TSG-RAN Meeting #14
Kyoto, Japan, 11 - 14 December 2001

RP-010764

Title: **Agreed CRs (Release '99 and Rel-4 category A) to TS 25.331 (2)**
Source: **TSG-RAN WG2**
Agenda item: **8.2.3**

Doc-1st-	Status-	Spec	CR	Rev	Phase	Subject	Cat	Version	Versio
R2-012498	agreed	25.331	1116		R99	Clarification to Measured Results on RACH and Measurement Events	F	3.8.0	3.9.0
R2-012682	agreed	25.331	1117		Rel-4	Clarification to Measured Results on RACH and Measurement Events	A	4.2.1	4.3.0
R2-012499	agreed	25.331	1118		R99	Inconsistency between ASN.1 and tabular wrt. RPLMN information	F	3.8.0	3.9.0
R2-012683	agreed	25.331	1119		Rel-4	Inconsistency between ASN.1 and tabular wrt. RPLMN information	A	4.2.1	4.3.0
R2-012684	agreed	25.331	1123	1	R99	General clarification on Establishment of Access Service Classes	F	3.8.0	3.9.0
R2-012685	agreed	25.331	1124		Rel-4	General clarification on Establishment of Access Service Classes	A	4.2.1	4.3.0
R2-012511	agreed	25.331	1125		R99	Clarification on TX diversity indicator IE and STTD indicator IE	F	3.8.0	3.9.0
R2-012686	agreed	25.331	1126		Rel-4	Clarification on TX diversity indicator IE and STTD indicator IE	A	4.2.1	4.3.0
R2-012519	agreed	25.331	1130		R99	Removal of Tr mode DCCH from R99 only	F	3.8.0	3.9.0
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R2-012687	agreed	25.331	1131	1	R99	Different diversity modes used in the same active set	F	3.8.0	3.9.0
R2-012688	agreed	25.331	1132		Rel-4	Different diversity modes used in the same active set	A	4.2.1	4.3.0
R2-012691	agreed	25.331	1133	1	R99	Issues regarding signalling connection establishment and RRC connection release	F	3.8.0	3.9.0
R2-012692	agreed	25.331	1134		Rel-4	Issues regarding signalling connection establishment and RRC connection release	A	4.2.1	4.3.0
R2-012522	agreed	25.331	1135		R99	Presence of AC to ASC mapping in SIB5 and SIB6	F	3.8.0	3.9.0
R2-012693	agreed	25.331	1136		Rel-4	Presence of AC to ASC mapping in SIB5 and SIB6	A	4.2.1	4.3.0
R2-012523	agreed	25.331	1137		R99	RRC establishment cause at inter-RAT cell change order to UTRAN	F	3.8.0	3.9.0
R2-012694	agreed	25.331	1138		Rel-4	RRC establishment cause at inter-RAT cell change order to UTRAN	A	4.2.1	4.3.0
R2-012525	agreed	25.331	1141		R99	Start of timers at radio link failure	F	3.8.0	3.9.0
R2-012696	agreed	25.331	1142		Rel-4	Start of timers at radio link failure	A	4.2.1	4.3.0

3GPP TSG-RAN2#25 Meeting
Makuhari, Japan, November 26th – 30th 2001

Tdoc R2-012498

CR-Form-v4

CHANGE REQUEST

⌘ **25.331 CR 1116** ⌘ ev **-** ⌘ Current version: **3.8.0** ⌘

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Proposed change affects: ⌘ (U)SIM ☐ ME/UE **X** Radio Access Network **X** Core Network ☐

Title:	⌘	Clarification to Measured Results on RACH and Measurement Events
Source:	⌘	TSG-RAN WG2
Work item code:	⌘	TEI
Date:	⌘	2001-11-15
Category:	⌘	**F**
Release:	⌘	R99

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 *(GSM Phase 2)*
R96 *(Release 1996)*
R97 *(Release 1997)*
R98 *(Release 1998)*
R99 *(Release 1999)*
REL-4 *(Release 4)*
REL-5 *(Release 5)*

Reason for change: ⌘

(a) The IE "Measured results on RACH" can be included by the UE in the messages RRC CONNECTION REQUEST, INITIAL DIRECT TRANSFER, UPLINK DIRECT TRANSFER, CELL UPDATE, MEASUREMENT REPORT in order to append radio link related measurement reports. For UPLINK DIRECT TRANSFER and MEASUREMENT REPORT, it is currently not described when the UE shall append this IE to the message. It is therefore proposed to make the according changes in section 8.1.10.2 and 8.4.2.

(b) The IE "cells forbidden to affect reporting range" sent in event parameters indicates cells which are not to be used for reporting range calculation. The usage of this IE is currently only described in the informative clause 14.1.5.4 of TS 25.331. It is therefore proposed to clarify the usage of this IE in the equations for intra-frequency event 1A and 1B evaluation in sections 14.1.2.1 and 14.1.2.2, respectively.

(c) Within the formula for calculation of frequency quality estimates of FDD cells, a variable 'H' is used, which is not further described in the subsequent variable description section. It is supposed, that this variable should denote a hysteresis used in earlier versions (370) of this document. In the current version (380) there are formulas for event evaluation including weighting with hysteresis located in the individual descriptions of events. Therefor it is proposed to delete the variable 'H' from the formula for frequency quality estimate, otherwise the hysteresis would be applied twice.

Summary of change:	⌘	(a) Clause 8.1.10.2, 8.4.2.2 A description is added when the IE "Measured results on RACH" should be included into the appropriate message. (b) Clause 14.1.2.1, 14.1.2.2 The usage of cells forbidden to affect reporting range is added to the event description. (c) Clause 14.2.0b.1 The variable H is deleted from the formula for frequency quality estimate calculation. **Isolated Impact Analysis:** • Correction to description of messages UPLINK DIRECT TRANSFER and MEASUREMENT REPORT where the specification was not sufficiently explicit. • Correction to description of evaluation of intra-frequency event 1a and 1b where the specification was not sufficiently explicit. • Correction to description of formula for calculation of frequency quality estimates of FDD cells where the specification was containing some contradictions. • Would not affect implementations behaving like indicated in the CR, would affect implementations supporting the corrected functionality otherwise.
Consequences if not approved:	⌘	The description of usage of IE "Measured results on RACH" is not completely described. The usage of cells forbidden to affect reporting range is not described. The formula for frequency quality estimate is incorrect.

Clauses affected:	⌘	8.1.10.2, 8.4.2.2, 14.1.2.1, 14.1.2.2, 14.2.0b.1		
Other specs affected:	⌘	☐ Other core specifications ☐ Test specifications ☐ O&M Specifications	⌘	25.331 v4.2.1, CR 1117
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/3G_Specs/CRs.htm. Below is a brief summary:

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

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

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

8.1.10.2 Initiation of uplink direct transfer procedure in the UE

In the UE, the uplink direct transfer procedure shall be initiated when the upper layers request a transfer of a NAS message on an existing signalling connection. When not stated otherwise elsewhere, the UE may initiate the uplink direct transfer procedure when another procedure is ongoing, and in that case the state of the latter procedure shall not be affected.
Upon initiation of the uplink direct transfer procedure in CELL_PCH or URA_PCH state, the UE shall:

- perform a cell update procedure, according to subclause 8.3.1, using the cause "uplink data transmission";
- when the cell update procedure has been completed successfully:
  - continue with the uplink direct transfer procedure as below.

The UE shall transmit the UPLINK DIRECT TRANSFER message on the uplink DCCH using AM RLC on signalling radio bearer RB3 or signalling radio bearer RB4. The UE shall:

- if upper layers indicate "low priority" for this message:
  - select signalling radio bearer RB4, if available. Specifically, for a GSM-MAP based CN, signalling radio bearer RB4 shall, if available, be selected when "SAPI 3" is requested;
  - select signalling radio bearer RB3 when signalling radio bearer RB4 is not available;
- if upper layers indicate "high priority" for this message:
- select signalling radio bearer RB3. Specifically, for a GSM-MAP based CN, signalling radio bearer RB3 shall be selected when "SAPI 0" is requested.

In CELL_FACH state, the UE shall:

- 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 12 (or "System Information Block Type 11" if "System Information Block Type 12" is not being broadcast);
- include in the IE "Measured results on RACH" all requested reporting quantities for cells for which measurements are reported.

The UE shall set the IE "NAS message" as received from upper layers and set the IE "CN domain identity" as indicated by the upper layers.

When the UPLINK DIRECT TRANSFER message has been submitted to lower layers for transmission the procedure ends.

8.4.2 Measurement report

Figure 58: Measurement report, normal case

8.4.2.1 General

The purpose of the measurement reporting procedure is to transfer measurement results from the UE to UTRAN.

8.4.2.2 Initiation

In CELL_DCH state, the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH when the reporting criteria stored in variable MEASUREMENT_IDENTITY are met for any ongoing measurements that are being performed in the UE.

In CELL_FACH state, the UE shall:

- transmit a MEASUREMENT REPORT message on the uplink DCCH when the reporting criteria stored in variable MEASUREMENT_IDENTITY are met for any ongoing traffic volume measurement that is being performed in the UE.

- 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 12 (or "System Information Block Type 11" if "System Information Block Type 12" is not being broadcast);

    - include in the IE "Measured results on RACH" all requested reporting quantities for cells for which measurements are reported.

In TDD, if the Radio Bearer associated with the MEASUREMENT_IDENTITY fulfilling the reporting criteria for an ongoing traffic volume measurement is mapped on transport channel of type USCH, the UE shall initiate the "PUSCH CAPACITY REQUEST" procedure instead of transmitting a MEASUREMENT REPORT (TDD Only).

In CELL_PCH or URA_PCH state, the UE shall first perform the cell update procedure according to subclause 8.3.1, using the cause "uplink data transmission", in order to transit to CELL_FACH state and then transmit a MEASUREMENT REPORT message on the uplink DCCH when the reporting criteria stored in variable MEASUREMENT_IDENTITY are fulfilled for any ongoing traffic volume measurement which is being performed in the UE.

The reporting criteria are fulfilled if either:

- the first measurement has been completed according to the requirements set in [19] or [20] for a newly initiated measurement with periodic reporting; or

- the time period indicated in the stored IE "Periodical reporting criteria" has elapsed since the last measurement report was transmitted for a given measurement; or

- an event in stored IE "Measurement reporting criteria" was triggered. Events and triggering of reports for different measurement types are described in detail in clause 14.

For the measurement, which triggered the MEASUREMENT REPORT message, the UE shall:

- set the IE "measurement identity" to the measurement identity, which is associated with that measurement in variable MEASUREMENT_IDENTITY;

    - set the IE "measured results" to include measurements according to the IE "reporting quantity" of that measurement stored in variable MEASUREMENT_IDENTITY; and

        - if all the reporting quantities are set to "false":

            - not set the IE "measured results";

    - set the IE "Measured results" in the IE "Additional measured results" according to the IE "reporting quantity" for all measurements associated with the measurement identities included in the IE "additional measurements" stored in variable MEASUREMENT_IDENTITY of the measurement that triggered the measurement report; and

        - if more than one additional measured results are to be included:

            - sort them in ascending order according to their IE "measurement identity" in the MEASUREMENT REPORT message;

- if the MEASUREMENT REPORT message was triggered by an event (i.e. not a periodical report):
    - set the IE "Event results" according to the event that triggered the report.

The UE shall:
- transmit the MEASUREMENT REPORT message on the uplink DCCH using either AM or UM RLC according to the stored IE "measurement reporting mode" associated with the measurement identity that triggered the report.

When the MEASUREMENT REPORT message has been submitted to lower layers for transmission:
- the procedure ends.

[...]

14.1.2.1 Reporting event 1A: A Primary CPICH enters the reporting range

When event 1A is configured in the UE, the UE shall:
- if "Measurement quantity" is "pathloss" and Equation 1 below is fulfilled for one or more primary CPICHs, or if "Measurement quantity" is "CPICH Ec/N0" or "CPICH RSCP", and Equation 2 below is fulfilled for one or more primary CPICHs, for each of these primary CPICHs:
    - if the equations have been fulfilled during the time "Time to trigger", and if that primary CPICH is part of cells allowed to trigger the event according to "Triggering condition 2", and if that primary CPICH is not included in the "cells triggered" in the variable TRIGGERED_1A_EVENT:
        - include that primary CPICH in the "cells recently triggered" in the variable TRIGGERED_1A_EVENT;
- if the value of "Reporting deactivations threshold" for this event is greater than or equal to the current number of cells in the active set or equal to 0 and any primary CPICHs are stored in the "cells recently triggered" in the variable TRIGGERED_1A_EVENT:
    - if "Reporting interval" for this event is not equal to 0:
        - if the IE "Periodical reporting running" in the variable TRIGGERED_1A_EVENT is set to FALSE:
            - start a timer with the value of "Reporting interval" for this event and set the IE "Periodical reporting running" in the variable TRIGGERED_1A_EVENT to TRUE;
        - set "sent reports" for the primary CPICHs in "cells recently triggered" in the variable TRIGGERED_1A_EVENT to 1;
    - send a measurement report with IEs set as below:
        - set in "intra-frequency measurement event results": "Intrafrequency event identity" to "1a"; and
        - include in "cell measurement event results" all entries of the "cells recently triggered" in the variable TRIGGERED_1A_EVENT that are not part of the active set in descending order according to the configured measurement quantity;
        - set the IE "measured results" and the IE "additional measured results" according to subclause 8.4.2;
    - move all entries from "cells recently triggered" to "cells triggered" in the variable TRIGGERED_1A_EVENT;
- if the timer for the periodical reporting has expired:
    - if any primary CPICH is included in the "cells triggered" in the variable TRIGGERED_1A_EVENT, and not included in the current active set:

- if "Reporting interval" for this event is not equal to 0, and if "Amount of reporting" is greater than "sent reports" stored for any of these primary CPICHs, in "cells triggered" in the variable TRIGGERED_1A_EVENT:
    - increment the stored counter "sent reports" for all CPICHs in "cell triggered" in variable TRIGGERED_1A_EVENT;
    - start a timer with the value of "Reporting interval" for this event;
    - send a measurement report with IEs set as below:
        - set in "intra-frequency measurement event results": "Intrafrequency event identity" to "1a"; and
        - include in "cell measurement event results" all entries of the variable TRIGGERED_1A_EVENT with value of IE "sent reports" smaller than value of "Amount of reporting" that are not part of the active set in descending order according to the configured measurement quantity;
        - set the IE "measured results" and the IE "additional measured results" according to subclause 8.4.2;
    - if "sent reports" in variable TRIGGERED_1A_EVENT is greater than "Amount of reporting" for all entries:
        - set the IE "Periodical Reporting running" in the variable TRIGGERED_1A_EVENT to FALSE and disable the timer for the periodical reporting;
- if "Measurement quantity" is "pathloss" and Equation 3 below is fulfilled for a primary CPICH, or if "Measurement quantity" is "CPICH Ec/N0" or "CPICH RSCP", and Equation 4 below is fulfilled for a primary CPICH:
    - if that primary CPICH is included in the "cells triggered" in the variable TRIGGERED_1A_EVENT:
        - remove the entry of that primary CPICH from "cells triggered" in the variable TRIGGERED_1A_EVENT;
        - if no entry in the variable TRIGGERED_1A_EVENT has a value of "sent reports" smaller than "Amount of reporting":
            - stop the reporting interval timer;
            - set the IE "Periodical reporting running" in the variable TRIGGERED_1A_EVENT to FALSE.

Upon transition to CELL_DCH the UE shall:
- Include the primary CPICH of all cells in the current active set into the "cells triggered" in the variable TRIGGERED_1A_EVENT.

Equation 1 (Triggering condition for pathloss)

$$10 \cdot LogM_{New} \le W \cdot 10 \cdot Log\left(1/\sum_{i=1}^{N_A}(1/M_i)\right) + (1-W) \cdot 10 \cdot LogM_{Best} + (R_{1a} - H_{1a}/2),$$

Equation 2 (Triggering condition for all the other measurement quantities)

$$10 \cdot LogM_{New} \ge W \cdot 10 \cdot Log\left(\sum_{i=1}^{N_A} M_i\right) + (1-W) \cdot 10 \cdot LogM_{Best} - (R_{1a} - H_{1a}/2),$$

Equation 3 (Leaving triggering condition for pathloss)

$$10 \cdot LogM_{New} > W \cdot 10 \cdot Log\left(1/\sum_{i=1}^{N_A}(1/M_i)\right) + (1-W) \cdot 10 \cdot LogM_{Best} + (R_{1a} + H_{1a}/2),$$

Equation 4 (Leaving triggering condition for all the other measurement quantities)

$$10 \cdot LogM_{New} < W \cdot 10 \cdot Log\left(\sum_{i=1}^{N_A} M_i\right) + (1-W) \cdot 10 \cdot LogM_{Best} - (R_{1a} + H_{1a}/2),$$

The variables in the formula are defined as follows:

$\boldsymbol{M_{New}}$ is the measurement result of the cell entering the reporting range.

$\boldsymbol{M_i}$ is a measurement result of a cell not forbidden to affect reporting range in the active set.

$\boldsymbol{N_A}$ is the number of cells not forbidden to affect reporting range in the current active set.

For pathloss

$\boldsymbol{M_{Best}}$ is the measurement result of the cell not forbidden to affect reporting range in the active set with the lowest measurement result.

for other measurements quantities.

$\boldsymbol{M_{Best}}$ is the measurement result of the cell not forbidden to affect reporting range in the active set with the highest measurement result.

$\boldsymbol{W}$ is a parameter sent from UTRAN to UE.

$\boldsymbol{R_{1a}}$ is the reporting range constant.

$\boldsymbol{H_{1a}}$ is the hysteresis parameter for the event 1a.

If the measurement results are pathloss or CPICH-Ec/No then $\boldsymbol{M_{New}}$, $\boldsymbol{M_i}$ and $\boldsymbol{M_{Best}}$ are expressed as ratios.

If the measurement result is CPICH-RSCP then $\boldsymbol{M_{New}}$, $\boldsymbol{M_i}$ and $\boldsymbol{M_{Best}}$ are expressed in [mW].

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

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

- if "Measurement quantity" is "pathloss" and Equation 1 below is fulfilled for one or more primary CPICHs, or if "Measurement quantity" is "CPICH Ec/N0" or "CPICH RSCP", and Equation 2 below is fulfilled for one or more primary CPICHs, for each of these primary CPICHs:
  - if the equations have been fulfilled during the time "Time to trigger", and if that primary CPICH is part of cells allowed to trigger the event according to "Triggering condition 1", and if that primary CPICH is not included in the "cells triggered" in the variable TRIGGERED_1B_EVENT:
    - include that primary CPICH in the "cells recently triggered" in the variable TRIGGERED_1B_EVENT;
- if any primary CPICHs are stored in the "cells recently triggered" in the variable TRIGGERED_1B_EVENT:
  - send a measurement report with IEs set as below:
    - set in "intra-frequency measurement event results": "Intrafrequency event identity" to "1b"; and
    - include in "cell measurement event results" all entries of "cells recently triggered" in the variable TRIGGERED_1B_EVENT that are part of the active set;
    - set the IE "measured results" and the IE "additional measured results" according to subclause 8.4.2;
  - move all entries from IE "cells recently triggered" to "cells triggered" in the variable TRIGGERED_1B_EVENT;
- if "Measurement quantity" is "pathloss" and Equation 3 below is fulfilled for a primary CPICH, or if "Measurement quantity" is "CPICH Ec/N0" or "CPICH RSCP", and Equation 4 below is fulfilled for a primary CPICH:

- if that primary CPICH is included in the "cells triggered" in the variable TRIGGERED_1B_EVENT:
  - remove the entry of that primary CPICH from "cells triggered" in the variable TRIGGERED_1B_EVENT;

Equation 1 (Triggering condition for pathloss)

$$10 \cdot LogM_{Old} \geq W \cdot 10 \cdot Log\left(1/\sum_{i=1}^{N_A}(1/M_i)\right) + (1-W) \cdot 10 \cdot LogM_{Best} + (R + H_{1b}/2),$$

Equation 2 (Triggering condition for all the other measurement quantities)

$$10 \cdot LogM_{Old} \leq W \cdot 10 \cdot Log\left(\sum_{i=1}^{N_A} M_i\right) + (1-W) \cdot 10 \cdot LogM_{Best} - (R + H_{1b}/2),$$

Equation 3 (Leaving triggering condition for pathloss)

$$10 \cdot LogM_{Old} < W \cdot 10 \cdot Log\left(1/\sum_{i=1}^{N_A}(1/M_i)\right) + (1-W) \cdot 10 \cdot LogM_{Best} + (R - H_{1b}/2),$$

Equation 4 (Leaving triggering condition for all the other measurement quantities)

$$10 \cdot LogM_{Old} > W \cdot 10 \cdot Log\left(\sum_{i=1}^{N_A} M_i\right) + (1-W) \cdot 10 \cdot LogM_{Best} - (R - H_{1b}/2),$$

The variables in the formula are defined as follows:

***M**Old* is the measurement result of the cell leaving the reporting range.

***M**i* is a measurement result of a cell not forbidden to affect reporting range in the active set.

***N**A* is the number of cells not forbidden to affect reporting range in the current active set.

For pathloss

***M**Best* is the measurement result of the cell not forbidden to affect reporting range in the active set with the lowest measurement result.

for other measurements quantities.

***M**Best* is the measurement result of the cell not forbidden to affect reporting range in the active set with the highest measurement result.

W is a parameter sent from UTRAN to UE.

***R**1b* is the reporting range constant.

***H**1b* is the hysteresis parameter for the event 1b.

If the measurement results are pathloss or CPICH-Ec/No then ***M**New*, ***M**i* and ***M**Best* are expressed as ratios.

If the measurement result is CPICH-RSCP then ***M**New*, ***M**i* and ***M**Best* are expressed in [mW].

[...]

14.2.0b Frequency quality estimate

14.2.0b.1 FDD cells

The frequency quality estimate used in events 2a, 2b 2c, 2d, 2e and 2f is defined as:

~~$$Q_{carrier\ j} = 10 \cdot LogM_{carrier\ j} = W_j \cdot 10 \cdot Log\left(\sum_{i=1}^{N_{A\,j}} M_{i\,j}\right) + (1 - W_j) \cdot 10 \cdot LogM_{Best\ j} - H,$$~~

$$Q_{carrier\ j} = 10 \cdot LogM_{carrier\ j} = W_j \cdot 10 \cdot Log\left(\sum_{i=1}^{N_{A\,j}} M_{i\,j}\right) + (1 - W_j) \cdot 10 \cdot LogM_{Best\ j},$$

The variables in the formula are defined as follows ("the virtual active set on frequency j" should be understood as the active set if frequency j is the used frequency. If frequency j is a non-used frequency, the way the virtual active set is initiated and updated is described in subclause 14.11):

$\boldsymbol{Q_{frequency\ j}}$ is the estimated quality of the virtual active set on frequency j.

$M_{frequency\ j}$ is the estimated quality of the virtual active set on frequency j.

$M_{i\,j}$ is a measurement result of cell i in the virtual active set on frequency j.

$N_{A\,j}$ is the number of cells in the virtual active set on frequency j.

$M_{Best\ j}$ is the measurement result of the cell in the virtual active set on frequency j with the highest measurement result.

W_j is a parameter sent from UTRAN to UE and used for frequency j.

If the measurement result is CPICH-Ec/No then $\boldsymbol{M_{Frequency}}$, $\boldsymbol{M_{i\,j}}$ and $\boldsymbol{M_{Best}}$ are expressed as ratios.

If the measurement result is CPICH-RSCP or PCCPCH-RSCP then $\boldsymbol{M_{Frequency}}$, $\boldsymbol{M_{i\,j}}$ and $\boldsymbol{M_{Best}}$ are expressed in [mW].

14.2.0b.2 TDD cells

$$Q_{i,\,frequency\ \ j} = 10 \cdot LogM_{\ i,\,frequency\ \ j} + O_{i,\,j}$$

$\boldsymbol{Q_{i\,,frequency\ j}}$ is the estimated quality of cell i on frequency j.

$M_{frequency\ j}$ is the measurement result for Primary CCPCH RSCP of cell i on frequency j expressed in [mW].

$\boldsymbol{O_{i,j}}$ is the cell individual offset of the currently evaluated cell *i* on frequency j. $\boldsymbol{O_{ij}}$ is set by IE " Cell individual offset"

3GPP TSG-RAN2#25 Meeting
Makuhari, Japan, November 26th – 30th 2001

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CR-Form-v4

CHANGE REQUEST

⌘ **25.331** **CR** **1117** ⌘ ev **-** ⌘ Current version: **4.2.1** ⌘

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Proposed change affects: ⌘ (U)SIM ☐ ME/UE **X** Radio Access Network **X** Core Network ☐

Title:	⌘	Clarification to Measured Results on RACH and Measurement Events
Source:	⌘	TSG-RAN WG2
Work item code:	⌘	TEI
Date:	⌘	2001-11-15
Category:	⌘	**A**
Release:	⌘	REL-4

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REL-5 *(Release 5)*

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(a) The IE "Measured results on RACH" can be included by the UE in the messages RRC CONNECTION REQUEST, INITIAL DIRECT TRANSFER, UPLINK DIRECT TRANSFER, CELL UPDATE, MEASUREMENT REPORT in order to append radio link related measurement reports. For UPLINK DIRECT TRANSFER and MEASUREMENT REPORT, it is currently not described when the UE shall append this IE to the message. It is therefore proposed to make the according changes in section 8.1.10.2 and 8.4.2.

(b) The IE "cells forbidden to affect reporting range" sent in event parameters indicates cells which are not to be used for reporting range calculation. The usage of this IE is currently only described in the informative clause 14.1.5.4 of TS 25.331. It is therefore proposed to clarify the usage of this IE in the equations for intra-frequency event 1A and 1B evaluation in sections 14.1.2.1 and 14.1.2.2, respectively.

