TSG-RAN Meeting #6
Nice, France, 13 – 15 December 1999

Title: **Agreed CRs of category "D" (Editorial) to TS 25.331 v3.0.0**

Source: **TSG-RAN WG2**

Agenda item: **5.2.3**

Doc-1st-	Status-	Spec	CR	Rev	Subject	Cat	Versio	Versio
R2-99f81	agreed	25.331	001		Modification of RRC procedure	D	3.0.0	interm
R2-99g35	agreed	25.331	050		UE capability information elements	D	3.0.0	interm

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

25.331	**CR**	**001**		Current Version:	**3.0.0**

GSM (AA.BB) or 3G (AA.BBB) specification number ↑   *↑ CR number as allocated by MCC support team*

For submission to:	**TSG-RAN#6**	for approval	**X**	strategic	☐	*(for SMG*
list expected approval meeting # here ↑		for information	☐	non-strategic	☐	*use only)*

Form: CR cover sheet, version 2 for 3GPP and SMG   The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc

Proposed change affects: (U)SIM ☐   ME **X**   UTRAN / Radio **X**   Core Network ☐
(at least one should be marked with an X)

Source:	TSG-RAN WG2	**Date:**	1999-11-05

Subject:	Modification of RRC procedure specifications

Work item:	

Category: F   Correction   ☐   **Release:**   Phase 2   ☐

(only one category   A   Corresponds to a correction in an earlier release   ☐   Release 96   ☐

shall be marked   B   Addition of feature   ☐   Release 97   ☐

with an X)   C   Functional modification of feature   ☐   Release 98   ☐
           D   Editorial modification   **X**   Release 99   **X**
                                                                Release 00   ☐

Reason for change:	A number of principles have been discussed in RAN WG2 for how the specification of RRC procedures may be enhanced. This CR proposes modifications of the current RRC procedures according to those principles.

Clauses affected:	8, 13

Other specs affected:	Other 3G core specifications	☐	→ List of CRs:	
	Other GSM core specifications	☐	→ List of CRs:	
	MS test specifications	☐	→ List of CRs:	
	BSS test specifications	☐	→ List of CRs:	
	O&M specifications	☐	→ List of CRs:	

Other comments:	

help.doc

<-------- double-click here for help and instructions on how to create a CR.

8 RRC procedures

8.1 RRC Connection Management Procedures
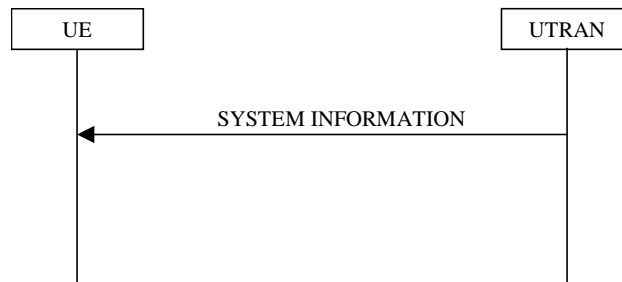
8.1.1 Broadcast of system information

Figure 1. **Broadcast of system information**

8.1.1.1 General

The purpose of this procedure is to broadcast system information from the ~~network~~ UTRAN to idle mode- and connected mode UEs in a cell.

8.1.1.1.1 System information structure

The system information elements are broadcast in *system information blocks*. A system information block groups together system information elements of the same nature. Different system information blocks may have different characteristics, e.g. regarding their repetition rate and the requirements on UEs to re-read the system information blocks.

The system information is organised as a tree. A *master information block* gives references to a number of system information blocks in a cell, including scheduling information for those system information blocks. The system information blocks contain the actual system information and/or references to other system information blocks including scheduling information for those system information blocks.

