

Source: TSG-RAN WG2.

Title: CRs to 25.331 (2) (Rel-5 and associated Rel-6)

The following CRs are in RP-040335:

Spec	CR	Rev	Phase	Subject	Cat	Version-Current	Version-New	Workitem	Doc-2nd-Level
25.331	2401	-	Rel-5	Predefined configurations for the RRC connection request	F	5.9.0	5.10.0	TEI5	R2-041794
25.331	2402	-	Rel-6	Predefined configurations for the RRC connection request	A	6.2.0	6.3.0	TEI5	R2-041795
25.331	2403	-	Rel-5	Cell update during reconfiguration from CELL_FACH to CELL_PCH	F	5.9.0	5.10.0	TEI5	R2-041796
25.331	2404	-	Rel-6	Cell update during reconfiguration from CELL_FACH to CELL_PCH	A	6.2.0	6.3.0	TEI5	R2-041797
25.331	2405	-	Rel-5	UE actions for Delta_ACK/NACK and repetition factor	F	5.9.0	5.10.0	HSDPA-L23	R2-041799
25.331	2406	-	Rel-6	UE actions for Delta_ACK/NACK and repetition factor	A	6.2.0	6.3.0	HSDPA-L23	R2-041800
25.331	2407	-	Rel-5	Calculation of UL transmit power for HS-SICH (TDD)	F	5.9.0	5.10.0	HSDPA-L23	R2-041801
25.331	2408	-	Rel-6	Calculation of UL transmit power for HS-SICH (TDD)	A	6.2.0	6.3.0	HSDPA-L23	R2-041802
25.331	2409	-	Rel-5	Handling of Timer T302 Expiry	F	5.9.0	5.10.0	TEI5	R2-041804
25.331	2410	-	Rel-6	Handling of Timer T302 Expiry	A	6.2.0	6.3.0	TEI5	R2-041805
25.331	2411	-	Rel-5	Correct naming for HS-DSCH with DCH multiplexing option	F	5.9.0	5.10.0	HSDPA-L23	R2-041808
25.331	2412	-	Rel-6	Correct naming for HS-DSCH with DCH multiplexing option	A	6.2.0	6.3.0	HSDPA-L23	R2-041809
25.331	2413	-	Rel-5	Compressed Pre-defined configurations description in new Annex C	F	5.9.0	5.10.0	TEI5	R2-041814
25.331	2414	-	Rel-6	Compressed Pre-defined configurations description in new Annex C	A	6.2.0	6.3.0	TEI5	R2-041815
25.331	2415	-	Rel-5	Interaction between integrity protection and the sending of downlink messages during SRNS relocation	F	5.9.0	5.10.0	TEI5	R2-041833
25.331	2416	-	Rel-6	Interaction between integrity protection and the sending of downlink messages during SRNS relocation	A	6.2.0	6.3.0	TEI5	R2-041834

CHANGE REQUEST

⌘ **25.331 CR 2401** ⌘ rev **5.9.0** ⌘ Current version: **5.9.0** ⌘

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

Proposed change affects: UICC apps ME Radio Access Network Core Network

Title:	⌘	Predefined configurations for the RRC connection request	
Source:	⌘	RAN WG2	
Work item code:	⌘	TEI5	Date: ⌘ 16/08/2004
Category:	⌘	A	Release: ⌘ Rel-5
		Use <u>one</u> of the following categories: <i>F</i> (correction) <i>A</i> (corresponds to a correction in an earlier release) <i>B</i> (addition of feature), <i>C</i> (functional modification of feature) <i>D</i> (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:	⌘	A sentence regarding pre-defined configurations in section 8.1.3.3 was agreed by CR 1879, but accidentally removed by CR 1932 which intended to remove a paragraph on RACH reporting. This is corrected in this CR.
Summary of change:	⌘	In section 8.1.3.3, a sentence clarifying that the IE "Predefined configuration status information" should be included in the RRC connection request message and which values it should take have been added.
Consequences if not approved:	⌘	Without this requirement the UE will not be able to indicate to the network that it has predefined configurations stored. The use of predefined configurations in RRC setup will not work.

Clauses affected:	⌘	8.1.3.3								
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;"> </td> <td style="text-align: center;">X</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> 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.

8.1.3.3 RRC CONNECTION REQUEST message contents to set

The UE shall, in the transmitted RRC CONNECTION REQUEST message:

- 1> set the IE "Establishment cause" to the value of the variable ESTABLISHMENT_CAUSE;
- 1> set the IE "Initial UE identity" to the value of the variable INITIAL_UE_IDENTITY;
- 1> set the IE "Protocol error indicator" to the value of the variable PROTOCOL_ERROR_INDICATOR; and

~~1> include a 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 1.~~

1> include the IE "Predefined configuration status information" and set this IE to true if the UE has all pre-configurations stored with the same value tag as broadcast in the cell in which the RRC connection establishment is initiated

The UE shall not include the IE "UE Specific Behaviour Information 1 idle".

CHANGE REQUEST

25.331 CR 2402 # rev # Current version: 6.2.0

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:	#	Predefined configurations for the RRC connection request	
Source:	#	RAN WG2	
Work item code:	#	TEI5	Date: # 16/08/2004
Category:	#	A Use <u>one</u> of the following categories: <i>F</i> (correction) <i>A</i> (corresponds to a correction in an earlier release) <i>B</i> (addition of feature), <i>C</i> (functional modification of feature) <i>D</i> (editorial modification) Detailed explanations of the above categories can be found in 3GPP TR 21.900 .	Release: # Rel-6 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:	#	A sentence regarding pre-defined configurations in section 8.1.3.3 was agreed by CR 1879, but accidentally removed by CR 1932 which intended to remove a paragraph on RACH reporting. This is corrected in this CR.
Summary of change:	#	In section 8.1.3.3, a sentence clarifying that the IE "Predefined configuration status information" should be included in the RRC connection request message and which values it should take have been added.
Consequences if not approved:	#	Without this requirement the UE will not be able to indicate to the network that it has predefined configurations stored. The use of predefined configurations in RRC setup will not work.

Clauses affected:	#	8.1.3.3								
Other specs affected:	#	<table border="1" style="display: inline-table; vertical-align: middle;"> <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;">#</td> <td style="text-align: center;">X</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> Other core specifications # Test specifications # O&M Specifications #	Y	N	#	X	#	X	#	X
Y	N									
#	X									
#	X									
#	X									
Other comments:	#									

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- 1> set the IE "Protocol error indicator" to the value of the variable PROTOCOL_ERROR_INDICATOR; and

~~1> include a 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 11.~~

1> include the IE "Predefined configuration status information" and set this IE to true if the UE has all pre- configurations stored with the same value tag as broadcast in the cell in which the RRC connection establishment is initiated

The UE shall not include the IE "UE Specific Behaviour Information 1 idle".

CHANGE REQUEST

25.331 CR 2403 # rev **-** # Current version: **5.9.0**

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

Proposed change affects: UICC apps# ME Radio Access Network Core Network

Title:	# Cell update during reconfiguration from CELL_FACH to CELL_PCH		
Source:	# RAN WG2		
Work item code:	# TEI5	Date:	# 04/08/2004
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:	# When a reconfiguration procedure moves from CELL_FACH to CELL/URA_PCH state, the UE is required to wait for the ACK for the XXX_COMPLETE message before performing the state transition. It is possible that the UE could perform a cell reselection and cell update procedure during while it is waiting for the ACK. 3 scenarios can occurs:
	<p>1 - The Cell Update Confirm message includes the state indicator 'CELL_PCH'/ 'URA_PCH' but a different value of 'DRX cycle length coefficient' than that included in the reconfiguration message. This can result in a mismatch between the DRX cycle length coefficient used by UE and UTRAN.</p> <p>2 - The Cell Update Confirm message includes the state indicator 'CELL_PCH'/ 'URA+PCH' but does not include a C-RNTI. This means the UE must initiate another Cell Update procedure with cause uplink data in order to re-send XXX_COMPLETE message. This can result in a mismatch in the RRC state between the UE and UTRAN (UE in CELL/URA_PCH but network believing the UE to be in CELL_FACH).</p> <p>3 - The Cell Update Confirm includes the state indicator set to CELL_FACH in order to allow the UE to send the XXX_COMPLETE message. This can result in a mismatch in the RRC state between the UE and UTRAN (UE in CELL/URA_PCH but network believing the UE to be in CELL_FACH).</p>
Summary of change:	# To avoid the following mismatches between the UE and UTRAN the following changes are proposed.
	<p>1 - A note is added to recommend that the UTRAN does not attempt to change the value of the DRX cycle length coefficient within a short time of moving the UE</p>

to CELL/URA_PCH state.

2 - A note is added to recommend that the UTRAN includes CRNTI in the cell update confirm message within a short time of moving the UE to CELL/URA_PCH state.

3 - A note is added to clarify that if a cell update procedure is performed during a reconfiguration procedure the final state of the UE will be according to the reconfiguration procedure.

Isolated Impact Analysis

Functionality corrected: Reconfiguration from CELL_FACH to CELL/URA_PCH state.

Isolated impact statement: Correction to a function where specification was containing some contradiction. Would not affect implementations behaving like indicated in the CR, would affect implementations supporting the corrected functionality otherwise.

Consequences if not approved:

⌘ If not approved there is a possibility that the UE and UTRAN may become de-synchronised with regard to DRX cycle length or RRC state if a cell reselection occurs during a reconfiguration procedure moving the UE to CELL/URA_PCH. This could result in the UE not responding to paging or RRC signalling sent on FACH and consequently missed calls. The de-synchronisation will last until the UE next initiates a cell update.

Clauses affected: ⌘

Other specs affected:

Y	N
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Other core specifications
Test specifications
O&M Specifications

⌘

Other comments: ⌘

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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.

NOTE: After the completion of the cell update procedure and completion of the reconfiguration procedure within the UE, the UE will move to the RRC state as indicated in the reconfiguration message.

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.

NOTE: UE actions, in case IE "Downlink counter synchronisation info" is included and either IE "RLC re-establish indicator (RB2, RB3 and RB4)" or IE "RLC re-establish indicator (RB5 and upwards)" are set to TRUE, are not defined.

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> if the variable ESTABLISHMENT_CAUSE is set:

2> clear the variable ESTABLISHMENT_CAUSE.

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.

NOTE: The UTRAN should not change the currently used value of the IE "UTRAN DRX cycle length coefficient" within a short time of moving the UE into CELL_PCH/URA_PCH state, otherwise there is a risk of a DRX cycle mismatch between the UE and UTRAN. This time should be long enough for the UTRAN to have sufficient confidence that the ACK to the reconfiguration complete message has been received by the UE and therefore the procedure has completed within the UE.

- 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> if the variable PDCP_SN_INFO is empty:
 - 3> configure the corresponding RLC entity for all AM and UM radio bearers and AM and UM signalling radio bearers except RB2 to "stop".
 - 2> else:
 - 3> configure the RLC entity for signalling radio bearers RB1, RB3 and RB4 to "stop";
 - 3> configure the RLC entity for UM and AM radio bearers for which the IE "PDCP SN Info" is not included to "stop".
 - 2> re-establish the RLC entity for RB2;
 - 2> for the downlink and the uplink, apply the ciphering configuration as follows:
 - 3> if the received re-configuration message included the IE "Ciphering Mode Info":
 - 4> use the ciphering configuration in the received message when transmitting the response message.
 - 3> if the ciphering configuration for RB2 from a previously received SECURITY MODE COMMAND has not yet been applied because the activation times not having been reached:
 - 4> if the previous SECURITY MODE COMMAND was received due to new keys being received:
 - 5> consider the new ciphering configuration to include the received new keys;
 - 5> initialise the HFN component of the uplink COUNT-C and downlink COUNT-C of SRB2 as indicated in subclause 8.1.12.3.1.
 - 4> if the ciphering configuration for RB2 from a previously received SECURITY MODE COMMAND has not yet been applied because of the corresponding activation times not having been reached and the previous SECURITY MODE COMMAND caused a change in LATEST_CONFIGURED_CN_DOMAIN:
 - 5> consider the new ciphering configuration to include the keys associated with the LATEST_CONFIGURED_CN_DOMAIN;
 - 5> initialise the HFN component of the uplink COUNT-C and downlink COUNT-C of SRB2 to the most recently transmitted IE "START list" or IE "START" for the LATEST_CONFIGURED_CN_DOMAIN at the reception of the previous SECURITY MODE COMMAND.
 - 4> apply the new ciphering configuration immediately following RLC re-establishment.
 - 3> else:
 - 4> continue using the current ciphering configuration.
 - 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 the IE "RB information to release list", nor the IE "RB information to reconfigure list", nor the IE "RB information to be affected list"; 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 the IE "RB information to release list", nor the IE "RB information to reconfigure list", nor the IE "RB information to be affected list"; 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 the IE "RB information to release list", nor the IE "RB information to reconfigure list", nor the IE "RB information to be affected list"; 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"; or
- includes the IE "Downlink counter synchronisation info" and the IE "New U-RNTI":

NOTE: The UTRAN should include the IE "New C-RNTI" in CELL UPDATE CONFIRM messages with the IE "RRC State Indicator" set to "CELL_PCH" or "URA_PCH" within a short time of moving the UE into CELL_PCH/URA_PCH state, otherwise there is a risk of an RRC state mismatch between the UE and UTRAN. This time should be long enough for the UTRAN to have sufficient confidence that the ACK to the reconfiguration complete message has been received by the UE and therefore the procedure has completed within the UE.

