

TSG-RAN Meeting #18
New-Orleans, USA, 03 - 06 December 2002

RP-020736

Title: Agreed CR (Rel-5) to TS 25.331

Source: TSG-RAN WG2

Agenda item: 7.2.5

Doc-1st-	Status-	Spec	CR	Rev	Phase	Subject	Cat	Version-	Version
R2-022709	Agreed	25.331	1707	-	Rel-5	RRC container for RFC3095 context	F	5.2.0	5.3.0
R2-023204	Agreed	25.331	1791	-	Rel-5	Correction to IE "Access stratum release indicator"	F	5.2.0	5.3.0
R2-023210	Agreed	25.331	1792	-	Rel-5	RLC capability for HSDPA	F	5.2.0	5.3.0
R2-023213	Agreed	25.331	1794	-	Rel-5	Dedicated pilot bits for HS-DSCH	F	5.2.0	5.3.0
R2-023224	Agreed	25.331	1795	-	Rel-5	Expansion of CPICH RSCP range	C	5.2.0	5.3.0
R2-023225	Agreed	25.331	1796	-	Rel-5	L3 Retransmission of event 1b	C	5.2.0	5.3.0
R2-023226	Agreed	25.331	1797	-	Rel-5	DPC mode change in ACTIVE SET UPDATE message	F	5.2.0	5.3.0
R2-023227	Agreed	25.331	1798	-	Rel-5	Correction to handling of IE 'Downlink information for each RL'	F	5.2.0	5.3.0

CR-Form-v7

CHANGE REQUEST

25.331 CR 1707 # rev **-** # Current version: **5.2.0**

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:	# RRC container for RFC3095 context		
Source:	# Nokia		
Work item code:	# RANimp-RABSE5	Date:	# 24/09/2002
Category:	# F	Release:	# Rel-5
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	F (correction)		2 (GSM Phase 2)
	A (corresponds to a correction in an earlier release)		R96 (Release 1996)
	B (addition of feature),		R97 (Release 1997)
	C (functional modification of feature)		R98 (Release 1998)
	D (editorial modification)		R99 (Release 1999)
	Detailed explanations of the above categories can be found in 3GPP TR 21.900.		Rel-4 (Release 4)
			Rel-5 (Release 5)
			Rel-6 (Release 6)

Reason for change:	# In Rel-5, it is possible to transfer the RFC3095 context from Source SRNC to Target SRNC to improve header compression efficiency. However, the structure of RFC3095 context is not yet specified. In RAN WG2#30, tdoc R2-021626 provided motivation for the proposed structure of RFC3095 context. UE behaviour is not completely clear when IE "PDCP context relocation info" is present and when it is not present.
Summary of change:	# RFC3095 context is specified in line with R2-021626. UE behaviour is clarified when IE "PDCP context relocation info" is present and when it is not present.
Consequences if not approved:	# RFC3095 context relocation procedure is not fully specified.

Clauses affected:	# 8.2.2.4, 8.3.1.7, 8.3.3.3, 11.5, 14.12.4.4				
Other specs affected:	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> </table> Other core specifications # <input type="checkbox"/>	Y	N	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Y	N				
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	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> </table> O&M Specifications # <input type="checkbox"/>	Y	N	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Y	N				
<input type="checkbox"/>	<input checked="" type="checkbox"/>				
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.

8.2.2 Reconfiguration procedures

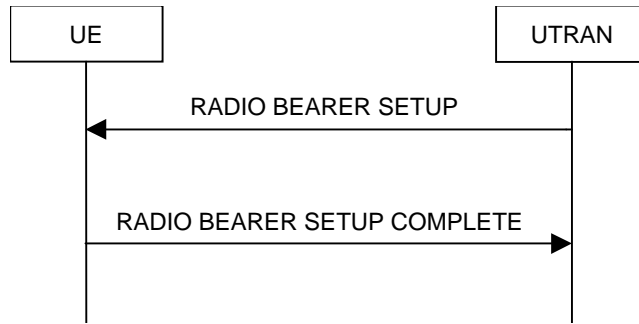


Figure 8.2.2-1: Radio Bearer Establishment, normal case

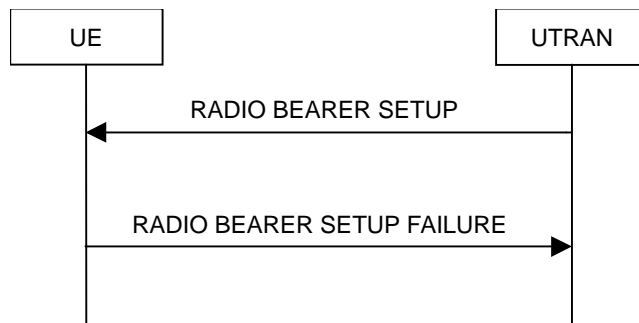


Figure 8.2.2-2: Radio Bearer Establishment, failure case

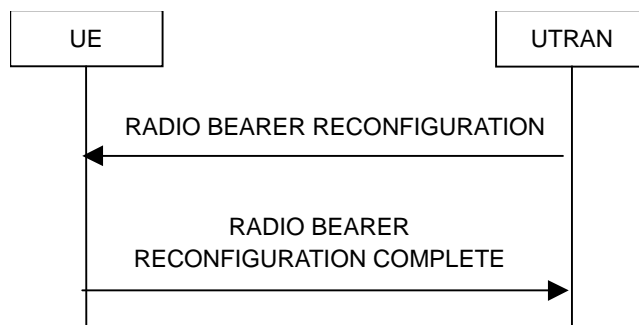


Figure 8.2.2-3: Radio bearer reconfiguration, normal flow

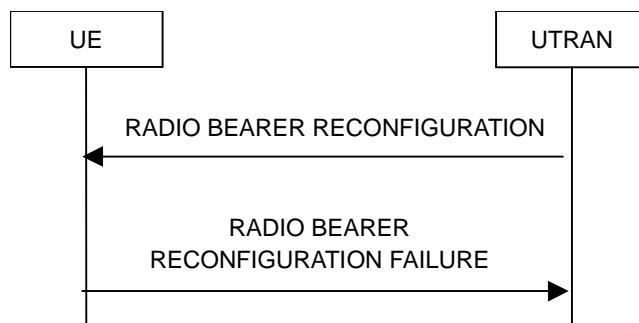


Figure 8.2.2-4: Radio bearer reconfiguration, failure case

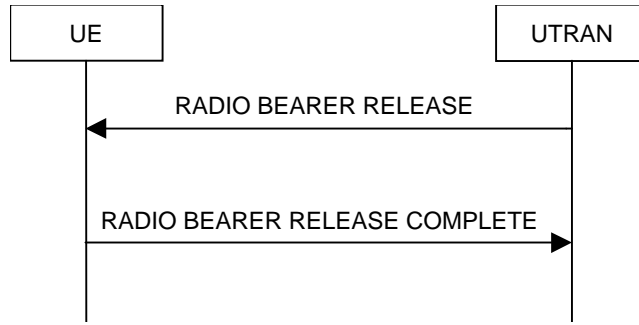


Figure 8.2.2-5: Radio Bearer Release, normal case

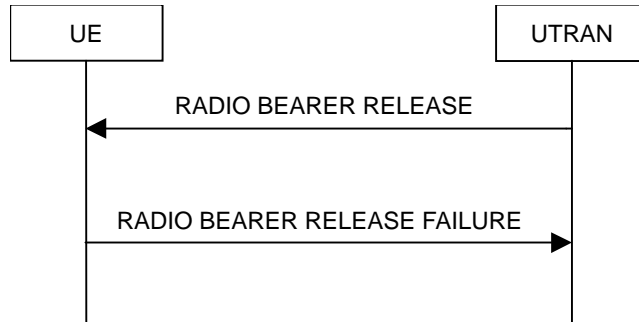


Figure 8.2.2-6: Radio Bearer Release, failure case

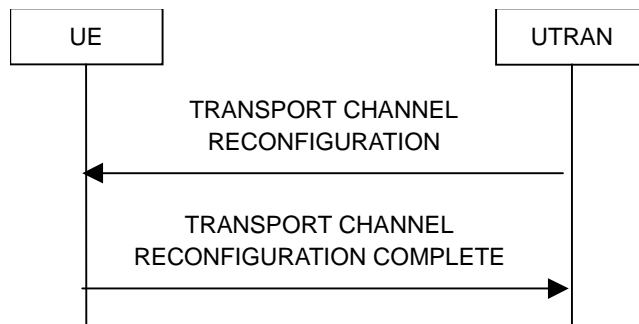


Figure 8.2.2-7: Transport channel reconfiguration, normal flow

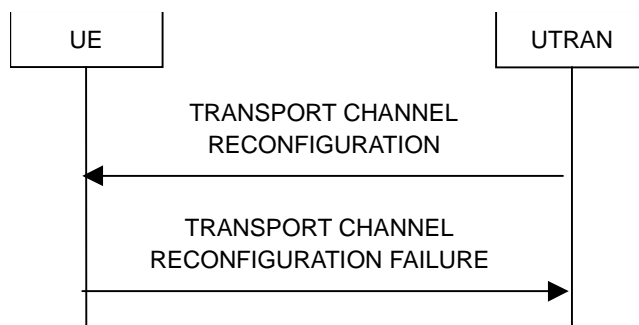


Figure 8.2.2-8: Transport channel reconfiguration, failure case

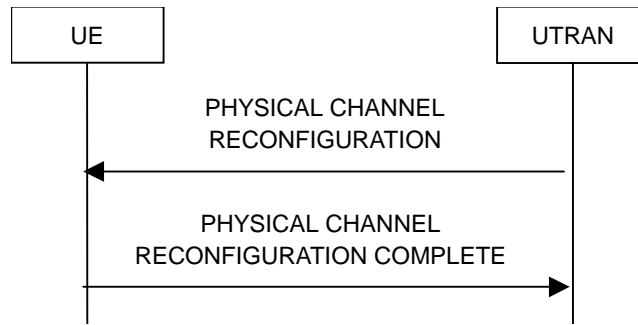


Figure 8.2.2-9: Physical channel reconfiguration, normal flow

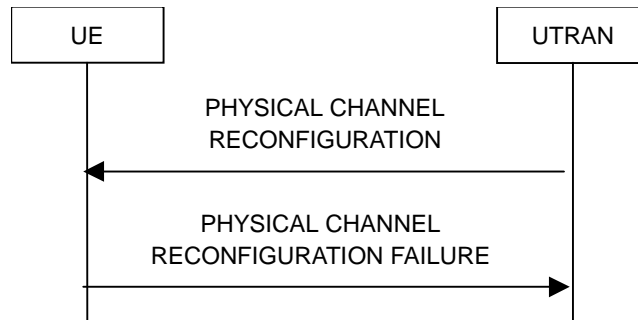


Figure 8.2.2-10: Physical channel reconfiguration, failure case

8.2.2.1 General

Reconfiguration procedures include the following procedures:

- the radio bearer establishment procedure;
- radio bearer reconfiguration procedure;
- the radio bearer release procedure;
- the transport channel reconfiguration procedure; and
- the physical channel reconfiguration procedure.

The radio bearer establishment procedure is used to establish new radio bearer(s).

The radio bearer reconfiguration procedure is used to reconfigure parameters for a radio bearer.

The radio bearer release procedure is used to release radio bearer(s).

The transport channel reconfiguration procedure is used to reconfigure transport channel parameters.

The physical channel reconfiguration procedure is used to establish, reconfigure and release physical channels.

While performing any of the above procedures, these procedures may perform a hard handover (subclause 8.3.5) and/or an HS-DSCH cell change. The reconfiguration procedures are also used to change the feedback configuration for HS-DSCH.

8.2.2.2 Initiation

To initiate any one of the reconfiguration procedures, UTRAN should:

- 1> configure new radio links in any new physical channel configuration;
- 1> start transmission and reception on the new radio links;
- 1> for a radio bearer establishment procedure:

- 2> transmit a RADIO BEARER SETUP message on the downlink DCCH using AM or UM RLC;
- 2> if signalling radio bearer RB4 is setup with this procedure and signalling radio bearers RB1-RB3 were already established prior to the procedure:
 - 3> if the variable "LATEST_CONFIGURED_CN_DOMAIN" has been initialised:
 - 4> connect any radio bearers setup by the same message as signalling radio bearer RB4 to the CN domain indicated in the variable "LATEST_CONFIGURED_CN_DOMAIN".
- 1> for a radio bearer reconfiguration procedure:
 - 2> transmit a RADIO BEARER RECONFIGURATION message on the downlink DCCH using AM or UM RLC.
- 1> for a radio bearer release procedure:
 - 2> transmit a RADIO BEARER RELEASE message on the downlink DCCH using AM or UM RLC.
- 1> for a transport channel reconfiguration procedure:
 - 2> transmit a TRANSPORT CHANNEL RECONFIGURATION message on the downlink DCCH using AM or UM RLC.
- 1> for a physical channel reconfiguration procedure:
 - 2> transmit a PHYSICAL CHANNEL RECONFIGURATION message on the downlink DCCH using AM or UM RLC.
- 1> if the reconfiguration procedure is simultaneous with SRNS relocation procedure:
 - 2> if the transmitted message is a RADIO BEARER RECONFIGURATION:
 - 3> include the IE "New U-RNTI".
 - 2> else:
 - 3> include the IE "Downlink counter synchronisation info".
 - 2> if ciphering and/or integrity protection are activated:
 - 3> include new ciphering and/or integrity protection configuration information to be used after reconfiguration.
 - 2> use the downlink DCCH using AM RLC.
- 1> if transport channels are added, reconfigured or deleted in uplink and/or downlink:
 - 2> set TFCS according to the new transport channel(s).
- 1> if transport channels are added or deleted in uplink and/or downlink, and RB Mapping Info applicable to the new configuration has not been previously provided to the UE, the UTRAN should:
 - 2> send the RB Mapping Info for the new configuration.

In the Radio Bearer Reconfiguration procedure UTRAN may indicate that uplink transmission shall be stopped or continued on certain radio bearers. Uplink transmission on a signalling radio bearer used by the RRC signalling (signalling radio bearer RB1 or signalling radio bearer RB2) should not be stopped.

NOTE 1: The Release '99 RADIO BEARER RECONFIGURATION message always includes the IE "RB information to reconfigure", even if UTRAN does not require the reconfiguration of any RB. In these cases, UTRAN may include only the IE "RB identity" within the IE "RB information to reconfigure".

NOTE 2: The Release '99 RADIO BEARER RECONFIGURATION message always includes the IE "Downlink information per radio link list", even if UTRAN does not require the reconfiguration of any RL. In these cases, UTRAN may re-send the currently assigned values for the mandatory IEs included within the IE "Downlink information per radio link list".

NOTE 3: The Release '99 RADIO BEARER RECONFIGURATION message always includes the IE "Primary CPICH Info" (FDD) or IE "Primary CCPCH Info" (TDD) within IE "Downlink information per radio link list". This implies that in case UTRAN applies the RADIO BEARER RECONFIGURATION message to move the UE to CELL_FACH state, it has to indicate a cell. However, UTRAN may indicate any cell; the UE anyhow performs cell selection and notifies UTRAN if it selects another cell than indicated by UTRAN.

If the IE "Activation Time" is included, UTRAN should set it to a value taking the UE performance requirements into account.

UTRAN should take the UE capabilities into account when setting the new configuration.

If the message is used to initiate a transition from CELL_DCH to CELL_FACH state, the UTRAN may assign a CPCH configuration to be used in that cell by the UE. UTRAN may also assign a C-RNTI to be used in that cell by the UE.

8.2.2.3 Reception of RADIO BEARER SETUP or RADIO BEARER RECONFIGURATION or RADIO BEARER RELEASE or TRANSPORT CHANNEL RECONFIGURATION or PHYSICAL CHANNEL RECONFIGURATION message by the UE

The UE shall:

- 1> be able to receive any of the following messages:
 - 2> RADIO BEARER SETUP message; or
 - 2> RADIO BEARER RECONFIGURATION message; or
 - 2> RADIO BEARER RELEASE message; or
 - 2> TRANSPORT CHANNEL RECONFIGURATION message; or
 - 2> PHYSICAL CHANNEL RECONFIGURATION message;
- 1> perform a hard handover and apply physical layer synchronisation procedure A as specified in [29], even if no prior UE measurements have been performed on the target cell and/or frequency.

If the UE receives:

- a RADIO BEARER SETUP message; or
- a RADIO BEARER RECONFIGURATION message; or
- a RADIO BEARER RELEASE message; or
- a TRANSPORT CHANNEL RECONFIGURATION message; or
- a PHYSICAL CHANNEL RECONFIGURATION message;

it shall:

- 1> set the variable ORDERED_RECONFIGURATION to TRUE;
- 1> if the UE will enter the CELL_DCH state from any state other than CELL_DCH state at the conclusion of this procedure:
 - 2> perform the physical layer synchronisation procedure A as specified in [29] (FDD only).
- 1> act upon all received information elements as specified in subclause 8.6, unless specified in the following and perform the actions below.

The UE may:

- 1> maintain a list of the set of cells to which the UE has Radio Links if the IE "Cell ID" is present.

The UE may first release the physical channel configuration used at reception of the reconfiguration message. The UE shall then:

- 1> in FDD, if the IE "PDSCH code mapping" is included but the IE "PDSCH with SHO DCH Info" is not included and if the DCH has only one link in its active set:
 - 2> act upon the IE "PDSCH code mapping" as specified in subclause 8.6; and
 - 2> infer that the PDSCH will be transmitted from the cell from which the downlink DPCH is transmitted.
- 1> enter a state according to subclause 8.6.3.3.

In case the UE receives a RADIO BEARER RECONFIGURATION message including the IE "RB information to reconfigure" that only includes the IE "RB identity", the UE shall:

- 1> handle the message as if IE "RB information to reconfigure" was absent.

NOTE: The RADIO BEARER RECONFIGURATION message always includes the IE "RB information to reconfigure". UTRAN has to include it even if it does not require the reconfiguration of any RB.

If after state transition the UE enters CELL_DCH state, the UE shall, after the state transition:

- 1> remove any C-RNTI from MAC;
- 1> clear the variable C_RNTI.

If after state transition the UE leaves CELL_DCH state, the UE shall, after the state transition:

- 1> stop any HS-DSCH reception procedures according to the stored HS-PDSCH configuration;
- 1> clear any stored HS-PDSCH configuration;
- 1> remove any H-RNTI stored;
- 1> clear the variable H_RNTI;
- 1> set the variable HS_DSCH_RECEPTION to FALSE.

In FDD, if after state transition the UE leaves CELL_DCH state, the UE shall, after the state transition:

- 1> remove any DSCH-RNTI from MAC;
- 1> clear the variable DSCH_RNTI.

If the UE was in CELL_DCH state upon reception of the reconfiguration message and remains in CELL_DCH state, the UE shall:

- 1> if the IE "Uplink DPCH Info" is absent, not change its current UL Physical channel configuration;
- 1> if "DPCH frame offset" is included for one or more RLS in the active set:
 - 2> use its value to determine the beginning of the DPCH frame in accordance with the following:
 - 3> if the received IE "DPCH frame offset" is across the value range border compared to the DPCH frame offset currently used by the UE:
 - 4> consider it to be a request to adjust the timing with 256 chips across the frame border (e.g. if the UE receives value 0 while the value currently used is 38144 consider this as a request to adjust the timing with +256 chips).
 - 3> if after taking into account value range borders, the received IE "DPCH frame offset" corresponds to a request to adjust the timing with a step exceeding 256 chips:
 - 4> set the variable INVALID_CONFIGURATION to TRUE.
 - 3> and the procedure ends.
- 2> adjust the radio link timing accordingly.

If after state transition the UE enters CELL_FACH state, the UE shall, after the state transition:

- 1> if the IE "Frequency info" is included in the received reconfiguration message:
 - 2> select a suitable UTRA cell according to [4] on that frequency.
- 1> if the IE "Frequency info" is not included in the received reconfiguration message:
 - 2> select a suitable UTRA cell according to [4].
- 1> if the received reconfiguration message included the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD), and the UE selects another cell than indicated by this IE or the received reconfiguration message did not include the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD):
 - 2> initiate a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";
 - 2> when the cell update procedure completed successfully:
 - 3> if the UE is in CELL_PCH or URA_PCH state:
 - 4> initiate a cell update procedure according to subclause 8.3.1 using the cause "Uplink data transmission";
 - 4> proceed as below.
- 1> start timer T305 using its initial value if timer T305 is not running and if periodical update has been configured by T305 in the IE "UE Timers and constants in connected mode" set to any other value than "infinity" in system information block type 1;
- 1> select PRACH according to subclause 8.5.17;
- 1> select Secondary CCPCH according to subclause 8.5.19;
- 1> use the transport format set given in system information;
- 1> if the IE "UTRAN DRX cycle length coefficient" is included in the same message:
 - 2> ignore that IE and stop using DRX.
- 1> if the contents of the variable C_RNTI is empty:
 - 2> perform a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";
 - 2> when the cell update procedure completed successfully:
 - 3> if the UE is in CELL_PCH or URA_PCH state:
 - 4> initiate a cell update procedure according to subclause 8.3.1 using the cause "Uplink data transmission";
 - 4> proceed as below.

If the UE was in CELL_FACH state upon reception of the reconfiguration message and remains in CELL_FACH state, the UE shall:

- 1> if the IE "Frequency info" is included in the received reconfiguration message:
 - 2> select a suitable UTRA cell according to [4] on that frequency;
 - 2> if the received reconfiguration message included the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD), and the UE selected another cell than indicated by this IE or the received reconfiguration message did not include the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD):
 - 3> initiate a cell update procedure according to subclause 8.3.1 using the cause "cell reselection";
 - 3> when the cell update procedure completed successfully:

4> proceed as below.

The UE shall transmit a response message as specified in subclause 8.2.2.4, setting the information elements as specified below. The UE shall:

- 1> if the received reconfiguration message included the IE "Downlink counter synchronisation info"; or
- 1> if the received reconfiguration message is a RADIO BEARER RECONFIGURATION and the IE "New U-RNTI" is included:
 - 2> re-establish RB2;
 - 2> set the new uplink and downlink HFN of RB2 to MAX(uplink HFN of RB2, downlink HFN of RB2);
 - 2> increment by one the downlink and uplink HFN values for RB2;
 - 2> calculate the START value according to subclause 8.5.9;
 - 2> include the calculated START values for each CN domain in the IE "START list" in the IE "Uplink counter synchronisation info".
- 1> if the received reconfiguration message did not include the IE "Downlink counter synchronisation info":
 - 2> if the variable START_VALUE_TO_TRANSMIT is set:
 - 3> include and set the IE "START" to the value of that variable.
 - 2> if the variable START_VALUE_TO_TRANSMIT is not set and the IE "New U-RNTI" is included:
 - 3> calculate the START value according to subclause 8.5.9;
 - 3> include the calculated START values for each CN domain in the IE "START list" in the IE "Uplink counter synchronisation info".
 - 2> if the received reconfiguration message caused a change in the RLC size for any RB using RLC-AM:
 - 3> calculate the START value according to subclause 8.5.9;
 - 3> include the calculated START values for the CN domain associated with the corresponding RB identity in the IE "START list" in the IE "Uplink counter synchronisation info".
- 1> if the received reconfiguration message contained the IE "Ciphering mode info" or contained the IE "Integrity protection mode info":
 - 2> set the IE "Status" in the variable SECURITY_MODIFICATION for all the CN domains in the variable SECURITY_MODIFICATION to "Affected".
- 1> if the received reconfiguration message contained the IE "Ciphering mode info":
 - 2> include and set the IE "Radio bearer uplink ciphering activation time info" to the value of the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO.
- 1> if the received reconfiguration message did not contain the IE "Ciphering activation time for DPCH" in IE "Ciphering mode info":
 - 2> if prior to this procedure there exist no transparent mode RLC radio bearers:
 - 3> if, at the conclusion of this procedure, the UE will be in CELL_DCH state; and
 - 3> if, at the conclusion of this procedure, at least one transparent mode RLC radio bearer exists:
 - 4> include the IE "COUNT-C activation time" and specify a CFN value for this IE.
 - 2> if prior to this procedure there exists at least one transparent mode RLC radio bearer:
 - 3> if, at the conclusion of this procedure, no transparent mode RLC radio bearers exist:
 - 4> include the IE "COUNT-C activation time" and specify a CFN value for this IE.

1> set the IE "RRC transaction identifier" to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

1> clear that entry;

1> if the variable PDCP_SN_INFO is not empty:

2> include the IE "RB with PDCP information list" and set it to the value of the variable PDCP_SN_INFO.

1> in TDD, if the procedure is used to perform a handover to a cell where timing advance is enabled, and the UE can calculate the timing advance value in the new cell (i.e. in a synchronous TDD network):

2> set the IE "Uplink Timing Advance" according to subclause 8.6.6.26.

1> if the IE "Integrity protection mode info" was present in the received reconfiguration message:

2> start applying the new integrity protection configuration in the uplink for signalling radio bearer RB2 from and including the transmitted response message.

If after state transition the UE enters CELL_PCH or URA_PCH state, the UE shall, after the state transition and transmission of the response message:

1> if the IE "Frequency info" is included in the received reconfiguration message:

2> select a suitable UTRA cell according to [4] on that frequency.

1> if the IE "Frequency info" is not included in the received reconfiguration message:

2> select a suitable UTRA cell according to [4].

1> prohibit periodical status transmission in RLC;

1> remove any C-RNTI from MAC;

1> clear the variable C_RNTI;

1> start timer T305 using its initial value if timer T305 is not running and if periodical update has been configured by T305 in the IE "UE Timers and constants in connected mode" set to any other value than "infinity" in system information block type 1;

1> select Secondary CCPCH according to subclause 8.5.19;

1> if the IE "UTRAN DRX cycle length coefficient" is included in the same message:

2> use the value in the IE "UTRAN DRX Cycle length coefficient" for calculating Paging occasion and PICH Monitoring Occasion as specified in subclause 8.6.3.2.

1> if the IE "UTRAN DRX cycle length coefficient" is not included in the same message:

2> set the variable INVALID_CONFIGURATION to TRUE.

1> if the UE enters CELL_PCH state from CELL_DCH state, and the received reconfiguration message included the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD), and the UE selected another cell than indicated by this IE or the received reconfiguration message did not include the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD):

2> initiate a cell update procedure according to subclause 8.3.1 using the cause "cell reselection";

2> when the cell update procedure completed successfully:

3> the procedure ends.

1> if the UE enters CELL_PCH state from CELL_FACH state, and the received reconfiguration message included the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD), and the UE selected another cell than indicated by this IE:

2> initiate a cell update procedure according to subclause 8.3.1 using the cause "cell reselection";

2> when the cell update procedure is successfully completed:

3> the procedure ends.

1> if the UE enters URA_PCH state, and after cell selection the criteria for URA update caused by "URA reselection" according to subclause 8.3.1 is fulfilled:

2> initiate a URA update procedure according to subclause 8.3.1 using the cause "URA reselection";

2> when the URA update procedure is successfully completed:

3> the procedure ends.

8.2.2.4 Transmission of a response message by the UE, normal case

In case the procedure was triggered by reception of a RADIO BEARER SETUP message, the UE shall:

1> transmit a RADIO BEARER SETUP COMPLETE as response message on the uplink DCCH using AM RLC.

In case the procedure was triggered by reception of a RADIO BEARER RECONFIGURATION message, the UE shall:

1> transmit a RADIO BEARER RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

In case the procedure was triggered by reception of a RADIO BEARER RELEASE message, the UE shall:

1> transmit a RADIO BEARER RELEASE COMPLETE as response message on the uplink DCCH using AM RLC.

In case the procedure was triggered by reception of a TRANSPORT CHANNEL RECONFIGURATION message, the UE shall:

1> transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

In case the procedure was triggered by reception of a PHYSICAL CHANNEL RECONFIGURATION message, the UE shall:

1> transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

If the new state is CELL_DCH or CELL_FACH, the response message shall be transmitted using the new configuration after the state transition, and the UE shall:

1> if the IE "Downlink counter synchronisation info" was included in the reconfiguration message; or

1> if the received reconfiguration message is a RADIO BEARER RECONFIGURATION and the IE "New U-RNTI" is included:

2> when RLC has confirmed the successful transmission of the response message:

3> re-establish all AM and UM RLC entities with RB identities larger than 4 and set the first 20 bits of all the HFN component of the respective COUNT-C values to the START value included in the response message for the corresponding CN domain;

3> re-establish the RLC entities with RB identities 1, 3 and 4 and set the first 20 bits of all the HFN component of the respective COUNT-C values to the START value included in the response message for the CN domain stored in the variable LATEST_CONFIGURED_CN_DOMAIN;

3> set the remaining bits of the HFN component of COUNT-C values of all UM RLC entities to zero;

3> if the IE "PDCP context relocation info" is not present:

4> re-initialise the PDCP header compression entities of each radio bearer in the variable ESTABLISHED_RABS as specified in [36];

3> if the IE "PDCP context relocation info" is present:

4> perform the actions as specified in 8.6.4.13.

- 1> if the variable PDCP_SN_INFO is empty:
 - 2> if the received reconfiguration message contained the IE "Ciphering mode info":
 - 3> when RLC has confirmed the successful transmission of the response message:
 - 4> notify upper layers upon change of the security configuration;
 - 4> perform the actions below.
 - 2> if the received reconfiguration message did not contain the IE "Ciphering mode info":
 - 3> when RLC has been requested to transmit the response message:
 - 4> perform the actions below.
- 1> if the variable PDCP_SN_INFO is non-empty:
 - 2> when RLC has confirmed the successful transmission of the response message:
 - 3> for each radio bearer in the variable PDCP_SN_INFO:
 - 4> if the IE "RB started" in the variable ESTABLISHED_RABS is set to "started":
 - 5> configure the RLC entity for that radio bearer to "continue".
 - 3> perform the actions below.

If the new state is CELL_PCH or URA_PCH, the response message shall be transmitted using the old configuration before the state transition, but the new C-RNTI shall be used if the IE "New C-RNTI" was included in the received reconfiguration message, and the UE shall:

- 1> when RLC has confirmed the successful transmission of the response message:
 - 2> for each radio bearer in the variable PDCP_SN_INFO:
 - 3> if the IE "RB started" in the variable ESTABLISHED_RABS is set to "started":
 - 4> configure the RLC entity for that radio bearer to "continue".
 - 2> enter the new state (CELL_PCH or URA_PCH, respectively);
 - 2> perform the actions below.

The UE shall:

- 1> set the variable ORDERED_RECONFIGURATION to FALSE;
- 1> if the received reconfiguration message contained the IE "Ciphering mode info":
 - 2> resume data transmission on any suspended radio bearer and signalling radio bearer mapped on RLC-AM or RLC-UM;
 - 2> set the IE "Reconfiguration" in the variable CIPHERING_STATUS to FALSE; and
 - 2> clear the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO.
- 1> if the received reconfiguration message contained the IE "Integrity protection mode info":
 - 2> allow the transmission of RRC messages on all signalling radio bearers with any RRC SN;
 - 2> set "Uplink RRC Message sequence number" for signalling radio bearer RB0 in the variable INTEGRITY_PROTECTION_INFO to a value such that next RRC message to be sent on uplink RB0 will use the new integrity protection configuration;
 - 2> set the IE "Reconfiguration" in the variable INTEGRITY_PROTECTION_INFO to FALSE; and

- 2> clear the variable INTEGRITY_PROTECTION_ACTIVATION_INFO.
- 1> clear the variable PDCP_SN_INFO;
- 1> clear the variable START_VALUE_TO_TRANSMIT;
- 1> clear the variable SECURITY_MODIFICATION.

8.2.2.5 Reception of a response message by the UTRAN, normal case

When UTRAN has received

- the RADIO BEARER SETUP COMPLETE message; or
- the RADIO BEARER RECONFIGURATION COMPLETE message; or
- the RADIO BEARER RELEASE COMPLETE message; or
- the TRANSPORT CHANNEL RECONFIGURATION COMPLETE message; or
- the PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.

UTRAN may:

- 1> delete the old configuration.

If the procedure caused the UE to leave the CELL_FACH state, UTRAN may:

- 1> delete the C-RNTI of the UE.

If the IE "UL Timing Advance" is included in TDD, UTRAN should:

- 1> evaluate the timing advance value that the UE has to use in the new cell after handover.

If the IE "START" or the IE "START list " is included, UTRAN should:

- 1> set the START value for each CN domain with the corresponding values as received in this response message;
- 1> consequently, then use the START values to initialise the hyper frame numbers, in the same way as specified for the UE in subclause 8.2.2.3, for any new radio bearers that are established.

If UTRAN has ordered a ciphering reconfiguration by including the IE "Ciphering mode info", UTRAN should:

- 1> for radio bearers using RLC-AM or RLC-UM:
 - 2> use the old ciphering configuration for received RLC PDUs with RLC sequence number less than the RLC sequence number indicated in the IE "Radio bearer uplink ciphering activation time info" sent by the UE;
 - 2> use the new ciphering configuration for received RLC PDUs with RLC sequence number greater than or equal to the RLC sequence number indicated in the IE "Radio bearer uplink ciphering activation time info" sent by the UE;
 - 2> if an RLC reset or re-establishment occurs after this response message has been received by UTRAN before the activation time for the new ciphering configuration has been reached:
 - 3> ignore the activation time; and
 - 3> apply the new ciphering configuration immediately after the RLC reset or RLC re-establishment.
- 1> for radio bearers using RLC-TM:
 - 2> begin incrementing the COUNT-C at the CFN only as indicated in:
 - 3> the IE "Ciphering activation time for DPCH" in the IE "Ciphering mode info", if included in the message that triggered the radio bearer control procedure; or
 - 3> the IE "COUNT-C activation time", if included in the response message for this procedure.

1> and the procedure ends on the UTRAN side.

8.2.2.6 Unsupported configuration in the UE

If the UTRAN instructs the UE to use a configuration, which it does not support and/or if the received message causes the variable UNSUPPORTED_CONFIGURATION to be set to TRUE, the UE shall:

- 1> transmit a failure response as specified in subclause 8.2.2.9, setting the information elements as specified below:
 - 2> include the IE "RRC transaction identifier"; and
 - 2> set it to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and
 - 2> clear that entry;
 - 2> set the IE "failure cause" to "configuration unsupported".
- 1> set the variable UNSUPPORTED_CONFIGURATION to FALSE;
- 1> continue with any ongoing processes and procedures as if the reconfiguration message was not received.

The procedure ends.

8.2.2.7 Physical channel failure

A physical channel failure occurs in case the criteria defined in subclause 8.5.4 are not fulfilled.

If the received message caused the UE to be in CELL_DCH state and the UE failed to establish the dedicated physical channel(s) indicated in the received message the UE shall:

- 1> for HS-DSCH remove existing HS-PDSCH configurations;
- 1> otherwise revert to the configuration prior to the reception of the message (old configuration);
- 1> if the old configuration includes dedicated physical channels (CELL_DCH state) and the UE is unable to revert to the old configuration:
 - 2> initiate a cell update procedure according to subclause 8.3.1, using the cause "radio link failure";
 - 2> after the cell update procedure has completed successfully:
 - 3> proceed as below.
- 1> if the old configuration does not include dedicated physical channels (CELL_FACH state):
 - 2> select a suitable UTRA cell according to [4];
 - 2> if the UE selects another cell than the cell the UE camped on upon reception of the reconfiguration message:
 - 3> initiate a cell update procedure according to subclause 8.3.1, using the cause "Cell reselection";
 - 3> after the cell update procedure has completed successfully:
 - 4> proceed as below.
- 1> transmit a failure response message as specified in subclause 8.2.2.9, setting the information elements as specified below:
 - 2> include the IE "RRC transaction identifier"; and
 - 2> set it to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and
 - 2> clear that entry;
 - 2> set the IE "failure cause" to "physical channel failure".

1> set the variable ORDERED_RECONFIGURATION to FALSE;

1> continue with any ongoing processes and procedures as if the reconfiguration message was not received.

The procedure ends.

8.2.2.8 Cell re-selection

If the UE performs cell re-selection during the reconfiguration procedure, the UE shall:

1> initiate a cell update procedure, as specified in subclause 8.3.1;

1> continue with the reconfiguration procedure.

8.2.2.9 Transmission of a response message by the UE, failure case

The UE shall:

1> in case of reception of a RADIO BEARER SETUP message:

2> if the radio bearer establishment procedure affects several radio bearers:

3> (may) include the identities of the radio bearers for which the procedure would have been successful into the RADIO BEARER SETUP FAILURE message.

2> transmit a RADIO BEARER SETUP FAILURE as response message on the DCCH using AM RLC.

1> in case of reception of a RADIO BEARER RECONFIGURATION message:

2> if the radio bearer reconfiguration procedure affects several radio bearers:

3> (may) include the identities of the radio bearers for which the procedure would have been successful into the RADIO BEARER RECONFIGURATION FAILURE message.

2> transmit a RADIO BEARER RECONFIGURATION FAILURE as response message on the DCCH using AM RLC.

1> in case of reception of a RADIO BEARER RELEASE message:

2> if the radio bearer release procedure affects several radio bearers:

3> (may) include the identities of the radio bearers for which the procedure would have been successful into the RADIO BEARER RELEASE FAILURE message.

2> transmit a RADIO BEARER RELEASE FAILURE as response message on the DCCH using AM RLC.

1> in case of reception of a TRANSPORT CHANNEL RECONFIGURATION message:

2> transmit a TRANSPORT CHANNEL RECONFIGURATION FAILURE as response message on the DCCH using AM RLC.

1> in case of reception of a PHYSICAL CHANNEL RECONFIGURATION message:

2> transmit a PHYSICAL CHANNEL RECONFIGURATION FAILURE as response message on the DCCH using AM RLC.

1> when the response message has been submitted to lower layers for transmission:

2> continue with any ongoing processes and procedures as if no reconfiguration attempt had occurred.

8.2.2.10 Reception of a response message by the UTRAN, failure case

When the UTRAN has received:

- the RADIO BEARER SETUP FAILURE message; or

- the RADIO BEARER RECONFIGURATION FAILURE message; or
- the RADIO BEARER RELEASE FAILURE message; or
- the TRANSPORT CHANNEL RECONFIGURATION FAILURE message; or
- the PHYSICAL CHANNEL RECONFIGURATION FAILURE message;

the UTRAN may restore the old and delete the new configuration. Upper layers should be notified of the failure.

The procedure ends on the UTRAN side.

8.2.2.11 Invalid configuration

If the variable INVALID_CONFIGURATION is set to TRUE the UE shall:

- 1> keep the configuration existing before the reception of the message;
- 1> transmit a failure response message as specified in subclause 8.2.2.9, setting the information elements as specified below:
 - 2> include the IE "RRC transaction identifier"; and
 - 3> set it to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and
 - 3> clear that entry.
 - 2> set the IE "failure cause" to "invalid configuration".
- 1> set the variable INVALID_CONFIGURATION to FALSE;
- 1> continue with any ongoing processes and procedures as if the reconfiguration message was not received.

The procedure ends.

8.2.2.12 Incompatible simultaneous reconfiguration

If the table "Rejected transactions" in the variable TRANSACTIONS is set due to the received message and the variable PROTOCOL_ERROR_REJECT is set to FALSE, the UE shall:

- 1> not apply the configuration contained in the received reconfiguration message;
- 1> transmit a failure response message as specified in subclause 8.2.2.9, setting the information elements as specified below:
 - 2> include the IE "RRC transaction identifier"; and
 - 2> set it to the value of "RRC transaction identifier" in the entry for the received message in the table "Rejected transactions" in the variable TRANSACTIONS; and
 - 2> clear that entry;
 - 2> set the IE "failure cause" to "incompatible simultaneous reconfiguration".
- 1> continue with any ongoing processes and procedures as if the reconfiguration message was not received.

The procedure ends.

8.2.2.12a Incompatible simultaneous security reconfiguration

If the variable INCOMPATIBLE_SECURITY_RECONFIGURATION is set to TRUE due to the received reconfiguration message, the UE shall:

- 1> transmit a failure response message as specified in subclause 8.2.2.9, setting the information elements as specified below:

- 2> include the IE "RRC transaction identifier"; and
- 2> set it to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and
- 2> clear that entry;
- 2> set the IE "failure cause" to the cause value "incompatible simultaneous reconfiguration".
- 1> set the variable INCOMPATIBLE_SECURITY_RECONFIGURATION to FALSE;
- 1> continue with any ongoing processes and procedures as if the reconfiguration message was not received.

The procedure ends.

8.2.2.12b Cell update procedure during security reconfiguration

If:

- a cell update procedure according to subclause 8.3.1 is initiated; and
- the received reconfiguration message causes either:
 - the IE "Reconfiguration" in the variable CIPHERING_STATUS to be set to TRUE; and/or
 - the IE "Reconfiguration" in the variable INTEGRITY_PROTECTION_INFO to be set to TRUE:

the UE shall:

- 1> release all radio resources;
- 1> indicate the release of the established signalling connections (as stored in the variable ESTABLISHED_SIGNALLING_CONNECTIONS) and established radio access bearers (as stored in the variable ESTABLISHED_RABS) to upper layers; and
- 1> clear any entry for the RRC CONNECTION RELEASE message in the tables "Accepted transactions" and "Rejected transactions" in the variable TRANSACTIONS;
- 1> clear the variable ESTABLISHED_SIGNALLING_CONNECTIONS;
- 1> clear the variable ESTABLISHED_RABS;
- 1> if the received reconfiguration message contained the IE "Ciphering mode info":
 - 2> set the IE "Reconfiguration" in the variable CIPHERING_STATUS to FALSE; and
 - 2> clear the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO;
 - 2> clear the variable SECURITY_MODIFICATION.
- 1> if the received reconfiguration message contained the IE "Integrity protection mode info":
 - 2> set the IE "Reconfiguration" in the variable INTEGRITY_PROTECTION_INFO to FALSE; and
 - 2> clear the variable INTEGRITY_PROTECTION_ACTIVATION_INFO.
- 1> enter idle mode;
- 1> perform the actions specified in subclause 8.5.2 when entering idle mode;
- 1> and the procedure ends.

NOTE: UTRAN should use RB Control messages to perform an SRNS relocation only in case of state transitions from CELL_DCH to CELL_DCH.

8.2.2.13 Invalid received message

If the received reconfiguration message contains a protocol error causing the variable `PROTOCOL_ERROR_REJECT` to be set to `TRUE` according to clause 9, the UE shall perform procedure specific error handling as follows. The UE shall:

- 1> transmit a failure response message as specified in subclause 8.2.2.9, setting the information elements as specified below:
 - 2> include the IE "RRC transaction identifier"; and
 - 2> set it to the value of "RRC transaction identifier" in the entry for the received message in the table "Rejected transactions" in the variable `TRANSACTIONS`; and
 - 2> clear that entry;
 - 2> set the IE "failure cause" to the cause value "protocol error";
 - 2> include the IE "Protocol error information" with contents set to the value of the variable `PROTOCOL_ERROR_INFORMATION`.

The procedure ends.

8.3.1 Cell and URA update procedures

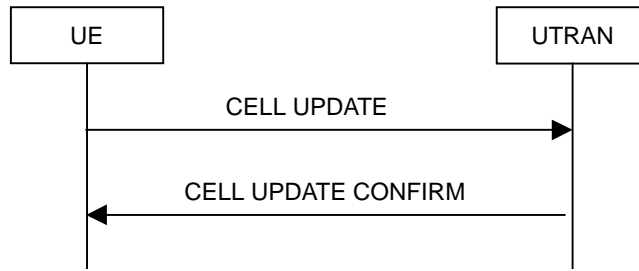


Figure 8.3.1-1: Cell update procedure, basic flow

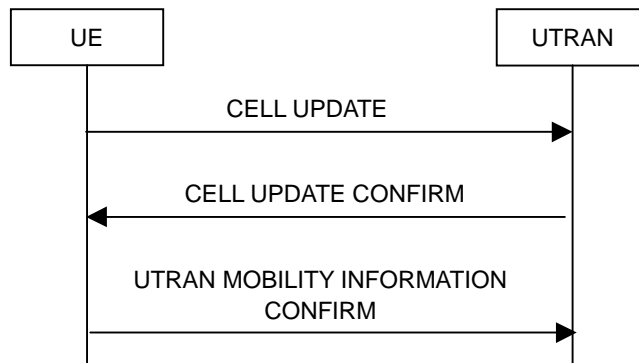


Figure 8.3.1-2: Cell update procedure with update of UTRAN mobility information

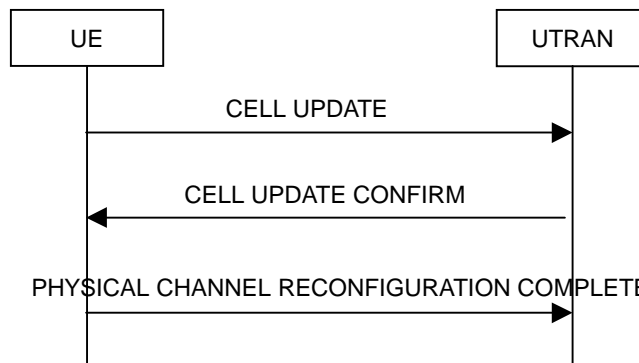


Figure 8.3.1-3: Cell update procedure with physical channel reconfiguration

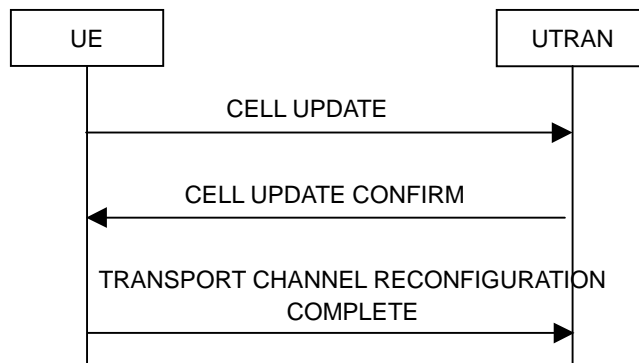


Figure 8.3.1-4: Cell update procedure with transport channel reconfiguration

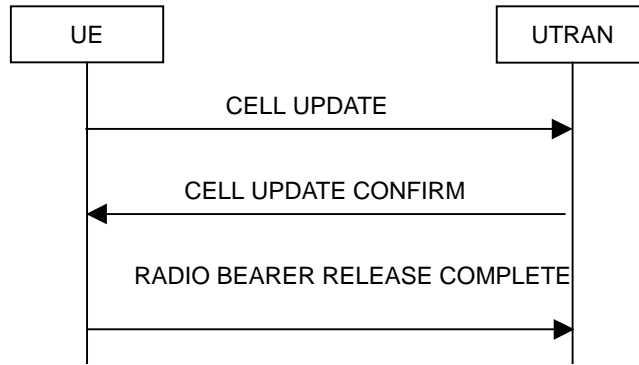


Figure 8.3.1-5: Cell update procedure with radio bearer release

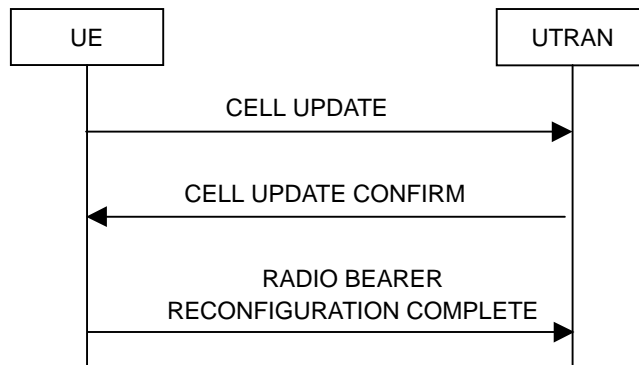


Figure 8.3.1-6: Cell update procedure with radio bearer reconfiguration

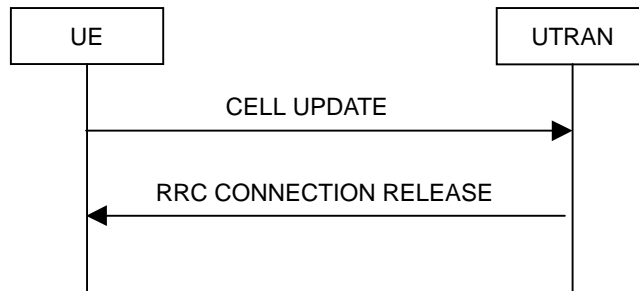


Figure 8.3.1-7: Cell update procedure, failure case

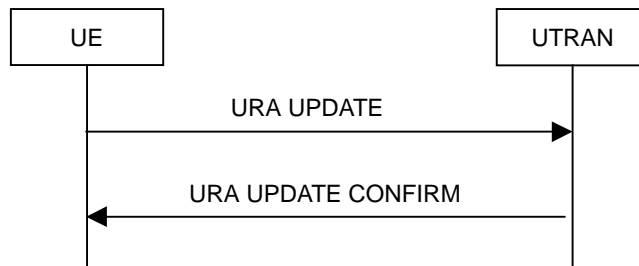


Figure 8.3.1-8: URA update procedure, basic flow

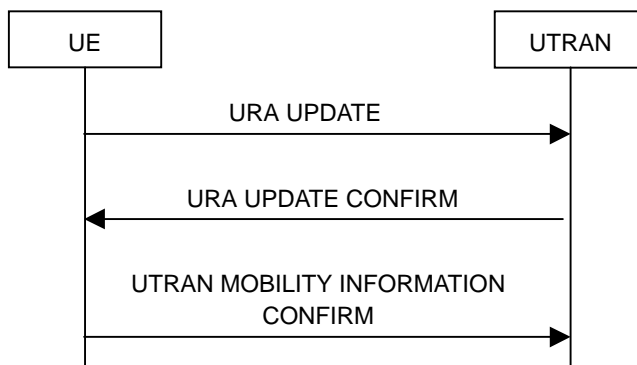


Figure 8.3.1-9: URA update procedure with update of UTRAN mobility information

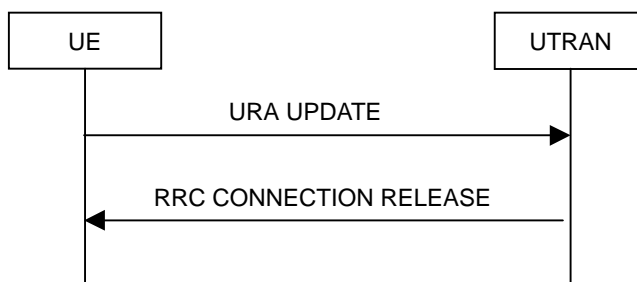


Figure 8.3.1-10: URA update procedure, failure case

8.3.1.1 General

The URA update and cell update procedures serve several main purposes:

- to notify UTRAN after re-entering service area in the URA_PCH or CELL_PCH state;
- to notify UTRAN of an RLC unrecoverable error [16] on an AM RLC entity;
- to be used as a supervision mechanism in the CELL_FACH, CELL_PCH, or URA_PCH state by means of periodical update.