Figure 2 illustrates the relationship between the master information block and the system information blocks in a cell.
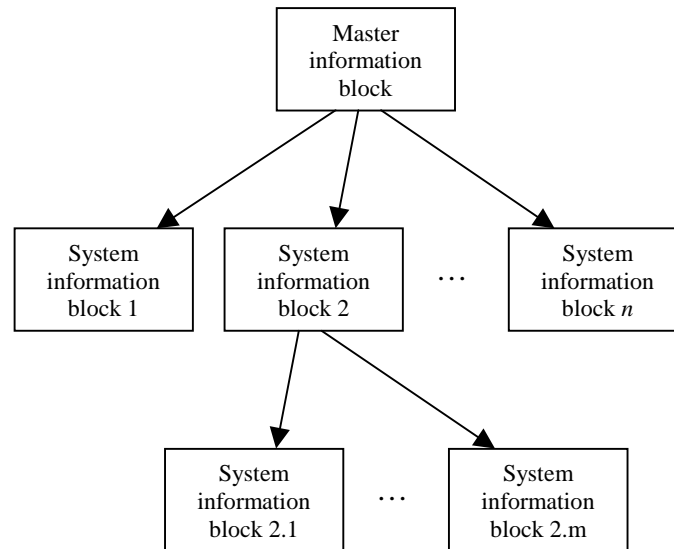
Master information block

System information block 1

System information block 2

···

System information block *n*

System information block 2.1

···

System information block 2.m

Figure 2. The overall structure of system information.

~~8.1.1.1.2 Acquisition of system information blocks~~

~~[The specification and usage of different system information blocks is FFS]~~

8.1.1.1.3 Scheduling of system information

All system information blocks are broadcast on the BCCH using transparent mode. A given BCCH may be mapped onto either a BCH transport channel or a FACH transport channel.

The RRC layer in UTRAN ~~shall~~ performs segmentation of system information blocks. ~~The~~ into segments ~~shall~~ that fits the size of a transport block. When there is space left in a transport block, concatenation of segments belonging to two [or more] different system information blocks into the same transport block may be performed. The RRC layer in the UE shall perform re-assembly of segments.

To allow the mixing of system information blocks with short repetition period and system information blocks with segmentation over many frames, UTRAN may multiplex segments from different system information blocks. Multiplexing and de-multiplexing shall be performed by the RRC layer.

~~UTRAN shall define the following parameters for~~ The scheduling of each system information block broadcast on a BCH transport channel ~~are~~ is defined by the following parameters:

- the number of segments (SEG_COUNT).

- the repetition period (SIB_REP). The same value applies to all segments.

- the position (phase) of the first segment within the repetition period (SIB_POS(0))

- Offset of the subsequent segments in ascending index order (SIB_OFF(i), i=1, 2, … SEG_COUNT-1)
  The position of the subsequent segments are calculated as: SIB_POS(i) = SIB_POS(i-1) + SIB_OFF(i).

The scheduling is based on the Cell System Frame number (SFN). The frame at which a particular segment (i) of a system information block occurs is defined as follows:

$$SFN \bmod SIB\_REP = SIB\_POS(i)$$

[Note that SIB_POS must be less than SIB_REP for all segments.]

The master information block is scheduled with a fixed pre-defined repetition rate and a fixed pre-defined position. The length of the master information block shall not exceed the size of a transport block.

8.1.1.2　　Initiation

The ~~UTRAN shall repeat the~~ system information is continuously repeated on a regular basis ~~using~~ in accordance with the scheduling~~repetition period~~ defined for each system information block.

[The UTRAN may temporarily send information blocks other than those scheduled.]

8.1.1.3　　Reception of SYSTEM INFORMATION messages by the UE

The UE shall ~~be able to~~ receive SYSTEM INFORMATION messages broadcast on a BCH transport channel in idle mode as well as in states CELL_FACH, CELL_PCH and URA_PCH. Further, the UE shall ~~be able to~~ receive SYSTEM INFORMATION messages broadcast on a FACH transport channel when in ~~state~~ CELL_FACH state. In addition, UEs with certain service capabilities shall ~~be able to~~ receive system information a FACH transport channel when in ~~state~~ CELL_DCH state.