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"; or
- includes the IE "Downlink counter synchronisation info" and the IE "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> if the variable PDCP_SN_INFO is empty:
 - 4> configure the RLC entity for all AM and UM radio bearers and AM and UM signalling radio bearers except RB2 to "continue".
 - 3> else:
 - 4> configure the RLC entity for signalling radio bearers RB1, RB3 and RB4 to "continue";
 - 4> configure the RLC entity for UM and AM radio bearers for which the IE "PDCP SN Info" is not included to "continue".
 - 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:
 - > 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 subclause 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 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> 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.

CHANGE REQUEST

25.331 CR 2404 # rev - # Current version: 6.2.0

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:	# Cell update during reconfiguration from CELL_FACH to CELL_PCH
Source:	# RAN WG2
Work item code:	# TEI5 Date: # 04/08/2004
Category:	# A Release: # Rel-6
<p>Use <u>one</u> of the following categories:</p> <p>F (correction) A (corresponds to a correction in an earlier release) B (addition of feature), C (functional modification of feature) D (editorial modification)</p> <p>Detailed explanations of the above categories can be found in 3GPP TR 21.900.</p>	
<p>Use <u>one</u> of the following releases:</p> <p>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)</p>	

Reason for change: # When a reconfiguration procedure moves from CELL_FACH to CELL/URA_PCH state, the UE is required to wait for the ACK for the XXX_COMPLETE message before performing the state transition. It is possible that the UE could perform a cell reselection and cell update procedure during while it is waiting for the ACK. 3 scenarios can occurs:

1 - The Cell Update Confirm message includes the state indicator 'CELL_PCH'/URA_PCH' but a different value of 'DRX cycle length coefficient' than that included in the reconfiguration message. This can result in a mismatch between the DRX cycle length coefficient used by UE and UTRAN.

2 - The Cell Update Confirm message includes the state indicator 'CELL_PCH'/URA+PCH' but does not include a C-RNTI. This means the UE must initiate another Cell Update procedure with cause uplink data in order to re-send XXX_COMPLETE message. This can result in a mismatch in the RRC state between the UE and UTRAN (UE in CELL/URA_PCH but network believing the UE to be in CELL_FACH).

3 - The Cell Update Confirm includes the state indicator set to CELL_FACH in order to allow the UE to send the XXX_COMPLETE message. This can result in a mismatch in the RRC state between the UE and UTRAN (UE in CELL/URA_PCH but network believing the UE to be in CELL_FACH).

Summary of change: # To avoid the following mismatches between the UE and UTRAN the following changes are proposed.

1 - A note is added to recommend that the UTRAN does not attempt to change the value of the DRX cycle length coefficient within a short time of moving the UE

to CELL/URA_PCH state.

2 - A note is added to recommend that the UTRAN includes CRNTI in the cell update confirm message within a short time of moving the UE to CELL/URA_PCH state.

3 - A note is added to clarify that if a cell update procedure is performed during a reconfiguration procedure the final state of the UE will be according to the reconfiguration procedure.

Isolated Impact Analysis

Functionality corrected: Reconfiguration from CELL_FACH to CELL/URA_PCH state.

Isolated impact statement: Correction to a function where specification was containing some contradiction. Would not affect implementations behaving like indicated in the CR, would affect implementations supporting the corrected functionality otherwise.

Consequences if not approved:

⌘ If not approved there is a possibility that the UE and UTRAN may become de-synchronised with regard to DRX cycle length or RRC state if a cell reselection occurs during a reconfiguration procedure moving the UE to CELL/URA_PCH. This could result in the UE not responding to paging or RRC signalling sent on FACH and consequently missed calls. The de-synchronisation will last until the UE next initiates a cell update.

Clauses affected: ⌘

Other specs affected:

Y	N
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Other core specifications
Test specifications
O&M Specifications

⌘

Other comments: ⌘

How to create CRs using this form:

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

- 1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under <ftp://ftp.3gpp.org/specs/> For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

8.2.2.8 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.

NOTE: After the completion of the cell update procedure and completion of the reconfiguration procedure within the UE, the UE will move to the RRC state as indicated in the reconfiguration message.

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.

NOTE: UE actions, in case IE "Downlink counter synchronisation info" is included and either IE "RLC re-establish indicator (RB2, RB3 and RB4)" or IE "RLC re-establish indicator (RB5 and upwards)" are set to TRUE, are not defined.

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> if the variable ESTABLISHMENT_CAUSE is set:

2> clear the variable ESTABLISHMENT_CAUSE.

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.

NOTE: The UTRAN should not change the currently used value of the IE "UTRAN DRX cycle length coefficient" within a short time of moving the UE into CELL_PCH/URA_PCH state, otherwise there is a risk of a DRX cycle mismatch between the UE and UTRAN. This time should be long enough for the UTRAN to have sufficient confidence that the ACK to the reconfiguration complete message has been received by the UE and therefore the procedure has completed within the UE.

- 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> if the variable PDCP_SN_INFO is empty:
 - 3> configure the corresponding RLC entity for all AM and UM radio bearers and AM and UM signalling radio bearers except RB2 to "stop".
 - 2> else:
 - 3> configure the RLC entity for signalling radio bearers RB1, RB3 and RB4 to "stop";
 - 3> configure the RLC entity for UM and AM radio bearers for which the IE "PDCP SN Info" is not included to "stop".
 - 2> re-establish the RLC entity for RB2;
 - 2> for the downlink and the uplink, apply the ciphering configuration as follows:
 - 3> if the received re-configuration message included the IE "Ciphering Mode Info":
 - 4> use the ciphering configuration in the received message when transmitting the response message.
 - 3> if the ciphering configuration for RB2 from a previously received SECURITY MODE COMMAND has not yet been applied because the activation times not having been reached:
 - 4> if the previous SECURITY MODE COMMAND was received due to new keys being received:
 - 5> consider the new ciphering configuration to include the received new keys;
 - 5> initialise the HFN component of the uplink COUNT-C and downlink COUNT-C of SRB2 as indicated in subclause 8.1.12.3.1.
 - 4> if the ciphering configuration for RB2 from a previously received SECURITY MODE COMMAND has not yet been applied because of the corresponding activation times not having been reached and the previous SECURITY MODE COMMAND caused a change in LATEST_CONFIGURED_CN_DOMAIN:
 - 5> consider the new ciphering configuration to include the keys associated with the LATEST_CONFIGURED_CN_DOMAIN;
 - 5> initialise the HFN component of the uplink COUNT-C and downlink COUNT-C of SRB2 to the most recently transmitted IE "START list" or IE "START" for the LATEST_CONFIGURED_CN_DOMAIN at the reception of the previous SECURITY MODE COMMAND.
 - 4> apply the new ciphering configuration immediately following RLC re-establishment.
 - 3> else:
 - 4> continue using the current ciphering configuration.
 - 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 the IE "RB information to release list", nor the IE "RB information to reconfigure list", nor the IE "RB information to be affected list"; 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 the IE "RB information to release list", nor the IE "RB information to reconfigure list", nor the IE "RB information to be affected list"; 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 the IE "RB information to release list", nor the IE "RB information to reconfigure list", nor the IE "RB information to be affected list"; 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"; or
- includes the IE "Downlink counter synchronisation info" and the IE "New U-RNTI":

NOTE: The UTRAN should include the IE "New C-RNTI" in CELL UPDATE CONFIRM messages with the IE "RRC State Indicator" set to "CELL_PCH" or "URA_PCH" within a short time of moving the UE into CELL_PCH/URA_PCH state, otherwise there is a risk of an RRC state mismatch between the UE and UTRAN. This time should be long enough for the UTRAN to have sufficient confidence that the ACK to the reconfiguration complete message has been received by the UE and therefore the procedure has completed within the UE.

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"; or
- includes the IE "Downlink counter synchronisation info" and the IE "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> if the variable PDCP_SN_INFO is empty:
 - 4> configure the RLC entity for all AM and UM radio bearers and AM and UM signalling radio bearers except RB2 to "continue".
 - 3> else:
 - 4> configure the RLC entity for signalling radio bearers RB1, RB3 and RB4 to "continue";
 - 4> configure the RLC entity for UM and AM radio bearers for which the IE " PDCP SN Info" is not included to "continue".
 - 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:
 - > 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 subclause 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 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> 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.

CHANGE REQUEST

⌘ **25.331 CR 2405** ⌘ rev **-** ⌘ Current version: **5.9.0** ⌘

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

Proposed change affects: UICC apps ME Radio Access Network Core Network

Title:	⌘ UE actions for Delta_ACK/NACK and repetition factor		
Source:	⌘ RAN WG2		
Work item code:	⌘ HSDPA-L23	Date:	⌘ August 2004
Category:	⌘ F 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 .	Release:	⌘ Rel-5 Use <u>one</u> of the following releases: Ph2 (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) Rel-7 (Release 7)

Reason for change: ⌘ 1) The parameters Delta_ACK, Delta_NACK and ACK-NACK repetition factor are part of the IE " Uplink DPCH power control info" as seen in section 10.3.6.91.

The description of actions related to this IE is found in 8.6.6.11. For FDD there is a separation between two main cases:

The first case is when synch A is being performed and that the UE should use all included parameters related to the synch A procedure to calculate initial power and to start inner loop etc.

The second case is when no synch A is being performed. For this case it is currently specified that the UE shall act on the IE "Power control algorithm" and the IE "TPC step size" if included and **ignore any other IEs** that are included.

It could be noted that for the FDD choice many IEs are mandatory present, which makes the current text reasonable for reconfigurations that do not lead to a synch A procedure.

For reconfiguration of HS-DSCH related parameters, it is assumed that if the parameters Delta_ACK, Delta_NACK and/or ACK-NACK repetition factor is reconfigured this would not necessarily lead to a synch A procedure. However, the current text will mandate the UE to ignore these IEs if they are included and there is no synch A being performed.

Summary of change: ⌘ 1) Current text in 8.6.6.11 is corrected to also make the UE also act on Delta_ACK, Delta_NACK and ACK-NACK repetition factor IEs if these are included.

Consequences if not approved: ⌘ 1) It will not be possible to reconfigure Delta_ACK, Delta_NACK or ACK-NACK repetition factor without also doing a synch A procedure.

T1 impact: No impact

Backward compatibility: The proposed change has isolated impact, only UE actions related to IEs Delta_ACK, Delta_NACK and ACK-NACK repetition factor are impacted.

If supported in UTRAN, but not in the UE:
The UE will ignore the content of the IEs and potentially use different values than UTRAN.

If supported in UE, but not UTRAN:
If UTRAN has not implemented the CR it is assumed that these IEs are not included and then there is no risk that UTRAN and the UE uses different values. If however, UTRAN anyway include any of these IEs assuming that they will be ignored by the UE a UE implementing the CR will potentially use different values than UTRAN.

Clauses affected: ⌘ 8.6.6.11

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

Other comments: ⌘

How to create CRs using this form:

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

- 1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.
- 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.

8.6.6.11 Uplink DPCH power control info

The UE shall:

1> in FDD:

2> if the IE "Uplink DPCH power control info" is included:

3> if a synchronisation procedure A is performed according to [29]:

4> calculate and set an initial uplink transmission power;

4> start inner loop power control as specified in subclause 8.5.3;

4> for the UL inner loop power control:

5> use the parameters specified in the IE.

3> else:

4> ignore the IEs "DPCCH Power offset", "PC Preamble" and "SRB delay";

4> act on the IE "Power control algorithm" and the IE "TPC step size" if included ~~and ignore any other IEs that are included.~~

3> act on the IEs " Δ_{ACK} ", " Δ_{NACK} " and "Ack-Nack repetition factor", if included.

1> in 3.84 Mcps TDD:

2> if the IE "Uplink DPCH power control info" is included:

3> use the parameters specified in the IE for open loop power control as defined in subclause 8.5.7.

2> else:

3> use the current uplink transmission power.

1> in 1.28 Mcps TDD:

2> if the CHOICE UL OL PC info is set to 'Broadcast UL OL PC info':

3> set the variable INVALID_CONFIGURATION to true.

2> if the IE "Uplink DPCH power control info" is included in the UPLINK PHYSICAL CHANNEL CONTROL message:

3> use the TPC step size for the closed loop power control of the CCTrCH identified in the message, replacing the existing value used for the CCTrCH.

3> if the IE " UL target SIR " is included:

4> use this value for parameter $PRX_{DPCHdes}$ for open loop power control of the CCTrCH identified in the message in the case of a transition from closed loop to open loop power control as specified in [33].

2> if the IE "Uplink DPCH power control info" is included in the IE "Uplink DPCH info":

3> use the TPC step size for the closed loop power control of all CCTrCH added or reconfigured by the IE replacing any existing values used for the CCTrCHs;

3> if the IE " UL target SIR " is included ignore the parameter.

1> both in FDD and TDD;

2> if the IE "Uplink DPCH power control info" is not included in a message used to enter CELL_DCH:

3> set the variable INVALID_CONFIGURATION to true.

Not included sections

10.3.6.91 Uplink DPCH power control info

Parameters used by UE to set DPCH initial output power and to use for closed-loop power control in FDD and 1.28 Mcps TDD and parameters for uplink open loop power control in 3.84 Mcps TDD.