In addition, the URA update procedure also serves the following purpose:

- to retrieve a new URA identity after cell re-selection to a cell not belonging to the current URA assigned to the UE in URA_PCH state.

In addition, the cell update procedure also serves the following purposes:

- to update UTRAN with the current cell the UE is camping on after cell reselection;
- to act on a radio link failure in the CELL_DCH state;
- to act on the transmission failure of the UE CAPABILITY INFORMATION message;
- when triggered in the URA_PCH or CELL_PCH state, to notify UTRAN of a transition to the CELL_FACH state due to the reception of UTRAN originated paging or due to a request to transmit uplink data.

The URA update and cell update procedures may:

- 1> include an update of mobility related information in the UE;
- 1> cause a state transition from the CELL_FACH state to the CELL_DCH, CELL_PCH or URA_PCH states or idle mode.

The cell update procedure may also include:

- a re-establish of AM RLC entities;

- a radio bearer release, radio bearer reconfiguration, transport channel reconfiguration or physical channel reconfiguration.

8.3.1.2 Initiation

A UE shall initiate the cell update procedure in the following cases:

1> Uplink data transmission:

- 2> if the UE is in URA_PCH or CELL_PCH state; and
- 2> if the UE has uplink RLC data PDU or uplink RLC control PDU on RB1 or upwards to transmit:
 - 3> perform cell update using the cause "uplink data transmission".

1> Paging response:

- 2> if the criteria for performing cell update with the cause specified above in the current subclause is not met; and
- 2> if the UE in URA_PCH or CELL_PCH state, receives a PAGING TYPE 1 message fulfilling the conditions for initiating a cell update procedure specified in subclause 8.1.2.3:
 - 3> perform cell update using the cause "paging response".

1> Radio link failure:

- 2> if none of the criteria for performing cell update with the causes specified above in the current subclause is met:
 - 3> if the UE is in CELL_DCH state and the criteria for radio link failure is met as specified in subclause 8.5.6; or
 - 3> if the transmission of the UE CAPABILITY INFORMATION message fails as specified in subclause 8.1.6.6:
 - 4> perform cell update using the cause "radio link failure".

1> Re-entering service area:

- 2> if none of the criteria for performing cell update with the causes specified above in the current subclause is met; and
- 2> if the UE is in CELL_FACH or CELL_PCH state; and
- 2> if the UE has been out of service area and re-enters service area before T307 or T317 expires:
 - 3> perform cell update using the cause "re-entering service area".

1> RLC unrecoverable error:

- 2> if none of the criteria for performing cell update with the causes specified above in the current subclause is met; and
- 2> if the UE detects RLC unrecoverable error [16] in an AM RLC entity:
 - 3> perform cell update using the cause "RLC unrecoverable error".

1> Cell reselection:

- 2> if none of the criteria for performing cell update with the causes specified above in the current subclause is met:
 - 3> if the UE is in CELL_FACH or CELL_PCH state and the UE performs cell re-selection; or
 - 3> if the UE is in CELL_FACH state and the variable C_RNTI is empty:

4> perform cell update using the cause "cell reselection".

1> Periodical cell update:

- 2> if none of the criteria for performing cell update with the causes specified above in the current subclause is met; and
 - 2> if the UE is in CELL_FACH or CELL_PCH state; and
 - 2> if the timer T305 expires; and
 - 2> if the criteria for "in service area" as specified in subclause 8.5.5.2 is fulfilled; and
 - 2> if periodic updating has been configured by T305 in the IE "UE Timers and constants in connected mode" set to any other value than "infinity":
- 3> perform cell update using the cause "periodical cell update".

A UE in URA_PCH state shall initiate the URA update procedure in the following cases:

1> URA reselection:

- 2> if the UE detects that the current URA assigned to the UE, stored in the variable URA_IDENTITY, is not present in the list of URA identities in system information block type 2; or
- 2> if the list of URA identities in system information block type 2 is empty; or
- 2> if the system information block type 2 can not be found:
 - 3> perform URA update using the cause "change of URA".

1> Periodic URA update:

- 2> if the criteria for performing URA update with the causes as specified above in the current subclause are not met; and
 - 2> if the timer T305 expires while the UE is in the service area; and
 - 2> if periodic updating has been configured by T305 in the IE "UE Timers and constants in connected mode" set to any other value than "infinity":
- 3> perform URA update using the cause "periodic URA update".

When initiating the URA update or cell update procedure, the UE shall:

1> stop timer T305;

1> if the UE is in CELL_DCH state:

- 2> in the variable RB_TIMER_INDICATOR, set the IE "T314 expired" and the IE "T315 expired" to FALSE;
- 2> if the stored values of the timer T314 and timer T315 are both equal to zero; or
- 2> if the stored value of the timer T314 is equal to zero and there are no radio bearers associated with any radio access bearers for which in the variable ESTABLISHED_RABS the value of the IE "Re-establishment timer" is set to "useT315":
 - 3> release all its radio resources;
 - 3> indicate release (abort) of the established signalling connections (as stored in the variable ESTABLISHED_SIGNALLING_CONNECTIONS) and established radio access bearers (as stored in the variable ESTABLISHED_RABS) to upper layers;
 - 3> clear the variable ESTABLISHED_SIGNALLING_CONNECTIONS;
 - 3> clear the variable ESTABLISHED_RABS;
 - 3> enter idle mode;

- 3> perform other actions when entering idle mode from connected mode as specified in subclause 8.5.2;
- 3> and the procedure ends.
- 2> if the stored value of the timer T314 is equal to zero:
 - 3> release all radio bearers, associated with any radio access bearers for which in the variable ESTABLISHED_RABS the value of the IE "Re-establishment timer" is set to "useT314";
 - 3> in the variable RB_TIMER_INDICATOR set the IE "T314 expired" to TRUE.
- 2> if the stored value of the timer T315 is equal to zero:
 - 3> release all radio bearers associated with any radio access bearers for which in the variable ESTABLISHED_RABS the value of the IE "Re-establishment timer" is set to "useT315";
 - 3> in the variable RB_TIMER_INDICATOR set the IE "T315 expired" to TRUE.
- 2> if the stored value of the timer T314 is greater than zero:
 - 3> if there are radio bearers associated with any radio access bearers for which in the variable ESTABLISHED_RABS the value of the IE "Re-establishment timer" is set to "useT314":
 - 4> start timer T314.
 - 3> if there are no radio bearers associated with any radio access bearers for which in the variable ESTABLISHED_RABS the value of the IE "Re-establishment timer" is set to "useT314" or "useT315":
 - 4> start timer T314.
- 2> if the stored value of the timer T315 is greater than zero:
 - 3> if there are radio bearers associated with any radio access bearers for which in the variable ESTABLISHED_RABS the value of the IE "Re-establishment timer" is set to "useT315":
 - 4> start timer T315.
- 2> for the released radio bearer(s):
 - 3> delete the information about the radio bearer from the variable ESTABLISHED_RABS;
 - 3> when all radio bearers belonging to the same radio access bearer have been released:
 - 4> indicate local end release of the radio access bearer to upper layers using the CN domain identity together with the RAB identity stored in the variable ESTABLISHED_RABS;
 - 4> delete all information about the radio access bearer from the variable ESTABLISHED_RABS.
- 2> select a suitable UTRA cell according to [4];
- 2> set the variable ORDERED_RECONFIGURATION to FALSE.
- 1> set the variables PROTOCOL_ERROR_INDICATOR, FAILURE_INDICATOR, UNSUPPORTED_CONFIGURATION and INVALID_CONFIGURATION to FALSE;
- 1> set the variable CELL_UPDATE_STARTED to TRUE;
- 1> if the UE is not already in CELL_FACH state:
 - 2> move to CELL_FACH state;
 - 2> select PRACH according to subclause 8.5.17;
 - 2> select Secondary CCPCH according to subclause 8.5.19;
 - 2> use the transport format set given in system information as specified in subclause 8.6.5.1.
- 1> if the UE performs cell re-selection:

- 2> clear the variable C_RNTI; and
- 2> stop using that C_RNTI just cleared from the variable C_RNTI in MAC.
- 1> set CFN in relation to SFN of current cell according to subclause 8.5.15;
- 1> in case of a cell update procedure:
 - 2> set the contents of the CELL UPDATE message according to subclause 8.3.1.3;
 - 2> submit the CELL UPDATE message for transmission on the uplink CCCH.
- 1> in case of a URA update procedure:
 - 2> set the contents of the URA UPDATE message according to subclause 8.3.1.3;
 - 2> submit the URA UPDATE message for transmission on the uplink CCCH.
- 1> set counter V302 to 1;
- 1> start timer T302 when the MAC layer indicates success or failure in transmitting the message.

8.3.1.3 CELL UPDATE / URA UPDATE message contents to set

In case of cell update procedure the UE shall transmit a CELL UPDATE message.

In case of URA update procedure the UE shall transmit a URA UPDATE message.

The UE shall set the IEs in the CELL UPDATE message as follows:

- 1> set the IE "Cell update cause" corresponding to the cause specified in subclause 8.3.1.2 that is valid when the CELL UPDATE message is submitted to lower layers for transmission;

NOTE: During the time period starting from when a cell update procedure is initiated by the UE until when the procedure ends, additional CELL UPDATE messages may be transmitted by the UE with different causes.

- 1> set the IE "U-RNTI" to the value of the variable U_RNTI;
- 1> if the value of the variable PROTOCOL_ERROR_INDICATOR is TRUE:
 - 2> include the IE "RRC transaction identifier"; and
 - 3> set it to the value of "RRC transaction identifier" in the entry for the CELL UPDATE CONFIRM message in the table "Rejected transactions" in the variable TRANSACTIONS.
 - 2> include and set the IE "failure cause" to the cause value "protocol error";
 - 2> set the IE "Protocol error information" set to the value of the variable PROTOCOL_ERROR_INFORMATION.
- 1> if the value of the variable FAILURE_INDICATOR is TRUE:
 - 2> include the IE "RRC transaction identifier"; and
 - 3> set it to the value of "RRC transaction identifier" in the entry for the CELL UPDATE CONFIRM message in the table "Accepted transactions" in the variable TRANSACTIONS.
 - 2> include and set the IE "failure cause" to the value of the variable FAILURE_CAUSE.
- 1> include the START values for each CN domain, calculated according to subclause 8.5.9;
- 1> if an unrecoverable error [16] in any of the AM RLC entities for the signalling radio bearers RB2, RB3 or RB4 is detected:
 - 2> set the IE "AM_RLC error indication (RB2, RB3 or RB4)" to TRUE.

1> otherwise:

2> set the IE "AM_RLC error indication (RB2, RB3 or RB4)" to FALSE.

1> if an unrecoverable error [16] in any of the AM RLC entities for the RB5 or upward is detected:

2> set the IE "AM_RLC error indication (RB>4)" to TRUE.

1> otherwise:

2> set the IE "AM_RLC error indication (RB>4)" to FALSE.

1> set the IE "RB Timer indicator" to the value of the variable RB_TIMER_INDICATOR;

1> include an intra-frequency measurement report in the IE "Measured results on RACH", as specified in the IE "Intra-frequency reporting quantity for RACH reporting" and the IE "Maximum number of reported cells on RACH" in system information block type 12 (or System Information Block type 11, if System Information Block type 12 is not being broadcast); and

1> include in the IE "Measured results on RACH" all requested reporting quantities for all included measurement objects; and

1> take care that the maximum allowed message size is not exceeded when forming the IE "Measured results on RACH".

The UE shall set the IEs in the URA UPDATE message as follows:

1> set the IE "U-RNTI" to the value of the variable U_RNTI;

1> set the IE "URA update cause" corresponding to which cause as specified in subclause 8.3.1.2 that is valid when the URA UPDATE message is submitted to lower layers for transmission;

NOTE: During the time period starting from when a URA update procedure is initiated by the UE until when the procedure ends, additional URA UPDATE messages may be transmitted by the UE with different causes, depending on which causes are valid for the respective URA UPDATE message.

2> if the value of the variable PROTOCOL_ERROR_INDICATOR is TRUE:

3> include the IE "RRC transaction identifier"; and

4> set it to the value of "RRC transaction identifier" in the entry for the URA UPDATE CONFIRM message in the table "Rejected transactions" in the variable TRANSACTIONS;

3> set the IE "Protocol error indicator" to TRUE;

3> include the IE "Protocol error information" set to the value of the variable PROTOCOL_ERROR_INFORMATION.

2> if the value of the variable PROTOCOL_ERROR_INDICATOR is FALSE:

3> if the value of the variable INVALID_CONFIGURATION is TRUE:

4> include the IE "RRC transaction identifier"; and

4> set it to the value of "RRC transaction identifier" in the entry for the URA UPDATE CONFIRM message in the table "Accepted transactions" in the variable TRANSACTIONS;

4> set the IE "Protocol error indicator" to TRUE;

4> include the IE "Protocol error information" set to "Information element value not comprehended";

3> if the value of the variable INVALID_CONFIGURATION is FALSE:

4> set the IE "Protocol error indicator" to FALSE.

8.3.1.4 T305 expiry and the UE detects "out of service area"

When the T305 expires and the UE detects that it is "out of service area" as specified in subclause 8.5.5.1, the UE shall

- 1> start timer T307;
- 1> re-select to a new cell, as described in [4].

8.3.1.4.1 Re-entering "in service area"

If the UE detects "in service area" according to subclause 8.5.5.2 and timer T307 or T317 is running, the UE shall:

- 1> check the value of V302; and
- 1> if V302 is equal to or smaller than N302:
 - 2> in case of a cell update procedure:
 - 3> set the contents of the CELL UPDATE message according to subclause 8.3.1.3;
 - 3> submit the CELL UPDATE message for transmission on the uplink CCCH.
 - 2> in case of a URA update procedure:
 - 3> set the contents of the URA UPDATE message according to subclause 8.3.1.3;
 - 3> submit the URA UPDATE message for transmission on the uplink CCCH.
 - 2> increment counter V302;
 - 2> restart timer T302 when the MAC layer indicates success or failure to transmit the message.
- 1> if V302 is greater than N302:
 - 2> clear the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO;
 - 2> clear the variable INTEGRITY_PROTECTION_ACTIVATION_INFO;
 - 2> in case of a cell update procedure:
 - 3> clear the entry for the CELL UPDATE CONFIRM message in the table "Rejected transactions" in the variable TRANSACTIONS.
 - 2> in case of a URA update procedure:
 - 3> clear the entry for the URA UPDATE CONFIRM message in the table "Rejected transactions" in the variable TRANSACTIONS.
 - 2> release all its radio resources;
 - 2> indicate release (abort) of the established signalling connections (as stored in the variable ESTABLISHED_SIGNALLING_CONNECTIONS) and established radio access bearers (as stored in the variable ESTABLISHED_RABS) to upper layers;
 - 2> clear the variable ESTABLISHED_SIGNALLING_CONNECTIONS;
 - 2> clear the variable ESTABLISHED_RABS;
 - 2> enter idle mode;
 - 2> perform other actions when entering idle mode from connected mode as specified in subclause 8.5.2;
 - 2> and the procedure ends.

8.3.1.4.2 Expiry of timer T307

When the T307 expires, the UE shall:

- 1> move to idle mode;
- 1> release all dedicated resources;
- 1> indicate release (abort) of the established signalling connections (as stored in the variable ESTABLISHED_SIGNALLING_CONNECTIONS) and established radio access bearers (as stored in the variable ESTABLISHED_RABS) to upper layers;
- 1> clear the variable ESTABLISHED_SIGNALLING_CONNECTIONS;
- 1> clear the variable ESTABLISHED_RABS;
- 1> perform other actions when entering idle mode from connected mode as specified in subclause 8.5.2;
- 1> and the procedure ends.

8.3.1.5 Reception of an CELL UPDATE/URA UPDATE message by the UTRAN

When the UTRAN receives a CELL UPDATE/URA UPDATE message, the UTRAN should:

- 1> in case the procedure was triggered by reception of a CELL UPDATE:
 - 2> if SRNS relocation was performed:
 - 3> transmit a CELL UPDATE CONFIRM message on the downlink DCCH.
 - 2> otherwise:
 - 3> update the START value for each CN domain as maintained in UTRAN (refer to subclause 8.5.9) with "START" in the IE "START list" for the CN domain as indicated by "CN domain identity" in the IE "START list";
 - 3> if this procedure was triggered while the UE was not in CELL_DCH state, then for each CN domain as indicated by "CN domain identity" in the IE "START list":
 - 4> set the 20 MSB of the MAC-d HFN with the corresponding START value in the IE "START list";
 - 4> set the remaining LSB of the MAC-d HFN to zero.
 - 3> transmit a CELL UPDATE CONFIRM message on the downlink DCCH or optionally on the CCCH but only if ciphering is not required; and
 - 3> optionally set the IE "RLC re-establish indicator (RB2, RB3 and RB4)" and/or the IE "RLC re-establish indicator (RB5 and upwards)" to TRUE to request a RLC re-establishment in the UE, in which case the corresponding RLC entities should also be re-established in UTRAN; or
- 1> in case the procedure was triggered by reception of a URA UPDATE:
 - 2> if SRNS relocation was performed:
 - 3> transmit a URA UPDATE CONFIRM message on the downlink DCCH.
 - 2> otherwise:
 - 3> transmit a URA UPDATE CONFIRM message on the downlink CCCH or DCCH.
 - 2> include the IE "URA identity" in the URA UPDATE CONFIRM message in a cell where multiple URA identifiers are broadcast; or
- 1> initiate an RRC connection release procedure (see subclause 8.1.4) by transmitting an RRC CONNECTION RELEASE message on the downlink CCCH. In particular UTRAN should:
 - 2> if the CELL UPDATE message was sent because of an unrecoverable error in RB2, RB3 or RB4:
 - 3> initiate an RRC connection release procedure (subclause 8.1.4) by transmitting an RRC CONNECTION RELEASE message on the downlink CCCH.

UTRAN may transmit several CELL UPDATE CONFIRM/URA UPDATE CONFIRM messages to increase the probability of proper reception of the message by the UE. In such a case, the RRC SN for these repeated messages should be the same.

8.3.1.6 Reception of the CELL UPDATE CONFIRM/URA UPDATE CONFIRM message by the UE

When the UE receives a CELL UPDATE CONFIRM/URA UPDATE CONFIRM message; and

- if the message is received on the CCCH, and IE "U-RNTI" is present and has the same value as the variable U_RNTI; or
- if the message is received on DCCH:

the UE may:

- 1> maintain a list of the set of cells to which the UE has Radio Links if the IE "Cell ID" is present.

the UE shall:

- 1> stop timer T302;

- 1> in case of a cell update procedure and the CELL UPDATE CONFIRM message:

- 2> includes "RB information elements"; and/or

- 2> includes "Transport channel information elements"; and/or

- 2> includes "Physical channel information elements"; and

- 2> if the variable ORDERED_RECONFIGURATION is set to FALSE:

- 3> set the variable ORDERED_RECONFIGURATION to TRUE.

- 1> act upon all received information elements as specified in subclause 8.6, unless specified otherwise in the following:

- 2> if the IE "Frequency info" is included in the message:

- 3> if the IE "RRC State Indicator" is set to the value "CELL_FACH" or "CELL_PCH" or "URA_PCH":

- 4> select a suitable UTRA cell according to [4] on that frequency;

- 4> act as specified in subclause 8.3.1.12.

- 3> if the IE "RRC State Indicator" is set to the value "CELL_DCH":

- 4> act on the IE "Frequency info" as specified in subclause 8.6.6.1.

- 2> use the transport channel(s) applicable for the physical channel types that is used; and

- 2> if the IE "TFS" is neither included nor previously stored in the UE for that transport channel(s):

- 3> use the TFS given in system information.

- 2> if none of the TFS stored is compatible with the physical channel:

- 3> delete the stored TFS;

- 3> use the TFS given in system information.

- 2> if the IE "RLC re-establish indicator (RB2, RB3 and RB4)" in the CELL UPDATE CONFIRM message is set to TRUE:

- 3> re-establish the RLC entities for signalling radio bearer RB2, signalling radio bearer RB3 and signalling radio bearer RB4 (if established);

- 3> if the value of the IE "Status" in the variable CIPHERING_STATUS of the CN domain stored in the variable LATEST_CONFIGURED_CN_DOMAIN is set to "Started":
 - 4> set the HFN component of the respective COUNT-C values for AM RLC entities with RB identity 2, RB identity 3 and RB identity 4 (if established) equal to the START value included in the latest transmitted CELL UPDATE message for the CN domain stored in the variable LATEST_CONFIGURED_CN_DOMAIN.
- 2> if the IE "RLC re-establish indicator (RB5 and upwards)" in the CELL UPDATE CONFIRM message is set to TRUE:
 - 3> for radio bearers with RB identity 5 and upwards:
 - 4> re-establish the AM RLC entities;
 - 4> if the value of the IE "Status" in the variable CIPHERING_STATUS of the CN domain as indicated in the IE "CN domain identity" in the IE "RAB info" in the variable ESTABLISHED_RABS is set to "Started":
 - 5> set the HFN component of the respective COUNT-C values for AM RLC entities equal to the START value included in this CELL UPDATE message for the CN domain as indicated in the IE "CN domain identity" in the IE "RAB info" in the variable ESTABLISHED_RABS.
- 1> if the CELL UPDATE CONFIRM / URA UPDATE CONFIRM message contained the IE "Ciphering mode info" or contained the IE "Integrity protection mode info":
 - 2> set the IE "Status" in the variable SECURITY_MODIFICATION for all the CN domains in the variable SECURITY_MODIFICATION to "Affected".
- 1> enter a state according to subclause 8.6.3.3 applied on the CELL UPDATE CONFIRM / URA UPDATE CONFIRM message.

If the UE after state transition enters CELL_DCH state, it shall:

- 1> perform the physical layer synchronisation procedure A as specified in [29] (FDD only);
- 1> not prohibit periodical status transmission in RLC.

If the UE after state transition remains in CELL_FACH state, it shall

- 1> start the timer T305 using its initial value if timer T305 is not running and periodical cell update has been configured by T305 in the IE "UE Timers and constants in connected mode" set to any other value than "infinity";
- 1> select PRACH according to subclause 8.5.17;
- 1> select Secondary CCPCH according to subclause 8.5.19;
- 1> not prohibit periodical status transmission in RLC;
- 1> if the IE "UTRAN DRX cycle length coefficient" is included in the same message:
 - 2> ignore that IE and stop using DRX.

If the UE after state transition enters URA_PCH or CELL_PCH state, it shall:

- 1> prohibit periodical status transmission in RLC;
- 1> clear the variable C_RNTI;
- 1> stop using that C_RNTI just cleared from the variable C_RNTI in MAC;
- 1> start the timer T305 using its initial value if timer T305 is not running and periodical update has been configured by T305 in the IE "UE Timers and constants in connected mode" set to any other value than "infinity";
- 1> select Secondary CCPCH according to subclause 8.5.19;

- 1> if the IE "UTRAN DRX cycle length coefficient" is included in the same message:
 - 2> use the value in the IE "UTRAN DRX Cycle length coefficient" for calculating Paging Occasion and PICH Monitoring Occasion as specified in subclause 8.6.3.2.
- 1> if the IE "UTRAN DRX cycle length coefficient" is not included in the same message:
 - 2> set the variable INVALID_CONFIGURATION to TRUE.

If the UE after the state transition remains in CELL_FACH state; and

- 1> the contents of the variable C_RNTI are empty:

it shall check the value of V302; and:

- 1> if V302 is equal to or smaller than N302:
 - 2> if, caused by the received CELL UPDATE CONFIRM or URA UPDATE CONFIRM message:
 - 3> the IE "Reconfiguration" in the variable CIPHERING_STATUS is set to TRUE; and/or
 - 3> the IE "Reconfiguration" in the variable INTEGRITY_PROTECTION_INFO is set to TRUE:
 - 4> abort the ongoing integrity and/or ciphering reconfiguration;
 - 4> if the received CELL UPDATE CONFIRM or URA UPDATE CONFIRM message contained the IE "Ciphering mode info":
 - 5> set the IE "Reconfiguration" in the variable CIPHERING_STATUS to FALSE; and
 - 5> clear the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO.
 - 4> if the received CELL UPDATE CONFIRM or URA UPDATE CONFIRM message contained the IE "Integrity protection mode info":
 - 5> set the IE "Reconfiguration" in the variable INTEGRITY_PROTECTION_INFO to FALSE; and
 - 5> clear the variable INTEGRITY_PROTECTION_ACTIVATION_INFO.
 - 2> in case of a URA update procedure:
 - 3> stop the URA update procedure;
 - 3> clear any entry for the URA UPDATE CONFIRM message in the table "Accepted transactions" in the variable TRANSACTIONS; and
 - 3> continue with a cell update procedure.
 - 2> set the contents of the CELL UPDATE message according to subclause 8.3.1.3, except for the IE "Cell update cause" which shall be set to "cell reselection";
 - 2> submit the CELL UPDATE message for transmission on the uplink CCCH;
 - 2> increment counter V302;
 - 2> restart timer T302 when the MAC layer indicates success or failure to transmit the message.
- 1> if V302 is greater than N302:
 - 2> clear the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO;
 - 2> clear the variable INTEGRITY_PROTECTION_ACTIVATION_INFO;
 - 2> in case of a cell update procedure:
 - 3> clear the entry for the CELL UPDATE CONFIRM message in the table "Rejected transactions" in the variable TRANSACTIONS.

- 2> in case of a URA update procedure:
 - 3> clear the entry for the URA UPDATE CONFIRM message in the table "Rejected transactions" in the variable TRANSACTIONS.
- 2> release all its radio resources;
- 2> indicate release (abort) of the established signalling connections (as stored in the variable ESTABLISHED_SIGNALLING_CONNECTIONS) and established radio access bearers (as stored in the variable ESTABLISHED_RABS) to upper layers;
- 2> clear the variable ESTABLISHED_SIGNALLING_CONNECTIONS;
- 2> clear the variable ESTABLISHED_RABS;
- 2> enter idle mode;
- 2> other actions the UE shall perform when entering idle mode from connected mode are specified in subclause 8.5.2;
- 2> and the procedure ends.

If the UE after the state transition remains in CELL_FACH state; and

- a C-RNTI is stored in the variable C_RNTI;

or

- the UE after the state transition moves to another state than the CELL_FACH state:

the UE shall:

- 1> if the CELL UPDATE CONFIRM / URA UPDATE CONFIRM message contained the IE "Ciphering mode info":
 - 2> include and set the IE "Radio bearer uplink ciphering activation time info" in any response message transmitted below to the value of the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO.
- 1> in case cell reselection interrupted an ongoing cell update procedure and a CELL UPDATE CONFIRM/URA UPDATE CONFIRM was received with the IE "Downlink counter synchronisation info" present and the response to which was not submitted to the lower layers due to the cell re-selection:
 - 2> include the IE "START list" in the response message transmitted according to subclause 8.3.1.7;
 - 2> if the CELL UPDATE CONFIRM/URA UPDATE CONFIRM, the response to which was not delivered to the lower layers, due to the cell re-selection, included the IE "RB with PDCP information list":
 - 3> include the IE "RB with PDCP information list" in the response message transmitted according to subclause 8.3.1.7.
- 1> in case of a cell update procedure:
 - 2> set the IE "RRC transaction identifier" in any response message transmitted below to the value of "RRC transaction identifier" in the entry for the CELL UPDATE CONFIRM message in the table "Accepted transactions" in the variable TRANSACTIONS; and
 - 2> clear that entry.
- 1> in case of a URA update procedure:
 - 2> set the IE "RRC transaction identifier" in any response message transmitted below to the value of "RRC transaction identifier" in the entry for the URA UPDATE CONFIRM message in the table "Accepted transactions" in the variable TRANSACTIONS; and
 - 2> clear that entry;
- 1> if the variable PDCP_SN_INFO is non-empty:

- 2> include the IE "RB with PDCP information list" in any response message transmitted below and set it to the value of the variable PDCP_SN_INFO.
- 1> if the received CELL UPDATE CONFIRM or URA UPDATE CONFIRM message included the IE "Downlink counter synchronisation info":
 - 2> re-establish RB2;
 - 2> set the new uplink and downlink HFN component of the COUNT-C of RB2 to MAX(uplink HFN component of the COUNT-C of RB2, downlink HFN component of the COUNT-C of RB2);
 - 2> increment by one the downlink and uplink values of the HFN component of the COUNT-C for RB2;
 - 2> calculate the START value according to subclause 8.5.9;
 - 2> include the calculated START values for each CN domain in the IE "START list" in the IE "Uplink counter synchronisation info" in any response message transmitted below.
- 1> transmit a response message as specified in subclause 8.3.1.7;
- 1> if the IE "Integrity protection mode info" was present in the CELL UPDATE CONFIRM or URA UPDATE CONFIRM message:
 - 2> start applying the new integrity protection configuration in the uplink for signalling radio bearer RB2 from and including the transmitted response message.
- 1> if the variable ORDERED_RECONFIGURATION is set to TRUE caused by the received CELL UPDATE CONFIRM message in case of a cell update procedure:
 - 2> set the variable ORDERED_RECONFIGURATION to FALSE.
- 1> clear the variable PDCP_SN_INFO;
- 1> when the response message transmitted per subclause 8.3.1.7 to the UTRAN has been confirmed by RLC:
 - 2> if the CELL UPDATE CONFIRM / URA UPDATE CONFIRM message contained the IE "Ciphering mode info":
 - 3> resume data transmission on any suspended radio bearer and signalling radio bearer mapped on RLC-AM or RLC-UM;
 - 3> set the IE "Reconfiguration" in the variable CIPHERING_STATUS to FALSE; and
 - 3> clear the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO.
 - 2> if the CELL UPDATE CONFIRM / URA UPDATE CONFIRM message contained the IE "Integrity protection mode info":
 - 3> set "Uplink RRC Message sequence number" for signalling radio bearer RB0 in the variable INTEGRITY_PROTECTION_INFO to a value such that next RRC message to be sent on uplink RB0 will use the new integrity protection configuration;
 - 3> allow the transmission of RRC messages on all signalling radio bearers with any RRC SN;
 - 3> set the IE "Reconfiguration" in the variable INTEGRITY_PROTECTION_INFO to FALSE.
 - 2> clear the variable INTEGRITY_PROTECTION_ACTIVATION_INFO.
- 1> in case of a cell update procedure:
 - 2> clear the entry for the CELL UPDATE CONFIRM message in the table "Rejected transactions" in the variable TRANSACTIONS.
- 1> in case of a URA update procedure:
 - 2> clear the entry for the URA UPDATE CONFIRM message in the table "Rejected transactions" in the variable TRANSACTIONS.

1> set the variable CELL_UPDATE_STARTED to FALSE;

1> clear the variable SECURITY_MODIFICATION.

The procedure ends.

8.3.1.7 Transmission of a response message to UTRAN

If the CELL UPDATE CONFIRM message:

- includes the IE "RB information to release list":

the UE shall:

1> transmit a RADIO BEARER RELEASE COMPLETE as response message using AM RLC.

If the CELL UPDATE CONFIRM message:

- does not include the IE "RB information to release list"; and
- includes the IE "RB information to reconfigure list"; or
- includes the IE "RB information to be affected list":

the UE shall:

1> transmit a RADIO BEARER RECONFIGURATION COMPLETE as response message using AM RLC.

If the CELL UPDATE CONFIRM message:

- does not include "RB information elements"; and
- includes "Transport channel information elements":

the UE shall:

1> transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE as response message using AM RLC.

If the CELL UPDATE CONFIRM message:

- does not include "RB information elements"; and
- does not include "Transport channel information elements"; and
- includes "Physical channel information elements":

the UE shall:

1> transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE as response message using AM RLC.

If the CELL UPDATE CONFIRM message:

- does not include "RB information elements"; and
- does not include "Transport channel information elements"; and
- does not include "Physical channel information elements"; and
- includes "CN information elements"; or
- includes the IE "Ciphering mode info"; or
- includes the IE "Integrity protection mode info"; or
- includes the IE "New C-RNTI"; or
- includes the IE "New U-RNTI":

the UE shall:

- 1> transmit a UTRAN MOBILITY INFORMATION CONFIRM as response message using AM RLC.

If the CELL UPDATE CONFIRM message:

- does not include "RB information elements"; and
- does not include "Transport channel information elements"; and
- does not include "Physical channel information elements"; and
- does not include "CN information elements"; and
- does not include the IE "Ciphering mode info"; and
- does not include the IE "Integrity protection mode info"; and
- does not include the IE "New C-RNTI"; and
- does not include the IE "New U-RNTI":

the UE shall:

- 1> transmit no response message.

If the URA UPDATE CONFIRM message:

- includes "CN information elements"; or
- includes the IE "Ciphering mode info"; or
- includes the IE "Integrity protection mode info"; or
- includes any one or both of the IEs "New C-RNTI" and "New U-RNTI":

the UE shall:

- 1> transmit a UTRAN MOBILITY INFORMATION CONFIRM as response message using AM RLC.

If the URA UPDATE CONFIRM message:

- does not include "CN information elements"; and
- does not include the IE "Ciphering mode info"; and
- does not include the IE "Integrity protection mode info"; and
- does not include the IE "New U-RNTI"; and
- does not include the IE "New C-RNTI":

the UE shall:

- 1> transmit no response message.

If the new state is CELL_DCH or CELL_FACH, the response message shall be transmitted using the new configuration after the state transition., and the UE shall:

- 1> if the IE "Downlink counter synchronisation info" was included in the received CELL UPDATE CONFIRM or URA UPDATE CONFIRM message:
 - 2> when RLC has confirmed the successful transmission of the response message:
 - 3> re-establish all AM and UM RLC entities with RB identities larger than 4 and set the first 20 bits of all the HFN component of the respective COUNT-C values to the START value included in the response message for the corresponding CN domain;

- 3> re-establish the RLC entities with RB identities 1, 3 and 4 and set the first 20 bits of all the HFN component of the respective COUNT-C values to the START value included in the response message for the CN domain stored in the variable LATEST_CONFIGURED_CN_DOMAIN;
- 3> set the remaining bits of the HFN component of the COUNT-C values of all UM RLC entities to zero;
- 3> if the IE "PDCP context relocation info" is not present:
 - 4> re-initialise the PDCP header compression entities of each radio bearer in the variable ESTABLISHED_RABS as specified in [36];-
- 3> if the IE "PDCP context relocation info" is present:
 - 4> perform the actions as specified in 8.6.4.13.
- 1> if the variable PDCP_SN_INFO is empty:
 - 2> if the CELL UPDATE CONFIRM or URA UPDATE CONFIRM message contained the IE "Ciphering mode info":
 - 3> when RLC has confirmed the successful transmission of the response message:
 - 4> continue with the remainder of the procedure.
 - 2> if the CELL UPDATE CONFIRM or URA UPDATE CONFIRM message did not contain the IE "Ciphering mode info":
 - 3> when RLC has been requested to transmit the response message,
 - 4> continue with the remainder of the procedure.
- 1> if the variable PDCP_SN_INFO non-empty:
 - 2> when RLC has confirmed the successful transmission of the response message:
 - 3> for each radio bearer in the variable PDCP_SN_INFO:
 - 4> if the IE "RB started" in the variable ESTABLISHED_RABS is set to "started":
 - 5> configure the RLC entity for that radio bearer to "continue".
 - 3> continue with the remainder of the procedure.

If the new state is CELL_PCH or URA_PCH, the response message shall be transmitted in CELL_FACH state, and the UE shall:

- 1> when RLC has confirmed the successful transmission of the response message:
 - 2> if the IE "Downlink counter synchronisation info" was included in the received CELL UPDATE CONFIRM or URA UPDATE CONFIRM message:
 - 3> re-establish all AM and UM RLC entities with RB identities larger than 4 and set the first 20 bits of all the HFN component of the respective COUNT-C values to the START value included in the response message for the corresponding CN domain;
 - 3> re-establish the RLC entities with RB identities 1, 3 and 4 and set the first 20 bits of all the HFN component of the respective COUNT-C values to the START value included in the response message for the CN domain stored in the variable LATEST_CONFIGURED_CN_DOMAIN;
 - 3> set the remaining bits of the HFN component of the COUNT-C values of all UM RLC entities to zero;
 - 3> re-initialise the PDCP header compression entities of each radio bearer in the variable ESTABLISHED_RABS as specified in [36].

- 2> for each radio bearer in the variable PDCP_SN_INFO:
 - 3> if the IE "RB started" in the variable ESTABLISHED_RABS is set to "started":
 - 4> configure the RLC entity for that radio bearer to "continue".
 - 2> enter the new state (CELL_PCH or URA_PCH, respectively).
- 1> continue with the remainder of the procedure.

8.3.1.7a Physical channel failure

If the received CELL UPDATE CONFIRM message would cause the UE to transit to CELL_DCH state:

- 1> if the UE failed to establish the physical channel(s) indicated in the received CELL UPDATE CONFIRM message according to the criteria defined in subclause 8.5.4 are not fulfilled; or
- 1> the received CELL UPDATE CONFIRM message does not contain dedicated physical channels:

the UE shall:

- 1> if, caused by the received CELL UPDATE CONFIRM message
 - 2> the IE "Reconfiguration" in the variable CIPHERING_STATUS is set to TRUE; and/or
 - 2> the IE "Reconfiguration" in the variable INTEGRITY_PROTECTION_INFO is set to TRUE:
 - 3> abort the ongoing integrity and/or ciphering reconfiguration;
 - 3> if the received CELL UPDATE CONFIRM message contained the IE "Ciphering mode info":
 - 4> set the IE "Reconfiguration" in the variable CIPHERING_STATUS to FALSE; and
 - 4> clear the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO.
 - 3> if the received CELL UPDATE CONFIRM message contained the IE "Integrity protection mode info":
 - 4> set the IE "Reconfiguration" in the variable INTEGRITY_PROTECTION_INFO to FALSE; and
 - 4> clear the variable INTEGRITY_PROTECTION_ACTIVATION_INFO.
- 1> if the variable ORDERED_RECONFIGURATION is set to TRUE caused by the received CELL UPDATE CONFIRM message:
 - 2> set the variable ORDERED_RECONFIGURATION to FALSE.
- 1> if V302 is equal to or smaller than N302:
 - 2> select a suitable UTRA cell according to [4];
 - 2> set the contents of the CELL UPDATE message according to subclause 8.3.1.3, except for the IE "Cell update cause" which shall be set to "Radio link failure";
 - 2> submit the CELL UPDATE message for transmission on the uplink CCCH;
 - 2> increment counter V302;
 - 2> restart timer T302 when the MAC layer indicates success or failure to transmit the message.
- 1> if V302 is greater than N302:
 - 2> clear the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO;
 - 2> clear the variable INTEGRITY_PROTECTION_ACTIVATION_INFO;
 - 2> in case of a cell update procedure:

- 3> clear the entry for the CELL UPDATE CONFIRM message in the table "Rejected transactions" in the variable TRANSACTIONS.
- 2> release all its radio resources;
- 2> indicate release (abort) of the established signalling connections (as stored in the variable ESTABLISHED_SIGNALLING_CONNECTIONS) and established radio access bearers (as stored in the variable ESTABLISHED_RABS) to upper layers;
- 2> clear the variable ESTABLISHED_SIGNALLING_CONNECTIONS;
- 2> clear the variable ESTABLISHED_RABS;
- 2> set the variable CELL_UPDATE_STARTED to FALSE;
- 2> enter idle mode.

8.3.1.8 Unsupported configuration by the UE

If the UE does not support the configuration in the CELL UPDATE CONFIRM message and/or the variable UNSUPPORTED_CONFIGURATION is set to TRUE, the UE shall:

- 1> if V302 is equal to or smaller than N302, the UE shall:
 - 2> if, caused by the received CELL UPDATE CONFIRM message
 - 3> the IE "Reconfiguration" in the variable CIPHERING_STATUS is set to TRUE; and/or
 - 3> the IE "Reconfiguration" in the variable INTEGRITY_PROTECTION_INFO is set to TRUE:
 - 4> abort the ongoing integrity and/or ciphering reconfiguration;
 - 4> if the received CELL UPDATE CONFIRM message contained the IE "Ciphering mode info":
 - 5> set the IE "Reconfiguration" in the variable CIPHERING_STATUS to FALSE; and
 - 5> clear the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO.
 - 4> if the received CELL UPDATE CONFIRM message contained the IE "Integrity protection mode info":
 - 5> set the IE "Reconfiguration" in the variable INTEGRITY_PROTECTION_INFO to FALSE; and
 - 5> clear the variable INTEGRITY_PROTECTION_ACTIVATION_INFO.
 - 2> if the variable ORDERED_RECONFIGURATION is set to TRUE due to the received CELL UPDATE CONFIRM message in case of a cell update procedure:
 - 3> set the variable ORDERED_RECONFIGURATION to FALSE.
 - 2> set the variable FAILURE_INDICATOR to TRUE;
 - 2> set the variable FAILURE_CAUSE to "Unsupported configuration";
 - 2> set the content of the CELL UPDATE message according to subclause 8.3.1.3;
 - 2> submit the CELL UPDATE message for transmission on the uplink CCCH;
 - 2> increment counter V302;
 - 2> restart timer T302 when the MAC layer indicates success or failure to transmit the message.
- 1> if V302 is greater than N302, the UE shall:
 - 2> clear the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO;
 - 2> clear the variable INTEGRITY_PROTECTION_ACTIVATION_INFO;

- 2> clear the variable PDCP_SN_INFO;
- 2> clear the entry for the CELL UPDATE CONFIRM message in the table "Rejected transactions" in the variable TRANSACTIONS;
- 2> release all its radio resources;
- 2> indicate release (abort) of the established signalling connections (as stored in the variable ESTABLISHED_SIGNALLING_CONNECTIONS) and established radio access bearers (as stored in the variable ESTABLISHED_RABS) to upper layers;
- 2> clear the variable ESTABLISHED_SIGNALLING_CONNECTIONS;
- 2> clear the variable ESTABLISHED_RABS;
- 2> set the variable CELL_UPDATE_STARTED to FALSE;
- 2> enter idle mode;
- 2> Other actions the UE shall perform when entering idle mode from connected mode are specified in subclause 8.5.2;
- 2> and the procedure ends.

8.3.1.9 Invalid configuration

If the variable INVALID_CONFIGURATION is set to TRUE, the UE shall:

- 1> if V302 is equal to or smaller than N302:
 - 2> if, caused by the received CELL UPDATE CONFIRM or URA UPDATE CONFIRM message
 - 3> the IE "Reconfiguration" in the variable CIPHERING_STATUS is set to TRUE; and/or
 - 3> the IE "Reconfiguration" in the variable INTEGRITY_PROTECTION_INFO is set to TRUE:
 - 4> abort the ongoing integrity and/or ciphering reconfiguration;
 - 4> if the received CELL UPDATE CONFIRM or URA UPDATE CONFIRM message contained the IE "Ciphering mode info":
 - 5> set the IE "Reconfiguration" in the variable CIPHERING_STATUS to FALSE; and
 - 5> clear the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO.
 - 4> if the received CELL UPDATE CONFIRM or URA UPDATE CONFIRM message contained the IE "Integrity protection mode info";
 - 5> set the IE "Reconfiguration" in the variable INTEGRITY_PROTECTION_INFO to FALSE; and
 - 5> clear the variable INTEGRITY_PROTECTION_ACTIVATION_INFO.
- 2> if the variable ORDERED_RECONFIGURATION is set to TRUE caused by the received CELL UPDATE CONFIRM message in case of a cell update procedure:
 - 3> set the variable ORDERED_RECONFIGURATION to FALSE.
- 2> in case of a cell update procedure:
 - 3> set the variable FAILURE_INDICATOR to TRUE;
 - 3> set the variable FAILURE_CAUSE to "Invalid configuration";
 - 3> set the contents of the CELL UPDATE message according to subclause 8.3.1.3;
 - 3> submit the CELL UPDATE message for transmission on the uplink CCCH.

