedicated Physical Channel (DPCH).

The UE shall be tested only according to the dataratios, supported. The data-ratio-corresponding requirements shall apply to the UE.

7.3.1.2 Minimum requirements

7.3.1.2.1 3,84 Mcps TDD Option

For the parameters specified in table 7.3.1.2.1a the BLER shall not exceed the piece-wise linear BLER curve specified in table 7.3.1.2.1b. These requirements are applicable for TFCS size 16.

The reference for this requirement is TS 25.102 clause 8.3.1.1.1.

Table 7.3.1.2.1a: DCH parameters in multipath Case 1 channel (3,84 Mcps TDD Option)

Parameters	Unit	Test 1	Test 2	Test 3	Test 4	Test 5
$\frac{\Sigma DPCH\_E_c}{I_{or}}$	DB	-6	-3	0	0	0
I_{oc}	dBm/3,84 MHz	-60				
Cell Parameter*		0,1				
DPCH Channelization Codes*	C(k,Q)	C(i,16) i=1,2	C(i,16) i=1 . .5	C(i,16) i=1 . .9	C(i,16) i=1 . .8	-
OCNS Channelization Code*	C(k,Q)	C(3,16)	C(6,16)	-	-	-
Information Data Rate	kbps	12,2	64	144	384	2048
*Note: Refer to TS 25.223 for definition of channelization codes and cell parameter.						

Table 7.3.1.2.1b: Performance requirements in multipath Case 1 channel (3,84 Mcps TDD Option)

Test Number	$\frac{\hat{I}_{or}}{I_{oc}}$ [dB]	BLER
1	~~13,5~~13,9	10^{-2}
2	~~13,3~~13,7	10^{-1}
	~~19,6~~19,8	10^{-2}
3	~~13,3~~14,1	10^{-1}
	~~19,7~~20,6	10^{-2}
4	~~13,5~~13,8	10^{-1}
	~~20,2~~20,0	10^{-2}
5	~~13,2~~13,2	10^{-1}
	~~17,8~~17,8	10^{-2}

7.3.1.2.2 1,28 Mcps TDD Option

For the parameters specified in table 7.3.1.2.2a the BLER should not exceed the piece-wise linear BLER curve specified in table 7.3.1.2.2b.

Table 7.3.1.2.2a: DCH parameters in static propagation conditions (1,28Mcps TDD Option)

Parameters	Unit	Test 1	Test 2	Test 3	Test 4
Number of $DPCH_o$		8	2	2	0
$\frac{DPCH_o - E_c}{I_{or}}$	dB	-10	-10	-10	0
I_{oc}	DBm/1,28MHz	-60			
Information Data Rate	Kbps	12,2	64	144	384

Table 7.3.1.2.2b: Performance requirements in AWGN channel (1,28Mcps TDD Option)

Test Number	$\frac{\hat{I}_{or}}{I_{oc}}$ [dB]	BLER
1	3,1	10^{-2}
2	2,1	10^{-1}
	2,4	10^{-2}
3	2,5	10^{-1}
	2,8	10^{-2}
4	2,8	10^{-1}

7.3.1.3 Test purpose

While the receiver tests in clause 6 aims for the RF hardware, this performance requirement aims for the receiver's signal processing.

The test purpose is to verify the ability of the receiver to receive a predefined test signal, representing a multipath propagation channel for the wanted and for the co-channel signals from serving and adjacent cells, with a block error ratio (BLER) not exceeding a specified value.

7.3.1.4 Method of test

7.3.1.4.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

1) Connect the SS, , the fading simulator, the AWGN generator and additional components to the UE antenna connector as shown in figure A.10.

2) A call is set up according to the Generic call setup procedure. The characteristic of the call shall be according to the DL reference measurement channels (12,2 kbit/s), (64 kbit/s), (144 kbit/s), and (384 kbit/s) specified in annex C.

3) Enter the UE into loopback test mode and start the loopback test. (test 1) and/or activate the Ack/Nack test mode (test 1 to test 4).

4) The levels of the wanted signal and the co-channel signals are set according to table 7.3.1.2.1a and b for the 3,84 Mcps TDD Option and table 7.3.1.2.2a and b for the 1,28 Mcps TDD Option, respectively.

7.3.1.4.2 Procedure

Measure the BLER of DCH received from the UE at the SS for all tests specified in table 7.3.1.2.1a for the 3,84 Mcps TDD Option and table 7.3.1.2.2a for the 1,28 Mcps TDD Option, respectively.

7.3.1.5 Test requirements

The measured BLER shall not exceed the values indicated in table 7.3.1.2.1b for the 3,84 Mcps TDD Option and table 7.3.1.2.2b for the 1,28 Mcps TDD Option, respectively.

7.3.2 Multipath fading Case 2

7.3.2.1 Definition and applicability

The performance requirement of DCH is determined by the maximum Block Error Ratio (BLER). The BLER is specified for each individual data rate of the DCH. DCH is mapped into the Dedicated Physical Channel (DPCH).

The UE shall be tested only according to the datarates, supported. The data-rate-corresponding requirements shall apply to the UE.

7.3.2.2 Minimum requirement

7.3.2.2.1 3,84 Mcps TDD Option

For the parameters specified in table 7.3.2.2.1a the BLER should not exceed the piece-wise linear BLER curve specified in table 7.3.2.2.1b. These requirements are applicable for TFCS size 16.