(c) Within the formula for calculation of frequency quality estimates of FDD cells, a variable 'H' is used, which is not further described in the subsequent variable description section. It is supposed, that this variable should denote a hysteresis used in earlier versions (370) of this document. In the current version (380) there are formulas for event evaluation including weighting with hysteresis located in the individual descriptions of events. Therefor it is proposed to delete the variable 'H' from the formula for frequency quality estimate, otherwise the hysteresis would be applied twice.

Summary of change:	⌘	(a) Clause 8.1.10.2, 8.4.2.2 A description is added when the IE "Measured results on RACH" should be included into the appropriate message. (b) Clause 14.1.2.1, 14.1.2.2 The usage of cells forbidden to affect reporting range is added to the event description. (c) Clause 14.2.0b.1 The variable H is deleted from the formula for frequency quality estimate calculation. **Isolated Impact Analysis:** • Correction to description of messages UPLINK DIRECT TRANSFER and MEASUREMENT REPORT where the specification was not sufficiently explicit. • Correction to description of evaluation of intra-frequency event 1a and 1b where the specification was not sufficiently explicit. • Correction to description of formula for calculation of frequency quality estimates of FDD cells where the specification was containing some contradictions. • Would not affect implementations behaving like indicated in the CR, would affect implementations supporting the corrected functionality otherwise.
Consequences if not approved:	⌘	The description of usage of IE "Measured results on RACH" is not completely described. The usage of cells forbidden to affect reporting range is not described. The formula for frequency quality estimate is incorrect.

Clauses affected:	⌘	8.1.10.2, 8.4.2.2, 14.1.2.1, 14.1.2.2, 14.2.0b.1		
Other specs affected:	⌘	☐ Other core specifications ☐ Test specifications ☐ O&M Specifications	⌘	25.331 v3.8.0, CR 1116
Other comments:	⌘			

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2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

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

8.1.10.2 Initiation of uplink direct transfer procedure in the UE

In the UE, the uplink direct transfer procedure shall be initiated when the upper layers request a transfer of a NAS message on an existing signalling connection. When not stated otherwise elsewhere, the UE may initiate the uplink direct transfer procedure when another procedure is ongoing, and in that case the state of the latter procedure shall not be affected.
Upon initiation of the uplink direct transfer procedure in CELL_PCH or URA_PCH state, the UE shall:

- perform a cell update procedure, according to subclause 8.3.1, using the cause "uplink data transmission";
- when the cell update procedure has been completed successfully:
  - continue with the uplink direct transfer procedure as below.

The UE shall transmit the UPLINK DIRECT TRANSFER message on the uplink DCCH using AM RLC on signalling radio bearer RB3 or signalling radio bearer RB4. The UE shall:

- if upper layers indicate "low priority" for this message:
  - select signalling radio bearer RB4, if available. Specifically, for a GSM-MAP based CN, signalling radio bearer RB4 shall, if available, be selected when "SAPI 3" is requested;
  - select signalling radio bearer RB3 when signalling radio bearer RB4 is not available;
- if upper layers indicate "high priority" for this message:
- select signalling radio bearer RB3. Specifically, for a GSM-MAP based CN, signalling radio bearer RB3 shall be selected when "SAPI 0" is requested.

In CELL_FACH state, the UE shall:

- 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 12 (or "System Information Block Type 11" if "System Information Block Type 12" is not being broadcast);
- include in the IE "Measured results on RACH" all requested reporting quantities for cells for which measurements are reported.

The UE shall set the IE "NAS message" as received from upper layers and set the IE "CN domain identity" as indicated by the upper layers.

When the UPLINK DIRECT TRANSFER message has been submitted to lower layers for transmission the procedure ends.

8.4.2 Measurement report

Figure 58: Measurement report, normal case

8.4.2.1 General

The purpose of the measurement reporting procedure is to transfer measurement results from the UE to UTRAN.

8.4.2.2 Initiation

In CELL_DCH state, the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH when the reporting criteria stored in variable MEASUREMENT_IDENTITY are met for any ongoing measurements that are being performed in the UE.

In CELL_FACH state, the UE shall:

- transmit a MEASUREMENT REPORT message on the uplink DCCH when the reporting criteria stored in variable MEASUREMENT_IDENTITY are met for any ongoing traffic volume measurement that is being performed in the UE.

- 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 12 (or "System Information Block Type 11" if "System Information Block Type 12" is not being broadcast);

  - include in the IE "Measured results on RACH" all requested reporting quantities for cells for which measurements are reported.

In TDD, if the Radio Bearer associated with the MEASUREMENT_IDENTITY fulfilling the reporting criteria for an ongoing traffic volume measurement is mapped on transport channel of type USCH, the UE shall initiate the "PUSCH CAPACITY REQUEST" procedure instead of transmitting a MEASUREMENT REPORT (TDD Only).

In CELL_PCH or URA_PCH state, the UE shall first perform the cell update procedure according to subclause 8.3.1, using the cause "uplink data transmission", in order to transit to CELL_FACH state and then transmit a MEASUREMENT REPORT message on the uplink DCCH when the reporting criteria stored in variable MEASUREMENT_IDENTITY are fulfilled for any ongoing traffic volume measurement which is being performed in the UE.

The reporting criteria are fulfilled if either:

- the first measurement has been completed according to the requirements set in [19] or [20] for a newly initiated measurement with periodic reporting; or

- the time period indicated in the stored IE "Periodical reporting criteria" has elapsed since the last measurement report was transmitted for a given measurement; or

- an event in stored IE "Measurement reporting criteria" was triggered. Events and triggering of reports for different measurement types are described in detail in clause 14.

For the measurement, which triggered the MEASUREMENT REPORT message, the UE shall:

- set the IE "measurement identity" to the measurement identity, which is associated with that measurement in variable MEASUREMENT_IDENTITY;

  - set the IE "measured results" to include measurements according to the IE "reporting quantity" of that measurement stored in variable MEASUREMENT_IDENTITY; and

    - if all the reporting quantities are set to "false":

      - not set the IE "measured results";

  - set the IE "Measured results" in the IE "Additional measured results" according to the IE "reporting quantity" for all measurements associated with the measurement identities included in the IE "additional measurements" stored in variable MEASUREMENT_IDENTITY of the measurement that triggered the measurement report; and

    - if more than one additional measured results are to be included:

- sort them in ascending order according to their IE "measurement identity" in the MEASUREMENT REPORT message;

- if the MEASUREMENT REPORT message was triggered by an event (i.e. not a periodical report):

  - set the IE "Event results" according to the event that triggered the report.

The UE shall:
- transmit the MEASUREMENT REPORT message on the uplink DCCH using either AM or UM RLC according to the stored IE "measurement reporting mode" associated with the measurement identity that triggered the report.

When the MEASUREMENT REPORT message has been submitted to lower layers for transmission:
- the procedure ends.

[...]

14.1.2.1 Reporting event 1A: A Primary CPICH enters the reporting range

When event 1A is configured in the UE, the UE shall:
- if "Measurement quantity" is "pathloss" and Equation 1 below is fulfilled for one or more primary CPICHs, or if "Measurement quantity" is "CPICH Ec/N0" or "CPICH RSCP", and Equation 2 below is fulfilled for one or more primary CPICHs, for each of these primary CPICHs:

  - if the equations have been fulfilled during the time "Time to trigger", and if that primary CPICH is part of cells allowed to trigger the event according to "Triggering condition 2", and if that primary CPICH is not included in the "cells triggered" in the variable TRIGGERED_1A_EVENT:

    - include that primary CPICH in the "cells recently triggered" in the variable TRIGGERED_1A_EVENT;

- if the value of "Reporting deactivations threshold" for this event is greater than or equal to the current number of cells in the active set or equal to 0 and any primary CPICHs are stored in the "cells recently triggered" in the variable TRIGGERED_1A_EVENT:

  - if "Reporting interval" for this event is not equal to 0:

    - if the IE "Periodical reporting running" in the variable TRIGGERED_1A_EVENT is set to FALSE:

      - start a timer with the value of "Reporting interval" for this event and set the IE "Periodical reporting running" in the variable TRIGGERED_1A_EVENT to TRUE;

    - set "sent reports" for the primary CPICHs in "cells recently triggered" in the variable TRIGGERED_1A_EVENT to 1;

  - send a measurement report with IEs set as below:

    - set in "intra-frequency measurement event results": "Intrafrequency event identity" to "1a"; and

    - include in "cell measurement event results" all entries of the "cells recently triggered" in the variable TRIGGERED_1A_EVENT that are not part of the active set in descending order according to the configured measurement quantity;

    - set the IE "measured results" and the IE "additional measured results" according to subclause 8.4.2;

  - move all entries from "cells recently triggered" to "cells triggered" in the variable TRIGGERED_1A_EVENT;

- if the timer for the periodical reporting has expired:

- if any primary CPICH is included in the "cells triggered" in the variable TRIGGERED_1A_EVENT, and not included in the current active set:
    - if "Reporting interval" for this event is not equal to 0, and if "Amount of reporting" is greater than "sent reports" stored for any of these primary CPICHs, in "cells triggered" in the variable TRIGGERED_1A_EVENT:
        - increment the stored counter "sent reports" for all CPICHs in "cell triggered" in variable TRIGGERED_1A_EVENT;
        - start a timer with the value of "Reporting interval" for this event;
        - send a measurement report with IEs set as below:
            - set in "intra-frequency measurement event results": "Intrafrequency event identity" to "1a"; and
            - include in "cell measurement event results" all entries of the variable TRIGGERED_1A_EVENT with value of IE "sent reports" smaller than value of "Amount of reporting" that are not part of the active set in descending order according to the configured measurement quantity;
            - set the IE "measured results" and the IE "additional measured results" according to subclause 8.4.2;
        - if "sent reports" in variable TRIGGERED_1A_EVENT is greater than "Amount of reporting" for all entries:
            - set the IE "Periodical Reporting running" in the variable TRIGGERED_1A_EVENT to FALSE and disable the timer for the periodical reporting;
- if "Measurement quantity" is "pathloss" and Equation 3 below is fulfilled for a primary CPICH, or if "Measurement quantity" is "CPICH Ec/N0" or "CPICH RSCP", and Equation 4 below is fulfilled for a primary CPICH:
    - if that primary CPICH is included in the "cells triggered" in the variable TRIGGERED_1A_EVENT:
        - remove the entry of that primary CPICH from "cells triggered" in the variable TRIGGERED_1A_EVENT;
        - if no entry in the variable TRIGGERED_1A_EVENT has a value of "sent reports" smaller than "Amount of reporting":
            - stop the reporting interval timer;
            - set the IE "Periodical reporting running" in the variable TRIGGERED_1A_EVENT to FALSE.

Upon transition to CELL_DCH the UE shall:
- Include the primary CPICH of all cells in the current active set into the "cells triggered" in the variable TRIGGERED_1A_EVENT.

Equation 1 (Triggering condition for pathloss)

$$10 \cdot LogM_{New} \leq W \cdot 10 \cdot Log\left(1/\sum_{i=1}^{N_A}(1/M_i)\right) + (1-W) \cdot 10 \cdot LogM_{Best} + (R_{1a} - H_{1a}/2),$$

Equation 2 (Triggering condition for all the other measurement quantities)

$$10 \cdot LogM_{New} \geq W \cdot 10 \cdot Log\left(\sum_{i=1}^{N_A} M_i\right) + (1-W) \cdot 10 \cdot LogM_{Best} - (R_{1a} - H_{1a}/2),$$

Equation 3 (Leaving triggering condition for pathloss)

$$10 \cdot LogM_{New} > W \cdot 10 \cdot Log\left(1/\sum_{i=1}^{N_A}(1/M_i)\right) + (1-W) \cdot 10 \cdot LogM_{Best} + (R_{1a} + H_{1a}/2),$$

Equation 4 (Leaving triggering condition for all the other measurement quantities)

$$10 \cdot LogM_{New} < W \cdot 10 \cdot Log\left(\sum_{i=1}^{N_A} M_i\right) + (1-W) \cdot 10 \cdot LogM_{Best} - (R_{1a} + H_{1a}/2),$$

The variables in the formula are defined as follows:

$\boldsymbol{M_{New}}$ is the measurement result of the cell entering the reporting range.

$\boldsymbol{M_i}$ is a measurement result of a cell not forbidden to affect reporting range in the active set.

$\boldsymbol{N_A}$ is the number of cells not forbidden to affect reporting range in the current active set.

For pathloss

$\boldsymbol{M_{Best}}$ is the measurement result of the cell not forbidden to affect reporting range in the active set with the lowest measurement result.

for other measurements quantities.

$\boldsymbol{M_{Best}}$ is the measurement result of the cell not forbidden to affect reporting range in the active set with the highest measurement result.

$\boldsymbol{W}$ is a parameter sent from UTRAN to UE.

$\boldsymbol{R_{1a}}$ is the reporting range constant.

$\boldsymbol{H_{1a}}$ is the hysteresis parameter for the event 1a.

If the measurement results are pathloss or CPICH-Ec/No then $\boldsymbol{M_{New}}$, $\boldsymbol{M_i}$ and $\boldsymbol{M_{Best}}$ are expressed as ratios.

If the measurement result is CPICH-RSCP then $\boldsymbol{M_{New}}$, $\boldsymbol{M_i}$ and $\boldsymbol{M_{Best}}$ are expressed in [mW].

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

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

- if "Measurement quantity" is "pathloss" and Equation 1 below is fulfilled for one or more primary CPICHs, or if "Measurement quantity" is "CPICH Ec/N0" or "CPICH RSCP", and Equation 2 below is fulfilled for one or more primary CPICHs, for each of these primary CPICHs:
  - if the equations have been fulfilled during the time "Time to trigger", and if that primary CPICH is part of cells allowed to trigger the event according to "Triggering condition 1", and if that primary CPICH is not included in the "cells triggered" in the variable TRIGGERED_1B_EVENT:
    - include that primary CPICH in the "cells recently triggered" in the variable TRIGGERED_1B_EVENT;
- if any primary CPICHs are stored in the "cells recently triggered" in the variable TRIGGERED_1B_EVENT:
  - send a measurement report with IEs set as below:
    - set in "intra-frequency measurement event results": "Intrafrequency event identity" to "1b"; and
    - include in "cell measurement event results" all entries of "cells recently triggered" in the variable TRIGGERED_1B_EVENT that are part of the active set;
    - set the IE "measured results" and the IE "additional measured results" according to subclause 8.4.2;

- move all entries from IE "cells recently triggered" to "cells triggered" in the variable TRIGGERED_1B_EVENT;

- if "Measurement quantity" is "pathloss" and Equation 3 below is fulfilled for a primary CPICH, or if "Measurement quantity" is "CPICH Ec/N0" or "CPICH RSCP", and Equation 4 below is fulfilled for a primary CPICH:

  - if that primary CPICH is included in the "cells triggered" in the variable TRIGGERED_1B_EVENT:

    - remove the entry of that primary CPICH from "cells triggered" in the variable TRIGGERED_1B_EVENT;

Equation 1 (Triggering condition for pathloss)

$$10 \cdot LogM_{Old} \geq W \cdot 10 \cdot Log\left(1/\sum_{i=1}^{N_A}(1/M_i)\right) + (1-W) \cdot 10 \cdot LogM_{Best} + (R + H_{1b}/2),$$

Equation 2 (Triggering condition for all the other measurement quantities)

$$10 \cdot LogM_{Old} \leq W \cdot 10 \cdot Log\left(\sum_{i=1}^{N_A} M_i\right) + (1-W) \cdot 10 \cdot LogM_{Best} - (R + H_{1b}/2),$$

Equation 3 (Leaving triggering condition for pathloss)

$$10 \cdot LogM_{Old} < W \cdot 10 \cdot Log\left(1/\sum_{i=1}^{N_A}(1/M_i)\right) + (1-W) \cdot 10 \cdot LogM_{Best} + (R - H_{1b}/2),$$

Equation 4 (Leaving triggering condition for all the other measurement quantities)

$$10 \cdot LogM_{Old} > W \cdot 10 \cdot Log\left(\sum_{i=1}^{N_A} M_i\right) + (1-W) \cdot 10 \cdot LogM_{Best} - (R - H_{1b}/2),$$

The variables in the formula are defined as follows:

$\boldsymbol{M_{Old}}$ is the measurement result of the cell leaving the reporting range.

$\boldsymbol{M_i}$ is a measurement result of a cell not forbidden to affect reporting range in the active set.

$\boldsymbol{N_A}$ is the number of cells not forbidden to affect reporting range in the current active set.

For pathloss

$\boldsymbol{M_{Best}}$ is the measurement result of the cell not forbidden to affect reporting range in the active set with the lowest measurement result.

for other measurements quantities.

$\boldsymbol{M_{Best}}$ is the measurement result of the cell not forbidden to affect reporting range in the active set with the highest measurement result.

$\boldsymbol{W}$ is a parameter sent from UTRAN to UE.

$\boldsymbol{R_{1b}}$ is the reporting range constant.

$\boldsymbol{H_{1b}}$ is the hysteresis parameter for the event 1b.

If the measurement results are pathloss or CPICH-Ec/No then $\boldsymbol{M_{New}}$, $\boldsymbol{M_i}$ and $\boldsymbol{M_{Best}}$ are expressed as ratios.

If the measurement result is CPICH-RSCP then $\boldsymbol{M_{New}}$, $\boldsymbol{M_i}$ and $\boldsymbol{M_{Best}}$ are expressed in [mW].

[...]

14.2.0b Frequency quality estimate

14.2.0b.1 FDD cells

The frequency quality estimate used in events 2a, 2b 2c, 2d, 2e and 2f is defined as:

~~$$Q_{carrier\ j} = 10 \cdot LogM_{carrier\ j} = W_j \cdot 10 \cdot Log\left(\sum_{i=1}^{N_{A\,j}} M_{i\,j}\right) + (1 - W_j) \cdot 10 \cdot LogM_{Best\ j} - H,$$~~

$$Q_{carrier\ j} = 10 \cdot LogM_{carrier\ j} = W_j \cdot 10 \cdot Log\left(\sum_{i=1}^{N_{A\,j}} M_{i\,j}\right) + (1 - W_j) \cdot 10 \cdot LogM_{Best\ j},$$

The variables in the formula are defined as follows ("the virtual active set on frequency j" should be understood as the active set if frequency j is the used frequency. If frequency j is a non-used frequency, the way the virtual active set is initiated and updated is described in subclause 14.11):

$\boldsymbol{Q_{frequency\ j}}$ is the estimated quality of the virtual active set on frequency j.

$M_{\text{frequency j}}$ is the estimated quality of the virtual active set on frequency j.

$M_{\text{i j}}$ is a measurement result of cell i in the virtual active set on frequency j.

$N_{\text{A j}}$ is the number of cells in the virtual active set on frequency j.

$M_{\text{Best j}}$ is the measurement result of the cell in the virtual active set on frequency j with the highest measurement result.

W_j is a parameter sent from UTRAN to UE and used for frequency j.

If the measurement result is CPICH-Ec/No then $\boldsymbol{M_{Frequency}}$, $\boldsymbol{M_{i\,j}}$ and $\boldsymbol{M_{Best}}$ are expressed as ratios.

If the measurement result is CPICH-RSCP or PCCPCH-RSCP then $\boldsymbol{M_{Frequency}}$, $\boldsymbol{M_{i\,j}}$ and $\boldsymbol{M_{Best}}$ are expressed in [mW].

14.2.0b.2 TDD cells

$$Q_{i,\,frequency\ \ j} = 10 \cdot LogM_{\ i,\,frequency\ \ j} + O_{i,\,j}$$

$\boldsymbol{Q_{i\,,frequency\,j}}$ is the estimated quality of cell i on frequency j.

$M_{\text{frequency j}}$ is the measurement result for Primary CCPCH RSCP of cell i on frequency j expressed in [mW].

$\boldsymbol{O_{i,j}}$ is the cell individual offset of the currently evaluated cell *i* on frequency j. $\boldsymbol{O_{ij}}$ is set by IE " Cell individual offset"

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Tdoc R2-012499

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CHANGE REQUEST

⌘ **25.331** **CR** **1118** ⌘ ev **-** ⌘ Current version: **3.8.0** ⌘

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Proposed change affects: ⌘ (U)SIM ☐ ME/UE ☐ Radio Access Network ☐ Core Network ☐

Title:	⌘	Inconsistency between tabular and ASN.1 wrt RPLMN info in TDD
Source:	⌘	TSG-RAN WG2
Work item code:	⌘	TEI
Date:	⌘	19.11.2001
Category:	⌘	**F**
Release:	⌘	R99

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
REL-4 (Release 4)
REL-5 (Release 5)

Reason for change:	⌘	Incorrect information in ASN.1 (tabular description is correct) Erroneously the FDD element is used for TDD.
Summary of change:	⌘	Information in ASN.1 is corrected
Consequences if not approved:	⌘	Information on RPLMN for TDD is wrong. The change has isolated impact on RPLMN information transfer in TDD mode.

Clauses affected:	⌘	11.3		
Other specs affected:	⌘	☐ Other core specifications ☐ Test specifications ☐ O&M Specifications	⌘	25.331 v4.2.1, CR 1119
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

```
Rplmn-Information               ::=     SEQUENCE {
                                            gsm-BA-Range-List       GSM-BA-Range-List   OPTIONAL,
                                            fdd-UMTS-Frequency-List FDD-UMTS-Frequency-List
    OPTIONAL,
                                            tdd-UMTS-Frequency-List ~~FDD~~TDD-UMTS-Frequency-List
    OPTIONAL,
                                            cdma2000-UMTS-Frequency-List    CDMA2000-UMTS-Frequency-
List    OPTIONAL
}
```

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Tdoc R2-012683

CR-Form-v4

CHANGE REQUEST

⌘ **25.331** **CR** **1119** ⌘ ev **-** ⌘ Current version: **4.2.1** ⌘

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Proposed change affects: ⌘ (U)SIM ☐ ME/UE **X** Radio Access Network **X** Core Network ☐

Title:	⌘	Inconsistency between tabular and ASN.1 wrt RPLMN info in TDD
Source:	⌘	TSG-RAN WG2
Work item code:	⌘	TEI
Date:	⌘	19.11.2001
Category:	⌘	**A**
Release:	⌘	REL-4

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F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
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2 (GSM Phase 2)
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R99 (Release 1999)
REL-4 (Release 4)
REL-5 (Release 5)

Reason for change:	⌘	Incorrect information in ASN.1 (tabular description is correct) Erroneously the FDD element is used for TDD.
Summary of change:	⌘	Information in ASN.1 is corrected
Consequences if not approved:	⌘	Information on RPLMN for TDD is wrong. The change has isolated impact on RPLMN information transfer in TDD mode.

Clauses affected:	⌘	11.3		
Other specs affected:	⌘	☐ Other core specifications ☐ Test specifications ☐ O&M Specifications	⌘	25.331 v3.8.0, CR 1118
Other comments:	⌘			

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11.3 Information element definitions

```
Rplmn-Information               ::=     SEQUENCE {
                                            gsm-BA-Range-List       GSM-BA-Range-List   OPTIONAL,
                                            fdd-UMTS-Frequency-List FDD-UMTS-Frequency-List
    OPTIONAL,
                                            tdd-UMTS-Frequency-List ~~FDD~~TDD-UMTS-Frequency-List
    OPTIONAL,
                                            cdma2000-UMTS-Frequency-List    CDMA2000-UMTS-Frequency-
List    OPTIONAL
}
```

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CR-Form-v4

CHANGE REQUEST

⌘ **25.331** **CR** **1123** ⌘ rev **r1** ⌘ Current version: **3.8.0** ⌘

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

Proposed change affects: ⌘ (U)SIM ☐ ME/UE ☒ Radio Access Network ☒ Core Network ☐

Title:	⌘	General clarification on Establishment of Access Service Classes
Source:	⌘	TSG-RAN WG2
Work item code:	⌘	TEI
Date:	⌘	28 Nov, 2001
Category:	⌘	**F**
Release:	⌘	R99

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
REL-4 (Release 4)
REL-5 (Release 5)

Reason for change:	⌘	1> Clarify that the NumASC is between 0 and 7, and that the maximum number of ASCs is therefore equal to 8 (but not NumASC+1). 2> Correct the name of IE "PRACH partition" to align it with the spec. 3> Add a reference in subclause 10.3.6.35 to clarify how the mapping is done.
Summary of change:	⌘	1> In subclause 8.5.12, the phase "the maximum number of ASCs is NumASC+1 = 8" is corrected to "the maximum number of ASCs is 8". 2> The IE "PRACH partition" is changed to IE "PRACH partitioning". 3> In subclause 10.3.6.35, the semantics description is added a reference to clarify how the mapping is done.
Consequences if not approved:	⌘	Inconsistency in this specification. **Isolated impact analysis:** **The CR has isolated impact.** Would not affect implementations behaving like indicated in the CR, would affect implementations supporting the corrected functionality otherwise.

Clauses affected:	⌘	8.5.12, 10.3.6.35		
Other specs affected:	⌘	☒ Other core specifications ☐ Test specifications ☐ O&M Specifications	⌘	TS25.321 25.331 v4.2.1, CR 1124

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/3G_Specs/CRs.htm. Below is a brief summary:

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

8.5.12 Establishment of Access Service Classes

The PRACH resources (i.e. access slots and preamble signatures for FDD), timeslot (with specific frame allocation and channelisation code for TDD) may be divided between different Access Service Classes in order to provide different priorities of RACH usage. It is possible for more than one ASC or for all ASCs to be assigned to the same access slot/signature space in FDD or frame allocation in TDD.

Access Service Classes shall be numbered in the range $0 \le i \le \text{NumASC} \le 7$ (i.e. the maximum number of ASCs is ~~"NumASC+1" =~~ 8). An ASC is defined by an identifier, i, that defines a certain partition of the PRACH resources and an associated persistence value P_i. A set of ASC parameters consists of "NumASC+1" such parameters (i, P_i), i = 0, …, NumASC.