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
CHOICE <i>mode</i>	MP				
>FDD					
>>DPCCH Power offset	MP		Integer(-164,..-6 by step of 2)	In dB	
>>PC Preamble	MP		Integer (0..7)	In number of frames	
>>SRB delay	MP		Integer(0..7)	In number of frames	
>>Power Control Algorithm	MP		Enumerated (algorithm 1, algorithm 2)	Specifies algorithm to be used by UE to interpret TPC commands	
>>TPC step size	CV- <i>algo</i>		Integer (1, 2)	In dB	
>>> Δ_{ACK}	OP		Integer (0..8)	Refer to quantization of the power offset in [28]	REL-5
>>> Δ_{NACK}	OP		Integer (0..8)	refer to quantization of the power offset in [28]	REL-5
>>>Ack-Nack repetition factor	OP		Integer(1..4)		REL-5
>TDD					
>>>>UL target SIR	OP		Real (-11 .. 20 by step of 0.5dB)	In dB For 1.28 Mcps TDD this parameter represents $PRX_{DPCHdes}$ with range Integer(-120...-58 by step of 1) dBm	REL-4
>>>CHOICE <i>UL OL PC info</i>	MP				
>>>Broadcast UL OL PC info			Null	No data	
>>>Individually Signalled	OP				
>>>>CHOICE <i>TDD option</i>	MP				REL-4
>>>>>3.84 Mcps TDD					REL-4
>>>>>>Individual timeslot interference info	MP	1 to <maxTS>			
>>>>>>>Individual timeslot interference	MP		Individual timeslot interference 10.3.6.38		
>>>>>>>DPCH Constant Value	OP		Constant Value TDD 10.3.6.11a	Quality Margin	
>>>>>>>1.28 Mcps TDD					REL-4
>>>>>>>TPC step size	MP		Integer(1,2,3)		REL-4
>>>>>Primary CCPCH Tx Power	OP		Primary CCPCH Tx Power 10.3.6.59	For Pathloss Calculation	

Condition	Explanation
<i>algo</i>	The IE is mandatory present if the IE "Power Control Algorithm" is set to "algorithm 1", otherwise the IE is not needed

CHANGE REQUEST

⌘ **25.331 CR 2406** ⌘ rev **-** ⌘ Current version: **6.2.0** ⌘

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:	⌘ UE actions for Delta_ACK/NACK and repetition factor		
Source:	⌘ RAN WG2		
Work item code:	⌘ HSDPA-L23	Date:	⌘ August 2004
Category:	⌘ A 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 .	Release:	⌘ Rel-6 Use <u>one</u> of the following releases: Ph2 (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) Rel-7 (Release 7)

Reason for change: ⌘ 1) The parameters Delta_ACK, Delta_NACK and ACK-NACK repetition factor are part of the IE " Uplink DPCH power control info" as seen in section 10.3.6.91.

The description of actions related to this IE is found in 8.6.6.11. For FDD there is a separation between two main cases:

The first case is when synch A is being performed and that the UE should use all included parameters related to the synch A procedure to calculate initial power and to start inner loop etc.

The second case is when no synch A is being performed. For this case it is currently specified that the UE shall act on the IE "Power control algorithm" and the IE "TPC step size" if included and **ignore any other IEs** that are included.

It could be noted that for the FDD choice many IEs are mandatory present which makes the current text reasonable for reconfigurations that do not lead to a synch A procedure.

For reconfiguratyion of HS-DSCH related parameters, it is assumed that if the parameters Delta_ACK, Delta_NACK and/or ACK-NACK repetition factor is reconfigured this would not necessarily lead to a synch A procedure. However, the current text will mandate the UE to ignore these IEs if they are included and there is no synch A being performed.

Summary of change: ⌘ 1) Current text in 8.6.6.11 is corrected to also make the UE also act on Delta_ACK, Delta_NACK and ACK-NACK repetition factor IEs if these are included.

Consequences if not approved: ⌘ 1) It will not be possible to reconfigure Delta_ACK, Delta_NACK or ACK-NACK repetition factor without also doing a synch A procedure.

T1 impact: No impact

Backward compatibility: The proposed change has isolated impact, only UE actions related to IEs Delta_ACK, Delta_NACK and ACK-NACK repetition factor are impacted.

If supported in UTRAN, but not in the UE:
The UE will ignore the content of the IEs and potentially use different values than UTRAN.

If supported in UE, but not UTRAN:
If UTRAN have not implemented the CR it is assumed that these IEs are not included and then there is no risk that UTRAN and the UE uses different values. If however, UTRAN anyway include any of these IEs assuming that they will be ignored by the UE a UE implementing the CR will potentially use different values than UTRAN.

Clauses affected: ⌘ 8.6.6.11

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

Other comments: ⌘

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

8.6.6.11 Uplink DPCH power control info

The UE shall:

1> in FDD:

2> if the IE "Uplink DPCH power control info" is included:

3> if a synchronisation procedure A is performed according to [29]:

4> calculate and set an initial uplink transmission power;

4> start inner loop power control as specified in subclause 8.5.3;

4> for the UL inner loop power control:

5> use the parameters specified in the IE.

3> else:

4> ignore the IEs "DPCCH Power offset", "PC Preamble" and "SRB delay";

4> act on the IE "Power control algorithm" and the IE "TPC step size", if included ~~and ignore any other IEs that are included.~~

3> act on the IEs " Δ_{ACK} ", " Δ_{NACK} " and "Ack-Nack repetition factor", if included.

1> in 3.84 Mcps TDD:

2> if the IE "Uplink DPCH power control info" is included:

3> use the parameters specified in the IE for open loop power control as defined in subclause 8.5.7.

2> else:

3> use the current uplink transmission power.

1> in 1.28 Mcps TDD:

2> if the CHOICE UL OL PC info is set to 'Broadcast UL OL PC info':

3> set the variable INVALID_CONFIGURATION to true.

2> if the IE "Uplink DPCH power control info" is included in the UPLINK PHYSICAL CHANNEL CONTROL message:

3> use the TPC step size for the closed loop power control of the CCTrCH identified in the message, replacing the existing value used for the CCTrCH.

3> if the IE " UL target SIR " is included:

4> use this value for parameter $PRX_{DPCHdes}$ for open loop power control of the CCTrCH identified in the message in the case of a transition from closed loop to open loop power control as specified in [33].

2> if the IE "Uplink DPCH power control info" is included in the IE "Uplink DPCH info":

3> use the TPC step size for the closed loop power control of all CCTrCH added or reconfigured by the IE replacing any existing values used for the CCTrCHs;

3> if the IE " UL target SIR " is included ignore the parameter.

1> both in FDD and TDD;

2> if the IE "Uplink DPCH power control info" is not included in a message used to enter CELL_DCH:

3> set the variable INVALID_CONFIGURATION to true.

CR-Form-v7

CHANGE REQUEST

25.331 CR 2407 # rev - # Current version: 5.9.0

For [HELP](#) on using this form, see bottom of this page or look at the pop-up text over the # symbols.

Proposed change affects: UICC apps# ME Radio Access Network Core Network

Title:	# Calculation of UL transmit power for HS-SICH (TDD)		
Source:	# RAN WG2		
Work item code:	# HSDPA-L23	Date:	# 17 th August 2004
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 HSPDA use of Ack-Nak power offset, sending Negative Acknowledgement and/or Acknowledgement are Layer 1/MAC-hs functions rather than RRC functions. These functions are already specified with respect to Layer 1 via TS 25.224 and in MAC-hs via TS 25.321. Having RRC deal with these functions contravenes architectural principles of assigning unique functions to different protocol layers. Having RRC deal with these functions as well as Layer 1 is unnecessary and may lead to inefficient or incorrect implementation
Summary of change:	# For TDD, text is changed so that initial UL transmit power of HS-SICH is calculated without reference to the transmission of Negative Acknowledgement or Acknowledgement or the use of Ack-Nak power offset.
	Isolated Impact Analysis: The change impacts TDD only.
Consequences if not approved:	# Inefficient and/or incorrect implementation.

Clauses affected:	# 8.5.7								
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Y	N								
#	X								
#	X								
#	X								
Other comments:	#								

How to create CRs using this form:

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- 1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.
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- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to

8.5.7 Open loop power control

For FDD and prior to PRACH or PCPCH transmission the UE shall:

- 1> acquire valid versions of the necessary System Information IEs as follows:
 - 2> if the UE has stored valid versions of the IEs "Primary CPICH Tx power" and "Constant value":
 - 3> use the stored content of the IEs.
 - 2> otherwise:
 - 3> read and store the IE "Primary CPICH Tx power" and "Constant value" in System Information Block type 6 (or System Information Block type 5, if System Information Block type 6 is not being broadcast).
- 2> if the UE has a valid version of the IE "UL interference" stored:
 - 3> use the stored content of the IE "UL interference".
- 2> otherwise:
 - 3> read and store the IE "UL interference" in System Information Block type 7;
 - 3> if the UE fails to read the IE "UL interference" in System Information Block type 7 due to bad radio conditions, the UE shall use the last stored IE "UL interference".

1> measure the value for the CPICH_RSCP;

1> calculate the power for the first preamble as:

$$\text{Preamble_Initial_Power} = \text{Primary CPICH TX power} - \text{CPICH_RSCP} + \text{UL interference} + \text{Constant Value}$$

Where,

Primary CPICH TX power shall have the value of IE "Primary CPICH Tx power",

UL interference shall have the value of IE "UL interference"; and

Constant Value shall have the value of IE "Constant value".

1> as long as the physical layer is configured for PRACH or PCPCH transmission:

- 2> continuously recalculate the Preamble_Initial_Power when any of the broadcast parameters used in the above formula changes; and
- 2> resubmit to the physical layer the new calculated Preamble_Initial_Power.

For 3.84 Mcps TDD the UE shall:

- 1> if in the IE "Uplink DPCH Power Control info" the "CHOICE UL OL PC info" has the value "Broadcast UL OL PC info":
 - 2> prior to DPCH transmission the UE shall:
 - 3> acquire valid versions of the necessary System Information IEs as follows:
 - 4> if the UE has stored valid versions of the IEs "Primary CCPCH Tx power" and "DPCH Constant value":
 - 5> use the stored content of the IEs.
 - 4> otherwise:

- 5> read and store the IE "Primary CCPCH Tx power" and "DPCH Constant value" in System Information Block type 6 (or System Information Block type 5, if System Information Block type 6 is not being broadcast).
- 3> if the UE has a valid version of the IE "UL interference" for each active UL timeslot stored:
 - 4> use the stored content of the IE "UL interference" for each active UL timeslot.
- 3> otherwise:
 - 4> read and store the IE "UL Timeslot Interference" for each active UL timeslot in System Information Block type 14;
 - 4> if the UE fails to read the IE "UL Timeslot Interference" for each active UL time slot in System Information Block type 14 due to bad radio conditions, the UE shall use the last stored IE "UL Timeslot interference" for each active UL timeslot.
- 1> otherwise:
 - 2> acquire Reference Power, Constant Values and I_{BTS} for all active UL timeslots from the IE "Uplink DPCH Power Control info".
- 1> for PUSCH, PRACH and HS-SICH power control:
 - 2> prior to PUSCH or PRACH transmission the UE shall:
 - 3> acquire valid versions of the necessary System Information IEs as follows:
 - 4> if the UE has stored valid versions of the IEs "Primary CCPCH Tx power" and "PUSCH Constant value" for PUSCH transmissions or "PRACH Constant value" for PRACH transmissions:
 - 5> use the stored content of the IEs.
 - 4> otherwise:
 - 5> read and store the IE "Primary CCPCH Tx power" and "PUSCH Constant value" for PUSCH transmissions or "PRACH Constant value" for PRACH transmissions in System Information Block type 6 (or System Information Block type 5, if System Information Block type 6 is not being broadcast).
 - 3> if the UE has a valid version of the IE "UL interference" for each active UL timeslot stored:
 - 4> use the stored content of the IE "UL interference" for each active UL timeslot.
 - 3> otherwise:
 - 4> read and store the IE "UL Timeslot Interference" for each active UL timeslot in System Information Block type 14;
 - 4> if the UE fails to read the IE "UL Timeslot Interference" for each active UL time slot in System Information Block type 14 due to bad radio conditions, the UE shall use the last stored IE "UL Timeslot interference" for each active UL timeslot.

calculate the UL transmit power according to the following formula for the PRACH continuously while the physical channel is active:

$$P_{PRACH} = L_{PCCPCH} + I_{BTS} + PRACH \text{ Constant value,}$$

- 2> 3dB shall be added to RACH Constant Value in the above equation for the case where RACH Spreading Factor = 8.