The reference for this requirement is TS 25.102 [1] clause 8.3.2.1.

Table 7.3.2.2.1a: DCH parameters in multipath Case 2 channel (3,84 Mcps TDD Option)

Parameters	Unit	Test 1	Test 2	Test 3	Test 4	Test 5
$\frac{\Sigma DPCH\_E_c}{I_{or}}$	DB	-3	0	0	0	0
I_{oc}	dBm/3,84 MHz	-60				
Cell Parameter*		0,1				
DPCH Channelization Codes*	C(k,Q)	C(i,16) i=1,2	C(i,16) i=1 . .5	C(i,16) i=1 . .9	C(i,16) i=1 . .8	-
OCNS Channelization Code*	C(k,Q)	C(3,16)	-	-	-	-
Information Data Rate	kbps	12,2	64	144	384	2048
*Note: Refer to TS 25.223 for definition of channelization codes and cell parameter.						

Table 7.3.2.2.1b: Performance requirements in multipath Case 2 channel (3,84 Mcps TDD Option)

Test Number	$\frac{\hat{I}_{or}}{I_{oc}}$ [dB]	BLER
1	~~5,5~~5,8	10^{-2}
2	~~5,8~~5,7	10^{-1}
	~~9,7~~9,2	10^{-2}
3	~~9,5~~9,3	10^{-1}
	~~13,2~~12,7	10^{-2}
4	~~8,5~~8,8	10^{-1}
	~~12,6~~12,0	10^{-2}
5	~~10,3~~10,3	10^{-1}
	~~12,7~~12,7	10^{-2}

7.3.2.2.2 1,28 Mcps TDD Option

For the parameters specified in table 7.3.2.2.2a: the BLER should not exceed the piece-wise linear BLER curve specified in table 7.3.2.2.2b.

Table 7.3.2.2.2a: DCH parameters in multipath Case 2 channel (1,28Mcps TDD Option)

Parameters	Unit	Test 1	Test 2	Test 3	Test 4
Number of $DPCH_o$		8	2	2	0
$\frac{DPCH_o \_ E_c}{I_{or}}$	dB	-10	-10	-10	0
I_{oc}	dBm/1,28MHz	-60			
Information Data Rate	Kbps	12,2	64	144	384

Table 7.3.2.2.2b: Performance requirements in multipath Case 2 channel (1,28Mcps TDD Option)

Test Number	$\frac{\hat{I}_{or}}{I_{oc}}$ [dB]	BLER
1	13,2	10^{-2}
2	9,5	10^{-1}
	13,7	10^{-2}
3	10,0	10^{-1}
	14,0	10^{-2}
4	10,0	10^{-1}
	14,0	10^{-2}

7.3.2.3 Test purpose

While the receiver tests in clause 6 aims for the RF hardware, this performance requirement aims for the receiver's signal processing.

The test purpose is to verify the ability of the receiver to receive a predefined test signal, representing a multipath propagation channel for the wanted and for the co-channel signals from serving and adjacent cells, with a block error ratio (BLER) not exceeding a specified value.

7.3.2.4 Method of test

7.3.2.4.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

1) Connect the SS, the fading simulator, the AWGN generator and additional components to the UE antenna connector as shown in figure A.10.

2) A call is set up according to the Generic call setup procedure. The characteristic of the call shall be according to the DL reference measurement channels (12,2 kbit/s) (64 kbit/s), (144 kbit/s), and (384 kbit/s) specified in annex C.

3) Enter the UE into loopback test mode and start the loopback test. (test 1) and/or activate the Ack/Nack test mode (test 1 to test 4).

4) The levels of the wanted signal and the co-channel signals are set according to table 7.3.2.2.1a and b for the 3,84 Mcps TDD Option and table 7.3.2.2.2a and b for the 1,28 Mcps TDD Option, respectively.

7.3.2.4.2 Procedure

Measure the BLER of DCH received from the UE at the SS for all tests specified in table 7.3.2.2.1a for the 3,84 Mcps TDD Option and table 7.3.2.2.2a for the 1,28 Mcps TDD Option, respectively.

7.3.2.5 Test requirements

The measured BLER shall not exceed the values indicated in table 7.3.2.2.1b for the 3,84 Mcps TDD Option and table 7.3.2.2.2b for the 1,28 Mcps TDD Option, respectively.

7.3.3 Multipath fading Case 3

7.3.3.1 Definition and applicability

The performance requirement of DCH is determined by the maximum Block Error Ratio (BLER). The BLER is specified for each individual data rate of the DCH. DCH is mapped into the Dedicated Physical Channel (DPCH).

The UE shall be tested only according to the datarates, supported. The data-rate-corresponding requirements shall apply to the UE.

7.3.3.2 Minimum requirements

7.3.3.2.1 3,84 Mcps TDD Option

For the parameters specified in table 7.3.3.2.1a the BLER should not exceed the piece-wise linear BLER curve specified in table 7.3.3.2.1b. These requirements are applicable for TFCS size 16.

The reference for this requirement is 3G TS 25.102 clause 8.3.3.1.1.