PRACH partitions shall be established using the information element "PRACH partitioning". The persistence values P_i to be associated with each ASC shall be derived from the dynamic persistence level N = 1,…, 8 which is broadcast in SIB 7, and the persistence scaling factors s_i, broadcast in System Information Block Type 5 and possibly also in System Information Block Type 6, as follows:

$P(N) = 2^{-(N-1)}$

ASC # *i*	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
P_i	1	P(N)	s_2 P(N)	s_3 P(N)	s_4 P(N)	s_5 P(N)	s_6P(N)	s_7 P(N)

Scaling factors s_i are provided optionally for i = 2,…, NumASC, where NumASC+1 is the number of ASCs as defined by PRACH partitioning. If no scaling factors are broadcast, default value 1 shall be used if NumASC ≥ 2.

If $k \ge 1$ scaling factors are broadcast and NumASC ≥ k+2 then the last scaling factor s_{k+1} shall be used as default for the ASCs where $i > k$ +1.

The set of ASC parameters is provided to MAC with the CMAC-Config-REQ primitive (see [15]), the PRACH partitioning is provided to PHY using the CPHY-RL-Setup-REQ primitive (see [34]).

The ASC enumeration shall be such that it corresponds to the order of priority (ASC 0 = highest priority, ASC 7 = lowest priority). ASC 0 shall be used in case of Emergency Call or for reasons with equivalent priority.

At radio bearer setup/reconfiguration each involved logical channel is assigned a MAC Logical channel Priority (MLP) in the range 1,…,8. When the MAC sublayer is configured for RACH transmission in the UE, these MLP levels shall be employed for ASC selection on MAC.

10.3.6.35 Dynamic persistence level

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Dynamic persistence level	MP		Integer(1..8)	Level shall be mapped to a dynamic persistence value in the range 0 .. 1. The mapping is described in section 8.5.12.

3GPP TSG-RAN WG2 Meeting #25
Makuhari, Japan, 26th-30th November 2001

Tdoc R2-012685

CR-Form-v4

CHANGE REQUEST

⌘ **25.331 CR 1124** ⌘ rev ⌘ Current version: **4.2.1** ⌘

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

Proposed change affects: ⌘ (U)SIM ☐ ME/UE ☒ Radio Access Network ☒ Core Network ☐

Title: ⌘	General clarification on Establishment of Access Service Classes	
Source: ⌘	TSG-RAN WG2	
Work item code: ⌘	TEI	***Date:*** ⌘ 28 Nov, 2001
Category: ⌘	**A**	***Release:*** ⌘ REL-4

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
REL-4	*(Release 4)*
REL-5	*(Release 5)*

Reason for change: ⌘

1> Clarify that the NumASC is between 0 and 7, and that the maximum number of ASCs is therefore equal to 8 (but not NumASC+1).

2> Correct the name of IE “PRACH partition” to align it with the spec.

3> Add a reference in subclause 10.3.6.35 to clarify how the mapping is done.

Summary of change: ⌘

1> In subclause 8.5.12, the phase “the maximum number of ASCs is NumASC+1 = 8” is corrected to “the maximum number of ASCs is 8”.

2> The IE “PRACH partition” is changed to IE “PRACH partitioning”.

3> In subclause 10.3.6.35, the semantics description is added a reference to clarify how the mapping is done.

Consequences if not approved: ⌘

Inconsistency in this specification.

Isolated impact analysis:

The CR has isolated impact.

Would not affect implementations behaving like indicated in the CR, would affect implementations supporting the corrected functionality otherwise.

Clauses affected: ⌘ 8.5.12, 10.3.6.35

Other specs affected: ⌘

- ☒ Other core specifications ⌘ TS25.321, 25.331 v3.8.0, CR 1123r1
- ☐ Test specifications
- ☐ O&M Specifications

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.

8.5.12 Establishment of Access Service Classes

The PRACH resources (i.e. access slots and preamble signatures for FDD), timeslot (with specific frame allocation and channelisation code for TDD) may be divided between different Access Service Classes in order to provide different priorities of RACH usage. It is possible for more than one ASC or for all ASCs to be assigned to the same access slot/signature space in FDD or frame allocation in TDD.

Access Service Classes shall be numbered in the range $0 \le i \le \text{NumASC} \le 7$ (i.e. the maximum number of ASCs is ~~"NumASC+1" =~~ 8). An ASC is defined by an identifier, i, that defines a certain partition of the PRACH resources and an associated persistence value P_i. A set of ASC parameters consists of "NumASC+1" such parameters (i, P_i), i = 0, …, NumASC.

PRACH partitions shall be established using the information element "PRACH partitioning". The persistence values P_i to be associated with each ASC shall be derived from the dynamic persistence level N = 1,…, 8 which is broadcast in SIB 7, and the persistence scaling factors s_i, broadcast in System Information Block Type 5 and possibly also in System Information Block Type 6, as follows:

$P(N) = 2^{-(N-1)}$

ASC # *i*	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
P_i	1	P(N)	s_2 P(N)	s_3 P(N)	s_4 P(N)	s_5 P(N)	s_6P(N)	s_7 P(N)

Scaling factors s_i are provided optionally for i = 2,…, NumASC, where NumASC+1 is the number of ASCs as defined by PRACH partitioning. If no scaling factors are broadcast, default value 1 shall be used if NumASC ≥ 2.

If $k \ge 1$ scaling factors are broadcast and NumASC ≥ k+2 then the last scaling factor s_{k+1} shall be used as default for the ASCs where $i > k$ +1.

The set of ASC parameters is provided to MAC with the CMAC-Config-REQ primitive (see [15]), the PRACH partitioning is provided to PHY using the CPHY-RL-Setup-REQ primitive (see [34]).

The ASC enumeration shall be such that it corresponds to the order of priority (ASC 0 = highest priority, ASC 7 = lowest priority). ASC 0 shall be used in case of Emergency Call or for reasons with equivalent priority.

At radio bearer setup/reconfiguration each involved logical channel is assigned a MAC Logical channel Priority (MLP) in the range 1,…,8. When the MAC sublayer is configured for RACH transmission in the UE, these MLP levels shall be employed for ASC selection on MAC.

10.3.6.35 Dynamic persistence level

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Dynamic persistence level	MP		Integer(1..8)	Level shall be mapped to a dynamic persistence value in the range 0 .. 1. The mapping is described in section 8.5.12.

3GPP TSG-RAN WG2 Meeting #25
Makuhari, Japan, 26th-30th November 2001

Tdoc R2-012511

CR-Form-v4

CHANGE REQUEST

⌘ **25.331 CR 1125** ⌘ rev **-** ⌘ Current version: **3.8.0** ⌘

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

Proposed change affects: ⌘ (U)SIM ☐ ME/UE ☒ Radio Access Network ☒ Core Network ☐

Title: ⌘	Clarification on TX diversity indicator IE and STTD indicator IE	
Source: ⌘	TSG-RAN WG2	
Work item code: ⌘	TEI	***Date:*** ⌘ 15 Nov, 2001
Category: ⌘	**F**	***Release:*** ⌘ R99

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
REL-4	*(Release 4)*
REL-5	*(Release 5)*

Reason for change: ⌘
> Clarify how the TX Diversity indicator IE should be set (in consistent with how ther indicator IEs are set in this spec).

> Clarify that the STTD indicator IE is only used for FDD.

Summary of change: ⌘
1> The semantics description of the TX Diversity indicator IE is added a note "TRUE indicates that transmit diversity is used".

2> The subclause 10.3.6.78 is added a note to say the STTD indicator IE is only for FDD.

Consequences if not approved: ⌘
Inconsistency and ambiguity in this specification.

Isolated impact analysis:

The CR has isolated impact

Would not affect implementations behaving like indicated in the CR, would affect implementations supporting the corrected functionality otherwise.

Clauses affected: ⌘ 10.3.6.57, 10.3.6.78, 10.3.7.2

Other specs affected: ⌘
☐ Other core specifications ⌘ 25.331 v4.2.1, CR 1126
☐ 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/3G_Specs/CRs.htm. Below is a brief summary:

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2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

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

10.3.6.57 Primary CCPCH info

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE *mode*	MP			
>FDD				
>>TX Diversity indicator	MP		Boolean	TRUE indicates that transmit diversity is used.
>TDD				
>>CHOICE *SyncCase*	OP			
>>>Sync Case 1				
>>>>Timeslot	MP		Integer (0...14)	PCCPCH timeslot
>>>Sync Case 2				
>>>>Timeslot	MP		Integer(0..6)	
>>Cell parameters ID	OP		Cell parameters Id 10.3.6.9	The Cell parameters ID is described in [32].
>>Block STTD indicator	MP		Block STTD indicator 10.3.6.7	

/*editor's note – section skipped*

10.3.6.78 STTD indicator

NOTE: Only for FDD

Indicates whether STTD is used or not.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
STTD Indicator	MP		Boolean	TRUE means that STTD is used

/*editor's note – section skipped*

10.3.7.2 Cell info

Includes non-frequency related cell info used in the IE "inter-frequency cell info list" and "intra frequency cell info list".

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Cell individual offset	MD		Real(-10..10 by step of 0.5)	In dB Default value is 0 dB Used to offset measured quantity value
Reference time difference to cell	OP		Reference time difference to cell 10.3.7.60	In chips. This IE is absent for serving cell.
Read SFN indicator	MP		Boolean	TRUE indicates that read of SFN is requested for the target cell
CHOICE *mode*	MP			
>FDD				
>>Primary CPICH info	OP		Primary CPICH info 10.3.6.60	This IE is absent only if measuring RSSI only (broadband measurement.)
>>Primary CPICH Tx power	OP		Primary CPICH Tx power 10.3.6.61	Required if calculating pathloss.
>>TX Diversity Indicator	MP		Boolean	TRUE indicates that transmit diversity is used.
>TDD				
>>Primary CCPCH info	MP		Primary CCPCH info 10.3.6.57	
>>Primary CCPCH TX power	OP		Primary CCPCH TX power 10.3.6.59	
>>Timeslot list	OP	1 to <maxTS>		The UE shall report Timeslot ISCP values according the order of the listed Timeslot numbers
>>>Timeslot number	MP		Integer (0...14)	Timeslot numbers, for which the UE shall report Timeslot ISCP
>>>Burst Type	MD		Enumerated (Type1, Type2)	Use for Timeslot ISCP measurements only. Default value is "Type1"
Cell Selection and Re-selection Info	CV-*BCHopt*		Cell Selection and Re-selection for SIB11/12Info 10.3.2.4	This IE is absent for serving cell. For neighbouring cell, if HCS is not used and all the parameters in cell selection and re-selection info are default value, this IE is absent.

Condition	Explanation
BCHopt	This IE is Optional when sent in SYSTEM INFORMATION, Otherwise, the IE is not needed

3GPP TSG-RAN WG2 Meeting #25
Makuhari, Japan, 26th-30th November 2001

Tdoc R2-012686

CR-Form-v4

CHANGE REQUEST

⌘ **25.331** **CR** **1126** ⌘ rev **-** ⌘ Current version: **4.2.1** ⌘

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

Proposed change affects: ⌘ (U)SIM ☐ ME/UE **X** Radio Access Network **X** Core Network ☐

Title:	⌘	Clarification on TX diversity indicator IE and STTD indicator IE
Source:	⌘	TSG-RAN WG2
Work item code:	⌘	TEI
Date:	⌘	28 Nov, 2001
Category:	⌘	**A**
Release:	⌘	REL-4

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
REL-4 (Release 4)
REL-5 (Release 5)

Reason for change: ⌘
> Clarify how the TX Diversity indicator IE should be set (in consistent with how ther indicator IEs are set in this spec).

> Clarify that the STTD indicator IE is only used for FDD.

Summary of change: ⌘
1> The semantics description of the TX Diversity indicator IE is added a note "TRUE indicates that transmit diversity is used".

2> The subclause 10.3.6.78 is added a note to say the STTD indicator IE is only for FDD.

Consequences if not approved: ⌘
Inconsistency and ambiguity in this specification.

Isolated impact analysis:

The CR has isolated impact

Would not affect implementations behaving like indicated in the CR, would affect implementations supporting the corrected functionality otherwise.

Clauses affected: ⌘ 10.3.6.57, 10.3.6.78, 10.3.7.2

Other specs affected: ⌘
☐ Other core specifications
☐ Test specifications
☐ O&M Specifications
⌘ 25.331 v3.8.0, CR 1125

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.

10.3.6.57 Primary CCPCH info

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE *mode*	MP			
>FDD				
>>TX Diversity indicator	MP		Boolean	TRUE indicates that transmit diversity is used.
>TDD				
>>CHOICE *SyncCase*	OP			
>>>Sync Case 1				
>>>>Timeslot	MP		Integer (0...14)	PCCPCH timeslot
>>>Sync Case 2				
>>>>Timeslot	MP		Integer(0..6)	
>>Cell parameters ID	OP		Cell parameters Id 10.3.6.9	The Cell parameters ID is described in [32].
>>Block STTD indicator	MP		Block STTD indicator 10.3.6.7	

/*editor's note – section skipped*

10.3.6.78 STTD indicator

NOTE: Only for FDD

Indicates whether STTD is used or not.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
STTD Indicator	MP		Boolean	TRUE means that STTD is used

/*editor's note – section skipped*

10.3.7.2 Cell info

Includes non-frequency related cell info used in the IE "inter-frequency cell info list" and "intra frequency cell info list".

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Cell individual offset	MD		Real(-10..10 by step of 0.5)	In dB Default value is 0 dB Used to offset measured quantity value
Reference time difference to cell	OP		Reference time difference to cell 10.3.7.60	In chips. This IE is absent for serving cell.
Read SFN indicator	MP		Boolean	TRUE indicates that read of SFN is requested for the target cell
CHOICE *mode*	MP			
>FDD				
>>Primary CPICH info	OP		Primary CPICH info 10.3.6.60	This IE is absent only if measuring RSSI only (broadband measurement.)
>>Primary CPICH Tx power	OP		Primary CPICH Tx power 10.3.6.61	Required if calculating pathloss.
>>TX Diversity Indicator	MP		Boolean	TRUE indicates that transmit diversity is used.
>TDD				
>>Primary CCPCH info	MP		Primary CCPCH info 10.3.6.57	
>>Primary CCPCH TX power	OP		Primary CCPCH TX power 10.3.6.59	
>>Timeslot list	OP	1 to <maxTS>		The UE shall report Timeslot ISCP values according the order of the listed Timeslot numbers
>>>Timeslot number	MP		Integer (0...14)	Timeslot numbers, for which the UE shall report Timeslot ISCP
>>>Burst Type	MD		Enumerated (Type1, Type2)	Use for Timeslot ISCP measurements only. Default value is "Type1"
Cell Selection and Re-selection Info	CV-*BCHopt*		Cell Selection and Re-selection for SIB11/12Info 10.3.2.4	This IE is absent for serving cell. For neighbouring cell, if HCS is not used and all the parameters in cell selection and re-selection info are default value, this IE is absent.

Condition	Explanation
BCHopt	This IE is Optional when sent in SYSTEM INFORMATION, Otherwise, the IE is not needed

3GPP TSG-RAN WG2 Meeting #25 ***R2-012519***
Makuhari, Japan, 26- 30 November, 2001

CR-Form-v4

CHANGE REQUEST

⌘ **25.331** **CR** **1130** ⌘ ev **-** ⌘ Current version: **3.8.0** ⌘

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

Proposed change affects: ⌘ (U)SIM ☐ ME/UE **X** Radio Access Network **X** Core Network ☐

Title:	⌘	Removal of Tr mode DCCH from R99 only
Source:	⌘	TSG-RAN WG2
Work item code:	⌘	TEI
Date:	⌘	November 26, 2001
Category:	⌘	**F**
Release:	⌘	R99

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
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Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
REL-4 (Release 4)
REL-5 (Release 5)

Reason for change: ⌘ Transparent Mode DCCH is intended to support TFO and TrFO with GSM networks. Anyhow, these features will only be fully supported by the standard only from Rel-4 onward. Moreover, the way Transparent Mode DCCM is defined in R99 is extremely inefficient, e.g. 20-60 bits of information are sent almost every 20 ms to convey an information that could be more appropriately be encoded with 3-5 bits. Therefore it seems very unlikely that this R99 feature would ever be deployed in commercial networks. Its removal, on the other hand, would simplify the UE development and it would reduce the amount of testing. Note that none of the configurations so far defined in TS 34.108v3.4.0 includes the Transparent Mode DCCH.

Isolated Impact Change Analysis.

This change affects the Tr Mode DCCH.

It would not affect implementations behaving like indicated in the CR, it would affect implementations supporting the corrected functionality otherwise.

Summary of change: ⌘ Transparent Mode DCCH is removed from RRC prtocol specification R99

Consequences if not approved: ⌘ UE would be unnecessary complex to implement a feature that will almost certainly never be implemented in R99 systems.

Clauses affected: ⌘ 6.3, 8.2.5.2, 8.2.5.4, 8.2.5.5, 8.5.10, 8.6.5.6, 10.2.53, 10.3.5.1, 10.3.5.17, 11.2, 11.3, 13.5.2

Other specs affected: ⌘
X Other core specifications ⌘ CR 057 to TS 25.301
CR 167 to TS 25.322
CR 062 to TS 25.303
TS 33.102 may also be affected
No change to 25.331 v4.2.1!
☐ Test specifications

	☐ O&M Specifications	
Other comments:	⌘	There is no shadow Rel-4 CR, since Transparent Mode DCCH is supported in Rel-4. R2-01???? Is the LS to inform SA3 of the removal of the "TRANSPORT FORMAT COMBINATION CONTROL (TM DCCH only)" from the list of messages for which integrity protection is not performed. The removal of this feature was agreed at RAN2 #24 during the discussion of R2-012344.

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.

[…]

6.3 Signalling Radio Bearers

The Radio Bearers (RB) available for transmission of RRC messages are defined as "signalling radio bearers" and are specified in the following. The UE and UTRAN shall select the signalling radio bearers for RRC messages using RLC-TM, RLC-UM or RLC-AM on the DCCH and CCCH, according to the following:

- Signalling radio bearer RB0 shall be used for all messages sent on the CCCH (UL: RLC-TM, DL: RLC-UM).
- Signalling radio bearer RB1 shall be used for all messages sent on the DCCH, when using RLC unacknowledged mode (RLC-UM).
- Signalling radio bearer RB2 shall be used for all messages sent on the DCCH, when using RLC acknowledged mode (RLC-AM), except for the RRC messages carrying higher layer (NAS) signalling.
- Signalling radio bearer RB3 and optionally Signalling radio bearer RB4 shall be used for the RRC messages carrying higher layer (NAS) signalling and sent on the DCCH in RLC acknowledged mode (RLC-AM), as specified in subclauses 8.1.8., 8.1.9 and 8.1.10.
- ~~Additionally, RBs whose identities shall be set between 5 and 32 may be used as signalling radio bearer for the RRC messages on the DCCH sent in RLC transparent mode (RLC-TM).~~
- RRC messages on the SHCCH are mapped either on RACH or on the USCH in the uplink using TM and either on FACH or on the DSCH using RLC-UM. These messages are only specified for TDD mode.

The Radio Bearer configuration for signalling radio bearer RB0, SHCCH, BCCH on FACH and PCCH on PCH are specified in subclauses 13.6, 13.6a, 13.6b and 13.6c.

When an RRC message is transmitted in DL on CCCH or SHCCH using RLC UM, RRC should indicate to RLC that a special RLC length indicator should be used [16]. The UE shall assume that this indication has been given. The special length indicator indicates that an RLC SDU begins in the beginning of an RLC PDU.

[…]

8.2.5 Transport format combination control

Figure 32: Transport format combination control, normal flow

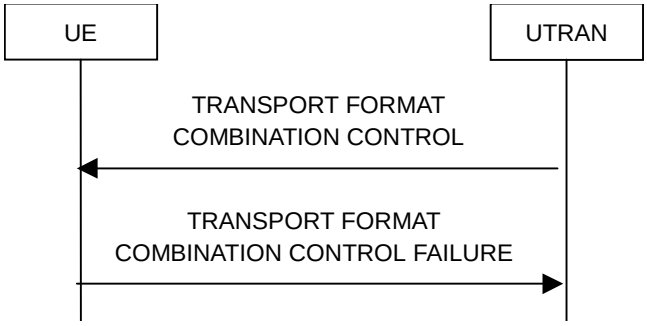

Figure 33: Transport format combination control, failure case

8.2.5.1 General

The transport format combination control procedure is used to control the allowed uplink transport format combinations within the transport format combination set.

8.2.5.2 Initiation

To initiate the transport format combination control procedure, the UTRAN transmits the TRANSPORT FORMAT COMBINATION CONTROL message on the downlink DCCH using AM~~,~~ or UM ~~or TM RLC~~. When not stated otherwise elsewhere, the UE may initiate the transport format combination control procedure also when another procedure is ongoing, and in that case the state of the latter procedure shall not be affected.

To change the sub-set of allowed transport format combinations, the UTRAN ~~shall~~should:

- set the allowed TFCs in the IE "TFC subset". The network can optionally specify the duration for which a new TFC sub-set applies by using the IE "TFC Control duration" and independently can optionally specify the time at which a new TFC sub-set shall be applied using the IE "Activation Time".

To remove completely the previous restrictions of allowed transport format combinations, the UTRAN ~~shall~~should:

- set the "full transport format combination" in the IE "TFC subset".

8.2.5.3 Reception of a TRANSPORT FORMAT COMBINATION CONTROL message by the UE

Upon reception of the TRANSPORT FORMAT COMBINATION CONTROL message the UE shall:

- act upon all received information elements as specified in 8.6, unless specified otherwise in the following;
- perform the actions for the transport format combination subset specified in the IE "DPCH/PUSCH TFCS in uplink" according to subclause 8.6.5.3;
- if the variable INVALID_CONFIGURATION is set to FALSE:
  - if the IE "TFC Control duration" is included in the message:
    - store the value of the IE "TFC Control duration" in the IE "Duration" in the variable TFC_SUBSET
    - set the IE "Current TFC subset" (or IE "TFCS Id" in case of TDD) in the variable TFC_SUBSET to the value of the IE "Transport format combination subset";
    - apply the transport format combination subset in the IE "Current TFC subset" stored in the variable TFC_SUBSET for the number of (10 ms) frames specified in the IE "TFC Control duration";
    - at the end of the time period defined by the IE "TFC control duration":
      - if the variable TFC_SUBSET has not subsequently been reset by another message:
        - go back to any previous restriction of the transport format combination set defined by the content of the IE "Default TFC subset" in the variable TFC_SUBSET;

- set the value of the IE "Current TFC subset" in the variable TFC_SUBSET to the value of the IE "Default TFC subset" in the variable TFC_SUBSET;
- clear the IE "Duration" in the variable TFC_SUBSET;

- if the IE "TFC Control duration" is not included in the message:
  - set both the IE "Current TFC subset" and the IE "Default TFC subset" (or IE "TFCS Id" in case of TDD) in the variable TFC_SUBSET to the value of the IE "Transport format combination subset";

- if the UE is unable to comply with the reconfiguration due to an invalid activation time:
  - set the variable INVALID_CONFIGURATION to TRUE.

The UE shall:

- clear the entry for the TRANSPORT FORMAT COMBINATION CONTROL message in the table "Accepted transactions" in the variable TRANSACTIONS;
- and the procedure ends.

8.2.5.4 Invalid configuration

If the variable INVALID_CONFIGURATION is set to TRUE due to the received TRANSPORT FORMAT COMBINATION CONTROL message the UE shall:

- if the TRANSPORT FORMAT COMBINATION CONTROL message was received on AM RLC:
  - keep the TFC subset existing before the TRANSPORT FORMAT COMBINATION CONTROL message was received;
  - transmit a TRANSPORT FORMAT COMBINATION CONTROL FAILURE message on the DCCH using AM RLC;
  - set the IE "RRC transaction identifier" in the TRANSPORT FORMAT COMBINATION CONTROL FAILURE message to the value of "RRC transaction identifier" in the entry for the TRANSPORT FORMAT COMBINATION CONTROL message in the table "Accepted transactions" in the variable TRANSACTIONS; and
  - clear that entry;
  - set the IE "failure cause" to "invalid configuration";
  - when the TRANSPORT FORMAT COMBINATION CONTROL FAILURE message has been submitted to lower layers for transmission the procedure ends.
- if the TRANSPORT FORMAT COMBINATION CONTROL message was received on UM RLC ~~or TM RLC~~:
  - ignore the TRANSPORT FORMAT COMBINATION CONTROL message.

8.2.5.5 Invalid TRANSPORT FORMAT COMBINATION CONTROL message

If the TRANSPORT FORMAT COMBINATION CONTROL message ~~was received on AM RLC or UM RLC and~~ contains a protocol error causing the variable PROTOCOL_ERROR_REJECT to be set to TRUE according to clause 9, the UE shall perform procedure specific error handling as follows. The UE shall:

- transmit a TRANSPORT FORMAT COMBINATION CONTROL FAILURE message on the uplink DCCH using AM RLC setting the information elements as specified below;
  - set the IE "RRC transaction identifier" in the TRANSPORT FORMAT COMBINATION CONTROL FAILURE message to the value of "RRC transaction identifier" in the entry for the TRANSPORT FORMAT COMBINATION CONTROL message in the table "Rejected transactions" in the variable TRANSACTIONS; and
  - clear that entry;

- set the IE "failure cause" to the cause value "protocol error";
- include the IE "Protocol error information" with contents set to the value of the variable PROTOCOL_ERROR_INFORMATION;

- when the TRANSPORT FORMAT COMBINATION CONTROL FAILURE message has been submitted to lower layers for transmission:
  - continue with any ongoing processes and procedures as if the invalid TRANSPORT FORMAT COMBINATION CONTROL message has not been received;
  - and the procedure ends.