- 1> calculate the UL transmit power according to the following formula for the DPCH continuously while the physical channel is active:

$$P_{DPCH} = \alpha L_{PCCPCH} + (1-\alpha)L_0 + I_{BTS} + SIR_{TARGET} + DPCH \text{ Constant value}$$

1> calculate the UL transmit power according to the following formula for the PUSCH continuously while the physical channel is active:

$$P_{\text{PUSCH}} = \alpha L_{\text{PCCPCH}} + (1-\alpha)L_0 + I_{\text{BTS}} + \text{SIR}_{\text{TARGET}} + \text{PUSCH Constant value}$$

1> calculate the initial UL transmit power for HS-SICH according to the following formulae:

~~2> when transmitting a Negative Acknowledgement:~~

$$P_{\text{HS-SICH}} = \alpha L_{\text{PCCPCH}} + (1-\alpha)L_0 + I_{\text{BTS}} + \text{SIR}_{\text{TARGET}} + \text{HS-SICH Constant value}$$

~~2> when transmitting an Acknowledgement:~~

$$P_{\text{HS-SICH}} = \alpha L_{\text{PCCPCH}} + (1-\alpha)L_0 + I_{\text{BTS}} + \text{SIR}_{\text{TARGET}} + \text{HS-SICH Constant value} + \text{Ack_Nack power offset}$$

Where, for all the above equations for 3.84 Mcps TDD the following apply:

- P_{PRACH} , P_{DPCH} , P_{PUSCH} and $P_{\text{HS-SICH}}$: Transmitter power level in dBm;
- Pathloss values:
 - L_{PCCPCH} : Measurement representing path loss in dB based on beacon channels (the reference transmit power is signalled as the value of the IE "Primary CCPCH Tx Power" on BCH in System Information Block type 6 (or System Information Block type 5, according to subclause 8.1.1.6.5), or individually signalled in the IE "Uplink DPCH Power Control info").
 - L_0 : Long term average of path loss in dB;
 - If the midamble is used in the evaluation of L_{PCCPCH} and L_0 , and the Tx diversity scheme used for the P-CCPCH involves the transmission of different midambles from the diversity antennas, the received power of the different midambles from the different antennas shall be combined prior to evaluation of the variables.
- I_{BTS} : Interference signal power level at cell's receiver in dBm. I_{BTS} shall have the value of the IE "UL Timeslot Interference" (IE "UL Timeslot Interference" is broadcast on BCH in System Information Block type 14 or individually signalled to each UE in the IE "Uplink DPCH Power Control info" for each active uplink timeslot).
- α : α is a weighting parameter, which represents the quality of path loss measurements. α may be a function of the time delay between the uplink time slot and the most recent down link PCCPCH time slot. α is calculated at the UE. α shall be smaller or equal to the value of the IE "Alpha". If the IE "Alpha" is not explicitly signalled to the UE α shall be set to 1. If UE is capable of estimating its position by using the OTDOA IPDL method, the UE shall use the IPDL- α parameter.
- $\text{SIR}_{\text{TARGET}}$: Target SNR in dB. This value is individually signalled to UEs in IE "UL target SIR" in IE "Uplink DPCH Power Control Info" or in IE "PUSCH Power Control Info" respectively.
- PRACH Constant value: PRACH Constant value shall have the value of the IE "PRACH Constant value".
- DPCH Constant value: DPCH Constant value shall have the value of the IE "DPCH Constant value".
- PUSCH Constant value: PUSCH Constant value shall have the value of the IE "PUSCH Constant value".
- HS-SICH Constant value: HS-SICH Constant value shall have the value of the IE "HS-SICH Constant value".
- Values received by dedicated signalling shall take precedence over broadcast values.
- If IPDLs are applied, the UE may increase UL Tx power by the value given in the IE "Max power increase". This power increase is only allowed in the slots between an idle slot and the next beacon slot.
- Ack-Nack Power Offset: Difference in the desired RX power between HS-SICH transmissions conveying an acknowledgement and transmissions conveying a negative acknowledgement signalled to the UE in IE "HS-SCCH Info".

For 1.28 Mcps TDD the UE shall:

1> acquire valid versions of the necessary System Information IEs as follows:

2> if the UE has stored a valid version of the IE "Primary CCPCH Tx Power":

3> use the stored content of the IE.

2> otherwise:

3> read and store the IE "Primary CCPCH Tx Power" from System Information Block type 6 (or System Information Block type 5, if System Information Block type 6 is not being broadcast).

1> calculate the UL transmit power according to the following formula for each UpPCH code transmission:

$$P_{\text{UpPCH}} = L_{\text{PCCPCH}} + \text{PRX}_{\text{UpPCHdes}} + (i-1) * P_{\text{wramp}}$$

NOTE: When i equals 1, the initial signature power "Signature_Initial_Power" defined in [33] corresponds to P_{UpPCH} with i set to 1.

1> calculate the UL transmit power according to the following formula for each PRACH transmission:

$$P_{\text{PRACH}} = L_{\text{PCCPCH}} + \text{PRX}_{\text{PRACHdes}} + (i_{\text{UpPCH}}-1) * P_{\text{wramp}}$$

1> calculate the initial UL transmit power according to the following formula for the PUSCH. Once the UE receives TPC bits relating to the PUSCH then it transitions to closed loop power control. If successive PUSCH resource allocations are contiguous then no return is made to open loop power control at the beginning of the succeeding resource allocation.

$$P_{\text{USCH}} = \text{PRX}_{\text{PUSCHdes}} + L_{\text{PCCPCH}}$$

1> calculate the initial UL transmit power for HS-SICH according to the following formulae:

~~2> when transmitting a Negative Acknowledgement;~~

$$P_{\text{HS-SICH}} = \text{PRX}_{\text{HS-SICH}} + L_{\text{PCCPCH}}$$

~~2> when transmitting an Acknowledgement~~

~~$$P_{\text{HS-SICH}} = \text{PRX}_{\text{HS-SICH}} + L_{\text{PCCPCH}} + \text{Ack Naek Power Offset}$$~~

~~2> Once the UE receives TPC bits relating to the HS-SICH, it transitions to closed loop power control. If no TPC command for the HS-SICH is detected between successive HS-SICH transmissions, the UE should revert to open loop power control until the next TPC command is detected.~~

1> calculate the initial UL transmit power according to the following formula for the DPCH. Once the UE receives TPC bits relating to the uplink DPCH then it transitions to closed loop power control.

$$P_{\text{DPCH}} = \text{PRX}_{\text{DPCHdes}} + L_{\text{PCCPCH}}$$

Where:

- P_{UpPCH} , P_{PRACH} , P_{DPCH} , $P_{\text{HS-SICH}}$ & P_{USCH} : Transmitter power level in dBm.
- L_{PCCPCH} : Measurement representing path loss in dB (reference transmit power "Primary CCPCH Tx Power" is broadcast on BCH in System Information Block type 5 and System Information Block type 6, or individually signalled to each UE in the IE "Uplink DPCH Power Control info").
- i is the number of transmission attempts on UpPCH, $i=1 \dots \text{Max SYNC_UL Transmissions}$.
- i_{UpPCH} is the final value of i .
- $\text{PRX}_{\text{PRACHdes}}$: Desired PRACH RX power at the cell's receiver in dBm signalled to the UE by the network in the FPACH response to the UE's successful SYNC_UL transmission.
- $\text{PRX}_{\text{UpPCHdes}}$: Desired UpPCH RX power at the cell's receiver in dBm. The value is broadcast in "PRX_{UpPCHdes}" in IE "SYNC_UL info" on BCH and shall be read on System Information Block type 5 and System Information Block type 6. It can also be signalled directly to the UE in IE "Uplink Timing Advance

Control" contained in a protocol message triggering a hard handover or a transition from cell FACH to cell DCH state.

- $PRX_{PUSCHdes}$: Desired PUSCH RX power at the cell's receiver in dBm signalled to the UE in IE "PUSCH Power Control Info".
- $PRX_{DPCHdes}$: Desired DPCH RX power at the cell's receiver in dBm signalled to the UE in IE "Uplink DPCH Info" and IE "Uplink DPCH Power Control Info".
- Pwr_{ramp} : The UE shall increase its transmission power by the value of the IE "Power Ramp step" by every UpPCH transmission. Its value is signalled in the IE "SYNC UL info" in System Information Block type 5 and System Information Block type 6 or is signalled to the UE in the IE "Uplink Timing Advance Control" contained in a protocol message triggering a hard handover or a transition from cell FACH state to cell DCH state.
- $PRX_{HS-SICH}$: Desired HS-SICH RX power at the cell's receiver in dBm signalled to the UE in IE "Downlink HS-PDSCH Information".
- Ack-Nack Power Offset: Difference in the desired RX power between HS-SICH transmissions conveying an acknowledgement and transmissions conveying a negative acknowledgement signalled to the UE in IE "HS-SCCH Info".

----- End of Changes -----

CR-Form-v7

CHANGE REQUEST

25.331 CR 2408 # rev - # Current version: **6.2.0**

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:	# Calculation of UL transmit power for HS-SICH (TDD) #		
Source:	# RAN WG2 #		
Work item code:	# HSDPA-L23 #	Date:	# 17 th August 2004 #
Category:	# A #	Release:	# Rel-6 #
	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)

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- 1> acquire valid versions of the necessary System Information IEs as follows:
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 - 3> use the stored content of the IEs.
 - 2> otherwise:
 - 3> read and store the IE "Primary CPICH Tx power" and "Constant value" in System Information Block type 6 (or System Information Block type 5, if System Information Block type 6 is not being broadcast).
- 2> if the UE has a valid version of the IE "UL interference" stored:
 - 3> use the stored content of the IE "UL interference".
- 2> otherwise:
 - 3> read and store the IE "UL interference" in System Information Block type 7;
 - 3> if the UE fails to read the IE "UL interference" in System Information Block type 7 due to bad radio conditions, the UE shall use the last stored IE "UL interference".

1> measure the value for the CPICH_RSCP;

1> calculate the power for the first preamble as:

$$\text{Preamble_Initial_Power} = \text{Primary CPICH TX power} - \text{CPICH_RSCP} + \text{UL interference} + \text{Constant Value}$$

Where,

Primary CPICH TX power shall have the value of IE "Primary CPICH Tx power",

UL interference shall have the value of IE "UL interference"; and

Constant Value shall have the value of IE "Constant value".

- 1> as long as the physical layer is configured for PRACH or PCPCH transmission:
 - 2> continuously recalculate the Preamble_Initial_Power when any of the broadcast parameters used in the above formula changes; and
 - 2> resubmit to the physical layer the new calculated Preamble_Initial_Power.

For 3.84 Mcps TDD the UE shall:

- 1> if in the IE "Uplink DPCH Power Control info" the "CHOICE UL OL PC info" has the value "Broadcast UL OL PC info":
 - 2> prior to DPCH transmission the UE shall:
 - 3> acquire valid versions of the necessary System Information IEs as follows:
 - 4> if the UE has stored valid versions of the IEs "Primary CCPCH Tx power" and "DPCH Constant value":
 - 5> use the stored content of the IEs.
 - 4> otherwise:

- 5> read and store the IE "Primary CCPCH Tx power" and "DPCH Constant value" in System Information Block type 6 (or System Information Block type 5, if System Information Block type 6 is not being broadcast).
- 3> if the UE has a valid version of the IE "UL interference" for each active UL timeslot stored:
 - 4> use the stored content of the IE "UL interference" for each active UL timeslot.
- 3> otherwise:
 - 4> read and store the IE "UL Timeslot Interference" for each active UL timeslot in System Information Block type 14;
 - 4> if the UE fails to read the IE "UL Timeslot Interference" for each active UL time slot in System Information Block type 14 due to bad radio conditions, the UE shall use the last stored IE "UL Timeslot interference" for each active UL timeslot.
- 1> otherwise:
 - 2> acquire Reference Power, Constant Values and I_{BTS} for all active UL timeslots from the IE "Uplink DPCH Power Control info".
- 1> for PUSCH, PRACH and HS-SICH power control:
 - 2> prior to PUSCH or PRACH transmission the UE shall:
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 - 4> if the UE has stored valid versions of the IEs "Primary CCPCH Tx power" and "PUSCH Constant value" for PUSCH transmissions or "PRACH Constant value" for PRACH transmissions:
 - 5> use the stored content of the IEs.
 - 4> otherwise:
 - 5> read and store the IE "Primary CCPCH Tx power" and "PUSCH Constant value" for PUSCH transmissions or "PRACH Constant value" for PRACH transmissions in System Information Block type 6 (or System Information Block type 5, if System Information Block type 6 is not being broadcast).
 - 3> if the UE has a valid version of the IE "UL interference" for each active UL timeslot stored:
 - 4> use the stored content of the IE "UL interference" for each active UL timeslot.
 - 3> otherwise:
 - 4> read and store the IE "UL Timeslot Interference" for each active UL timeslot in System Information Block type 14;
 - 4> if the UE fails to read the IE "UL Timeslot Interference" for each active UL time slot in System Information Block type 14 due to bad radio conditions, the UE shall use the last stored IE "UL Timeslot interference" for each active UL timeslot.

calculate the UL transmit power according to the following formula for the PRACH continuously while the physical channel is active:

$$P_{PRACH} = L_{PCCPCH} + I_{BTS} + PRACH \text{ Constant value,}$$

- 2> 3dB shall be added to RACH Constant Value in the above equation for the case where RACH Spreading Factor = 8.