Table 7.3.3.2.1a: DCH parameters in multipath Case 3 channel (3,84 Mcps TDD Option)

Parameters	Unit	Test 1	Test 2	Test 3	Test 4	Test 5
$\frac{\Sigma DPCH\_E_c}{I_{or}}$	DB	-3	0	0	0	0
I_{oc}	dBm/3,84 MHz	-60				
Cell Parameter*		0,1				
DPCH Channelization Codes*	C(k,Q)	C(i,16) i=1,2	C(i,16) i=1 . .5	C(i,16) i=1 . .9	C(i,16) i=1 . .8	-
OCNS Channelization Code*	C(k,Q)	C(3,16)	-	-	-	-
Information Data Rate	kbps	12,2	64	144	384	2048
*Note: Refer to TS 25.223 for definition of channelization codes and cell parameter.						

Table 7.3.3.2.1b: Performance requirements in multipath Case 3 channel (3,84 Mcps TDD Option)

Test Number	$\frac{\hat{I}_{or}}{I_{oc}}$ [dB]	BLER
1	~~4,7~~4,8	10^{-2}
2	~~5,2~~5,8	10^{-1}
	~~8,4~~8,5	10^{-2}
	~~12,1~~10,7	10^{-3}
3	~~11,7~~10,3	10^{-1}
	~~15,2~~13,3	10^{-2}
	~~17,8~~16,0	10^{-3}
4	~~8,2~~8,9	10^{-1}
	~~11,3~~11,5	10^{-2}
	~~13,0~~13,6	10^{-3}
5	9,4	10^{-1}
	11,5	10^{-2}
	13,6	10^{-3}

7.3.3.2.2 1,28 Mcps TDD Option

For the parameters specified in table 7.3.3.2.2a the BLER should not exceed the piece-wise linear BLER curve specified in table 7.3.3.2.2b.

Table 7.3.3.2.2a: DCH parameters in multipath Case 3 channel (1,28Mcps TDD Option)

Parameters	Unit	Test 1	Test 2	Test 3	Test 4
Number of $DPCH_o$		8	2	2	0
$\frac{DPCH_o - E_c}{I_{or}}$	dB	-10	-10	-10	0
I_{oc}	dBm/1,28MHz	-60			
Information Data Rate	Kbps	12,2	64	144	384

Table 7.3.3.2.2b: Performance requirements in multipath Case 3 channel (1,28Mcps TDD Option)

Test Number	$\frac{\hat{I}_{or}}{I_{oc}}$ [dB]	BLER
1	10,8	10^{-2}
2	8,3	10^{-1}
	11,1	10^{-2}
	13,8	10^{-3}
3	8,7	10^{-1}
	10,6	10^{-2}
	11,8	10^{-3}
4	8,8	10^{-1}
	10,3	10^{-2}
	11,5	10^{-3}

7.3.3.3 Test purpose

While the receiver tests in clause 6 aims for the RF hardware, this performance requirement aims for the receiver's signal processing.

The test purpose is to verify the ability of the receiver to receive a predefined test signal ,representing a multipath propagation channel for the wanted and for the co-channel signals from serving and adjacent cells, with a block error ratio (BLER) not exceeding a specified value.

7.3.3.4 Method of test

7.3.3.4.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

1) Connect the SS, the fading simulator, the AWGN generator and additional components to the UE antenna connector as shown in figure A.10.

2) A call is set up according to the Generic call setup procedure. The characteristic of the call shall be according to the DL reference measurement channels (12,2 kbit/s)(64 kbit/s), (144 kbit/s), and (384 kbit/s) specified in annex C.

3) Enter the UE into loopback test mode and start the loopback test. (test 1) and/or activate the Ack/Nack test mode (test 1 to test 4).

4) The levels of the wanted signal and the co-channel signals are set according to table 7.3.3.2.1a and b for the 3,84 Mcps TDD Option and table 7.3.3.2.2a and b for the 1,28 Mcps TDD Option, respectively.

7.3.3.4.2 Procedure

Measure the BLER of DCH received from the UE at the SS for all tests specified in table 7.3.3.2.1a for the 3,84 Mcps TDD Option and table 7.3.3.2.2a for the 1,28 Mcps TDD Option, respectively.