~~If the TRANSPORT FORMAT COMBINATION CONTROL message was received on TM RLC and contains a protocol error causing the variable PROTOCOL_ERROR_REJECT to be set to TRUE according to clause 9, the UE shall perform procedure specific error handling as follows. The UE shall:~~

- ~~ignore the invalid TRANSPORT FORMAT COMBINATION CONTROL message as if it has not been received;~~
- ~~the procedure ends.~~

[…]

8.5.10 Integrity protection

If the "Status" in the variable INTEGRITY_ PROTECTION_INFO has the value "Started" then the UE and UTRAN shall:

- perform integrity protection (and integrity checking) on all RRC messages, with the following exceptions:

  HANDOVER TO UTRAN COMPLETE

  PAGING TYPE 1

  PUSCH CAPACITY REQUEST

  PHYSICAL SHARED CHANNEL ALLOCATION

  RRC CONNECTION REQUEST

  RRC CONNECTION SETUP

  RRC CONNECTION SETUP COMPLETE

  RRC CONNECTION REJECT

  RRC CONNECTION RELEASE (CCCH only)

  SYSTEM INFORMATION

  SYSTEM INFORMATION CHANGE INDICATION

  ~~TRANSPORT FORMAT COMBINATION CONTROL (TM DCCH only)~~

If the "Status" in the variable INTEGRITY_ PROTECTION_INFO has the value "Not started" then integrity protection (and integrity checking) shall not be performed on any RRC message.

For each signalling radio bearer, the UE shall use two RRC hyper frame numbers:

- "Uplink RRC HFN";
- "Downlink RRC HFN".

and two message sequence numbers:

- "Uplink RRC Message sequence number";

- "Downlink RRC Message sequence number".

The above information is stored in the variable INTEGRITY_PROTECTION_INFO per signalling radio bearer (RB0-RB4).

Upon the first activation of integrity protection for an RRC connection, UE and UTRAN initialise the "Uplink RRC Message sequence number" and "Downlink RRC Message sequence number" for all signalling radio bearers as specified in subclauses 8.6.3.5 and 8.5.10.1.

As a general rule, the RRC message sequence number (RRC SN) is incremented for every integrity protected RRC message. In cases when there are exceptions, these are stated for those procedures.

[…]

8.6.5.6 Added or Reconfigured DL TrCH information

If the IE "Added or Reconfigured DL TrCH information" is included then for the transport channel identified by the IE "DL Transport Channel Identity" the UE shall:

- if the choice "DL parameters" is set to 'independent':
  - perform the actions for the IE "Transport Format Set" as specified in subclause 8.6.5.1;
- if the choice "DL parameters" is set to 'same as uplink':
  - if the IE "UL Transport Channel Identity" indicates an existing or a new UL Transport Channel:
    - store as transport format for this transport channel the transport format associated with the transport channel identified by the IE "UL Transport Channel Identity";
  - else:
    - set the variable INVALID_CONFIGURATION to TRUE;
- if the IE "DCH quality target" is included:
  - perform the actions specified in subclause 8.6.5.4;
- if the IE "Transparent mode signalling info" is included:
  - ignore the IE "Transparent mode signalling info".
  - ~~consider the messages received on this transport channel to have the message type according to the value of the IE "Type of message";~~
  - ~~if the choice "Transparent signalling mode" is set to "Mode 1":~~
    - ~~consider the messages received on this transport channel affect all established DCHs;~~
  - ~~if the choice "Transparent signalling mode" is set to "Mode 2":~~
    - ~~consider the messages received on this transport channel affect the DCHs identified with the IE "UL controlled transport channels" in the IE "Controlled transport channels list";~~
    - ~~if any of the DCHs identified with the IE "UL controlled transport channels" in the IE "Controlled transport channels list" does not exist:~~
      - ~~set the variable INVALID_CONFIGURATION to TRUE.~~

[…]

10.2.53 TRANSPORT FORMAT COMBINATION CONTROL

This message is sent by UTRAN to control the uplink transport format combination within the allowed transport format combination set.

RLC-SAP: ~~TM,~~ AM or UM

Logical channel: DCCH

Direction: UTRAN→UE

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Message Type	~~CV-*notTM*~~MP		Message Type	
UE information elements				
RRC transaction identifier	~~CV-*notTM*~~MP		RRC transaction identifier 10.3.3.36	
Integrity check info	~~CV-*notTM*~~CH		Integrity check info 10.3.3.16	
TrCH information elements				
CHOICE *mode*	MP			
>FDD				(no data)
>TDD				
>>TFCS Id	OP		Transport Format Combination Set Identity 10.3.5.21	
DPCH/PUSCH TFCS in uplink	MP		Transport Format Combination subset 10.3.5.22	
Activation time for TFC subset	~~CV-*notTMMD*~~ MD		Activation time 10.3.3.1	Default value is "now"
TFC Control duration	~~CV-*notTMopt*~~OP		TFC Control duration 10.3.6.80	

~~**Condition**~~	~~**Explanation**~~
~~*NotTM*~~	~~The message type is not needed when transmitting the message on the transparent mode signalling DCCH and mandatory present otherwise.~~
~~*NotTMopt*~~	~~The information element is not needed when transmitting the message on the transparent mode signalling DCCH and is optional otherwise.~~
~~*NotTMMD*~~	~~The information element is not needed when transmitting the message on the transparent mode signalling DCCH and is mandatory with default otherwise.~~

~~If transparent mode signalling is used and the encoded message does not fill a transport block, the RRC layer shall insert padding according to subclause 12.1.~~

[…]

10.3.5.1 Added or Reconfigured DL TrCH information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Downlink transport channel type	MP		Enumerated(DCH,DSCH)	
DL Transport channel identity	MP		Transport channel identity 10.3.5.18	
CHOICE *DL parameters*				
>Explicit				
>>TFS	MP		Transport Format Set 10.3.5.23	
>SameAsUL				
>>Uplink transport channel type	MP		Enumerated(DCH,USCH)	USCH is TDD only
>>UL TrCH identity	MP		Transport channel identity 10.3.5.18	Same TFS applies as specified for indicated UL TrCH
DCH quality target	OP		Quality target 10.3.5.10	
Transparent mode signalling info	~~CV-*MessageType*~~OP		Transparent mode signalling info 10.3.5.17	This IE is should not be included in this version of the protocol~~not used in RB RELEASE message nor RB RECONFIGURATION message~~

~~**Condition**~~	~~**Explanation**~~
~~*MessageType*~~	~~This IE is not needed in Radio Bearer Release message and Radio Bearer Reconfiguration message. Otherwise it is optional.~~

[…]

10.3.5.17 Transparent mode signalling info

This IE is not used in this version of the protocol.

~~**Information Element**~~	~~**Need**~~	~~**Multi**~~	~~**Type and reference**~~	~~**Semantics description**~~
~~Type of message~~	~~MP~~		~~Enumerated (TRANSPORT FORMAT COMBINATION CONTROL)~~	~~Indicates which type of message sent on the transparent mode signalling DCCH~~
~~CHOICE *Transparent signalling mode*~~	~~MP~~			
~~>Mode 1~~				~~(no data)~~
~~>Mode 2~~				
~~>>Controlled transport channels list~~	~~MP~~	~~1 to <maxTrCH>~~		~~The transport channels that are effected by the rate control commands sent on this transparent mode DCCH~~
~~>>>UL Controlled transport channels~~	~~MP~~		~~Transport channel identity, 10.3.5.18~~	~~transport channel type = DCH~~

[…]

11.2 PDU definitions

[…]

```
-- **************************************************
--
-- TRANSPORT FORMAT COMBINATION CONTROL
--
-- **************************************************

TransportFormatCombinationControl ::= SEQUENCE {
    -- TABULAR: Integrity protection shall not be performed on this message when transmitting this
message
    -- on the transparent mode signalling DCCH.
        rrc-TransactionIdentifier       RRC-TransactionIdentifier           OPTIONAL,
    -- The information element is not always included when transmitting the message
    -- on the transparent mode signalling DCCH
    modeSpecificInfo                    CHOICE {
        fdd                                 NULL,
        tdd                                 SEQUENCE {
            tfcs-ID                             TFCS-Identity   OPTIONAL
            }
    },
    dpch-TFCS-InUplink                  TFC-Subset,
    activationTimeForTFCSubset          ActivationTime                      OPTIONAL,
    tfc-ControlDuration                 TFC-ControlDuration                 OPTIONAL,
    -- The information element is not included when transmitting the message
    -- on the transparent mode signalling DCCH and is optional otherwise
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}     OPTIONAL
}
[…]
```

11.3 Information element definitions

[…]

```
-- ASN.1 for IE "Added or Reconfigured DL TrCH information"
-- in case of messages other than: Radio Bearer Release message and
-- Radio Bearer Reconfiguration message
DL-AddReconfTransChInformation ::=  SEQUENCE {
    dl-TransportChannelType             DL-TrCH-Type,
    dl-transportChannelIdentity         TransportChannelIdentity,
    tfs-SignallingMode                  CHOICE {
        explicit-config                     TransportFormatSet,
        sameAsULTrCH                        UL-TransportChannelIdentity
    },
    dch-QualityTarget                   QualityTarget                       OPTIONAL,
    -- This IE is not used in this version of the specification and should be ignored.
    tm-SignallingInfodummy              TM-SignallingInfo                   OPTIONAL
}

[…]

TFCS-RemovalList ::=                SEQUENCE (SIZE (1..maxTFC)) OF
                                        TFCS-Removal

TimeDurationBeforeRetry ::=         INTEGER (1..256)

TM-SignallingInfo   ::=             SEQUENCE {
    messType                            MessType,
    tm-SignallingMode                   CHOICE {
        mode1                               NULL,
        mode2                               SEQUENCE {
            --TrCH-Type is always DCH
            ul-controlledTrChList               UL-ControlledTrChList
        }
    }
}

TransmissionTimeInterval ::=        ENUMERATED {
                                        tti10, tti20, tti40, tti80 }
[…]
```

13.5.2 RRC procedure performance values

NOTE: Times indicated in the table do not include cell reselection.

Procedure title:	UTRAN -> UE	UE -> UTRAN	N1	N2	Notes
RRC Connection Management Procedures					
Broadcast of system information	SYSTEM INFORMATION				N2 is not applicable for any system information messages, because there is no response message from the UE.
Master Information Block	SYSTEM INFORMATION		5	NA	No system information data shall be lost due to processing of a MIB received with no detectable errors. This means that the UE shall buffer all system information data received after the MIB until the data can be processed according to the information in the MIB, unless the MIB was received erroneously.
System Information Block type 1	SYSTEM INFORMATION		10	NA	
System Information Block type 2	SYSTEM INFORMATION		10	NA	
System Information Block type 3	SYSTEM INFORMATION		10	NA	
System Information Block type 4	SYSTEM INFORMATION		10	NA	
System Information Block type 5	SYSTEM INFORMATION		10	NA	
System Information Block type 6	SYSTEM INFORMATION		10	NA	
System Information Block type 7	SYSTEM INFORMATION		5	NA	
System Information Block type 8	SYSTEM INFORMATION		10	NA	
System Information Block type 9	SYSTEM INFORMATION		5	NA	
System Information Block type 10	SYSTEM INFORMATION		5	NA	
System Information Block type 11	SYSTEM INFORMATION		10	NA	
System Information Block type 12	SYSTEM INFORMATION		10	NA	
System Information Block type 13	SYSTEM INFORMATION		10	NA	
System Information Block type 14	SYSTEM INFORMATION		10	NA	
System Information Block type 15	SYSTEM INFORMATION		10	NA	
System Information Block type 16	SYSTEM INFORMATION		10	NA	
System Information Block type 18	SYSTEM INFORMATION		10	NA	
RRC connection establishment *Target state CELL_DCH*	RRC CONNECTION SETUP	RRC CONNECTION SETUP COMPLETE	10	NA	N1 measures time to the start of tx / rx on DPCH. N2 cannot be specified, because RRC CONNECTION SETUP COMPLETE message is transmitted only after physical layer synchronisation, which also depends on the Node B. The performance of the physical layer synchronisation procedure is specified in [19] and [20]

RRC connection establishment *Target state CELL_FACH*	RRC CONNECTION SETUP	RRC CONNECTION SETUP COMPLETE	10	11	N1 and N2 applicable as defined (N2 can be tested from the initiation of the power ramp on RACH).
RRC connection release *From CELL_DCH state*	RRC CONNECTION RELEASE	RRC CONNECTION RELEASE COMPLETE	5	8	N1 sets the requirement for the time from the completion of the last repetition of the RRC CONNECTION RELEASE COMPLETE message to the release of the physical channel. N2 sets the requirement from the end of successful reception of the RRC CONNECTION RELEASE message to the start of the first transmission of the RRC CONNECTION RELEASE COMPLETE message.
RRC connection release *From CELL_FACH state*	RRC CONNECTION RELEASE	RRC CONNECTION RELEASE COMPLETE	NA	11	N1 represents UE internal configuration that cannot be externally observed.
Paging	PAGING TYPE 1	CELL UPDATE	10	11+ T	T is the repetition period of SIB7 (applicable for FDD) and SIB14 (applicable for TDD)
UE capability enquiry	UE CAPABILITY ENQUIRY	UE CAPABILITY INFORMATION	NA	8	N1 is not applicable because the UE configuration does not change.
Security mode control	SECURITY MODE COMMAND	SECURITY MODE COMPLETE	5	8	
Signalling connection release procedure	SIGNALLING CONNECTION RELEASE		5	NA	N2 is not applicable because there is no response message.
Counter check	COUNTER CHECK	COUNTER CHECK RESPONSE	NA	8	N1 is not applicable because the UE configuration does not change.
Radio Bearer control procedures					
Radio bearer establishment *Target state CELL_DCH*	RADIO BEARER SETUP	RADIO BEARER SETUP COMPLETE / FAILURE	10	NA	N2 cannot be specified, because the RADIO BEARER SETUP COMPLETE / FAILURE message is transmitted only after physical layer synchronisation, which depends also on Node B.
Radio bearer establishment *From state CELL_FACH to state CELL_FACH*	RADIO BEARER SETUP	RADIO BEARER SETUP COMPLETE / FAILURE	10	11	
Radio bearer establishment *From CELL_DCH to CELL_FACH*	RADIO BEARER SETUP	RADIO BEARER SETUP COMPLETE	NA	NA	N1 and N2 cannot be specified, because UE need to read SIBs on BCH before sending RADIO BEARER SETUP COMPLETE
Radio bearer reconfiguration *Target state CELL_DCH*	RADIO BEARER RECONFIGURATION	RADIO BEARER RECONFIGURATION COMPLETE / FAILURE	10	NA	N2 cannot be specified, because the RADIO BEARER RECONFIGURATION COMPLETE / FAILURE message is transmitted only after physical layer synchronisation, which depends also on Node B.

Radio bearer reconfiguration *From state CELL_FACH to state CELL_FACH*	RADIO BEARER RECONFIGURATION	RADIO BEARER RECONFIGURATION COMPLETE / FAILURE	10	11	
Radio bearer reconfiguration *From state CELL_DCH to state CELL_FACH*	RADIO BEARER RECONFIGURATION	RADIO BEARER RECONFIGURATION COMPLETE	NA	NA	N1 and N2 cannot be specified, because UE need to read SIBs on BCH before sending RADIO BEARER RECONFIGURATION COMPLETE
Radio bearer release *Target state CELL_DCH*	RADIO BEARER RELEASE	RADIO BEARER RELEASE COMPLETE / FAILURE	10	11	
Radio bearer release *From state CELL_FACH to state CELL_FACH*	RADIO BEARER RELEASE	RADIO BEARER RELEASE COMPLETE / FAILURE	10	11	
Radio bearer release *From state CELL_DCH to state CELL_FACH*	RADIO BEARER RELEASE	RADIO BEARER RELEASE COMPLETE	NA	NA	N1 and N2 cannot be specified, because UE need to read SIBs on BCH before sending RADIO BEARER RECONFIGURATION COMPLETE
Transport channel reconfiguration *Target state CELL_DCH*	TRANSPORT CHANNEL RECONFIGURATION	TRANSPORT CHANNEL RECONFIGURATION COMPLETE / FAILURE	10	NA	N2 cannot be specified, because the TRANSPORT CHANNEL RECONFIGURATION COMPLETE / FAILURE message is transmitted only after physical layer synchronisation, which depends also on Node B.
Transport channel reconfiguration *From state CELL_FACH to state CELL_FACH*	TRANSPORT CHANNEL RECONFIGURATION	TRANSPORT CHANNEL RECONFIGURATION COMPLETE / FAILURE	10	11	
Transport channel reconfiguration *From state CELL_DCH to state CELL_FACH*	TRANSPORT CHANNEL RECONFIGURATION	TRANSPORT CHANNEL RECONFIGURATION COMPLETE	NA	NA	N1 and N2 cannot be specified, because UE need to read SIBs on BCH before sending TRANSPORT CHANNEL RECONFIGURATION COMPLETE
Transport format combination control ~~*AM or UM RLC mode*~~	TRANSPORT FORMAT COMBINATION CONTROL	TRANSPORT FORMAT COMBINATION CONTROL FAILURE	5	8	
~~Transport format combination control *Transparent mode*~~	~~TRANSPORT FORMAT COMBINATION CONTROL~~		~~5~~	~~NA~~	~~N2 is not applicable because no response message is defined.~~
Physical channel reconfiguration *Target state CELL_DCH*	PHYSICAL CHANNEL RECONFIGURATION	PHYSICAL CHANNEL RECONFIGURATION COMPLETE / FAILURE	8	NA	N2 cannot be specified, because the PHYSICAL CHANNEL RECONFIGURATION COMPLETE / FAILURE message is transmitted only after physical layer synchronisation, which depends also on Node B.

Physical channel reconfiguration *From state CELL_FACH to state CELL_FACH*	PHYSICAL CHANNEL RECONFIGURATION	PHYSICAL CHANNEL RECONFIGURATION COMPLETE / FAILURE	8	9	
Physical channel reconfiguration *From state CELL_DCH to state CELL_FACH*	PHYSICAL CHANNEL RECONFIGURATION	PHYSICAL CHANNEL RECONFIGURATION COMPLETE	NA	NA	N1 and N2 cannot be specified, because UE need to read SIBs on BCH before sending PHYSICAL CHANNEL RECONFIGURATION COMPLETE
Physical Shared Channel Allocation [TDD only]	PHYSICAL SHARED CHANNEL ALLOCATION		5	NA	N2 is not applicable because no response message is defined.
Uplink Physical Channel Control [TDD only]	UPLINK PHYSICAL CHANNEL CONTROL		NA	NA	Requirements for outer loop and timing advance adjustments are defined in [22] and [20].
RRC connection mobility procedures					
Cell update	CELL UPDATE CONFIRM	UTRAN MOBILITY INFORMATION CONFIRM	5	8	
		PHYSICAL CHANNEL RECONFIGURATION COMPLETE *Target state CELL_FACH*	8	9	
		PHYSICAL CHANNEL RECONFIGURATION COMPLETE *Target state CELL_DCH*	8	NA	N2 cannot be specified, because the PHYSICAL CHANNEL RECONFIGURATION COMPLETE / FAILURE message is transmitted only after physical layer synchronisation, which depends also on Node B.
		TRANSPORT CHANNEL RECONFIGURATION COMPLETE *Target state CELL_FACH*	10	11	
		TRANSPORT CHANNEL RECONFIGURATION COMPLETE *Target state CELL_DCH*	10	NA	N2 cannot be specified, because the PHYSICAL CHANNEL RECONFIGURATION COMPLETE / FAILURE message is transmitted only after physical layer synchronisation, which depends also on Node B.
		RADIO BEARER RECONFIGURATION COMPLETE *Target state CELL_FACH*	10	11	

		RADIO BEARER RECONFIGURATION COMPLETE *Target state CELL_DCH*	10	NA	N2 cannot be specified, because the PHYSICAL CHANNEL RECONFIGURATION COMPLETE / FAILURE message is transmitted only after physical layer synchronisation, which depends also on Node B.
		RADIO BEARER RELEASE COMPLETE *Target state CELL_DCH*	10	11	
URA update	URA UPDATE CONFIRM	UTRAN MOBILITY INFORMATION CONFIRM	5	8	
UTRAN mobility information	UTRAN MOBILITY INFORMATION	UTRAN MOBILITY INFORMATION CONFIRM / FAILURE	5	8	
Active set update	ACTIVE SET UPDATE	ACTIVE SET UPDATE COMPLETE / FAILURE	NA	8	The requirements on UE combining and power control performance for both UL and DL are specified by RAN WG4 in [21] and [19]. Also in case of branch addition the COMPLETE / FAILURE message is transmitted without waiting for the new branch to stabilise, therefore N2 is specified.
Inter-RAT handover to UTRAN	HANDOVER TO UTRAN COMMAND (other system)	HANDOVER TO UTRAN COMPLETE	NA	NA	The performance of this procedure is specified in 05.10.
Inter-RAT handover from UTRAN	HANDOVER FROM UTRAN COMMAND	HANDOVER FROM UTRAN FAILURE	NA	NA	The performance of this procedure is specified in [19] and [20].
Measurement procedures					
Measurement control	MEASUREMENT CONTROL	MEASUREMENT CONTROL FAILURE	5	8	Response to measurement inquiry depends on physical layer measurement. Response time is defined in [19] and [20]. N1 and N2 only define the processing of the message.

[…]

3GPP TSG-RAN WG2 Meeting #25 ***R2-012687***
Makuhari, Japan, 26- 30 November, 2001

CR-Form-v4

CHANGE REQUEST

⌘ **25.331 CR 1131** ⌘ ev **r1** ⌘ Current version: **3.8.0** ⌘

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

Proposed change affects: ⌘ (U)SIM ☐ ME/UE **X** Radio Access Network **X** Core Network ☐

Title:	⌘	Different diversity modes used in the same active set
Source:	⌘	TSG-RAN WG2
Work item code:	⌘	TEI
Date:	⌘	November 26, 2001
Category:	⌘	**F**
Release:	⌘	R99

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 *(GSM Phase 2)*
R96 *(Release 1996)*
R97 *(Release 1997)*
R98 *(Release 1998)*
R99 *(Release 1999)*
REL-4 *(Release 4)*
REL-5 *(Release 5)*

Reason for change: ⌘

1. The IE "TX Diversity Mode", which is used to specify which diversity mode (none, STTD, closed loop mode1, closed loop mode2) is used, is included in the IE "Downlink information common for all radio links" when used in the RADIO BEARER SETUP message, etc., and in the highest level of the ACTIVE SET UPDATE message and applies to al RLs included in those messages. Therefore it is not possible to setup an active set with multiple TX Diversity Modes, but it would in theory be possible to add RLs that are using different TX Diversity Modes with subsequent ACTIVE SET UPDATE messages.
If the real intention was to allow different TX Diversity Modes in the same active set we would have included that provision in the RADIO BEARER SETUP and all the other message used to set up a new active set (the first one or after a hard handover).

2. An alignment with RAN WG1 specification is needed. The latests TS 25.211 (3.8.0) states in section 5.3.1 *Downlink transmit diversity*:
"With respect to the usage of Tx diversity on different radio links within an active set, the following rules apply:
- Different Tx diversity modes (STTD and closed loop) shall not be used on the radio links within one active set.
- No Tx diversity on one or more radio links shall not prevent UTRAN to use Tx diversity on other radio links within the same active set. However, the UE shall operate this Tx diversity mode on all radio links."
It is not clear in the current version of RRC how hybrid active sets (mix of regular and diversity RLs) can be assigned and modified.

Summary of change: ⌘

1. The UE shall reject an ACTIVE SET UPDATE message if the TX Diversity Mode indicated in that message is different from the diversity mode used in the current active set.
Note that it should still be possible to have a mix of Tx diversity members and non Tx diversity members in the active set.

2. The IE "TX Diversity Mode" (top level of the message) shall indicate which

		mode is used by the diversity radio links of the active set (if any). The IE "Closed loop timing adjustment mode" shall indicate which radio link is in TX diversity AND, for closed loop mode 1 and 2 only, whether to use one slot or two. If TX diversity is STTD the value shall be ignored. **Isolated Impact Change Analysis.** This change affects the Tx Diversity Mode. It would not affect implementations behaving like indicated in the CR, it would affect implementations supporting the corrected functionality otherwise.
Consequences if not approved:	⌘	UE will be forced to implement a combination of features that is not fully specified resulting in useless complexity.

Clauses affected:	⌘	8.3.4.5, 8.6.6.24		
Other specs affected:	⌘	☐ Other core specifications ☐ Test specifications ☐ O&M Specifications	⌘	25.331 v4.2.1, CR 1132
Other comments:	⌘	The removal of this combination of features was agreed at RAN2 #24 during the discussion of R2-012344		

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.

[…]

8.3.4 Active set update

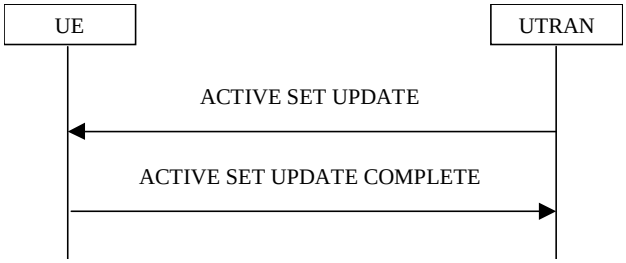

Figure 50: Active Set Update procedure, successful case

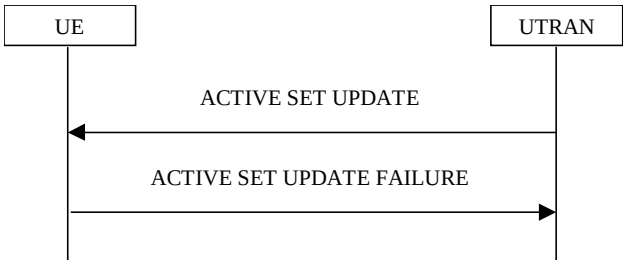

Figure 51: Active Set Update procedure, failure case

8.3.4.1 General

The purpose of the active set update procedure is to update the active set of the connection between the UE and UTRAN. This procedure shall be used in CELL_DCH state. The UE should keep on using the old RLs while configuring the new RLs. Also the UE should keep the transmitter turned on during the procedure. This procedure is only used in FDD mode.

8.3.4.2 Initiation

The procedure is initiated when UTRAN orders a UE in CELL_DCH state, to make the following modifications of the active set of the connection:

a) Radio link addition;

b) Radio link removal;

c) Combined radio link addition and removal.

In case a) and c), UTRAN should:

- prepare new additional radio link(s) in the UTRAN prior to the command to the UE.