Idle mode- and connected mode UEs may acquire different combinations of system information blocks. Before each acquisition, the UE should identify which system information blocks that are needed.

The UE may store system information blocks (including their area scope and value tag) for different cells and different PLMNs, to be used if the UE returns to these cells. This information is valid for a period of [TBD] hours after reception. All stored system information blocks shall be considered as invalid after the UE has been switched off.

When selecting a new PLMN, the UE shall consider all current system information blocks to be invalid. If the UE has stored valid system information blocks for the selected cell of the new PLMN, the UE may set those as current system information blocks.

8.1.1.3.1　　Reception of SYSTEM INFORMATION messages broadcast on a BCH transport channel

When selecting a new cell, the UE shall read the master information block. The UE may use the pre-defined scheduling information to locate the master information block in the cell.

~~At~~ On reception of the master information block, the UE shall

- check the IE "PLMN identity" in the master information block and verify that it is the selected PLMN~~,.~~ ~~If the PLMN identity is different from the stored PLMN identity, the UE shall store that PLMN identity, clear the value tag for the master information block as well as all value tags for all system information blocks and forward that PLMN identity to upper layers~~.

- store the "value tag" sent in the variable VALUE_TAG for ~~of~~ the master information block.

- check the IE "value tag" for all system information blocks which are to be used by the UE. If, for any system information blocks, the value tag ~~has been changed~~is different from the value of the variable VALUE_TAG for that system information block or if ~~the~~ no corresponding system information block ~~has not been read before~~exists, the UE shall read ~~store the scheduling information (SIB_REP and SIB_POS) valid for~~ that system information block.

The UE may use the scheduling information ~~SIB_REP and SIB_POS~~ given by the master information block ~~may be used by the UE~~ to ~~find the location~~ locate ~~of~~ each system information block ~~that will~~ to be acquired.

~~At~~ Upon reception of a system information block, the UE shall

- ~~store~~ if the IE "value tag" ~~(if that IE is~~ present~~)~~, store the value in the variable VALUE_TAG for that system information block

- if the IE "expiration time" is present, start a timer EXPIRATION_TIMER for that system information block. The timer shall be set to the value indicated by the IE "expiration time".

- store the remaining IEs in the system information block

- forward non-access stratum system information to upper layers

If the system information contains IEs with scheduling information for other system information blocks, the UE shall act on those IEs as specified for the scheduling information contained within the master information block.

8.1.1.3.2 Reception of SYSTEM INFORMATION messages broadcast on a FACH transport channel

The master information block is not broadcast regularly on FACH. The master information block on BCH indicates the available system information blocks on FACH.

When receiving system information blocks on FACH, the UE shall perform the same action as defined for BCH in 8.1.1.3.1.

[The reception of system information blocks transmitted on a FACH transport channel is FFS.]

8.1.1.4 Modification of system information

~~The UE and UTRAN may use d~~Different rules apply for the~~mechanisms to update~~ updating of different types system information blocks. If the system information block contains a "value tag", UTRAN shall indicate when any of the information elements are modified. ~~[Even i~~If the value tag does not change, the UE shall consider the system information block to be invalid after a period of [TBD] hours from reception.~~]~~ If the system information block contains an expiration time, the UE ~~is responsible for the~~shall re-read~~ing of~~ the system information, if still needed, when the timer has expire~~ds~~. All stored system information blocks shall be considered as invalid after the UE has been switched off.

8.1.1.4.1 Modification of system information blocks using a value tag

When system information is modified, UTRAN shall perform the following actions to indicate the change to the UEs:

- update the actual system information and change the "value tag" in the corresponding system information block.

- ~~update the "value tag" in the system information block.~~

- start to ~~repeat~~ send the updated system information block on the BCCH ~~mapped on BCH or FACH~~ instead of the old system information block.

- update the master information block~~. Both~~ with the "value tag" of the modified system information block and change the "value tag" of the master information block ~~need to be updated~~.