- 2> in case of a URA update procedure:
 - 3> set the contents of the URA UPDATE message according to subclause 8.3.1.3;
 - 3> submit the URA UPDATE message for transmission on the uplink CCCH.
- 2> increment counter V302;
- 2> restart timer T302 when the MAC layer indicates success or failure to transmit the message.
- 1> if V302 is greater than N302:
 - 2> clear the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO;
 - 2> clear the variable INTEGRITY_PROTECTION_ACTIVATION_INFO;
 - 2> clear the variable PDCP_SN_INFO;
 - 2> clear the entry for the CELL UPDATE CONFIRM message in the table "Rejected transactions" in the variable TRANSACTIONS;
 - 2> release all its radio resources;
 - 2> indicate release (abort) of the established signalling connections (as stored in the variable ESTABLISHED_SIGNALLING_CONNECTIONS) and established radio access bearers (as stored in the variable ESTABLISHED_RABS) to upper layers;
 - 2> clear the variable ESTABLISHED_SIGNALLING_CONNECTIONS;
 - 2> clear the variable ESTABLISHED_RABS;
 - 2> set the variable CELL_UPDATE_STARTED to FALSE;
 - 2> enter idle mode;
 - 2> Other actions the UE shall perform when entering idle mode from connected mode are specified in subclause 8.5.2;
 - 2> the procedure ends.

8.3.1.9a Incompatible simultaneous reconfiguration

In case of a cell update procedure and if the received CELL UPDATE CONFIRM message

- includes "RB information elements"; and/or
- includes "Transport channel information elements"; and/or
- includes "Physical channel information elements"; and
- the variable ORDERED_RECONFIGURATION is set to TRUE because of an ongoing Reconfiguration procedure;

or

If the variable INCOMPATIBLE_SECURITY_RECONFIGURATION is set to TRUE due to the received CELL UPDATE CONFIRM or URA UPDATE CONFIRM message:

the UE shall:

- 1> if V302 is equal to or smaller than N302:
 - 2> if, caused by the received CELL UPDATE CONFIRM or URA UPDATE CONFIRM message
 - 3> the IE "Reconfiguration" in the variable CIPHERING_STATUS is set to TRUE; and/or
 - 3> the IE "Reconfiguration" in the variable INTEGRITY_PROTECTION_INFO is set to TRUE;

- 4> abort the ongoing integrity and/or ciphering reconfiguration;
- 4> if the received CELL UPDATE CONFIRM or URA UPDATE CONFIRM message contained the IE "Ciphering mode info":
 - 5> set the IE "Reconfiguration" in the variable CIPHERING_STATUS to FALSE; and
 - 5> clear the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO.
- 4> if the received CELL UPDATE CONFIRM or URA UPDATE CONFIRM message contained the IE "Integrity protection mode info":
 - 5> set the IE "Reconfiguration" in the variable INTEGRITY_PROTECTION_INFO to FALSE; and
 - 5> clear the variable INTEGRITY_PROTECTION_ACTIVATION_INFO.
- 2> if the variable ORDERED_RECONFIGURATION is set to TRUE due to the received CELL UPDATE CONFIRM message in case of a cell update procedure:
 - 3> set the variable ORDERED_RECONFIGURATION to FALSE.
 - 2> set the variable FAILURE_INDICATOR to TRUE;
 - 2> set the variable FAILURE_CAUSE to "Incompatible simultaneous reconfiguration";
 - 2> set the content of the CELL UPDATE message according to subclause 8.3.1.3;
 - 2> submit the CELL UPDATE message for transmission on the uplink CCCH;
 - 2> increment counter V302;
 - 2> restart timer T302 when the MAC layer indicates success or failure to transmit the message.
- 1> if V302 is greater than N302:
 - 2> clear the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO;
 - 2> clear the variable INTEGRITY_PROTECTION_ACTIVATION_INFO;
 - 2> clear the variable PDCP_SN_INFO;
 - 2> set the variable INCOMPATIBLE_SECURITY_RECONFIGURATION to FALSE;
 - 2> clear the entry for the CELL UPDATE CONFIRM message in the table "Rejected transactions" in the variable TRANSACTIONS;
 - 2> release all its radio resources;
 - 2> indicate release (abort) of the established signalling connections (as stored in the variable ESTABLISHED_SIGNALLING_CONNECTIONS) and established radio access bearers (as stored in the variable ESTABLISHED_RABS) to upper layers;
 - 2> clear the variable ESTABLISHED_SIGNALLING_CONNECTIONS;
 - 2> clear the variable ESTABLISHED_RABS;
 - 2> set the variable CELL_UPDATE_STARTED to FALSE;
 - 2> enter idle mode;
 - 2> Other actions the UE shall perform when entering idle mode from connected mode are specified in subclause 8.5.2;
 - 2> the procedure ends.

8.3.1.10 Confirmation error of URA ID list

If the URA UPDATE CONFIRM message causes a confirmation error of URA identity list as specified in subclause 8.6.2.1 the UE shall:

- 1> check the value of V302; and
- 1> if V302 is smaller or equal than N302:
 - 2> if, caused by the received URA UPDATE CONFIRM message
 - 3> the IE "Reconfiguration" in the variable CIPHERING_STATUS is set to TRUE; and/or
 - 3> the IE "Reconfiguration" in the variable INTEGRITY_PROTECTION_INFO is set to TRUE:
 - 4> abort the ongoing integrity and/or ciphering reconfiguration;
 - 4> if the received URA UPDATE CONFIRM message contained the IE "Ciphering mode info":
 - 5> set the IE "Reconfiguration" in the variable CIPHERING_STATUS to FALSE; and
 - 5> clear the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO.
 - 4> if the received URA UPDATE CONFIRM message contained the IE "Integrity protection mode info":
 - 5> set the IE "Reconfiguration" in the variable INTEGRITY_PROTECTION_INFO to FALSE; and
 - 5> clear the variable INTEGRITY_PROTECTION_ACTIVATION_INFO.
 - 2> set the IEs in the URA UPDATE message according to subclause 8.3.1.3;
 - 2> submit the URA UPDATE message for transmission on the uplink CCCH;
 - 2> increment counter V302;
 - 2> restart timer T302 when the MAC layer indicates success or failure to transmit the message.
 - 1> if V302 is greater than N302:
 - 2> release all its radio resources;
 - 2> clear the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO;
 - 2> clear the variable INTEGRITY_PROTECTION_ACTIVATION_INFO;
 - 2> clear the variable PDCP_SN_INFO;
 - 2> indicate release (abort) of the established signalling connections (as stored in the variable ESTABLISHED_SIGNALLING_CONNECTIONS) and established radio access bearers (as stored in the variable ESTABLISHED_RABS) to upper layers;
 - 2> clear the variable ESTABLISHED_SIGNALLING_CONNECTIONS;
 - 2> clear the variable ESTABLISHED_RABS;
 - 2> set the variable CELL_UPDATE_STARTED to FALSE;
 - 2> enter idle mode;
 - 2> perform the actions specified in subclause 8.5.2 when entering idle mode from connected mode;
 - 2> the procedure ends.

8.3.1.11 Invalid CELL UPDATE CONFIRM/URA UPDATE CONFIRM message

If the UE receives an CELL UPDATE CONFIRM/URA UPDATE CONFIRM message, which contains a protocol error causing the variable `PROTOCOL_ERROR_REJECT` to be set to `TRUE` according to clause 9, the UE shall perform procedure specific error handling as follows:

- 1> If `V302` is equal to or smaller than `N302`, the UE shall:
 - 2> set the variable `PROTOCOL_ERROR_INDICATOR` to `TRUE`;
 - 2> in case of a cell update procedure:
 - 3> set the contents of the CELL UPDATE message according to subclause 8.3.1.3;
 - 3> submit the CELL UPDATE message for transmission on the uplink CCCH.
 - 2> in case of a URA update procedure:
 - 3> set the contents of the URA UPDATE message according to subclause 8.3.1.3;
 - 3> submit the URA UPDATE message for transmission on the uplink CCCH.
 - 2> increment counter `V302`;
 - 2> restart timer `T302` when the MAC layer indicates success or failure to transmit the message.
- 1> if `V302` is greater than `N302`, the UE shall:
 - 2> clear the variable `RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO`;
 - 2> in case of a cell update procedure:
 - 3> clear the entry for the CELL UPDATE CONFIRM message in the table "Rejected transactions" in the variable `TRANSACTIONS`.
 - 2> in case of a URA update procedure:
 - 3> clear the entry for the URA UPDATE CONFIRM message in the table "Rejected transactions" in the variable `TRANSACTIONS`.
 - 2> indicate release (abort) of the established signalling connections (as stored in the variable `ESTABLISHED_SIGNALLING_CONNECTIONS`) and established radio access bearers (as stored in the variable `ESTABLISHED_RABS`) to upper layers;
 - 2> clear the variable `ESTABLISHED_SIGNALLING_CONNECTIONS`;
 - 2> clear the variable `ESTABLISHED_RABS`;
 - 2> set the variable `CELL_UPDATE_STARTED` to `FALSE`;
 - 2> release all its radio resources;
 - 2> enter idle mode;
 - 2> Other actions the UE shall perform when entering idle mode from connected mode are specified in subclause 8.5.2;
 - 2> the procedure ends.

8.3.1.12 T302 expiry or cell reselection

If any or several of the following conditions are true:

- expiry of timer `T302`;
- reselection to another UTRA cell (including the previously serving cell) before completion of the cell update or URA update procedure;

the UE shall:

- 1> stop T302 if it is running;
- 1> if the UE was in CELL_DCH state prior to the initiation of the procedure; and
 - 2> if timers T314 and T315 have elapsed while T302 was running:
 - 3> enter idle mode.
 - 3> indicate release (abort) of the established signalling connections (as stored in the variable ESTABLISHED_SIGNALLING_CONNECTIONS) and established radio access bearers (as stored in the variable ESTABLISHED_RABS) to upper layers. Other actions the UE shall perform when entering idle mode from connected mode are specified in subclause 8.5.2.
 - 3> and the procedure ends.
 - 2> if timer T314 has elapsed while T302 was running and,
 - 3> if "T314 expired" in the variable RB_TIMER_INDICATOR is set to FALSE and
 - 3> if T315 is still running:
 - 4> release locally all radio bearers which are associated with any radio access bearers for which in the variable ESTABLISHED_RABS the value of the IE "Re-establishment timer" is set to "useT314";
 - 4> indicate release of those radio access bearers to upper layers;
 - 4> delete all information about those radio access bearers from the variable ESTABLISHED_RABS;
 - 4> set "T314 expired" in the variable RB_TIMER_INDICATOR to TRUE.
 - 2> if timer T315 has elapsed while T302 was running and,
 - 3> if "T315 expired" in the variable RB_TIMER_INDICATOR is set to FALSE and,
 - 3> if T314 is still running:
 - 4> release locally all radio bearers which are associated with any radio access bearers for which in the variable ESTABLISHED_RABS the value of the IE "Re-establishment timer" is set to "useT315";
 - 4> indicate release of those radio access bearers to upper layers;
 - 4> delete all information about those radio access bearers from the variable ESTABLISHED_RABS;
 - 4> set "T315 expired" in the variable RB_TIMER_INDICATOR to TRUE.
- 1> check whether it is still in "in service area" (see subclause 8.5.5.2);
- 1> if the variable ORDERED_RECONFIGURATION is set to TRUE caused by the received CELL UPDATE CONFIRM message in case of a cell update procedure:
 - 2> set the variable ORDERED_RECONFIGURATION to FALSE.
- 1> in case of a cell update procedure:
 - 2> clear any entry for the CELL UPDATE CONFIRM message in the table "Accepted transactions" in the variable TRANSACTIONS.
- 1> in case of a URA update procedure:
 - 2> clear any entry for the URA UPDATE CONFIRM message in the table "Accepted transactions" in the variable TRANSACTIONS.

If the UE detects "in service area" if it has not entered idle mode, and:

- 1> if V302 is equal to or smaller than N302, the UE shall:

- 2> if the UE performed cell re-selection:
 - 3> delete its C-RNTI.
- 2> in case of a cell update procedure:
 - 3> set the contents of the CELL UPDATE message according to subclauses 8.3.1.3 and 8.5.10;
 - 3> if a CELL UPDATE CONFIRM message was received and caused the IE "Reconfiguration" in the variable CIPHERING_STATUS to be set to TRUE and/or the IE "Reconfiguration" in the variable INTEGRITY_PROTECTION_INFO to be set to TRUE:
 - 4> if the IE "Downlink counter synchronisation info" was included in the received CELL UPDATE CONFIRM message:
 - 5> apply the new security (integrity protection) configuration received in the CELL UPDATE CONFIRM on the CELL UPDATE message.
 - 3> submit the CELL UPDATE message for transmission on the uplink CCCH.
- 2> in case of a URA update procedure:
 - 3> set the contents of the URA UPDATE message according to subclauses 8.3.1.3 and 8.5.10;
 - 3> if a URA UPDATE CONFIRM message was received and caused the IE "Reconfiguration" in the variable CIPHERING_STATUS to be set to TRUE and/or the IE "Reconfiguration" in the variable INTEGRITY_PROTECTION_INFO is set to TRUE:
 - 4> if the IE "Downlink counter synchronisation info" was included in the received URA UPDATE CONFIRM message:
 - 5> apply the new security (integrity protection) configuration received in the URA UPDATE CONFIRM on the URA UPDATE message.
 - 3> submit the URA UPDATE message for transmission on the uplink CCCH.
- 2> increment counter V302;
- 2> restart timer T302 when the MAC layer indicates success or failure to transmit the message.
- 1> if V302 is greater than N302, the UE shall:
 - 2> clear the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO;
 - 2> clear the variable INTEGRITY_PROTECTION_ACTIVATION_INFO;
 - 2> clear the variable PDCP_SN_INFO;
 - 2> in case of a cell update procedure:
 - 3> clear the entry for the CELL UPDATE CONFIRM message in the table "Rejected transactions" in the variable TRANSACTIONS.
 - 2> in case of a URA update procedure:
 - 3> clear the entry for the URA UPDATE CONFIRM message in the table "Rejected transactions" in the variable TRANSACTIONS.
 - 2> release all its radio resources;
 - 2> indicate release (abort) of the established signalling connections (as stored in the variable ESTABLISHED_SIGNALLING_CONNECTIONS) and established radio access bearers (as stored in the variable ESTABLISHED_RABS) to upper layers;
 - 2> clear the variable ESTABLISHED_SIGNALLING_CONNECTIONS;
 - 2> clear the variable ESTABLISHED_RABS;

- 2> set the variable CELL_UPDATE_STARTED to FALSE;
- 2> enter idle mode;
- 2> other actions the UE shall perform when entering idle mode from connected mode are specified in subclause 8.5.2;
- 2> and the procedure ends.

If the UE does not detect "in service area", it shall:

- 1> continue searching for "in service area".

8.3.1.13 T314 expiry

Upon expiry of timer T314 the UE shall:

- 1> if timer T302 is running:
 - 2> continue awaiting response message from UTRAN.
- 1> if timer T302 is not running and timer T315 is running:
 - 2> set IE "T314 expired" in variable RB_TIMER_INDICATOR to TRUE;
 - 2> release locally all radio bearers which are associated with any radio access bearers for which in the variable ESTABLISHED_RABS the value of the IE "Re-establishment timer" is set to "useT314";
 - 2> indicate release of those radio access bearers to upper layers;
 - 2> delete all information about those radio access bearers from the variable ESTABLISHED_RABS.
- 1> if timers T302 and T315 are not running:
 - 2> clear the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO;
 - 2> clear the variable INTEGRITY_PROTECTION_ACTIVATION_INFO;
 - 2> clear the variable PDCP_SN_INFO;
 - 2> clear the entry for the CELL UPDATE CONFIRM message in the table "Rejected transactions" in the variable TRANSACTIONS;
 - 2> release all its radio resources;
 - 2> indicate release (abort) of the established signalling connections (as stored in the variable ESTABLISHED_SIGNALLING_CONNECTIONS) and established radio access bearers (as stored in the variable ESTABLISHED_RABS) to upper layers;
 - 2> clear the variable ESTABLISHED_SIGNALLING_CONNECTIONS;
 - 2> clear the variable ESTABLISHED_RABS;
 - 2> set the variable CELL_UPDATE_STARTED to FALSE;
 - 2> enter idle mode;
 - 2> other actions the UE shall perform when entering idle mode from connected mode are specified in subclause 8.5.2;
 - 2> and the procedure ends.

8.3.1.14 T315 expiry

Upon expiry of timer T315 the UE shall:

- 1> if timer T302 is running:

- 2> continue awaiting response message from UTRAN.
- 1> if timer T302 is not running and timer T314 is running:
 - 2> set IE "T315 expired" in variable RB_TIMER_INDICATOR to TRUE;
 - 2> release locally all radio bearers which are associated with any radio access bearers for which in the variable ESTABLISHED_RABS the value of the IE "Re-establishment timer" is set to "use T315";
 - 2> indicate release of those radio access bearers to upper layers;
 - 2> delete all information about those radio access bearers from the variable ESTABLISHED_RABS.
- 1> if timers T302 and T314 are not running:
 - 2> clear the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO;
 - 2> clear the variable INTEGRITY_PROTECTION_ACTIVATION_INFO;
 - 2> clear the variable PDCP_SN_INFO;
 - 2> clear the entry for the CELL UPDATE CONFIRM message in the table "Rejected transactions" in the variable TRANSACTIONS;
 - 2> release all its radio resources;
 - 2> indicate release (abort) of the established signalling connections (as stored in the variable ESTABLISHED_SIGNALLING_CONNECTIONS) and established radio access bearers (as stored in the variable ESTABLISHED_RABS) to upper layers;
 - 2> clear the variable ESTABLISHED_SIGNALLING_CONNECTIONS;
 - 2> clear the variable ESTABLISHED_RABS;
 - 2> set the variable CELL_UPDATE_STARTED to FALSE;
 - 2> enter idle mode;
 - 2> other actions the UE shall perform when entering idle mode from connected mode are specified in subclause 8.5.2;
 - 2> and the procedure ends.

8.3.1.15 Reception of the UTRAN MOBILITY INFORMATION CONFIRM message by the UTRAN

See subclause 8.3.3.4.

8.3.3 UTRAN mobility information

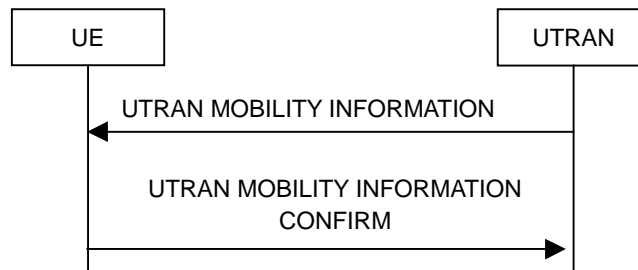


Figure 8.3.3-1: UTRAN mobility information procedure, normal flow

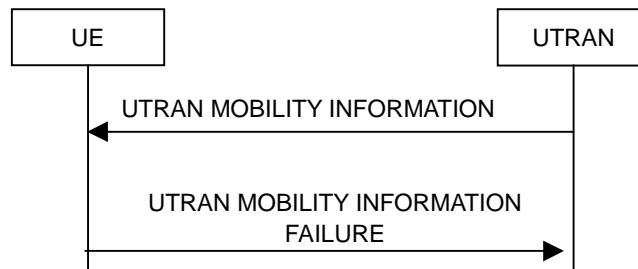


Figure 8.3.3-2: UTRAN mobility information procedure, failure case

8.3.3.1 General

The purpose of this procedure is to allocate any one or a combination of the following to a UE in connected mode:

- a new C-RNTI;
- a new U-RNTI;
- other mobility related information.

8.3.3.2 Initiation

To initiate the procedure UTRAN transmits a UTRAN MOBILITY INFORMATION message to the UE on the downlink DCCH using AM or UM RLC. In case of SRNS relocation, the message is sent using UM RLC only.

8.3.3.3 Reception of UTRAN MOBILITY INFORMATION message by the UE

When the UE receives a UTRAN MOBILITY INFORMATION message, it shall:

- 1> act on received information elements as specified in subclause 8.6;
- 1> if the IE "UE Timers and constants in connected mode" is present:
 - 2> store the values of the IE "UE Timers and constants in connected mode" in the variable TIMERS_AND_CONSTANTS, replacing any previously stored value for each timer and constant; and
 - 2> for each updated timer value:
 - 3> start using the new value next time the timer is started;

NOTE: If a new value of timer T305 is included in the IE "UE Timers and constants in connected mode", and the old value of timer T305 is "infinity", the UE will not use the new value of the timer T305 until the next cell reselection.

- 2> for each updated constant value:
 - 3> start using the new value directly;

- 1> if the IE "CN domain specific DRX cycle length coefficient" is present:
 - 2> store the value of the IE "CN domain specific DRX cycle length coefficient" for that CN domain, replacing any previously stored value; and
 - 2> use the value to determine the connected mode paging occasions according to [4].
- 1> set the IE "RRC transaction identifier" in the UTRAN MOBILITY INFORMATION CONFIRM message to the value of "RRC transaction identifier" in the entry for the UTRAN MOBILITY INFORMATION message in the table "Accepted transactions" in the variable TRANSACTIONS; and
- 1> clear that entry;
- 1> if the UTRAN MOBILITY INFORMATION message contained the IE "Ciphering mode info" or contained the IE "Integrity protection mode info":
 - 2> set the IE "Status" in the variable SECURITY_MODIFICATION for all the CN domains in the variable SECURITY_MODIFICATION to "Affected";
- 1> if the UTRAN MOBILITY INFORMATION message contained the IE "Ciphering mode info":
 - 2> include and set the IE "Radio bearer uplink ciphering activation time info" to the value of the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO.
- 1> if the variable PDCP_SN_INFO is non-empty:
 - 2> include the IE "RB with PDCP information list" in the UTRAN MOBILITY INFORMATION CONFIRM message and set it to the value of the variable PDCP_SN_INFO.
- 1> if the received UTRAN MOBILITY INFORMATION message included the IE "Downlink counter synchronisation info":
 - 2> re-establish RB2;
 - 2> set the new uplink and downlink HFN component of COUNT-C of RB2 to MAX(uplink HFN component of COUNT-C of RB2, downlink HFN component of COUNT-C of RB2);
 - 2> increment by one the downlink and uplink values of the HFN component of COUNT-C for RB2;
 - 2> calculate the START value according to subclause 8.5.9;
 - 2> include the calculated START values for each CN domain in the IE "START list" in the IE "Uplink counter synchronisation info" in the UTRAN MOBILITY INFORMATION CONFIRM message.
- 1> transmit a UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH using AM RLC;
- 1> if the IE "Integrity protection mode info" was present in the UTRAN MOBILITY INFORMATION message:
 - 2> start applying the new integrity protection configuration in the uplink for signalling radio bearer RB2 from and including the transmitted UTRAN MOBILITY INFORMATION CONFIRM message.
- 1> if the IE "Downlink counter synchronisation info" was included in the received UTRAN MOBILITY INFORMATION message:
 - 2> when RLC has confirmed the successful transmission of the response message:
 - 3> re-establish all AM and UM RLC entities with RB identities larger than 4 and set the first 20 bits of all the HFN component of the respective COUNT-C values to the START value included in the response message for the corresponding CN domain;
 - 3> re-establish the RLC entities with RB identities 1, 3 and 4 and set the first 20 bits of all the HFN component of the respective COUNT-C values to the START value included in the response message for the CN domain stored in the variable LATEST_CONFIGURED_CN_DOMAIN;
 - 3> set the remaining bits of the HFN component of the COUNT-C values of all UM RLC entities to zero;
 - 3> if the IE "PDCP context relocation info" is not present:

- 4> re-initialise the PDCP header compression entities of each radio bearer in the variable ESTABLISHED_RABS as specified in [36];-
- 3> if the IE "PDCP context relocation info" is present:
 - 4> perform the actions as specified in 8.6.4.13.
- 1> if the variable PDCP_SN_INFO is empty; and
 - 2> if the UTRAN MOBILITY INFORMATION message contained the IE "Ciphering mode info":
 - 3> when RLC has confirmed the successful transmission of the UTRAN MOBILITY INFORMATION CONFIRM message, perform the actions below.
 - 2> if the UTRAN MOBILITY INFORMATION message did not contain the IE "Ciphering mode info":
 - 3> when RLC has been requested to transmit the UTRAN MOBILITY INFORMATION CONFIRM message, perform the actions below.
- 1> if the variable PDCP_SN_INFO is non-empty:
 - 2> when RLC has confirmed the successful transmission of the UTRAN MOBILITY INFORMATION CONFIRM message:
 - 3> for each radio bearer in the variable PDCP_SN_INFO:
 - 4> if the IE "RB started" in the variable ESTABLISHED_RABS is set to "started":
 - 5> configure the RLC entity for that radio bearer to "continue".
 - 3> clear the variable PDCP_SN_INFO.
- 1> if the UTRAN MOBILITY INFORMATION message contained the IE "Ciphering mode info":
 - 2> resume data transmission on any suspended radio bearer and signalling radio bearer mapped on RLC-AM or RLC-UM;
 - 2> set the IE "Reconfiguration" in the variable CIPHERING_STATUS to FALSE; and
 - 2> clear the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO.
- 1> if the UTRAN MOBILITY INFORMATION message contained the IE "Integrity protection mode info":
 - 2> allow the transmission of RRC messages on all signalling radio bearers with any RRC SN;
 - 2> set the IE "Reconfiguration" in the variable INTEGRITY_PROTECTION_INFO to FALSE; and
 - 2> clear the variable INTEGRITY_PROTECTION_ACTIVATION_INFO.
- 1> clear the variable SECURITY_MODIFICATION.

The procedure ends.

8.3.3.4 Reception of an UTRAN MOBILITY INFORMATION CONFIRM message by the UTRAN

When the network receives UTRAN MOBILITY INFORMATION CONFIRM message, UTRAN may delete any old U-RNTI. The procedure ends.

8.3.3.5 Cell re-selection

If the UE performs cell re-selection, the UE shall:

- 1> initiate a cell update procedure according to subclause 8.3.1;
- 1> if the UTRAN MOBILITY INFORMATION message contains the IE "New C-RNTI"; and

- 1> if the UE has not yet submitted the UTRAN MOBILITY INFORMATION CONFIRM message to lower layers for transmission; and
- 1> if the IE "Downlink counter synchronisation info" was not included in the received UTRAN MOBILITY INFORMATION message:
 - 2> transmit a UTRAN MOBILITY INFORMATION FAILURE message on the uplink DCCH using AM RLC;
 - 2> set the IE "RRC transaction identifier" in the UTRAN MOBILITY INFORMATION FAILURE message to the value of "RRC transaction identifier" in the entry for the UTRAN MOBILITY INFORMATION message in the table "Accepted transactions" in the variable TRANSACTIONS; and
 - 2> clear that entry.
 - 2> set the IE "failure cause" to the cause value "cell update occurred";
 - 2> when the UTRAN MOBILITY INFORMATION FAILURE message has been submitted to lower layers for transmission:
 - 3> continue with any ongoing processes and procedures as if the invalid UTRAN MOBILITY INFORMATION message has not been received and the procedure ends.
- 1> otherwise:
 - 2> if a UTRAN MOBILITY INFORMATION message was received and caused the IE "Reconfiguration" in the variable CIPHERING_STATUS to be set to TRUE and/or the IE "Reconfiguration" in the variable INTEGRITY_PROTECTION_INFO to be set to TRUE; and
 - 2> if the IE "Downlink counter synchronisation info" was included in the received UTRAN MOBILITY INFORMATION message:
 - 3> apply the new security (integrity protection) configuration received in the UTRAN MOBILITY INFORMATION message on the CELL UPDATE message to be transmitted.
 - 2> continue the procedure normally.

8.3.3.5a Incompatible simultaneous security reconfiguration

If the variable INCOMPATIBLE_SECURITY_RECONFIGURATION becomes set to TRUE of the received UTRAN MOBILITY INFORMATION message, the UE shall:

- 1> transmit a UTRAN MOBILITY INFORMATION FAILURE message on the uplink DCCH using AM RLC;
- 1> set the IE "RRC transaction identifier" in the UTRAN MOBILITY INFORMATION FAILURE message to the value of "RRC transaction identifier" in the entry for the UTRAN MOBILITY INFORMATION message in the table "Accepted transactions" in the variable TRANSACTIONS; and
- 1> clear that entry;
- 1> set the IE "failure cause" to the cause value "incompatible simultaneous reconfiguration";
- 1> when the UTRAN MOBILITY INFORMATION FAILURE message has been delivered to lower layers for transmission:
 - 2> set the variable INCOMPATIBLE_SECURITY_RECONFIGURATION to FALSE;
 - 2> continue with any ongoing processes and procedures as if the UTRAN MOBILITY INFORMATION message has not been received;
 - 2> and the procedure ends.

8.3.3.6 Invalid UTRAN MOBILITY INFORMATION message

If the UTRAN MOBILITY INFORMATION message contains a protocol error causing the variable `PROTOCOL_ERROR_REJECT` to be set to `TRUE` according to clause 9, the UE shall perform procedure specific error handling as follows. The UE shall:

- 1> transmit a UTRAN MOBILITY INFORMATION FAILURE message on the uplink DCCH using AM RLC;
- 1> set the IE "RRC transaction identifier" in the UTRAN MOBILITY INFORMATION FAILURE message to the value of "RRC transaction identifier" in the entry for the UTRAN MOBILITY INFORMATION message in the table "Rejected transactions" in the variable `TRANSACTIONS`, and;
- 1> clear that entry.
- 1> set the IE "failure cause" to the cause value "protocol error";
- 1> include the IE "Protocol error information" with contents set to the value of the variable `PROTOCOL_ERROR_INFORMATION`;
- 1> when the UTRAN MOBILITY INFORMATION FAILURE message has been submitted to lower layers for transmission:
 - 2> continue with any ongoing processes and procedures as if the invalid UTRAN MOBILITY INFORMATION message has not been received;
 - 2> and the procedure ends.

8.6.4.13 PDCP context relocation info

If the IE "PDCP context relocation info" is included, the UE shall, for each radio bearer included in this IE:

- 1> If the IE "Downlink RFC 3095 context relocation indication" is set to TRUE:
 - 2> perform the actions as specified in [36] for all RFC 3095 contexts associated with that radio bearer in the downlink.
- 1> If the IE "Uplink RFC 3095 context relocation indication" is set to TRUE:
 - 2> perform the actions as specified in [36] for all RFC 3095 contexts associated with that radio bearer in the uplink.

11.5 RRC information between network nodes

```
Internode-definitions DEFINITIONS AUTOMATIC TAGS ::=
```

```
BEGIN
```

```
IMPORTS
```

```

    HandoverToUTRANCommand,
    MeasurementReport,
    PhysicalChannelReconfiguration,
    RadioBearerReconfiguration,
    RadioBearerRelease,
    RadioBearerSetup,
    RRC-FailureInfo-r3-IEs,
    TransportChannelReconfiguration
FROM PDU-definitions

-- Core Network IEs :
    CN-DomainIdentity,
    CN-DomainInformationList,
    CN-DomainInformationListFull,
    CN-DRX-CycleLengthCoefficient,
    NAS-SystemInformationGSM-MAP,
-- UTRAN Mobility IEs :
    CellIdentity,
    URA-Identity,
-- User Equipment IEs :
    AccessStratumReleaseIndicator,
    C-RNTI,
    ChipRateCapability,
    DL-PhysChCapabilityFDD-v380ext,
    DL-PhysChCapabilityTDD,
    DL-PhysChCapabilityTDD-LCR-r4,
    GSM-Measurements,
    FailureCauseWithProtErr,
    MaxHcContextSpace,
    MaxNoPhysChBitsReceived,
    MaxROHC-ContextSessions-r4,
    NetworkAssistedGPS-Supported,
    RadioFrequencyBandTDDList,
    RLC-Capability,
    RRC-MessageSequenceNumber,
    SecurityCapability,
    SimultaneousSCCPCH-DPCH-Reception,
    STARTList,
    STARTSingle,
    START-Value,
    SupportOfDedicatedPilotsForChEstimation,
    TransportChannelCapability,
    TxRxFrequencySeparation,
    U-RNTI,
    UE-MultiModeRAT-Capability,
    UE-PowerClass-v370,
    UE-RadioAccessCapabBandFDDList,
    UE-RadioAccessCapability,
    UE-RadioAccessCapability-v370ext,
    UE-RadioAccessCapability-v380ext,
    UE-RadioAccessCapability-v3a0ext,
    UE-RadioAccessCapability-v4xyext,
    UL-PhysChCapabilityFDD,
    UL-PhysChCapabilityTDD,
    UL-PhysChCapabilityTDD-LCR-r4,
-- Radio Bearer IEs :
    PredefinedConfigStatusList,
    PredefinedConfigValueTag,
    RAB-InformationSetupList,
    RAB-InformationSetupList-r4,
    RAB-Identity,
    RB-Identity,
    RB-Identity,
    SRB-InformationSetupList,
-- Transport Channel IEs :
    CPCH-SetID,
    DL-CommonTransChInfo,
    DL-CommonTransChInfo-r4,
    DL-AddReconfTransChInfoList,
```



```

DL-AddReconfTransChInfoList-r4,
DRAC-StaticInformationList,
UL-CommonTransChInfo,
UL-CommonTransChInfo-r4,
UL-AddReconfTransChInfoList,
-- Measurement IEs :
MeasurementIdentity,
MeasurementReportingMode,
MeasurementType,
MeasurementType-r4,
AdditionalMeasurementID-List,
PositionEstimate,
UE-Positioning-IPDL-Parameters-TDD-r4-ext,
-- Other IEs :
InterRAT-UE-RadioAccessCapabilityList
FROM InformationElements

maxCNdomains,
maxNoOfMeas,

maxRB,
maxRBallRABs,
maxRFC3095-CID,
maxSRBsetup
FROM Constant-definitions
;

-- Part 1: Class definitions similar to what has been defined in 11.1 for RRC messages
-- Information that is tranferred in the same direction and across the same path is grouped

-- *****
--
-- RRC information, to target RNC
--
-- *****
-- RRC Information to target RNC sent either from source RNC or from another RAT

ToTargetRNC-Container ::= CHOICE {
    interRATHandoverInfo          InterRATHandoverInfoWithInterRATCapabilities-r3,
    srncRelocation                SRNC-RelocationInfo-r3,
    rfc3095-ContextInfo          RFC3095-ContextInfo-r5,
    extension                     NULL
}

-- *****
--
-- RRC information, target RNC to source RNC
--
-- *****

Target-RNC-ToSourceRNC-Container ::= CHOICE {
    radioBearerSetup              RadioBearerSetup,
    radioBearerReconfiguration    RadioBearerReconfiguration,
    radioBearerRelease            RadioBearerRelease,
    transportChannelReconfiguration TransportChannelReconfiguration,
    physicalChannelReconfiguration PhysicalChannelReconfiguration,
    rrc-FailureInfo              RRC-FailureInfo-r3-IEs,
    dL-DCCHmessage               OCTET STRING,
    extension                     NULL
}

-- Part 2: Container definitions, similar to the PDU definitions in 11.2 for RRC messages
-- In alphabetical order

-- *****
--
-- Handover to UTRAN information
--
-- *****

InterRATHandoverInfoWithInterRATCapabilities-r3 ::= CHOICE {
    r3                             SEQUENCE {
        -- IE InterRATHandoverInfoWithInterRATCapabilities-r3-IEs also
        -- includes non critical extensions
        interRATHandoverInfo-r3    InterRATHandoverInfoWithInterRATCapabilities-r3-IEs,
        v390NonCriticalExtensions  SEQUENCE {

```



```

later-than-r3          CHOICE {
  r4                   SEQUENCE {
    SRNC-RelocationInfo-r4 SRNC-RelocationInfo-r4-IEs,
    nonCriticalExtensions SEQUENCE {} OPTIONAL
  },
  criticalExtensions SEQUENCE {}
}
}

SRNC-RelocationInfo-r3-IEs ::= SEQUENCE {
  -- Non-RRC IEs
  stateOfRRC StateOfRRC,
  stateOfRRC-Procedure StateOfRRC-Procedure,
  -- Ciphering related information IEs
  -- If the extension v380 is included use the extension for the ciphering status per CN domain
  cipheringStatus CipheringStatus,
  calculationTimeForCiphering CalculationTimeForCiphering OPTIONAL,
  -- The order of occurrence in the IE cipheringInfoPerRB-List is the
  -- same as the RBs in the IE "Signalling RB information list" and in the
  -- IE "RAB information list". The signalling RBs are supposed to be listed
  -- first. Only UM and AM RBs that are ciphered are listed here
  cipheringInfoPerRB-List CipheringInfoPerRB-List OPTIONAL,
  count-C-List COUNT-C-List OPTIONAL,
  integrityProtectionStatus IntegrityProtectionStatus,
  srb-SpecificIntegrityProtInfo SRB-SpecificIntegrityProtInfoList,
  implementationSpecificParams ImplementationSpecificParams OPTIONAL,
  -- User equipment IEs
  u-RNTI U-RNTI,
  c-RNTI C-RNTI OPTIONAL,
  ue-RadioAccessCapability UE-RadioAccessCapability,
  ue-Positioning-LastKnownPos UE-Positioning-LastKnownPos OPTIONAL,
  -- Other IEs
  ue-RATSpecificCapability InterRAT-UE-RadioAccessCapabilityList OPTIONAL,
  -- UTRAN mobility IEs
  ura-Identity URA-Identity OPTIONAL,
  -- Core network IEs
  cn-CommonGSM-MAP-NAS-SysInfo NAS-SystemInformationGSM-MAP,
  cn-DomainInformationList CN-DomainInformationList OPTIONAL,
  -- Measurement IEs
  ongoingMeasRepList OngoingMeasRepList OPTIONAL,
  -- Radio bearer IEs
  predefinedConfigStatusList PredefinedConfigStatusList,
  srb-InformationList SRB-InformationSetupList,
  rab-InformationList RAB-InformationSetupList OPTIONAL,
  -- Transport channel IEs
  ul-CommonTransChInfo UL-CommonTransChInfo OPTIONAL,
  ul-TransChInfoList UL-AddReconfTransChInfoList OPTIONAL,
  modeSpecificInfo CHOICE {
    fdd SEQUENCE {
      cpch-SetID CPCH-SetID OPTIONAL,
      transChDRAC-Info DRAC-StaticInformationList OPTIONAL
    },
    tdd NULL
  },
  dl-CommonTransChInfo DL-CommonTransChInfo OPTIONAL,
  dl-TransChInfoList DL-AddReconfTransChInfoList OPTIONAL,
  -- Measurement report
  measurementReport MeasurementReport OPTIONAL,
  nonCriticalExtensions SEQUENCE {
    -- In case of TDD only up-Ipdl-Parameters-TDD is present, otherwise
    -- this IE is absent
    up-Ipdl-Parameters-TDD UE-Positioning-IPDL-Parameters-TDD-r4-ext OPTIONAL,
    -- Extension mechanism for non- release4 information
    nonCriticalExtensions SEQUENCE {} OPTIONAL
  }
}

SRNC-RelocationInfo-v380ext-IEs ::= SEQUENCE {
  -- Ciphering related information IEs
  cn-DomainIdentity CN-DomainIdentity,
  cipheringStatusList CipheringStatusList
}

SRNC-RelocationInfo-v390ext-IEs ::= SEQUENCE {
  cn-DomainInformationList-v390ext CN-DomainInformationList-v390ext OPTIONAL,
  ue-RadioAccessCapability-v370ext UE-RadioAccessCapability-v370ext OPTIONAL,
  ue-RadioAccessCapability-v380ext UE-RadioAccessCapability-v380ext OPTIONAL,
  dl-PhysChCapabilityFDD-v380ext DL-PhysChCapabilityFDD-v380ext,

```

```

        failureCauseWithProtErr          FailureCauseWithProtErr          OPTIONAL
    }

SRNC-RelocationInfo-v3a0ext-IEs ::= SEQUENCE {
    -- cn-domain identity for IE startValueForCiphering-v3a0ext is specified
    -- in subsequent extension (SRNC-RelocationInfo-v3b0ext-IEs)
    startValueForCIphering-v3a0ext      START-Value,
    cipheringInfoForSRB1-v3a0ext        CipheringInfoForSRB1-v3a0ext,
    ue-RadioAccessCapability-v3a0ext    UE-RadioAccessCapability-v3a0ext    OPTIONAL
}

SRNC-RelocationInfo-v3b0ext-IEs ::= SEQUENCE {
    -- cn-domain identity for IE startValueForCiphering-v3a0ext included in previous extension
    cn-DomainIdentity                    CN-DomainIdentity,
    -- the remaining start values are contained in IE startValueForCiphering-v3b0ext
    startValueForCiphering-v3b0ext      STARTList2                      OPTIONAL
}

SRNC-RelocationInfo-v3c0ext-IEs ::= SEQUENCE {
    -- IE rb-IdentityForHOMessage includes the identity of the RB used by the source SRNC
    -- to send the message contained in the IE "TargetRNC-ToSourceRNC-Container".
    -- Only included if type is "UE involved"
    rb-IdentityForHOMessage              RB-Identity                    OPTIONAL
}

STARTList2 ::=
    SEQUENCE (SIZE (2..maxCNdomains)) OF
    STARTSingle

SRNC-RelocationInfo-v4xyext-IEs ::= SEQUENCE {
    ue-RadioAccessCapability-v4xyext    UE-RadioAccessCapability-v4xyext
}

CipheringInfoForSRB1-v3a0ext ::= SEQUENCE {
    dl-UM-SN                             BIT STRING (SIZE (7))
}

CipheringStatusList ::=
    SEQUENCE (SIZE (1..maxCNdomains)) OF
    CipheringStatusCNdomain

CipheringStatusCNdomain ::=
    SEQUENCE {
        cn-DomainIdentity                CN-DomainIdentity,
        cipheringStatus                  CipheringStatus
    }

SRNC-RelocationInfo-r4-IEs ::=
    SEQUENCE {
        -- Non-RRC IEs
        -- IE rb-IdentityForHOMessage includes the identity of the RB used by the source SRNC
        -- to send the message contained in the IE "TargetRNC-ToSourceRNC-Container".
        -- Only included if type is "UE involved"
        rb-IdentityForHOMessage          RB-Identity                    OPTIONAL,
        stateOfRRC                       StateOfRRC,
        stateOfRRC-Procedure              StateOfRRC-Procedure,
        -- Ciphering related information IEs
        cipheringStatusList              CipheringStatusList-r4,
        latestConfiguredCN-Domain        CN-DomainIdentity,
        calculationTimeForCiphering      CalculationTimeForCiphering    OPTIONAL,
        count-C-List                     COUNT-C-List                 OPTIONAL,
        cipheringInfoPerRB-List          CipheringInfoPerRB-List-r4    OPTIONAL,
        -- Integrity protection related information IEs
        integrityProtectionStatus         IntegrityProtectionStatus,
        srb-SpecificIntegrityProtInfo     SRB-SpecificIntegrityProtInfoList,
        implementationSpecificParams      ImplementationSpecificParams    OPTIONAL,
        -- User equipment IEs
        u-RNTI                            U-RNTI,
        c-RNTI                            C-RNTI                        OPTIONAL,
        ue-RadioAccessCapability          UE-RadioAccessCapability-r4,
        ue-RadioAccessCapability-ext      UE-RadioAccessCapabBandFDDList OPTIONAL,
        ue-Positioning-LastKnownPos       UE-Positioning-LastKnownPos    OPTIONAL,
        -- Other IEs
        ue-RATSpecificCapability          InterRAT-UE-RadioAccessCapabilityList OPTIONAL,
        -- UTRAN mobility IEs
        ura-Identity                      URA-Identity                    OPTIONAL,
        -- Core network IEs
        cn-CommonGSM-MAP-NAS-SysInfo     NAS-SystemInformationGSM-MAP,
        cn-DomainInformationList          CN-DomainInformationListFull    OPTIONAL,
        -- Measurement IEs
        ongoingMeasRepList                OngoingMeasRepList-r4          OPTIONAL,
        -- Radio bearer IEs
    }

```

```

    predefinedConfigStatusList      PredefinedConfigStatusList,
    srb-InformationList              SRB-InformationSetupList,
    rab-InformationList              RAB-InformationSetupList-r4      OPTIONAL,
-- Transport channel IEs
    ul-CommonTransChInfo            UL-CommonTransChInfo-r4      OPTIONAL,
    ul-TransChInfoList              UL-AddReconfTransChInfoList  OPTIONAL,
    modeSpecificInfo                 CHOICE {
        fdd                          SEQUENCE {
            cpch-SetID                CPCH-SetID                OPTIONAL,
            transChDRAC-Info          DRAC-StaticInformationList OPTIONAL
        },
        tdd                          NULL
    }
    dl-CommonTransChInfo            DL-CommonTransChInfo-r4      OPTIONAL,
    dl-TransChInfoList              DL-AddReconfTransChInfoList-r4 OPTIONAL,
-- Measurement report
    measurementReport               MeasurementReport            OPTIONAL,
    failureCause                     FailureCauseWithProtErr     OPTIONAL
}

-- IE definitions

CalculationTimeForCipherring ::= SEQUENCE {
    cell-Id                          CellIdentity,
    sfn                              INTEGER (0..4095)
}

CipherringInfoPerRB ::= SEQUENCE {
    dl-HFN                           BIT STRING (SIZE (20..25)),
    ul-HFN                           BIT STRING (SIZE (20..25))
}

CipherringInfoPerRB-r4 ::= SEQUENCE {
    rb-Identity                       RB-Identity,
    dl-HFN                           BIT STRING (SIZE (20..25)),
    dl-UM-SN                         BIT STRING (SIZE (7))          OPTIONAL,
    ul-HFN                           BIT STRING (SIZE (20..25))
}

-- TABULAR: CipherringInfoPerRB-List, multiplicity value numberOfRadioBearers
-- has been replaced with maxRB.
CipherringInfoPerRB-List ::= SEQUENCE (SIZE (1..maxRB)) OF
    CipherringInfoPerRB

CipherringInfoPerRB-List-r4 ::= SEQUENCE (SIZE (1..maxRB)) OF
    CipherringInfoPerRB-r4

CipherringStatus ::= ENUMERATED {
    started, notStarted }

CipherringStatusList-r4 ::= SEQUENCE (SIZE (1..maxCNDomains)) OF
    CipherringStatusCNDomain-r4

CipherringStatusCNDomain-r4 ::= SEQUENCE {
    cn-DomainIdentity                CN-DomainIdentity,
    cipherringStatus                  CipherringStatus,
    start-Value                       START-Value
}

CN-DomainInformation-v390ext ::= SEQUENCE {
    cn-DRX-CycleLengthCoeff          CN-DRX-CycleLengthCoefficient
}

CN-DomainInformationList-v390ext ::= SEQUENCE (SIZE (1..maxCNDomains)) OF
    CN-DomainInformation-v390ext

CompressedModeMeasCapability-r4 ::= SEQUENCE {
    fdd-Measurements                  BOOLEAN,
    -- TABULAR: The IEs tdd-Measurements, gsm-Measurements and multiCarrierMeasurements
    -- are made optional since they are conditional based on another information element.
    -- Their absence corresponds to the case where the condition is not true.
    tdd384-Measurements               BOOLEAN                      OPTIONAL,
    tdd128-Measurements               BOOLEAN                      OPTIONAL,
    gsm-Measurements                  GSM-Measurements           OPTIONAL,
    multiCarrierMeasurements          BOOLEAN                      OPTIONAL
}