In all cases, UTRAN should:

- send an ACTIVE SET UPDATE message on downlink DCCH using AM or UM RLC.

UTRAN should include the following information:

- IE "Radio Link Addition Information": Downlink DPCH information and other optional parameters relevant for the radio links to be added along with the IE "Primary CPICH info" used for the reference ID to indicate which radio link to add. This IE is needed in cases a) and c) listed above;

- IE "Radio Link Removal Information": IE "Primary CPICH info" used for the reference ID to indicate which radio link to remove. This IE is needed in cases b) and c) listed above.

8.3.4.3 Reception of an ACTIVE SET UPDATE message by the UE

Upon reception of an ACTIVE SET UPDATE message the UE shall act upon all received information elements as specified in 8.6, unless specified otherwise in the following. The UE shall:

- first add the RLs indicated in the IE "Radio Link Addition Information";
- remove the RLs indicated in the IE "Radio Link Removal Information". If the UE active set is full or becomes full, an RL, which is included in the IE "Radio Link Removal Information" for removal, shall be removed before adding RL, which is included in the IE "Radio Link Addition Information" for addition;
- perform the physical layer synchronisation procedure as specified in [29];
- if the ACTIVE SET UPDATE message contained the IE "Ciphering mode info":
  - include and set the IE "Radio bearer uplink ciphering activation time info" to the value of the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO;
- if the ACTIVE SET UPDATE message contained the IE "Integrity protection mode info" with the IE "Integrity protection mode command" set to "Modify":
  - include and set the IE "Integrity protection activation info" to the value of the variable INTEGRITY_PROTECTION_ACTIVATION_INFO;
- if the variable PDCP_SN_INFO is non-empty:
  - include the IE "RB with PDCP information list" in the ACTIVE SET UPDATE COMPLETE message; and
  - set it to the value of the variable PDCP_SN_INFO;
- if the IE "TFCI combining indicator" associated with a radio link to be added is set to TRUE:
  - if a DSCH transport channel is assigned and there is a 'hard' split in the TFCI field:
    - configure Layer 1 to soft-combine TFCI (field 2) of this new link with those links already in the TFCI (field 2) combining set;
- if the received ACTIVE SET UPDATE message included the IE "Downlink counter synchronisation info":
  - calculate the START value according to subclause 8.5.9;
  - include the calculated START values for each CN domain in the IE "START list" in the IE "Uplink counter synchronisation info" in the ACTIVE SET UPDATE COMPLETE message;
- set the IE "RRC transaction identifier" in the ACTIVE SET UPDATE COMPLETE message to the value of "RRC transaction identifier" in the entry for the ACTIVE SET UPDATE message in the table "Accepted transactions" in the variable TRANSACTIONS; and
- clear that entry;
- transmit an ACTIVE SET UPDATE COMPLETE message on the uplink DCCH using AM RLC without waiting for the Physical Layer synchronization;
- if the IE "Integrity protection mode info" was present in the ACTIVE SET UPDATE message:
  - start applying the new integrity protection configuration in the uplink for signalling radio bearer RB2 from and including the transmitted ACTIVE SET UPDATE COMPLETE message;
- if the variable PDCP_SN_INFO is empty:
  - if the ACTIVE SET UPDATE message contained the IE "Ciphering mode info":
    - when RLC has confirmed the successful transmission of the ACTIVE SET UPDATE COMPLETE message:
      - perform the actions below;

- if the ACTIVE SET UPDATE message did not contain the IE "Ciphering mode info":
  - when RLC has been requested to transmit the ACTIVE SET UPDATE COMPLETE message:
    - perform the actions below;
- if the variable PDCP_SN_INFO is non-empty:
  - when RLC has confirmed the successful transmission of the ACTIVE SET UPDATE COMPLETE message:
    - for each radio bearer in the variable PDCP_SN_INFO:
      - if the IE "RB started" in the variable ESTABLISHED_RABS is set to "started":
        - configure the RLC entity for that radio bearer to "continue";
    - clear the variable PDCP_SN_INFO;
- if the ACTIVE SET UPDATE message contained the IE "Ciphering mode info":
  - set the IE "Reconfiguration" in the variable CIPHERING_STATUS to FALSE; and
  - clear the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO;
- if the ACTIVE SET UPDATE message contained the IE "Integrity protection mode info":
  - set the IE "Reconfiguration" in the variable INTEGRITY_PROTECTION_INFO to FALSE; and
  - clear the variable INTEGRITY_PROTECTION_ACTIVATION_INFO;
- the procedure ends on the UE side.

8.3.4.4 Unsupported configuration in the UE

If UTRAN instructs the UE to use a configuration that it does not support, the UE shall:

- keep the active set as it was before the ACTIVE SET UPDATE message was received;
- transmit an ACTIVE SET UPDATE FAILURE message on the DCCH using AM RLC;
- set the IE "RRC transaction identifier" in the ACTIVE SET UPDATE FAILURE message to the value of "RRC transaction identifier" in the entry for the ACTIVE SET UPDATE message in the table "Accepted transactions" in the variable TRANSACTIONS; and
- clear that entry;
- set the IE "failure cause" to "configuration unsupported";
- when the ACTIVE SET UPDATE FAILURE message has been submitted to lower layers for transmission:
  - the procedure ends on the UE side.

8.3.4.5 Invalid configuration

If any of the following conditions are valid:

- a radio link indicated by the IE "Downlink DPCH info for each RL" in the IE "Radio link addition information" has a different spreading factor than the spreading factor for the radio links in the active set that will be established at the time indicated by the IE "Activation time"; and/or
- a radio link in the IE "Radio link addition information" is also present in the IE "Radio Link Removal Information"; and/or
- the IE "Radio Link Removal Information" contains all the radio links which are part of or will be part of the active set at the time indicated by the IE "Activation time"; and/or

- the IE "TX Diversity Mode" is not set to "none" and it indicates a diversity mode that is different from the one currently used in all or part of the active set; and/or

- the variable INVALID_CONFIGURATION is set to TRUE:

the UE shall:

- keep the active set as it was before the ACTIVE SET UPDATE message was received;
- transmit an ACTIVE SET UPDATE FAILURE message on the DCCH using AM RLC;
- set the IE "RRC transaction identifier" in the ACTIVE SET UPDATE FAILURE message to the value of "RRC transaction identifier" in the entry for the ACTIVE SET UPDATE message in the table "Accepted transactions" in the variable TRANSACTIONS; and
- clear that entry;
- set the IE "failure cause" to "Invalid configuration";
- When the ACTIVE SET UPDATE FAILURE message has been submitted to lower layers for transmission:
  - the procedure ends on the UE side.

8.3.4.5a Incompatible simultaneous reconfiguration

If the variable INCOMPATIBLE_SECURITY_RECONFIGURATION becomes set to TRUE due to the received ACTIVE SET UPDATE message, the UE shall:

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

If the variable ORDERED_RECONFIGURATION is set to TRUE; and

- if the activation time for the procedure that has set variable ORDERED_RECONFIGURATION and the activation time for the Active Set Update procedure are within a time window of 5 frames, the UE may:
  - transmit a ACTIVE SET UPDATE FAILURE message on the uplink DCCH using AM RLC;
  - set the IE "RRC transaction identifier" in the ACTIVE SET UPDATE FAILURE message to the value of "RRC transaction identifier" in the entry for the ACTIVE SET UPDATE message in the table "Accepted transactions" in the variable TRANSACTIONS; and
  - clear that entry;
  - set the IE "failure cause" to the cause value "incompatible simultaneous reconfiguration";
  - when the ACTIVE SET UPDATE FAILURE message has been delivered to lower layers for transmission:
    - continue with any ongoing processes and procedures as if the ACTIVE SET UPDATE message has not been received;

- and the procedure ends.

8.3.4.6 Reception of the ACTIVE SET UPDATE COMPLETE message by the UTRAN

When the UTRAN has received the ACTIVE SET UPDATE COMPLETE message,

- the UTRAN may remove radio link(s) that are indicated to remove to the UE in case b) and c); and
- the procedure ends on the UTRAN side.

8.3.4.7 Reception of the ACTIVE SET UPDATE FAILURE message by the UTRAN

When the UTRAN has received the ACTIVE SET UPDATE FAILURE message, the UTRAN may delete radio links that were included in the IE "Radio Link Addition Information" for addition. The procedure ends on the UTRAN side.

8.3.4.8 Invalid ACTIVE SET UPDATE message

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

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

8.3.4.9 Reception of an ACTIVE SET UPDATE message in wrong state

If the UE is in another state than CELL_DCH state upon reception of the ACTIVE SET UPDATE message, the UE shall perform procedure specific error handling as follows. The UE shall:

- transmit a ACTIVE SET UPDATE FAILURE message on the uplink DCCH using AM RLC;
- set the IE "RRC transaction identifier" in the ACTIVE SET UPDATE FAILURE message to the value of "RRC transaction identifier" in the entry for the ACTIVE SET UPDATE message in the table "Accepted transactions" in the variable TRANSACTIONS; and
- clear that entry;
- set the IE "failure cause" to the cause value "protocol error";
- include the IE "Protocol error information" with the IE "Protocol error cause" set to "Message not compatible with receiver state";
- when the ACTIVE SET UPDATE FAILURE message has been delivered to lower layers for transmission:
  - continue with any ongoing processes and procedures as if the ACTIVE SET UPDATE message has not been received;

- and the procedure ends.

[…]

8.6.6.24 Tx Diversity Mode

If the IE "Tx Diversity Mode" is included the UE shall:

- configure the Layer 1 to use the Tx diversity mode indicated in the IE only for the radio links for which the IE "Closed loop timing adjustment mode" is included;
- if the value of the IE "Tx Diversity Mode" is STTD,
  - ignore the value of the IE "Closed loop timing adjustment mode", for all the radio links for which the IE "Closed loop timing adjustment mode" is included;
- if the value of the IE "Tx Diversity Mode" is closed loop mode1 or closed loop mode2,
  - apply the value of the IE "Closed loop timing adjustment mode", for all the radio links for which the IE "Closed loop timing adjustment mode" is included.

[…]

3GPP TSG-RAN WG2 Meeting #25 **R2-012688**
Makuhari, Japan, 26- 30 November, 2001

CR-Form-v4

CHANGE REQUEST

⌘ **25.331 CR 1132** ⌘ ev **-** ⌘ Current version: **4.2.1** ⌘

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

Proposed change affects: ⌘ (U)SIM ☐ ME/UE **X** Radio Access Network **X** Core Network ☐

Title:	⌘	Different diversity modes used in the same active set
Source:	⌘	TSG-RAN WG2
Work item code:	⌘	TEI
Date:	⌘	November 26, 2001
Category:	⌘	**A**
Release:	⌘	REL-4

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 *(GSM Phase 2)*
R96 *(Release 1996)*
R97 *(Release 1997)*
R98 *(Release 1998)*
R99 *(Release 1999)*
REL-4 *(Release 4)*
REL-5 *(Release 5)*

Reason for change: ⌘

1. The IE "TX Diversity Mode", which is used to specify which diversity mode (none, STTD, closed loop mode1, closed loop mode2) is used, is included in the IE "Downlink information common for all radio links" when used in the RADIO BEARER SETUP message, etc., and in the highest level of the ACTIVE SET UPDATE message and applies to al RLs included in those messages. Therefore it is not possible to setup an active set with multiple TX Diversity Modes, but it would in theory be possible to add RLs that are using different TX Diversity Modes with subsequent ACTIVE SET UPDATE messages.
If the real intention was to allow different TX Diversity Modes in the same active set we would have included that provision in the RADIO BEARER SETUP and all the other message used to set up a new active set (the first one or after a hard handover).

2. An alignment with RAN WG1 specification is needed. The latests TS 25.211 (3.8.0) states in section 5.3.1 *Downlink transmit diversity*:
"With respect to the usage of Tx diversity on different radio links within an active set, the following rules apply:
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- No Tx diversity on one or more radio links shall not prevent UTRAN to use Tx diversity on other radio links within the same active set. However, the UE shall operate this Tx diversity mode on all radio links."
It is not clear in the current version of RRC how hybrid active sets (mix of regular and diversity RLs) can be assigned and modified.

Summary of change: ⌘

1. The UE shall reject an ACTIVE SET UPDATE message if the TX Diversity Mode indicated in that message is different from the diversity mode used in the current active set.
Note that it should still be possible to have a mix of Tx diversity members and non Tx diversity members in the active set.

2. The IE "TX Diversity Mode" (top level of the message) shall indicate which

		mode is used by the diversity radio links of the active set (if any). The IE "Closed loop timing adjustment mode" shall indicate which radio link is in TX diversity AND, for closed loop mode 1 and 2 only, whether to use one slot or two. If TX diversity is STTD the value shall be ignored. **Isolated Impact Change Analysis.** This change affects the Tx Diversity Mode. It would not affect implementations behaving like indicated in the CR, it would affect implementations supporting the corrected functionality otherwise.
Consequences if not approved:	⌘	UE will be forced to implement a combination of features that is not fully specified resulting in useless complexity.

Clauses affected:	⌘	8.3.4.5, 8.6.6.24		
Other specs affected:	⌘	☐ Other core specifications ☐ Test specifications ☐ O&M Specifications	⌘	25.331 v3.8.0, CR 1131r1
Other comments:	⌘	The removal of this combination of features was agreed at RAN2 #24 during the discussion of R2-012344		

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[…]

8.3.4 Active set update

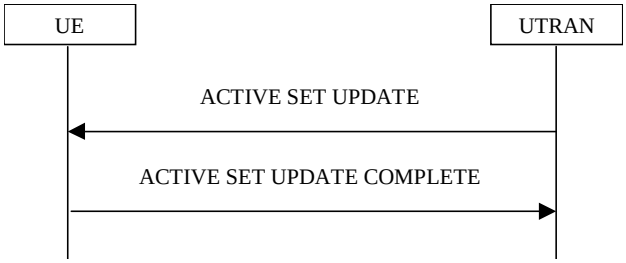

Figure 50: Active Set Update procedure, successful case

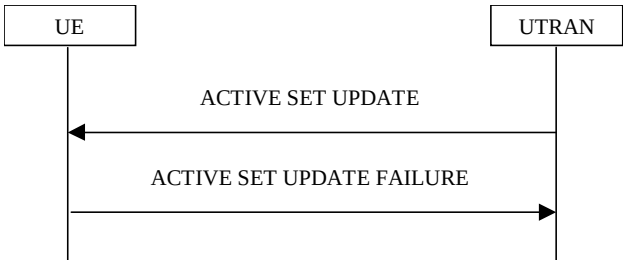

Figure 51: Active Set Update procedure, failure case

8.3.4.1 General

The purpose of the active set update procedure is to update the active set of the connection between the UE and UTRAN. This procedure shall be used in CELL_DCH state. The UE should keep on using the old RLs while configuring the new RLs. Also the UE should keep the transmitter turned on during the procedure. This procedure is only used in FDD mode.

8.3.4.2 Initiation

The procedure is initiated when UTRAN orders a UE in CELL_DCH state, to make the following modifications of the active set of the connection:

a) Radio link addition;

b) Radio link removal;

c) Combined radio link addition and removal.

In case a) and c), UTRAN should:

- prepare new additional radio link(s) in the UTRAN prior to the command to the UE.

In all cases, UTRAN should:

- send an ACTIVE SET UPDATE message on downlink DCCH using AM or UM RLC.

UTRAN should include the following information:

- IE "Radio Link Addition Information": Downlink DPCH information and other optional parameters relevant for the radio links to be added along with the IE "Primary CPICH info" used for the reference ID to indicate which radio link to add. This IE is needed in cases a) and c) listed above;

- IE "Radio Link Removal Information": IE "Primary CPICH info" used for the reference ID to indicate which radio link to remove. This IE is needed in cases b) and c) listed above.

8.3.4.3 Reception of an ACTIVE SET UPDATE message by the UE

Upon reception of an ACTIVE SET UPDATE message the UE shall act upon all received information elements as specified in 8.6, unless specified otherwise in the following. The UE shall:

- first add the RLs indicated in the IE "Radio Link Addition Information";
- remove the RLs indicated in the IE "Radio Link Removal Information". If the UE active set is full or becomes full, an RL, which is included in the IE "Radio Link Removal Information" for removal, shall be removed before adding RL, which is included in the IE "Radio Link Addition Information" for addition;
- perform the physical layer synchronisation procedure as specified in [29];
- if the ACTIVE SET UPDATE message contained the IE "Ciphering mode info":
  - include and set the IE "Radio bearer uplink ciphering activation time info" to the value of the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO;
- if the ACTIVE SET UPDATE message contained the IE "Integrity protection mode info" with the IE "Integrity protection mode command" set to "Modify":
  - include and set the IE "Integrity protection activation info" to the value of the variable INTEGRITY_PROTECTION_ACTIVATION_INFO;
- if the variable PDCP_SN_INFO is non-empty:
  - include the IE "RB with PDCP information list" in the ACTIVE SET UPDATE COMPLETE message; and
  - set it to the value of the variable PDCP_SN_INFO;
- if the IE "TFCI combining indicator" associated with a radio link to be added is set to TRUE:
  - if a DSCH transport channel is assigned and there is a 'hard' split in the TFCI field:
    - configure Layer 1 to soft-combine TFCI (field 2) of this new link with those links already in the TFCI (field 2) combining set;
- if the received ACTIVE SET UPDATE message included the IE "Downlink counter synchronisation info":
  - calculate the START value according to subclause 8.5.9;
  - include the calculated START values for each CN domain in the IE "START list" in the IE "Uplink counter synchronisation info" in the ACTIVE SET UPDATE COMPLETE message;
- set the IE "RRC transaction identifier" in the ACTIVE SET UPDATE COMPLETE message to the value of "RRC transaction identifier" in the entry for the ACTIVE SET UPDATE message in the table "Accepted transactions" in the variable TRANSACTIONS; and
- clear that entry;
- transmit an ACTIVE SET UPDATE COMPLETE message on the uplink DCCH using AM RLC without waiting for the Physical Layer synchronization;
- if the IE "Integrity protection mode info" was present in the ACTIVE SET UPDATE message:
  - start applying the new integrity protection configuration in the uplink for signalling radio bearer RB2 from and including the transmitted ACTIVE SET UPDATE COMPLETE message;
- if the variable PDCP_SN_INFO is empty:
  - if the ACTIVE SET UPDATE message contained the IE "Ciphering mode info":
    - when RLC has confirmed the successful transmission of the ACTIVE SET UPDATE COMPLETE message:
      - perform the actions below;

- if the ACTIVE SET UPDATE message did not contain the IE "Ciphering mode info":
  - when RLC has been requested to transmit the ACTIVE SET UPDATE COMPLETE message:
    - perform the actions below;
- if the variable PDCP_SN_INFO is non-empty:
  - when RLC has confirmed the successful transmission of the ACTIVE SET UPDATE COMPLETE message:
    - for each radio bearer in the variable PDCP_SN_INFO:
      - if the IE "RB started" in the variable ESTABLISHED_RABS is set to "started":
        - configure the RLC entity for that radio bearer to "continue";
    - clear the variable PDCP_SN_INFO;
- if the ACTIVE SET UPDATE message contained the IE "Ciphering mode info":
  - set the IE "Reconfiguration" in the variable CIPHERING_STATUS to FALSE; and
  - clear the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO;
- if the ACTIVE SET UPDATE message contained the IE "Integrity protection mode info":
  - set the IE "Reconfiguration" in the variable INTEGRITY_PROTECTION_INFO to FALSE; and
  - clear the variable INTEGRITY_PROTECTION_ACTIVATION_INFO;
- the procedure ends on the UE side.

8.3.4.4 Unsupported configuration in the UE

If UTRAN instructs the UE to use a configuration that it does not support, the UE shall:

- keep the active set as it was before the ACTIVE SET UPDATE message was received;
- transmit an ACTIVE SET UPDATE FAILURE message on the DCCH using AM RLC;
- set the IE "RRC transaction identifier" in the ACTIVE SET UPDATE FAILURE message to the value of "RRC transaction identifier" in the entry for the ACTIVE SET UPDATE message in the table "Accepted transactions" in the variable TRANSACTIONS; and
- clear that entry;
- set the IE "failure cause" to "configuration unsupported";
- when the ACTIVE SET UPDATE FAILURE message has been submitted to lower layers for transmission:
  - the procedure ends on the UE side.

8.3.4.5 Invalid configuration

If any of the following conditions are valid:

- a radio link indicated by the IE "Downlink DPCH info for each RL" in the IE "Radio link addition information" has a different spreading factor than the spreading factor for the radio links in the active set that will be established at the time indicated by the IE "Activation time"; and/or
- a radio link in the IE "Radio link addition information" is also present in the IE "Radio Link Removal Information"; and/or
- the IE "Radio Link Removal Information" contains all the radio links which are part of or will be part of the active set at the time indicated by the IE "Activation time"; and/or

- the IE "TX Diversity Mode" is not set to "none" and it indicates a diversity mode that is different from the one currently used in all or part of the active set; and/or

- the variable INVALID_CONFIGURATION is set to TRUE:

the UE shall:

- keep the active set as it was before the ACTIVE SET UPDATE message was received;
- transmit an ACTIVE SET UPDATE FAILURE message on the DCCH using AM RLC;
- set the IE "RRC transaction identifier" in the ACTIVE SET UPDATE FAILURE message to the value of "RRC transaction identifier" in the entry for the ACTIVE SET UPDATE message in the table "Accepted transactions" in the variable TRANSACTIONS; and
- clear that entry;
- set the IE "failure cause" to "Invalid configuration";
- When the ACTIVE SET UPDATE FAILURE message has been submitted to lower layers for transmission:
  - the procedure ends on the UE side.

8.3.4.5a Incompatible simultaneous reconfiguration

If the variable INCOMPATIBLE_SECURITY_RECONFIGURATION becomes set to TRUE due to the received ACTIVE SET UPDATE message, the UE shall:

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

If the variable ORDERED_RECONFIGURATION is set to TRUE; and

- if the activation time for the procedure that has set variable ORDERED_RECONFIGURATION and the activation time for the Active Set Update procedure are within a time window of 5 frames, the UE may:
  - transmit a ACTIVE SET UPDATE FAILURE message on the uplink DCCH using AM RLC;
  - set the IE "RRC transaction identifier" in the ACTIVE SET UPDATE FAILURE message to the value of "RRC transaction identifier" in the entry for the ACTIVE SET UPDATE message in the table "Accepted transactions" in the variable TRANSACTIONS; and
  - clear that entry;
  - set the IE "failure cause" to the cause value "incompatible simultaneous reconfiguration";
  - when the ACTIVE SET UPDATE FAILURE message has been delivered to lower layers for transmission:
    - continue with any ongoing processes and procedures as if the ACTIVE SET UPDATE message has not been received;

- and the procedure ends.

8.3.4.6 Reception of the ACTIVE SET UPDATE COMPLETE message by the UTRAN

When the UTRAN has received the ACTIVE SET UPDATE COMPLETE message,

- the UTRAN may remove radio link(s) that are indicated to remove to the UE in case b) and c); and
- the procedure ends on the UTRAN side.

8.3.4.7 Reception of the ACTIVE SET UPDATE FAILURE message by the UTRAN

When the UTRAN has received the ACTIVE SET UPDATE FAILURE message, the UTRAN may delete radio links that were included in the IE "Radio Link Addition Information" for addition. The procedure ends on the UTRAN side.

8.3.4.8 Invalid ACTIVE SET UPDATE message

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

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

8.3.4.9 Reception of an ACTIVE SET UPDATE message in wrong state

If the UE is in another state than CELL_DCH state upon reception of the ACTIVE SET UPDATE message, the UE shall perform procedure specific error handling as follows. The UE shall:

- transmit a ACTIVE SET UPDATE FAILURE message on the uplink DCCH using AM RLC;
- set the IE "RRC transaction identifier" in the ACTIVE SET UPDATE FAILURE message to the value of "RRC transaction identifier" in the entry for the ACTIVE SET UPDATE message in the table "Accepted transactions" in the variable TRANSACTIONS; and
- clear that entry;
- set the IE "failure cause" to the cause value "protocol error";
- include the IE "Protocol error information" with the IE "Protocol error cause" set to "Message not compatible with receiver state";
- when the ACTIVE SET UPDATE FAILURE message has been delivered to lower layers for transmission:
  - continue with any ongoing processes and procedures as if the ACTIVE SET UPDATE message has not been received;

- and the procedure ends.

[…]

8.6.6.24 Tx Diversity Mode

If the IE "Tx Diversity Mode" is included the UE shall:

- configure the Layer 1 to use the Tx diversity mode indicated in the IE only for the radio links for which the IE "Closed loop timing adjustment mode" is included;
- if the value of the IE "Tx Diversity Mode" is STTD,
  - ignore the value of the IE "Closed loop timing adjustment mode", for all the radio links for which the IE "Closed loop timing adjustment mode" is included;
- if the value of the IE "Tx Diversity Mode" is closed loop mode1 or closed loop mode2,
  - apply the value of the IE "Closed loop timing adjustment mode", for all the radio links for which the IE "Closed loop timing adjustment mode" is included.

[…]

3GPP TSG-RAN WG2 meeting #25
Makuhari, Japan, November 26th – 30th, 2001

Tdoc R2-012691

CR-Form-v4

CHANGE REQUEST

⌘ **25.331 CR 1133** ⌘ ev **r1** ⌘ Current version: **3.8.0** ⌘

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

Proposed change affects: ⌘ (U)SIM ☐ ME/UE **X** Radio Access Network **X** Core Network ☐

Title:	⌘	Issues regarding signalling connection establishment and RRC connection release
Source:	⌘	TSG-RAN WG2
Work item code:	⌘	TEI
Date:	⌘	2001-11-29
Category:	⌘	**F**
Release:	⌘	R99

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
REL-4	*(Release 4)*
REL-5	*(Release 5)*

Reason for change: ⌘

1. Signalling connection establishment during release

In the Initial direct transfer procedure, it is stated in 8.1.8:

"A new signalling connection request may be received from upper layers subsequent to the indication of the release of a previously established signalling connection to upper layers. From the time of the indication of release to upper layers until the UE has entered idle mode, any such upper layer request to establish a new signalling connection shall be queued. This request shall be processed after the UE has entered idle mode."