7.3.3.5 Test requirements

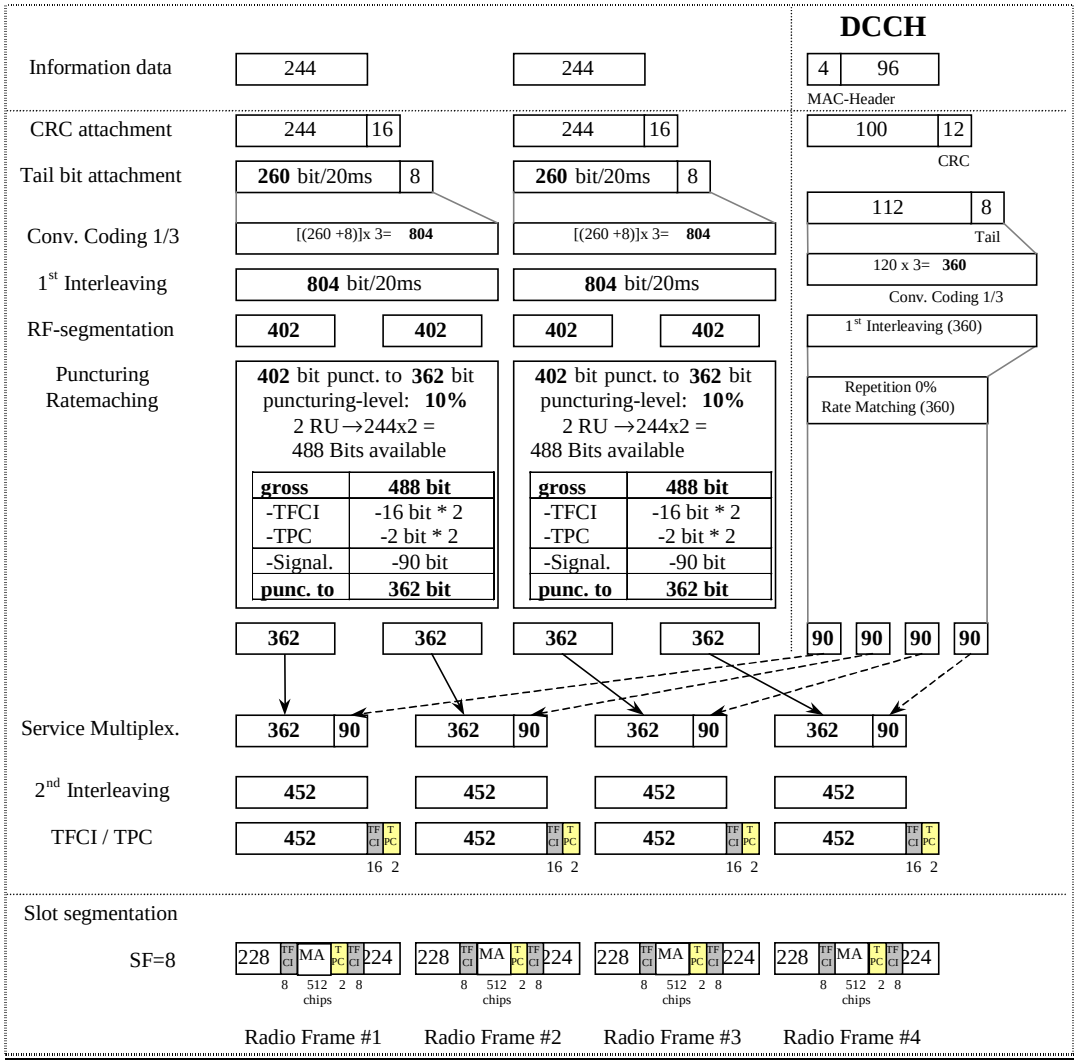
The measured BLER shall not exceed the values indicated in table 7.3.3.2.1b for the 3,84 Mcps TDD Option and table 7.3.3.2.2b for the 1,28 Mcps TDD Option, respectively.