- send the new master information block on the BCCH mapped on BCH instead of the old master information block.

- send the new master information block on the BCCH mapped on FACH in order to reach all UEs in state CELL_FACH. UTRAN may repeat the new master information block on the FACH to increase the probability of

proper reception in all UEs needing the information.

- ~~send the new master information block on the BCCH mapped on BCH instead of the old master information block.~~

- send the ~~message~~ PAGING TYPE 1 <u>message</u> on the PCCH in order to reach idle mode UEs as well as connected mode UEs in state CELL_PCH and URA_PCH. In the IE "BCCH Modification Information" <u>in the PAGING TYPE 1 message</u>, UTRAN shall indicate the new value tag for the master information block. The PAGING TYPE 1 message ~~shall~~ <u>should</u> be sent in all paging occasions.

~~At~~ <u>On</u> reception of the PAGING TYPE 1 message, the UE shall

- check the "value tag" of the master information block indicated in the IE "BCCH Modification information". If the value tag ~~has been changed~~<u>is different from the value stored in the variable VALUE_TAG for the master information block</u>, the UE shall read the new master information block ~~using the pre-defined scheduling information~~.

At reception of the new master information block (received on the BCCH mapped on BCH or FACH), the UE shall:

- store the new "value tag" <u>sent in the variable VALUE_TAG for</u> ~~of~~ the master information block.

- check the IE "value tag" for all system information blocks which are used by the UE. ~~If, for any of the~~ <u>The UE shall read each system information blocks, for which the</u> value tag~~s have been changed~~ <u>is different from the value stored in the variable VALUE_TAG for that system information block</u>~~, the UE shall store the scheduling information valid for those system information blocks. Using the scheduling information, the UE is able to locate the modified~~<u>read that</u> system information block(s) ~~and retrieve the new information~~.

8.1.1.4.2   Modification of system information blocks containing an expiration time

When the UE has acquired a system information block containing the IE "expiration time", a timer shall be started using the value indicated in that IE. When the timer expires, the information carried in the system information block is considered to be ~~old~~ <u>invalid</u> and the UE shall acquire ~~new~~ <u>the system</u> information <u>block</u> before the ~~values of the included the old~~ system information elements can be used ~~again~~.
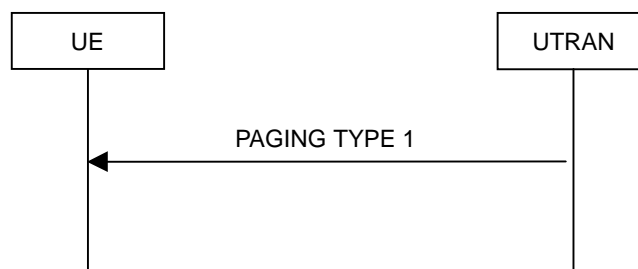
8.1.2   Paging

Figure 3. Paging

8.1.2.1   General

This procedure is used to transmit paging information to selected UEs in idle mode, CELL_PCH or URA_PCH state

using the paging control channel (PCCH). Upper layers in the network may request paging, to e.g. establish a signalling connection. UTRAN may initiate paging in CELL_PCH or URA_PCH state, to trigger a UE state transition ~~or reading of updated system information~~. In addition, UTRAN may initiate paging in idle mode, CELL_PCH and URA_PCH state to trigger reading of updated system information.

8.1.2.2 Initiation

~~Upper layers in the network may request paging of a UE.~~ UTRAN initiates the paging procedure by broadcasting a PAGING TYPE 1 message on an appropriate paging occasion on the PCCH.