The purpose of the statement is to make sure the UE enters idle mode before a new RRC connection is established, if the request for a new signalling connection comes during a transition to idle mode. However, as it is written, it might be interpreted as the UE has to enter idle mode before establishing a signalling connection that was previously released also when the UE had a second signalling connection.

2. Handling of transaction id during release

During the RRC connection release procedure, the RRC transaction id for the received RRC CONNECTION RELEASE message is removed when the first RRC CONNECTION RELEASE COMPLETE message is transmitted from the UE. However, in CELL_DCH state, the message is sent repeatedly and there is no transaction id stored to be used at the repetitions.

Also, if the RRC CONNECTION RELEASE message contained a protocol error, the transaction id is stored in the table "Rejected transactions". However, in that case the entry is never cleared.

Summary of change: ⌘ 1. Signalling connection establishment during release

The paragraph above in the initial direct transfer procedure is clarified according to the intention: to be valid only in the case a transition to idle mode is in progress.

Impact analysis:

Impacted functionality: Signalling connection establishment after a previous signalling connection release.

Correction: The handling is clarified to be according to the common understanding.

Correction to a function where the specification was found erroneous. Would not affect implementations behaving like indicated in the CR, would affect implementations supporting the corrected functionality otherwise.

2. Handling of transaction id during release

The procedure is changed so the UE keeps the RRC transaction id for the RRC CONNECTION RELEASE message in the variable TRANSACTIONS until the UE enters idle mode. In this way, how to set the transaction id becomes defined and the UE will use the same transaction id as in the first transmitted RRC CONNECTION RELEASE COMPLETE message.

When the transaction id entry for the RRC CONNECTION RELEASE message is cleared, any entries in both the tables “Accepted transactions” and “Rejected transactions” is now cleared.

Impact analysis:

Impacted functionality: Setting of the IE “RRC transaction id” in retransmitted RRC CONNECTION RELEASE COMPLETE messages from the UE.

Correction: How to set the IE is defined according to the common understanding.

Correction to a function where the specification was missing a rule. Would not affect implementations behaving like indicated in the CR, would affect implementations supporting the corrected functionality otherwise.

Consequences if not approved:	⌘	1. Signalling connection establishment during release A UE implementation may not be able to accept a request for a new signalling connection from upper layers until a transition to idle mode is made, even if the UE already had an existing signalling connection. Scenarios such as a UE with an established PS signalling connection making repeated CS signalling connections for e.g. location updating or calls might not work. 2. Handling of transaction id during release Following the specification text strictly, the UE will not be able to send a proper value of the IE “RRC transaction id” in the retransmitted RRC CONNECTION RELEASE COMPLETE messages in CELL_DCH state.

Clauses affected:	⌘	8.1.4.3, 8.1.4.4, 8.1.4.6, 8.1.8.2		
Other specs affected:	⌘	☐ Other core specifications ☐ Test specifications ☐ O&M Specifications	⌘	25.331 v4.2.1, CR 1134

Other comments: ⌘

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

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

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

8.1.4.3 Reception of an RRC CONNECTION RELEASE message by the UE

The UE shall receive and act on an RRC CONNECTION RELEASE message in states CELL_DCH and CELL_FACH. Furthermore this procedure can interrupt any ongoing procedures with the UE in the above listed states.

When the UE receives the first RRC CONNECTION RELEASE message, it shall:

- in state CELL_DCH:
  - initialise the counter V308 to zero;
  - set the IE "RRC transaction identifier" in the RRC CONNECTION RELEASE COMPLETE message to the value of "RRC transaction identifier" in the entry for the RRC CONNECTION RELEASE message in the table "Accepted transactions" in the variable TRANSACTIONS; ~~and~~

    ~~clear that entry.~~
  - submit an RRC CONNECTION RELEASE COMPLETE message to the lower layers for transmission using UM RLC on the DCCH to the UTRAN;
  - if the IE "Rplmn information" is present:
    - the UE may:
      - store the IE on the ME together with the PLMN id for which it applies;
    - the UE may then:
      - utilise this information, typically indicating where a number of BCCH frequency ranges of a RAT may be expected to be found, during subsequent Rplmn selections of the indicated PLMN;
  - start timer T308 when the RRC CONNECTION RELEASE COMPLETE message is sent on the radio interface.
- in state CELL_FACH:
  - if the RRC CONNECTION RELEASE message was received on the DCCH:
    - set the IE "RRC transaction identifier" in the RRC CONNECTION RELEASE COMPLETE message to the value of "RRC transaction identifier" in the entry for the RRC CONNECTION RELEASE message in the table "Accepted transactions" in the variable TRANSACTIONS; ~~and~~

      ~~clear that entry;~~
    - submit an RRC CONNECTION RELEASE COMPLETE message to the lower layers for transmission using AM RLC on the DCCH to the UTRAN.
    - when the successful transmission of the RRC CONNECTION RELEASE COMPLETE message has been confirmed by the lower layers:
      - release all its radio resources; and
      - indicate the release of the established signalling connections (as stored in the variable ESTABLISHED_SIGNALLING_CONNECTIONS) and established radio access bearers (as stored in the variable ESTABLISHED_RABS) to upper layers; and
      - clear any entry for the RRC CONNECTION RELEASE message in the tables "Accepted transactions" and “Rejected transactions” in the variable TRANSACTIONS;
      - clear the variable ESTABLISHED_SIGNALLING_CONNECTIONS;
      - clear the variable ESTABLISHED_RABS;
      - pass the value of the IE "Release cause" received in the RRC CONNECTION RELEASE message to upper layers;
      - enter idle mode;

- perform the actions specified in subclause 8.5.2 when entering idle mode;

- and the procedure ends.

- if the RRC CONNECTION RELEASE message was received on the CCCH:

  - release all its radio resources;

  - indicate the release of the established signalling connections (as stored in the variable ESTABLISHED_SIGNALLING_CONNECTIONS) and established radio access bearers (as stored in the variable ESTABLISHED_RABS) to the upper layers;

  - clear any entry for the RRC CONNECTION RELEASE message in the tables "Accepted transactions" and “Rejected transactions” in the variable TRANSACTIONS;

  - clear the variable ESTABLISHED_SIGNALLING_CONNECTIONS;

  - clear the variable ESTABLISHED_RABS;

  - pass the value of the IE "Release cause" received in the RRC CONNECTION RELEASE message to upper layers;

  - enter idle mode;

  - perform the actions specified in subclause 8.5.2 when entering idle mode;

  - and the procedure ends.

8.1.4.4 Invalid RRC CONNECTION RELEASE message

If the RRC CONNECTION RELEASE message contains a protocol error causing the variable PROTOCOL_ERROR_REJECT to be set to TRUE according to clause 9, and if the "protocol error cause" in PROTOCOL_ERROR_INFORMATION is set to any cause value except "ASN.1 violation or encoding error", the UE shall perform procedure specific error handling as follows:

The UE shall:

- ignore any IE(s) causing the error but treat the rest of the RRC CONNECTION RELEASE message as normal according to subclause 8.1.4.3, with an addition of the following actions;

  - if the RRC CONNECTION RELEASE message was received on the DCCH:

    - set the IE "RRC transaction identifier" in the RRC CONNECTION RELEASE COMPLETE message to the value of "RRC transaction identifier" in the entry for the RRC CONNECTION RELEASE message in the table "Rejected transactions" in the variable TRANSACTIONS; ~~and~~

    - ~~clear that entry.~~

    - include the IE "Error indication" in the RRC CONNECTION RELEASE COMPLETE message with:

      - the IE "Failure cause" set to the cause value "Protocol error" and

      - the IE "Protocol error information" set to the value of the variable PROTOCOL_ERROR_INFORMATION;

8.1.4.6 Expiry of timer T308, unacknowledged mode transmission

When in state CELL_DCH and the timer T308 expires, the UE shall:

- increment V308 by one;
- if V308 is equal to or smaller than N308:
  - set the IE "RRC transaction identifier" in the RRC CONNECTION RELEASE COMPLETE message retransmitted below to the value of "RRC transaction identifier" in the entry for the RRC CONNECTION RELEASE message in the table "Accepted transactions" in the variable TRANSACTIONS;
  - retransmit the RRC CONNECTION RELEASE COMPLETE message, without incrementing "Uplink RRC Message sequence number" for signalling radio bearer RB1 in the variable INTEGRITY_PROTECTION_INFO;
- if V308 is greater than N308:
  - release all its radio resources;
  - indicate the release of the established signalling connections (as stored in the variable ESTABLISHED_SIGNALLING_CONNECTIONS) and established radio access bearers (as stored in the variable ESTABLISHED_RABS) to upper layers;
  - clear any entry for the RRC CONNECTION RELEASE message in the tables "Accepted transactions" and “Rejected transactions” in the variable TRANSACTIONS;
  - clear the variable ESTABLISHED_SIGNALLING_CONNECTIONS;
  - clear the variable ESTABLISHED_RABS;
  - enter idle mode;
  - perform the actions specified in subclause 8.5.2 when entering idle mode;
  - and the procedure ends.

8.1.8.2 Initiation of Initial direct transfer procedure in the UE

In the UE, the initial direct transfer procedure shall be initiated, when the upper layers request establishment of a signalling connection. This request also includes a request for the transfer of a NAS message.

Upon initiation of the initial direct transfer procedure when the UE is in idle mode, the UE shall

- set the variable ESTABLISHMENT_CAUSE to the cause for establishment indicated by upper layers;
- perform an RRC connection establishment procedure, according to subclause 8.1.3;
- if the RRC connection establishment procedure was not successful:
  - indicate failure to establish the signalling connection to upper layers and end the procedure;
- when the RRC connection establishment procedure is completed successfully:
  - continue with the initial direct transfer procedure as below;

Upon initiation of the initial direct transfer procedure when the UE is in CELL_PCH or URA_PCH state, the UE shall:

- perform a cell update procedure, according to subclause 8.3.1, using the cause "uplink data transmission";
- when the cell update procedure completed successfully:
  - continue with the initial direct transfer procedure as below.

The UE shall, in the INITIAL DIRECT TRANSFER message:

- set the IE "NAS message" as received from upper layers; and
- set the IE "CN domain identity" as indicated by the upper layers; and
- set the IE "Intra Domain NAS Node Selector" as follows:
  - derive the IE "Intra Domain NAS Node Selector" from TMSI/PMTSI, IMSI, or IMEI; and
  - provide the coding of the IE "Intra Domain NAS Node Selector" according to the following priorities:
    1. derive the routing parameter for IDNNS from TMSI (CS domain) or PTMSI (PS domain) whenever a valid TMSI/PTMSI is available;
    2. base the routing parameter for IDNNS on IMSI when no valid TMSI/PTMSI is available;
    3. base the routing parameter for IDNNS on IMEI only if no (U)SIM is inserted in the UE.

In CELL_FACH state, the UE shall:

- 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 12 (or "System Information Block Type 11" if "System Information Block Type 12" is not being broadcast);
- include in the IE "Measured results on RACH" all requested reporting quantities for cells for which measurements are reported.

The UE shall:

- transmit the INITIAL DIRECT TRANSFER message on the uplink DCCH using AM RLC on signalling radio bearer RB3;
- when the INITIAL DIRECT TRANSFER message has been submitted to lower layers for transmission:
  - confirm the establishment of a signalling connection to upper layers; and
  - add the signalling connection with the identity indicated by the IE "CN domain identity" in the variable ESTABLISHED_SIGNALLING_CONNECTIONS; and

- the procedure ends.

When not stated otherwise elsewhere, the UE may also initiate the initial direct transfer procedure when another procedure is ongoing, and in that case the state of the latter procedure shall not be affected.

A new signalling connection request may be received from upper layers ~~subsequent to the indication of the release of a previously established signalling connection to upper layers~~~~while~~ during transition to idle mode. In those cases, ~~F~~from the time of the indication of release to upper layers until the UE has entered idle mode, any such upper layer request to establish a new signalling connection shall be queued. This request shall be processed after the UE has entered idle mode.

3GPP TSG-RAN WG2 meeting #25
Makuhari, Japan, November 26th – 30th, 2001

Tdoc R2-012692

CR-Form-v4

CHANGE REQUEST

⌘ **25.331 CR 1134** ⌘ ev **-** ⌘ Current version: **4.2.1** ⌘

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

Proposed change affects: ⌘ (U)SIM ☐ ME/UE **X** Radio Access Network **X** Core Network ☐

Title: ⌘	Issues regarding signalling connection establishment and RRC connection release	
Source: ⌘	TSG-RAN WG2	
Work item code: ⌘	TEI	***Date:*** ⌘ 2001-11-30
Category: ⌘	**A**	***Release:*** ⌘ REL-4

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
REL-4 (Release 4)
REL-5 (Release 5)

Reason for change: ⌘

1. Signalling connection establishment during release

In the Initial direct transfer procedure, it is stated in 8.1.8:

"A new signalling connection request may be received from upper layers subsequent to the indication of the release of a previously established signalling connection to upper layers. From the time of the indication of release to upper layers until the UE has entered idle mode, any such upper layer request to establish a new signalling connection shall be queued. This request shall be processed after the UE has entered idle mode."

The purpose of the statement is to make sure the UE enters idle mode before a new RRC connection is established, if the request for a new signalling connection comes during a transition to idle mode. However, as it is written, it might be interpreted as the UE has to enter idle mode before establishing a signalling connection that was previously released also when the UE had a second signalling connection.

2. Handling of transaction id during release

During the RRC connection release procedure, the RRC transaction id for the received RRC CONNECTION RELEASE message is removed when the first RRC CONNECTION RELEASE COMPLETE message is transmitted from the UE. However, in CELL_DCH state, the message is sent repeatedly and there is no transaction id stored to be used at the repetitions.

Also, if the RRC CONNECTION RELEASE message contained a protocol error, the transaction id is stored in the table "Rejected transactions". However, in that case the entry is never cleared.

Summary of change: ⌘ 1. Signalling connection establishment during release

The paragraph above in the initial direct transfer procedure is clarified according to the intention: to be valid only in the case a transition to idle mode is in progress.

Impact analysis:

Impacted functionality: Signalling connection establishment after a previous signalling connection release.

Correction: The handling is clarified to be according to the common understanding.

Correction to a function where the specification was found erroneous. Would not affect implementations behaving like indicated in the CR, would affect implementations supporting the corrected functionality otherwise.

2. Handling of transaction id during release

The procedure is changed so the UE keeps the RRC transaction id for the RRC CONNECTION RELEASE message in the variable TRANSACTIONS until the UE enters idle mode. In this way, how to set the transaction id becomes defined and the UE will use the same transaction id as in the first transmitted RRC CONNECTION RELEASE COMPLETE message.

When the transaction id entry for the RRC CONNECTION RELEASE message is cleared, any entries in both the tables “Accepted transactions” and “Rejected transactions” is now cleared.

Impact analysis:

Impacted functionality: Setting of the IE “RRC transaction id” in retransmitted RRC CONNECTION RELEASE COMPLETE messages from the UE.

Correction: How to set the IE is defined according to the common understanding.

Correction to a function where the specification was missing a rule. Would not affect implementations behaving like indicated in the CR, would affect implementations supporting the corrected functionality otherwise.

Consequences if not approved:	⌘	1. Signalling connection establishment during release A UE implementation may not be able to accept a request for a new signalling connection from upper layers until a transition to idle mode is made, even if the UE already had an existing signalling connection. Scenarios such as a UE with an established PS signalling connection making repeated CS signalling connections for e.g. location updating or calls might not work. 2. Handling of transaction id during release Following the specification text strictly, the UE will not be able to send a proper value of the IE “RRC transaction id” in the retransmitted RRC CONNECTION RELEASE COMPLETE messages in CELL_DCH state.

Clauses affected:	⌘	8.1.4.3, 8.1.4.4, 8.1.4.6, 8.1.8.2		
Other specs affected:	⌘	☐ Other core specifications ☐ Test specifications ☐ O&M Specifications	⌘	25.331 v3.8.0, CR 1133r1

Other comments: ⌘

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8.1.4.3 Reception of an RRC CONNECTION RELEASE message by the UE

The UE shall receive and act on an RRC CONNECTION RELEASE message in states CELL_DCH and CELL_FACH. Furthermore this procedure can interrupt any ongoing procedures with the UE in the above listed states.

When the UE receives the first RRC CONNECTION RELEASE message, it shall:

- in state CELL_DCH:
  - initialise the counter V308 to zero;
  - set the IE "RRC transaction identifier" in the RRC CONNECTION RELEASE COMPLETE message to the value of "RRC transaction identifier" in the entry for the RRC CONNECTION RELEASE message in the table "Accepted transactions" in the variable TRANSACTIONS; ~~and~~

    ~~clear that entry.~~
  - submit an RRC CONNECTION RELEASE COMPLETE message to the lower layers for transmission using UM RLC on the DCCH to the UTRAN;
  - if the IE "Rplmn information" is present:
    - the UE may:
      - store the IE on the ME together with the PLMN id for which it applies;
    - the UE may then:
      - utilise this information, typically indicating where a number of BCCH frequency ranges of a RAT may be expected to be found, during subsequent Rplmn selections of the indicated PLMN;
  - start timer T308 when the RRC CONNECTION RELEASE COMPLETE message is sent on the radio interface.
- in state CELL_FACH:
  - if the RRC CONNECTION RELEASE message was received on the DCCH:
    - set the IE "RRC transaction identifier" in the RRC CONNECTION RELEASE COMPLETE message to the value of "RRC transaction identifier" in the entry for the RRC CONNECTION RELEASE message in the table "Accepted transactions" in the variable TRANSACTIONS; ~~and~~

      ~~clear that entry;~~
    - submit an RRC CONNECTION RELEASE COMPLETE message to the lower layers for transmission using AM RLC on the DCCH to the UTRAN.
    - when the successful transmission of the RRC CONNECTION RELEASE COMPLETE message has been confirmed by the lower layers:
      - release all its radio resources; and
      - indicate the release of the established signalling connections (as stored in the variable ESTABLISHED_SIGNALLING_CONNECTIONS) and established radio access bearers (as stored in the variable ESTABLISHED_RABS) to upper layers; and
      - clear any entry for the RRC CONNECTION RELEASE message in the tables "Accepted transactions" and “Rejected transactions” in the variable TRANSACTIONS;
      - clear the variable ESTABLISHED_SIGNALLING_CONNECTIONS;
      - clear the variable ESTABLISHED_RABS;
      - pass the value of the IE "Release cause" received in the RRC CONNECTION RELEASE message to upper layers;
      - enter idle mode;

- perform the actions specified in subclause 8.5.2 when entering idle mode;

- and the procedure ends.

- if the RRC CONNECTION RELEASE message was received on the CCCH:

  - release all its radio resources;

  - indicate the release of the established signalling connections (as stored in the variable ESTABLISHED_SIGNALLING_CONNECTIONS) and established radio access bearers (as stored in the variable ESTABLISHED_RABS) to the upper layers;

  - clear any entry for the RRC CONNECTION RELEASE message in the tables "Accepted transactions" and “Rejected transactions” in the variable TRANSACTIONS;

  - clear the variable ESTABLISHED_SIGNALLING_CONNECTIONS;

  - clear the variable ESTABLISHED_RABS;

  - pass the value of the IE "Release cause" received in the RRC CONNECTION RELEASE message to upper layers;

  - enter idle mode;

  - perform the actions specified in subclause 8.5.2 when entering idle mode;

  - and the procedure ends.

8.1.4.4 Invalid RRC CONNECTION RELEASE message

If the RRC CONNECTION RELEASE message contains a protocol error causing the variable PROTOCOL_ERROR_REJECT to be set to TRUE according to clause 9, and if the "protocol error cause" in PROTOCOL_ERROR_INFORMATION is set to any cause value except "ASN.1 violation or encoding error", the UE shall perform procedure specific error handling as follows:

The UE shall:

- ignore any IE(s) causing the error but treat the rest of the RRC CONNECTION RELEASE message as normal according to subclause 8.1.4.3, with an addition of the following actions;

  - if the RRC CONNECTION RELEASE message was received on the DCCH:

    - set the IE "RRC transaction identifier" in the RRC CONNECTION RELEASE COMPLETE message to the value of "RRC transaction identifier" in the entry for the RRC CONNECTION RELEASE message in the table "Rejected transactions" in the variable TRANSACTIONS; ~~and~~

    - ~~clear that entry.~~

    - include the IE "Error indication" in the RRC CONNECTION RELEASE COMPLETE message with:

      - the IE "Failure cause" set to the cause value "Protocol error" and

      - the IE "Protocol error information" set to the value of the variable PROTOCOL_ERROR_INFORMATION;

8.1.4.6 Expiry of timer T308, unacknowledged mode transmission

When in state CELL_DCH and the timer T308 expires, the UE shall:

- increment V308 by one;
- if V308 is equal to or smaller than N308:
  - set the IE "RRC transaction identifier" in the RRC CONNECTION RELEASE COMPLETE message retransmitted below to the value of "RRC transaction identifier" in the entry for the RRC CONNECTION RELEASE message in the table "Accepted transactions" in the variable TRANSACTIONS;
  - retransmit the RRC CONNECTION RELEASE COMPLETE message, without incrementing "Uplink RRC Message sequence number" for signalling radio bearer RB1 in the variable INTEGRITY_PROTECTION_INFO;
- if V308 is greater than N308:
  - release all its radio resources;
  - indicate the release of the established signalling connections (as stored in the variable ESTABLISHED_SIGNALLING_CONNECTIONS) and established radio access bearers (as stored in the variable ESTABLISHED_RABS) to upper layers;
  - clear any entry for the RRC CONNECTION RELEASE message in the tables "Accepted transactions" and “Rejected transactions” in the variable TRANSACTIONS;
  - clear the variable ESTABLISHED_SIGNALLING_CONNECTIONS;
  - clear the variable ESTABLISHED_RABS;
  - enter idle mode;
  - perform the actions specified in subclause 8.5.2 when entering idle mode;
  - and the procedure ends.

8.1.8.2 Initiation of Initial direct transfer procedure in the UE

In the UE, the initial direct transfer procedure shall be initiated, when the upper layers request establishment of a signalling connection. This request also includes a request for the transfer of a NAS message.

Upon initiation of the initial direct transfer procedure when the UE is in idle mode, the UE shall

- set the variable ESTABLISHMENT_CAUSE to the cause for establishment indicated by upper layers;
- perform an RRC connection establishment procedure, according to subclause 8.1.3;
- if the RRC connection establishment procedure was not successful:
  - indicate failure to establish the signalling connection to upper layers and end the procedure;
- when the RRC connection establishment procedure is completed successfully:
  - continue with the initial direct transfer procedure as below;

Upon initiation of the initial direct transfer procedure when the UE is in CELL_PCH or URA_PCH state, the UE shall:

- perform a cell update procedure, according to subclause 8.3.1, using the cause "uplink data transmission";
- when the cell update procedure completed successfully:
  - continue with the initial direct transfer procedure as below.

The UE shall, in the INITIAL DIRECT TRANSFER message:

- set the IE "NAS message" as received from upper layers; and
- set the IE "CN domain identity" as indicated by the upper layers; and
- set the IE "Intra Domain NAS Node Selector" as follows:
  - derive the IE "Intra Domain NAS Node Selector" from TMSI/PMTSI, IMSI, or IMEI; and
  - provide the coding of the IE "Intra Domain NAS Node Selector" according to the following priorities:
    1. derive the routing parameter for IDNNS from TMSI (CS domain) or PTMSI (PS domain) whenever a valid TMSI/PTMSI is available;
    2. base the routing parameter for IDNNS on IMSI when no valid TMSI/PTMSI is available;
    3. base the routing parameter for IDNNS on IMEI only if no (U)SIM is inserted in the UE.

In CELL_FACH state, the UE shall:

- 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 12 (or "System Information Block Type 11" if "System Information Block Type 12" is not being broadcast);
- include in the IE "Measured results on RACH" all requested reporting quantities for cells for which measurements are reported.

The UE shall:

- transmit the INITIAL DIRECT TRANSFER message on the uplink DCCH using AM RLC on signalling radio bearer RB3;
- when the INITIAL DIRECT TRANSFER message has been submitted to lower layers for transmission:
  - confirm the establishment of a signalling connection to upper layers; and
  - add the signalling connection with the identity indicated by the IE "CN domain identity" in the variable ESTABLISHED_SIGNALLING_CONNECTIONS; and

- the procedure ends.

When not stated otherwise elsewhere, the UE may also initiate the initial direct transfer procedure when another procedure is ongoing, and in that case the state of the latter procedure shall not be affected.

A new signalling connection request may be received from upper layers ~~subsequent to the indication of the release of a previously established signalling connection to upper layers~~~~while~~ during transition to idle mode. In those cases, ~~F~~from the time of the indication of release to upper layers until the UE has entered idle mode, any such upper layer request to establish a new signalling connection shall be queued. This request shall be processed after the UE has entered idle mode.