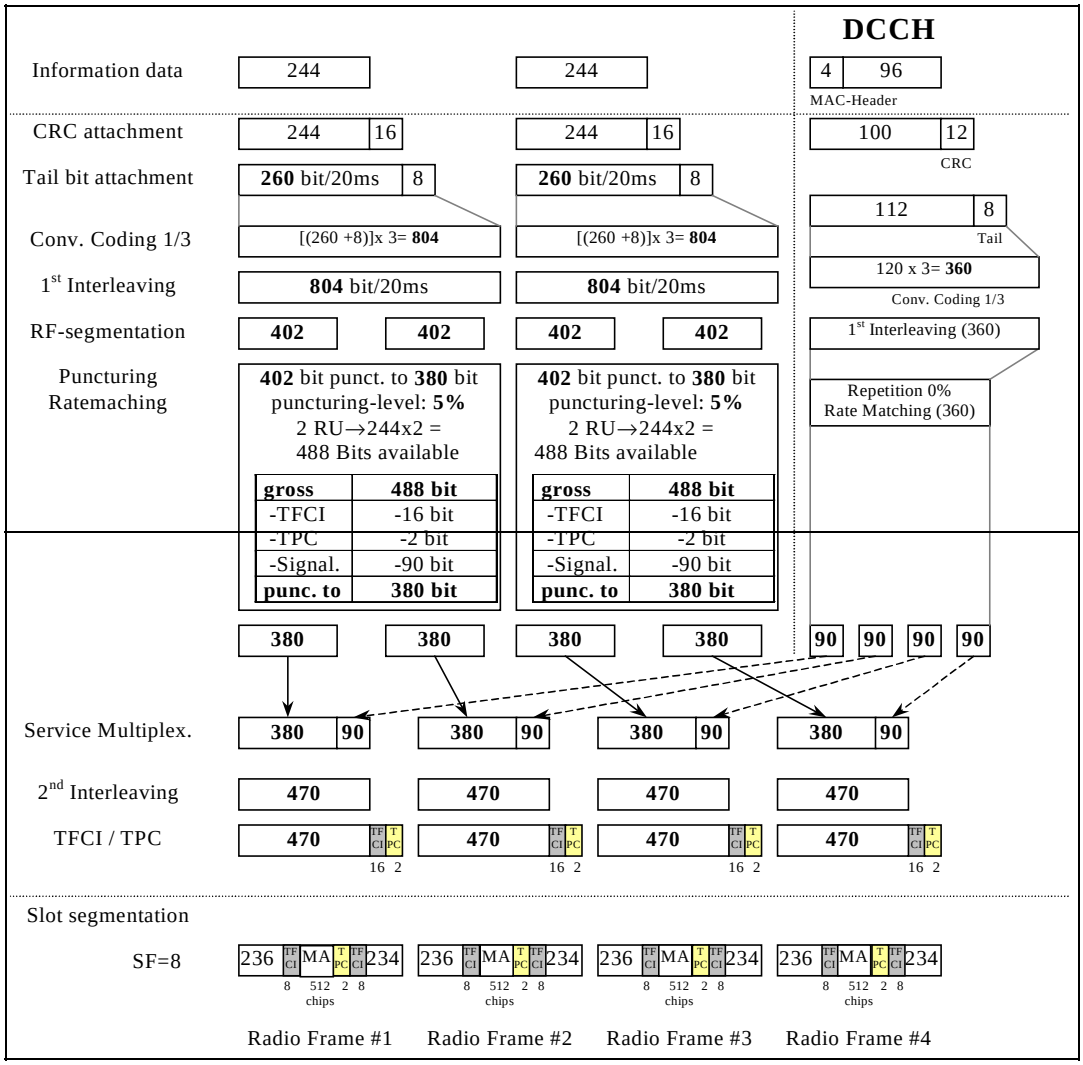
C.2 UL Reference measurement channels

C.2.1 UL reference measurement channel (12,2 kbps)

C.2.1.1 3,84 TDD Option

Parameter	
Information data rate	12,2 kbps
RU´s allocated	2 RU
Midamble	**512** chips
Interleaving	20 ms
Power control	2 Bit/user
TFCI	16 Bit/user
Inband signalling DCCH	2 kbps
Puncturing level at Code rate 1/3 : DCH / DCCH	~~5~~10% / 0%




DCCH
Information data
244
244
4
96
MAC-Header
CRC attachment
244
16
244
16
100
12
CRC
Tail bit attachment
260 bit/20ms
8
260 bit/20ms
8
112
8
Tail
Conv. Coding 1/3
[(260 +8)]x 3= 804
[(260 +8)]x 3= 804
120 x 3= 360
Conv. Coding 1/3
1st Interleaving
804 bit/20ms
804 bit/20ms
1st Interleaving (360)
RF-segmentation
402
402
402
402
Puncturing
Ratematching
402 bit punct. to 380 bit
puncturing-level: 5%
2 RU→244x2 =
488 Bits available
402 bit punct. to 380 bit
puncturing-level: 5%
2 RU→244x2 =
488 Bits available
Repetition 0%
Rate Matching (360)
gross
488 bit
-TFCI
-16 bit
-TPC
-2 bit
-Signal.
-90 bit
punc. to
380 bit
gross
488 bit
-TFCI
-16 bit
-TPC
-2 bit
-Signal.
-90 bit
punc. to
380 bit
380
380
380
380
90
90
90
90
Service Multiplex.
380
90
380
90
380
90
380
90
2nd Interleaving
470
470
470
470
TFCI / TPC
470
TFCI
TPC
16 2
470
TFCI
TPC
16 2
470
TFCI
TPC
16 2
470
TFCI
TPC
16 2
Slot segmentation
SF=8
236
TFCI
MA
TPC
TFCI
234
8 512 2 8
chips
236
TFCI
MA
TPC
TFCI
234
8 512 2 8
chips
236
TFCI
MA
TPC
TFCI
234
8 512 2 8
chips
236
TFCI
MA
TPC
TFCI
234
8 512 2 8
chips
Radio Frame #1
Radio Frame #2
Radio Frame #3
Radio Frame #4

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Tdoc ⌘ T1-020899

CR-Form-v7

CHANGE REQUEST

⌘ **34.122** **CR** **121** ⌘ **rev** **-** ⌘ Current version: **3.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	Corrections of TDD out-of Synchronisation Output power
Source:	⌘	T1/RF#27, T1R020347, Siemens AG
Work item code:	⌘	LCRTDD
Date:	⌘	28/10/2002
Category:	⌘	**F**
Release:	⌘	R99

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.

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)
Rel-6 (Release 6)

Reason for change:	⌘	Updates to reflect latest version core specification
Summary of change:	⌘	Addition of Discontinous case to out-of synchronisation output power tests
Consequences if not approved:	⌘	Incomplete testing, not reflecting latest core specification.

Clauses affected:	⌘	5.4.5 and 5.4.6			
Other specs affected:	⌘	**Y**	**N**		
		☐	☐	Other core specifications	⌘
		☐	☐	Test specifications	
		☐	☐	O&M Specifications	
Other comments:	⌘	This Document is a revision of T1R020334			

How to create CRs using this form:
Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.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.

5.4.5 Out-of-synchronisation handling of output power for continuous transmission

5.4.5.1 Definition and applicability

The UE shall monitor the DPCH quality in order to detect a loss of the signal on Layer 1, as specified in TS 25.224. [5] The thresholds Q_{out} and Q_{in} specify at what DPCH quality levels the UE shall shut its power off and when it shall turn its power on, respectively. The thresholds are not defined explicitly, but are defined by the conditions under which the UE shall shut its transmitter off and turn it on, as stated in this clause.

The requirement of this clause shall apply to all types of UTRA-UE.

5.4.5.2 Minimum Requirement

When the UE estimates the DPCH quality over the last 160 ms period to be worse than a threshold Q_{out}, the UE shall shut its transmitter off within 40 ms. The UE shall not turn its transmitter on again until the DPCH quality exceeds an acceptable level Q_{in}. When the UE estimates the DPCH quality over the last 160 ms period to be better than a threshold Q_{in}, the UE shall again turn its transmitter on within 40 ms.