```

```

COUNT-C-List ::=                               SEQUENCE (SIZE (1..maxCNdomains)) OF
                                                COUNT-CSingle

COUNT-CSingle ::=                               SEQUENCE {
  cn-DomainIdentity                             CN-DomainIdentity,
  count-C                                        BIT STRING (SIZE (32))
}

DL-PhysChCapabilityFDD-r4 ::=                   SEQUENCE {
  maxNoDPCH-PDSCH-Codes                         INTEGER (1..8),
  maxNoPhysChBitsReceived                       MaxNoPhysChBitsReceived,
  supportForSF-512                              BOOLEAN,
  supportOfPDSCH                                BOOLEAN,
  simultaneousSCCPCH-DPCH-Reception             SimultaneousSCCPCH-DPCH-Reception,
  supportOfDedicatedPilotsForChEstimation       SupportOfDedicatedPilotsForChEstimation  OPTIONAL
}


-- The structure of DL-RFC3095-Context is FFS
DL-RFC3095-Context ::=                           SEQUENCE {
  rfc3095-Context-Identity                       INTEGER (0..16383),
  dl-mode                                         ENUMERATED {u, o, r},
  dl-ref-ir                                       OCTET STRING (SIZE (1..3000)),
  dl-ref-time                                     INTEGER (0..4294967295)  OPTIONAL,
  dl-curr-time                                    INTEGER (0..4294967295)  OPTIONAL,
  dl-syn-offset-id                               INTEGER (0..65535)     OPTIONAL,
  dl-syn-slope-ts                                INTEGER (0..4294967295)  OPTIONAL,
  dl-dyn-changed                                 BOOLEAN
}


ImplementationSpecificParams ::=                 BIT STRING (SIZE (1..512))

IntegrityProtectionStatus ::=                   ENUMERATED {
  started, notStarted }

MeasurementCapability-r4 ::=                     SEQUENCE {
  downlinkCompressedMode                         CompressedModeMeasCapability-r4,
  uplinkCompressedMode                           CompressedModeMeasCapability-r4
}

MeasurementCommandWithType ::=                  CHOICE {
  setup                                           MeasurementType,
  modify                                          NULL,
  release                                         NULL
}

MeasurementCommandWithType-r4 ::=                CHOICE {
  setup                                           MeasurementType-r4,
  modify                                          NULL,
  release                                         NULL
}

OngoingMeasRep ::=                              SEQUENCE {
  measurementIdentity                             MeasurementIdentity,
  -- TABULAR: The CHOICE Measurement in the tabular description is included
  -- in MeasurementCommandWithType
  measurementCommandWithType                     MeasurementCommandWithType,
  measurementReportingMode                       MeasurementReportingMode  OPTIONAL,
  additionalMeasurementID-List                   AdditionalMeasurementID-List  OPTIONAL
}

OngoingMeasRep-r4 ::=                           SEQUENCE {
  measurementIdentity                             MeasurementIdentity,
  -- TABULAR: The CHOICE Measurement in the tabular description is included
  -- in MeasurementCommandWithType-r4.
  measurementCommandWithType                     MeasurementCommandWithType-r4,
  measurementReportingMode                       MeasurementReportingMode  OPTIONAL,
  additionalMeasurementID-List                   AdditionalMeasurementID-List  OPTIONAL
}

OngoingMeasRepList ::=                          SEQUENCE (SIZE (1..maxNoOfMeas)) OF
                                                OngoingMeasRep

OngoingMeasRepList-r4 ::=                       SEQUENCE (SIZE (1..maxNoOfMeas)) OF
                                                OngoingMeasRep-r4

PDCP-Capability-r4 ::=                          SEQUENCE {
  losslessSRNS-RelocationSupport                 BOOLEAN,

```

```

supportForRfc2507          CHOICE {
  notSupported
  supported
  MaxHcContextSpace
},
supportForRfc3095          CHOICE {
  notSupported
  supported
  maxROHC-ContextSessions  MaxROHC-ContextSessions-r4  DEFAULT s16,
  reverseCompressionDepth  INTEGER (0..65535)          DEFAULT 0
}
}

PhysicalChannelCapability-r4 ::= SEQUENCE {
  fddPhysChCapability        SEQUENCE {
    downlinkPhysChCapability DL-PhysChCapabilityFDD-r4,
    uplinkPhysChCapability   UL-PhysChCapabilityFDD
  } OPTIONAL,
  tdd384-PhysChCapability    SEQUENCE {
    downlinkPhysChCapability DL-PhysChCapabilityTDD,
    uplinkPhysChCapability   UL-PhysChCapabilityTDD
  } OPTIONAL,
  tdd128-PhysChCapability     SEQUENCE {
    downlinkPhysChCapability DL-PhysChCapabilityTDD-LCR-r4,
    uplinkPhysChCapability   UL-PhysChCapabilityTDD-LCR-r4
  } OPTIONAL
}

RF-Capability-r4 ::= SEQUENCE {
  fddRF-Capability          SEQUENCE {
    ue-PowerClass            UE-PowerClass-v370,
    txRxFrequencySeparation TxRxFrequencySeparation
  } OPTIONAL,
  tdd384-RF-Capability      SEQUENCE {
    ue-PowerClass            UE-PowerClass-v370,
    radioFrequencyBandTDDList RadioFrequencyBandTDDList,
    chipRateCapability        ChipRateCapability
  } OPTIONAL,
  tdd128-RF-Capability      SEQUENCE {
    ue-PowerClass            UE-PowerClass-v370,
    radioFrequencyBandTDDList RadioFrequencyBandTDDList,
    chipRateCapability        ChipRateCapability
  } OPTIONAL
}

RFC3095-ContextInfo ::= SEQUENCE {
  rb-Identity,
  rfc3095-Context-List
}

RFC3095-Context-List ::= SEQUENCE (SIZE (1..maxRFC3095-CID)) OF SEQUENCE {
  dl-RFC3095-Context  OPTIONAL,
  ul-RFC3095-Context  OPTIONAL
}

SRB-SpecificIntegrityProtInfo ::= SEQUENCE {
  ul-RRC-HFN          BIT STRING (SIZE (28)),
  dl-RRC-HFN          BIT STRING (SIZE (28)),
  ul-RRC-SequenceNumber RRC-MessageSequenceNumber,
  dl-RRC-SequenceNumber RRC-MessageSequenceNumber
}

SRB-SpecificIntegrityProtInfoList ::= SEQUENCE (SIZE (4..maxSRBsetup)) OF
SRB-SpecificIntegrityProtInfo

StateOfRRC ::= ENUMERATED {
  cell-DCH, cell-FACH,
  cell-PCH, ura-PCH }

StateOfRRC-Procedure ::= ENUMERATED {
  awaitNoRRC-Message,
  awaitRB-ReleaseComplete,
  awaitRB-SetupComplete,
  awaitRB-ReconfigurationComplete,
  awaitTransportCH-ReconfigurationComplete,
  awaitPhysicalCH-ReconfigurationComplete,
  awaitActiveSetUpdateComplete,
  awaitHandoverComplete,

```

```

        sendCellUpdateConfirm,
        sendUraUpdateConfirm,
        -- dummy is not used in this version of specification
        -- It should not be sent
        dummy,
        otherStates
    }

UE-Positioning-Capability-r4 ::= SEQUENCE {
    standaloneLocMethodsSupported    BOOLEAN,
    ue-BasedOTDOA-Supported          BOOLEAN,
    networkAssistedGPS-Supported     NetworkAssistedGPS-Supported,
    supportForUE-GPS-TimingOfCellFrames    BOOLEAN,
    supportForIPDL                   BOOLEAN,
    rx-tx-TimeDifferenceType2Capable    BOOLEAN,
    validity-CellPCH-UraPCH           ENUMERATED { true ( 0 ) }    OPTIONAL
}

UE-Positioning-LastKnownPos ::= SEQUENCE {
    sfn                                INTEGER ( 0..4095 ),
    cell-id                            CellIdentity,
    positionEstimate                   PositionEstimate
}

UE-RadioAccessCapability-r4 ::= SEQUENCE {
    accessStratumReleaseIndicator     AccessStratumReleaseIndicator,
    pdcp-Capability                   PDCP-Capability-r4,
    rlc-Capability                     RLC-Capability,
    transportChannelCapability        TransportChannelCapability,
    rf-Capability                     RF-Capability-r4,
    physicalChannelCapability         PhysicalChannelCapability-r4,
    ue-MultiModeRAT-Capability        UE-MultiModeRAT-Capability,
    securityCapability                SecurityCapability,
    ue-positioning-Capability         UE-Positioning-Capability-r4,
    measurementCapability             MeasurementCapability-r4    OPTIONAL
}

--- The structure of UL-RFC3095-Context is FFS
UL-RFC3095-Context ::= SEQUENCE {
    rfc3095-Context-Identity          INTEGER ( 0..16383 ),
    ul-mode                           ENUMERATED { u, o, r } ,
    ul-ref-ir                          OCTET STRING ( SIZE ( 1..3000 ) ),
    ul-ref-time                        INTEGER ( 0..4294967295 )    OPTIONAL,
    ul-curr-time                       INTEGER ( 0..4294967295 )    OPTIONAL,
    ul-syn-offset-id                   INTEGER ( 0..65535 )        OPTIONAL,
    ul-syn-slope-ts                   INTEGER ( 0..4294967295 )    OPTIONAL,
    ul-ref-sn-1                        INTEGER ( 0..65535 )        OPTIONAL
}

END

```


14.12.4.4 RFC 3095 CONTEXT INFO

This RRC message is sent between network nodes in SRNS relocation. It is used to transfer the compressor and decompressor context information of the RFC 3095 protocol. ~~The structure of the context information is FFS.~~

Direction: source RNC →target RNC

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
RFC 3095 context	MP	1 to <maxRBall RABs>			REL-5
>RB identity	MP		RB identity 10.3.4.16		REL-5
>RFC 3095 context list	MP	1 to <maxRFC3095-CID>			REL-5
>>Downlink RFC 3095 context	OP				REL-5
>>>Downlink RFC 3095 context identity	MP		Integer (0..16383)		REL-5
>>>DL_MODE	MP		Enumerated (u, o, r)	RFC 3095 mode in downlink before SRNS relocation.	REL-5
>>>REF_IR	MP		Octet string (1..3000)	The RTP IR header (see section 5.7.7 of RFC3095 for detailed format) corresponding to the oldest header in the compressor sliding window.	REL-5
>>>REF_TIME	OP		Integer (0..4294967295)	Arrival time (at the compressor) of REF_IR in milliseconds. See sections 4.5.4 and 6.5.1 of RFC3095.	REL-5
>>>CURR_TIME	OP		Integer (0..4294967295)	Current time in milliseconds. See sections 6.5.1 of RFC3095.	REL-5
>>>SYN_OFFSET_ID	OP		Integer (0..65535)	Last synchronized offset of IP-ID. See sections 4.5.5 and 6.5.1 of RFC3095 (called there as Offset_i). It is related to the compression and decompression of IP-ID and is the synchronized offset between the IP-ID value and the SN value (in the same header) during the last SO state before the relocation procedure.	REL-5
>>>SYN_SLOPE_TS	OP		Integer (0..4294967295)	Last synchronized slope of TS. See sections 5.5.1.2 and 5.7 of RFC3095. In SO state, $TS(n) = TS(m) + (n-m) * SYN_SLOPE_TS$, where n and m is the RTP SN of current packet	REL-5

				and the reference packet. Note that the unit of <u>SYN_SLOPE_TS</u> depends on whether TS is scaled before compression or not.	
>>>DYN_CHANGED	MP		Boolean	Information whether dynamic fields other than RTP SN, RTP TS and IP-ID have changed in the headers that are stored in the sliding window. Set to TRUE if changed and FALSE if not changed.	REL-5
>>Uplink RFC 3095 context	OP				REL-5
>>>Uplink RFC 3095 context identity	MP		Integer (0..16383)		REL-5
>>>UL_MODE	MP		Enumerated (u, o, r)	RFC 3095 mode in uplink	REL-5
>>>REF_IR	MP		Octet string (1..3000)	The RTP IR header (see section 5.7.7 of IETF RFC3095 for detailed format) corresponding to the last correctly decompressed header.	REL-5
>>>REF_TIME	OP		Integer (0..4294967295)	Arrival time (at the decompressor) of REF_IR in milliseconds. See sections 4.5.4 and 6.5.1 of RFC3095.	REL-5
>>>CURR_TIME	OP		Integer (0..4294967295)	Current time in milliseconds. See sections 6.5.1 of RFC3095.	REL-5
>>>SYN_OFFSET_ID	OP		Integer (0..65535)	Last synchronized offset of IP-ID. See sections 4.5.5 and 6.5.1 of RFC3095 (called there as Offset i). It is related to the compression and decompression of IP-ID and is the synchronized offset between the IP-ID value and the SN value (in the same header) during the last SO state before the relocation procedure.	REL-5

<p>>>>SYN_SLOPE_TS</p>	<p>OP</p>		<p>Integer (0..4294967 295)</p>	<p>Last synchronized slope of TS. See sections 5.5.1.2 and 5.7 of RFC3095. In SO state, $TS(n) = TS(m) + (n-m) * SYN_SLOPE_TS$, where n and m is the RTP SN of current packet and the reference packet. Note that the unit of SYN_SLOPE_TS depends on whether TS is scaled before compression or not.</p>	<p>REL-5</p>
<p>>>>REF_SN_1</p>	<p>OP</p>		<p>Integer (0..65535)</p>	<p>Corresponds to the RTP Sequence Number of the predecessor of the latest RTP packet. This could be used to perform local repair of context by decompressor in U or O mode (see "ref - 1" in section 5.3.2.2.5 in IETF RFC3095 for further explanation).</p>	<p>REL-5</p>

CR-Form-v7

CHANGE REQUEST

25.331 CR 1791 # rev **-** # Current version: **5.2.0**

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 IE "Access stratum release indicator"		
Source:	# Siemens AG		
Work item code:	# TEI5	Date:	# 21/10/2002
Category:	# F	Release:	# Rel-5
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	F (correction)	2 (GSM Phase 2)	
	A (corresponds to a correction in an earlier release)	R96 (Release 1996)	
	B (addition of feature),	R97 (Release 1997)	
	C (functional modification of feature)	R98 (Release 1998)	
	D (editorial modification)	R99 (Release 1999)	
	Detailed explanations of the above categories can be found in 3GPP TR 21.900.		Rel-4 (Release 4)
			Rel-5 (Release 5)
			Rel-6 (Release 6)

Reason for change:	# With current description of IE "Access stratum release indicator", only up to Rel-4 version of protocol could be indicated to UTRAN.
Summary of change:	# The description of IE "Access stratum release indicator" is extended for UE to also be able to signal Rel-5 version of protocol.
Consequences if not approved:	# UE will not be able to signal Rel-5 version of protocol.

Clauses affected:	# 10.2.39, 10.3.3.42, 11.3										
Other specs affected:	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;">X</td> <td style="text-align: center;"></td> </tr> <tr> <td style="text-align: center;"></td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;"></td> <td style="text-align: center;">X</td> </tr> </table>	Y	N	X			X		X	Other core specifications	# 25.306 CR 056.
Y	N										
X											
	X										
	X										
		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.

10.2.39 RRC CONNECTION REQUEST

RRC Connection Request is the first message transmitted by the UE when setting up an RRC Connection to the network.

RLC-SAP: TM

Logical channel: CCCH

Direction: UE → UTRAN

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
Message Type	MP		Message Type		
UE information elements					
Initial UE identity	MP		Initial UE identity 10.3.3.15		
Establishment cause	MP		Establishment cause 10.3.3.11		
Protocol error indicator	MD		Protocol error indicator 10.3.3.27	Default value is FALSE	
Measurement information elements					
Measured results on RACH	OP		Measured results on RACH 10.3.7.45		
Access stratum release indicator	MP		Enumerated(REL-4, REL-5)	Absence of the IE implies R99. The IE also indicates the release of the RRC transfer syntax supported by the UE. 45-14 spare values are needed	REL-4
					REL-5

If the encoded message does not fill a transport block, the RRC layer shall insert padding according to subclause 12.1

[...]

10.3.3.42 UE radio access capability

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
Access stratum release indicator	MP		Enumerated(R99)	Indicates the release of the UE according to [35]. The IE also indicates the release of the RRC transfer syntax supported by the UE..	
	CV-not_rrc_connectionSetupComplete		Enumerated(REL-4, REL-5)		45-14 spare values are needed.

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
DL capability with simultaneous HS-DSCH configuration	OP		Enumerated(32kbps, 64kbps, 128kbps, 384kbps)		REL-5
PDCP capability	MP		PDCP capability 10.3.3.24		
RLC capability	MP		RLC capability 10.3.3.34		
Transport channel capability	MP		Transport channel capability 10.3.3.40		
RF capability FDD	OP		RF capability FDD 10.3.3.33		
RF capability TDD	OP		RF capability TDD 10.3.3.33b	One "TDD RF capability" entity shall be included for every Chip rate capability supported.	
		1 to 2			
Physical channel capability	MP		Physical channel capability 10.3.3.25		
UE multi-mode/multi-RAT capability	MP		UE multi-mode/multi-RAT capability 10.3.3.41		
Security capability	MP		Security capability 10.3.3.37		
UE positioning capability	MP		UE positioning capability 10.3.3.45		
Measurement capability	CH- <i>fdd_req_su</i> <i>p</i>		Measurement capability 10.3.3.21		

Condition	Explanation
<i>fdd_req_sup</i>	The IE is mandatory present if the IE "Multi-mode capability" has the value "FDD" or "FDD/TDD" and a FDD capability update has been requested in a previous message. Otherwise this field is not needed in the message.
<i>not_rrc_connectionSetupComplete</i>	The IE is not needed in the RRC CONNECTION SETUP COMPLETE message. Otherwise the IE is mandatory present.

[...]

11.3 Information element definitions

[...]

-- *****


```
--
-- USER EQUIPMENT INFORMATION ELEMENTS (10.3.3)
--
-- *****
AccessStratumReleaseIndicator ::= ENUMERATED {
    rel-4, spare15rel-5, spare14, spare13,
    spare12, spare11, spare10, spare9, spare8,
    spare7, spare6, spare5, spare4, spare3,
    spare2, spare1 }

-- TABULAR : for ActivationTime, value 'now' always appear as default, and is encoded
-- by absence of the field
ActivationTime ::= INTEGER (0..255)
```

CR-Form-v7

CHANGE REQUEST

25.331 CR 1792 # rev **1** # Current version: **5.2.0**

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:	# RLC capability for HSDPA		
Source:	# InterDigital and Nokia		
Work item code:	# HSDPA – L23	Date:	# 15/10/2002
Category:	# F	Release:	# Rel-5
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	F (correction)	2 (GSM Phase 2)	
	A (corresponds to a correction in an earlier release)	R96 (Release 1996)	
	B (addition of feature),	R97 (Release 1997)	
	C (functional modification of feature)	R98 (Release 1998)	
	D (editorial modification)	R99 (Release 1999)	
	Detailed explanations of the above categories can be found in 3GPP TR 21.900 .		Rel-4 (Release 4)
			Rel-5 (Release 5)
			Rel-6 (Release 6)

Reason for change:	# The current Rel-4 IE Total RLC AM buffer size does not sufficiently support the minimum total RLC AM and MAC-hs buffer sizes for TDD 3.84 Mcps HSDPA option.
Summary of change:	# Corrected the IE RLC AM buffer size to support Integer 2,10,50,100,150,200, 300,400, 500, 750, 1000 kBytes and its semantics description. Related ASN.1 changes: - RLC-Capability-r5-ext - Total-AM-BufferSize-r5-ext
Consequences if not approved:	# Parameter value range on total L2 UE buffer sizes is not suitable for 3.84 Mcps TDD HSDPA.

Clauses affected:	# 10.3.3.34; 11.3										
Other specs affected:	<table border="1" style="display: inline-table; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 20px;">Y</td> <td style="width: 20px;">N</td> </tr> <tr> <td>X</td> <td></td> </tr> <tr> <td></td> <td>X</td> </tr> <tr> <td></td> <td>X</td> </tr> </table>	Y	N	X			X		X	Other core specifications	# 25.306 CR 049 Rev3.
Y	N										
X											
	X										
	X										
		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.

10.3.3.42 UE radio access capability

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
Access stratum release indicator	MP		Enumerated(R99)	Indicates the release of the UE according to [35]. The IE also indicates the release of the RRC transfer syntax supported by the UE..	
	<i>CV-not_rrc_connectionSetupComplete</i>		Enumerated(REL-4)	15 spare values are needed.	REL-4
PDCP capability	MP		PDCP capability 10.3.3.24		
RLC capability	MP		RLC capability 10.3.3.34		
Transport channel capability	MP		Transport channel capability 10.3.3.40		
RF capability FDD	OP		RF capability FDD 10.3.3.33		
RF capability TDD	OP		RF capability TDD 10.3.3.33b	One "TDD RF capability" entity shall be included for every Chip rate capability supported.	
		1 to 2			REL-4
Physical channel capability	MP		Physical channel capability 10.3.3.25		
UE multi-mode/multi-RAT capability	MP		UE multi-mode/multi-RAT capability 10.3.3.41		
Security capability	MP		Security capability 10.3.3.37		
UE positioning capability	MP		UE positioning capability 10.3.3.45		
Measurement capability	<i>CH-fdd_req_susp</i>		Measurement capability 10.3.3.21		

Condition	Explanation
<i>fdd_req_sup</i>	The IE is mandatory present if the IE "Multi-mode capability" has the value "FDD" or "FDD/TDD" and a FDD capability update has been requested in a previous message. Otherwise this field is not needed in the message.
<i>not_rrc_connectionSetupComplete</i>	The IE is not needed in the RRC CONNECTION SETUP COMPLETE message. Otherwise the IE is mandatory present.

10.3.3.34 RLC capability

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Total RLC AM buffer size			Integer(2,10,50,100,150,200,300,400,500,750,1000)	Total receiving and transmitting RLC AM buffer and MAC-hs reordering buffer capability in kBytes. One spare value is needed.
Maximum RLC AM Window Size	MP		Integer(2047,4095)	Maximum supported RLC TX and RX window in UE
Maximum number of AM entities	MP		Integer(3,4,5,6,8,16,30)	

11.3 Information element definitions

```

InformationElements DEFINITIONS AUTOMATIC TAGS ::=
-- *****
--
-- CORE NETWORK INFORMATION ELEMENTS (10.3.1)
--
-- *****

BEGIN

IMPORTS

< This part remains unchanged >

\
-- *****
--
-- USER EQUIPMENT INFORMATION ELEMENTS (10.3.3)
--
-- *****

AccessStratumReleaseIndicator ::= ENUMERATED {
    rel-4, spare15, spare14, spare13,
    spare12, spare11, spare10, spare9, spare8,
    spare7, spare6, spare5, spare4, spare3,
    spare2, spare1 }

-- TABULAR : for ActivationTime, value 'now' always appear as default, and is encoded
    
```

```

-- by absence of the field
ActivationTime ::=
    INTEGER (0..255)

BackoffControlParams ::=
    SEQUENCE {
        n-AP-RetransMax          N-AP-RetransMax,
        n-AccessFails           N-AccessFails,
        nf-BO-NoAICH            NF-BO-NoAICH,
        ns-BO-Busy              NS-BO-Busy,
        nf-BO-AllBusy           NF-BO-AllBusy,
        nf-BO-Mismatch          NF-BO-Mismatch,
        t-CPCH                  T-CPCH
    }

C-RNTI ::=
    BIT STRING (SIZE (16))

CapabilityUpdateRequirement ::=
    SEQUENCE {
        ue-RadioCapabilityFDDUpdateRequirement-FDD    BOOLEAN,
        -- ue-RadioCapabilityTDDUpdateRequirement-TDD is for 3.84Mcps TDD update requirement
        ue-RadioCapabilityTDDUpdateRequirement-TDD    BOOLEAN,
        systemSpecificCapUpdateReqList                SystemSpecificCapUpdateReqList    OPTIONAL
    }

CapabilityUpdateRequirement-r4-ext ::= SEQUENCE {
    ue-RadioCapabilityUpdateRequirement-TDD128    BOOLEAN
}

CapabilityUpdateRequirement-r4 ::= SEQUENCE {
    ue-RadioCapabilityFDDUpdateRequirement-FDD    BOOLEAN,
    ue-RadioCapabilityTDDUpdateRequirement-TDD384    BOOLEAN,
    ue-RadioCapabilityTDDUpdateRequirement-TDD128    BOOLEAN,
    systemSpecificCapUpdateReqList                SystemSpecificCapUpdateReqList    OPTIONAL
}

CellUpdateCause ::=
    ENUMERATED {
        cellReselection,
        periodicalCellUpdate,
        uplinkDataTransmission,
        utran-pagingResponse,
        re-enteredServiceArea,
        radiolinkFailure,
        rlc-unrecoverableError,
        spare1
    }

ChipRateCapability ::=
    ENUMERATED {
        mcps3-84, mcps1-28
    }

CipheringAlgorithm ::=
    ENUMERATED {
        uea0, uea1
    }

CipheringModeCommand ::=
    CHOICE {
        startRestart          CipheringAlgorithm,
        stopCiphering         NULL
    }

CipheringModeInfo ::=
    SEQUENCE {
        -- TABULAR: The ciphering algorithm is included in the CipheringModeCommand.
        cipheringModeCommand    CipheringModeCommand,
        activationTimeForDPCH    ActivationTime                OPTIONAL,
        rb-DL-CiphActivationTimeInfo    RB-ActivationTimeInfoList    OPTIONAL
    }

CN-DRX-CycleLengthCoefficient ::=
    INTEGER (6..9)

CN-PagedUE-Identity ::=
    CHOICE {
        imsi-GSM-MAP          IMSI-GSM-MAP,
        tmsi-GSM-MAP          TMSI-GSM-MAP,
        p-TMSI-GSM-MAP        P-TMSI-GSM-MAP,
        imsi-DS-41            IMSI-DS-41,
        tmsi-DS-41            TMSI-DS-41,
        spare3                NULL,
        spare2                NULL,
        spare1                NULL
    }

CompressedModeMeasCapability ::=
    SEQUENCE {
        fdd-Measurements        BOOLEAN,
        -- TABULAR: The IEs tdd-Measurements, gsm-Measurements and multiCarrierMeasurements
        -- are made optional since they are conditional based on another information element.
    }

```

```

-- Their absence corresponds to the case where the condition is not true.
tdd-Measurements          BOOLEAN          OPTIONAL,
gsm-Measurements          GSM-Measurements  OPTIONAL,
multiCarrierMeasurements  BOOLEAN          OPTIONAL
}

CompressedModeMeasCapability-LCR-r4 ::= SEQUENCE {
    tdd128-Measurements          BOOLEAN          OPTIONAL
}

CompressedModeMeasCapabFDDList ::= SEQUENCE (SIZE (1..maxFreqBandsFDD)) OF
    CompressedModeMeasCapabFDD

CompressedModeMeasCapabFDD ::= SEQUENCE {
    radioFrequencyBandFDD      RadioFrequencyBandFDD  OPTIONAL,
    dl-MeasurementsFDD         BOOLEAN,
    ul-MeasurementsFDD         BOOLEAN
}

CompressedModeMeasCapabTDDList ::= SEQUENCE (SIZE (1..maxFreqBandsTDD)) OF
    CompressedModeMeasCapabTDD

CompressedModeMeasCapabTDD ::= SEQUENCE {
    radioFrequencyBandTDD      RadioFrequencyBandTDD,
    dl-MeasurementsTDD         BOOLEAN,
    ul-MeasurementsTDD         BOOLEAN
}

CompressedModeMeasCapabGSMList ::= SEQUENCE (SIZE (1..maxFreqBandsGSM)) OF
    CompressedModeMeasCapabGSM

CompressedModeMeasCapabGSM ::= SEQUENCE {
    radioFrequencyBandGSM      RadioFrequencyBandGSM,
    dl-MeasurementsGSM         BOOLEAN,
    ul-MeasurementsGSM         BOOLEAN
}

CompressedModeMeasCapabMC ::= SEQUENCE {
    dl-MeasurementsMC          BOOLEAN,
    ul-MeasurementsMC          BOOLEAN
}

CPCH-Parameters ::= SEQUENCE {
    initialPriorityDelayList    InitialPriorityDelayList          OPTIONAL,
    backoffControlParams        BackoffControlParams,
    -- TABULAR: TPC step size nested inside PowerControlAlgorithm
    powerControlAlgorithm       PowerControlAlgorithm,
    dl-DPCCH-BER                DL-DPCCH-BER
}

DL-DPCCH-BER ::= INTEGER (0..63)

DL-PhysChCapabilityFDD ::= SEQUENCE {
    maxNoDPCH-PDSCH-Codes      INTEGER (1..8),
    maxNoPhysChBitsReceived    MaxNoPhysChBitsReceived,
    supportForSF-512           BOOLEAN,
    supportOfPDSCH             BOOLEAN,
    simultaneousSCCPCH-DPCH-Reception SimultaneousSCCPCH-DPCH-Reception
}

DL-PhysChCapabilityFDD-v380ext ::= SEQUENCE {
    supportOfDedicatedPilotsForChEstimation SupportOfDedicatedPilotsForChEstimation  OPTIONAL
}

SupportOfDedicatedPilotsForChEstimation ::= ENUMERATED { true }

DL-PhysChCapabilityTDD ::= SEQUENCE {
    maxTS-PerFrame             MaxTS-PerFrame,
    maxPhysChPerFrame          MaxPhysChPerFrame,
    minimumSF                  MinimumSF-DL,
    supportOfPDSCH             BOOLEAN,
    maxPhysChPerTS             MaxPhysChPerTS
}

DL-PhysChCapabilityTDD-LCR-r4 ::= SEQUENCE {
    maxTS-PerSubFrame          MaxTS-PerSubFrame-r4,
    maxPhysChPerSubFrame-r4    MaxPhysChPerSubFrame-r4,
    minimumSF                  MinimumSF-DL,

```

```

supportOfPDSCH          BOOLEAN,
maxPhysChPerTS         MaxPhysChPerTS,
supportOf8PSK          BOOLEAN
}

DL-TransChCapability ::=
  maxNoBitsReceived      MaxNoBits,
  maxConvCodeBitsReceived MaxNoBits,
  turboDecodingSupport   TurboSupport,
  maxSimultaneousTransChs MaxSimultaneousTransChsDL,
  maxSimultaneousCCTrCH-Count MaxSimultaneousCCTrCH-Count,
  maxReceivedTransportBlocks MaxTransportBlocksDL,
  maxNumberOfTFC         MaxNumberOfTFC-DL,
  maxNumberOfTF         MaxNumberOfTF
}

DRAC-SysInfo ::=
  transmissionProbability TransmissionProbability,
  maximumBitRate         MaximumBitRate
}

DRAC-SysInfoList ::= SEQUENCE (SIZE (1..maxDRACclasses)) OF
  DRAC-SysInfo

DSCH-RNTI ::= BIT STRING (SIZE (16))

ESN-DS-41 ::= BIT STRING (SIZE (32))

EstablishmentCause ::= ENUMERATED {
  originatingConversationalCall,
  originatingStreamingCall,
  originatingInteractiveCall,
  originatingBackgroundCall,
  originatingSubscribedTrafficCall,
  terminatingConversationalCall,
  terminatingStreamingCall,
  terminatingInteractiveCall,
  terminatingBackgroundCall,
  emergencyCall,
  interRAT-CellReselection,
  interRAT-CellChangeOrder,
  registration,
  detach,
  originatingHighPrioritySignalling,
  originatingLowPrioritySignalling,
  callRe-establishment,
  terminatingHighPrioritySignalling,
  terminatingLowPrioritySignalling,
  terminatingCauseUnknown,
  spare12,
  spare11,
  spare10,
  spare9,
  spare8,
  spare7,
  spare6,
  spare5,
  spare4,
  spare3,
  spare2,
  spare1 }

FailureCauseWithProtErr ::= CHOICE {
  configurationUnsupported      NULL,
  physicalChannelFailure       NULL,
  incompatibleSimultaneousReconfiguration
                                NULL,
  compressedModeRuntimeError   TGPSI,
  protocolError                ProtocolErrorInformation,
  cellUpdateOccurred           NULL,
  invalidConfiguration         NULL,
  configurationIncomplete       NULL,
  unsupportedMeasurement       NULL,
  spare7                       NULL,
  spare6                       NULL,
  spare5                       NULL,
  spare4                       NULL,
  spare3                       NULL,
}

```



```

    spare2                NULL,
    spare1                NULL
}

FailureCauseWithProtErrTrId ::= SEQUENCE {
    rrc-TransactionIdentifier RRC-TransactionIdentifier,
    failureCause              FailureCauseWithProtErr
}

GSM-Measurements ::= SEQUENCE {
    gsm900                    BOOLEAN,
    dcs1800                   BOOLEAN,
    gsm1900                   BOOLEAN
}

H-RNTI ::= BIT STRING (SIZE (16))

HSDSCH-capability-class ::= INTEGER (0..63)

IMSI-and-ESN-DS-41 ::= SEQUENCE {
    imsi-DS-41                IMSI-DS-41,
    esn-DS-41                 ESN-DS-41
}

IMSI-DS-41 ::= OCTET STRING (SIZE (5..7))

InitialPriorityDelayList ::= SEQUENCE (SIZE (1..maxASC)) OF
    NS-IP

InitialUE-Identity ::= CHOICE {
    imsi                      IMSI-GSM-MAP,
    tmsi-and-LAI              TMSI-and-LAI-GSM-MAP,
    p-TMSI-and-RAI            P-TMSI-and-RAI-GSM-MAP,
    imei                      IMEI,
    esn-DS-41                 ESN-DS-41,
    imsi-DS-41                IMSI-DS-41,
    imsi-and-ESN-DS-41        IMSI-and-ESN-DS-41,
    tmsi-DS-41                TMSI-DS-41
}

IntegrityCheckInfo ::= SEQUENCE {
    messageAuthenticationCode MessageAuthenticationCode,
    rrc-MessageSequenceNumber RRC-MessageSequenceNumber
}

IntegrityProtActivationInfo ::= SEQUENCE {
    rrc-MessageSequenceNumberList RRC-MessageSequenceNumberList
}

IntegrityProtectionAlgorithm ::= ENUMERATED {
    uial
}

IntegrityProtectionModeCommand ::= CHOICE {
    startIntegrityProtection SEQUENCE {
        integrityProtInitNumber IntegrityProtInitNumber
    },
    modify                    SEQUENCE {
        dl-IntegrityProtActivationInfo IntegrityProtActivationInfo
    }
}

IntegrityProtectionModeInfo ::= SEQUENCE {
    -- TABULAR: DL integrity protection activation info and Integrity
    -- protection intialisation number have been nested inside
    -- IntegrityProtectionModeCommand.
    integrityProtectionModeCommand IntegrityProtectionModeCommand,
    integrityProtectionAlgorithm   IntegrityProtectionAlgorithm OPTIONAL
}

IntegrityProtInitNumber ::= BIT STRING (SIZE (32))

MAC-hs-Capability ::= SEQUENCE {
    totalBufferSize TotalBufferSize
}

MaxHcContextSpace ::= ENUMERATED {
    by512, by1024, by2048, by4096,

```

```

by8192 }

MaxROHC-ContextSessions-r4 ::=      ENUMERATED {
                                        s2, s4, s8, s12, s16, s24, s32, s48,
                                        s64, s128, s256, s512, s1024, s16384 }

MaximumAM-EntityNumberRLC-Cap ::=  ENUMERATED {
                                        am3, am4, am5, am6,
                                        am8, am16, am30 }

-- Actual value MaximumBitRate = IE value * 16
MaximumBitRate ::=                  INTEGER (0..32)

MaximumRLC-WindowSize ::=           ENUMERATED { mws2047, mws4095 }

MaxNoDPDCH-BitsTransmitted ::=      ENUMERATED {
                                        b600, b1200, b2400, b4800,
                                        b9600, b19200, b28800, b38400,
                                        b48000, b57600 }

MaxNoBits ::=                       ENUMERATED {
                                        b640, b1280, b2560, b3840, b5120,
                                        b6400, b7680, b8960, b10240,
                                        b20480, b40960, b81920, b163840 }

MaxNoPhysChBitsReceived ::=         ENUMERATED {
                                        b600, b1200, b2400, b3600,
                                        b4800, b7200, b9600, b14400,
                                        b19200, b28800, b38400, b48000,
                                        b57600, b67200, b76800 }

MaxNoSCCPCH-RL ::=                 ENUMERATED {
                                        r11 }

MaxNumberOfTF ::=                   ENUMERATED {
                                        tf32, tf64, tf128, tf256,
                                        tf512, tf1024 }

MaxNumberOfTFC-DL ::=               ENUMERATED {
                                        tfc16, tfc32, tfc48, tfc64, tfc96,
                                        tfc128, tfc256, tfc512, tfc1024 }

MaxNumberOfTFC-UL ::=               ENUMERATED {
                                        tfc4, tfc8, tfc16, tfc32, tfc48, tfc64,
                                        tfc96, tfc128, tfc256, tfc512, tfc1024 }

MaxPhysChPerFrame ::=               INTEGER (1..224)

MaxPhysChPerSubFrame-r4 ::=         INTEGER (1..96)

MaxPhysChPerTimeslot ::=            ENUMERATED {
                                        ts1, ts2 }

MaxPhysChPerTS ::=                  INTEGER (1..16)

MaxSimultaneousCCTrCH-Count ::=     INTEGER (1..8)

MaxSimultaneousTransChsDL ::=       ENUMERATED {
                                        e4, e8, e16, e32 }

MaxSimultaneousTransChsUL ::=       ENUMERATED {
                                        e2, e4, e8, e16, e32 }

MaxTransportBlocksDL ::=            ENUMERATED {
                                        tb4, tb8, tb16, tb32, tb48,
                                        tb64, tb96, tb128, tb256, tb512 }

MaxTransportBlocksUL ::=            ENUMERATED {
                                        tb2, tb4, tb8, tb16, tb32, tb48,
                                        tb64, tb96, tb128, tb256, tb512 }

MaxTS-PerFrame ::=                  INTEGER (1..14)

MaxTS-PerSubFrame-r4 ::=            INTEGER (1..6)

-- TABULAR: MeasurementCapability contains dependencies to UE-MultiModeRAT-Capability,
-- the conditional fields have been left mandatory for now.

```

```

MeasurementCapability ::=
    downlinkCompressedMode
    uplinkCompressedMode
}

MeasurementCapability-v370 ::=
    compressedModeMeasCapabFDDList
    compressedModeMeasCapabTDDList
    compressedModeMeasCapabGSMList
    compressedModeMeasCapabMC
}

MeasurementCapability-r4-ext ::=
    downlinkCompressedMode-LCR
    uplinkCompressedMode-LCR
}

MessageAuthenticationCode ::=
    BIT STRING (SIZE (32))

MinimumSF-DL ::=
    ENUMERATED {
        sf1, sf16 }

MinimumSF-UL ::=
    ENUMERATED {
        sf1, sf2, sf4, sf8, sf16 }

MultiModeCapability ::=
    ENUMERATED {
        tdd, fdd, fdd-tdd }

MultiRAT-Capability ::=
    supportOfGSM
    supportOfMulticarrier
}

N-300 ::=
    INTEGER (0..7)

N-301 ::=
    INTEGER (0..7)

N-302 ::=
    INTEGER (0..7)

N-304 ::=
    INTEGER (0..7)

N-308 ::=
    INTEGER (1..8)

N-310 ::=
    INTEGER (0..7)

N-312 ::=
    ENUMERATED {
        s1, s50, s100, s200, s400,
        s600, s800, s1000 }

N-312ext ::=
    ENUMERATED {
        s2, s4, s10, s20 }

N-313 ::=
    ENUMERATED {
        s1, s2, s4, s10, s20,
        s50, s100, s200 }

N-315 ::=
    ENUMERATED {
        s1, s50, s100, s200, s400,
        s600, s800, s1000 }

N-315ext ::=
    ENUMERATED {
        s2, s4, s10, s20 }

N-AccessFails ::=
    INTEGER (1..64)

N-AP-RetransMax ::=
    INTEGER (1..64)

NetworkAssistedGPS-Supported ::=
    ENUMERATED {
        networkBased,
        ue-Based,
        bothNetworkAndUE-Based,
        noNetworkAssistedGPS }

NF-BO-AllBusy ::=
    INTEGER (0..31)

NF-BO-NoAICH ::=
    INTEGER (0..31)

NF-BO-Mismatch ::=
    INTEGER (0..127)

```

```

NS-BO-Busy ::= INTEGER (0..63)

NS-IP ::= INTEGER (0..28)

P-TMSI-and-RAI-GSM-MAP ::= SEQUENCE {
    p-TMSI
    rai
}

PagingCause ::= ENUMERATED {
    terminatingConversationalCall,
    terminatingStreamingCall,
    terminatingInteractiveCall,
    terminatingBackgroundCall,
    terminatingHighPrioritySignalling,
    terminatingLowPrioritySignalling,
    terminatingCauseUnknown,
    spare
}

PagingRecord ::= CHOICE {
    cn-Identity SEQUENCE {
        pagingCause PagingCause,
        cn-DomainIdentity CN-DomainIdentity,
        cn-pagedUE-Identity CN-PagedUE-Identity
    },
    utran-Identity SEQUENCE {
        u-RNTI U-RNTI,
        cn-OriginatedPage-connectedMode-UE SEQUENCE {
            pagingCause PagingCause,
            cn-DomainIdentity CN-DomainIdentity,
            pagingRecordTypeID PagingRecordTypeID
        }
    }
} OPTIONAL

PagingRecordList ::= SEQUENCE (SIZE (1..maxPage1)) OF
    PagingRecord

PDCP-Capability ::= SEQUENCE {
    losslessSRNS-RelocationSupport BOOLEAN,
    supportForRfc2507 CHOICE {
        notSupported NULL,
        supported MaxHcContextSpace
    }
}

PDCP-Capability-r4-ext ::= SEQUENCE {
    supportForRfc3095 CHOICE {
        notSupported NULL,
        supported SEQUENCE {
            maxROHC-ContextSessions MaxROHC-ContextSessions-r4 DEFAULT s16,
            reverseCompressionDepth INTEGER (0..65535) DEFAULT 0
        }
    }
}

PhysicalChannelCapability ::= SEQUENCE {
    fddPhysChCapability SEQUENCE {
        downlinkPhysChCapability DL-PhysChCapabilityFDD,
        uplinkPhysChCapability UL-PhysChCapabilityFDD
    }
    -- tddPhysChCapability describes the 3.84Mcps TDD physical channel capability
    tddPhysChCapability SEQUENCE {
        downlinkPhysChCapability DL-PhysChCapabilityTDD,
        uplinkPhysChCapability UL-PhysChCapabilityTDD
    }
} OPTIONAL

-- PhysicalChannelCapability-LCR-r4 describes the 1.28Mcps TDD physical channel capability
PhysicalChannelCapability-LCR-r4 ::= SEQUENCE {
    tdd128-PhysChCapability SEQUENCE {
        downlinkPhysChCapability DL-PhysChCapabilityTDD-LCR-r4,
        uplinkPhysChCapability UL-PhysChCapabilityTDD-LCR-r4
    }
} OPTIONAL

```

```

-- PhysicalChannelCapability-hspdsch-r5 describes the HS-PDSCH physical channel capability
PhysicalChannelCapability-hspdsch-r5 ::= SEQUENCE {
  modeSpecificInfo CHOICE {
    fdd SEQUENCE {
      hspdsch-supported CHOICE {
        supported
        notsupported
      }
    },
    tdd384 SEQUENCE {
      hspdsch-supported CHOICE {
        supported
        notsupported
      }
    },
    tdd128 SEQUENCE {
      hspdsch-supported CHOICE {
        supported
        notsupported
      }
    }
  }
}

PNBSCH-Allocation-r4 ::= SEQUENCE {
  numberOfRepetitionsPerSFNPeriod ENUMERATED {
    c2, c3, c4, c5, c6, c7, c8, c9, c10,
    c12, c14, c16, c18, c20, c24, c28, c32,
    c36, c40, c48, c56, c64, c72, c80 }
}

ProtocolErrorCause ::= ENUMERATED {
  asnl-ViolationOrEncodingError,
  messageTypeNonexistent,
  messageNotCompatibleWithReceiverState,
  ie-ValueNotComprehended,
  informationElementMissing,
  messageExtensionNotComprehended,
  spare2, spare1 }

ProtocolErrorIndicator ::= ENUMERATED {
  noError, errorOccurred }

ProtocolErrorIndicatorWithMoreInfo ::= CHOICE {
  noError NULL,
  errorOccurred SEQUENCE {
    rrc-TransactionIdentifier RRC-TransactionIdentifier,
    protocolErrorInformation ProtocolErrorInformation
  }
}

ProtocolErrorMoreInformation ::= SEQUENCE {
  diagnosticsType CHOICE {
    type1 CHOICE {
      asnl-ViolationOrEncodingError NULL,
      messageTypeNonexistent NULL,
      messageNotCompatibleWithReceiverState
        IdentificationOfReceivedMessage,
      ie-ValueNotComprehended IdentificationOfReceivedMessage,
      conditionalInformationElementError IdentificationOfReceivedMessage,
      messageExtensionNotComprehended IdentificationOfReceivedMessage,
      spare1 NULL,
      spare2 NULL
    },
    spare NULL
  }
}

RadioFrequencyBandFDD ::= ENUMERATED {
  fdd2100,
  fdd1900,
  spare6, spare5, spare4, spare3, spare2, spare1 }

RadioFrequencyBandTDDList ::= ENUMERATED {
  a, b, c, ab, ac, bc, abc, spare }

RadioFrequencyBandTDD ::= ENUMERATED {a, b, c, spare}

```

```

RadioFrequencyBandGSM ::=          ENUMERATED {
                                     gsm450,
                                     gsm480,
                                     gsm850,
                                     gsm900P,
                                     gsm900E,
                                     gsm1800,
                                     gsm1900,
                                     spare9, spare8, spare7, spare6, spare5,
                                     spare4, spare3, spare2, spare1}

Rb-timer-indicator ::=             SEQUENCE {
    t314-expired                    BOOLEAN,
    t315-expired                    BOOLEAN }

Re-EstablishmentTimer ::=         ENUMERATED {
    useT314, useT315
}

RedirectionInfo ::=              CHOICE {
    frequencyInfo                   FrequencyInfo,
    interRATInfo                    InterRATInfo
}

RejectionCause ::=               ENUMERATED {
    congestion,
    unspecified }

ReleaseCause ::=                 ENUMERATED {
    normalEvent,
    unspecified,
    pre-emptiveRelease,
    congestion,
    re-establishmentReject,
    directedsignallingconnectionre-establishment,
    userInactivity,
    spare }

RF-Capability ::=                SEQUENCE {
    fddRF-Capability                 SEQUENCE {
        ue-PowerClass                UE-PowerClass,
        txRxFrequencySeparation      TxRxFrequencySeparation
    }
    tddRF-Capability                 SEQUENCE {
        ue-PowerClass                UE-PowerClass,
        radioFrequencyBandTDDList    RadioFrequencyBandTDDList,
        chipRateCapability            ChipRateCapability
    }
    OPTIONAL
}

RF-Capability-r4-ext ::=          SEQUENCE {
    tddRF-Capability                 SEQUENCE {
        ue-PowerClass                UE-PowerClass,
        radioFrequencyBandTDDList    RadioFrequencyBandTDDList,
        chipRateCapability            ChipRateCapability
    }
    OPTIONAL
}

RLC-Capability ::=               SEQUENCE {
    totalRLC-AM-BufferSize            TotalRLC-AM-BufferSize,
    maximumRLC-WindowSize             MaximumRLC-WindowSize,
    maximumAM-EntityNumber            MaximumAM-EntityNumberRLC-Cap
}

RLC-Capability-r5-ext ::=         SEQUENCE {
    totalRLC-AM-BufferSize            TotalRLC-AM-BufferSize-r5-ext
}

RRC-MessageSequenceNumber ::=     INTEGER (0..15)

RRC-MessageSequenceNumberList ::= SEQUENCE (SIZE (4..5)) OF
    RRC-MessageSequenceNumber

RRC-StateIndicator ::=            ENUMERATED {
    cell-DCH, cell-FACH, cell-PCH, ura-PCH }