UTRAN may repeat paging of a UE in several paging occasions to increase the probability of proper reception of a page. ~~This is a UTRAN option.~~

8.1.2.2.1 Message PAGING TYPE 1 contents to set

UTRAN may page several UEs in the same paging occasion by including one IE "Paging record" for each UE in the PAGING TYPE 1 message. ~~The identity shall be set according to the following:~~

~~• For an idle mode UE the identity shall be set to a CN UE identity given by the non-access stratum.~~

~~• For an UE in connected mode (CELL_PCH or URA_PCH state) the identity shall be set to a U-RNTI.~~

UTRAN may also indicate that ~~updated~~ system information has been updated, by including the value tag of the master information block in the IE "BCCH modification information" in the PAGING TYPE 1 message.

UTRAN shall not set more than one IE "Paging record" for same UE in one PAGING TYPE 1 message.

8.1.2.3 Reception of ~~message~~ an PAGING TYPE 1 message by the UE

The UE shall in idle mode, CELL_PCH state and URA_PCH state receive the paging information for all its monitored paging occasions. ~~The paging occasions an~~ For an UE in idle mode, the paging occasions ~~UE shall monitor~~ are specified in TS 25.304. For an UE in CELL_PCH state and URA_PCH state the paging occasions occasions depend on the "UTRAN DRX Cycle length" and the "DRX indicator", as~~are~~ specified in subclauses 8.5.7.3.6 and 8.5.3.7 ~~9.3.3.3 and 9.3.4.3~~ respectively.

When the UE receives a PAGING TYPE 1 message ~~as paging information~~, it shall check each occurrence of the IE "Paging record" ~~and perform the actions as specified in subclause 8.1.2.3.1~~.

8.1.2.3.1 Message PAGING TYPE 1 contents to use

For each included paging record the UE shall compare the included identity with the identity of the UE according to the following:

An idle mode UE shall;

- if the IE "paging originator" is CN, compare the included identities of type CN UE identity with all of its allocated CN UE identities.

- for each match, forward the identity and paging cause to the upper layer entity indicated by the IE "CN domain identity".

- store the paging cause to be included in the RRC connection establishment procedure.

- if the IE "paging originator" is UTRAN, ignore that paging record.

A connected mode UE shall;

- if the IE "paging originator" is UTRAN, compare the included identities of type "Connected mode identity" with its allocated U-RNTI.

- for each match,, the UE shall enter CELL_FACH state and perform a cell update procedure with cause "paging response" as specified in subclause 8.3.1.2.4.

- if the IE "paging originator" is CN, ignore that paging record.

~~• An idle mode UE shall compare the included identities of type CN UE identity with all of its allocated CN UE identities. For each match the UE shall forward the identity and paging cause to the upper layer entity indicated by~~

the CN domain identity.

- A connected mode UE shall compare the included identities of type "Connected mode identity" with its allocated U-RNTI. If there is a match, the UE shall check the "Paging originator" and perform the following:

- If "paging originator" is CN, the UE shall forward the identity and paging cause to the upper layer entity indicated by CN domain identity.

- The UE shall store the paging cause to be included in the RRC connection establishment procedure.

- If "paging originator" is UTRAN, the UE shall enter CELL_FACH state and perform a cell update procedure with cause "paging response" as specified in subclause 8.3.1.2.4.

- When there is no match the UE shall ignore that paging record.

If the IE "BCCH modification info" is included, the UE shall check the included value tag of the master information block and, if necessary, read system information on the BCCH as specified in subclause 8.1.1
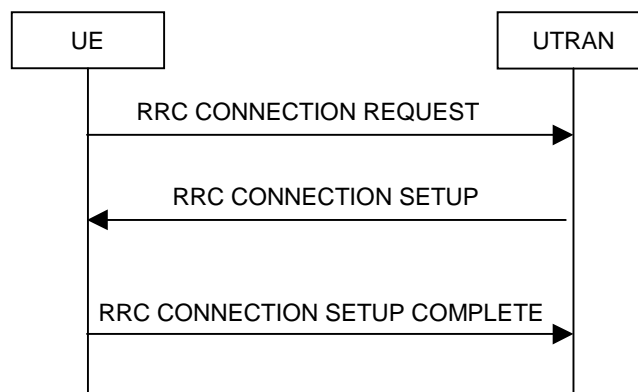
8.1.3   RRC connection establishment