The quality levels at the thresholds Q_{out} and Q_{in} correspond to different signal levels depending on the downlink conditions DCH parameters. For the conditions in table 5.4.5.1~~a~~, a signal with the quality at the level Q_{out} is generated by a ΣDPCH_Ec/Ior ratio of -13 dB, and a signal with Q_{in} by a ΣDPCH_Ec/Ior ratio of -9 dB. In this test, the DL reference measurement channel (12.2) kbps specified in clause C.3.1, where the CRC bits are replaced by data bits, and with static propagation conditions is used.

Table 5.4.5.1: DCH parameters for the Out-of-synch handling test case continuous transmission

Parameter	Unit	Value
$\hat{I}_{or}/I_{oc}$	dB	-1.1
I_{oc}	dBm/3,84 MHz	-60
$\frac{\Sigma DPCH\_E_c}{I_{or}}$	dB	See figure 5.4.5.1
Information Data Rate	kbps	13
TFCI	-	On

Figure 5.4.5.1 shows an example scenario where the ΣDPCH_Ec/Ior ratio varies from a level where the DPCH is demodulated under normal conditions, down to a level below Q_{out} where the UE shall shut its power off and then back up to a level above Q_{in} where the UE shall turn the power back on.

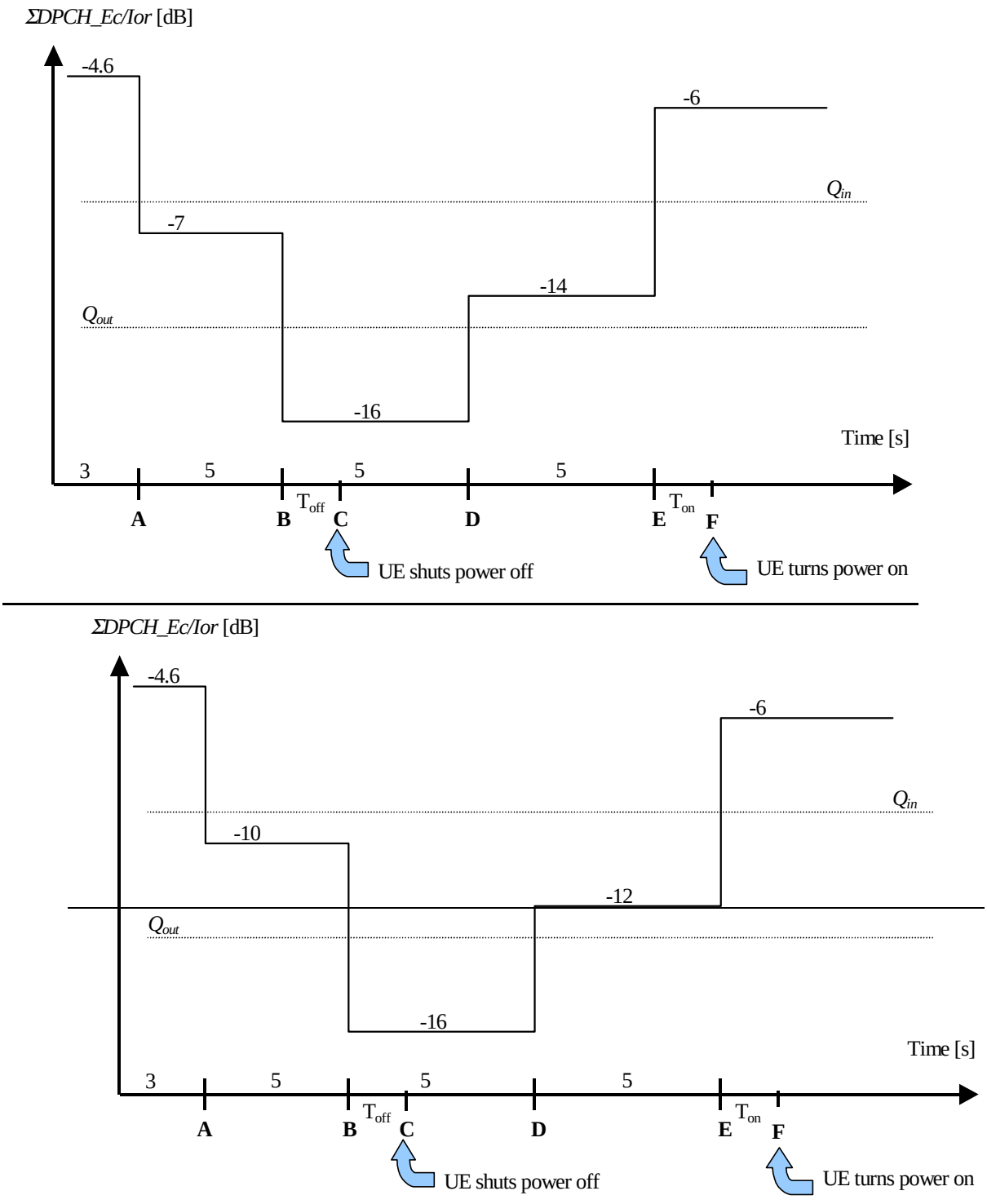

Figure 5.4.5.1: Test case for out-of-synch handling in the UE continuous transmission

In this test case the requirements for the UE are that:

1) The UE shall not shut its transmitter off before point B.
2) The UE shall shut its transmitter off before point C, which is T_{off} = 200 ms after point B
3) The UE shall not turn its transmitter on between points C and E.
4) The UE shall turn its transmitter on before point F, which is Ton = 200 ms after Point E.