```

```

RRC-TransactionIdentifier ::=      INTEGER (0..3)

S-RNTI ::=                          BIT STRING (SIZE (20))

S-RNTI-2 ::=                         BIT STRING (SIZE (10))

SecurityCapability ::=              SEQUENCE {
    cipheringAlgorithmCap           BIT STRING {
                                        spare15(0),
                                        spare14(1),
                                        spare13(2),
                                        spare12(3),
                                        spare11(4),
                                        spare10(5),
                                        spare9(6),
                                        spare8(7),
                                        spare7(8),
                                        spare6(9),
                                        spare5(10),
                                        spare4(11),
                                        spare3(12),
                                        spare2(13),
                                        ueal(14),
                                        uea0(15)
                                } (SIZE (16)),
    integrityProtectionAlgorithmCap BIT STRING {
                                        spare15(0),
                                        spare14(1),
                                        spare13(2),
                                        spare12(3),
                                        spare11(4),
                                        spare10(5),
                                        spare9(6),
                                        spare8(7),
                                        spare7(8),
                                        spare6(9),
                                        spare5(10),
                                        spare4(11),
                                        spare3(12),
                                        spare2(13),
                                        uial(14),
                                        spare0(15)
                                } (SIZE (16))
}

SimultaneousSCCPCH-DPCH-Reception ::= CHOICE {
    notSupported                     NULL,
    supported                         SEQUENCE {
        maxNoSCCPCH-RL              MaxNoSCCPCH-RL,
        -- simultaneousSCCPCH-DPCH-DPDCH-Reception is applicable only if
        -- the IE Support of PDSCH = TRUE
        simultaneousSCCPCH-DPCH-DPDCH-Reception    BOOLEAN
    }
}

SRNC-Identity ::=                   BIT STRING (SIZE (12))

START-Value ::=                      BIT STRING (SIZE (20))

STARTList ::=                         SEQUENCE (SIZE (1..maxCNdomains)) OF
                                        STARTSingle

STARTSingle ::=                      SEQUENCE {
    cn-DomainIdentity               CN-DomainIdentity,
    start-Value                     START-Value
}

SystemSpecificCapUpdateReq ::=       ENUMERATED {
                                        gsm
}

SystemSpecificCapUpdateReqList ::=   SEQUENCE (SIZE (1..maxSystemCapability)) OF
                                        SystemSpecificCapUpdateReq

T-300 ::=                            ENUMERATED {
                                        ms100, ms200, ms400, ms600, ms800,

```

```

ms1000, ms1200, ms1400, ms1600,
ms1800, ms2000, ms3000, ms4000,
ms6000, ms8000 }

T-301 ::=
ENUMERATED {
ms100, ms200, ms400, ms600, ms800,
ms1000, ms1200, ms1400, ms1600,
ms1800, ms2000, ms3000, ms4000,
ms6000, ms8000, spare }

T-302 ::=
ENUMERATED {
ms100, ms200, ms400, ms600, ms800,
ms1000, ms1200, ms1400, ms1600,
ms1800, ms2000, ms3000, ms4000,
ms6000, ms8000, spare }

T-304 ::=
ENUMERATED {
ms100, ms200, ms400,
ms1000, ms2000, spare3, spare2, spare1 }

T-305 ::=
ENUMERATED {
noUpdate, m5, m10, m30,
m60, m120, m360, m720 }

T-307 ::=
ENUMERATED {
s5, s10, s15, s20,
s30, s40, s50, spare }

T-308 ::=
ENUMERATED {
ms40, ms80, ms160, ms320 }

T-309 ::=
INTEGER (1..8)

T-310 ::=
ENUMERATED {
ms40, ms80, ms120, ms160,
ms200, ms240, ms280, ms320 }

T-311 ::=
ENUMERATED {
ms250, ms500, ms750, ms1000,
ms1250, ms1500, ms1750, ms2000 }

-- The value 0 for T-312 is not used in this version of the specification
T-312 ::=
INTEGER (0..15)

T-313 ::=
INTEGER (0..15)

T-314 ::=
ENUMERATED {
s0, s2, s4, s6, s8,
s12, s16, s20 }

T-315 ::=
ENUMERATED {
s0, s10, s30, s60, s180,
s600, s1200, s1800 }

T-316 ::=
ENUMERATED {
s0, s10, s20, s30, s40,
s50, s-inf, spare }

T-317 ::=
ENUMERATED {
s0, s10, s30, s60, s180,
s600, s1200, s1800 }

T-CPCH ::=
ENUMERATED {
ct0, ct1 }

TMSI-and-LAI-GSM-MAP ::=
sequence {
tmsi
lai
}

TMSI-DS-41 ::=
OCTET STRING (SIZE (2..17))

TotalRLC-AM-BufferSize ::=
ENUMERATED {
kb2, kb10, kb50, kb100,
kb150, kb500, kb1000, spare }

TotalRLC-AM-BufferSize-r5-ext ::=
ENUMERATED {

```


kb200, kb300, kb400, kb750}

```

TotalBufferSize ::=
    ENUMERATED {
        kb50, kb100, kb150, kb200,
        kb300, spare3, spare2, spare1 }

-- Actual value TransmissionProbability = IE value * 0.125
TransmissionProbability ::=
    INTEGER (1..8)

TransportChannelCapability ::=
    SEQUENCE {
        dl-TransChCapability    DL-TransChCapability,
        ul-TransChCapability    UL-TransChCapability
    }

TurboSupport ::=
    CHOICE {
        notSupported           NULL,
        supported              MaxNoBits
    }

TxRxFrequencySeparation ::=
    ENUMERATED {
        mhz190, mhz174-8-205-2,
        mhz134-8-245-2 }

U-RNTI ::=
    SEQUENCE {
        srnc-Identity          SRNC-Identity,
        s-RNTI                 S-RNTI
    }

U-RNTI-Short ::=
    SEQUENCE {
        srnc-Identity          SRNC-Identity,
        s-RNTI-2              S-RNTI-2
    }

UE-ConnTimersAndConstants ::=
    SEQUENCE {
-- Optional is used also for parameters for which the default value is the last one read in SIB1
-- t-301 and n-301 should not be used by the UE in this version of the specification
        t-301                  T-301                DEFAULT ms2000,
        n-301                  N-301                DEFAULT 2,
        t-302                  T-302                DEFAULT ms4000,
        n-302                  N-302                DEFAULT 3,
        t-304                  T-304                DEFAULT ms2000,
        n-304                  N-304                DEFAULT 2,
        t-305                  T-305                DEFAULT m30,
        t-307                  T-307                DEFAULT s30,
        t-308                  T-308                DEFAULT ms160,
        t-309                  T-309                DEFAULT 5,
        t-310                  T-310                DEFAULT ms160,
        n-310                  N-310                DEFAULT 4,
        t-311                  T-311                DEFAULT ms2000,
        t-312                  T-312                DEFAULT 1,
        -- n-312 shall be ignored if n-312 in UE-ConnTimersAndConstants-v3a0ext is present, and the
        -- value of that element shall be used instead.
        n-312                  N-312                DEFAULT s1,
        t-313                  T-313                DEFAULT 3,
        n-313                  N-313                DEFAULT s20,
        t-314                  T-314                DEFAULT s12,
        t-315                  T-315                DEFAULT s180,
        -- n-315 shall be ignored if n-315 in UE-ConnTimersAndConstants-v3a0ext is present, and the
        -- value of that element shall be used instead.
        n-315                  N-315                DEFAULT s1,
        t-316                  T-316                DEFAULT s30,
        t-317                  T-317                DEFAULT s180
    }

UE-ConnTimersAndConstants-v3a0ext ::=
    SEQUENCE {
        n-312                  N-312ext            OPTIONAL,
        n-315                  N-315ext            OPTIONAL
    }

UE-IdleTimersAndConstants ::=
    SEQUENCE {
        t-300                  T-300,
        n-300                  N-300,
        t-312                  T-312,
        -- n-312 shall be ignored if n-312 in UE-IdleTimersAndConstants-v3a0ext is present, and the
        -- value of that element shall be used instead.
        n-312                  N-312
    }

```

```

}
UE-IdleTimersAndConstants-v3a0ext ::= SEQUENCE {
    n-312 N-312ext OPTIONAL
}
UE-MultiModeRAT-Capability ::= SEQUENCE {
    multiRAT-CapabilityList MultiRAT-Capability,
    multiModeCapability MultiModeCapability
}
UE-PowerClass ::= INTEGER (1..4)
UE-PowerClass-v370 ::= ENUMERATED {class1, class2, class3, class4,
    spare4, spare3, spare2, spare1 }
UE-RadioAccessCapability ::= SEQUENCE {
    pdcp-Capability PDCP-Capability,
    rlc-Capability RLC-Capability,
    transportChannelCapability TransportChannelCapability,
    rf-Capability RF-Capability,
    physicalChannelCapability PhysicalChannelCapability,
    ue-MultiModeRAT-Capability UE-MultiModeRAT-Capability,
    securityCapability SecurityCapability,
    ue-positioning-Capability UE-Positioning-Capability,
    measurementCapability MeasurementCapability OPTIONAL
}
UE-RadioAccessCapabilityInfo ::= SEQUENCE {
    ue-RadioAccessCapability UE-RadioAccessCapability,
    ue-RadioAccessCapability-v370ext UE-RadioAccessCapability-v370ext
}
UE-RadioAccessCapability-v370ext ::= SEQUENCE {
    ue-RadioAccessCapabBandFDDList UE-RadioAccessCapabBandFDDList
}
UE-RadioAccessCapability-v380ext ::= SEQUENCE {
    ue-PositioningCapabilityExt-v380 UE-PositioningCapabilityExt-v380
}
UE-RadioAccessCapability-v3a0ext ::= SEQUENCE {
    ue-PositioningCapabilityExt-v3a0 UE-PositioningCapabilityExt-v3a0
}
UE-PositioningCapabilityExt-v380 ::= SEQUENCE {
    rx-tx-TimeDifferenceType2Capable BOOLEAN
}
UE-PositioningCapabilityExt-v3a0 ::= SEQUENCE {
    validity-CellPCH-UraPCH ENUMERATED { true }
}
UE-RadioAccessCapabBandFDDList ::= SEQUENCE (SIZE (1..maxFreqBandsFDD)) OF
    UE-RadioAccessCapabBandFDD
UE-RadioAccessCapabBandFDD ::= SEQUENCE{
    radioFrequencyBandFDD RadioFrequencyBandFDD,
    fddRF-Capability SEQUENCE {
        ue-PowerClass UE-PowerClass-v370,
        txRxFrequencySeparation TxRxFrequencySeparation
    } OPTIONAL,
    measurementCapability MeasurementCapability-v370
}
UE-RadioAccessCapability-r4-ext ::= SEQUENCE {
    pdcp-Capability-r4-ext PDCP-Capability-r4-ext,
    rf-Capability RF-Capability-r4-ext,
    physicalChannelCapability-LCR PhysicalChannelCapability-LCR-r4,
    measurementCapability-r4-ext MeasurementCapability-r4-ext OPTIONAL
}
UE-RadioAccessCapability-v4xyext ::= SEQUENCE {
    -- R99 UEs shall include IE "ue-TestLevelIndicator"
    accessStratumReleaseIndicator AccessStratumReleaseIndicator
}

```

```

UE-RadioAccessCapability-r5-ext ::= SEQUENCE {
    pdcp-Capability-r4-ext          PDCP-Capability-r4-ext,
    rlc-Capability-r5-ext           RLC-Capability-r5-ext,
    rf-Capability                   RF-Capability-r4-ext,
    mac-hs-Capability               MAC-hs-Capability,
    physicalChannelCapability       PhysicalChannelCapability-hspdsch-r5,
    measurementCapability-r4-ext    MeasurementCapability-r4-ext    OPTIONAL
}

UL-PhysChCapabilityFDD ::=          SEQUENCE {
    maxNoDPDCH-BitsTransmitted     MaxNoDPDCH-BitsTransmitted,
    supportOfPCPCH                 BOOLEAN
}

UL-PhysChCapabilityTDD ::=         SEQUENCE {
    maxTS-PerFrame                 MaxTS-PerFrame,
    maxPhysChPerTimeslot          MaxPhysChPerTimeslot,
    minimumSF                      MinimumSF-UL,
    supportOfPUSCH                 BOOLEAN
}

UL-PhysChCapabilityTDD-LCR-r4 ::= SEQUENCE {
    maxTS-PerSubFrame              MaxTS-PerSubFrame-r4,
    maxPhysChPerTimeslot          MaxPhysChPerTimeslot,
    minimumSF                      MinimumSF-UL,
    supportOfPUSCH                 BOOLEAN,
    supportOf8PSK                  BOOLEAN
}

UL-TransChCapability ::=          SEQUENCE {
    maxNoBitsTransmitted           MaxNoBits,
    maxConvCodeBitsTransmitted     MaxNoBits,
    turboEncodingSupport           TurboSupport,
    maxSimultaneousTransChs        MaxSimultaneousTransChsUL,
    modeSpecificInfo               CHOICE {
        fdd                        NULL,
        tdd                        SEQUENCE {
            maxSimultaneousCCTrCH-Count    MaxSimultaneousCCTrCH-Count
        }
    },
    maxTransmittedBlocks           MaxTransportBlocksUL,
    maxNumberOfTFC                 MaxNumberOfTFC-UL,
    maxNumberOfTF                  MaxNumberOfTF
}

UE-Positioning-Capability ::=     SEQUENCE {
    standaloneLocMethodsSupported  BOOLEAN,
    ue-BasedOTDOA-Supported        BOOLEAN,
    networkAssistedGPS-Supported   NetworkAssistedGPS-Supported,
    supportForUE-GPS-TimingOfCellFrames  BOOLEAN,
    supportForIPDL                 BOOLEAN
}

UE-SecurityInformation ::=        SEQUENCE {
    start-CS                        START-Value
}

URA-UpdateCause ::=             ENUMERATED {
    changeOfURA,
    periodicURAUpdate,
    dummy,
    spare1 }

```

[< the reset of this section remains unchanged >](#)

CHANGE REQUEST

25.331 CR 1794 # rev - # Current version: 5.2.0

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:	# Dedicated pilot bits for HS-DSCH		
Source:	# Ericsson		
Work item code:	# TEI-5	Date:	# 14/11/2002
Category:	# F	Release:	# Rel-5
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	F (correction)	2	(GSM Phase 2)
	A (corresponds to a correction in an earlier release)	R96	(Release 1996)
	B (addition of feature),	R97	(Release 1997)
	C (functional modification of feature)	R98	(Release 1998)
	D (editorial modification)	R99	(Release 1999)
	Detailed explanations of the above categories can be found in 3GPP TR 21.900.	Rel-4	(Release 4)
		Rel-5	(Release 5)
		Rel-6	(Release 6)

Reason for change:	# In LS R2-022528(R1-02-1192) from RAN1 to RAN2 it was indicated that RAN1 have agreed that the support of dedicated pilots for HS-PDSCH and HS-SCCH shall be optional for the UE in Rel-5. Therefor a new capability is included in Rel-5 to indicate if the UE supports dedicated pilots for HSDPA. Note that re-using the existing bit will not work for a Rel-5 UE in a Rel'99 UTRAN, since it then will be assumed not to support dedicated pilot bits for dedicated channels if it do not support dedicated pilots for HS-DSCH, which is not the case. Instead dedicated pilot bits for dedicated channels is mandatory for a Rel-5 UE.
Summary of change:	# The IE "Support of dedicated pilots for channel estimation of HS-DSCH" is added in 10.3.3.25 below the branch of support of HS-PDSCH.
Consequences if not approved:	# It is not possible for a UE to indicate support or non-support of dedicated pilots for channel estimation of HS-PDSCH and HS-SCCH.

Clauses affected:	# 10.3.3.25, 11.3										
Other specs affected:	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;">X</td> <td style="text-align: center;"></td> </tr> <tr> <td style="text-align: center;"></td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;"></td> <td style="text-align: center;">X</td> </tr> </table>	Y	N	X			X		X	Other core specifications	# 25.306 CR 057.
Y	N										
X											
	X										
	X										
		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.

10.3.3.25 Physical channel capability

Information Element/Group name	Need	Multi	Type and Reference	Semantics description	Version
Downlink physical channel capability information elements					
FDD downlink physical channel capability	CH- <i>fdd_req_su</i> <i>p</i>				
>Max no DPCH/PDSCH codes	MP		Integer (1..8)	Maximum number of DPCH/PDSCH codes to be simultaneously received	
>Max no physical channel bits received	MP		Integer (600, 1200, 2400, 3600, 4800, 7200, 9600, 14400, 19200, 28800, 38400, 48000, 57600, 67200, 76800)	Maximum number of physical channel bits received in any 10 ms interval (DPCH, PDSCH, S-CCPCH)	
>Support for SF 512	MP		Boolean	TRUE means supported	
>Support of PDSCH	MP		Boolean	TRUE means supported	
>CHOICE <i>Support of HS-PDSCH</i>	MP				REL-5
>>Supported					REL-5
>>>HS-DSCH capability class	MP		Integer (0..63)		REL-5
>>>Support of dedicated pilots for channel estimation of HS-DSCH	MP		Boolean	TRUE means supported	REL-5
>>Unsupported				(no data)	REL-5
>Simultaneous reception of SCCPCH and DPCH	MP		Boolean	TRUE means supported	
>Simultaneous reception of SCCPCH, DPCH and PDSCH	CV- <i>if_sim_rec</i> <i>_pdsch</i> <i>_sup</i>		Boolean	TRUE means supported	
>Max no of S-CCPCH RL	CV- <i>if_sim_rec</i>		Integer(1)	Maximum number of simultaneous S-CCPCH radio links	
>Support of dedicated pilots for channel estimation	MD		Enumerated (true)	Presence of this element means supported and absence not supported. This IE shall be set to TRUE in this version of the protocol.	
3.84 Mcps TDD downlink physical channel capability	CH- <i>3.84_Mcps</i> <i>_tdd_req_s</i> <i>up</i>				Name changed in REL-4
>Maximum number of timeslots per frame	MP		Integer (1..14)		
>Maximum number of physical channels per frame	MP		Integer (1..224)		

Information Element/Group name	Need	Multi	Type and Reference	Semantics description	Version
>Minimum SF	MP		Integer (1, 16)		
>Support of PDSCH	MP		Boolean	TRUE means supported	
>CHOICE <i>Support of HS-PDSCH</i>	MP				REL-5
>>Supported					REL-5
>>>HS-DSCH capability class	MP		Integer (0..63)		REL-5
>>Unsupported				(no data)	REL-5
>Maximum number of physical channels per timeslot	MP		Integer (1..16)		
1.28 Mcps TDD downlink physical channel capability	CH- <i>1.28_Mcps_tdd_req_s up</i>				REL-4
>Maximum number of timeslots per subframe	MP		Integer (1..6)		REL-4
>Maximum number of physical channels per subframe	MP		Integer (1..96)		REL-4
>Minimum SF	MP		Integer (1, 16)		REL-4
>Support of PDSCH	MP		Boolean	TRUE means supported	REL-4
>CHOICE <i>Support of HS-PDSCH</i>	MP				REL-5
>>Supported					REL-5
>>>HS-DSCH capability class	MP		Integer (0..63)		REL-5
>>Unsupported				(no data)	REL-5
>Maximum number of physical channels per timeslot	MP		Integer (1..16)		REL-4
>Support of 8PSK	MP		Boolean	TRUE means supported	REL-4
Uplink physical channel capability information elements					
FDD uplink physical channel capability	CH- <i>fdd_req_su p</i>				
>Maximum number of DPDCH bits transmitted per 10 ms	MP		Integer (600, 1200, 2400, 4800, 9600, 19200, 28800, 38400, 48000, 57600)		
>Support of PCPCH	MP		Boolean	TRUE means supported	
3.84 Mcps TDD uplink physical channel capability	CH- <i>3.84_Mcps_tdd_req_s up</i>				Name changed in REL-4
>Maximum Number of timeslots per frame	MP		Integer (1..14)		
>Maximum number of physical channels per timeslot	MP		Integer (1, 2)		
>Minimum SF	MP		Integer (1, 2, 4, 8, 16)		
>Support of PUSCH	MP		Boolean	TRUE means supported	
1.28 Mcps TDD uplink physical channel capability	CH- <i>1.28_Mcps</i>				REL-4

Information Element/Group name	Need	Multi	Type and Reference	Semantics description	Version
	<i>_tdd_req_s</i> <i>up</i>				
>Maximum Number of timeslots per subframe	MP		Integer (1..6)		REL-4
>Maximum number of physical channels per timeslot	MP		Integer (1, 2)		REL-4
>Minimum SF	MP		Integer (1, 2, 4, 8, 16)		REL-4
>Support of PUSCH	MP		Boolean	TRUE means supported	REL-4
>Support of 8PSK	MP		Boolean	TRUE means supported	REL-4

Condition	Explanation
<i>if_sim_rec_pdsch_sup</i>	The IE is mandatory present if the IE "Simultaneous reception of SCCPCH and DPCH" = True and IE Support of PDSCH = True. Otherwise this field is not needed in the message.
<i>if_sim_rec</i>	The IE is mandatory present if the IE "capability Simultaneous reception of SCCPCH and DPCH" = True. Otherwise this field is not needed in the message.
<i>3.84_Mcps_tdd_req_sup</i>	The IE is mandatory present if the IE "TDD RF capability" is present with the IE "Chip rate capability" set to "3.84 Mcps" and a 3.84 Mcps TDD capability update has been requested in a previous message. Otherwise this field is not needed in the message.
<i>1.28_Mcps_tdd_req_sup</i>	The IE is mandatory present if the IE "TDD RF capability" is present with the IE "Chip rate capability" set to "1.28 Mcps" and a 1.28 Mcps TDD capability update has been requested in a previous message. Otherwise this field is not needed in the message.
<i>fdd_req_sup</i>	The IE is mandatory present if the IE "Multi-mode capability" has the value "FDD" or "FDD/TDD" and a FDD capability update has been requested in a previous message. Otherwise this field is not needed in the message.

11.3 Information element definitions

```

-- *****
--
-- USER EQUIPMENT INFORMATION ELEMENTS (10.3.3)
--
-- *****

AccessStratumReleaseIndicator ::=      ENUMERATED {
                                        rel-4, spare15, spare14, spare13,
                                        spare12, spare11, spare10, spare9, spare8,
                                        spare7, spare6, spare5, spare4, spare3,
                                        spare2, spare1 }

-- TABULAR : for ActivationTime, value 'now' always appear as default, and is encoded
-- by absence of the field
ActivationTime ::=                     INTEGER (0..255)

BackoffControlParams ::=               SEQUENCE {
    n-AP-RetransMax                    N-AP-RetransMax,
    n-AccessFails                      N-AccessFails,
    nf-BO-NoAICH                      NF-BO-NoAICH,
    ns-BO-Busy                         NS-BO-Busy,
    nf-BO-AllBusy                     NF-BO-AllBusy,
    nf-BO-Mismatch                    NF-BO-Mismatch,
    t-CPCH                             T-CPCH
}

```



```

C-RNTI ::= BIT STRING (SIZE (16))

CapabilityUpdateRequirement ::= SEQUENCE {
    ue-RadioCapabilityFDDUpdateRequirement-FDD BOOLEAN,
    -- ue-RadioCapabilityTDDUpdateRequirement-TDD is for 3.84Mcps TDD update requirement
    ue-RadioCapabilityTDDUpdateRequirement-TDD BOOLEAN,
    systemSpecificCapUpdateReqList SystemSpecificCapUpdateReqList OPTIONAL
}

CapabilityUpdateRequirement-r4-ext ::= SEQUENCE {
    ue-RadioCapabilityUpdateRequirement-TDD128 BOOLEAN
}

CapabilityUpdateRequirement-r4 ::= SEQUENCE {
    ue-RadioCapabilityFDDUpdateRequirement-FDD BOOLEAN,
    ue-RadioCapabilityTDDUpdateRequirement-TDD384 BOOLEAN,
    ue-RadioCapabilityTDDUpdateRequirement-TDD128 BOOLEAN,
    systemSpecificCapUpdateReqList SystemSpecificCapUpdateReqList OPTIONAL
}

CellUpdateCause ::= ENUMERATED {
    cellReselection,
    periodicalCellUpdate,
    uplinkDataTransmission,
    utran-pagingResponse,
    re-enteredServiceArea,
    radiolinkFailure,
    rlc-unrecoverableError,
    spare1
}

ChipRateCapability ::= ENUMERATED {
    mcps3-84, mcps1-28
}

CipheringAlgorithm ::= ENUMERATED {
    uea0, uea1
}

CipheringModeCommand ::= CHOICE {
    startRestart
    dummy NULL
}

CipheringModeInfo ::= SEQUENCE {
    -- TABULAR: The ciphering algorithm is included in the CipheringModeCommand.
    cipheringModeCommand CipheringModeCommand,
    activationTimeForDPCH ActivationTime OPTIONAL,
    rb-DL-CiphActivationTimeInfo RB-ActivationTimeInfoList OPTIONAL
}

CN-DRX-CycleLengthCoefficient ::= INTEGER (6..9)

CN-PagedUE-Identity ::= CHOICE {
    imsi-GSM-MAP IMSI-GSM-MAP,
    tmsi-GSM-MAP TMSI-GSM-MAP,
    p-TMSI-GSM-MAP P-TMSI-GSM-MAP,
    imsi-DS-41 IMSI-DS-41,
    tmsi-DS-41 TMSI-DS-41,
    spare3 NULL,
    spare2 NULL,
    spare1 NULL
}

CompressedModeMeasCapability ::= SEQUENCE {
    fdd-Measurements BOOLEAN,
    -- TABULAR: The IEs tdd-Measurements, gsm-Measurements and multiCarrierMeasurements
    -- are made optional since they are conditional based on another information element.
    -- Their absence corresponds to the case where the condition is not true.
    tdd-Measurements BOOLEAN OPTIONAL,
    gsm-Measurements GSM-Measurements OPTIONAL,
    multiCarrierMeasurements BOOLEAN OPTIONAL
}

CompressedModeMeasCapability-LCR-r4 ::= SEQUENCE {
    tdd128-Measurements BOOLEAN OPTIONAL
}

CompressedModeMeasCapabFDDList ::= SEQUENCE (SIZE (1..maxFreqBandsFDD)) OF
    CompressedModeMeasCapabFDD

```

```

CompressedModeMeasCapabFDD ::= SEQUENCE {
    radioFrequencyBandFDD    OPTIONAL,
    dl-MeasurementsFDD      BOOLEAN,
    ul-MeasurementsFDD      BOOLEAN
}

CompressedModeMeasCapabTDDList ::= SEQUENCE (SIZE (1..maxFreqBandsTDD)) OF
    CompressedModeMeasCapabTDD

CompressedModeMeasCapabTDD ::= SEQUENCE {
    radioFrequencyBandTDD    RadioFrequencyBandTDD,
    dl-MeasurementsTDD      BOOLEAN,
    ul-MeasurementsTDD      BOOLEAN
}

CompressedModeMeasCapabGSMList ::= SEQUENCE (SIZE (1..maxFreqBandsGSM)) OF
    CompressedModeMeasCapabGSM

CompressedModeMeasCapabGSM ::= SEQUENCE {
    radioFrequencyBandGSM    RadioFrequencyBandGSM,
    dl-MeasurementsGSM      BOOLEAN,
    ul-MeasurementsGSM      BOOLEAN
}

CompressedModeMeasCapabMC ::= SEQUENCE {
    dl-MeasurementsMC        BOOLEAN,
    ul-MeasurementsMC        BOOLEAN
}

CPCH-Parameters ::= SEQUENCE {
    initialPriorityDelayList    InitialPriorityDelayList    OPTIONAL,
    backoffControlParams        BackoffControlParams,
    -- TABULAR: TPC step size nested inside PowerControlAlgorithm
    powerControlAlgorithm        PowerControlAlgorithm,
    dl-DPCCH-BER                DL-DPCCH-BER
}

DL-CapabilityWithSimultaneousHS-DSCHConfig ::= ENUMERATED{kbps32, kbps64, kbps128, kbps384}

DL-DPCCH-BER ::= INTEGER (0..63)

DL-PhysChCapabilityFDD ::= SEQUENCE {
    maxNoDPCH-PDSCH-Codes        INTEGER (1..8),
    maxNoPhysChBitsReceived        MaxNoPhysChBitsReceived,
    supportForSF-512              BOOLEAN,
    supportOfPDSCH                BOOLEAN,
    simultaneousSCCPCH-DPCH-Reception    SimultaneousSCCPCH-DPCH-Reception
}

DL-PhysChCapabilityFDD-v380ext ::= SEQUENCE {
    supportOfDedicatedPilotsForChEstimation    SupportOfDedicatedPilotsForChEstimation    OPTIONAL
}

SupportOfDedicatedPilotsForChEstimation ::= ENUMERATED { true }

DL-PhysChCapabilityTDD ::= SEQUENCE {
    maxTS-PerFrame                MaxTS-PerFrame,
    maxPhysChPerFrame              MaxPhysChPerFrame,
    minimumSF                      MinimumSF-DL,
    supportOfPDSCH                BOOLEAN,
    maxPhysChPerTS                MaxPhysChPerTS
}

DL-PhysChCapabilityTDD-LCR-r4 ::= SEQUENCE {
    maxTS-PerSubFrame              MaxTS-PerSubFrame-r4,
    maxPhysChPerSubFrame-r4        MaxPhysChPerSubFrame-r4,
    minimumSF                      MinimumSF-DL,
    supportOfPDSCH                BOOLEAN,
    maxPhysChPerTS                MaxPhysChPerTS,
    supportOf8PSK                  BOOLEAN
}

DL-TransChCapability ::= SEQUENCE {
    maxNoBitsReceived              MaxNoBits,
    maxConvCodeBitsReceived        MaxNoBits,
    turboDecodingSupport            TurboSupport,
    maxSimultaneousTransChs        MaxSimultaneousTransChsDL,

```

```

    maxSimultaneousCCTrCH-Count      MaxSimultaneousCCTrCH-Count,
    maxReceivedTransportBlocks      MaxTransportBlocksDL,
    maxNumberOfTFC                  MaxNumberOfTFC-DL,
    maxNumberOfTF                    MaxNumberOfTF
}

DRAC-SysInfo ::=
    transmissionProbability
    maximumBitRate
}

DRAC-SysInfoList ::=
    SEQUENCE (SIZE (1..maxDRACclasses)) OF
        DRAC-SysInfo

DSCH-RNTI ::=
    BIT STRING (SIZE (16))

ESN-DS-41 ::=
    BIT STRING (SIZE (32))

EstablishmentCause ::=
    ENUMERATED {
        originatingConversationalCall,
        originatingStreamingCall,
        originatingInteractiveCall,
        originatingBackgroundCall,
        originatingSubscribedTrafficCall,
        terminatingConversationalCall,
        terminatingStreamingCall,
        terminatingInteractiveCall,
        terminatingBackgroundCall,
        emergencyCall,
        interRAT-CellReselection,
        interRAT-CellChangeOrder,
        registration,
        detach,
        originatingHighPrioritySignalling,
        originatingLowPrioritySignalling,
        callRe-establishment,
        terminatingHighPrioritySignalling,
        terminatingLowPrioritySignalling,
        terminatingCauseUnknown,
        spare12,
        spare11,
        spare10,
        spare9,
        spare8,
        spare7,
        spare6,
        spare5,
        spare4,
        spare3,
        spare2,
        spare1 }

FailureCauseWithProtErr ::=
    CHOICE {
        configurationUnsupported      NULL,
        physicalChannelFailure        NULL,
        incompatibleSimultaneousReconfiguration
            NULL,
        compressedModeRuntimeError    TGPSI,
        protocolError                  ProtocolErrorInformation,
        cellUpdateOccurred             NULL,
        invalidConfiguration           NULL,
        configurationIncomplete        NULL,
        unsupportedMeasurement         NULL,
        spare7                         NULL,
        spare6                         NULL,
        spare5                         NULL,
        spare4                         NULL,
        spare3                         NULL,
        spare2                         NULL,
        spare1                         NULL
    }

FailureCauseWithProtErrTrId ::=
    SEQUENCE {
        rrc-TransactionIdentifier      RRC-TransactionIdentifier,
        failureCause                   FailureCauseWithProtErr
    }

GSM-Measurements ::=
    SEQUENCE {

```

```

    gsm900                BOOLEAN,
    dcs1800               BOOLEAN,
    gsm1900               BOOLEAN
}

H-RNTI ::=                BIT STRING (SIZE (16))

HSDSCH-capability-class ::= INTEGER (0..63)

IMSI-and-ESN-DS-41 ::=   SEQUENCE {
    imsi-DS-41            IMSI-DS-41,
    esn-DS-41            ESN-DS-41
}

IMSI-DS-41 ::=           OCTET STRING (SIZE (5..7))

InitialPriorityDelayList ::= SEQUENCE (SIZE (1..maxASC)) OF
    NS-IP

InitialUE-Identity ::=   CHOICE {
    imsi                  IMSI-GSM-MAP,
    tmsi-and-LAI          TMSI-and-LAI-GSM-MAP,
    p-TMSI-and-RAI        P-TMSI-and-RAI-GSM-MAP,
    imei                  IMEI,
    esn-DS-41             ESN-DS-41,
    imsi-DS-41            IMSI-DS-41,
    imsi-and-ESN-DS-41    IMSI-and-ESN-DS-41,
    tmsi-DS-41            TMSI-DS-41
}

IntegrityCheckInfo ::=   SEQUENCE {
    messageAuthenticationCode MessageAuthenticationCode,
    rrc-MessageSequenceNumber RRC-MessageSequenceNumber
}

IntegrityProtActivationInfo ::= SEQUENCE {
    rrc-MessageSequenceNumberList RRC-MessageSequenceNumberList
}

IntegrityProtectionAlgorithm ::= ENUMERATED {
    uial }

IntegrityProtectionModeCommand ::= CHOICE {
    startIntegrityProtection SEQUENCE {
        integrityProtInitNumber IntegrityProtInitNumber
    },
    modify                     SEQUENCE {
        dl-IntegrityProtActivationInfo IntegrityProtActivationInfo
    }
}

IntegrityProtectionModeInfo ::= SEQUENCE {
    -- TABULAR: DL integrity protection activation info and Integrity
    -- protection intialisation number have been nested inside
    -- IntegrityProtectionModeCommand.
    integrityProtectionModeCommand IntegrityProtectionModeCommand,
    integrityProtectionAlgorithm   IntegrityProtectionAlgorithm   OPTIONAL
}

IntegrityProtInitNumber ::= BIT STRING (SIZE (32))

MaxHcContextSpace ::=      ENUMERATED {
    by512, by1024, by2048, by4096,
    by8192 }

MaxROHC-ContextSessions-r4 ::= ENUMERATED {
    s2, s4, s8, s12, s16, s24, s32, s48,
    s64, s128, s256, s512, s1024, s16384 }

MaximumAM-EntityNumberRLC-Cap ::= ENUMERATED {
    am3, am4, am5, am6,
    am8, am16, am30 }

-- Actual value MaximumBitRate = IE value * 16
MaximumBitRate ::=        INTEGER (0..32)

```

```

MaximumRLC-WindowSize ::= ENUMERATED { mws2047, mws4095 }

MaxNoDPDCH-BitsTransmitted ::= ENUMERATED {
    b600, b1200, b2400, b4800,
    b9600, b19200, b28800, b38400,
    b48000, b57600 }

MaxNoBits ::= ENUMERATED {
    b640, b1280, b2560, b3840, b5120,
    b6400, b7680, b8960, b10240,
    b20480, b40960, b81920, b163840 }

MaxNoPhysChBitsReceived ::= ENUMERATED {
    b600, b1200, b2400, b3600,
    b4800, b7200, b9600, b14400,
    b19200, b28800, b38400, b48000,
    b57600, b67200, b76800 }

MaxNoSCCPCH-RL ::= ENUMERATED {
    r11 }

MaxNumberOfTF ::= ENUMERATED {
    tf32, tf64, tf128, tf256,
    tf512, tf1024 }

MaxNumberOfTFC-DL ::= ENUMERATED {
    tfc16, tfc32, tfc48, tfc64, tfc96,
    tfc128, tfc256, tfc512, tfc1024 }

MaxNumberOfTFC-UL ::= ENUMERATED {
    tfc4, tfc8, tfc16, tfc32, tfc48, tfc64,
    tfc96, tfc128, tfc256, tfc512, tfc1024 }

MaxPhysChPerFrame ::= INTEGER (1..224)

MaxPhysChPerSubFrame-r4 ::= INTEGER (1..96)

MaxPhysChPerTimeslot ::= ENUMERATED {
    ts1, ts2 }

MaxPhysChPerTS ::= INTEGER (1..16)

MaxSimultaneousCCTrCH-Count ::= INTEGER (1..8)

MaxSimultaneousTransChsDL ::= ENUMERATED {
    e4, e8, e16, e32 }

MaxSimultaneousTransChsUL ::= ENUMERATED {
    e2, e4, e8, e16, e32 }

MaxTransportBlocksDL ::= ENUMERATED {
    tb4, tb8, tb16, tb32, tb48,
    tb64, tb96, tb128, tb256, tb512 }

MaxTransportBlocksUL ::= ENUMERATED {
    tb2, tb4, tb8, tb16, tb32, tb48,
    tb64, tb96, tb128, tb256, tb512 }

MaxTS-PerFrame ::= INTEGER (1..14)

MaxTS-PerSubFrame-r4 ::= INTEGER (1..6)

-- TABULAR: MeasurementCapability contains dependencies to UE-MultiModeRAT-Capability,
-- the conditional fields have been left mandatory for now.
MeasurementCapability ::= SEQUENCE {
    downlinkCompressedMode          CompressedModeMeasCapability,
    uplinkCompressedMode            CompressedModeMeasCapability
}

MeasurementCapability-v370 ::= SEQUENCE{
    compressedModeMeasCapabFDDList  CompressedModeMeasCapabFDDList,
    compressedModeMeasCapabTDDList  CompressedModeMeasCapabTDDList OPTIONAL,
    compressedModeMeasCapabGSMLList CompressedModeMeasCapabGSMLList OPTIONAL,
    compressedModeMeasCapabMC       CompressedModeMeasCapabMC       OPTIONAL
}

MeasurementCapability-r4-ext ::= SEQUENCE {
    downlinkCompressedMode-LCR      CompressedModeMeasCapability-LCR-r4,

```

```

    uplinkCompressedMode-LCR          CompressedModeMeasCapability-LCR-r4
  }
MessageAuthenticationCode ::=      BIT STRING (SIZE (32))
MinimumSF-DL ::=                    ENUMERATED {
    sf1, sf16 }
MinimumSF-UL ::=                    ENUMERATED {
    sf1, sf2, sf4, sf8, sf16 }
MultiModeCapability ::=             ENUMERATED {
    tdd, fdd, fdd-tdd }
MultiRAT-Capability ::=            SEQUENCE {
    supportOfGSM                     BOOLEAN,
    supportOfMulticarrier            BOOLEAN
  }
N-300 ::=                           INTEGER (0..7)
N-301 ::=                           INTEGER (0..7)
N-302 ::=                           INTEGER (0..7)
N-304 ::=                           INTEGER (0..7)
N-308 ::=                           INTEGER (1..8)
N-310 ::=                           INTEGER (0..7)
N-312 ::=                           ENUMERATED {
    s1, s50, s100, s200, s400,
    s600, s800, s1000 }
N-312ext ::=                        ENUMERATED {
    s2, s4, s10, s20 }
N-312-r5 ::=                        ENUMERATED {
    s1, s2, s4, s10, s20,
    s50, s100, s200, s400,
    s600, s800, s1000 }
N-313 ::=                           ENUMERATED {
    s1, s2, s4, s10, s20,
    s50, s100, s200 }
N-315 ::=                           ENUMERATED {
    s1, s50, s100, s200, s400,
    s600, s800, s1000 }
N-315ext ::=                        ENUMERATED {
    s2, s4, s10, s20 }
N-315-r5 ::=                        ENUMERATED {
    s1, s2, s4, s10, s20,
    s50, s100, s200, s400,
    s600, s800, s1000 }
N-AccessFails ::=                  INTEGER (1..64)
N-AP-RetransMax ::=                 INTEGER (1..64)
NetworkAssistedGPS-Supported ::=    ENUMERATED {
    networkBased,
    ue-Based,
    bothNetworkAndUE-Based,
    noNetworkAssistedGPS }
NF-BO-AllBusy ::=                   INTEGER (0..31)
NF-BO-NoAICH ::=                     INTEGER (0..31)
NF-BO-Mismatch ::=                   INTEGER (0..127)
NS-BO-Busy ::=                       INTEGER (0..63)

```

```

NS-IP ::= INTEGER (0..28)

P-TMSI-and-RAI-GSM-MAP ::= SEQUENCE {
    p-TMSI
    rai
}

PagingCause ::= ENUMERATED {
    terminatingConversationalCall,
    terminatingStreamingCall,
    terminatingInteractiveCall,
    terminatingBackgroundCall,
    terminatingHighPrioritySignalling,
    terminatingLowPrioritySignalling,
    terminatingCauseUnknown,
    spare
}

PagingRecord ::= CHOICE {
    cn-Identity SEQUENCE {
        pagingCause
        cn-DomainIdentity
        cn-pagedUE-Identity
    },
    utran-Identity SEQUENCE {
        u-RNTI
        cn-OriginatedPage-connectedMode-UE SEQUENCE {
            pagingCause
            cn-DomainIdentity
            pagingRecordTypeID
        }
    }
} OPTIONAL

PagingRecordList ::= SEQUENCE (SIZE (1..maxPage1)) OF
    PagingRecord

PDCP-Capability ::= SEQUENCE {
    losslessSRNS-RelocationSupport BOOLEAN,
    supportForRfc2507 CHOICE {
        notSupported
        supported
        NULL,
        MaxHcContextSpace
    }
}

PDCP-Capability-r4-ext ::= SEQUENCE {
    supportForRfc3095 CHOICE {
        notSupported
        supported
        NULL,
        SEQUENCE {
            maxROHC-ContextSessions MaxROHC-ContextSessions-r4 DEFAULT s16,
            reverseCompressionDepth INTEGER (0..65535) DEFAULT 0
        }
    }
}

PDCP-Capability-r5-ext ::= SEQUENCE {
    supportForRfc3095ContextRelocation BOOLEAN
}

PhysicalChannelCapability ::= SEQUENCE {
    fddPhysChCapability SEQUENCE {
        downlinkPhysChCapability DL-PhysChCapabilityFDD,
        uplinkPhysChCapability UL-PhysChCapabilityFDD
    }
    -- tddPhysChCapability describes the 3.84Mcps TDD physical channel capability
    tddPhysChCapability SEQUENCE {
        downlinkPhysChCapability DL-PhysChCapabilityTDD,
        uplinkPhysChCapability UL-PhysChCapabilityTDD
    }
} OPTIONAL

-- PhysicalChannelCapability-LCR-r4 describes the 1.28Mcps TDD physical channel capability
PhysicalChannelCapability-LCR-r4 ::= SEQUENCE {
    tdd128-PhysChCapability SEQUENCE {
        downlinkPhysChCapability DL-PhysChCapabilityTDD-LCR-r4,
        uplinkPhysChCapability UL-PhysChCapabilityTDD-LCR-r4
    }
} OPTIONAL

```

```

-- PhysicalChannelCapability-hspdsch-r5 describes the HS-PDSCH physical channel capability
PhysicalChannelCapability-hspdsch-r5 ::= SEQUENCE {
  supportOfDedicatedPilotsForChannelEstimationOfHSDSCH BOOLEAN,
  modeSpecificInfo CHOICE {
    fdd SEQUENCE {
      hspdsch-supported CHOICE {
        supported
        notsupported
      }
    },
    tdd384 SEQUENCE {
      hspdsch-supported CHOICE {
        supported
        notsupported
      }
    },
    tdd128 SEQUENCE {
      hspdsch-supported CHOICE {
        supported
        notsupported
      }
    }
  }
} OPTIONAL

PNBSCH-Allocation-r4 ::= SEQUENCE {
  numberOfRepetitionsPerSFNPeriod ENUMERATED {
    c2, c3, c4, c5, c6, c7, c8, c9, c10,
    c12, c14, c16, c18, c20, c24, c28, c32,
    c36, c40, c48, c56, c64, c72, c80 }
}

```


CR-Form-v7	
CHANGE REQUEST	
# 25.331 CR 1795 # rev - #	Current version: 5.2.0 #

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:	# Expansion of CPICH RSCP range		
Source:	# NTT DoCoMo		
Work item code:	# TIE-5	Date:	# 11/15/2002
Category:	# C	Release:	# Rel-5
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	F (correction)	2 (GSM Phase 2)	
	A (corresponds to a correction in an earlier release)	R96 (Release 1996)	
	B (addition of feature),	R97 (Release 1997)	
	C (functional modification of feature)	R98 (Release 1998)	
	D (editorial modification)	R99 (Release 1999)	
	Detailed explanations of the above categories can be found in 3GPP TR 21.900.		Rel-4 (Release 4)
			Rel-5 (Release 5)
			Rel-6 (Release 6)

Reason for change:	# LS from RAN WG4(R2-022212) requested to expand the value range of the CPICH RSCP, for the purpose of optimization of cell design.
Summary of change:	# The lowest value for CPICH RSCP is changed from -115dBm to -120dBm
Consequences if not approved:	# - Operators may not be able to optimize the cell design. - Inconsistency with RAN4 decision

Clauses affected:	# 10.3.2.3, 10.3.2.4, 10.3.7.3, 10.3.7.19, 10.3.7.39, 10.3.7.54, 10.3.7.54a, 11.2, 11.3										
Other specs affected:	<table border="1" style="display: inline-table; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 20px;">Y</td> <td style="width: 20px;">N</td> </tr> <tr> <td>X</td> <td></td> </tr> <tr> <td></td> <td>X</td> </tr> <tr> <td></td> <td>X</td> </tr> </table>	Y	N	X			X		X	Other core specifications	# 25.123, 25.133
Y	N										
X											
	X										
	X										
		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.