- 1> calculate the UL transmit power according to the following formula for the DPCH continuously while the physical channel is active:

$$P_{DPCH} = \alpha L_{PCCPCH} + (1-\alpha)L_0 + I_{BTS} + SIR_{TARGET} + DPCH \text{ Constant value}$$

1> calculate the UL transmit power according to the following formula for the PUSCH continuously while the physical channel is active:

$$P_{\text{PUSCH}} = \alpha L_{\text{PCCPCH}} + (1-\alpha)L_0 + I_{\text{BTS}} + \text{SIR}_{\text{TARGET}} + \text{PUSCH Constant value}$$

1> calculate the initial UL transmit power for HS-SICH according to the following formulae:

~~2> when transmitting a Negative Acknowledgement:~~

$$P_{\text{HS-SICH}} = \alpha L_{\text{PCCPCH}} + (1-\alpha)L_0 + I_{\text{BTS}} + \text{SIR}_{\text{TARGET}} + \text{HS-SICH Constant value}$$

~~2> when transmitting an Acknowledgement:~~

$$P_{\text{HS-SICH}} = \alpha L_{\text{PCCPCH}} + (1-\alpha)L_0 + I_{\text{BTS}} + \text{SIR}_{\text{TARGET}} + \text{HS-SICH Constant value} + \text{Ack_Nack power offset}$$

Where, for all the above equations for 3.84 Mcps TDD the following apply:

- P_{PRACH} , P_{DPCH} , P_{PUSCH} and $P_{\text{HS-SICH}}$: Transmitter power level in dBm;
- Pathloss values:
 - L_{PCCPCH} : Measurement representing path loss in dB based on beacon channels (the reference transmit power is signalled as the value of the IE "Primary CCPCH Tx Power" on BCH in System Information Block type 6 (or System Information Block type 5, according to subclause 8.1.1.6.5), or individually signalled in the IE "Uplink DPCH Power Control info").
 - L_0 : Long term average of path loss in dB;
 - If the midamble is used in the evaluation of L_{PCCPCH} and L_0 , and the Tx diversity scheme used for the P-CCPCH involves the transmission of different midambles from the diversity antennas, the received power of the different midambles from the different antennas shall be combined prior to evaluation of the variables.
- I_{BTS} : Interference signal power level at cell's receiver in dBm. I_{BTS} shall have the value of the IE "UL Timeslot Interference" (IE "UL Timeslot Interference" is broadcast on BCH in System Information Block type 14 or individually signalled to each UE in the IE "Uplink DPCH Power Control info" for each active uplink timeslot).
- α : α is a weighting parameter, which represents the quality of path loss measurements. α may be a function of the time delay between the uplink time slot and the most recent down link PCCPCH time slot. α is calculated at the UE. α shall be smaller or equal to the value of the IE "Alpha". If the IE "Alpha" is not explicitly signalled to the UE α shall be set to 1. If UE is capable of estimating its position by using the OTDOA IPDL method, the UE shall use the IPDL- α parameter.
- $\text{SIR}_{\text{TARGET}}$: Target SNR in dB. This value is individually signalled to UEs in IE "UL target SIR" in IE "Uplink DPCH Power Control Info" or in IE "PUSCH Power Control Info" respectively.
- PRACH Constant value: PRACH Constant value shall have the value of the IE "PRACH Constant value".
- DPCH Constant value: DPCH Constant value shall have the value of the IE "DPCH Constant value".
- PUSCH Constant value: PUSCH Constant value shall have the value of the IE "PUSCH Constant value".
- HS-SICH Constant value: HS-SICH Constant value shall have the value of the IE "HS-SICH Constant value".
- Values received by dedicated signalling shall take precedence over broadcast values.
- If IPDLs are applied, the UE may increase UL Tx power by the value given in the IE "Max power increase". This power increase is only allowed in the slots between an idle slot and the next beacon slot.
- Ack-Nack Power Offset: Difference in the desired RX power between HS-SICH transmissions conveying an acknowledgement and transmissions conveying a negative acknowledgement signalled to the UE in IE "HS-SCCH Info".

For 1.28 Mcps TDD the UE shall:

1> acquire valid versions of the necessary System Information IEs as follows:

2> if the UE has stored a valid version of the IE "Primary CCPCH Tx Power":

3> use the stored content of the IE.

2> otherwise:

3> read and store the IE "Primary CCPCH Tx Power" from System Information Block type 6 (or System Information Block type 5, if System Information Block type 6 is not being broadcast).

1> calculate the UL transmit power according to the following formula for each UpPCH code transmission:

$$P_{\text{UpPCH}} = L_{\text{PCCPCH}} + \text{PRX}_{\text{UpPCHdes}} + (i-1) * P_{\text{wramp}}$$

NOTE: When i equals 1, the initial signature power "Signature_Initial_Power" defined in [33] corresponds to P_{UpPCH} with i set to 1.

1> calculate the UL transmit power according to the following formula for each PRACH transmission:

$$P_{\text{PRACH}} = L_{\text{PCCPCH}} + \text{PRX}_{\text{PRACHdes}} + (i_{\text{UpPCH}}-1) * P_{\text{wramp}}$$

1> calculate the initial UL transmit power according to the following formula for the PUSCH. Once the UE receives TPC bits relating to the PUSCH then it transitions to closed loop power control. If successive PUSCH resource allocations are contiguous then no return is made to open loop power control at the beginning of the succeeding resource allocation.

$$P_{\text{USCH}} = \text{PRX}_{\text{PUSCHdes}} + L_{\text{PCCPCH}}$$

1> calculate the initial UL transmit power for HS-SICH according to the following formulae:

~~2> when transmitting a Negative Acknowledgement;~~

$$P_{\text{HS-SICH}} = \text{PRX}_{\text{HS-SICH}} + L_{\text{PCCPCH}}$$

~~2> when transmitting an Acknowledgement~~

~~$$P_{\text{HS-SICH}} = \text{PRX}_{\text{HS-SICH}} + L_{\text{PCCPCH}} + \text{Ack Naek Power Offset}$$~~

~~2> Once the UE receives TPC bits relating to the HS-SICH, it transitions to closed loop power control. If no TPC command for the HS-SICH is detected between successive HS-SICH transmissions, the UE should revert to open loop power control until the next TPC command is detected.~~

1> calculate the initial UL transmit power according to the following formula for the DPCH. Once the UE receives TPC bits relating to the uplink DPCH then it transitions to closed loop power control.

$$P_{\text{DPCH}} = \text{PRX}_{\text{DPCHdes}} + L_{\text{PCCPCH}}$$

Where:

- P_{UpPCH} , P_{PRACH} , P_{DPCH} , $P_{\text{HS-SICH}}$ & P_{USCH} : Transmitter power level in dBm.
- L_{PCCPCH} : Measurement representing path loss in dB (reference transmit power "Primary CCPCH Tx Power" is broadcast on BCH in System Information Block type 5 and System Information Block type 6, or individually signalled to each UE in the IE "Uplink DPCH Power Control info").
- i is the number of transmission attempts on UpPCH, $i=1 \dots \text{Max SYNC_UL Transmissions}$.
- i_{UpPCH} is the final value of i .
- $\text{PRX}_{\text{PRACHdes}}$: Desired PRACH RX power at the cell's receiver in dBm signalled to the UE by the network in the FPACH response to the UE's successful SYNC_UL transmission.
- $\text{PRX}_{\text{UpPCHdes}}$: Desired UpPCH RX power at the cell's receiver in dBm. The value is broadcast in "PRX_{UpPCHdes}" in IE "SYNC_UL info" on BCH and shall be read on System Information Block type 5 and System Information Block type 6. It can also be signalled directly to the UE in IE "Uplink Timing Advance

Control" contained in a protocol message triggering a hard handover or a transition from cell FACH to cell DCH state.

- $PRX_{PUSCH_{des}}$: Desired PUSCH RX power at the cell's receiver in dBm signalled to the UE in IE "PUSCH Power Control Info".
- $PRX_{DPCH_{des}}$: Desired DPCH RX power at the cell's receiver in dBm signalled to the UE in IE "Uplink DPCH Info" and IE "Uplink DPCH Power Control Info".
- Pwr_{ramp} : The UE shall increase its transmission power by the value of the IE "Power Ramp step" by every UpPCH transmission. Its value is signalled in the IE "SYNC UL info" in System Information Block type 5 and System Information Block type 6 or is signalled to the UE in the IE "Uplink Timing Advance Control" contained in a protocol message triggering a hard handover or a transition from cell FACH state to cell DCH state.
- $PRX_{HS-SICH}$: Desired HS-SICH RX power at the cell's receiver in dBm signalled to the UE in IE "Downlink HS-PDSCH Information".
- Ack-Nack Power Offset: Difference in the desired RX power between HS-SICH transmissions conveying an acknowledgement and transmissions conveying a negative acknowledgement signalled to the UE in IE "HS-SCCH Info".

----- End of Changes -----

3GPP TSG-RAN WG2 Meeting #43
Prague, Czech Republic, 16 – 20 August 2004

Tdoc # R2-041804

CR-Form-v7

CHANGE REQUEST

25.331 CR 2409 # rev **-** # Current version: **5.9.0**

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

Proposed change affects: UICC apps# ME Radio Access Network Core Network

Title:	# Handling of Timer T302 Expiry		
Source:	# RAN WG2		
Work item code:	# TEI5 Date: # 08/2004		
Category:	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> # F 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. </td> <td style="width: 50%; vertical-align: top;"> Release: # Rel-5 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) </td> </tr> </table>	# F 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 .	Release: # Rel-5 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)
# F 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 .	Release: # Rel-5 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:	# When CELL UPDATE procedure is caused by Radio Link Failure, T314 or T315 or both is started. It's because to prevent UE from remaining in RRC connected mode too long leading battery draining. BTW, current text in 8.3.1.12 is ambiguous w.r.t the handling of T302 expiry when only one of T314 and T315 is started at the beginning of CELL UPDATE procedure. It seems that current text assume only the case when both T314 and T314 have started at the start of CELL UPDATE procedure. For example, there is a case when only T314 has started at the beginning of CELL UPDATE procedure and T314 expire and then T302 expires. In this case, the UE does not go to idle mode at the expiry of T314 and does not go to idle mode also at the expiry of T302. According to the current specification, the only way for the UE to go to idle mode in this case is for V302 to become larger than N302. This is not the intended behaviour
Summary of change:	# At the expiry of T302, if neither T314 nor T315 is running, the UE transit to idle mode. Implementation of this CR by a R99/Rel-4 UE will not cause compatibility issues.
Consequences if not approved:	# UE remains longer in RRC connected mode than necessary, resulting bad battery performance. Isolated Impact Analysis: The proposed change has isolated impact, only UE actions related to T302 expiry in Cell Update procedure initiated by Radio Link Failure.

Clauses affected:	⌘	8.3.1.12										
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	⌘
		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.

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 are 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 are 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 are 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 on the current frequency 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 HS-DSCH is configured:
 - 2> stop any HS-DSCH reception procedures;
 - 2> clear any stored HS-PDSCH configuration;
 - 2> act as if the IE "MAC-hs reset indicator" is received and set to TRUE;
 - 2> release all HARQ resources;
 - 2> remove any H-RNTI stored;
 - 2> clear the variable H_RNTI;
 - 2> set the variable HS_DSCH_RECEPTION to FALSE.

- 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.

8.3.1.12 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.

2> if timers T314 and T315 are not 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.

- 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 detects "out of service area", it shall:
- 1> act according to subclause 7.2.2.

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.

3GPP TSG-RAN WG2 Meeting #43
Prague, Czech Republic, 16 – 20 August 2004

Tdoc # R2-041805

CR-Form-v7

CHANGE REQUEST

25.331 CR 2410 # rev **-** # Current version: **6.2.0**

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:	# Handling of Timer T302 Expiry		
Source:	# RAN WG2		
Work item code:	# TEI5	Date:	# 08/2004
Category:	# A	Release:	# Rel-6
	<p>Use <u>one</u> of the following categories:</p> <p>F (correction)</p> <p>A (corresponds to a correction in an earlier release)</p> <p>B (addition of feature),</p> <p>C (functional modification of feature)</p> <p>D (editorial modification)</p> <p>Detailed explanations of the above categories can be found in 3GPP TR 21.900.</p>		<p>Use <u>one</u> of the following releases:</p> <p>2 (GSM Phase 2)</p> <p>R96 (Release 1996)</p> <p>R97 (Release 1997)</p> <p>R98 (Release 1998)</p> <p>R99 (Release 1999)</p> <p>Rel-4 (Release 4)</p> <p>Rel-5 (Release 5)</p> <p>Rel-6 (Release 6)</p>

Reason for change:	<p># When CELL UPDATE procedure is caused by Radio Link Failure, T314 or T315 or both is started. It's because to prevent UE from remaining in RRC connected mode too long leading battery draining.</p> <p>BTW, current text in 8.3.1.12 is ambiguous w.r.t the handling of T302 expiry when only one of T314 and T315 is started at the beginning of CELL UPDATE procedure. It seems that current text assume only the case when both T314 and T314 have started at the start of CELL UPDATE procedure.</p> <p>For example, there is a case when only T314 has started at the beginning of CELL UPDATE procedure and T314 expire and then T302 expires. In this case, the UE does not go to idle mode at the expiry of T314 and does not go to idle mode also at the expiry of T302. According to the current specification, the only way for the UE to go to idle mode in this case is for V302 to become larger than N302.</p> <p>This is not the intended behaviour</p>
Summary of change:	<p># At the expiry of T302, if neither T314 nor T315 is running, the UE transit to idle mode.</p> <p>Implementation of this CR by a R99/Rel-4 UE will not cause compatibility issues.</p>
Consequences if not approved:	<p># UE remains longer in RRC connected mode than necessary, resulting bad battery performance.</p> <p>Isolated Impact Analysis: The proposed change has isolated impact, only UE actions related to T302 expiry in Cell Update procedure initiated by Radio Link Failure.</p>

Clauses affected:	⌘	8.3.1.12										
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	⌘
		Y	N									
			X									
			X									
	X											
	Test specifications											
	O&M Specifications											
Other comments:	⌘											

How to create CRs using this form:

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Below is a brief summary:

- 1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under <ftp://ftp.3gpp.org/specs/> For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

8.3.1.2 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 are 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 are 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 are 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 on the current frequency 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 HS-DSCH is configured:
 - 2> stop any HS-DSCH reception procedures;
 - 2> clear any stored HS-PDSCH configuration;
 - 2> act as if the IE "MAC-hs reset indicator" is received and set to TRUE;
 - 2> release all HARQ resources;
 - 2> remove any H-RNTI stored;
 - 2> clear the variable H_RNTI;
 - 2> set the variable HS_DSCH_RECEPTION to FALSE.