3GPP TSG-RAN WG2 Meeting #25
Makuhari, Japan, 26- 30 November, 2001

R2-012522

CR-Form-v4

CHANGE REQUEST

⌘ **25.331** **CR** **1135** ⌘ ev **-** ⌘ Current version: **3.8.0** ⌘

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

Proposed change affects: ⌘ (U)SIM ☐ ME/UE **X** Radio Access Network **X** Core Network ☐

Title:	⌘	Presence of AC to ASC mapping in SIB5 and SIB6
Source:	⌘	TSG-RAN WG2
Work item code:	⌘	TEI
Date:	⌘	November 26, 2001
Category:	⌘	**F**
Release:	⌘	R99

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
REL-4 (Release 4)
REL-5 (Release 5)

Reason for change:	⌘	The IE “AC-to-ASC mapping”, which is included in IE “PRACH system information list”, is currently optional. It is not clear which ASC the UE is supposed to select in case the mapping is not present. Since to select the signature for RACH access the knowledge of the ASC is necessary (see 8.6.6.29, 10.3.6.55, 10.3.6.54 and 10.3.6.6), the IE “AC-to-ASC mapping” can not be optional.
Summary of change:	⌘	The IE “AC-to-ASC mapping” is changed to MD (conditional to inclusion in SIB5) and default value is the value of " AC-to-ASC mapping" for the previous PRACH in the list (note : the first occurrence is then MP in SIB5) **Isolated Impact Change Analysis.** This change clarifies the ASC procedures. It would not affect implementations behaving like indicated in the CR, it would affect implementations supporting the corrected functionality otherwise.
Consequences if not approved:	⌘	UE may not be able to access the system if the IE “AC-to-ASC mapping” is not included in SIB 5

Clauses affected:	⌘	10.3.6.55		
Other specs affected:	⌘	☐ Other core specifications ☐ Test specifications ☐ O&M Specifications	⌘	25.331 v4.2.1, CR 1136
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/3G_Specs/CRs.htm. Below is a brief summary:

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

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

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

10.3.6.55 PRACH system information list

Information element	Need	Multi	Type and reference	Semantics description
PRACH system information	MP	1 .. <maxPRACH>		
>PRACH info	MP		PRACH info (for RACH) 10.3.6.52	
>Transport channel identity	MP		Transport channel identity 10.3.5.18	
>RACH TFS	MD		Transport format set 10.3.5.23	Default value is the value of "RACH TFS" for the previous PRACH in the list NOTE: The first occurrence is then MP) NOTE: For TDD in this release there is a single TF within the RACH TFS.
>RACH TFCS	MD		Transport Format Combination Set 10.3.5.20	Default value is the value of "RACH TFCS" for the previous PRACH in the list. NOTE: The first occurrence is then MP). NOTE: For TDD in this release there is no TFCS required.
>PRACH partitioning	MD		PRACH partitioning 10.3.6.53	Default value is the value of "PRACH partitioning" for the previous PRACH in the list (note : the first occurrence is then MP)
>Persistence scaling factors	OP		Persistence scaling factors 10.3.6.48	This IE shall not be present if only ASC 0 and ASC 1 are defined. If this IE is absent, value is the value of "Persistence scaling factors" for the previous PRACH in the list if value exists
>AC-to-ASC mapping	CV-SIB5-MD~~OP~~		AC-to-ASC mapping 10.3.6.1	Only present in SIB 5 Default value is the value of "AC-to-ASC mapping" for the previous PRACH in the list (note : the first occurrence is then MP in SIB5)~~If this IE is absent, value is the value of "AC-to-ASC mapping" for the previous PRACH in the list if value exists~~
>CHOICE *mode*	MP			
>>FDD				
>>>Primary CPICH TX power	MD		Primary CPICH TX power 10.3.6.61	Default value is the value of "Primary CPICH TX power" for the previous PRACH in the list (note : the first occurrence is then MP)
>>>Constant value	MD		Constant value 10.3.6.11	Default value is the value of "Constant value" for the previous PRACH in the list (note : the first occurrence is then MP)
>>>PRACH power offset	MD		PRACH power offset	Default value is the value of "PRACH power offset" for the

			10.3.6.54	previous PRACH in the list (note : the first occurrence is then MP)
>>>RACH transmission parameters	MD		RACH transmission parameters 10.3.6.67	Default value is the value of "RACH transmission parameters" for the previous PRACH in the list (note : the first occurrence is then MP)
>>>AICH info	MD		AICH info 10.3.6.2	Default value is the value of "AICH info" for the previous PRACH in the list (note : the first occurrence is then MP)
>>TDD				(no data)

Condition	**Explanation**
SIB5-MD	The information element is present only in SIB 5 and in SIB 5 it is mandatory with default.

NOTE: If the setting of the PRACH information results in that a combination of a signature, preamble scrambling code and subchannel corresponds to a RACH with different TFS and/or TFCS, then for that combination only the TFS/TFCS of the PRACH listed first is valid, where PRACHs listed in System Information Block type 5 shall be counted first.

[…]

3GPP TSG-RAN WG2 Meeting #25
Makuhari, Japan, 26- 30 November, 2001

R2-012693

CR-Form-v4

CHANGE REQUEST

⌘ **25.331** **CR** **1136** ⌘ ev **-** ⌘ Current version: **4.2.1** ⌘

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

Proposed change affects: ⌘ (U)SIM ☐ ME/UE **X** Radio Access Network **X** Core Network ☐

Title:	⌘	Presence of AC to ASC mapping in SIB5 and SIB6
Source:	⌘	TSG-RAN WG2
Work item code:	⌘	TEI
Date:	⌘	November 26, 2001
Category:	⌘	**A**
Release:	⌘	REL-4

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 *(GSM Phase 2)*
R96 *(Release 1996)*
R97 *(Release 1997)*
R98 *(Release 1998)*
R99 *(Release 1999)*
REL-4 *(Release 4)*
REL-5 *(Release 5)*

Reason for change:	⌘	The IE “AC-to-ASC mapping”, which is included in IE “PRACH system information list”, is currently optional. It is not clear which ASC the UE is supposed to select in case the mapping is not present. Since to select the signature for RACH access the knowledge of the ASC is necessary (see 8.6.6.29, 10.3.6.55, 10.3.6.54 and 10.3.6.6), the IE “AC-to-ASC mapping” can not be optional.
Summary of change:	⌘	The IE “AC-to-ASC mapping” is changed to MD (conditional to inclusion in SIB5) and default value is the value of " AC-to-ASC mapping" for the previous PRACH in the list (note : the first occurrence is then MP in SIB5) **Isolated Impact Change Analysis.** This change clarifies the ASC procedures. It would not affect implementations behaving like indicated in the CR, it would affect implementations supporting the corrected functionality otherwise.
Consequences if not approved:	⌘	UE may not be able to access the system if the IE “AC-to-ASC mapping” is not included in SIB 5

Clauses affected:	⌘	10.3.6.55		
Other specs affected:	⌘	☐ Other core specifications ☐ Test specifications ☐ O&M Specifications	⌘	25.331 v3.8.0, CR 1135
Other comments:	⌘			

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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.

10.3.6.55 PRACH system information list

Information element	Need	Multi	Type and reference	Semantics description
PRACH system information	MP	1 .. <maxPRACH>		
>PRACH info	MP		PRACH info (for RACH) 10.3.6.52	
>Transport channel identity	MP		Transport channel identity 10.3.5.18	
>RACH TFS	MD		Transport format set 10.3.5.23	Default value is the value of "RACH TFS" for the previous PRACH in the list NOTE: The first occurrence is then MP) NOTE: For TDD in this release there is a single TF within the RACH TFS.
>RACH TFCS	MD		Transport Format Combination Set 10.3.5.20	Default value is the value of "RACH TFCS" for the previous PRACH in the list. NOTE: The first occurrence is then MP). NOTE: For TDD in this release there is no TFCS required.
>PRACH partitioning	MD		PRACH partitioning 10.3.6.53	Default value is the value of "PRACH partitioning" for the previous PRACH in the list (note : the first occurrence is then MP)
>Persistence scaling factors	OP		Persistence scaling factors 10.3.6.48	This IE shall not be present if only ASC 0 and ASC 1 are defined. If this IE is absent, value is the value of "Persistence scaling factors" for the previous PRACH in the list if value exists
>AC-to-ASC mapping	CV-SIB5-MD~~OP~~		AC-to-ASC mapping 10.3.6.1	Only present in SIB 5 Default value is the value of "AC-to-ASC mapping" for the previous PRACH in the list (note : the first occurrence is then MP in SIB5)~~If this IE is absent, value is the value of "AC-to-ASC mapping" for the previous PRACH in the list if value exists~~
>CHOICE *mode*	MP			
>>FDD				
>>>Primary CPICH TX power	MD		Primary CPICH TX power 10.3.6.61	Default value is the value of "Primary CPICH TX power" for the previous PRACH in the list (note : the first occurrence is then MP)
>>>Constant value	MD		Constant value 10.3.6.11	Default value is the value of "Constant value" for the previous PRACH in the list (note : the first occurrence is then MP)
>>>PRACH power offset	MD		PRACH power offset	Default value is the value of "PRACH power offset" for the

			10.3.6.54	previous PRACH in the list (note : the first occurrence is then MP)
>>>RACH transmission parameters	MD		RACH transmission parameters 10.3.6.67	Default value is the value of "RACH transmission parameters" for the previous PRACH in the list (note : the first occurrence is then MP)
>>>AICH info	MD		AICH info 10.3.6.2	Default value is the value of "AICH info" for the previous PRACH in the list (note : the first occurrence is then MP)
>>TDD				(no data)

Condition	**Explanation**
SIB5-MD	The information element is present only in SIB 5 and in SIB 5 it is mandatory with default.

NOTE: If the setting of the PRACH information results in that a combination of a signature, preamble scrambling code and subchannel corresponds to a RACH with different TFS and/or TFCS, then for that combination only the TFS/TFCS of the PRACH listed first is valid, where PRACHs listed in System Information Block type 5 shall be counted first.

[…]

3GPP TSG-RAN WG2 meeting #25
Makuhari, Japan, November 26th – 30th, 2001

Tdoc R2-012523

CR-Form-v4

CHANGE REQUEST

⌘ **25.331 CR 1137** ⌘ ev **-** ⌘ Current version: **3.8.0** ⌘

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

Proposed change affects: ⌘ (U)SIM ☐ ME/UE ☒ Radio Access Network ☒ Core Network ☐

Title:	⌘	RRC establishment cause at inter-RAT cell change order to UTRAN
Source:	⌘	TSG-RAN WG2
Work item code:	⌘	TEI
Date:	⌘	2001-11-20
Category:	⌘	**F**
Release:	⌘	R99

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
REL-4 (Release 4)
REL-5 (Release 5)

Reason for change: ⌘
In the procedure inter-RAT cell change order to UTRAN, the RRC connection establishment cause is set to “inter-RAT cell reselection”. But there is an establishment cause “inter-RAT cell change order” which should be used for that purpose.
The error was accidently included into v3.7.0 by CR 747r1.

Summary of change: ⌘
In the procedure Inter-RAT cell change order to UTRAN, the variable ESTABLISHMENT CAUSE is set to “inter-RAT cell change order” instead of “inter-RAT cell reselection”.

Impact analysis:

Impacted functionality: The establishment cause used at request for an RRC connection after a cell change order to UTRAN ordered by e.g. GSM/GPRS.

Correction: The establishment cause value is set to the value intended for the purpose and according to the common understanding.

Correction to a function where the specification was found erroneous. Would not affect implementations behaving like indicated in the CR, would affect implementations supporting the corrected functionality otherwise.

Consequences if not approved: ⌘
UTRAN would not be able to distinguish between an RRC connection establishment request caused by inter-RAT cell change order and inter-RAT cell reselection.

Clauses affected: ⌘ 8.3.10.2

Other specs affected: ⌘
☐ Other core specifications ⌘ 25.331 v4.2.1, CR 1138
☐ 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.

8.3.10.2 Initiation

The procedure is initiated when a radio access technology other than UTRAN, e.g. GSM/GPRS, using procedures specific for that RAT, orders the UE to change to a UTRAN cell.

NOTE: Within the message used to order the UE to change to a UTRAN cell, the source RAT should specify the identity of the target UTRAN cell as specified in the specifications for that RAT.

The UE shall:

- set the variable ESTABLISHMENT_CAUSE to "Inter-RAT cell change order~~reselection~~";
- initiate an RRC connection establishment procedure as specified in subclause 8.1.3.

3GPP TSG-RAN WG2 meeting #25
Makuhari, Japan, November 26th – 30th, 2001

Tdoc R2-012694

CR-Form-v4

CHANGE REQUEST

⌘ **25.331 CR 1138** ⌘ ev **-** ⌘ Current version: **4.2.1** ⌘

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

Proposed change affects: ⌘ (U)SIM ☐ ME/UE ☒ Radio Access Network ☒ Core Network ☐

Title:	⌘	RRC establishment cause at inter-RAT cell change order to UTRAN
Source:	⌘	TSG-RAN WG2
Work item code:	⌘	TEI
Date:	⌘	2001-11-30
Category:	⌘	**A**
Release:	⌘	REL-4

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
REL-4 (Release 4)
REL-5 (Release 5)

Reason for change:	⌘	In the procedure inter-RAT cell change order to UTRAN, the RRC connection establishment cause is set to "inter-RAT cell reselection". But there is an establishment cause "inter-RAT cell change order" which should be used for that purpose. The error was accidently included into v3.7.0 by CR 747r1.
Summary of change:	⌘	In the procedure Inter-RAT cell change order to UTRAN, the variable ESTABLISHMENT CAUSE is set to "inter-RAT cell change order" instead of "inter-RAT cell reselection". **Impact analysis:** Impacted functionality: The establishment cause used at request for an RRC connection after a cell change order to UTRAN ordered by e.g. GSM/GPRS. Correction: The establishment cause value is set to the value intended for the purpose and according to the common understanding. Correction to a function where the specification was found erroneous. Would not affect implementations behaving like indicated in the CR, would affect implementations supporting the corrected functionality otherwise.
Consequences if not approved:	⌘	UTRAN would not be able to distinguish between an RRC connection establishment request caused by inter-RAT cell change order and inter-RAT cell reselection.

Clauses affected:	⌘	8.3.10.2		
Other specs affected:	⌘	☐ Other core specifications ☐ Test specifications ☐ O&M Specifications	⌘	25.331 v3.8.0, CR 1137

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.

8.3.10.2 Initiation

The procedure is initiated when a radio access technology other than UTRAN, e.g. GSM/GPRS, using procedures specific for that RAT, orders the UE to change to a UTRAN cell.

NOTE: Within the message used to order the UE to change to a UTRAN cell, the source RAT should specify the identity of the target UTRAN cell as specified in the specifications for that RAT.

The UE shall:

- set the variable ESTABLISHMENT_CAUSE to "Inter-RAT cell change order~~reselection~~";
- initiate an RRC connection establishment procedure as specified in subclause 8.1.3.

3GPP TSG-RAN WG2 meeting #25
Makuhari, Japan, November 26th – 30th, 2001

Tdoc R2-012525

CR-Form-v4

CHANGE REQUEST

⌘ **25.331 CR 1141** ⌘ ev **-** ⌘ Current version: **3.8.0** ⌘

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

Proposed change affects: ⌘ (U)SIM ☐ ME/UE **X** Radio Access Network **X** Core Network ☐

Title:	⌘	Start of timers at radio link failure
Source:	⌘	TSG-RAN WG2
Work item code:	⌘	TEI
Date:	⌘	2001-11-20
Category:	⌘	**F**
Release:	⌘	R99

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
REL-4	*(Release 4)*
REL-5	*(Release 5)*

Reason for change: ⌘

1. Start of timers relative to selection of suitable UTRA cell

   At radio link failure in CELL_DCH state the UE shall select a suitable UTRA cell and perform a cell update procedure. In the cell update procedure the timers T314 and T315 are started.

   The intention with the timer supervision is to handle cases like when a suitable cell can't be found. Therefore the timers should be started already when the UE initiates the cell selection without waiting for a suitable cell to be found.

   In 13.1 its is clear that the timers should be started directly after radio link failure. But by reading the procedure text that is not clear since the actions by default are interpreted as being performed in sequence.

2. Start of timers with respect to established radio bearers

   The timers T314 and T315 control the release of radio bearers and transition to idle mode upon a radio link failure in CELL_DCH state. However, when there is no associated radio bearer is established for one or both of the timers the behaviour is unclear which timers that should be started.

   By reading the Cell update procedure, it seems that both timers T314 and T315 are started independently of whether there are radio bearers associated with these timers. According to that, the transition to idle will always be controlled by max (T314, T315), which could in the worst case be 1800 seconds, even for a speech-only call or when only signalling radio bearers are established.

   However, in 13.1 (Timers for UE), the intention of the timers is clear. The timers T314 and T315 should only be started if there are radio bearers associated with these timers. This is also the desired behaviour.

Summary of change: ⌘

1. Start of timers relative to selection of suitable UTRA cell

   The statement “select a suitable UTRA cell” is removed from 8.5.6 (Radio link failure criteria and actions upon radio link failure) and in all procedures where cell update is initiated due to radio link failure.

   The statement “select a suitable UTRA cell” is included in the cell update procedure for the CELL_DCH case just after the start of the timers T314 and T315.

   By these changes, it will be clear that the timers T314 and T315 are started without waiting for the cell selection.

   Impact analysis:

   Impacted functionality: Start of timers T314 and T315 relative to selection of suitable UTRA cell.

   Correction: The start of the timers is corrected according to the intention of the timers making the specification consistent and unambigious.

   Correction to a function where the specification was found ambigious. Would not affect implementations behaving like indicated in the CR, would affect implementations supporting the corrected functionality otherwise.

2. Start of timers with respect to established radio bearers

   Clarifications are added in 8.3.1 (Cell and URA update procedures) about in which cases the timers T314 and T315 are started, according to the following:

   When initiating cell update due to radio link failure, and
   a) when no radio bearer associated with T314 or T315 is established (only signalling radio bearers are established), the timer T314 is started;
   b) when a radio bearer associated with T314 is established, the timer T314 is started;
   c) when a radio bearer associated with T315 is established, the timer T315 is started.

   An indentation error in 8.3.1.12 has also been corrected.

   Impact analysis:

   Impacted functionality: Start of timers with respect to established radio bearers

   Correction: The start of the timers is corrected according to the intention of the timers and including adding one previously unspecified case.

   Correction to a function where the specification was found erroneous and contained contradictions.

   Would not affect implementations behaving like indicated in the CR, would affect implementations supporting the corrected functionality otherwise.

   If the UE implements the change, but not the network, the UE might transit to idle mode earlier than expected by the network, depending on interpretation. If the network implements the change, but not the UE, the UE might transit to idle mode later than expected by the network, depending on interpretation.

		A UE which does not implement the change and interprets the corrected specification the “wrong” way, would submit a CELL UPDATE message if it enters service area after T314 has elapsed but before T315 has elapsed. This will not harm and it also gives the opportunity for the network to release the RRC connection if that is the desired behaviour (e.g. in the signalling radio bearer only case).
Consequences if not approved:	⌘	UEs might stay in connected mode for longer time than intended at radio link failure. A delay of the transition to idle mode may degrade the service availability.

Clauses affected:	⌘	8.1.4.5, 8.2.2.7, 8.3.1.2, 8.3.1.12, 8.3.7.5, 8.3.11.5, 8.5.6		
Other specs affected:	⌘	☐ Other core specifications ☐ Test specifications ☐ O&M Specifications	⌘	25.331 v4.2.1, CR 1142
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/3G_Specs/CRs.htm. Below is a brief summary:

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

8.1.4.5 Cell re-selection or radio link failure

If the UE performs cell re-selection or the radio link failure criteria in subclause 8.5.6 is met at any time during the RRC connection release procedure and the UE has not yet entered idle mode, the UE shall:

- if cell re-selection occurred (CELL_FACH state):
  - perform a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";
- if radio link failure occurred (CELL_DCH state):
  - ~~select a suitable UTRA cell according to [4];~~
  - perform a cell update procedure according to subclause 8.3.1 using the cause "radio link failure".

8.2.2.7 Physical channel failure

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

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

- revert to the configuration prior to the reception of the message (old configuration);
- if the old configuration includes dedicated physical channels (CELL_DCH state) and the UE is unable to revert to the old configuration:

  ~~- select a suitable UTRA cell according to [4];~~

  - initiate a cell update procedure according to subclause 8.3.1, using the cause "radio link failure";
  - after the cell update procedure has completed successfully:
    - proceed as below;
- if the old configuration does not include dedicated physical channels (CELL_FACH state):
  - select a suitable UTRA cell according to [4];
  - if the UE selects another cell than the cell the UE camped on upon reception of the reconfiguration message:
    - initiate a cell update procedure according to subclause 8.3.1, using the cause "Cell reselection";
    - after the cell update procedure has completed successfully:
      - proceed as below;
- transmit a failure response message as specified in subclause 8.2.2.9, setting the information elements as specified below:
  - include the IE "RRC transaction identifier"; and
  - set it to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and
  - clear that entry;
  - set the IE "failure cause" to "physical channel failure";
- set the variable ORDERED_RECONFURATION to FALSE;
- continue with any ongoing processes and procedures as if the reconfiguration message was not received;

The procedure ends.

8.3.1.2 Initiation

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

- Uplink data transmission:
  - if the UE is in URA_PCH or CELL_PCH state; and
  - if the UE has uplink RLC data PDU or uplink RLC control PDU on RB1 or upwards to transmit:
    - perform cell update using the cause "uplink data transmission".
- Paging response:
  - if the criteria for performing cell update with the cause specified above in the current subclause is not met; and
  - 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:
    - perform cell update using the cause "paging response".
- Radio link failure:
  - if none of the criteria for performing cell update with the causes specified above in the current subclause is met; and
  - if the UE is in CELL_DCH state; and
  - if the criteria for radio link failure is met as specified in subclause 8.5.6:
    - perform cell update using the cause "radio link failure".
- Re-entering service area:
  - if none of the criteria for performing cell update with the causes specified above in the current subclause is met; and
  - if the UE is in CELL_FACH or CELL_PCH state; and
  - if the UE has been out of service area and re-enters service area before T307 or T317 expires:
    - perform cell update using the cause "re-entering service area".
- RLC unrecoverable error:
  - if none of the criteria for performing cell update with the causes specified above in the current subclause is met; and
  - if the UE detects RLC unrecoverable error [16] in an AM RLC entity:
    - perform cell update using the cause "RLC unrecoverable error".
- Cell reselection:
  - if none of the criteria for performing cell update with the causes specified above in the current subclause is met; and
  - if the UE is in CELL_FACH or CELL_PCH state; and
  - if the UE performs cell re-selection or the variable C_RNTI is empty:
    - perform cell update using the cause "cell reselection".
- Periodical cell update:

- if none of the criteria for performing cell update with the causes specified above in the current subclause is met; and
- if the UE is in CELL_FACH or CELL_PCH state; and
- if the timer T305 expires; and
- if the criteria for "in service area" as specified in subclause 8.5.5.2 is fulfilled; and
- 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":
  - 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:

- URA reselection:
  - 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
  - if the list of URA identities in system information block type 2 is empty; or
  - if the system information block type 2 can not be found:
    - perform URA update using the cause "change of URA".
- Periodic URA update:
  - if the criteria for performing URA update with the causes as specified above in the current subclause are not met; and
  - if the timer T305 expires while the UE is in the service area; and
  - 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":
    - perform URA update using the cause "periodic URA update".

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

- stop timer T305;
- if the UE is in CELL_DCH state:
  - in the variable RB_TIMER_INDICATOR, set the IE "T314 expired" and the IE "T315 expired" to FALSE;
  - if the stored values of the timer T314 and timer T315 are both equal to zero:
    - release all its radio resources;
    - 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;
    - clear the variable ESTABLISHED_SIGNALLING_CONNECTIONS;
    - clear the variable ESTABLISHED_RABS;
    - enter idle mode;
    - perform other actions when entering idle mode from connected mode as specified in subclause 8.5.2;
    - and the procedure ends.
  - if the stored value of the timer T314 is equal to zero:

- 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";
- in the variable RB_TIMER_INDICATOR set the IE "T314 expired" to TRUE;

- if the stored value of the timer T315 is equal to zero:
  - 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";
  - in the variable RB_TIMER_INDICATOR set the IE "T315 expired" to TRUE;
- if the stored value of the timer T314 is greater than zero:
  - 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":
    - start timer T314; [Note to Hans: Indentation changed to B4]
  - 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”:
    - start timer T314;
- if the stored value of the timer T315 is greater than zero:
  - 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":
    - start timer T315; [Note to Hans: Indentation changed to B4]
- for the released radio bearer(s):
  - delete the information about the radio bearer from the variable ESTABLISHED_RABS;
  - when all radio bearers belonging to the same radio access bearer have been released:
    - 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;
    - delete all information about the radio access bearer from the variable ESTABLISHED_RABS;
- select a suitable UTRA cell according to [4];
- set the variable ORDERED_RECONFIGURATION to FALSE;

- set the variables PROTOCOL_ERROR_INDICATOR, FAILURE_INDICATOR, UNSUPPORTED_CONFIGURATION and INVALID_CONFIGURATION to FALSE;
- set the variable CELL_UPDATE_STARTED to TRUE;
- move to CELL_FACH state, if not already in that state;
- if the UE performs cell re-selection:
  - clear the variable C_RNTI; and
  - stop using that C_RNTI just cleared from the variable C_RNTI in MAC;
- set CFN in relation to SFN of current cell according to subclause 8.5.15;
- in case of a cell update procedure:
  - set the contents of the CELL UPDATE message according to subclause 8.3.1.3;
  - submit the CELL UPDATE message for transmission on the uplink CCCH;
- in case of a URA update procedure:

    - set the contents of the URA UPDATE message according to subclause 8.3.1.3;
    - submit the URA UPDATE message for transmission on the uplink CCCH;
- set counter V302 to 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:

- stop T302 if it is running;
- if the UE was in CELL_DCH state prior to the initiation of the procedure; and
  - if timers T314 and T315 have elapsed while T302 was running:
    - enter idle mode.
    - 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.
    - and the procedure ends.
  - if timer T314 has elapsed while T302 was running and, [Note to Hans: Indentation changed –1 in the highlighted area]
    - if "T314 expired" in the variable RB_TIMER_INDICATOR is set to FALSE and
    - if T315 is still running:
      - 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";
      - indicate release of those radio access bearers to upper layers;
      - delete all information about those radio access bearers from the variable ESTABLISHED_RABS;
      - set "T314 expired" in the variable RB_TIMER_INDICATOR to TRUE;
  - if timer T315 has elapsed while T302 was running and,
    - if "T315 expired" in the variable RB_TIMER_INDICATOR is set to FALSE and,
    - if T314 is still running:
      - 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";
      - indicate release of those radio access bearers to upper layers;
      - delete all information about those radio access bearers from the variable ESTABLISHED_RABS;
      - set "T315 expired" in the variable RB_TIMER_INDICATOR to TRUE;
- check whether it is still in "in service area" (see subclause 8.5.5.2);
- if, caused by the received CELL UPDATE CONFIRM or URA UPDATE CONFIRM message the IE "Reconfiguration" in the variable CIPHERING_STATUS is set to TRUE and/or the IE "Reconfiguration" in the variable INTEGRITY_PROTECTION_INFO is set to TRUE:
  - abort the ongoing integrity and/or ciphering reconfiguration;
  - if the received CELL UPDATE CONFIRM or URA UPDATE CONFIRM message contained the IE "Ciphering mode info":

- set the IE "Reconfiguration" in the variable CIPHERING_STATUS to FALSE; and
- clear the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO;

- if the received CELL UPDATE CONFIRM or URA UPDATE CONFIRM message contained the IE "Integrity protection mode info":
  - set the IE "Reconfiguration" in the variable INTEGRITY_PROTECTION_INFO to FALSE; and
  - clear the variable INTEGRITY_PROTECTION_ACTIVATION_INFO;

- if the variable ORDERED_RECONFIGURATION is set to TRUE caused by the received CELL UPDATE CONFIRM message in case of a cell update procedure:
  - set the variable ORDERED_RECONFIGURATION to FALSE;
- in case of a cell update procedure:
  - clear any entry for the CELL UPDATE CONFIRM message in the table "Accepted transactions" in the variable TRANSACTIONS;
- in case of a URA update procedure:
  - 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:

- if V302 is equal to or smaller than N302, the UE shall:
  - if the UE performed cell re-selection:
    - delete its C-RNTI;
  - in case of a cell update procedure:
    - set the contents of the CELL UPDATE message according to subclause 8.3.1.3;
    - submit the CELL UPDATE message for transmission on the uplink CCCH;
  - in case of a URA update procedure:
    - set the contents of the URA UPDATE message according to subclause 8.3.1.3;
    - submit the URA UPDATE message for transmission on the uplink CCCH;
  - increment counter V302;
  - restart timer T302 when the MAC layer indicates success or failure to transmit the message;
- if V302 is greater than N302, the UE shall:
  - clear the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO;
  - clear the variable INTEGRITY_PROTECTION_ACTIVATION_INFO;
  - clear the variable PDCP_SN_INFO;
  - in case of a cell update procedure:
    - clear the entry for the CELL UPDATE CONFIRM message in the table "Rejected transactions" in the variable TRANSACTIONS;
  - in case of a URA update procedure:
    - clear the entry for the URA UPDATE CONFIRM message in the table "Rejected transactions" in the variable TRANSACTIONS;

- release all its radio resources;
- 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;
- clear the variable ESTABLISHED_SIGNALLING_CONNECTIONS;
- clear the variable ESTABLISHED_RABS;
- set the variable CELL_UPDATE_STARTED to FALSE;
- enter idle mode;
- other actions the UE shall perform when entering idle mode from connected mode are specified in subclause 8.5.2;
- and the procedure ends.