10.3.2.3 Cell selection and re-selection info for SIB3/4

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
Mapping Info	OP		Mapping info 10.3.2.5	This IE should not be sent.	
Cell selection and reselection quality measure	MP		Enumerated (CPICH Ec/N0, CPICH RSCP)	Choice of measurement (CPICH Ec/N0 or CPICH RSCP) to use as quality measure Q for FDD cells. This IE is also sent to the UE in SIB11/12. Both occurrences of the IE should be set to the same value.	
CHOICE mode	MP				
>FDD					
>>S _{intrasearch}	OP		Integer (-32..20 by step of 2)	If a negative value is received the UE shall consider the value to be 0. [4] [dB]	
>>S _{intersearch}	OP		Integer (-32..20 by step of 2)	If a negative value is received the UE shall consider the value to be 0. [4] [dB]	
>>S _{searchHCS}	OP		Integer (-105..91 by step of 2)	If a negative value is received the UE shall consider the value to be 0. [4] [dB]	
>>>RAT List	OP	1 to <maxOther RAT>			
>>>>RAT identifier	MP		Enumerated (GSM, cdma2000)		
>>>>S _{search,RAT}	MP		Integer (-32..20 by step of 2)	In case the value 20 is received the UE shall consider this IE as if it was absent according to [4] If a negative value is received the UE shall consider the value to be 0. [dB]	
>>>>S _{HCS,RAT}	OP		Integer (-105..91 by step of 2)	If a negative value is received the UE shall consider the value to be 0. [4] [dB]	
>>>>S _{limit,SearchRAT}	MP		Integer (-32..20 by step of 2)	If a negative value is received the UE shall consider the value to be 0. [4]	

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
				[dB]	
>>Qqualmin	MP		Integer (-24..0)	Ec/NO, [dB]	
>>Qrxlevmin	MP		Integer (-115..-25 by step of 2)	RSCP, [dBm]	
>> Delta_{Qrxlevmin}	CV-Delta		Integer(-4..-2 by step of 2)	If present, the actual value of $Qrxlevmin = Qrxlevmin + \Delta_{Qrxlevmin}$	REL-5
>TDD					
>>S _{intrasearch}	OP		Integer (-105..91 by step of 2)	If a negative value is received the UE shall consider the value to be 0. [4] [dB]	
>>S _{intersearch}	OP		Integer (-105..91 by step of 2)	If a negative value is received the UE shall consider the value to be 0. [4] [dB]	
>>S _{searchHCS}	OP		Integer (-105..91 by step of 2)	If a negative value is received the UE shall consider the value to be 0. [4] [dB]	
>>>RAT List	OP	1 to <maxOther RAT>			
>>>>RAT identifier	MP		Enumerated (GSM, cdma2000)		
>>>>S _{search,RAT}	MP		Integer (-105..91 by step of 2)	In case the value 91 is received the UE shall consider this IE as if it was absent according to [4] If a negative value is received the UE shall consider the value to be 0. [dB]	
>>>>S _{HCS,RAT}	OP		Integer (-105..91 by step of 2)	If a negative value is received the UE shall consider the value to be 0. [4] [dB]	
>>>>S _{limit,SearchRAT}	MP		Integer (-105..91 by step of 2)	If a negative value is received the UE shall consider the value to be 0. [4] [dB]	
>>Qrxlevmin	MP		Integer (-115..-25 by step of 2)	RSCP, [dBm]	
>> Delta_{Qrxlevmin}	CV-Delta		Integer(-4..-2 by step of 2)	If present, the actual value of $Qrxlevmin = Qrxlevmin +$	REL-5

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
				Delta <i>Qrxlevmin</i>	
Qhyst1 _s	MP		Integer (0..40 by step of 2)	[4] [dB]	
Qhyst2 _s	<i>CV-FDD-Quality-Measure</i>		Integer (0..40 by step of 2)	Default value is Qhyst1 _s [4] [dB]	
Treselection _s	MP		Integer (0..31)	[s]	
HCS Serving cell Information	OP		HCS Serving cell information 10.3.7.12		
Maximum allowed UL TX power	MP		Maximum allowed UL TX power 10.3.6.39	[dBm] UE_TXPWR_MAX_RACH in [4].	

Condition	Explanation
<i>FDD-Quality-Measure</i>	The IE is not needed if the IE "Cell selection and reselection quality measure" has the value CPICH RSCP, otherwise the IE is mandatory and has a default value.
Delta	This IE is optional if the value of Qrxlevmin is below -115dBm. It is not needed otherwise

10.3.2.4 Cell selection and re-selection info for SIB11/12

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
Qoffset1 _{s,n}	MD		Integer(-50..50)	Default value is 0. [dB]	
Qoffset2 _{s,n}	<i>CV-FDD-Quality-Measure</i>		Integer(-50..50)	Default value is 0. [dB]	
Maximum allowed UL TX power	MD		Maximum allowed UL TX power 10.3.6.39	According to UE_TXPWR_MAX_RACH in [4], [dBm]. If applied to FDD or TDD cells, the default is the Maximum allowed UL TX power for the serving cell. If applied to a GSM cell, the default is the UE maximum output power applicable for this GSM cell, according to the UE's radio access capability.	
HCS neighbouring cell information	OP		HCS Neighbouring cell information 10.3.7.11		
CHOICE mode	MP				
>FDD					
>>Qqualmin	<i>CV-FDD-</i>		Integer (-	Ec/N0, [dB]	

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
	<i>Serving-Cell</i>		24..0)	Default value is Qqualmin for the serving cell	
>>Qrxlevmin	MD		Integer (-115..-25 by step of 2)	RSCP, [dBm] Default value is Qrxlevmin for the serving cell	
>> DeltaQrxlevmin	<i>CV-Delta</i>		Integer(-4..-2 by step of 2)	If present, the actual value of Qrxlevmin = Qrxlevmin + DeltaQrxlevmin	REL-5
>TDD					
>>Qrxlevmin	MD		Integer (-115..-25 by step of 2)	RSCP, [dBm] Default value is Qrxlevmin for the serving cell	
>> DeltaQrxlevmin	<i>CV-Delta</i>		Integer(-4..-2 by step of 2)	If present, the actual value of Qrxlevmin = Qrxlevmin + DeltaQrxlevmin	REL-5
>GSM					
>>Qrxlevmin	MD		Integer (-115..-25 by step of 2)	GSM RSSI, [dBm] Default value is Qrxlevmin for the serving cell	

Condition	Explanation
<i>FDD-Quality-Measure</i>	This IE is mandatory and has a default value for Intra/Inter Frequency Cells if the IE "Cell selection and reselection quality measure" has the value CPICH Ec/No. Otherwise the IE is optional
<i>FDD-Serving-Cell</i>	This IE is mandatory and has a default value if the serving cell is an FDD cell. Otherwise the IE is mandatory present.
<i>Delta</i>	This IE is optional, if Qrxlevmin is present and the value of Qrxlevmin is below -115dBm. It is not needed otherwise.

10.3.7.3 Cell measured results

Includes non-frequency related measured results for a cell.

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
Cell Identity	OP		Cell Identity 10.3.2.2		
Cell synchronisation information	OP		Cell synchronisation information 10.3.7.6		
CHOICE <i>mode</i>	MP				
>FDD					
>>Primary CPICH info	MP		Primary CPICH info 10.3.6.60		
>>CPICH Ec/No	OP		Integer(0..49)	According to CPICH_Ec/No in [19] and [20]. Fourteen spare values are	

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
				needed.	
>>CPICH RSCP	OP		Integer(0..91)	According to CPICH_RSCP in [19] and [20]. Thirty-six spare values are needed.	
>>Delta _{CPICH RSCP}	CV-RSCP		Integer(-5..-1)	If present, the actual value of CPICH RSCP = CPICH RSCP+ Delta _{CPICH RSCP}	REL-5
>>>Pathloss	OP		Integer(46..158)	In dB. Fifteen spare values are needed.	
>TDD					
>>Cell parameters Id	MP		Cell parameters Id 10.3.6.9		
>>>Proposed TGSN	OP		Integer (0..14)	Proposal for the next TGSN	
>>>Primary CCPCH RSCP	OP		Primary CCPCH RSCP info 10.3.7.54		
>>>Pathloss	OP		Integer(46..158)	In dB. Fifteen spare values are needed.	
>>>Timeslot list	OP	1 to <maxTS>			
>>>>Timeslot ISCP	MP		Timeslot ISCP Info 10.3.7.65	The UE shall report the Timeslot ISCP in the same order as indicated in the cell info	

Condition	Explanation
<u>RSCP</u>	This IE is mandatory if CPICH RSCP is present, and if the value of the CPICH RSCP is below 0. It is not needed otherwise.

10.3.7.19 Inter-frequency measurement reporting criteria

The triggering of the event-triggered reporting for an inter-frequency measurements. All events concerning inter-frequency measurements are labelled 2x where x is a,b,c, ...

Event 2a: Change of best frequency.

Event 2b: The estimated quality of the currently used frequency is below a certain threshold **and** the estimated quality of a non-used frequency is above a certain threshold.

Event 2c: The estimated quality of a non-used frequency is above a certain threshold.

Event 2d: The estimated quality of the currently used frequency is below a certain threshold.

Event 2e: The estimated quality of a non-used frequency is below a certain threshold.

Event 2f: The estimated quality of the currently used frequency is above a certain threshold.

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
Parameters required for each event	OP	1 to <maxMeas Event>			
>Inter-frequency event identity	MP		Inter-frequency event identity 10.3.7.14		
>Threshold used frequency	CV-clause 0		Integer(-115..0)	Ranges used depend on measurement quantity. CPICH Ec/No - 24..0dB CPICH/Primary CCPCH RSCP - 115..-25dBm	
>Delta _{Threshold used frequency}	CV-clause 3		Integer(-5..1)	If present, the actual value of <u>Threshold used frequency</u> = <u>Threshold used frequency</u> + <u>Delta_{Threshold used frequency}</u>	REL-5
>W used frequency	CV-clause 2		Real(0, 0.1..2.0 by step of 0.1)		
>Hysteresis	MP		Real(0, 0.5..14.5 by step of 0.5)	In event 2a, 2b, 2c, 2d, 2e, 2f	
>Time to trigger	MP		Time to trigger 10.3.7.64	Indicates the period of time during which the event condition has to be satisfied, before sending a Measurement Report. Time in ms.	
>Reporting cell status	OP		Reporting cell status 10.3.7.61		
>Parameters required for each non-used frequency	OP	1 to <maxFreq >		In this release, the first listed threshold and W parameter shall apply to all non-used frequencies.	

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
>>Threshold non used frequency	CV-clause 1		Integer(-115..0)	Ranges used depend on measurement quantity. CPICH Ec/No - 24..0dB CPICH/Primary CCPCH RSCP - 115..-25dBm. This IE is not needed if the IE "Inter-frequency event identity" is set to 2a. However, it is specified to be mandatory to align with the ASN.1.	
>> Delta Threshold non used frequency	CV-clause 4		Integer(-5..-1)	If present, the actual value of Threshold non used frequency = Threshold non used frequency + Delta Threshold non used frequency	REL-5
>>W non-used frequency	CV-clause 1		Real(0, 0.1..2.0 by step of 0.1)		

Condition	Explanation
Clause 0	This IE is mandatory present if the IE "Inter frequency event identity" is set to 2b, 2d, or 2f, otherwise the IE is not needed.
Clause 1	This IE is mandatory present if the IE "Inter frequency event identity" is set to 2a, 2b, 2c or 2e, otherwise the IE is not needed
Clause 2	This IE is mandatory present if the IE "Inter-frequency event identity" is set to 2a, 2b, 2d or 2f, otherwise the IE is not needed.
Clause 3	This IE is optional if the IE "Inter frequency event identity" is set to 2b, 2d, or 2f, and the threshold is below -115dBm. Otherwise the IE is not needed.
Clause 4	This IE is optional if the IE "Inter frequency event identity" is set to 2a, 2b, 2c or 2e, and the threshold is below -115dBm. Otherwise the IE is not needed

10.3.7.39 Intra-frequency measurement reporting criteria

The triggering of the event-triggered reporting for an intra-frequency measurement. All events concerning intra-frequency measurements are labelled 1x where x is a, b, c....

Event 1a: A Primary CPICH enters the Reporting Range (FDD only).

Event 1b: A Primary CPICH leaves the Reporting Range (FDD only).

Event 1c: A Non-active Primary CPICH becomes better than an active Primary CPICH (FDD only).

Event 1d: Change of best cell (FDD only).

Event 1e: A Primary CPICH becomes better than an absolute threshold (FDD only).

Event 1f: A Primary CPICH becomes worse than an absolute threshold (FDD only).

Event 1g: Change of best cell in TDD.

Event 1h: Timeslot ISCP below a certain threshold (TDD only).

Event 1i: Timeslot ISCP above a certain threshold (TDD only).

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
Parameters required for each event	OP	1 to <maxMeasEvent>			
>Intra-frequency event identity	MP		Intra-frequency event identity 10.3.7.34		
>Triggering condition 1	CV-clause 0		Enumerated(Active set cells, Monitored set cells, Active set cells and monitored set cells)	Indicates which cells can trigger the event	
>Triggering condition 2	CV-clause 6		Enumerated(Active set cells, Monitored set cells, Active set cells and monitored set cells, Detected set cells, Detected set cells and monitored set cells)	Indicates which cells can trigger the event	
>Reporting Range Constant	CV-clause 2		Real(0..14.5 by step of 0.5)	In dB. In event 1a,1b.	
>Cells forbidden to affect Reporting range	CV-clause 1	1 to <maxCellMeas>		In event 1a,1b	
>>CHOICE mode	MP				
>>>FDD					
>>>>Primary CPICH info	MP		Primary CPICH info 10.3.6.60		
>>>TDD					
>>>>Primary CCPCH info	MP		Primary CCPCH info 10.3.6.57		
>W	CV-clause 2		Real(0.0..2.0 by step of 0.1)		
>Hysteresis	MP		Real(0..7.5 by step of 0.5)	In dB.	
>Threshold used frequency	CV-clause 3		Integer (-115..165)	Range used depend on measurement quantity. CPICH RSCP - 115..-25 dBm CPICH Ec/No -	

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
				24..0 dB Pathloss 30..165dB ISCP -115..-25 dBm	
> <u>Delta_{Threshold used frequency}</u>	<i>CV-clause 8</i>		Integer(-5..-1)	If present, the actual value of <u>Threshold used frequency = Threshold used frequency + Delta_{Threshold used frequency}</u>	REL-5
>Reporting deactivation threshold	<i>CV-clause 4</i>		Integer(0, 1, 2, 3, 4, 5, 6, 7)	In event 1a Indicates the maximum number of cells allowed in the active set in order for event 1a to occur. 0 means not applicable	
>Replacement activation threshold	<i>CV-clause 5</i>		Integer(0, 1, 2, 3, 4, 5, 6, 7)	In event 1c Indicates the minimum number of cells allowed in the active set in order for event 1c to occur. 0 means not applicable	
>Time to trigger	MP		Time to trigger 10.3.7.64	Indicates the period of time during which the event condition has to be satisfied, before sending a Measurement Report. Time in ms	
>Amount of reporting	<i>CV-clause 7</i>		Integer(1, 2, 4, 8, 16, 32, 64, Infinity)	In case the IE "Intra-frequency reporting criteria" is included in the IE "Inter-frequency measurement", this IE is not needed.	

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
>Reporting interval	CV-clause 7		Integer(0, 250, 500, 1000, 2000, 4000, 8000, 16000)	Indicates the interval of periodical reporting when such reporting is triggered by an event. Interval in milliseconds. 0 means no periodical reporting. In case the IE "Intra-frequency reporting criteria" is included in the IE "Inter-frequency measurement", this IE is not needed.	
>Reporting cell status	OP		Reporting cell status 10.3.7.61		

Condition	Explanation
Clause 0	The IE is mandatory present if the IE "Intra-frequency event identity" is set to "1b" or "1f", otherwise the IE is not needed.
Clause 1	The IE is optional if the IE "Intra-frequency event identity" is set to "1a" or "1b", otherwise the IE is not needed.
Clause 2	The IE is mandatory present if the IE "Intra-frequency event identity" is set to "1a" or "1b", otherwise the IE is not needed.
Clause 3	The IE is mandatory present if the IE "Intra-frequency event identity" is set to , "1e", "1f", "1h" or "1i", otherwise the IE is not needed.
Clause 4	The IE is mandatory present if the IE "Intra-frequency event identity" is set to "1a", otherwise the IE is not needed.
Clause 5	The IE is mandatory present if the IE "Intra-frequency event identity" is set to "1c", otherwise the IE is not needed.
Clause 6	The IE is mandatory present if the IE "Intra-frequency event identity" is set to "1a" or "1e", otherwise the IE is not needed.
Clause 7	The IE is mandatory present if the IE "Intra-frequency event identity" is set to "1a" or "1c", otherwise the IE is not needed.
Clause 8	The IE is optional if the IE "Intra-frequency event identity" is set to "1e", "1f", "1h" or "1i", and the threshold is below -115dBm. Otherwise the IE is not needed.

10.3.7.54 Primary CCPCH RSCP info

NOTE: Only for TDD

Information Element/Group name	Need	Multi	IE type and reference	Semantics description	Version
Primary CCPCH RSCP	MP		Integer(0..91)	According to P-CCPCH_RSCP_L EV in [19] and [20]. Thirty-six spare values are needed.	
<u>Delta_{Primary CCPCH RSCP}</u>	<u>CV-Rel5</u>		Integer(-5..-1)	If present, the actual value of Primary CCPCH RSCP = Primary CCPCH RSCP + <u>Delta_{Primary CCPCH RSCP}</u>	REL-5

Condition	Explanation
<u>Rel5</u>	<u>This IE is mandatory if the value of Primary CCPCH RSCP is below 0. Otherwise the IE is not needed.</u>

10.3.7.54a Qhcs

Information Element/Group name	Need	Multi	Type and Reference	Semantics description	Version
Qhcs	MP		Integer(0..99)	Qhcs, mapped from CPICH Ec/No (FDD), see [4] [dB] 0: -24 1: -23.5 2: -23 3: -22.5 ... 45: -1.5 46: -1 47: -0.5 48: 0 49: (spare) ... 98: (spare) 99: (spare)	
				Qhcs, mapped from CPICH RSCP (FDD), see [4] [dBm] 0: -115 1: -114 2: -113 : 88: -27 89: -26 90: -(spare) 91: -(spare) : 98: -(spare) 99: -(spare)	

Information Element/Group name	Need	Multi	Type and Reference	Semantics description	Version
				Qhcs, mapped from PCCPCH RSCP (TDD), see [4] [dBm] 0: -115 1: -114 2: -113 : 88: -27 89: -26 90: -(spare) 91: -(spare) : 98: -(spare) 99: -(spare)	
				Qhcs level, mapped from Averaged received signal level RSSI (GSM), see [4] [dBm] 0: -110 1: -109 2: -108 : 61: -49 62: -48 63: -47 64: -46 65: -45 66: -44 67: -43 68: -42 69: -41 70: -40 71: -39 72: -38 73: -37 74: -(spare) : 98: -(spare) 99: -(spare)	
Delta_{Qhcs-RSCP}	CV-RSCP		Integer(-5..-1)	If present, the actual value of Qhcs = Qhcs + Delta_{Qhcs-RSCP}	REL-5

Condition	Explanation
RSCP	This IE is optional if Qhcs is mapped from CPICH RSCP or PCCPCH RSCP, and if the value of the RSCP is below 0 (-115dBm). It is not needed otherwise.

11.2 PDU definitions

```

PDU-definitions DEFINITIONS AUTOMATIC TAGS ::=
BEGIN

IMPORTS
-- Measurement IEs :
    
```

DeltaRSCP,
Inter-FreqEventCriteriaList-v5xyext,
Intra-FreqEventCriteriaList-v5xyext,
MeasuredResults-v5xyext,

FROM InformationElements

-- *****
 --
 -- MEASUREMENT CONTROL
 --
 -- *****

```
MeasurementControl ::= CHOICE {
    r3 SEQUENCE {
        measurementControl-r3 MeasurementControl-r3-IEs,
        v390nonCriticalExtensions SEQUENCE {
            measurementControl-v390ext MeasurementControl-v390ext,
            v3a0NonCriticalExtensions SEQUENCE {
                measurementControl-v3a0ext MeasurementControl-v3a0ext,
                v4xyNonCriticalExtensions SEQUENCE {
                    measurementControl-v4xyext MeasurementControl-v4xyext-IEs,
                    nonCriticalExtensions SEQUENCE {} OPTIONAL
                } OPTIONAL
            } OPTIONAL
        } OPTIONAL
    },
    later-than-r3 SEQUENCE {
        rrc-TransactionIdentifier RRC-TransactionIdentifier,
        criticalExtensions CHOICE {
            r4 SEQUENCE {
                measurementControl-r4 MeasurementControl-r4-IEs,
                v5xyNonCriticalExtensions SEQUENCE {
                    measurementControl-v5xyext MeasurementControl-v5xyext-IEs,
                    nonCriticalExtensions SEQUENCE {} OPTIONAL
                } OPTIONAL
            },
            criticalExtensions SEQUENCE {}
        }
    }
}
```

```
MeasurementControl-v5xyext-IEs ::= SEQUENCE {
    *easurementCommand-v5xyext CHOICE {
        -- the choice "intra-frequency" shall be used for the case of intra-frequency measurement,
        -- as well as when intra-frequency events are configured for inter-frequency measurement
        intra-frequency Intra-FreqEventCriteriaList-v5xyext,
        inter-frequency Inter-FreqEventCriteriaList-v5xyext
    } OPTIONAL
}
```

-- *****
 --
 -- MEASUREMENT REPORT
 --
 -- *****

```
MeasurementReport ::= SEQUENCE {
    -- Measurement IEs
    measurementIdentity MeasurementIdentity,
    measuredResults MeasuredResults OPTIONAL,
    measuredResultsOnRACH MeasuredResultsOnRACH OPTIONAL,
    additionalMeasuredResults MeasuredResultsList OPTIONAL,
    eventResults EventResults OPTIONAL,
    -- Non-critical extensions
    v390nonCriticalExtensions SEQUENCE {
        measurementReport-v390ext MeasurementReport-v390ext,
        v4xyNonCriticalExtensions SEQUENCE {
            measurementReport-v4xyext MeasurementReport-v4xyext-IEs,
            -- Extension mechanism for non-Rel4 information
            v5xyNonCriticalExtensions SEQUENCE {
                measurementReport-v5xyext MeasurementReport-v5xyext-IEs,
                nonCriticalExtensions SEQUENCE {} OPTIONAL
            } OPTIONAL
        } OPTIONAL
    } OPTIONAL
}
```

```

MeasurementReport-v5xyext-IEs ::= SEQUENCE {
  measuredResults-v5xyext      MeasuredResults-v5xyext      OPTIONAL
}

-- *****
--
-- PUSCH CAPACITY REQUEST (TDD only)
--
-- *****

PUSCHCapacityRequest ::= SEQUENCE {
  -- User equipment IEs
  dsch-RNTI                DSCH-RNTI                OPTIONAL,
  -- Measurement IEs
  trafficVolume             TrafficVolumeMeasuredResultsList,
  timeslotListWithISCP     TimeslotListWithISCP     OPTIONAL,
  primaryCCPCH-RSCP        PrimaryCCPCH-RSCP        OPTIONAL,
  allocationConfirmation    CHOICE {
    pdschConfirmation       PDSCH-Identity,
    puschConfirmation       PUSCH-Identity
  } OPTIONAL,
  protocolErrorIndicator   ProtocolErrorIndicatorWithMoreInfo,
  -- Extension mechanism for non- release99 information
  v5xyNonCriticalExtensions SEQUENCE {
    puschCapacityRequest-v5xyext PUSCHCapacityRequest-v5xyext,
    nonCriticalExtensions        SEQUENCE {} OPTIONAL
  } OPTIONAL
}

PUSCHCapacityRequest-v5xyext ::= SEQUENCE {
  primaryCCPCH-RSCP-delta    DeltaRSCP                OPTIONAL
}

```

END

11.3 Information element definitions

InformationElements DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

```

-- *****
--
-- MEASUREMENT INFORMATION ELEMENTS (10.3.7)
--
-- *****

```

```

CellSelectReselectInfo-v5xyExt ::= SEQUENCE {
  deltaQrxlevmin            DeltaQrxlevmin            OPTIONAL,
  deltaQhcs                 DeltaRSCP                OPTIONAL
}

```

--Actual value DeltaQrxlevmin = IE value * 2

DeltaQrxlevmin ::= INTEGER (-2..-1)

DeltaRSCP ::= INTEGER (-5..-1)

```

DeltaRSCPPerCell ::= SEQUENCE {
  deltaRSCP                DeltaRSCP                OPTIONAL
}

```

--Following IE shall be used regardless of CPICH RSCP(FDD) or Primary CCPCH RSCP(TDD)

--The order of the list corresponds to the order of the cells in Inter-FrequencyMeasuredResultsList

```

InterFrequencyMeasuredResultsList-v5xyext ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
  DeltaRSCPPerCell

```

```

Inter-FreqEventCriteria-v5xyext ::= SEQUENCE {
  thresholdUsedFrequency-delta      DeltaRSCP,
  thresholdNonUsedFrequency-deltaList ThresholdNonUsedFrequency-deltaList  OPTIONAL
}

```

--The order of the list corresponds to the order of the events in Inter-FreqEventList

```

Inter-FreqEventCriteriaList-v5xyext ::= SEQUENCE (SIZE (1..maxMeasEvent)) OF
  Inter-FreqEventCriteria-v5xyext

```

--The order of the list corresponds to the order of relevant events in Intra-FreqEventCriteriaList

--i.e. the first element of the list corresponds to the first occurrence of event 1e, 1f, 1h, 1i,
 --the second element of the list corresponds to the second occurrence of event 1e, 1f, 1h, 1i
 IntraFreqEventCriteriaList-v5xyext ::= SEQUENCE (SIZE (1..maxMeasEvent)) OF
 DeltaRSCP

--Following IE shall be used regardless of CPICH RSCP(FDD) or Primary CCPCH RSCP(TDD)
 --The order of the list corresponds to the order of the cells in Intra-FrequencyMeasuredResultsList
 IntraFrequencyMeasuredResultsList-v5xyext ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
 DeltaRSCPPerCell

MeasuredResults-v5xyext ::= CHOICE {
 intraFrequencyMeasuredResultsList IntraFrequencyMeasuredResultsList-v5xyext,
 interFrequencyMeasuredResultsList InterFrequencyMeasuredResultsList-v5xyext
 }

-- The order of the list corresponds to the order of frequency defined in Inter-FreqEventCriteria
 ThresholdNonUsedFrequency-deltaList ::= SEQUENCE (SIZE (1..maxFreq)) OF
 DeltaRSCPPerCell

-- *****
 --
 -- OTHER INFORMATION ELEMENTS (10.3.8)
 --
 -- *****

SysInfoType3 ::= SEQUENCE {
 sib4indicator BOOLEAN,
 -- UTRAN mobility IEs
 cellIdentity CellIdentity,
 cellSelectReselectInfo CellSelectReselectInfoSIB-3-4,
 cellAccessRestriction CellAccessRestriction,
 -- Extension mechanism for non- release99 information
 v4xyNonCriticalExtensions SEQUENCE {
 sysInfoType3-v4xyext SysInfoType3-v4xyext-IEs,
 v5xyNonCriticalExtension SEQUENCE {
 sysInfoType3-v5xyext SysInfoType3-v5xyext,
 nonCriticalExtensions SEQUENCE {} OPTIONAL
 }
 } OPTIONAL
 }

SysInfoType3-v4xyext-IEs ::= SEQUENCE {
 mapping-LCR Mapping-LCR-r4 OPTIONAL
 }

SysInfoType3-v5xyext ::= SEQUENCE {
 cellSelectReselectInfo-v5xyext CellSelectReselectInfo-v5xyExt OPTIONAL
 }

SysInfoType4 ::= SEQUENCE {
 -- UTRAN mobility IEs
 cellIdentity CellIdentity,
 cellSelectReselectInfo CellSelectReselectInfoSIB-3-4,
 cellAccessRestriction CellAccessRestriction,
 -- Extension mechanism for non- release99 information
 v4xyNonCriticalExtensions SEQUENCE {
 sysInfoType4-v4xyext SysInfoType4-v4xyext-IEs,
 v5xyNonCriticalExtension SEQUENCE {
 sysInfoType4-v5xyext SysInfoType4-v5xyext,
 nonCriticalExtensions SEQUENCE {} OPTIONAL
 }
 } OPTIONAL
 }

SysInfoType4-v4xyext-IEs ::= SEQUENCE {
 mapping-LCR Mapping-LCR-r4 OPTIONAL
 }

SysInfoType4-v5xyext ::= SEQUENCE {
 cellSelectReselectInfo-v5xyext CellSelectReselectInfo-v5xyExt OPTIONAL
 }

SysInfoType11 ::= SEQUENCE {
 sib12indicator BOOLEAN,
 -- Measurement IEs
 fach-MeasurementOccasionInfo FACH-MeasurementOccasionInfo OPTIONAL,
 measurementControlSysInfo MeasurementControlSysInfo,

```

-- Extension mechanism for non- release99 information
v4xyNonCriticalExtensions SEQUENCE {
  sysInfoType11-v4xyext SysInfoType11-v4xyext-IEs,
  v5xyNonCriticalExtension SEQUENCE {
    sysInfoType11-v5xyext SysInfoType11-v5xyext-IEs,
    nonCriticalExtensions SEQUENCE {} OPTIONAL
  } OPTIONAL
}

SysInfoType11-v4xyext-IEs ::= SEQUENCE {
  fach-MeasurementOccasionInfo-LCR-Ext FACH-MeasurementOccasionInfo-LCR-r4-ext OPTIONAL,
  measurementControlSysInfo-LCR MeasurementControlSysInfo-LCR-r4-ext
}

SysInfoType11-v5xyext-IEs ::= SEQUENCE {
  --The order of the list corresponds to the order of cell in newIntraFrequencyCellInfoList
  newIntraFrequencyCellInfoList-v5xyext SEQUENCE (SIZE (1..maxCellMeas)) OF
    CellSelectReselectInfo-v5xyExt OPTIONAL,
  --The order of the list corresponds to the order of cell in newInterFrequencyCellInfoList
  newInterFrequencyCellInfoList-v5xyext SEQUENCE (SIZE (1..maxCellMeas)) OF
    CellSelectReselectInfo-v5xyExt OPTIONAL,
  --The order of the list corresponds to the order of cell in newInterRATCellInfoList
  newInterRATCellInfoList-v5xyext SEQUENCE (SIZE (1..maxCellMeas)) OF
    CellSelectReselectInfo-v5xyExt OPTIONAL,
  intraFreqEventCriteriaList-v5xyext Intra-FreqEventCriteriaList-v5xyext OPTIONAL
}

SysInfoType12 ::= SEQUENCE {
  -- Measurement IEs
  fach-MeasurementOccasionInfo FACH-MeasurementOccasionInfo OPTIONAL,
  measurementControlSysInfo MeasurementControlSysInfo,
  -- Extension mechanism for non- release99 information
  v4xyNonCriticalExtensions SEQUENCE {
    sysInfoType12-v4xyext SysInfoType12-v4xyext-IEs,
    v5xyNonCriticalExtension SEQUENCE {
      sysInfoType12-v5xyext SysInfoType12-v5xyext-IEs,
      nonCriticalExtensions SEQUENCE {} OPTIONAL
    } OPTIONAL
  } OPTIONAL
}

SysInfoType12-v4xyext-IEs ::= SEQUENCE {
  fach-MeasurementOccasionInfo-LCR-Ext FACH-MeasurementOccasionInfo-LCR-r4-ext OPTIONAL,
  measurementControlSysInfo-LCR MeasurementControlSysInfo-LCR-r4-ext
}

SysInfoType12-v5xyext-IEs ::= SEQUENCE {
  --The order of the list corresponds to the order of cell in newIntraFrequencyCellInfoList
  newIntraFrequencyCellInfoList-v5xyext SEQUENCE (SIZE (1..maxCellMeas)) OF
    CellSelectReselectInfo-v5xyExt OPTIONAL,
  --The order of the list corresponds to the order of cell in newInterFrequencyCellInfoList
  newInterFrequencyCellInfoList-v5xyext SEQUENCE (SIZE (1..maxCellMeas)) OF
    CellSelectReselectInfo-v5xyExt OPTIONAL,
  --The order of the list corresponds to the order of cell in newInterRATCellInfoList
  newInterRATCellInfoList-v5xyext SEQUENCE (SIZE (1..maxCellMeas)) OF
    CellSelectReselectInfo-v5xyExt OPTIONAL,
  intraFreqEventCriteriaList-v5xyext Intra-FreqEventCriteriaList-v5xyext OPTIONAL
}

```

END

CR-Form-v7	
CHANGE REQUEST	
# 25.331 CR 1796 # rev - #	Current version: 5.2.0 #

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:	# L3 Retransmission of event 1b		
Source:	# NTT DoCoMo		
Work item code:	# TEI5	Date:	# Nov 12, 2002
Category:	# C	Release:	# Rel-5
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	F (correction)		2 (GSM Phase 2)
	A (corresponds to a correction in an earlier release)		R96 (Release 1996)
	B (addition of feature),		R97 (Release 1997)
	C (functional modification of feature)		R98 (Release 1998)
	D (editorial modification)		R99 (Release 1999)
	Detailed explanations of the above categories can be found in 3GPP TR 21.900.		Rel-4 (Release 4)
			Rel-5 (Release 5)
			Rel-6 (Release 6)

Reason for change:	# In case RRC messages are received after the maximum (or close to the maximum) number of allowed L2 retransmission, included information may be too old for mobility related procedures, hence in mobility related procedures, it is desirable to have L3 retransmission mechanism. Reporting of event 1b is the only procedure that does not have this functionality, and as a result, depending on the location of the UE, the removal of the best RL may occur, and that will result in significant degradation of quality. In Release 99, the alternative was to use periodic reporting of intra-frequency measurement quantity, but this would generate unnecessary increase in uplink traffic for the UEs in good radio condition as well. Therefore, the mechanism similar to event 1a and 1c is proposed.
Summary of change:	# The IEs "Amount of Reporting", "Reporting Interval" are added to Measurement Control and SIB Type 11/12
Consequences if not approved:	# Unnecessary congestion will occur in uplink DCCH.

Clauses affected:	# 10.3.7.39, 10.3.7.53x, 11.2, 11.3, 13.4.27b, 14.1.2.2, 14.1.4.x								
Other specs affected:	#								
	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="text-align: center; width: 20px;">Y</td> <td style="text-align: center; width: 20px;">N</td> </tr> <tr> <td style="text-align: center;">#</td> <td style="text-align: center;">#</td> </tr> <tr> <td style="text-align: center;">#</td> <td style="text-align: center;">#</td> </tr> <tr> <td style="text-align: center;">#</td> <td style="text-align: center;">#</td> </tr> </table> Other core specifications # Test specifications # O&M Specifications #	Y	N	#	#	#	#	#	#
Y	N								
#	#								
#	#								
#	#								
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.

10.3.7.39 Intra-frequency measurement reporting criteria

The triggering of the event-triggered reporting for an intra-frequency measurement. All events concerning intra-frequency measurements are labelled 1x where x is a, b, c....

Event 1a: A Primary CPICH enters the Reporting Range (FDD only).

Event 1b: A Primary CPICH leaves the Reporting Range (FDD only).

Event 1c: A Non-active Primary CPICH becomes better than an active Primary CPICH (FDD only).

Event 1d: Change of best cell (FDD only).

Event 1e: A Primary CPICH becomes better than an absolute threshold (FDD only).

Event 1f: A Primary CPICH becomes worse than an absolute threshold (FDD only).

Event 1g: Change of best cell in TDD.

Event 1h: Timeslot ISCP below a certain threshold (TDD only).

Event 1i: Timeslot ISCP above a certain threshold (TDD only).

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
Parameters required for each event	OP	1 to <maxMeasEvent>			
>Intra-frequency event identity	MP		Intra-frequency event identity 10.3.7.34		
>Triggering condition 1	CV- clause 0		Enumerated(Active set cells, Monitored set cells, Active set cells and monitored set cells)	Indicates which cells can trigger the event	
>Triggering condition 2	CV- clause 6		Enumerated(Active set cells, Monitored set cells, Active set cells and monitored set cells, Detected set cells, Detected set cells and monitored set cells)	Indicates which cells can trigger the event	
>Reporting Range Constant	CV- clause 2		Real(0..14.5 by step of 0.5)	In dB. In event 1a,1b.	
>Cells forbidden to affect Reporting range	CV- clause 1	1 to <maxCellMeas>		In event 1a,1b	
>>CHOICE mode	MP				
>>>FDD					
>>>>Primary CPICH info	MP		Primary		

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
			CPICH info 10.3.6.60		
>>>TDD					
>>>>Primary CCPCH info	MP		Primary CCPCH info 10.3.6.57		
>W	CV- clause 2		Real(0.0..2. 0 by step of 0.1)		
>Hysteresis	MP		Real(0..7.5 by step of 0.5)	In dB.	
>Threshold used frequency	CV- clause 3		Integer (-115..165)	Range used depend on measurement quantity. CPICH RSCP -115..-25 dBm CPICH Ec/No -24..0 dB Pathloss 30..165dB ISCP -115..-25 dBm	
>Reporting deactivation threshold	CV- clause 4		Integer(0, 1, 2, 3, 4, 5, 6, 7)	In event 1a Indicates the maximum number of cells allowed in the active set in order for event 1a to occur. 0 means not applicable	
>Replacement activation threshold	CV- clause 5		Integer(0, 1, 2, 3, 4, 5, 6, 7)	In event 1c Indicates the minimum number of cells allowed in the active set in order for event 1c to occur. 0 means not applicable	
>Time to trigger	MP		Time to trigger 10.3.7.64	Indicates the period of time between the timing of event detection and the timing of sending Measurement Report. Time in ms	
>Amount of reporting	CV- clause 7		Integer(1, 2, 4, 8, 16, 32, 64, Infinity)	In case the IE "Intra- frequency reporting criteria" is included in the IE "Inter- frequency measurement", this IE is not needed.	
>Reporting interval	CV- clause 7		Integer(0, 250, 500, 1000, 2000, 4000, 8000, 16000)	Indicates the interval of periodical reporting when such reporting is triggered by an event. Interval in milliseconds. 0 means no periodical reporting. In case the IE "Intra-frequency reporting criteria" is included in the IE "Inter-frequency measurement", this IE is not needed.	
>Reporting cell status	OP		Reporting cell status 10.3.7.61		
>Periodical reporting information-1b	CV- clause 8		Periodical reporting info-1b 10.3.7.53x	In case the IE "Intra- frequency reporting criteria" is included in the IE "Inter- frequency measurement", this IE is not needed.	REL-5

Condition	Explanation
Clause 0	The IE is mandatory present if the IE "Intra-frequency event identity" is set to "1b" or "1f", otherwise the IE is not needed.
Clause 1	The IE is optional if the IE "Intra-frequency event identity" is set to "1a" or "1b", otherwise the IE is not needed.
Clause 2	The IE is mandatory present if the IE "Intra-frequency event identity" is set to "1a" or "1b", otherwise the IE is not needed.
Clause 3	The IE is mandatory present if the IE "Intra-frequency event identity" is set to , "1e", "1f", "1h" or "1i", otherwise the IE is not needed.
Clause 4	The IE is mandatory present if the IE "Intra-frequency event identity" is set to "1a", otherwise the IE is not needed.
Clause 5	The IE is mandatory present if the IE "Intra-frequency event identity" is set to "1c", otherwise the IE is not needed.
Clause 6	The IE is mandatory present if the IE "Intra-frequency event identity" is set to "1a" or "1e", otherwise the IE is not needed.
Clause 7	The IE is mandatory present if the IE "Intra-frequency event identity" is set to "1a" or "1c", otherwise the IE is not needed.
Clause 8	The IE is optional if the IE "Intra-frequency event identity" is set to "1b", otherwise the IE is not needed.

10.3.7.53x Periodical reporting info-1b

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
Amount of reporting	MP		Integer(1, 2, 4, 8, 16, 32, 64, Infinity)		REL-5
Reporting interval	MP		Integer(0, 250, 500, 1000, 2000, 4000, 8000, 16000)	Indicates the interval of periodical reporting when such reporting is triggered by an event. Interval in milliseconds. 0 means no periodical reporting	REL-5

11.2 PDU definitions

```

IMPORTS
-- Measurement IEs :
  IntraFreqReportingCriteria-1b-r5ext,

-- *****
--
-- MEASUREMENT CONTROL
--
-- *****

MeasurementControl ::= CHOICE {
  r3
    SEQUENCE {
      measurementControl-r3
      v390nonCriticalExtensions
        measurementControl-v390ext
        v3a0NonCriticalExtensions
          measurementControl-v3a0ext
          v4xyNonCriticalExtensions
            measurementControl-v4xyext
            v5xyNonCriticalExtensions
    SEQUENCE {
      MeasurementControl-r3-IEs,
      SEQUENCE {
        MeasurementControl-v390ext,
        SEQUENCE {
          MeasurementControl-v3a0ext,
          SEQUENCE {
            MeasurementControl-v4xyext-IEs,
            SEQUENCE {

```

```

        measurementControl-v5xyext      MeasurementControl-v5xyext-IEs,
        nonCriticalExtensions            SEQUENCE {}                                OPTIONAL
    }
    }
    }
    }
    },
    later-than-r3                        SEQUENCE {
        rrc-TransactionIdentifier        RRC-TransactionIdentifier,
        criticalExtensions                CHOICE {
            r4                            SEQUENCE {
                measurementControl-r4    MeasurementControl-r4-IEs,
                v5xyNonCriticalExtensions SEQUENCE {
                    measurementControl-v5xyext      MeasurementControl-v5xyext-IEs,
                    nonCriticalExtensions          SEQUENCE {}                                OPTIONAL
                }
            },
            criticalExtensions            SEQUENCE {}
        }
    }
}

MeasurementControl-v5xyext-IEs ::= SEQUENCE {
    intraFreqReportingCriteria-1b-r5ext IntraFreqReportingCriteria-1b-r5ext    OPTIONAL
}

```

11.3 Information element definitions

```

-- *****
--
--     MEASUREMENT INFORMATION ELEMENTS (10.3.7)
--
-- *****

IntraFreqReportingCriteria-1b-r5ext ::= SEQUENCE {
    periodicReportingInfo-1b      PeriodicReportingInfo-1b
}

PeriodicReportingInfo-1b ::= SEQUENCE {
    reportingAmount      ReportingAmount,
    reportingInterval    ReportingInterval
}

-- *****
--
--     OTHER INFORMATION ELEMENTS (10.3.8)
--
-- *****

SysInfoType11 ::=
    SEQUENCE {
        sib12indicator      BOOLEAN,
        -- Measurement IEs
        fach-MeasurementOccasionInfo    FACH-MeasurementOccasionInfo    OPTIONAL,
        measurementControlSysInfo      MeasurementControlSysInfo,
        -- Extension mechanism for non- release99 information
        v4xyNonCriticalExtensions      SEQUENCE {
            sysInfoType11-v4xyext      SysInfoType11-v4xyext-IEs,
            v5xyNonCriticalExtensions  SEQUENCE {
                sysInfoType11-v5xyext  SysInfoType11-v5xyext-IEs,
                nonCriticalExtensions  SEQUENCE {}                                OPTIONAL
            }
        }
    }
}

SysInfoType11-v5xyext-IEs ::= SEQUENCE {
    intra-FreqReportingCriteria-1b-r5ext Intra-FreqReportingCriteria-1b-r5ext    OPTIONAL
}

SysInfoType12 ::=
    SEQUENCE {
        -- Measurement IEs
        fach-MeasurementOccasionInfo    FACH-MeasurementOccasionInfo    OPTIONAL,
        measurementControlSysInfo      MeasurementControlSysInfo,
        -- Extension mechanism for non- release99 information
        v4xyNonCriticalExtensions      SEQUENCE {
            sysInfoType12-v4xyext      SysInfoType12-v4xyext-IEs,
            v5xyNonCriticalExtensions  SEQUENCE {

```



```

        sysInfoType12-v5xyext          SysInfoType12-v5xyext-IEs,
        nonCriticalExtensions          SEQUENCE {}                               OPTIONAL
    }
    }
    }
}

SysInfoType12-v5xyext-IEs ::= SEQUENCE {
    intra-FreqReportingCriteria-1b-r5ext  Intra-FreqReportingCriteria-1b-r5ext  OPTIONAL
}
    
```

13.4.27b TRIGGERED_1B_EVENT

This variable contains information about a 1b event that has been triggered in the UE. There is one such variable per 1b event configured in the UE.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Cells triggered	OP	1 to < maxCellMeas>		Cleared when entering UTRA RRC connected mode. Cleared when leaving UTRA RRC connected mode.
>primary CPICH	MP		Primary CPICH info 10.3.6.60	
>sent reports	MP		Integer(1..Infinity)	Number of reports sent to UTRAN in case of event triggered periodical reporting
Cells recently triggered	OP	1 to < maxCellMeas>		
>primary CPICH	MP		Primary CPICH info 10.3.6.60	
>sent reports	MP		Integer(1..Infinity)	Number of reports sent to UTRAN in case of event triggered periodical reporting
Periodical reporting running	MP		Boolean	

14.1.2.2 Reporting event 1B: A primary CPICH leaves the reporting range

When an intra-frequency measurement configuring event 1b is set up, the UE shall:

- 1> create a variable TRIGGERED_1B_EVENT related to that measurement, which shall initially be empty;
- 1> delete this variable when the measurement is released.

When event 1B is configured in the UE, the UE shall:

- 1> if "Measurement quantity" is "pathloss" and Equation 1 below is fulfilled for one or more primary CPICHs, or if "Measurement quantity" is "CPICH Ec/N0" or "CPICH RSCP", and Equation 2 below is fulfilled for one or more primary CPICHs, for each of these primary CPICHs:
 - 2> if all required reporting quantities are available for that cell, and if the equations have been fulfilled for a time period indicated by "Time to trigger", and if that primary CPICH is part of cells allowed to trigger the event according to "Triggering condition 1", and if that primary CPICH is not included in the "cells triggered" in the variable TRIGGERED_1B_EVENT:
 - 3> include that primary CPICH in the "cells recently triggered" in the variable TRIGGERED_1B_EVENT.
- 1> if any primary CPICHs are stored in the "cells recently triggered" in the variable TRIGGERED_1B_EVENT:
 - 2> if "Periodic reporting info-1b" is present, and "Reporting interval" for this event is not equal to 0:
 - 3> if the IE "Periodical reporting running" in the variable TRIGGERED_1B_EVENT is set to FALSE:

- 4> start a timer with the value of "Reporting interval" for this event and set the IE "Periodical reporting running" in the variable TRIGGERED_1B_EVENT to TRUE;
- 3> set "sent reports" for the primary CPICHs in "cells recently triggered" in the variable TRIGGERED_1B_EVENT to 1.
- 2> send a measurement report with IEs set as below:
 - 3> set in "intra-frequency measurement event results": "Intrafrequency event identity" to "1b"; and
 - 3> include in "cell measurement event results" all entries of "cells recently triggered" in the variable TRIGGERED_1B_EVENT in ascending order according to the configured measurement quantity taking into account the cell individual offset for each of those cells;
 - 3> set the IE "measured results" and the IE "additional measured results" according to subclause 8.4.2, not taking into account the cell individual offset for each cell.
- 2> move all entries from IE "cells recently triggered" to "cells triggered" in the variable TRIGGERED_1B_EVENT.
- 1> if the timer for the periodical reporting has expired:
 - 2> if any primary CPICH is included in the "cells triggered" in the variable TRIGGERED_1B_EVENT:
 - 3> if "Periodic reporting info-1b" is present:
 - 4> if "Reporting interval" is not equal to 0, and if "Amount of reporting" is greater than "sent reports" stored for any of these primary CPICHs, in "cells triggered" in the variable TRIGGERED_1B_EVENT:
 - 5> increment the stored counter "sent reports" for all CPICHs in "cell triggered" in variable TRIGGERED_1B_EVENT;
 - 5> start a timer with the value of "Reporting interval-1b" for this event;
 - 5> send a measurement report with IEs set as below:
 - 6> set in "intra-frequency measurement event results": "Intrafrequency event identity" to "1b"; and
 - 6> include in "cell measurement event results" all entries of the variable TRIGGERED_1B_EVENT with value of IE "sent reports" smaller than value of "Amount of reporting" in ascending order according to the configured measurement quantity taking into account the cell individual offset for each of those cells;
 - 6> set the IE "measured results" and the IE "additional measured results" according to subclause 8.4.2, not taking into account the cell individual offset for each cell.
 - 5> if "sent reports" in variable TRIGGERED_1B_EVENT is greater than "Amount of reporting" for all entries:
 - 6> set the IE "Periodical Reporting running" in the variable TRIGGERED_1B_EVENT to FALSE and disable the timer for the periodical reporting.
 - 1> if "Measurement quantity" is "pathloss" and Equation 3 below is fulfilled for a primary CPICH, or if "Measurement quantity" is "CPICH E_c/N_0 " or "CPICH RSCP", and Equation 4 below is fulfilled for a primary CPICH; or
 - 1> if a primary CPICH is no longer part of the cells allowed to trigger the event according to the "Triggering condition 1":
 - 2> if that primary CPICH is included in the "cells triggered" in the variable TRIGGERED_1B_EVENT:
 - 3> remove the entry of that primary CPICH from "cells triggered" in the variable TRIGGERED_1B_EVENT.