- 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.

8.3.1.12 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.

2> if timers T314 and T315 are not 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.

- 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 detects "out of service area", it shall:
- 1> act according to subclause 7.2.2.

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.

CHANGE REQUEST

⌘ **25.331 CR 2411** ⌘ rev **-** ⌘ Current version: **5.9.0** ⌘

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

Proposed change affects: UICC apps ME Radio Access Network Core Network

Title:	⌘ Correct naming for HS-DSCH with DCH multiplexing option		
Source:	⌘ RAN WG2		
Work item code:	⌘ HSDPA-L23	Date:	⌘ 18/08/2004
Category:	⌘ F	Release:	⌘ Rel-5
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	F (correction)	Ph2 (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)
			Rel-7 (Release 7)

Reason for change:	⌘ The naming of Mac-d flow identity is inconsistent in ASN.1 with the name given in section 10.3.4.21.		
Summary of change:	⌘ Change the name from hdsch-transport-channel-Id to hdsch-mac-d-flow-id.		
Consequences if not approved:	⌘ Confusing naming of the mac-d flow identity.		

Clauses affected:	⌘ 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;">⌘</td> <td style="text-align: center;">N</td> </tr> <tr> <td style="text-align: center;">⌘</td> <td style="text-align: center;">N</td> </tr> <tr> <td style="text-align: center;">⌘</td> <td style="text-align: center;">N</td> </tr> </table>	Y	N	⌘	N	⌘	N	⌘	N	Other core specifications	⌘
Y	N										
⌘	N										
⌘	N										
⌘	N										
		Test specifications									
		O&M Specifications									
Other comments:	⌘										

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

11.3 Information element definitions

```
-- *****  
--  
--     TRANSPORT CHANNEL INFORMATION ELEMENTS (10.3.5)  
--  
-- *****
```

```
MAC-d-FlowIdentityDCHandHSDSCH ::= SEQUENCE {  
    dch-transport-ch-id          TransportChannelIdentity,  
    | hsdSCH-transport-chmac-d-flow-id          MAC-d-FlowIdentity  
    }  
}
```

CR-Form-v7.1

CHANGE REQUEST

⌘ **25.331 CR 2412** ⌘ rev **-** ⌘ Current version: **6.2.0** ⌘

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:	⌘ Correct naming for HS-DSCH with DCH multiplexing option		
Source:	⌘ RAN WG2		
Work item code:	⌘ HSDPA-L23	Date:	⌘ 18/08/2004
Category:	⌘ A	Release:	⌘ Rel-6
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	F (correction)	Ph2 (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)	
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	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)
			Rel-7 (Release 7)

Reason for change:	⌘ The naming of Mac-d flow identity is inconsistent in ASN.1 with the name given in section 10.3.4.21.		
Summary of change:	⌘ Change the name from hdsch-transport-channel-Id to hdsch-mac-d-flow-id.		
Consequences if not approved:	⌘ Confusing naming of the mac-d flow identity.		

Clauses affected:	⌘ 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;">⌘</td> <td style="text-align: center;">N</td> </tr> <tr> <td style="text-align: center;">⌘</td> <td style="text-align: center;">N</td> </tr> <tr> <td style="text-align: center;">⌘</td> <td style="text-align: center;">N</td> </tr> </table>	Y	N	⌘	N	⌘	N	⌘	N	Other core specifications	⌘
Y	N										
⌘	N										
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⌘	N										
		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.

11.3 Information element definitions

```
-- *****  
--  
--     TRANSPORT CHANNEL INFORMATION ELEMENTS (10.3.5)  
--  
-- *****
```

```
MAC-d-FlowIdentityDCHandHSDSCH ::= SEQUENCE {  
    dch-transport-ch-id      TransportChannelIdentity,  
    | hsdSCH-mac-d-flowtransport-ch-id MAC-d-FlowIdentity  
    }  
}
```

CHANGE REQUEST

⌘ **25.331 CR 2413** ⌘ rev **-** ⌘ Current version: **5.9.0** ⌘

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

Proposed change affects: UICC apps ME Radio Access Network Core Network

Title:	⌘ Compressed Pre-defined configurations description in new Annex C		
Source:	⌘ RAN WG2		
Work item code:	⌘ TEI5	Date:	⌘ 16/08/2004
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: Ph2 (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) Rel-7 (Release 7)

Reason for change:	⌘ Currently it may not be so clear as to the requirements of the coding of the pre-defined configurations included in the INTER RAT HANDOVER INFO message. This may cause interoperability issues if UTRAN and UE have implemented the code wrongly.
Summary of change:	⌘ An Annex C is added to make the requirements for the coding clear.
Consequences if not approved:	⌘ If this is not approved, there is the potential for interoperability problems between UTRAN and UE in that the UTRAN may end up misunderstanding the configuration information provided in the INTER RAT HANDOVER message. Backward compatibility: The change is informative text. Therefore there is no impact on backwards compatibility.

Clauses affected:	⌘ None										
Other specs affected:	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="text-align: center;">Y</td> <td style="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> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></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	Y	N	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	⌘	
Y	N										
<input type="checkbox"/>	<input checked="" type="checkbox"/>										
<input type="checkbox"/>	<input checked="" type="checkbox"/>										
<input type="checkbox"/>	<input checked="" type="checkbox"/>										
			Test specifications								
			O&M Specifications								
Other comments:	⌘										

How to create CRs using this form:

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- 1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under <ftp://ftp.3gpp.org/specs/> For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

Annex C (informative): Description for the Compressed Coding of Pre-defined configurations included in the INTER RAT HANDOVER INFO message

This annex contains a description of the compressed coding of the IE “Predefined configuration status information compressed” (see subclause 10.3.4.5b) included in the INTER RAT HANDOVER INFO message.

C.1 Definitions

Pre-defined configuration set with different value tags: This is a set of consecutive positions for which pre-defined configurations are stored with different value tags. The set cannot include positions for which no pre-defined configuration is stored.

Pre-defined configuration list with variable size: This is the variable sized list consisting of the value tags corresponding to the remaining positions after the “Pre-defined configuration sets with different value tags” have been formed. This will also indicate not stored pre-defined configurations, either explicitly or implicitly (i.e. in the case that there are no more stored configurations until the end of the variable sized list). This is highlighted in figures C.2-1 and C.2-2.

C.2 Examples of the methodology

From figure C.2-1 it can be seen that there are two “Pre-defined configuration sets with different value tags”.

The start position of Set1 is “1” with a list of 7 pre-defined configurations {1, 2, 3, 4, 5, 6, 7}.

The start position of Set2 is “10” with a list of 6 pre-defined configurations {10, 11, 12, 13, 14, 15}.

The “Pre-defined configurations list with variable size” has a start position of 0, and includes all of the pre-defined configurations not included in the sets {0, 8, 9}. The value tag at position 9 is not stored. This does not need to be explicitly indicated in the coding as “not stored” because there are no stored pre-defined configurations positioned after this in the list.

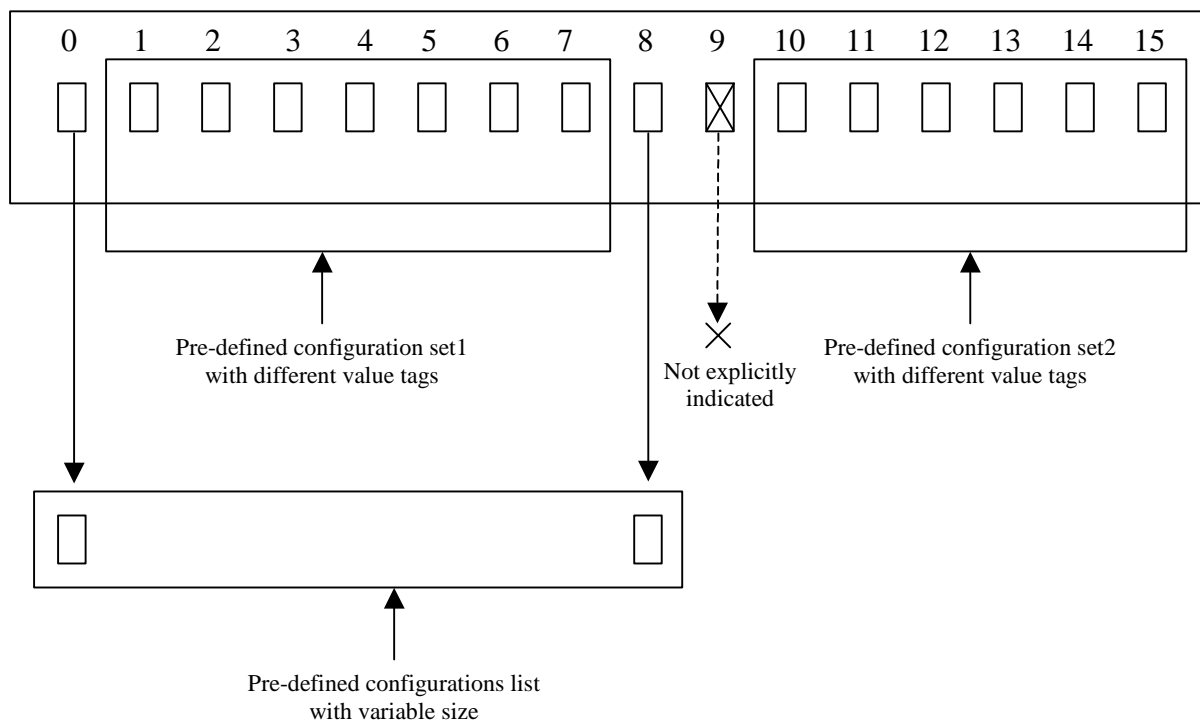


Figure C.2-1: Example scenario where non-stored pre-defined configurations do not need to be explicitly indicated

Figure C.2-2 is similar to Figure C.2-1. However in this case for the “Pre-defined configurations list with variable size”, the pre-defined configuration in position 8 is not stored. This needs to be explicitly indicated in the coding as “not stored” because there is a stored pre-defined configuration (position 9) positioned after this in the list.

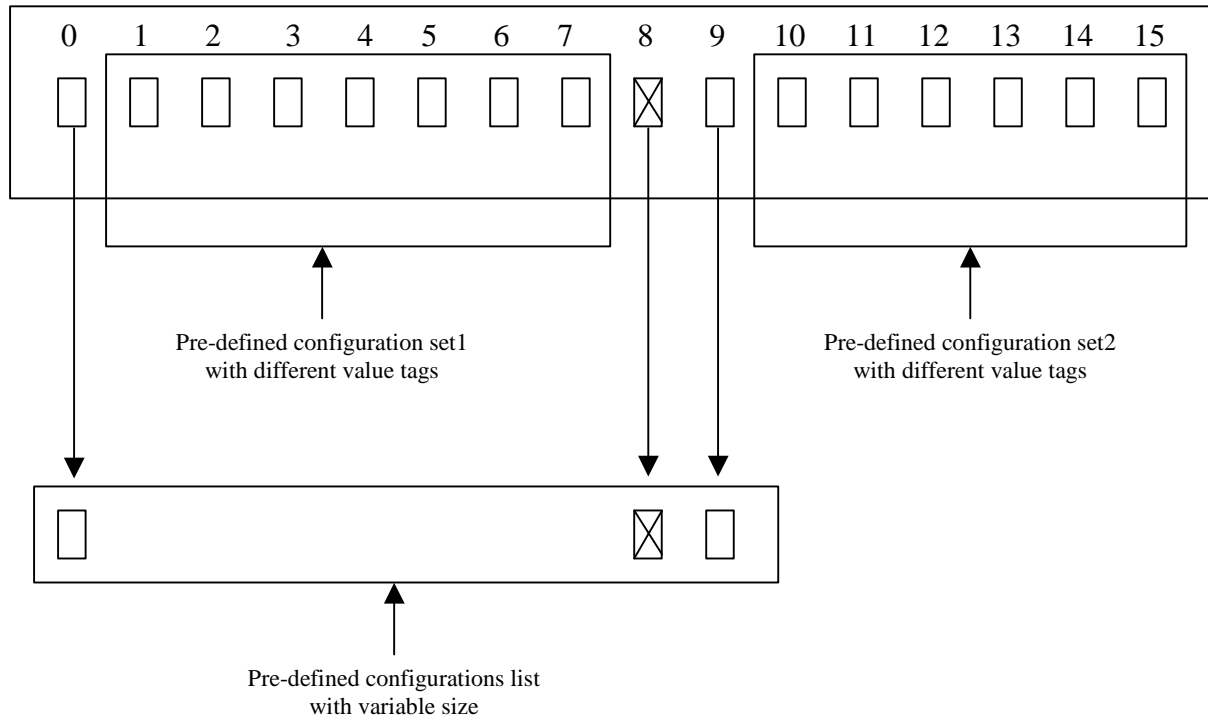


Figure C.2-2: Example scenario where non-stored pre-defined configurations need to be explicitly indicated

CHANGE REQUEST

⌘ **25.331 CR 2414** ⌘ rev **-** ⌘ Current version: **6.2.0** ⌘

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:	⌘ Proposed CR to 25.331 [Rel-6] on Compressed Pre-defined configurations description in new Annex C		
Source:	⌘ RAN WG2		
Work item code:	⌘ TEI5	Date:	⌘ 16/08/2004
Category:	⌘ A	Release:	⌘ Rel-6
	<p>Use <u>one</u> of the following categories:</p> <p>F (correction)</p> <p>A (corresponds to a correction in an earlier release)</p> <p>B (addition of feature),</p> <p>C (functional modification of feature)</p> <p>D (editorial modification)</p> <p>Detailed explanations of the above categories can be found in 3GPP TR 21.900.</p>		<p>Use <u>one</u> of the following releases:</p> <p>Ph2 (GSM Phase 2)</p> <p>R96 (Release 1996)</p> <p>R97 (Release 1997)</p> <p>R98 (Release 1998)</p> <p>R99 (Release 1999)</p> <p>Rel-4 (Release 4)</p> <p>Rel-5 (Release 5)</p> <p>Rel-6 (Release 6)</p> <p>Rel-7 (Release 7)</p>

Reason for change:	⌘ Currently it may not be so clear as to the requirements of the coding of the pre-defined configurations included in the INTER RAT HANDOVER INFO message. This may cause interoperability issues if UTRAN and UE have implemented the code wrongly.
Summary of change:	⌘ An Annex C is added to make the requirements for the coding clear.
Consequences if not approved:	⌘ If this is not approved, there is the potential for interoperability problems between UTRAN and UE in that the UTRAN may end up misunderstanding the configuration information provided in the INTER RAT HANDOVER message.
	Backward compatibility: The change is informative text. Therefore there is no impact on backwards compatibility.