The normative reference for this test is TS 25.102 [1] clause 6.4.3.1.

5.4.5.3 Test purpose

To verify that the UE monitors the DPCH quality and turns its transmitter on or off according to DPCH level diagram specified in figure5.4.5.1.

5.4.5.4 Method of test

5.4.5.4.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

1) Connect the SS to the UE antenna connector as shown in figure A.1.
2) Calls are set up according to the Generic call setup procedure using parameters as specified in table 5.4.5.1
3) Enter the UE into loopback test mode and start the loopback test.
4) The handover triggering level shall be set very high [TBD] to ensure that the beacon channel power never exceeds the value of 10dB above it. Therefore the averaging time for signal quality will always be 160 milliseconds.

5.4.5.4.2 Procedure

1) SS level and signalling values are set that the UE transmits maximum power (see annex E clause E.3.1)
2) Set the SS TX signal quality to $\frac{\Sigma DPCH\_E_c}{I_{or}}$ = -4.6[+0~~.~~.4 – 0] dB and verify that the UE TX signal is on.
3) Set the SS TX signal quality to $\frac{\Sigma DPCH\_E_c}{I_{or}}$ = -~~10~~7[+0~~.~~.4 – 0] dB and verify that the UE TX signal remains on continuously for at least 5 seconds.
4) Set the SS TX signal quality to $\frac{\Sigma DPCH\_E_c}{I_{or}}$ = -16[+0 -0~~.~~.4] dB and verify that the UE TX signal turns off 200 ms or earlier with respect to that instant.
5) Set the SS TX signal quality to $\frac{\Sigma DPCH\_E_c}{I_{or}}$ = -1~~2~~4[+0 -0~~.~~.4] dB and verify that the UE TX signal remains off continuously for at least 5 seconds.
6) Set the SS TX signal quality to $\frac{\Sigma DPCH\_E_c}{I_{or}}$ = -6[+0~~.~~.4 – 0] dB and verify that the UE TX signal is switched on 200 ms or earlier with respect to that instant.

5.4.5.5 Test Requirements

The UE TX on-criterion including tolerance window is derived from the initial conditions and is verified with the method of 5.4.2 minimum transmit power. The UE transmitter is considered to be on if the UE transmitted power is higher than the minimum output power.

The UE TX off criterion including tolerance is verified according to clause 5.4.3 of the present document (Transmit off power). The UE transmitter is considered to be off if the UE transmitted power is lower than the transmit OFF power.

To pass the test, steps 1 through 6 of the procedure must be fulfilled.

5.4.6 Out-of-synchronisation handling of output power for discontinuous transmission

5.4.6.1 Definition and applicability

The UE shall monitor the DPCH quality in order to detect a loss of the signal on Layer 1, as specified in TS 25.224. [5] The thresholds Q_{out} and Q_{in} specify at what DPCH quality levels the UE shall shut its power off and when it shall turn its power on, respectively. The thresholds are not defined explicitly, but are defined by the conditions under which the UE shall shut its transmitter off and turn it on, as stated in this clause.

However, during DTX, there are periods when the UE will receive no data from the UTRAN. As specified in TS 25.224, in order to keep synchronization, Special Bursts shall be transmitted by the UTRAN during these periods of no data.

During these periods, the conditions for when the UE shall shut its transmitter on or off are defined by the power level of the received Special Bursts.

When the UE does not detect at least one special burst with a quality above a threshold Q_{sbout} over the last 160 ms period, the UE shall shut its transmitter off within 40 ms. The UE shall not turn its transmitter on again until the special burst quality exceeds an acceptable level Q_{sbin}. When the UE estimates the special burst quality to be better than a threshold Q_{sbin} over the last 160 ms, the UE shall again turn its transmitter on within 40 ms.

The requirement of this clause shall apply to all types of UTRA-UE.

5.4.6.2 Minimum Requirement

When the UE estimates the DPCH quality over the last 160 ms period to be worse than a threshold Q_{out}, the UE shall shut its transmitter off within 40 ms. The UE shall not turn its transmitter on again until the DPCH quality exceeds an acceptable level Q_{in}. When the UE estimates the DPCH quality over the last 160 ms period to be better than a threshold Q_{in}, the UE shall again turn its transmitter on within 40 ms.

The quality levels at the thresholds Q_{out} and Q_{in} correspond to different signal levels depending on the downlink conditions DCH parameters. For the conditions in table 5.4.6.1.a, a signal with the quality at the level Q_{out} is generated by a DPCH_Ec/Ior ratio of -16 dB, and a signal with Q_{in} by a DPCH_Ec/Ior ratio of -12 dB.

Table 5.4.6.1: DCH parameters for the Out-of-synch handling test case discontinuous transmission

Parameter	Unit	Value
$\hat{I}_{or}/I_{oc}$	dB	-1.1
I_{oc}	dBm/3,84 MHz	-60
$\frac{DPCH\_E_c}{I_{or}}$	dB	See figure 5.4.6.1
Bits/burst (including TFCI bits)	Bits	244
TFCI	-	On

Figure 5.4.6.1 shows an example scenario where the DPCH Ec/Ior ratio during Special Bursts varies from a level where the DPCH is demodulated under normal conditions, down to a level below Q_{out} where the UE shall shut its power off and then back up to a level above Q_{in} where the UE shall turn the power back on.