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

- continue searching for "in service area".

8.3.7.5 UE fails to complete requested handover

If the UE does not succeed in establishing the connection to the target radio access technology, it shall:

- revert back to the UTRA configuration;
- establish the UTRA physical channel(s) used at the time for reception of HANDOVER FROM UTRAN COMMAND;
- if the UE does not succeed to establish the UTRA physical channel(s):

  ~~- select a suitable UTRA cell according to [4];~~

  - perform a cell update procedure according to subclause 8.3.1 with cause "Radio link failure";
  - when the cell update procedure has completed successfully:
    - proceed as below;
- transmit the HANDOVER FROM UTRAN FAILURE message setting the information elements as specified below:
  - include the IE "RRC transaction identifier"; and
  - set it to the value of "RRC transaction identifier" in the entry for the HANDOVER FROM UTRAN COMMAND message in the table "Accepted transactions" in the variable TRANSACTIONS; and
  - clear that entry;
  - set the IE "Inter-RAT change failure" to "physical channel failure";
- When the HANDOVER FROM UTRAN FAILURE message has been submitted to lower layer for transmission:
  - the procedure ends.

8.3.11.5 Expiry of timer T309 or UE fails to complete requested cell change order

If:

- timer T309 expires prior to the successful establishment of a connection to the target RAT; or
- if the establishment of the connection to the other RAT failed due to other reasons e.g. (random) access failure, rejection due to lack of resources:

the UE shall:

- if it received the CELL CHANGE ORDER FROM UTRAN message in state CELL_DCH:
  - revert back to the UTRA configuration;
  - establish the UTRA physical channel(s) used at the time for reception of CELL CHANGE ORDER FROM UTRAN;
  - if the UE does not succeed in establishing the UTRA physical channel(s):
    - ~~select a suitable UTRA cell according to [4];~~
    - perform a cell update procedure according to subclause 8.3.1 with cause "Radio link failure";
    - when the cell update procedure has completed successfully:
      - proceed as below;
  - transmit the CELL CHANGE ORDER FROM UTRAN FAILURE message setting the information elements as specified below:
    - include the IE "RRC transaction identifier"; and
    - set it to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and
    - clear that entry;
    - set the IE "Inter-RAT change failure" to "physical channel failure";
  - When the CELL CHANGE ORDER FROM UTRAN FAILURE message has been submitted to lower layer for transmission, the procedure ends.
- if the UE receives the CELL CHANGE ORDER FROM UTRAN message in CELL_FACH state:
  - revert to the cell it was camped on at the reception of the CELL CHANGE ORDER FROM UTRAN message;
  - if the UE is unable to return to this cell:
    - select a suitable UTRA cell according to [4];
    - initiate the cell update procedure according to subclause 8.3.1 using the cause "cell re-selection";
    - when the cell update procedure completed successfully:
      - proceed as below;
  - transmit the CELL CHANGE ORDER FROM UTRAN FAILURE message setting the information elements as specified below:
    - include the IE "RRC transaction identifier"; and
    - set it to the value of "RRC transaction identifier" in the entry for the CELL CHANGE ORDER FROM UTRAN message in the table "Accepted transactions" in the variable TRANSACTIONS; and
    - clear that entry;

- set the IE "Inter-RAT change failure" to "physical channel failure";

- When the CELL CHANGE ORDER FROM UTRAN FAILURE message has been submitted to lower layer for transmission:

  - the procedure ends.

8.5.6 Radio link failure criteria and actions upon radio link failure

In CELL_DCH State, after receiving N313 consecutive "out of sync" indications from layer 1 for the established DPCCH physical channel in FDD, and the DPCH associated with mapped DCCHs in TDD, the UE shall:

- start timer T313;
- upon receiving N315 successive "in sync" indications from layer 1 and upon change of UE state:
  - stop and reset timer T313;
- if T313 expires:
  - consider it as a "Radio link failure";

When a radio link failure occurs, the UE shall:

- clear the dedicated physical channel configuration;
- ~~select a suitable UTRA cell according to [4];~~
- perform actions as specified for the ongoing procedure;
- if no procedure is ongoing or no actions are specified for the ongoing procedure:
  - ~~select a suitable UTRA cell according to [4];~~
  - perform a cell update procedure according to subclause 8.3.1 using the cause "radio link failure".

3GPP TSG-RAN WG2 meeting #25 ***Tdoc R2-012696***
Makuhari, Japan, November 26th – 30th, 2001

CR-Form-v4

CHANGE REQUEST

⌘ **25.331 CR 1142** ⌘ ev **-** ⌘ Current version: **4.2.1** ⌘

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

Proposed change affects: ⌘ (U)SIM ☐ ME/UE **X** Radio Access Network **X** Core Network ☐

Title:	⌘	Start of timers at radio link failure
Source:	⌘	TSG-RAN WG2
Work item code:	⌘	TEI
Date:	⌘	2001-11-30
Category:	⌘	**A**
Release:	⌘	REL-4

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
REL-4 (Release 4)
REL-5 (Release 5)

Reason for change: ⌘

1. Start of timers relative to selection of suitable UTRA cell

   At radio link failure in CELL_DCH state the UE shall select a suitable UTRA cell and perform a cell update procedure. In the cell update procedure the timers T314 and T315 are started.

   The intention with the timer supervision is to handle cases like when a suitable cell can't be found. Therefore the timers should be started already when the UE initiates the cell selection without waiting for a suitable cell to be found.

   In 13.1 its is clear that the timers should be started directly after radio link failure. But by reading the procedure text that is not clear since the actions by default are interpreted as being performed in sequence.

2. Start of timers with respect to established radio bearers

   The timers T314 and T315 control the release of radio bearers and transition to idle mode upon a radio link failure in CELL_DCH state. However, when there is no associated radio bearer is established for one or both of the timers the behaviour is unclear which timers that should be started.

   By reading the Cell update procedure, it seems that both timers T314 and T315 are started independently of whether there are radio bearers associated with these timers. According to that, the transition to idle will always be controlled by max (T314, T315), which could in the worst case be 1800 seconds, even for a speech-only call or when only signalling radio bearers are established.

   However, in 13.1 (Timers for UE), the intention of the timers is clear. The timers T314 and T315 should only be started if there are radio bearers associated with these timers. This is also the desired behaviour.

Summary of change: ⌘

1. Start of timers relative to selection of suitable UTRA cell

   The statement “select a suitable UTRA cell” is removed from 8.5.6 (Radio link failure criteria and actions upon radio link failure) and in all procedures where cell update is initiated due to radio link failure.

   The statement “select a suitable UTRA cell” is included in the cell update procedure for the CELL_DCH case just after the start of the timers T314 and T315.

   By these changes, it will be clear that the timers T314 and T315 are started without waiting for the cell selection.

   Impact analysis:

   Impacted functionality: Start of timers T314 and T315 relative to selection of suitable UTRA cell.

   Correction: The start of the timers is corrected according to the intention of the timers making the specification consistent and unambigious.

   Correction to a function where the specification was found ambigious. Would not affect implementations behaving like indicated in the CR, would affect implementations supporting the corrected functionality otherwise.

2. Start of timers with respect to established radio bearers

   Clarifications are added in 8.3.1 (Cell and URA update procedures) about in which cases the timers T314 and T315 are started, according to the following:

   When initiating cell update due to radio link failure, and
   a) when no radio bearer associated with T314 or T315 is established (only signalling radio bearers are established), the timer T314 is started;
   b) when a radio bearer associated with T314 is established, the timer T314 is started;
   c) when a radio bearer associated with T315 is established, the timer T315 is started.

   An indentation error in 8.3.1.12 has also been corrected.

   Impact analysis:

   Impacted functionality: Start of timers with respect to established radio bearers

   Correction: The start of the timers is corrected according to the intention of the timers and including adding one previously unspecified case.

   Correction to a function where the specification was found erroneous and contained contradictions.

   Would not affect implementations behaving like indicated in the CR, would affect implementations supporting the corrected functionality otherwise.

   If the UE implements the change, but not the network, the UE might transit to idle mode earlier than expected by the network, depending on interpretation. If the network implements the change, but not the UE, the UE might transit to idle mode later than expected by the network, depending on interpretation.

		A UE which does not implement the change and interprets the corrected specification the “wrong” way, would submit a CELL UPDATE message if it enters service area after T314 has elapsed but before T315 has elapsed. This will not harm and it also gives the opportunity for the network to release the RRC connection if that is the desired behaviour (e.g. in the signalling radio bearer only case).
Consequences if not approved:	⌘	UEs might stay in connected mode for longer time than intended at radio link failure. A delay of the transition to idle mode may degrade the service availability.

Clauses affected:	⌘	8.1.4.5, 8.2.2.7, 8.3.1.2, 8.3.1.12, 8.3.7.5, 8.3.11.5, 8.5.6		
Other specs affected:	⌘	☐ Other core specifications ☐ Test specifications ☐ O&M Specifications	⌘	25.331 v3.8.0, CR 1141
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/3G_Specs/CRs.htm. Below is a brief summary:

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

8.1.4.5 Cell re-selection or radio link failure

If the UE performs cell re-selection or the radio link failure criteria in subclause 8.5.6 is met at any time during the RRC connection release procedure and the UE has not yet entered idle mode, the UE shall:

- if cell re-selection occurred (CELL_FACH state):
  - perform a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";
- if radio link failure occurred (CELL_DCH state):
  - ~~select a suitable UTRA cell according to [4];~~
  - perform a cell update procedure according to subclause 8.3.1 using the cause "radio link failure".

8.2.2.7 Physical channel failure

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

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

- revert to the configuration prior to the reception of the message (old configuration);
- if the old configuration includes dedicated physical channels (CELL_DCH state) and the UE is unable to revert to the old configuration:

  ~~- select a suitable UTRA cell according to [4];~~

  - initiate a cell update procedure according to subclause 8.3.1, using the cause "radio link failure";
  - after the cell update procedure has completed successfully:
    - proceed as below;
- if the old configuration does not include dedicated physical channels (CELL_FACH state):
  - select a suitable UTRA cell according to [4];
  - if the UE selects another cell than the cell the UE camped on upon reception of the reconfiguration message:
    - initiate a cell update procedure according to subclause 8.3.1, using the cause "Cell reselection";
    - after the cell update procedure has completed successfully:
      - proceed as below;
- transmit a failure response message as specified in subclause 8.2.2.9, setting the information elements as specified below:
  - include the IE "RRC transaction identifier"; and
  - set it to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and
  - clear that entry;
  - set the IE "failure cause" to "physical channel failure";
- set the variable ORDERED_RECONFURATION to FALSE;
- continue with any ongoing processes and procedures as if the reconfiguration message was not received;

The procedure ends.

8.3.1.2 Initiation

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

- Uplink data transmission:
  - if the UE is in URA_PCH or CELL_PCH state; and
  - if the UE has uplink RLC data PDU or uplink RLC control PDU on RB1 or upwards to transmit:
    - perform cell update using the cause "uplink data transmission".
- Paging response:
  - if the criteria for performing cell update with the cause specified above in the current subclause is not met; and
  - 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:
    - perform cell update using the cause "paging response".
- Radio link failure:
  - if none of the criteria for performing cell update with the causes specified above in the current subclause is met; and
  - if the UE is in CELL_DCH state; and
  - if the criteria for radio link failure is met as specified in subclause 8.5.6:
    - perform cell update using the cause "radio link failure".
- Re-entering service area:
  - if none of the criteria for performing cell update with the causes specified above in the current subclause is met; and
  - if the UE is in CELL_FACH or CELL_PCH state; and
  - if the UE has been out of service area and re-enters service area before T307 or T317 expires:
    - perform cell update using the cause "re-entering service area".
- RLC unrecoverable error:
  - if none of the criteria for performing cell update with the causes specified above in the current subclause is met; and
  - if the UE detects RLC unrecoverable error [16] in an AM RLC entity:
    - perform cell update using the cause "RLC unrecoverable error".
- Cell reselection:
  - if none of the criteria for performing cell update with the causes specified above in the current subclause is met; and
  - if the UE is in CELL_FACH or CELL_PCH state; and
  - if the UE performs cell re-selection or the variable C_RNTI is empty:
    - perform cell update using the cause "cell reselection".
- Periodical cell update:

- if none of the criteria for performing cell update with the causes specified above in the current subclause is met; and
- if the UE is in CELL_FACH or CELL_PCH state; and
- if the timer T305 expires; and
- if the criteria for "in service area" as specified in subclause 8.5.5.2 is fulfilled; and
- 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":
  - 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:

- URA reselection:
  - 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
  - if the list of URA identities in system information block type 2 is empty; or
  - if the system information block type 2 can not be found:
    - perform URA update using the cause "change of URA".
- Periodic URA update:
  - if the criteria for performing URA update with the causes as specified above in the current subclause are not met; and
  - if the timer T305 expires while the UE is in the service area; and
  - 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":
    - perform URA update using the cause "periodic URA update".

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

- stop timer T305;
- if the UE is in CELL_DCH state:
  - in the variable RB_TIMER_INDICATOR, set the IE "T314 expired" and the IE "T315 expired" to FALSE;
  - if the stored values of the timer T314 and timer T315 are both equal to zero:
    - release all its radio resources;
    - 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;
    - clear the variable ESTABLISHED_SIGNALLING_CONNECTIONS;
    - clear the variable ESTABLISHED_RABS;
    - enter idle mode;
    - perform other actions when entering idle mode from connected mode as specified in subclause 8.5.2;
    - and the procedure ends.
  - if the stored value of the timer T314 is equal to zero:

- 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";
- in the variable RB_TIMER_INDICATOR set the IE "T314 expired" to TRUE;

- if the stored value of the timer T315 is equal to zero:
  - 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";
  - in the variable RB_TIMER_INDICATOR set the IE "T315 expired" to TRUE;
- if the stored value of the timer T314 is greater than zero:
  - 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":
    - start timer T314; [Note to Hans: Indentation changed to B4]
  - 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”:
    - start timer T314;
- if the stored value of the timer T315 is greater than zero:
  - 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":
    - start timer T315; [Note to Hans: Indentation changed to B4]
- for the released radio bearer(s):
  - delete the information about the radio bearer from the variable ESTABLISHED_RABS;
  - when all radio bearers belonging to the same radio access bearer have been released:
    - 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;
    - delete all information about the radio access bearer from the variable ESTABLISHED_RABS;
- select a suitable UTRA cell according to [4];
- set the variable ORDERED_RECONFIGURATION to FALSE;

- set the variables PROTOCOL_ERROR_INDICATOR, FAILURE_INDICATOR, UNSUPPORTED_CONFIGURATION and INVALID_CONFIGURATION to FALSE;
- set the variable CELL_UPDATE_STARTED to TRUE;
- move to CELL_FACH state, if not already in that state;
- if the UE performs cell re-selection:
  - clear the variable C_RNTI; and
  - stop using that C_RNTI just cleared from the variable C_RNTI in MAC;
- set CFN in relation to SFN of current cell according to subclause 8.5.15;
- in case of a cell update procedure:
  - set the contents of the CELL UPDATE message according to subclause 8.3.1.3;
  - submit the CELL UPDATE message for transmission on the uplink CCCH;
- in case of a URA update procedure:

  - set the contents of the URA UPDATE message according to subclause 8.3.1.3;
  - submit the URA UPDATE message for transmission on the uplink CCCH;
- set counter V302 to 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:

- stop T302 if it is running;
- if the UE was in CELL_DCH state prior to the initiation of the procedure; and
  - if timers T314 and T315 have elapsed while T302 was running:
    - enter idle mode.
    - 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.
    - and the procedure ends.
  - if timer T314 has elapsed while T302 was running and, [Note to Hans: Indentation changed –1 in the highlighted area]
    - if "T314 expired" in the variable RB_TIMER_INDICATOR is set to FALSE and
    - if T315 is still running:
      - 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";
      - indicate release of those radio access bearers to upper layers;
      - delete all information about those radio access bearers from the variable ESTABLISHED_RABS;
      - set "T314 expired" in the variable RB_TIMER_INDICATOR to TRUE;
  - if timer T315 has elapsed while T302 was running and,
    - if "T315 expired" in the variable RB_TIMER_INDICATOR is set to FALSE and,
    - if T314 is still running:
      - 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";
      - indicate release of those radio access bearers to upper layers;
      - delete all information about those radio access bearers from the variable ESTABLISHED_RABS;
      - set "T315 expired" in the variable RB_TIMER_INDICATOR to TRUE;
- check whether it is still in "in service area" (see subclause 8.5.5.2);
- if, caused by the received CELL UPDATE CONFIRM or URA UPDATE CONFIRM message the IE "Reconfiguration" in the variable CIPHERING_STATUS is set to TRUE and/or the IE "Reconfiguration" in the variable INTEGRITY_PROTECTION_INFO is set to TRUE:
  - abort the ongoing integrity and/or ciphering reconfiguration;
  - if the received CELL UPDATE CONFIRM or URA UPDATE CONFIRM message contained the IE "Ciphering mode info":

- set the IE "Reconfiguration" in the variable CIPHERING_STATUS to FALSE; and
- clear the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO;

- if the received CELL UPDATE CONFIRM or URA UPDATE CONFIRM message contained the IE "Integrity protection mode info":
  - set the IE "Reconfiguration" in the variable INTEGRITY_PROTECTION_INFO to FALSE; and
  - clear the variable INTEGRITY_PROTECTION_ACTIVATION_INFO;

- if the variable ORDERED_RECONFIGURATION is set to TRUE caused by the received CELL UPDATE CONFIRM message in case of a cell update procedure:
  - set the variable ORDERED_RECONFIGURATION to FALSE;
- in case of a cell update procedure:
  - clear any entry for the CELL UPDATE CONFIRM message in the table "Accepted transactions" in the variable TRANSACTIONS;
- in case of a URA update procedure:
  - 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:

- if V302 is equal to or smaller than N302, the UE shall:
  - if the UE performed cell re-selection:
    - delete its C-RNTI;
  - in case of a cell update procedure:
    - set the contents of the CELL UPDATE message according to subclause 8.3.1.3;
    - submit the CELL UPDATE message for transmission on the uplink CCCH;
  - in case of a URA update procedure:
    - set the contents of the URA UPDATE message according to subclause 8.3.1.3;
    - submit the URA UPDATE message for transmission on the uplink CCCH;
  - increment counter V302;
  - restart timer T302 when the MAC layer indicates success or failure to transmit the message;
- if V302 is greater than N302, the UE shall:
  - clear the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO;
  - clear the variable INTEGRITY_PROTECTION_ACTIVATION_INFO;
  - clear the variable PDCP_SN_INFO;
  - in case of a cell update procedure:
    - clear the entry for the CELL UPDATE CONFIRM message in the table "Rejected transactions" in the variable TRANSACTIONS;
  - in case of a URA update procedure:
    - clear the entry for the URA UPDATE CONFIRM message in the table "Rejected transactions" in the variable TRANSACTIONS;

- release all its radio resources;
- 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;
- clear the variable ESTABLISHED_SIGNALLING_CONNECTIONS;
- clear the variable ESTABLISHED_RABS;
- set the variable CELL_UPDATE_STARTED to FALSE;
- enter idle mode;
- other actions the UE shall perform when entering idle mode from connected mode are specified in subclause 8.5.2;
- and the procedure ends.

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

- continue searching for "in service area".

8.3.7.5 UE fails to complete requested handover

If the UE does not succeed in establishing the connection to the target radio access technology, it shall:

- revert back to the UTRA configuration;
- establish the UTRA physical channel(s) used at the time for reception of HANDOVER FROM UTRAN COMMAND;
- if the UE does not succeed to establish the UTRA physical channel(s):

  ~~select a suitable UTRA cell according to [4];~~

  - perform a cell update procedure according to subclause 8.3.1 with cause "Radio link failure";
  - when the cell update procedure has completed successfully:
    - proceed as below;
- transmit the HANDOVER FROM UTRAN FAILURE message setting the information elements as specified below:
  - include the IE "RRC transaction identifier"; and
  - set it to the value of "RRC transaction identifier" in the entry for the HANDOVER FROM UTRAN COMMAND message in the table "Accepted transactions" in the variable TRANSACTIONS; and
  - clear that entry;
  - set the IE "Inter-RAT change failure" to "physical channel failure";
- When the HANDOVER FROM UTRAN FAILURE message has been submitted to lower layer for transmission:
  - the procedure ends.

8.3.11.5 Expiry of timer T309 or UE fails to complete requested cell change order

If:

- timer T309 expires prior to the successful establishment of a connection to the target RAT; or
- if the establishment of the connection to the other RAT failed due to other reasons e.g. (random) access failure, rejection due to lack of resources:

the UE shall:

- if it received the CELL CHANGE ORDER FROM UTRAN message in state CELL_DCH:
  - revert back to the UTRA configuration;
  - establish the UTRA physical channel(s) used at the time for reception of CELL CHANGE ORDER FROM UTRAN;
  - if the UE does not succeed in establishing the UTRA physical channel(s):
    - ~~select a suitable UTRA cell according to [4];~~
    - perform a cell update procedure according to subclause 8.3.1 with cause "Radio link failure";
    - when the cell update procedure has completed successfully:
      - proceed as below;
  - transmit the CELL CHANGE ORDER FROM UTRAN FAILURE message setting the information elements as specified below:
    - include the IE "RRC transaction identifier"; and
    - set it to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and
    - clear that entry;
    - set the IE "Inter-RAT change failure" to "physical channel failure";
  - When the CELL CHANGE ORDER FROM UTRAN FAILURE message has been submitted to lower layer for transmission, the procedure ends.
- if the UE receives the CELL CHANGE ORDER FROM UTRAN message in CELL_FACH state:
  - revert to the cell it was camped on at the reception of the CELL CHANGE ORDER FROM UTRAN message;
  - if the UE is unable to return to this cell:
    - select a suitable UTRA cell according to [4];
    - initiate the cell update procedure according to subclause 8.3.1 using the cause "cell re-selection";
    - when the cell update procedure completed successfully:
      - proceed as below;
  - transmit the CELL CHANGE ORDER FROM UTRAN FAILURE message setting the information elements as specified below:
    - include the IE "RRC transaction identifier"; and
    - set it to the value of "RRC transaction identifier" in the entry for the CELL CHANGE ORDER FROM UTRAN message in the table "Accepted transactions" in the variable TRANSACTIONS; and
    - clear that entry;

- set the IE "Inter-RAT change failure" to "physical channel failure";

- When the CELL CHANGE ORDER FROM UTRAN FAILURE message has been submitted to lower layer for transmission:

  - the procedure ends.

8.5.6 Radio link failure criteria and actions upon radio link failure

In CELL_DCH State, after receiving N313 consecutive "out of sync" indications from layer 1 for the established DPCCH physical channel in FDD, and the DPCH associated with mapped DCCHs in TDD, the UE shall:

- start timer T313;
- upon receiving N315 successive "in sync" indications from layer 1 and upon change of UE state:
  - stop and reset timer T313;
- if T313 expires:
  - consider it as a "Radio link failure";

When a radio link failure occurs, the UE shall:

- clear the dedicated physical channel configuration;
- ~~select a suitable UTRA cell according to [4];~~
- perform actions as specified for the ongoing procedure;
- if no procedure is ongoing or no actions are specified for the ongoing procedure:
  - ~~select a suitable UTRA cell according to [4];~~
  - perform a cell update procedure according to subclause 8.3.1 using the cause "radio link failure".