Clauses affected:	⌘ None										
Other specs affected:	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="padding: 2px;">Y</td> <td style="padding: 2px;">N</td> </tr> <tr> <td style="padding: 2px;"><input type="checkbox"/></td> <td style="padding: 2px;"><input checked="" type="checkbox"/></td> </tr> <tr> <td style="padding: 2px;"><input type="checkbox"/></td> <td style="padding: 2px;"><input checked="" type="checkbox"/></td> </tr> <tr> <td style="padding: 2px;"><input type="checkbox"/></td> <td style="padding: 2px;"><input checked="" type="checkbox"/></td> </tr> </table>	Y	N	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Other core specifications Test specifications O&M Specifications	⌘
Y	N										
<input type="checkbox"/>	<input checked="" type="checkbox"/>										
<input type="checkbox"/>	<input checked="" type="checkbox"/>										
<input type="checkbox"/>	<input checked="" type="checkbox"/>										
Other comments:	⌘										

How to create CRs using this form:

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

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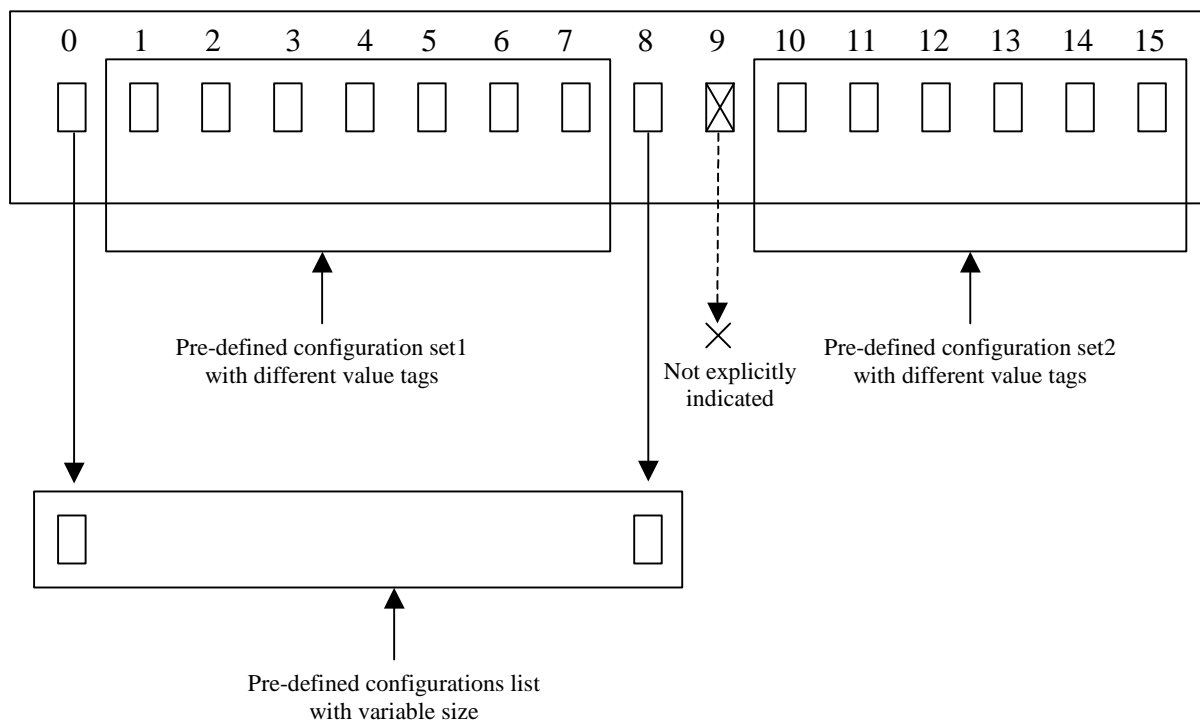


Figure C.2-1: Example scenario where non-stored pre-defined configurations do not need to be explicitly indicated

Figure C.2-2 is similar to Figure C.2-1. However in this case for the “Pre-defined configurations list with variable size”, the pre-defined configuration in position 8 is not stored. This needs to be explicitly indicated in the coding as “not stored” because there is a stored pre-defined configuration (position 9) positioned after this in the list.

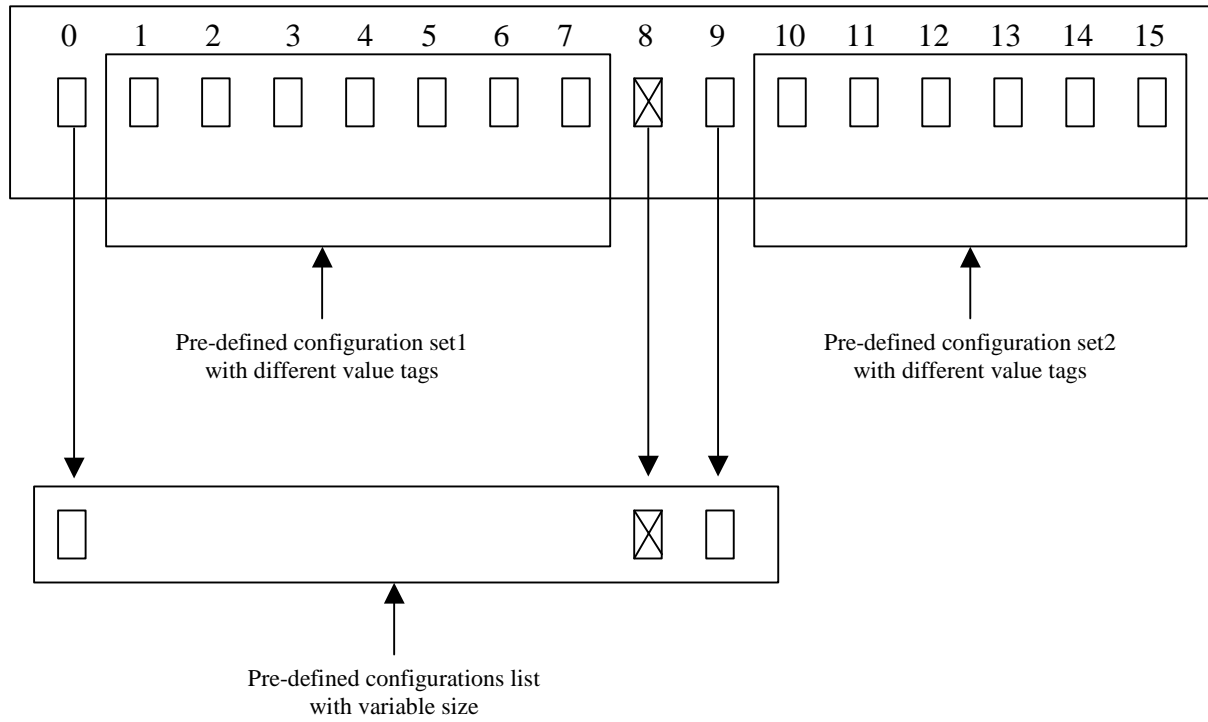


Figure C.2-2: Example scenario where non-stored pre-defined configurations need to be explicitly indicated

CHANGE REQUEST

25.331 CR 2415 # rev - # Current version: 5.9.0

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

Proposed change affects: UICC apps ME Radio Access Network Core Network

Title:	# Interaction between integrity protection and the sending of downlink messages during SRNS relocation		
Source:	# RAN WG2		
Work item code:	# TEI5	Date:	# 16/08/2004
Category:	# F	Release:	# Rel-5
	<p>Use <u>one</u> of the following categories:</p> <p>F (correction)</p> <p>A (corresponds to a correction in an earlier release)</p> <p>B (addition of feature),</p> <p>C (functional modification of feature)</p> <p>D (editorial modification)</p> <p>Detailed explanations of the above categories can be found in 3GPP TR 21.900.</p>		<p>Use <u>one</u> of the following releases:</p> <p>Ph2 (GSM Phase 2)</p> <p>R96 (Release 1996)</p> <p>R97 (Release 1997)</p> <p>R98 (Release 1998)</p> <p>R99 (Release 1999)</p> <p>Rel-4 (Release 4)</p> <p>Rel-5 (Release 5)</p> <p>Rel-6 (Release 6)</p> <p>Rel-7 (Release 7)</p>

Reason for change: #	<p>Background:</p> <p>A Source RNC may be required to send downlink messages on SRB3 and SRB4 even after having set the SRNS Relocation Info included in the RANAP Source RNC to Target RNC Transparent Container IE. Therefore, If it wants to be able to send downlink messages after the construction of the container without causing integrity desynchronisation, the Source RNC has to "anticipate" when setting the DL COUNT-I of SRB3 and SRB4 (i.e. DL RRC HFN and DL RRC Message Sequence Number) in the container.</p> <p>Description of the issue:</p> <p>The first Security Mode Control Procedure under the Target RNC may be completed before any messages are being sent on SRB3 (or SRB4).</p> <p>A possible and likely valorisation of the DL Integrity Activation Time of SRB3 (or SRB4) is to choose the next value to be used (i.e. current RRC SN + 1). So, the first message sent on DL on SRB3 (or SRB4) is going to use the new integrity protection configuration (new START PS).</p> <p>In that case, the Target RNC has no way to know if, at the activation time, the UE is going to initialise the HFN part of the Integrity Protection COUNT-I to the Latest_transmitted_START_PS or the Latest_transmitted_START_PS + 1.</p> <p>See discussion in R2-041459 for detail.</p>
-----------------------------	---

Summary of change: ⌘	A note is added to specify that the Target RNC should choose, for the first SMC following the SRNS relocation, the DL Integrity Protection Activation Time for SRB3 and SRB4 to at least current RRC SN + 2. In consequence, the first message sent on SRB3 and SRB4 on the Target RNC will use the old integrity protection. Note: The same behaviour is expected from R99 networks.
Consequences if not approved: ⌘	Isolated impact analysis: The CR has isolated impact to SRNS relocation. This CR has no impact to the UE. If the UTRAN does not support this CR: Following the first Security Mode Command procedure after a SRNS relocation: UTRAN and UE may use different value for the IP HFN initialisation on SRB3 and/or SRB4. This would lead to a dropped call. Impact on test specifications: No impact is foreseen.

Clauses affected: ⌘	8.1.12.2.2												
Other specs affected:	<table border="1"> <thead> <tr> <th>Y</th> <th>N</th> <th></th> </tr> </thead> <tbody> <tr> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td>Other core specifications ⌘</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td>Test specifications</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td>O&M Specifications</td> </tr> </tbody> </table>	Y	N		<input checked="" type="checkbox"/>	<input type="checkbox"/>	Other core specifications ⌘	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Test specifications	<input checked="" type="checkbox"/>	<input type="checkbox"/>	O&M Specifications
Y	N												
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Other core specifications ⌘											
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Test specifications											
<input checked="" type="checkbox"/>	<input type="checkbox"/>	O&M Specifications											
Other comments: ⌘													

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8.1.12.2.2 Integrity protection configuration change

To start or modify integrity protection, UTRAN sends a SECURITY MODE COMMAND message on the downlink DCCH in AM RLC using the new integrity protection configuration. UTRAN should not "modify" integrity protection for a CN domain to which a SECURITY MODE COMMAND configuring integrity protection has been previously sent for an ongoing signalling connection unless the application of new integrity keys needs to be signalled to the UE. UTRAN should not transmit a SECURITY MODE COMMAND to signal a change in integrity protection algorithm.

When configuring Integrity protection, UTRAN should:

- 1> ensure that the UE needs to store at most three different Integrity protection configurations (keysets) at any given time. This includes the total number of Integrity protection configurations for all signalling radio bearers;
- 1> if Ciphering has already been started for the UE for the CN domain to be set in the IE "CN domain identity" in the SECURITY MODE COMMAND:
 - 2> if for the CN domain indicated in the IE "CN domain identity" in the SECURITY MODE COMMAND, a new security key set (new ciphering and integrity protection keys) has been received from upper layers since the transmission of the last SECURITY MODE COMMAND message for that CN domain:
 - 3> include the IE "Ciphering mode info" in the SECURITY MODE COMMAND.
- 1> if Ciphering has already been configured for the UE for a CN domain different from the CN domain to be set in the IE "CN domain identity" in the SECURITY MODE COMMAND:
 - 2> include the IE "Ciphering mode info" in the SECURITY MODE COMMAND.