Equation 1 (Triggering condition for pathloss)

$$10 \cdot \text{Log}M_{Old} + CIO_{Old} \geq W \cdot 10 \cdot \text{Log} \left(1 / \sum_{i=1}^{N_A} (1/M_i) \right) + (1-W) \cdot 10 \cdot \text{Log}M_{Best} + (R_{1b} + H_{1b} / 2),$$

Equation 2 (Triggering condition for all the other measurement quantities)

$$10 \cdot \text{Log}M_{Old} + CIO_{Old} \leq W \cdot 10 \cdot \text{Log} \left(\sum_{i=1}^{N_A} M_i \right) + (1-W) \cdot 10 \cdot \text{Log}M_{Best} - (R_{1b} + H_{1b} / 2),$$

Equation 3 (Leaving triggering condition for pathloss)

$$10 \cdot \text{Log}M_{Old} + CIO_{Old} < W \cdot 10 \cdot \text{Log} \left(1 / \sum_{i=1}^{N_A} (1/M_i) \right) + (1-W) \cdot 10 \cdot \text{Log}M_{Best} + (R_{1b} - H_{1b} / 2),$$

Equation 4 (Leaving triggering condition for all the other measurement quantities)

$$10 \cdot \text{Log}M_{Old} + CIO_{Old} > W \cdot 10 \cdot \text{Log} \left(\sum_{i=1}^{N_A} M_i \right) + (1-W) \cdot 10 \cdot \text{Log}M_{Best} - (R_{1b} - H_{1b} / 2),$$

The variables in the formula are defined as follows:

M_{Old} is the measurement result of the cell leaving the reporting range.

CIO_{Old} is the individual cell offset for the cell leaving the reporting range if an individual cell offset is stored for that cell. Otherwise it is equal to 0.

M_i is a measurement result of a cell not forbidden to affect reporting range in the active set.

N_A is the number of cells not forbidden to affect reporting range in the current active set.

For pathloss

M_{Best} is the measurement result of the cell not forbidden to affect reporting range in the active set with the lowest measurement result, not taking into account any cell individual offset.

for other measurements quantities.

M_{Best} is the measurement result of the cell not forbidden to affect reporting range in the active set with the highest measurement result, not taking into account any cell individual offset.

W is a parameter sent from UTRAN to UE.

R_{1b} is the reporting range constant.

H_{1b} is the hysteresis parameter for the event 1b.

If the measurement results are pathloss or CPICH-Ec/No then M_{Old} , M_i and M_{Best} are expressed as ratios.

If the measurement result is CPICH-RSCP then M_{Old} , M_i and M_{Best} are expressed in mW.

14.1.4.x Cell removal failure (FDD only)

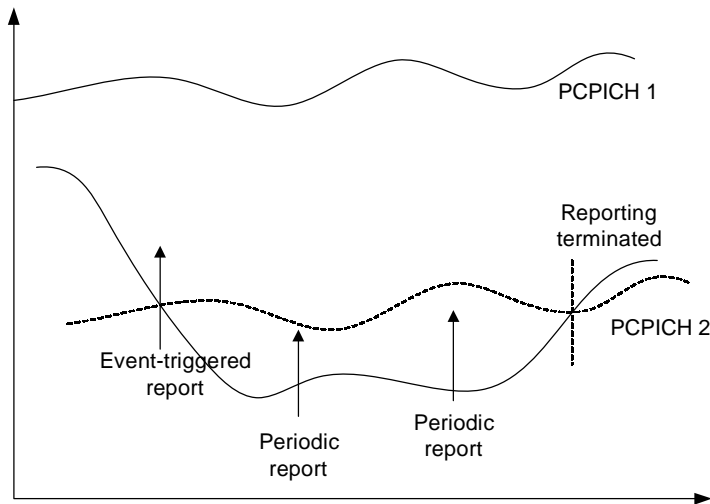


Figure 14.1.4.1-x: Periodic reporting triggered by event 1B

When a cell enters the removal range and triggers event 1B, the UE shall transmit a MEASUREMENT REPORT to the UTRAN and typically this may result in the removal of the weakest active cell. If the UTRAN is unable to receive MEASUREMENT REPORT after the maximum retransmission, it is beneficial to receive continuous reports in this case as well.

The UE shall revert to periodical measurement reporting if the UTRAN does not update the active set after the transmission of the measurement report. This is illustrated in Figure 14.1.4.1-x. During periodic reporting the UE shall transmit MEASUREMENT REPORT messages to the UTRAN at predefined intervals.

Event-triggered periodic measurement reporting shall be terminated if:

- 1> there are no longer any monitored cell(s) within the removal range; or
- 1> the UTRAN has removed cells from the active set so that there are no longer the minimum amount of active cells for event 1B to be triggered; or
- 1> the UE has sent the maximum number of MEASUREMENT REPORT messages (defined by the **amount of reporting parameter**).

The reporting period is assigned by the UTRAN (with the **Reporting interval** parameter). If the reporting interval is set to zero, event-triggered periodic measurement reporting shall not be applied.

CHANGE REQUEST

25.331 CR 1797 # rev **-** # Current version: **5.2.0**

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:	# DPC mode change in ACTIVE SET UPDATE message		
Source:	# Ericsson		
Work item code:	# TEI-5	Date:	# 14/11/2002
Category:	# F	Release:	# Rel-5
	Use <u>one</u> 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 <u>one</u> 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: # DPC mode is the rate for which power control commands should be treated. DPC mode can be configured having the values 0 or 1 according to 25.214 [29]. In case of 0 (called "single TPC" in 25.331) the UE shall send a unique TPC command in every slot to control the Node-B DL power. In case of 1 (called "TPC triplet in soft" in 25.331) the UE shall repeat the same TPC command in 3 slots.

The use of DPC mode 1 is mainly for making the DL power control somewhat slower in case of soft handover.

Currently it is possible to change the configuration of the DPC mode in UTRAN by means of the Radio Interface Parameter Update in the DCH FP on lub and lur.

However, RRC signalling do not support to change DPC mode in the ACTIVE SET UPDATE message which is the message that will add and delete radio links towards the UE. This means that in order to get the UE to use the DPC mode that corresponds to the number of RLS after an active set update procedure, UTRAN need to send an additional configuration message such as a PHYSICAL CHANNEL RECONFIGURATION.

This could be seen as a misalignment between the Uu and UTRAN interfaces.

It could be noted that the following messages can today signal the DPC mode in RRC:
 CELL UPDATE CONFIRM, HANDOVER TO UTRAN COMMAND, PHYSICAL CHANNEL RECONFIGURATION, RADIO BEARER RECONFIGURATION, RADIO BEARER RELEASE, RADIO BEARER SETUP, RRC CONNECTION SETUP and TRANSPORT CHANNEL RECONFIGURATION

	Although all these messages are reconfigurations and not related to addition or deletions of RLs.
Summary of change: ⌘	<p>Addition of IE "DPC mode" in the ACTIVE SET UPDATE message. Addition of a section in 8.6 on UE actions if DPC mode is included and UE actions if DPC mode is not included.</p> <p>In the ASN.1 non critical extension is made to include the DPC mode IE in the ACTIVE SET UPDATE message.</p>
Consequences if not approved: ⌘	In order to achieve a reconfiguration from DPC mode 0 to DPC mode 1 in case of adding one RL (which is the normal case), UTRAN need to send a physical channel reconfiguration in addition to a active set update message to do the configuration change based on adding one RL to the active set. This is very inefficient and time consuming.

Clauses affected: ⌘	8.6.6.35 (New), 10.2.1, 11.2									
Other specs affected:	<table border="1"> <tr> <td>Y</td> <td>N</td> </tr> <tr> <td></td> <td>X</td> </tr> <tr> <td></td> <td>X</td> </tr> <tr> <td></td> <td>X</td> </tr> </table>	Y	N		X		X		X	Other core specifications ⌘ Test specifications ⌘ O&M Specifications ⌘
Y	N									
	X									
	X									
	X									
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.

8.6.6 Physical channel information elements

This subclause specifies the actions upon reception and/or non-reception of the physical channel information elements. The combination of the values of those information elements included in a given message shall follow the compatibility rules that are specified in the physical layer specifications. In case those rules are not followed, the UE shall set the variable INVALID_CONFIGURATION to TRUE.

8.6.6.35 DPC Mode

If the IE "DPC Mode" is included, the UE shall:

- 1> apply the indicated DPC mode according to [29].

If the IE "DPC Mode" is not included, the UE shall:

- 1> continue with the currently used DPC mode.

10.2 Radio Resource Control messages

10.2.1 ACTIVE SET UPDATE

NOTE: Only for FDD.

This message is used by UTRAN to add, replace or delete radio links in the active set of the UE.

RLC-SAP: AM or UM

Logical channel: DCCH

Direction: UTRAN → UE

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
Message Type	MP		Message Type		
UE information elements					
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.36		
Integrity check info	CH		Integrity check info 10.3.3.16		
Activation time	MD		Activation time 10.3.3.1	Default value is "now".	
New U-RNTI	OP		U-RNTI 10.3.3.47		
CN information elements					
CN Information info	OP		CN Information info 10.3.1.3		
Phy CH information elements					
Uplink radio resources					
Maximum allowed UL TX power	MD		Maximum allowed UL TX power 10.3.6.39	Default value is the existing "maximum UL TX power."	
Downlink radio resources					
Radio link addition information	OP	1 to <maxRL-1>		Radio link addition information required for each RL to add	
>Radio link addition information	MP		Radio link		

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
			addition information 10.3.6.68		
Radio link removal information	OP	1 to <maxRL>		Radio link removal information required for each RL to remove	
>Radio link removal information	MP		Radio link removal information 10.3.6.69		
TX Diversity Mode	MD		TX Diversity Mode 10.3.6.86	Default value is the existing TX diversity mode.	
SSDT information	OP		SSDT information 10.3.6.77		
<u>DPC Mode</u>	<u>OP</u>		<u>Enumerated (Single TPC, TPC triplet in soft)</u>	<u>"Single TPC" is DPC Mode=0 and "TPC triplet in soft" is DPC mode=1 in [29].</u>	<u>REL-5</u>

10.2.22 PHYSICAL CHANNEL RECONFIGURATION

This message is used by UTRAN to assign, replace or release a set of physical channels used by a UE.

RLC-SAP: AM or UM

Logical channel: DCCH

Direction: UTRAN → UE

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
Message Type	MP		Message Type		
UE Information Elements					
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.36		
Integrity check info	CH		Integrity check info 10.3.3.16		
Integrity protection mode info	OP		Integrity protection mode info 10.3.3.19		
Ciphering mode info	OP		Ciphering mode info 10.3.3.5		
Activation time	MD		Activation time 10.3.3.1	Default value is "now"	
New U-RNTI	OP		U-RNTI 10.3.3.47		
New C-RNTI	OP		C-RNTI 10.3.3.8		
New DSCH-RNTI	OP		DSCH-RNTI 10.3.3.9a		
New H-RNTI	OP		H-RNTI 10.3.3.14a		REL-5

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
RRC State Indicator	MP		RRC State Indicator 10.3.3.10		
UTRAN DRX cycle length coefficient	OP		UTRAN DRX cycle length coefficient 10.3.3.49		
CN Information Elements					
CN Information info	OP		CN Information info 10.3.1.3		
UTRAN mobility information elements					
URA identity	OP		URA identity 10.3.2.6		
RB information elements					
Downlink counter synchronisation info	OP				
>RB with PDCP information list	OP	1 to <maxRBall RABs>			
>>RB with PDCP information	MP		RB with PDCP information 10.3.4.22	This IE is needed for each RB having PDCP in the case of lossless SRNS relocation	
	OP				REL-5
>>PDCP context relocation info	OP		PDCP context relocation info 10.3.4.1a	This IE is needed for each RB having PDCP and performing PDCP context relocation	REL-5
PhyCH information elements					
Frequency info	OP		Frequency info 10.3.6.36		
Uplink radio resources					
Maximum allowed UL TX power	MD		Maximum allowed UL TX power 10.3.6.39	Default value is the existing value of the maximum allowed UL TX power	
CHOICE <i>channel requirement</i>					
>Uplink DPCH info			Uplink DPCH info 10.3.6.88		
>CPCH SET Info			CPCH SET Info 10.3.6.13		
>CPCH set ID			CPCH set ID 10.3.5.3		
Downlink radio resources					
CHOICE <i>mode</i>					
>FDD					
>>Downlink PDSCH information	OP		Downlink PDSCH information 10.3.6.30		
>TDD				(no data)	
Downlink HS-PDSCH Information	OP		Downlink HS_PDSCH Information 10.3.6.23a		REL-5
Downlink information common	OP		Downlink		

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
for all radio links			information common for all radio links 10.3.6.24		
Downlink information per radio link list	OP	1 to <maxRL>		Send downlink information for each radio link	
>Downlink information for each radio link	MP		Downlink information for each radio link 10.3.6.27		

10.3.6.18 Downlink DPCH info common for all RL

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Timing Indication	MP		Enumerated(Initialise, Maintain)	NOTE
CFN-targetSFN frame offset	CV- <i>TimInd</i>		Integer(0..255)	In frame
Downlink DPCH power control information	OP		Downlink DPCH power control information 10.3.6.23	
CHOICE <i>mode</i>	MP			
>FDD				
>>Power offset $P_{\text{Pilot-DPCH}}$	MP		Integer(0..24)	Power offset equals $P_{\text{Pilot}} - P_{\text{DPDCH}}$, range 0..6 dB, in steps of 0.25 dB
>>Downlink rate matching restriction information	OP		Downlink rate matching restriction information 10.3.6.31	If this IE is set to "absent", no Transport CH is restricted in TFI.
>>Spreading factor	MP		Integer(4, 8, 16, 32, 64, 128, 256, 512)	
>>Fixed or Flexible Position	MP		Enumerated (Fixed, Flexible)	
>>TFCI existence	MP		Boolean	TRUE indicates that TFCI is used. When spreading factor is less than or equal to 64, FALSE indicates that TFCI is not used and therefore DTX is used in the TFCI field.
>>CHOICE <i>SF</i>	MP			
>>>SF = 256				
>>>>Number of bits for Pilot bits	MP		Integer (2,4,8)	In bits
>>>SF = 128				
>>>>Number of bits for Pilot bits	MP		Integer(4,8)	In bits
>>>Otherwise				(no data). In ASN.1 choice "Otherwise" is not explicitly available as all values are available, it is implied by the use of any value other than 128 or 256.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
>TDD				(no data)

CHOICE SF	Condition under which the given SF is chosen
SF=128	"Spreading factor" is set to 128
SF=256	"Spreading factor" is set to 256
Otherwise	"Spreading factor" is set to a value distinct from 128 and 256

Condition	Explanation
<i>TimInd</i>	This IE is optional if the IE "Timing Indication" is set to "Initialise". Otherwise it is not needed.

NOTE: WITHIN the HANDOVER TO UTRAN COMMAND message, only value "initialise" is applicable.

10.3.6.19 Downlink DPCH info common for all RL Post

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Downlink DPCH power control information	OP		Downlink DPCH power control information 10.3.6.23	

10.3.6.23 Downlink DPCH power control information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>mode</i>	MP			
>FDD				
>>DPC Mode	MP		Enumerated (Single TPC, TPC triplet in soft)	"Single TPC" is DPC_Mode=0 and "TPC triplet in soft" is DPC_mode=1 in [29].
>TDD				
>>TPC Step Size	OP		Integer (1, 2, 3)	In dB

10.3.6.24 Downlink information common for all radio links

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
Downlink DPCH info common for all RL	OP		Downlink DPCH info common for all RL 10.3.6.18		
CHOICE <i>mode</i>	MP				
>FDD					
>>DPCH compressed mode info	MD		DPCH compressed mode info 10.3.6.33	Default value is the existing value of DPCH compressed mode information	
>>TX Diversity Mode	MD		TX Diversity Mode 10.3.6.86	Default value is the existing value of TX Diversity	

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
				mode	
>>SSDT information	OP		SSDT information 10.3.6.77		
>TDD				(no data)	
>>CHOICE <i>TDD option</i>	MP				REL-4
>>>3.84 Mcps TDD				(no data)	REL-4
>>>1.28 Mcps TDD					REL-4
>>>>TSTD indicator	MP		TSTD indicator 10.3.6.85a		REL-4
Default DPCH Offset Value	OP		Default DPCH Offset Value, 10.3.6.16		

11.2 PDU definitions

```

--*****
--
-- TABULAR: The message type and integrity check info are not
-- visible in this module as they are defined in the class module.
-- Also, all FDD/TDD specific choices have the FDD option first
-- and TDD second, just for consistency.
--
--*****

PDU-definitions DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

--*****
--
-- IE parameter types from other modules
--
--*****

IMPORTS

-- Core Network IEs :
  CN-DomainIdentity,
  CN-InformationInfo,
  CN-InformationInfoFull,
  NAS-Message,
  PagingRecordTypeID,
-- UTRAN Mobility IEs :
  CellIdentity,
  CellIdentity-PerRL-List,
  URA-Identity,
-- User Equipment IEs :
  ActivationTime,
  C-RNTI,
  CapabilityUpdateRequirement,
  CapabilityUpdateRequirement-r4,
  CapabilityUpdateRequirement-r4-ext,
  CellUpdateCause,
  CipheringAlgorithm,
  CipheringModeInfo,
  DSCH-RNTI,
  EstablishmentCause,
  FailureCauseWithProtErr,
  FailureCauseWithProtErrTrId,
  H-RNTI,
  InitialUE-Identity,
  IntegrityProtActivationInfo,
  IntegrityProtectionModeInfo,
  N-308,
  PagingCause,

```

```

PagingRecordList,
ProtocolErrorIndicator,
ProtocolErrorIndicatorWithMoreInfo,
Rb-timer-indicator,
RedirectionInfo,
RejectionCause,
ReleaseCause,
RRC-StateIndicator,
RRC-TransactionIdentifier,
SecurityCapability,
START-Value,
STARTList,
U-RNTI,
U-RNTI-Short,
UE-RadioAccessCapability,
UE-RadioAccessCapability-r4-ext,
UE-RadioAccessCapability-r5-ext,
UE-RadioAccessCapability-v370ext,
UE-RadioAccessCapability-v380ext,
UE-RadioAccessCapability-v3a0ext,
UE-RadioAccessCapability-v4xyext,
DL-PhysChCapabilityFDD-v380ext,
UE-ConnTimersAndConstants,
UE-ConnTimersAndConstants-v3a0ext,
UE-ConnTimersAndConstants-r5,
UE-SecurityInformation,
URA-UpdateCause,
UTRAN-DRX-CycleLengthCoefficient,
WaitTime,
-- Radio Bearer IEs :
DefaultConfigIdentity,
DefaultConfigIdentity-r4,
DefaultConfigMode,
DL-CounterSynchronisationInfo,
DL-CounterSynchronisationInfo-r5,
PredefinedConfigIdentity,
PredefinedConfigStatusList,
RAB-Info,
RAB-Info-Post,
RAB-InformationList,
RAB-InformationReconfigList,
RAB-InformationSetupList,
RAB-InformationSetupList-r4,
RB-ActivationTimeInfoList,
RB-COUNT-C-InformationList,
RB-COUNT-C-MSB-InformationList,
RB-IdentityList,
RB-InformationAffectedList,
RB-InformationAffectedList-r5,
RB-InformationReconfigList,
RB-InformationReconfigList-r4,
RB-InformationReconfigList-r5,
RB-InformationReleaseList,
RB-PDCPContextRelocationList,
SRB-InformationSetupList,
SRB-InformationSetupList2,
UL-CounterSynchronisationInfo,
-- Transport Channel IEs:
CPCH-SetID,
DL-AddReconfTransChInfo2List,
DL-AddReconfTransChInfoList,
DL-AddReconfTransChInfoList-r4,
DL-AddReconfTransChInfoList-r5,
DL-CommonTransChInfo,
DL-CommonTransChInfo-r4,
DL-DeletedTransChInfoList,
DL-DeletedTransChInfoList-r5,
DRAC-StaticInformationList,
TFC-Subset,
TFCS-Identity,
UL-AddReconfTransChInfoList,
UL-CommonTransChInfo,
UL-CommonTransChInfo-r4,
UL-DeletedTransChInfoList,
-- Physical Channel IEs :
Alpha,
CCTrCH-PowerControlInfo,
CCTrCH-PowerControlInfo-r4,

```

```

ConstantValue,
ConstantValueTdd,
CPCH-SetInfo,
DL-CommonInformation,
DL-CommonInformation-r4,
DL-CommonInformationPost,
DL-HSPDSCH-Information,
DL-InformationPerRL,
DL-InformationPerRL-List,
DL-InformationPerRL-List-r4,
DL-InformationPerRL-List-r5,
DL-InformationPerRL-ListPostFDD,
DL-InformationPerRL-PostTDD,
DL-InformationPerRL-PostTDD-LCR-r4,
DL-PDSCH-Information,
DPCH-CompressedModeStatusInfo,
FrequencyInfo,
FrequencyInfoFDD,
FrequencyInfoTDD,
MaxAllowedUL-TX-Power,
OpenLoopPowerControl-IPDL-TDD-r4,
PDSCH-CapacityAllocationInfo,
PDSCH-CapacityAllocationInfo-r4,
PDSCH-Identity,
PrimaryCCPCH-TX-Power,
PUSCH-CapacityAllocationInfo,
PUSCH-CapacityAllocationInfo-r4,
PUSCH-Identity,
RL-AdditionInformationList,
RL-RemovalInformationList,
SpecialBurstScheduling,
SSDT-Information,
TFC-ControlDuration,
SSDT-UL-r4,
TimeslotList,
TimeslotList-r4,
TX-DiversityMode,
UL-ChannelRequirement,
UL-ChannelRequirement-r4,
UL-ChannelRequirement-r5,
UL-ChannelRequirementWithCPCH-SetID,
UL-ChannelRequirementWithCPCH-SetID-r4,
UL-ChannelRequirementWithCPCH-SetID-r5,
UL-DPCH-Info,
UL-DPCH-Info-r4,
UL-DPCH-InfoPostFDD,
UL-DPCH-InfoPostTDD,
UL-DPCH-InfoPostTDD-LCR-r4,
UL-SynchronisationParameters-r4,
UL-TimingAdvance,
UL-TimingAdvanceControl,
UL-TimingAdvanceControl-r4,
-- Measurement IEs :
AdditionalMeasurementID-List,
Frequency-Band,
EventResults,
InterFreqEventResults-LCR-r4-ext,
InterRAT-TargetCellDescription,
MeasuredResults,
MeasuredResults-v390ext,
MeasuredResultsList,
MeasuredResultsList-LCR-r4-ext,
MeasuredResultsOnRACH,
MeasurementCommand,
MeasurementCommand-r4,
MeasurementIdentity,
MeasurementReportingMode,
PrimaryCCPCH-RSCP,
SFN-Offset-Validity,
TimeslotListWithISCP,
TrafficVolumeMeasuredResultsList,
UE-Positioning-GPS-AssistanceData,
UE-Positioning-Measurement-v390ext,
UE-Positioning-OTDOA-AssistanceData,
UE-Positioning-OTDOA-AssistanceData-r4ext,
UE-Positioning-OTDOA-AssistanceData-UEB,
UE-Positioning-IPDL-Parameters-TDD-r4-ext,
-- Other IEs :
BCCH-ModificationInfo,

```

```

CDMA2000-MessageList,
GSM-MessageList,
InterRAT-ChangeFailureCause,
InterRAT-HO-FailureCause,
InterRAT-UE-RadioAccessCapabilityList,
InterRAT-UE-SecurityCapList,
IntraDomainNasNodeSelector,
ProtocolErrorMoreInformation,
Rplmn-Information,
Rplmn-Information-r4,
SegCount,
SegmentIndex,
SFN-Prime,
SIB-Data-fixed,
SIB-Data-variable,
SIB-Type
FROM InformationElements

maxSIBperMsg
FROM Constant-definitions;

-- *****
--
-- ACTIVE SET UPDATE (FDD only)
--
-- *****

ActiveSetUpdate ::= CHOICE {
    r3
        SEQUENCE {
            activeSetUpdate-r3          ActiveSetUpdate-r3-IEs,
            v4xyNonCriticalExtensions    SEQUENCE {
                activeSetUpdate-v4xyext  ActiveSetUpdate-v4xyext-IEs,
                v5xyNonCriticalExtensions SEQUENCE {
                    activeSetUpdate-v5xyext  ActiveSetUpdate-v5xyext-IEs,
                    nonCriticalExtensions    SEQUENCE {} OPTIONAL
                } OPTIONAL
            } OPTIONAL
        },
    later-than-r3
        SEQUENCE {
            rrc-TransactionIdentifier    RRC-TransactionIdentifier,
            criticalExtensions            SEQUENCE {}
        }
}

ActiveSetUpdate-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
    rrc-TransactionIdentifier    RRC-TransactionIdentifier,
    -- dummy and dummy2 are not used in this version of the specification, they should
    -- not be sent and if received they should be ignored.
    dummy                        IntegrityProtectionModeInfo        OPTIONAL,
    dummy2                       CipherringModeInfo                OPTIONAL,
    activationTime                ActivationTime                    OPTIONAL,
    newU-RNTI                     U-RNTI                          OPTIONAL,
    -- Core network IEs
    cn-InformationInfo            CN-InformationInfo                OPTIONAL,
    -- Radio bearer IEs
    -- dummy3 is not used in this version of the specification, it should
    -- not be sent and if received it should be ignored.
    dummy3                       DL-CounterSynchronisationInfo    OPTIONAL,
    -- Physical channel IEs
    maxAllowedUL-TX-Power         MaxAllowedUL-TX-Power        OPTIONAL,
    rl-AdditionInformationList     RL-AdditionInformationList   OPTIONAL,
    rl-RemovalInformationList      RL-RemovalInformationList    OPTIONAL,
    tx-DiversityMode              TX-DiversityMode             OPTIONAL,
    ssdt-Information              SSDT-Information            OPTIONAL
}

ActiveSetUpdate-v4xyext-IEs ::= SEQUENCE {
    -- Physical channel IEs
    -- ssdt-UL extends SSdT-Information. FDD only.
    ssdt-UL                      SSdT-UL-r4                        OPTIONAL,
    -- The order of the RLs in IE cell-id-PerRL-List is the same as
    -- in IE RL-AdditionInformationList included in this message
    cell-id-PerRL-List            CellIdentity-PerRL-List    OPTIONAL
}

ActiveSetUpdate-v5xyext-IEs ::= SEQUENCE {
    -- Physical channel IEs
    dpc-Mode                      DPC-Mode
}

```

```

}
-- *****
--
-- ACTIVE SET UPDATE COMPLETE (FDD only)
--
-- *****

ActiveSetUpdateComplete ::= SEQUENCE {
  -- User equipment IEs
  rrc-TransactionIdentifier      RRC-TransactionIdentifier,
  -- dummy is not used in this version of the specification, it should
  -- not be sent and if received it should be ignored.
  dummy                          IntegrityProtActivationInfo      OPTIONAL,
  -- Radio bearer IEs
  -- dummy2 and dummy3 are not used in this version of the specification, they should
  -- not be sent and if received they should be ignored.
  dummy2                         RB-ActivationTimeInfoList       OPTIONAL,
  dummy3                         UL-CounterSynchronisationInfo   OPTIONAL,
  -- Extension mechanism for non- release99 information
  nonCriticalExtensions          SEQUENCE {} OPTIONAL
}

```

11.3 Information element definitions

```

-- *****
--
-- PHYSICAL CHANNEL INFORMATION ELEMENTS (10.3.6)
--
-- *****

ACK-NACK-repetitionFactor ::=      INTEGER(1..4)

AC-To-ASC-Mapping ::=              INTEGER (0..7)

AC-To-ASC-MappingTable ::=         SEQUENCE (SIZE (maxASCmap)) OF
                                   AC-To-ASC-Mapping

AccessServiceClass-FDD ::=         SEQUENCE {
  availableSignatureStartIndex      INTEGER (0..15),
  availableSignatureEndIndex        INTEGER (0..15),

  assignedSubChannelNumber          BIT STRING {
                                     b3(0),
                                     b2(1),
                                     b1(2),
                                     b0(3)
                                   } (SIZE(4))
}

AccessServiceClass-TDD ::=         SEQUENCE {
  channelisationCodeIndices         BIT STRING {
                                     chCodeIndex7(0),
                                     chCodeIndex6(1),
                                     chCodeIndex5(2),
                                     chCodeIndex4(3),
                                     chCodeIndex3(4),
                                     chCodeIndex2(5),
                                     chCodeIndex1(6),
                                     chCodeIndex0(7)
                                   } (SIZE(8))      OPTIONAL,

  subchannelSize                    CHOICE {
    size1                            NULL,
    size2                            SEQUENCE {
      -- subch0 means bitstring '01' in the tabular, subch1 means bitsring '10'
      subchannels                     ENUMERATED { subch0, subch1 } OPTIONAL
    },
    size4                            SEQUENCE {
      subchannels                     BIT STRING {
                                     subCh3(0),
                                     subCh2(1),
                                     subCh1(2),
                                     subCh0(3)
                                   } (SIZE(4))      OPTIONAL
    }
  }
}

```



```

    },
    size8
    subchannels
        SEQUENCE {
            BIT STRING {
                subCh7(0),
                subCh6(1),
                subCh5(2),
                subCh4(3),
                subCh3(4),
                subCh2(5),
                subCh1(6),
                subCh0(7)
            } (SIZE(8))
        } OPTIONAL
    }
}

AccessServiceClass-TDD-LCR-r4 ::= SEQUENCE {
    availableSYNC-UlCodesIndics
        BIT STRING {
            sulCodeIndex7(0),
            sulCodeIndex6(1),
            sulCodeIndex5(2),
            sulCodeIndex4(3),
            sulCodeIndex3(4),
            sulCodeIndex2(5),
            sulCodeIndex1(6),
            sulCodeIndex0(7)
        } (SIZE(8))
        OPTIONAL,
    subchannelSize
        CHOICE {
            size1
                NULL,
            size2
                SEQUENCE {
                    -- subch0 means bitstring '01' in the tabular, subch1 means bitsring '10'.
                    subchannels
                        ENUMERATED { subch0, subch1 }
                } OPTIONAL
        },
    size4
        subchannels
            SEQUENCE {
                BIT STRING {
                    subCh3(0),
                    subCh2(1),
                    subCh1(2),
                    subCh0(3)
                } (SIZE(4))
            } OPTIONAL
    },
    size8
        subchannels
            SEQUENCE {
                BIT STRING {
                    subCh7(0),
                    subCh6(1),
                    subCh5(2),
                    subCh4(3),
                    subCh3(4),
                    subCh2(5),
                    subCh1(6),
                    subCh0(7)
                } (SIZE(8))
            } OPTIONAL
    }
}

AICH-Info ::= SEQUENCE {
    channelisationCode256
        ChannelisationCode256,
    sttd-Indicator
        BOOLEAN,
    aich-TransmissionTiming
        AICH-TransmissionTiming
}

AICH-PowerOffset ::= INTEGER (-22..5)

AICH-TransmissionTiming ::= ENUMERATED {
    e0, e1 }

AllocationPeriodInfo ::= SEQUENCE {
    allocationActivationTime
        INTEGER (0..255),
    allocationDuration
        INTEGER (1..256)
}

-- Actual value Alpha = IE value * 0.125
Alpha ::= INTEGER (0..8)

AP-AICH-ChannelisationCode ::= INTEGER (0..255)

```

```

AP-PreambleScramblingCode ::=      INTEGER (0..79)

AP-Signature ::=                    INTEGER (0..15)

AP-Signature-VCAM ::=               SEQUENCE {
    ap-Signature                     AP-Signature,
    availableAP-SubchannelList       AvailableAP-SubchannelList OPTIONAL
}

AP-Subchannel ::=                   INTEGER (0..11)

ASCSetting-FDD ::=                  SEQUENCE {
    -- TABULAR: accessServiceClass-FDD is MD in tabular description
    -- Default value is previous ASC
    -- If this is the first ASC, the default value is all available signature and sub-channels
    accessServiceClass-FDD           AccessServiceClass-FDD OPTIONAL
}

ASCSetting-TDD ::=                  SEQUENCE {
    -- TABULAR: accessServiceClass-TDD is MD in tabular description
    -- Default value is previous ASC
    -- If this is the first ASC, the default value is all available channelisation codes and
    -- all available sub-channels with subchannelSize=size1.
    accessServiceClass-TDD           AccessServiceClass-TDD OPTIONAL
}

ASCSetting-TDD-LCR-r4 ::=           SEQUENCE {
    -- TABULAR: accessServiceClass-TDD-LCR is MD in tabular description
    -- Default value is previous ASC
    -- If this is the first ASC, the default value is all available SYNC_UL codes and
    -- all available sub-channels with subchannelSize=size1.
    accessServiceClass-TDD-LCR       AccessServiceClass-TDD-LCR-r4 OPTIONAL
}

AvailableAP-Signature-VCAMList ::=  SEQUENCE (SIZE (1..maxPCPCH-APsig)) OF
    AP-Signature-VCAM

AvailableAP-SignatureList ::=       SEQUENCE (SIZE (1..maxPCPCH-APsig)) OF
    AP-Signature

AvailableAP-SubchannelList ::=      SEQUENCE (SIZE (1..maxPCPCH-APsubCh)) OF
    AP-Subchannel

AvailableMinimumSF-ListVCAM ::=     SEQUENCE (SIZE (1..maxPCPCH-SF)) OF
    AvailableMinimumSF-VCAM

AvailableMinimumSF-VCAM ::=         SEQUENCE {
    minimumSpreadingFactor           MinimumSpreadingFactor,
    nf-Max                           NF-Max,
    maxAvailablePCPCH-Number         MaxAvailablePCPCH-Number,
    availableAP-Signature-VCAMList   AvailableAP-Signature-VCAMList
}

AvailableSignatures ::=             BIT STRING {
    signature15(0),
    signature14(1),
    signature13(2),
    signature12(3),
    signature11(4),
    signature10(5),
    signature9(6),
    signature8(7),
    signature7(8),
    signature6(9),
    signature5(10),
    signature4(11),
    signature3(12),
    signature2(13),
    signature1(14),
    signature0(15)
} (SIZE(16))

AvailableSubChannelNumbers ::=      BIT STRING {
    subCh11(0),
    subCh10(1),
    subCh9(2),
    subCh8(3),
    subCh7(4),

```

```

        subCh6(5),
        subCh5(6),
        subCh4(7),
        subCh3(8),
        subCh2(9),
        subCh1(10),
        subCh0(11)
    } (SIZE(12))

BurstType ::= ENUMERATED {
    short1, long2 }

-- Actual value Bler-Target = IE value * 0.05
Bler-Target ::= INTEGER (-63..0)

CCTrCH-PowerControlInfo ::= SEQUENCE {
    tfcs-Identity          TFCS-Identity          OPTIONAL,
    ul-DPCH-PowerControlInfo  UL-DPCH-PowerControlInfo
}

CCTrCH-PowerControlInfo-r4 ::= SEQUENCE {
    tfcs-Identity          TFCS-Identity          OPTIONAL,
    ul-DPCH-PowerControlInfo-r4  UL-DPCH-PowerControlInfo-r4
}

CD-AccessSlotSubchannel ::= INTEGER (0..11)

CD-AccessSlotSubchannelList ::= SEQUENCE (SIZE (1..maxPCPCH-CDsubCh)) OF
    CD-AccessSlotSubchannel

CD-CA-ICH-ChannelisationCode ::= INTEGER (0..255)

CD-PreambleScramblingCode ::= INTEGER (0..79)

CD-SignatureCode ::= INTEGER (0..15)

CD-SignatureCodeList ::= SEQUENCE (SIZE (1..maxPCPCH-CDsig)) OF
    CD-SignatureCode

CellAndChannelIdentity ::= SEQUENCE {
    burstType          BurstType,
    midambleShift      MidambleShiftLong,
    timeslot           TimeslotNumber,
    cellParametersID   CellParametersID
}

CellParametersID ::= INTEGER (0..127)

Cfntargetsfnframeoffset ::= INTEGER(0..255)

ChannelAssignmentActive ::= CHOICE {
    notActive          NULL,
    isActive           AvailableMinimumSF-ListVCAM
}

ChannelisationCode256 ::= INTEGER (0..255)

ChannelReqParamsForUCSM ::= SEQUENCE {
    availableAP-SignatureList  AvailableAP-SignatureList,
    availableAP-SubchannelList AvailableAP-SubchannelList          OPTIONAL
}

ClosedLoopTimingAdjMode ::= ENUMERATED {
    slot1, slot2 }

CodeNumberDSCH ::= INTEGER (0..255)

CodeRange ::= SEQUENCE {
    pdsch-CodeMapList  PDSCH-CodeMapList
}

CodeWordSet ::= ENUMERATED {
    longCWS,
    mediumCWS,
    shortCWS,
    ssdtOff }

CommonTimeslotInfo ::= SEQUENCE {

```

```

-- TABULAR: secondInterleavingMode is MD, but since it can be encoded in a single
-- bit it is not defined as OPTIONAL.
secondInterleavingMode      SecondInterleavingMode,
tfci-Coding                  TFCI-Coding                      OPTIONAL,
puncturingLimit              PuncturingLimit,
repetitionPeriodAndLength    RepetitionPeriodAndLength        OPTIONAL
}

CommonTimeslotInfoSCCPCH ::=          SEQUENCE {
-- TABULAR: secondInterleavingMode is MD, but since it can be encoded in a single
-- bit it is not defined as OPTIONAL.
secondInterleavingMode      SecondInterleavingMode,
tfci-Coding                  TFCI-Coding                      OPTIONAL,
puncturingLimit              PuncturingLimit,
repetitionPeriodLengthAndOffset  RepetitionPeriodLengthAndOffset  OPTIONAL
}

ConstantValue ::=                    INTEGER (-35..-10)

ConstantValueTdd ::=                 INTEGER (-35..10)

CPCH-PersistenceLevels ::=           SEQUENCE {
  cpch-SetID                  CPCH-SetID,
  dynamicPersistenceLevelTF-List  DynamicPersistenceLevelTF-List
}

CPCH-PersistenceLevelsList ::=        SEQUENCE (SIZE (1..maxCPCHsets)) OF
  CPCH-PersistenceLevels

CPCH-SetInfo ::=                     SEQUENCE {
  cpch-SetID                  CPCH-SetID,
  transportFormatSet          TransportFormatSet,
  tfcs                         TFCS,
  ap-PreambleScramblingCode    AP-PreambleScramblingCode,
  ap-AICH-ChannelisationCode    AP-AICH-ChannelisationCode,
  cd-PreambleScramblingCode      CD-PreambleScramblingCode,
  cd-CA-ICH-ChannelisationCode    CD-CA-ICH-ChannelisationCode,
  cd-AccessSlotSubchannelList    CD-AccessSlotSubchannelList        OPTIONAL,
  cd-SignatureCodeList           CD-SignatureCodeList                OPTIONAL,
  deltaPp-m                     DeltaPp-m,
  ul-DPCCH-SlotFormat            UL-DPCCH-SlotFormat,
  n-StartMessage                N-StartMessage,
  n-EOT                          N-EOT,
  -- TABULAR: VCAM info has been nested inside ChannelAssignmentActive,
  -- which in turn is mandatory since it's only a binary choice.
  channelAssignmentActive        ChannelAssignmentActive,
  cpch-StatusIndicationMode      CPCH-StatusIndicationMode,
  pcpch-ChannelInfoList          PCPCH-ChannelInfoList
}

CPCH-SetInfoList ::=                 SEQUENCE (SIZE (1..maxCPCHsets)) OF
  CPCH-SetInfo

CPCH-StatusIndicationMode ::=        ENUMERATED {
  pa-mode,
  pamsf-mode }

--FFS
CQI-RepetitionFactor ::=             INTEGER(1..4)

CSICH-PowerOffset ::=                INTEGER (-10..5)

-- DefaultDPCH-OffsetValueFDD and DefaultDPCH-OffsetValueTDD corresponds to
-- IE "Default DPCH Offset Value" depending on the mode.
-- Actual value DefaultDPCH-OffsetValueFDD = IE value * 512
DefaultDPCH-OffsetValueFDD ::=        INTEGER (0..599)

DefaultDPCH-OffsetValueTDD ::=        INTEGER (0..7)

DeltaPp-m ::=                         INTEGER (-10..10)

DeltaCQI ::=                          INTEGER (0..8)

DeltaNACK ::=                         INTEGER (0..8)

DeltaACK ::=                          INTEGER (0..8)

-- Actual value DeltaSIR = IE value * 0.1

```

```

DeltaSIR ::=
    INTEGER (0..30)

DL-CCTrCh ::=
    SEQUENCE {
        tfcs-ID
            TFCS-IdentityPlain
            DEFAULT 1,
        timeInfo
            TimeInfo,
        commonTimeslotInfo
            CommonTimeslotInfo
            OPTIONAL,
        dl-CCTrCH-TimeslotsCodes
            DownlinkTimeslotsCodes
            OPTIONAL,
        ul-CCTrChTPCList
            UL-CCTrChTPCList
            OPTIONAL
    }

DL-CCTrCh-r4 ::=
    SEQUENCE {
        tfcs-ID
            TFCS-IdentityPlain
            DEFAULT 1,
        timeInfo
            TimeInfo,
        commonTimeslotInfo
            CommonTimeslotInfo
            OPTIONAL,
        tddOption
            CHOICE {
                tdd384
                    SEQUENCE {
                        dl-CCTrCH-TimeslotsCodes
                            DownlinkTimeslotsCodes
                            OPTIONAL
                    },
                tdd128
                    SEQUENCE {
                        dl-CCTrCH-TimeslotsCodes
                            DownlinkTimeslotsCodes-LCR-r4
                            OPTIONAL
                    }
            },
        ul-CCTrChTPCList
            UL-CCTrChTPCList
            OPTIONAL
    }

DL-CCTrChList ::=
    SEQUENCE (SIZE (1..maxCCTrCH)) OF
        DL-CCTrCh

DL-CCTrChList-r4 ::=
    SEQUENCE (SIZE (1..maxCCTrCH)) OF
        DL-CCTrCh-r4

DL-CCTrChListToRemove ::=
    SEQUENCE (SIZE (1..maxCCTrCH)) OF
        TFCS-IdentityPlain

DL-CCTrChTPCList ::=
    SEQUENCE (SIZE (0..maxCCTrCH)) OF
        TFCS-Identity

DL-ChannelisationCode ::=
    SEQUENCE {
        secondaryScramblingCode
            SecondaryScramblingCode
            OPTIONAL,
        sf-AndCodeNumber
            SF512-AndCodeNumber,
        scramblingCodeChange
            ScramblingCodeChange
            OPTIONAL
    }

DL-ChannelisationCodeList ::=
    SEQUENCE (SIZE (1..maxDPCH-DLchan)) OF
        DL-ChannelisationCode

DL-CommonInformation ::=
    SEQUENCE {
        dl-DPCH-InfoCommon
            DL-DPCH-InfoCommon
            OPTIONAL,
        modeSpecificInfo
            CHOICE {
                fdd
                    SEQUENCE {
                        defaultDPCH-OffsetValue
                            DefaultDPCH-OffsetValueFDD
                            OPTIONAL,
                        dpch-CompressedModeInfo
                            DPCH-CompressedModeInfo
                            OPTIONAL,
                        tx-DiversityMode
                            TX-DiversityMode
                            OPTIONAL,
                        ssdt-Information
                            SSDT-Information
                            OPTIONAL
                    },
                tdd
                    SEQUENCE {
                        defaultDPCH-OffsetValue
                            DefaultDPCH-OffsetValueTDD
                            OPTIONAL
                    }
            }
    }

DL-CommonInformation-r4 ::=
    SEQUENCE {
        dl-DPCH-InfoCommon
            DL-DPCH-InfoCommon
            OPTIONAL,
        modeSpecificInfo
            CHOICE {
                fdd
                    SEQUENCE {
                        defaultDPCH-OffsetValue
                            DefaultDPCH-OffsetValueFDD
                            OPTIONAL,
                        dpch-CompressedModeInfo
                            DPCH-CompressedModeInfo
                            OPTIONAL,
                        tx-DiversityMode
                            TX-DiversityMode
                            OPTIONAL,
                        ssdt-Information
                            SSDT-Information-r4
                            OPTIONAL
                    },
                tdd
                    SEQUENCE {
                        tddOption
                            CHOICE {
                                tdd384
                                    NULL,
                                tdd128
                                    SEQUENCE {
                                        tstd-Indicator
                                            BOOLEAN
                                        }
                            }
                        },
                        defaultDPCH-OffsetValue
                            DefaultDPCH-OffsetValueTDD
                            OPTIONAL
                    }
            }
    }

```

```

    }
  }
}

DL-CommonInformationPost ::= SEQUENCE {
  dl-DPCH-InfoCommon          DL-DPCH-InfoCommonPost
}

DL-CommonInformationPredef ::= SEQUENCE {
  dl-DPCH-InfoCommon          DL-DPCH-InfoCommonPredef   OPTIONAL
}

DL-CompressedModeMethod ::= ENUMERATED {
  puncturing, sf-2,
  higherLayerScheduling }

DL-DPCH-InfoCommon ::= SEQUENCE {
  cfnHandling                 CHOICE {
    maintain                   NULL,
    initialise                  SEQUENCE {
      cfntargetsfnsframeoffset Cfntargetsfnsframeoffset   OPTIONAL
    }
  },
  modeSpecificInfo            CHOICE {
    fdd                        SEQUENCE {
      dl-DPCH-PowerControlInfo DL-DPCH-PowerControlInfo   OPTIONAL,
      powerOffsetPilot-pdpdch   PowerOffsetPilot-pdpdch,
      dl-rate-matching-restriction DL-rate-matching-restriction   OPTIONAL,
      -- TABULAR: The number of pilot bits is nested inside the spreading factor.
      spreadingFactorAndPilot    SF512-AndPilot,
      positionFixedOrFlexible    PositionFixedOrFlexible,
      tfci-Existence             BOOLEAN
    },
    tdd                        SEQUENCE {
      dl-DPCH-PowerControlInfo DL-DPCH-PowerControlInfo   OPTIONAL
    }
  }
}

DL-DPCH-InfoCommonPost ::= SEQUENCE {
  dl-DPCH-PowerControlInfo    DL-DPCH-PowerControlInfo   OPTIONAL
}

DL-DPCH-InfoCommonPredef ::= SEQUENCE {
  modeSpecificInfo            CHOICE {
    fdd                        SEQUENCE {
      -- TABULAR: The number of pilot bits is nested inside the spreading factor.
      spreadingFactorAndPilot    SF512-AndPilot,
      positionFixedOrFlexible    PositionFixedOrFlexible,
      tfci-Existence             BOOLEAN
    },
    tdd                        SEQUENCE {
      commonTimeslotInfo        CommonTimeslotInfo
    }
  }
}

DL-DPCH-InfoPerRL ::= CHOICE {
  fdd                         SEQUENCE {
    pCPICH-UsageForChannelEst   PCPICH-UsageForChannelEst,
    dpch-FrameOffset            DPCH-FrameOffset,
    secondaryCPICH-Info         SecondaryCPICH-Info   OPTIONAL,
    dl-ChannelisationCodeList   DL-ChannelisationCodeList,
    tpc-CombinationIndex        TPC-CombinationIndex,
    ssdt-CellIdentity           SSDT-CellIdentity   OPTIONAL,
    closedLoopTimingAdjMode     ClosedLoopTimingAdjMode   OPTIONAL
  },
  tdd                         SEQUENCE {
    dl-CCTrChListToEstablish    DL-CCTrChList   OPTIONAL,
    dl-CCTrChListToRemove      DL-CCTrChListToRemove   OPTIONAL
  }
}

DL-DPCH-InfoPerRL-r4 ::= CHOICE {
  fdd                         SEQUENCE {
    pCPICH-UsageForChannelEst   PCPICH-UsageForChannelEst,
    dpch-FrameOffset            DPCH-FrameOffset,
    secondaryCPICH-Info         SecondaryCPICH-Info   OPTIONAL,