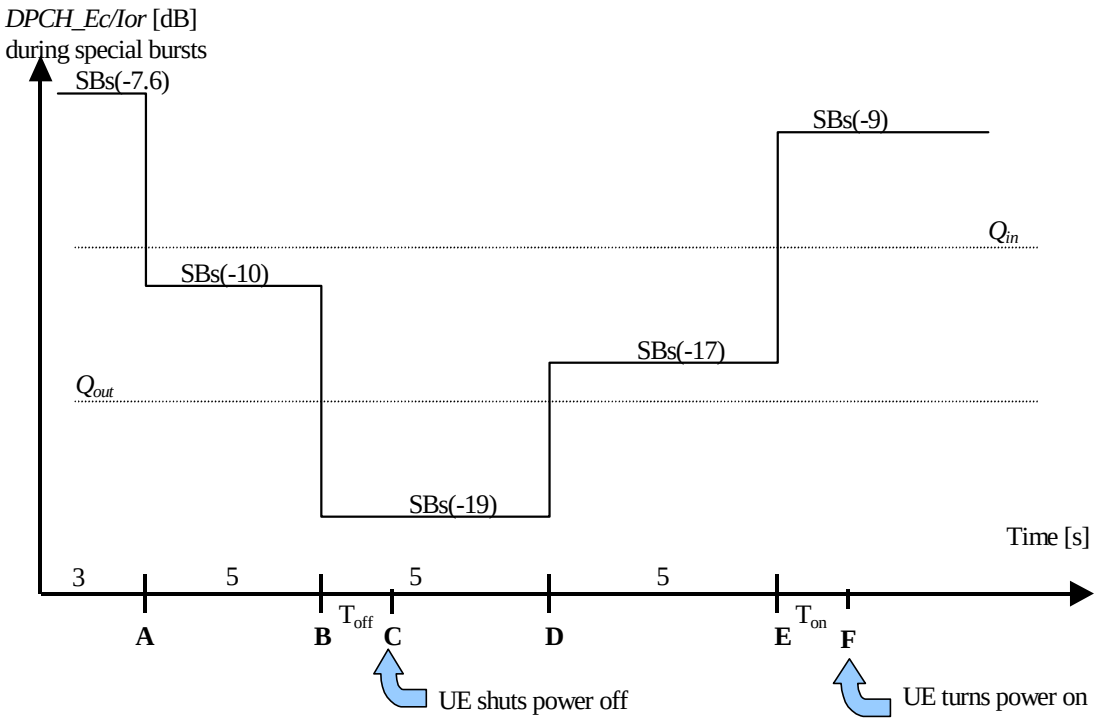

Figure 5.4.6.1: Test case for out-of-synch handling in the UE discontinuous transmission

In this test case the requirements for the UE are that:

1) The UE shall not shut its transmitter off before point B.

2) The UE shall shut its transmitter off before point C, which is T_{off} = 200 ms after point B

3) The UE shall not turn its transmitter on between points C and E.

4) The UE shall turn its transmitter on before point F, which is Ton = 200 ms after Point E.

The normative reference for this test is TS 25.102 [1] clause 6.4.3.2.

5.4.6.3 Test purpose

To verify that the UE monitors the Special Burst DPCH quality and turns its transmitter on or off according to level diagram specified in figure5.4.6.1.

5.4.6.4 Method of test

5.4.6.4.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

1) Connect the SS to the UE antenna connector as shown in figure A.1.

2) Calls are set up according to the Generic call setup procedure using parameters as specified in table 5.4.6.1

3) Enter the UE into loopback test mode and start the loopback test.

4) The handover triggering level shall be set very high [TBD] to ensure that the beacon channel power never exceeds the value of 10dB above it. Therefore the averaging time for signal quality will always be 160 milliseconds.

5.4.6.4.2 Procedure

1) SS level and signalling values are set that the UE transmits maximum power (see annex E clause E.3.1)

2) Set the SS TX signal quality to $\frac{DPCH\_E_c}{I_{or}}$ = -7.6[+0.4 –0] dB and verify that the UE TX signal is on.

3) Set the SS TX signal quality to $\frac{DPCH\_E_c}{I_{or}}$ = -10[+0.4 –0] dB and verify that the UE TX signal remains on continuously for at least 5 seconds.

4) Set the SS TX signal quality to $\frac{DPCH\_E_c}{I_{or}}$ = -19[+0 –0.4] dB and verify that the UE TX signal turns off 200 ms or earlier with respect to that instant.

5) Set the SS TX signal quality to $\frac{DPCH\_E_c}{I_{or}}$ = -17[+0 –0.4] dB and verify that the UE TX signal remains off continuously for at least 5 seconds.

6) Set the SS TX signal quality to $\frac{DPCH\_E_c}{I_{or}}$ = -9[+0.4 –0] dB and verify that the UE TX signal is switched on 200 ms or earlier with respect to that instant.

5.4.6.5 Test Requirements

The UE TX on-criterion including tolerance window is derived from the initial conditions and is verified with the method of 5.4.2 minimum transmit power. The UE transmitter is considered to be on if the UE transmitted power is higher than the minimum output power.

The UE TX off criterion including tolerance is verified according to clause 5.4.3 of the present document (Transmit off power). The UE transmitter is considered to be off if the UE transmitted power is lower than the transmit OFF power.

To pass the test, steps 1 through 6 of the procedure must be fulfilled.