Prior to sending the SECURITY MODE COMMAND, for the CN domain indicated in the IE "CN domain identity" in the SECURITY MODE COMMAND, UTRAN should:

- 1> if this is the first SECURITY MODE COMMAND sent for this RRC connection:
 - 2> if new keys have been received:
 - 3> initialise the hyper frame numbers as follows:
 - 4> set all bits of the hyper frame numbers of the COUNT-I values for all signalling radio bearers to zero.
 - 2> else (if new keys have not been received):
 - 3> use the value "START" in the most recently received IE "START list" or IE "START" that belongs to the CN domain indicated in the IE "CN domain identity" to initialise all hyper frame numbers of COUNT-I for all the signalling radio bearers by:
 - 4> setting the 20 most significant bits of the hyper frame numbers for all signalling radio bearers to the value "START" in the most recently received IE "START list" or IE "START" for that CN domain;
 - 4> setting the remaining bits of the hyper frame numbers equal to zero.
- 1> else (this is not the first SECURITY MODE COMMAND sent for this RRC connection):
 - 2> if new keys have been received:
 - 3> initialise the hyper frame number for COUNT-I for RB2 as follows:
 - 4> set all bits of the HFN of the COUNT-I value for RB2 to zero.
 - 2> if new keys have not been received:
 - 3> initialise the hyper frame number for COUNT-I for RB2 as follows:
 - 4> set the 20 most significant bits of the HFN of the downlink and uplink COUNT-I to the value of the most recently received IE "START" or IE "START list" for the CN domain to be set in the IE "CN Domain Identity";
 - 4> set the remaining bits of the HFN of the downlink and uplink COUNT-I to zero.

- 1> if the IE "Integrity protection mode command" has the value "Start":
 - 2> prohibit the transmission of signalling messages with any RRC SN on all signalling radio bearers, except RB2;
 - 2> set the FRESH value in the IE "Integrity protection initialisation number", included in the IE "Integrity protection mode info".
- 1> if the IE "Integrity protection mode command" has the value "Modify":
 - 2> for each signalling radio bearer RBn, except RB2:
 - 3> prohibit the transmission of signalling messages with RRC SN greater or equal to the RRC sequence number in entry for signalling radio bearer n in the "RRC message sequence number list" in the IE "Downlink integrity protection activation info", included in the IE "Integrity protection mode info".
 - 2> consider an integrity protection activation time in downlink to be pending until the selected activation time is equal to the next RRC sequence number to be used, which means that the last RRC message using the old integrity protection configuration has been submitted to lower layers;
 - 2> set, for each signalling radio bearer RBn, that has no pending integrity protection activation time set by a previous security mode control procedure, an RRC sequence number in entry for signalling radio bearer n in the "RRC message sequence number list" in the IE "Downlink integrity protection activation info", included in the IE "Integrity protection mode info", at which time the new integrity protection configuration shall be applied;
 - 2> set, for each signalling radio bearer RBn, that has a pending integrity protection activation time set by a previous security mode control procedure, the RRC sequence number in entry for signalling radio bearer n in the "RRC message sequence number list" in the IE "Downlink integrity protection activation info", included in the IE "Integrity protection mode info", to the value used in the previous security mode control procedure, at which time the latest integrity protection configuration shall be applied.
- 1> transmit the SECURITY MODE COMMAND message on RB2 using the new integrity protection configuration.

NOTE1: In the case of re-initialisation of Integrity Protection at HFN wrap around, the network should take into account the UE actions as described in subclauses 8.5.10.1 and 8.5.10.2.

NOTE2: After the SECURITY MODE COMMAND message is transmitted, the network should ensure that it can revert back to old integrity protection until it receives the SECURITY MODE COMPLETE message, to take into account the UE actions when security mode control procedure is unsuccessful. The network should also be aware that the UE may revert to old configuration when waiting for the acknowledgement from L2 for the SECURITY MODE COMPLETE message, and act accordingly.

NOTE3: In the case of the first SECURITY MODE COMMAND message following a SRNS relocation, the network should set the the IE "Downlink integrity protection activation info" for SRB3 and SRB4 to at least the current downlink RRC sequence number +2. In consequence, at least the first message sent on SRB3 and SRB4 by the Target RNC will use the old integrity protection configuration.

CHANGE REQUEST

25.331 CR 2416 # rev **-** # Current version: **6.2.0**

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:	# Interaction between integrity protection and the sending of downlink messages during SRNS relocation		
Source:	# RAN WG2		
Work item code:	# TEI5	Date:	# 16/08/2004
Category:	# A	Release:	# Rel-6
	<p>Use <u>one</u> of the following categories:</p> <p>F (correction)</p> <p>A (corresponds to a correction in an earlier release)</p> <p>B (addition of feature),</p> <p>C (functional modification of feature)</p> <p>D (editorial modification)</p> <p>Detailed explanations of the above categories can be found in 3GPP TR 21.900.</p>		<p>Use <u>one</u> of the following releases:</p> <p>Ph2 (GSM Phase 2)</p> <p>R96 (Release 1996)</p> <p>R97 (Release 1997)</p> <p>R98 (Release 1998)</p> <p>R99 (Release 1999)</p> <p>Rel-4 (Release 4)</p> <p>Rel-5 (Release 5)</p> <p>Rel-6 (Release 6)</p> <p>Rel-7 (Release 7)</p>

Reason for change: #	<p>Background:</p> <p>A Source RNC may be required to send downlink messages on SRB3 and SRB4 even after having set the SRNS Relocation Info included in the RANAP Source RNC to Target RNC Transparent Container IE. Therefore, If it wants to be able to send downlink messages after the construction of the container without causing integrity desynchronisation, the Source RNC has to "anticipate" when setting the DL COUNT-I of SRB3 and SRB4 (i.e. DL RRC HFN and DL RRC Message Sequence Number) in the container.</p> <p>Description of the issue:</p> <p>The first Security Mode Control Procedure under the Target RNC may be completed before any messages are being sent on SRB3 (or SRB4).</p> <p>A possible and likely valorisation of the DL Integrity Activation Time of SRB3 (or SRB4) is to choose the next value to be used (i.e. current RRC SN + 1). So, the first message sent on DL on SRB3 (or SRB4) is going to use the new integrity protection configuration (new START PS).</p> <p>In that case, the Target RNC has no way to know if, at the activation time, the UE is going to initialise the HFN part of the Integrity Protection COUNT-I to the Latest_transmitted_START_PS or the Latest_transmitted_START_PS + 1.</p> <p>See discussion in R2-041459 for detail.</p>
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Summary of change:	⌘ A note is added to specify that the Target RNC should choose, for the first SMC following the SRNS relocation, the DL Integrity Protection Activation Time for SRB3 and SRB4 to at least current RRC SN + 2. In consequence, the first message sent on SRB3 and SRB4 on the Target RNC will use the old integrity protection. Note: The same behaviour is expected from R99 networks.
Consequences if not approved:	⌘ Isolated impact analysis: The CR has isolated impact to SRNS relocation. This CR has no impact to the UE. If the UTRAN does not support this CR: Following the first Security Mode Command procedure after a SRNS relocation: UTRAN and UE may use different value for the IP HFN initialisation on SRB3 and/or SRB4. This would lead to a dropped call. Impact on test specifications: No impact is foreseen.

Clauses affected:	⌘ 8.1.12.2.2												
Other specs affected:	<table border="1"> <thead> <tr> <th>Y</th> <th>N</th> <th></th> </tr> </thead> <tbody> <tr> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td>Other core specifications</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td>Test specifications</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td>O&M Specifications</td> </tr> </tbody> </table>	Y	N		<input checked="" type="checkbox"/>	<input type="checkbox"/>	Other core specifications	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Test specifications	<input checked="" type="checkbox"/>	<input type="checkbox"/>	O&M Specifications
Y	N												
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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.

8.1.12.2.2 Integrity protection configuration change

To start or modify integrity protection, UTRAN sends a SECURITY MODE COMMAND message on the downlink DCCH in AM RLC using the new integrity protection configuration. UTRAN should not "modify" integrity protection for a CN domain to which a SECURITY MODE COMMAND configuring integrity protection has been previously sent for an ongoing signalling connection unless the application of new integrity keys needs to be signalled to the UE. UTRAN should not transmit a SECURITY MODE COMMAND to signal a change in integrity protection algorithm.

When configuring Integrity protection, UTRAN should:

- 1> ensure that the UE needs to store at most three different Integrity protection configurations (keysets) at any given time. This includes the total number of Integrity protection configurations for all signalling radio bearers;
- 1> if Ciphering has already been started for the UE for the CN domain to be set in the IE "CN domain identity" in the SECURITY MODE COMMAND:
 - 2> if for the CN domain indicated in the IE "CN domain identity" in the SECURITY MODE COMMAND, a new security key set (new ciphering and integrity protection keys) has been received from upper layers since the transmission of the last SECURITY MODE COMMAND message for that CN domain:
 - 3> include the IE "Ciphering mode info" in the SECURITY MODE COMMAND.
- 1> if Ciphering has already been configured for the UE for a CN domain different from the CN domain to be set in the IE "CN domain identity" in the SECURITY MODE COMMAND:
 - 2> include the IE "Ciphering mode info" in the SECURITY MODE COMMAND.

Prior to sending the SECURITY MODE COMMAND, for the CN domain indicated in the IE "CN domain identity" in the SECURITY MODE COMMAND, UTRAN should:

- 1> if this is the first SECURITY MODE COMMAND sent for this RRC connection:
 - 2> if new keys have been received:
 - 3> initialise the hyper frame numbers as follows:
 - 4> set all bits of the hyper frame numbers of the COUNT-I values for all signalling radio bearers to zero.
 - 2> else (if new keys have not been received):
 - 3> use the value "START" in the most recently received IE "START list" or IE "START" that belongs to the CN domain indicated in the IE "CN domain identity" to initialise all hyper frame numbers of COUNT-I for all the signalling radio bearers by:
 - 4> setting the 20 most significant bits of the hyper frame numbers for all signalling radio bearers to the value "START" in the most recently received IE "START list" or IE "START" for that CN domain;
 - 4> setting the remaining bits of the hyper frame numbers equal to zero.
- 1> else (this is not the first SECURITY MODE COMMAND sent for this RRC connection):
 - 2> if new keys have been received:
 - 3> initialise the hyper frame number for COUNT-I for RB2 as follows:
 - 4> set all bits of the HFN of the COUNT-I value for RB2 to zero.
 - 2> if new keys have not been received:
 - 3> initialise the hyper frame number for COUNT-I for RB2 as follows:
 - 4> set the 20 most significant bits of the HFN of the downlink and uplink COUNT-I to the value of the most recently received IE "START" or IE "START list" for the CN domain to be set in the IE "CN Domain Identity";
 - 4> set the remaining bits of the HFN of the downlink and uplink COUNT-I to zero.

- 1> if the IE "Integrity protection mode command" has the value "Start":
 - 2> prohibit the transmission of signalling messages with any RRC SN on all signalling radio bearers, except RB2;
 - 2> set the FRESH value in the IE "Integrity protection initialisation number", included in the IE "Integrity protection mode info".
- 1> if the IE "Integrity protection mode command" has the value "Modify":
 - 2> for each signalling radio bearer RBn, except RB2:
 - 3> prohibit the transmission of signalling messages with RRC SN greater or equal to the RRC sequence number in entry for signalling radio bearer n in the "RRC message sequence number list" in the IE "Downlink integrity protection activation info", included in the IE "Integrity protection mode info".
 - 2> consider an integrity protection activation time in downlink to be pending until the selected activation time is equal to the next RRC sequence number to be used, which means that the last RRC message using the old integrity protection configuration has been submitted to lower layers;
 - 2> set, for each signalling radio bearer RBn, that has no pending integrity protection activation time set by a previous security mode control procedure, an RRC sequence number in entry for signalling radio bearer n in the "RRC message sequence number list" in the IE "Downlink integrity protection activation info", included in the IE "Integrity protection mode info", at which time the new integrity protection configuration shall be applied;
 - 2> set, for each signalling radio bearer RBn, that has a pending integrity protection activation time set by a previous security mode control procedure, the RRC sequence number in entry for signalling radio bearer n in the "RRC message sequence number list" in the IE "Downlink integrity protection activation info", included in the IE "Integrity protection mode info", to the value used in the previous security mode control procedure, at which time the latest integrity protection configuration shall be applied.
- 1> transmit the SECURITY MODE COMMAND message on RB2 using the new integrity protection configuration.

NOTE1: In the case of re-initialisation of Integrity Protection at HFN wrap around, the network should take into account the UE actions as described in subclauses 8.5.10.1 and 8.5.10.2.

NOTE2: After the SECURITY MODE COMMAND message is transmitted, the network should ensure that it can revert back to old integrity protection until it receives the SECURITY MODE COMPLETE message, to take into account the UE actions when security mode control procedure is unsuccessful. The network should also be aware that the UE may revert to old configuration when waiting for the acknowledgement from L2 for the SECURITY MODE COMPLETE message, and act accordingly.

NOTE3: In the case of the first SECURITY MODE COMMAND message following a SRNS relocation, the network should set the the IE "Downlink integrity protection activation info" for SRB3 and SRB4 to at least the current downlink RRC sequence number +2. In consequence, at least the first message sent on SRB3 and SRB4 by the Target RNC will use the old integrity protection configuration.