```

<pre> dl-ChannelisationCodeList tpc-CombinationIndex ssdt-CellIdentity closedLoopTimingAdjMode }, tdd dl-CCTrChListToEstablish dl-CCTrChListToRemove } } DL-DPCH-InfoPerRL-PostFDD ::= pCPICH-UsageForChannelEst dl-ChannelisationCode tpc-CombinationIndex } DL-DPCH-InfoPerRL-PostTDD ::= dl-DPCH-TimeslotsCodes } DL-DPCH-InfoPerRL-PostTDD-LCR-r4 ::= dl-CCTrCH-TimeslotsCodes } DL-DPCH-PowerControlInfo ::= modeSpecificInfo fdd dpc-Mode }, tdd tpc-StepSizeTDD } } DL-FrameType ::= ENUMERATED { dl-FrameTypeA, dl-FrameTypeB } DL-HSPDSCH-Information ::= hs-scch-Info measurement-feedback-Info } DL-InformationPerRL ::= modeSpecificInfo fdd primaryCPICH-Info pdsch-SHO-DCH-Info pdsch-CodeMapping }, tdd PrimaryCCPCH-Info }, dl-DPCH-InfoPerRL sccpch-InfoForFACH } DL-InformationPerRL-r4 ::= modeSpecificInfo fdd primaryCPICH-Info pdsch-SHO-DCH-Info pdsch-CodeMapping }, tdd PrimaryCCPCH-Info-r4 }, dl-DPCH-InfoPerRL-r4 sccpch-InfoForFACH-r4 cell-id } DL-InformationPerRL-r5 ::= modeSpecificInfo fdd primaryCPICH-Info pdsch-SHO-DCH-Info pdsch-CodeMapping servingHSDSCH-RL-indicator </pre>	<pre> DL-ChannelisationCodeList, TPC-CombinationIndex, SSDT-CellIdentity ClosedLoopTimingAdjMode SEQUENCE { DL-CCTrChList-r4 DL-CCTrChListToRemove SEQUENCE { PCPICH-UsageForChannelEst, DL-ChannelisationCode, TPC-CombinationIndex SEQUENCE { DownlinkTimeslotsCodes SEQUENCE { DownlinkTimeslotsCodes-LCR-r4 SEQUENCE { CHOICE { SEQUENCE { DPC-Mode SEQUENCE { TPC-StepSizeTDD OPTIONAL ENUMERATED { dl-FrameTypeA, dl-FrameTypeB } SEQUENCE { HS-SCCH-Info, Measurement-Feedback-Info OPTIONAL SEQUENCE { CHOICE { SEQUENCE { PrimaryCPICH-Info, PDSCH-SHO-DCH-Info OPTIONAL, PDSCH-CodeMapping OPTIONAL PrimaryCCPCH-Info DL-DPCH-InfoPerRL OPTIONAL, SCCPCH-InfoForFACH OPTIONAL SEQUENCE { CHOICE { SEQUENCE { PrimaryCPICH-Info, PDSCH-SHO-DCH-Info OPTIONAL, PDSCH-CodeMapping OPTIONAL PrimaryCCPCH-Info-r4 DL-DPCH-InfoPerRL-r4 OPTIONAL, SCCPCH-InfoForFACH-r4 OPTIONAL, CellIdentity OPTIONAL SEQUENCE { CHOICE { SEQUENCE { PrimaryCPICH-Info, PDSCH-SHO-DCH-Info OPTIONAL, PDSCH-CodeMapping OPTIONAL, BOOLEAN </pre>
--	---

```

    },
    tdd
  },
  dl-DPCH-InfoPerRL          DL-DPCH-InfoPerRL-r4          OPTIONAL,
  scpch-InfoForFACH         SCCPCH-InfoForFACH-r4         OPTIONAL,
  cell-id                   CellIdentity                 OPTIONAL
}

DL-InformationPerRL-List ::= SEQUENCE (SIZE (1..maxRL)) OF
                             DL-InformationPerRL

DL-InformationPerRL-List-r4 ::= SEQUENCE (SIZE (1..maxRL)) OF
                               DL-InformationPerRL-r4

DL-InformationPerRL-List-r5 ::= SEQUENCE (SIZE (1..maxRL)) OF
                               DL-InformationPerRL-r5

DL-InformationPerRL-ListPostFDD ::= SEQUENCE (SIZE (1..maxRL)) OF
                                    DL-InformationPerRL-PostFDD

DL-InformationPerRL-PostFDD ::= SEQUENCE {
  primaryCPICH-Info          PrimaryCPICH-Info,
  dl-DPCH-InfoPerRL         DL-DPCH-InfoPerRL-PostFDD
}

DL-InformationPerRL-PostTDD ::= SEQUENCE {
  primaryCCPCH-Info         PrimaryCCPCH-InfoPost,
  dl-DPCH-InfoPerRL         DL-DPCH-InfoPerRL-PostTDD
}

DL-InformationPerRL-PostTDD-LCR-r4 ::= SEQUENCE {
  primaryCCPCH-Info         PrimaryCCPCH-InfoPostTDD-LCR-r4,
  dl-DPCH-InfoPerRL         DL-DPCH-InfoPerRL-PostTDD-LCR-r4
}

DL-PDSCH-Information ::= SEQUENCE {
  pdsch-SHO-DCH-Info       PDSCH-SHO-DCH-Info          OPTIONAL,
  pdsch-CodeMapping        PDSCH-CodeMapping          OPTIONAL
}

DL-rate-matching-restriction ::= SEQUENCE {
  restrictedTrCH-InfoList   RestrictedTrCH-InfoList      OPTIONAL
}

DL-TS-ChannelisationCode ::= ENUMERATED {
  cc16-1, cc16-2, cc16-3, cc16-4,
  cc16-5, cc16-6, cc16-7, cc16-8,
  cc16-9, cc16-10, cc16-11, cc16-12,
  cc16-13, cc16-14, cc16-15, cc16-16 }

DL-TS-ChannelisationCodesShort ::= SEQUENCE {
  codesRepresentation      CHOICE {
    consecutive            SEQUENCE {
      firstChannelisationCode DL-TS-ChannelisationCode,
      lastChannelisationCode  DL-TS-ChannelisationCode
    },
    bitmap                BIT STRING {
      chCode16-SF16(0),
      chCode15-SF16(1),
      chCode14-SF16(2),
      chCode13-SF16(3),
      chCode12-SF16(4),
      chCode11-SF16(5),
      chCode10-SF16(6),
      chCode9-SF16(7),
      chCode8-SF16(8),
      chCode7-SF16(9),
      chCode6-SF16(10),
      chCode5-SF16(11),
      chCode4-SF16(12),
      chCode3-SF16(13),
      chCode2-SF16(14),
      chCode1-SF16(15)
    } (SIZE (16))
  }
}

DownlinkAdditionalTimeslots ::= SEQUENCE {

```



```

parameters
    sameAsLast
        timeslotNumber
    },
    newParameters
        individualTimeslotInfo
        dl-TS-ChannelisationCodesShort
}
}

DownlinkAdditionalTimeslots-LCR-r4 ::= SEQUENCE {
    parameters
        CHOICE {
            SEQUENCE {
                timeslotNumber
            },
            SEQUENCE {
                IndividualTimeslotInfo,
                DL-TS-ChannelisationCodesShort
            }
        }
}

DownlinkTimeslotsCodes ::= SEQUENCE {
    firstIndividualTimeslotInfo
        IndividualTimeslotInfo,
    dl-TS-ChannelisationCodesShort
        DL-TS-ChannelisationCodesShort,
    moreTimeslots
        CHOICE {
            noMore
                NULL,
            additionalTimeslots
                CHOICE {
                    consecutive
                        INTEGER (1..maxTS-1),
                    timeslotList
                        SEQUENCE (SIZE (1..maxTS-1)) OF
                            DownlinkAdditionalTimeslots
                }
        }
}

DownlinkTimeslotsCodes-LCR-r4 ::= SEQUENCE {
    firstIndividualTimeslotInfo
        IndividualTimeslotInfo-LCR-r4,
    dl-TS-ChannelisationCodesShort
        DL-TS-ChannelisationCodesShort,
    moreTimeslots
        CHOICE {
            noMore
                NULL,
            additionalTimeslots
                CHOICE {
                    consecutive
                        INTEGER (1..maxTS-LCR-1),
                    timeslotList
                        SEQUENCE (SIZE (1..maxTS-LCR-1)) OF
                            DownlinkAdditionalTimeslots-LCR-r4
                }
        }
}

DPC-Mode ::= ENUMERATED {
    singleTPC,
    tpcTripletInSoft }

-- Actual value DPCCH-PowerOffset = IE value * 2
DPCCH-PowerOffset ::= INTEGER (-82..-3)

-- Actual value DPCCH-PowerOffset = 2 + (IE value * 4)
DPCCH-PowerOffset2 ::= INTEGER (-28..-13)

DPCH-CompressedModeInfo ::= SEQUENCE {
    tgp-SequenceList
        TGP-SequenceList
}

DPCH-CompressedModeStatusInfo ::= SEQUENCE {
    tgps-Reconfiguration-CFN
        TGPS-Reconfiguration-CFN,
    tgp-SequenceShortList
        SEQUENCE (SIZE (1..maxTGPS)) OF
            TGP-SequenceShort
}

-- Actual value DPCH-FrameOffset = IE value * 256
DPCH-FrameOffset ::= INTEGER (0..149)

DSCH-Mapping ::= SEQUENCE {
    maxTFICI-Field2Value
        MaxTFICI-Field2Value,
    spreadingFactor
        SF-PDSCH,
    codeNumber
        CodeNumberDSCH,
    multiCodeInfo
        MultiCodeInfo
}

```

```

}

DSCH-MappingList ::= SEQUENCE (SIZE (1..maxPDSCH-TFCIgroups)) OF
                      DSCH-Mapping

DSCH-RadioLinkIdentifier ::= INTEGER (0..511)

DurationTimeInfo ::= INTEGER (1..4096)

DynamicPersistenceLevel ::= INTEGER (1..8)

DynamicPersistenceLevelList ::= SEQUENCE (SIZE (1..maxPRACH)) OF
                                DynamicPersistenceLevel

DynamicPersistenceLevelTF-List ::= SEQUENCE (SIZE (1..maxTF-CPCH)) OF
                                   DynamicPersistenceLevel

FACH-PCH-Information ::= SEQUENCE {
    transportFormatSet      TransportFormatSet,
    transportChannelIdentity TransportChannelIdentity,
    ctch-Indicator          BOOLEAN
}

FACH-PCH-InformationList ::= SEQUENCE (SIZE (1..maxFACHPCH)) OF
                              FACH-PCH-Information

--Range of Feedback-cycle is FFS.
Feedback-cycle ::= ENUMERATED {
    fc0, fc1, fc5, fc10, fc20, fc40, fc80 }

FPACH-Info-r4 ::= SEQUENCE {
    timeslot      TimeslotNumber-LCR-r4,
    channelisationCode TDD-FPACH-CCode16-r4,
    midambleShiftAndBurstType MidambleShiftAndBurstType-LCR-r4,
    wi            Wi-LCR
}

FrequencyInfo ::= SEQUENCE {
    modeSpecificInfo CHOICE {
        fdd      FrequencyInfoFDD,
        tdd      FrequencyInfoTDD }
}

FrequencyInfoFDD ::= SEQUENCE {
    uarfcn-UL      UARFCN OPTIONAL,
    uarfcn-DL      UARFCN
}

FrequencyInfoTDD ::= SEQUENCE {
    uarfcn-Nt      UARFCN
}

HS-ChannelisationCode ::= ENUMERATED {
    cc16-1, cc16-2, cc16-3, cc16-4,
    cc16-5, cc16-6, cc16-7, cc16-8,
    cc16-9, cc16-10, cc16-11, cc16-12,
    cc16-13, cc16-14, cc16-15, cc16-16 }

HS-ChannelisationCode-LCR ::= ENUMERATED {
    cc16-1, cc16-2, cc16-3, cc16-4,
    cc16-5, cc16-6, cc16-7, cc16-8,
    cc16-9, cc16-10, cc16-11, cc16-12,
    cc16-13, cc16-14, cc16-15, cc16-16 }

HS-SCCH-Info ::= SEQUENCE {
    modeSpecificInfo CHOICE {
        fdd      SEQUENCE (SIZE (1..maxHSSCCHs)) OF
                HS-SCCH-Codes,
        tdd      CHOICE {
            tdd384 SEQUENCE (SIZE (1..maxHSSCCHs)) OF
                    HS-SCCH-TDD384,
            tdd128 SEQUENCE (SIZE (1..maxHSSCCHs)) OF
                    HS-SCCH-TDD128
        }
    }
}

HS-SCCH-Codes ::= INTEGER (0..127)

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HS-SCCH-TDD128 ::= SEQUENCE (SIZE (1..maxHSSCCHs)) OF
                    HS-SCCH-TDD128List

HS-SCCH-TDD128List ::= SEQUENCE {
    timeslotNumber      TimeslotNumber-LCR-r4,
    firstChannelisationCode HS-ChannelisationCode-LCR,
    secondChannelisationCode HS-ChannelisationCode-LCR,
    midambleAllocationMode CHOICE {
        defaultMidamble      NULL,
        commonMidamble       NULL
    },
    -- Actual value midambleConfiguration = IE value * 2
    midambleConfiguration INTEGER (1..8),
    bler-target            Bler-Target,
    hs-sich-configuration HS-SICH-Configuration-TDD128
}

HS-SICH-Configuration-TDD128 ::= SEQUENCE {
    timeslotNumber      TimeslotNumber-LCR-r4,
    channelisationCode HS-ChannelisationCode-LCR,
    midambleAllocationMode CHOICE {
        defaultMidamble      NULL,
        ueSpecificMidamble   SEQUENCE {
            midambleShift      MidambleShiftLong
        }
    },
    -- Actual value midambleConfiguration = IE value * 2
    midambleConfiguration INTEGER (1..8),
    nack-ack-power-offset INTEGER (-7..8),
    power-level-HSSICH    INTEGER (-120..-58),
    tpc-step-size         ENUMERATED { s1, s2, s3 , spare1}
}

HS-SCCH-TDD384 ::= SEQUENCE (SIZE (1..maxHSSCCHs)) OF
                    HS-SCCH-TDD384List

HS-SCCH-TDD384List ::= SEQUENCE {
    timeslotNumber      TimeslotNumber,
    channelisationCode HS-ChannelisationCode,
    midambleAllocationMode CHOICE {
        defaultMidamble      NULL,
        commonMidamble       NULL
    },
    midambleconfiguration MidambleConfiguration,
    bler-target          Bler-Target,
    hs-sich-configuration HS-SICH-Configuration-TDD384
}

HS-SICH-Configuration-TDD384 ::= SEQUENCE {
    timeslotNumber      TimeslotNumber,
    channelisationCode HS-ChannelisationCode,
    midambleAllocationMode CHOICE {
        defaultMidamble      NULL,
        ueSpecificMidamble   SEQUENCE {
            midambleShift      MidambleShiftLong
        }
    },
    midambleconfiguration MidambleConfiguration,
    nack-ack-power-offset INTEGER (-7..8),
    -- Actual value ul-target-SIR = IE value * 0.5
    ul-target-SIR       INTEGER (-22..40)
}

IndividualTimeslotInfo ::= SEQUENCE {
    timeslotNumber      TimeslotNumber,
    tfci-Existence      BOOLEAN,
    midambleShiftAndBurstType MidambleShiftAndBurstType
}

IndividualTimeslotInfo-LCR-r4 ::= SEQUENCE {
    timeslotNumber      TimeslotNumber-LCR-r4,
    tfci-Existence      BOOLEAN,
    midambleShiftAndBurstType MidambleShiftAndBurstType-LCR-r4,
    modulation          ENUMERATED { mod-QPSK, mod-8PSK },
    ss-TPC-Symbols      ENUMERATED { zero, one, sixteenOverSF },

```

```

    additionalSS-TPC-Symbols          INTEGER(1..15)          OPTIONAL
}

IndividualTimeslotInfo-LCR-r4-ext ::= SEQUENCE {
-- timeslotNumber and tfci-Existence is taken from IndividualTimeslotInfo.
-- midambleShiftAndBurstType in IndividualTimeslotInfo shall be ignored.
    midambleShiftAndBurstType        MidambleShiftAndBurstType-LCR-r4,
    modulation                        ENUMERATED { mod-QPSK, mod-8PSK },
    ss-TPC-Symbols                    ENUMERATED { zero, one, sixteenOverSF }
}

IndividualTS-Interference ::= SEQUENCE {
    timeslot                          TimeslotNumber,
    ul-TimeslotInterference           TDD-UL-Interference
}

IndividualTS-InterferenceList ::= SEQUENCE (SIZE (1..maxTS)) OF
    IndividualTS-Interference

ITP ::= ENUMERATED {
    mode0, mode1 }

NidentifyAbort ::= INTEGER (1..128)

MaxAllowedUL-TX-Power ::= INTEGER (-50..33)

MaxAvailablePCPCH-Number ::= INTEGER (1..64)

MaxPowerIncrease-r4 ::= INTEGER (0..3)

MaxTFCI-Field2Value ::= INTEGER (1..1023)

Measurement-Feedback-Info ::= SEQUENCE {
    modeSpecificInfo                 CHOICE {
        fdd                          SEQUENCE {
            pohsdsch                  Po-hsdsch,
            feedback-cycle            Feedback-cycle,
            cqi-RepetitionFactor      CQI-RepetitionFactor,
            deltaCQI                  DeltaCQI
        },
        tdd                          NULL
    }
}

MidambleConfiguration ::= ENUMERATED {ms4, ms8, ms16}

MidambleConfigurationBurstType1and3 ::= ENUMERATED {ms4, ms8, ms16}

MidambleConfigurationBurstType2 ::= ENUMERATED {ms3, ms6}

MidambleShiftAndBurstType ::= SEQUENCE {
    burstType                        CHOICE {
        type1                         SEQUENCE {
            midambleConfigurationBurstType1and3 MidambleConfigurationBurstType1and3,
            midambleAllocationMode           CHOICE {
                defaultMidamble           NULL,
                commonMidamble           NULL,
                ueSpecificMidamble       SEQUENCE {
                    midambleShift       MidambleShiftLong
                }
            }
        },
        type2                         SEQUENCE {
            midambleConfigurationBurstType2 MidambleConfigurationBurstType2,
            midambleAllocationMode           CHOICE {
                defaultMidamble           NULL,
                commonMidamble           NULL,
                ueSpecificMidamble       SEQUENCE {
                    midambleShift       MidambleShiftShort
                }
            }
        },
        type3                         SEQUENCE {
            midambleConfigurationBurstType1and3 MidambleConfigurationBurstType1and3,
            midambleAllocationMode           CHOICE {
                defaultMidamble           NULL,
                ueSpecificMidamble       SEQUENCE {
                    midambleShift       MidambleShiftLong
                }
            }
        }
    }
}

```

```

    }
  }
}

MidambleShiftAndBurstType-LCR-r4 ::= SEQUENCE {
  midambleAllocationMode CHOICE {
    defaultMidamble NULL,
    commonMidamble NULL,
    ueSpecificMidamble SEQUENCE {
      midambleShift INTEGER (0..15)
    }
  },
  -- Actual value midambleConfiguration = IE value * 2
  midambleConfiguration INTEGER (1..8)
}

MidambleShiftLong ::= INTEGER (0..15)

MidambleShiftShort ::= INTEGER (0..5)

MinimumSpreadingFactor ::= ENUMERATED {
  sf4, sf8, sf16, sf32,
  sf64, sf128, sf256 }

MultiCodeInfo ::= INTEGER (1..16)

N-EOT ::= INTEGER (0..7)

N-GAP ::= ENUMERATED {
  f2, f4, f8 }

N-PCH ::= INTEGER (1..8)

N-StartMessage ::= INTEGER (1..8)

NB01 ::= INTEGER (0..50)

NF-Max ::= INTEGER (1..64)

NumberOfDPDCH ::= INTEGER (1..maxDPDCH-UL)

NumberOfFBI-Bits ::= INTEGER (1..2)

OpenLoopPowerControl-TDD ::= SEQUENCE {
  primaryCCPCH-TX-Power PrimaryCCPCH-TX-Power,
  -- alpha, prach-ConstantValue, dpch-ConstantValue and pusch-ConstantValue
  -- shall be ignored in 1.28Mcps TDD mode.
  alpha Alpha OPTIONAL,
  prach-ConstantValue ConstantValueTdd,
  dpch-ConstantValue ConstantValueTdd,
  pusch-ConstantValue ConstantValueTdd OPTIONAL
}

OpenLoopPowerControl-IPDL-TDD-r4 ::= SEQUENCE {
  ipdl-alpha Alpha,
  maxPowerIncrease MaxPowerIncrease-r4
}

PagingIndicatorLength ::= ENUMERATED {
  pi4, pi8, pi16 }

PC-Preamble ::= INTEGER (0..7)

PCP-Length ::= ENUMERATED {
  as0, as8 }

PCPCH-ChannelInfo ::= SEQUENCE {
  pcpch-UL-ScramblingCode INTEGER (0..79),
  pcpch-DL-ChannelisationCode INTEGER (0..511),
  pcpch-DL-ScramblingCode SecondaryScramblingCode OPTIONAL,
  pcp-Length PCP-Length,
  ucsM-Info UCSM-Info OPTIONAL
}

```

```

PCPCH-ChannelInfoList ::= SEQUENCE (SIZE (1..maxPCPCHs)) OF
                           PCPCH-ChannelInfo

PCPICH-UsageForChannelEst ::= ENUMERATED {
                                mayBeUsed,
                                shallNotBeUsed }

PDSCH-CapacityAllocationInfo ::= SEQUENCE {
  -- pdsch-PowerControlInfo is conditional on new-configuration branch below, if this
  -- selected the IE is OPTIONAL otherwise it should not be sent
  pdsch-PowerControlInfo PDSCH-PowerControlInfo OPTIONAL,
  pdsch-AllocationPeriodInfo AllocationPeriodInfo,
  configuration CHOICE {
    old-Configuration SEQUENCE {
      tfcs-ID TFCS-IdentityPlain DEFAULT 1,
      pdsch-Identity PDSCH-Identity
    },
    new-Configuration SEQUENCE {
      pdsch-Info PDSCH-Info,
      pdsch-Identity PDSCH-Identity OPTIONAL
    }
  }
}

PDSCH-CapacityAllocationInfo-r4 ::= SEQUENCE {
  pdsch-AllocationPeriodInfo AllocationPeriodInfo,
  configuration CHOICE {
    old-Configuration SEQUENCE {
      tfcs-ID TFCS-IdentityPlain DEFAULT 1,
      pdsch-Identity PDSCH-Identity
    },
    new-Configuration SEQUENCE {
      pdsch-Info PDSCH-Info-r4,
      pdsch-Identity PDSCH-Identity OPTIONAL,
      pdsch-PowerControlInfo PDSCH-PowerControlInfo OPTIONAL
    }
  }
}

PDSCH-CodeInfo ::= SEQUENCE {
  spreadingFactor SF-PDSCH,
  codeNumber CodeNumberDSCH,
  multiCodeInfo MultiCodeInfo
}

PDSCH-CodeInfoList ::= SEQUENCE (SIZE (1..maxTFCI-2-Combs)) OF
                        PDSCH-CodeInfo

PDSCH-CodeMap ::= SEQUENCE {
  spreadingFactor SF-PDSCH,
  multiCodeInfo MultiCodeInfo,
  codeNumberStart CodeNumberDSCH,
  codeNumberStop CodeNumberDSCH
}

PDSCH-CodeMapList ::= SEQUENCE (SIZE (1..maxPDSCH-TFCIgroups)) OF
                       PDSCH-CodeMap

PDSCH-CodeMapping ::= SEQUENCE {
  dl-ScramblingCode SecondaryScramblingCode OPTIONAL,
  signallingMethod CHOICE {
    codeRange CodeRange,
    tfci-Range DSCH-MappingList,
    explicit-config PDSCH-CodeInfoList,
    replace ReplacedPDSCH-CodeInfoList
  }
}

PDSCH-Identity ::= INTEGER (1..hiPDSCHidentities)

PDSCH-Info ::= SEQUENCE {
  tfcs-ID TFCS-IdentityPlain DEFAULT 1,
  commonTimeslotInfo CommonTimeslotInfo OPTIONAL,
  pdsch-TimeslotsCodes DownlinkTimeslotsCodes OPTIONAL
}

PDSCH-Info-r4 ::= SEQUENCE {

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<pre> tfcs-ID commonTimeslotInfo tddOption tdd384 pdsch-TimeslotsCodes }, tdd128 pdsch-TimeslotsCodes } } </pre>	<pre> TFCS-IdentityPlain CommonTimeslotInfo CHOICE { SEQUENCE { DownlinkTimeslotsCodes } SEQUENCE { DownlinkTimeslotsCodes-LCR-r4 } } </pre>	<pre> DEFAULT 1, OPTIONAL, OPTIONAL OPTIONAL </pre>
<pre> PDSCH-Info-LCR-r4 ::= tfcs-ID commonTimeslotInfo pdsch-TimeslotsCodes } </pre>	<pre> SEQUENCE { TFCS-IdentityPlain CommonTimeslotInfo DownlinkTimeslotsCodes-LCR-r4 } </pre>	<pre> DEFAULT 1, OPTIONAL, OPTIONAL </pre>
<pre> PDSCH-PowerControlInfo ::= tpc-StepSizeTDD ul-CCTrChTPCList } </pre>	<pre> SEQUENCE { TPC-StepSizeTDD UL-CCTrChTPCList } </pre>	<pre> OPTIONAL, OPTIONAL </pre>
<pre> PDSCH-SHO-DCH-Info ::= dsch-RadioLinkIdentifier rl-IdentifierList } </pre>	<pre> SEQUENCE { DSCH-RadioLinkIdentifier, RL-IdentifierList } </pre>	<pre> OPTIONAL </pre>
<pre> PDSCH-SysInfo ::= pdsch-Identity pdsch-Info dsch-TFS dsch-TFCS } </pre>	<pre> SEQUENCE { PDSCH-Identity, PDSCH-Info, TransportFormatSet TFCS } </pre>	<pre> OPTIONAL, OPTIONAL </pre>
<pre> PDSCH-SysInfo-LCR-r4 ::= pdsch-Identity pdsch-Info dsch-TFS dsch-TFCS } </pre>	<pre> SEQUENCE { PDSCH-Identity, PDSCH-Info-LCR-r4, TransportFormatSet TFCS } </pre>	<pre> OPTIONAL, OPTIONAL </pre>
<pre> PDSCH-SysInfoList ::= </pre>	<pre> SEQUENCE (SIZE (1..maxPDSCH)) OF PDSCH-SysInfo </pre>	
<pre> PDSCH-SysInfoList-LCR-r4 ::= </pre>	<pre> SEQUENCE (SIZE (1..maxPDSCH)) OF PDSCH-SysInfo-LCR-r4 </pre>	
<pre> PDSCH-SysInfoList-SFN ::= pdsch-SysInfo sfn-TimeInfo } </pre>	<pre> SEQUENCE (SIZE (1..maxPDSCH)) OF SEQUENCE { PDSCH-SysInfo, SFN-TimeInfo } </pre>	<pre> OPTIONAL </pre>
<pre> PDSCH-SysInfoList-SFN-LCR-r4 ::= pdsch-SysInfo sfn-TimeInfo } </pre>	<pre> SEQUENCE (SIZE (1..maxPDSCH)) OF SEQUENCE { PDSCH-SysInfo-LCR-r4, SFN-TimeInfo } </pre>	<pre> OPTIONAL </pre>
<pre> PersistenceScalingFactor ::= </pre>	<pre> ENUMERATED { psf0-9, psf0-8, psf0-7, psf0-6, psf0-5, psf0-4, psf0-3, psf0-2 } </pre>	
<pre> PersistenceScalingFactorList ::= </pre>	<pre> SEQUENCE (SIZE (1..maxASCPersist)) OF PersistenceScalingFactor </pre>	
<pre> PI-CountPerFrame ::= </pre>	<pre> ENUMERATED { e18, e36, e72, e144 } </pre>	
<pre> PichChannelisationCodeList-LCR-r4 ::= </pre>	<pre> SEQUENCE (SIZE (1..2)) OF DL-TS-ChannelisationCode </pre>	
<pre> PICH-Info ::= fdd channelisationCode256 pi-CountPerFrame sttd-Indicator </pre>	<pre> CHOICE { SEQUENCE { ChannelisationCode256, PI-CountPerFrame, BOOLEAN } } </pre>	

```

    },
    tdd
        channelisationCode          SEQUENCE {
                                     TDD-PICH-CCode          OPTIONAL,
                                     TimeslotNumber          OPTIONAL,
                                     MidambleShiftAndBurstType,
                                     RepPerLengthOffset-PICH  OPTIONAL,
                                     PagingIndicatorLength    DEFAULT pi4,
                                     N-GAP                   DEFAULT f4,
                                     N-PCH                   DEFAULT 2
        }
}

PICH-Info-LCR-r4 ::= SEQUENCE {
    timeslot          TimeslotNumber-LCR-r4          OPTIONAL,
    pichChannelisationCodeList-LCR-r4 PichChannelisationCodeList-LCR-r4,
    midambleShiftAndBurstType MidambleShiftAndBurstType-LCR-r4,
    repetitionPeriodLengthOffset RepPerLengthOffset-PICH          OPTIONAL,
    pagingIndicatorLength PagingIndicatorLength    DEFAULT pi4,
    n-GAP             N-GAP                   DEFAULT f4,
    n-PCH             N-PCH                   DEFAULT 2
}

PICH-PowerOffset ::= INTEGER (-10..5)

PilotBits128 ::= ENUMERATED {
    pb4, pb8 }

PilotBits256 ::= ENUMERATED {
    pb2, pb4, pb8 }

--Range of po-hsdsch is FFS.
Po-hsdsch ::= INTEGER (-10..0)

PositionFixedOrFlexible ::= ENUMERATED {
    fixed,
    flexible }

PowerControlAlgorithm ::= CHOICE {
    algorithm1 TPC-StepSizeFDD,
    algorithm2 NULL
}

PowerOffsetPilot-pdpdch ::= INTEGER (0..24)

PowerRampStep ::= INTEGER (1..8)

PRACH-ChanCodes-LCR-r4 ::= SEQUENCE (SIZE (1..4)) OF
    TDD-PRACH-CCode-LCR-r4

PRACH-Definition-LCR-r4 ::= SEQUENCE {
    timeslot          TimeslotNumber-PRACH-LCR-r4,
    prach-ChanCodes-LCR PRACH-ChanCodes-LCR-r4,
    midambleShiftAndBurstType MidambleShiftAndBurstType-LCR-r4,
    fpach-Info       FPACH-Info-r4
}

PRACH-Midamble ::= ENUMERATED {
    direct,
    direct-Inverted }

PRACH-Partitioning ::= CHOICE {
    fdd          SEQUENCE (SIZE (1..maxASC)) OF
                ASCSetting-FDD,
    tdd          SEQUENCE (SIZE (1..maxASC)) OF
                ASCSetting-TDD
}

PRACH-Partitioning-LCR-r4 ::= SEQUENCE (SIZE (1..maxASC)) OF
    ASCSetting-TDD-LCR-r4

PRACH-PowerOffset ::= SEQUENCE {
    powerRampStep PowerRampStep,
    preambleRetransMax PreambleRetransMax
}

PRACH-RACH-Info ::= SEQUENCE {
    modeSpecificInfo CHOICE {
        fdd          SEQUENCE {

```



```

        availableSignatures          AvailableSignatures,
        availableSF                   SF-PRACH,
        preambleScramblingCodeWordNumber PreambleScramblingCodeWordNumber,
        puncturingLimit               PuncturingLimit,
        availableSubChannelNumbers     AvailableSubChannelNumbers
    },
    tdd                               SEQUENCE {
        timeslot                       TimeslotNumber,
        channelisationCodeList         TDD-PRACH-CCodeList,
        prach-Midamble                 PRACH-Midamble
    }
}

PRACH-RACH-Info-LCR-r4 ::= SEQUENCE {
    sync-UL-Info                     SYNC-UL-Info-r4,
    prach-DefinitionList              SEQUENCE (SIZE (1..maxPRACH-FPACH)) OF
                                        PRACH-Definition-LCR-r4
}

PRACH-SystemInformation ::= SEQUENCE {
    prach-RACH-Info                   PRACH-RACH-Info,
    transportChannelIdentity           TransportChannelIdentity,
    rach-TransportFormatSet            TransportFormatSet                OPTIONAL,
    rach-TFCS                          TFCS                                OPTIONAL,
    prach-Partitioning                 PRACH-Partitioning                OPTIONAL,
    persistenceScalingFactorList        PersistenceScalingFactorList        OPTIONAL,
    ac-To-ASC-MappingTable              AC-To-ASC-MappingTable              OPTIONAL,
    modeSpecificInfo                   CHOICE {
        fdd                             SEQUENCE {
            primaryCPICH-TX-Power        PrimaryCPICH-TX-Power                OPTIONAL,
            constantValue                 ConstantValue                         OPTIONAL,
            prach-PowerOffset              PRACH-PowerOffset                   OPTIONAL,
            rach-TransmissionParameters    RACH-TransmissionParameters        OPTIONAL,
            aich-Info                     AICH-Info                           OPTIONAL
        },
        tdd                               NULL
    }
}

PRACH-SystemInformation-LCR-r4 ::= SEQUENCE {
    prach-RACH-Info-LCR                PRACH-RACH-Info-LCR-r4,
    rach-TransportFormatSet-LCR         TransportFormatSet-LCR                OPTIONAL,
    prach-Partitioning-LCR              PRACH-Partitioning-LCR-r4           OPTIONAL
}

PRACH-SystemInformationList ::= SEQUENCE (SIZE (1..maxPRACH)) OF
    PRACH-SystemInformation

PRACH-SystemInformationList-LCR-r4 ::= SEQUENCE (SIZE (1..maxPRACH)) OF
    PRACH-SystemInformation-LCR-r4

PreambleRetransMax ::= INTEGER (1..64)

PreambleScramblingCodeWordNumber ::= INTEGER (0..15)

PreDefPhyChConfiguration ::= SEQUENCE {
    ul-DPCH-InfoPredef                 UL-DPCH-InfoPredef,
    dl-CommonInformationPredef          DL-CommonInformationPredef          OPTIONAL
}

PrimaryCCPCH-Info ::= CHOICE {
    fdd                                 SEQUENCE {
        tx-DiversityIndicator            BOOLEAN
    },
    tdd                                 SEQUENCE {
        -- syncCase should be ignored for 1.28Mcps TDD mode
        syncCase                          CHOICE {
            syncCase1                      SEQUENCE {
                timeslot                    TimeslotNumber
            },
            syncCase2                      SEQUENCE {
                timeslotSync2              TimeslotSync2
            }
        }
    }
}
cellParametersID                       CellParametersID                OPTIONAL,
sctd-Indicator                          BOOLEAN
}

```

```

}
PrimaryCCPCH-Info-r4 ::= CHOICE {
    fdd SEQUENCE {
        tx-DiversityIndicator BOOLEAN
    },
    tdd SEQUENCE {
        tddOption CHOICE {
            tdd384 SEQUENCE {
                syncCase CHOICE {
                    syncCase1 SEQUENCE {
                        timeslot TimeslotNumber
                    },
                    syncCase2 SEQUENCE {
                        timeslotSync2 TimeslotSync2
                    }
                }
            } OPTIONAL
        },
        tddl28 SEQUENCE {
            tstd-Indicator BOOLEAN
        }
    },
    cellParametersID CellParametersID OPTIONAL,
    blockSTTD-Indicator BOOLEAN
}

PrimaryCCPCH-Info-LCR-r4 ::= SEQUENCE {
    tstd-Indicator BOOLEAN,
    cellParametersID CellParametersID OPTIONAL,
    blockSTTD-Indicator BOOLEAN
}

-- For 1.28Mcps TDD, the following IE includes elements for the PCCPCH Info additional to those
-- in PrimaryCCPCH-Info
PrimaryCCPCH-Info-LCR-r4-ext ::= SEQUENCE {
    tstd-Indicator BOOLEAN
}

PrimaryCCPCH-InfoPost ::= SEQUENCE {
    syncCase CHOICE {
        syncCase1 SEQUENCE {
            timeslot TimeslotNumber
        },
        syncCase2 SEQUENCE {
            timeslotSync2 TimeslotSync2
        }
    },
    cellParametersID CellParametersID,
    sctd-Indicator BOOLEAN
}

PrimaryCCPCH-InfoPostTDD-LCR-r4 ::= SEQUENCE {
    tstd-Indicator BOOLEAN,
    cellParametersID CellParametersID,
    blockSTTD-Indicator BOOLEAN
}

PrimaryCCPCH-TX-Power ::= INTEGER (6..43)

PrimaryCPICH-Info ::= SEQUENCE {
    primaryScramblingCode PrimaryScramblingCode
}

PrimaryCPICH-TX-Power ::= INTEGER (-10..50)

PrimaryScramblingCode ::= INTEGER (0..511)

PuncturingLimit ::= ENUMERATED {
    p10-40, p10-44, p10-48, p10-52, p10-56,
    p10-60, p10-64, p10-68, p10-72, p10-76,
    p10-80, p10-84, p10-88, p10-92, p10-96, p11 }

PUSCH-CapacityAllocationInfo ::= SEQUENCE {
    pusch-Allocation CHOICE {
        pusch-AllocationPending NULL,
        pusch-AllocationAssignment SEQUENCE {
            pusch-AllocationPeriodInfo AllocationPeriodInfo,

```

```

        pusch-PowerControlInfo
        configuration
            old-Configuration
                tfcs-ID
                pusch-Identity
            },
            new-Configuration
                pusch-Info
                pusch-Identity
        }
    }
}

PUSCH-CapacityAllocationInfo-r4 ::= SEQUENCE {
    pusch-Allocation CHOICE {
        pusch-AllocationPending NULL,
        pusch-AllocationAssignment SEQUENCE {
            pusch-AllocationPeriodInfo AllocationPeriodInfo,
            pusch-PowerControlInfo PUSCH-PowerControlInfo-r4 OPTIONAL,
            configuration CHOICE {
                old-Configuration SEQUENCE {
                    tfcs-ID TFCS-IdentityPlain DEFAULT 1,
                    pusch-Identity PUSCH-Identity
                },
                new-Configuration SEQUENCE {
                    pusch-Info PUSCH-Info-r4,
                    pusch-Identity PUSCH-Identity OPTIONAL
                }
            }
        }
    }
}

PUSCH-Identity ::= INTEGER (1..hiPUSCHidentities)

PUSCH-Info ::= SEQUENCE {
    tfcs-ID TFCS-IdentityPlain DEFAULT 1,
    commonTimeslotInfo CommonTimeslotInfo OPTIONAL,
    pusch-TimeslotsCodes UplinkTimeslotsCodes OPTIONAL
}

PUSCH-Info-r4 ::= SEQUENCE {
    tfcs-ID TFCS-IdentityPlain DEFAULT 1,
    commonTimeslotInfo CommonTimeslotInfo OPTIONAL,
    tddOption CHOICE {
        tdd384 SEQUENCE {
            pusch-TimeslotsCodes UplinkTimeslotsCodes OPTIONAL
        },
        tdd128 SEQUENCE {
            pusch-TimeslotsCodes UplinkTimeslotsCodes-LCR-r4 OPTIONAL
        }
    }
}

PUSCH-Info-LCR-r4 ::= SEQUENCE {
    tfcs-ID TFCS-IdentityPlain DEFAULT 1,
    commonTimeslotInfo CommonTimeslotInfo OPTIONAL,
    pusch-TimeslotsCodes UplinkTimeslotsCodes-LCR-r4 OPTIONAL
}

PUSCH-PowerControlInfo-r4 ::= SEQUENCE {
    -- The IE ul-TargetSIR corresponds to PRX-PUSCHdes for 1.28Mcps TDD
    -- Actual value PRX-PUSCHdes = (value of IE "ul-TargetSIR" - 120)
    ul-TargetSIR UL-TargetSIR,
    tddOption CHOICE {
        tdd384 NULL,
        tdd128 SEQUENCE {
            tpc-StepSize TPC-StepSizeTDD OPTIONAL,
            dl-CCTrChTPCList DL-CCTrChTPCList OPTIONAL
        }
    }
}

PUSCH-SysInfo ::= SEQUENCE {
    pusch-Identity PUSCH-Identity,
}

```



```

    tfci-Field2                MaxTFCI-Field2Value,
    spreadingFactor            SF-PDSCH,
    codeNumber                 CodeNumberDSCH,
    multiCodeInfo              MultiCodeInfo
}

ReplacedPDSCH-CodeInfoList ::= SEQUENCE (SIZE (1..maxTFCI-2-Combs)) OF
    ReplacedPDSCH-CodeInfo

RepPerLengthOffset-PICH ::= CHOICE {
    rpp4-2                     INTEGER (0..3),
    rpp8-2                     INTEGER (0..7),
    rpp8-4                     INTEGER (0..7),
    rpp16-2                    INTEGER (0..15),
    rpp16-4                    INTEGER (0..15),
    rpp32-2                    INTEGER (0..31),
    rpp32-4                    INTEGER (0..31),
    rpp64-2                    INTEGER (0..63),
    rpp64-4                    INTEGER (0..63)
}

RestrictedTrCH ::= SEQUENCE {
    dl-restrictedTrCh-Type    DL-TrCH-Type,
    restrictedDL-TrCH-Identity TransportChannelIdentity,
    allowedTFIList            AllowedTFI-List
}

RestrictedTrCH-InfoList ::= SEQUENCE (SIZE(1..maxTrCH)) OF
    RestrictedTrCH

RL-AdditionInformation ::= SEQUENCE {
    primaryCPICH-Info         PrimaryCPICH-Info,
    dl-DPCH-InfoPerRL        DL-DPCH-InfoPerRL,
    tfci-CombiningIndicator   BOOLEAN,
    sccpch-InfoForFACH        SCCPCH-InfoForFACH
} OPTIONAL

RL-AdditionInformationList ::= SEQUENCE (SIZE (1..maxRL-1)) OF
    RL-AdditionInformation

RL-IdentifierList ::= SEQUENCE (SIZE (1..maxRL)) OF
    PrimaryCPICH-Info

RL-RemovalInformationList ::= SEQUENCE (SIZE (1..maxRL)) OF
    PrimaryCPICH-Info

```

CR-Form-v7

CHANGE REQUEST

25.331 CR 1798 # rev - # Current version: 5.2.0

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 handling of IE 'Downlink information for each RL'		
Source:	# Siemens AG		
Work item code:	# TEI5	Date:	# 21/10/2002
Category:	# F	Release:	# Rel-5
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	F (correction)		2 (GSM Phase 2)
	A (corresponds to a correction in an earlier release)		R96 (Release 1996)
	B (addition of feature),		R97 (Release 1997)
	C (functional modification of feature)		R98 (Release 1998)
	D (editorial modification)		R99 (Release 1999)
	Detailed explanations of the above categories can be found in 3GPP TR 21.900.		Rel-4 (Release 4)
			Rel-5 (Release 5)
			Rel-6 (Release 6)

Reason for change:	# On RAN #16 in CR1489 to 25.331-500 was approved proposing a correction to handling of IE 'Downlink information for each RL'. This CR was not implemented correctly: Section 8.6.6.4 describing the handling of the IE 'Downlink information for each RL' has incorrect indentation. Some TDD related bullets are at an indentation that relates to FDD only. Some bullets relating to FDD UEs capable of simultaneous SCCPCH and DPCH reception are at an indentation that relates to UEs without such capability.
Summary of change:	# Corrections are made according to CR1489: The indentation of the bullets is corrected.
Consequences if not approved:	# The specification will have incorrect indentation. Some small potential for misinterpretation of the spec.

Clauses affected:	# 8.6.6.4								
Other specs affected:	<table style="display: inline-table; border-collapse: collapse;"> <tr> <td style="border: 1px solid black; padding: 2px;">Y</td> <td style="border: 1px solid black; padding: 2px;">N</td> </tr> <tr> <td style="border: 1px solid black; padding: 2px;">#</td> <td style="border: 1px solid black; padding: 2px;">X</td> </tr> <tr> <td style="border: 1px solid black; padding: 2px;">#</td> <td style="border: 1px solid black; padding: 2px;">X</td> </tr> <tr> <td style="border: 1px solid black; padding: 2px;">#</td> <td style="border: 1px solid black; padding: 2px;">X</td> </tr> </table> Other core specifications # Test specifications # O&M Specifications #	Y	N	#	X	#	X	#	X
Y	N								
#	X								
#	X								
#	X								
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.

8.6.6.4 Downlink information for each radio link

If the IE "Downlink information for each radio link" is included in a received message, the UE shall:

- 1> if the UE would enter CELL_DCH state according to subclause 8.6.3.3 applied on the received message:
 - 2> if the IE "SCCPCH Information for FACH" is included; and
 - 2> if the UE is in FDD mode and is not capable of simultaneous reception of DPCH and Secondary CCPCH:
 - 3> set the variable UNSUPPORTED_CONFIGURATION to TRUE;
 - ~~2~~3> if the UE is in FDD mode and is capable of simultaneous reception of DPCH and SCCPCH:
 - ~~3~~4> start to receive the indicated Secondary CCPCH.
 - ~~2~~3> if the UE is in TDD mode and shared transport channels are assigned to the UE:
 - ~~3~~4> start to receive the indicated Secondary CCPCH.
 - ~~2~~3> if the UE is in TDD mode and no shared transport channels are assigned to the UE:
 - ~~3~~4> set the variable UNSUPPORTED_CONFIGURATION to TRUE.
 - 2> if the IE "Serving HS-DSCH radio link indicator" is set to "TRUE":
 - 3> consider this radio link as the serving HS-DSCH radio link;
 - 3> if the serving HS-DSCH radio link was another radio link than this radio link prior to reception of the message and the IE "H-RNTI" is not included:
 - 4> set the variable INVALID_CONFIGURATION to TRUE.
 - 2> act on the other IEs contained in the IE "Downlink information for each radio link" as specified in subclause 8.6 applied on this radio link.
- 1> in addition, if the message was received in CELL_DCH state and the UE remains in CELL_DCH state according to subclause 8.6.3.3 applied on the received message:
- 2> for each optional IE part of the IE "Downlink information for each radio link" that is not present:
 - 3> do not change its current downlink physical channel configuration corresponding to the IE, which is absent, if not stated otherwise elsewhere.

NOTE: The Release '99 RADIO BEARER RECONFIGURATION message always includes at least one IE "Downlink information for each radio link" containing the mandatory IEs, even if UTRAN does not require the reconfiguration of any radio link.

- 1> if the UE would enter either the CELL_FACH, CELL_PCH or URA_PCH state according to subclause 8.6.3.3 applied on the received message:
 - 2> if the received message is CELL UPDATE CONFIRM:
 - 3> ignore the IE "Downlink information for each radio link".
 - 2> if the received message is any other message than CELL UPDATE CONFIRM; and
 - 2> if IEs other than the IE "Primary CPICH info" (for FDD) or the IE "Primary CCPCH info" (for TDD) are included in the IE "Downlink information for each radio link":
 - 3> ignore these IEs.
- 2> act on the other IEs contained in the IE "Downlink information for each radio link" as specified in subclause 8.6 applied on this radio link.