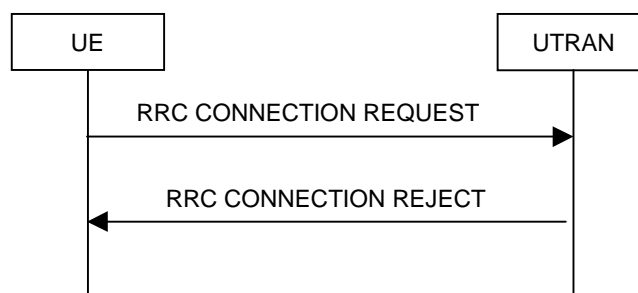**Figure 4) RRC Connection Establishment, network accepts RRC connection**

Figure 5) RRC Connection Establishment, network rejects RRC connection

8.1.3.1   General

The purpose with this procedure is to establish an RRC connection.

8.1.3.2   Initiation

The non-access stratum in the UE may request the establishment of at most onean RRC connection per UE.

The UE shall transmit an RRC CONNECTION REQUEST message on the uplink CCCH, reset counter V300, and start timer T300.

8.1.3.2.1 Message RRC CONNECTION REQUEST contents to set

The UE shall set the IE "Establishment cause" according to indications from the non-access stratum or according to the paging cause received from the PAGING TYPE 1 message.

The UE shall set the IE "Initial UE identity" according to subclause 8.5.1

The UE shall indicate its capability in the IE "Initial UE capability". *[Note: Currently this IE is optional. In that case the condition for including the IE needs to be specified.]*

The UE shall include an intra-frequency measurement report , as specified in the IE "Intra-frequency reporting quantity for RACH reporting" and the IE "Maximum number of reported cells on RACH" in system information block type 11. as instructed to do so in the system information.

8.1.3.3 Reception of an RRC CONNECTION REQUEST message by the UTRAN

UTRAN shall should either

- start timer T350 and transmit an RRC CONNECTION SETUP message on the downlink CCCH or

- transmit an RRC CONNECTION REJECT message on the downlink CCCH. On the UTRAN side, the procedure ends and all context information for this UE may be deleted in UTRAN.

8.1.3.3.1 Message RRC CONNECTION SETUP contents to set

The IE "Initial UE identity" shall be set to the same value as in the received message RRC CONNECTION REQUEST.

[Note: Other IEs are included and set according to selection by the UTRAN.]

8.1.3.3.2 Message RRC CONNECTION REJECT contents to set

The IE "Initial UE identity" shall be set to the same value as in the received message RRC CONNECTION REQUEST.

8.1.3.4 Reception of a RRC CONNECTION SETUP message by the UE

The UE shall compare the value of the IE "Initial UE identity" in the received RRC CONNECTION SETUP message with the value of the IE "Initial UE identity" in the most recent RRC CONNECTION REQUEST message sent by the UE.

- If the values are identical, the UE shall stop timer T300, and perform the following actions according . to subclause 8.1.3.4.1 and transmit an RRC CONNECTION SETUP COMPLETE message on the uplink DCCH. When the transmission of the RRC CONNECTION SETUP COMPLETE message has been confirmed by RLC the procedure ends.

- If the values are different, the UE shall ignore the rest of the message

8.1.3.4.1 Message RRC CONNECTION SETUP contents to use

The UE shall act upon all received information elements as specified in 8.5.7, unless specified otherwise in the following.

The UE shall

- store the values of the IE "U-RNTI" and

- initiate the signalling link parameters according to the IEs "Signalling link type" and the IE "RAB multiplexing mapping info".

If the IE "C-RNTI" is included, the UE shall

- use that C-RNTI on common transport channels in the current cell.

If neither the IEs "PRACH info (for RACH)",nor the IE "Uplink DPCH info" is included, the UE shall

- let the physical channel of type PRACH that is given in system information to be the default in uplink for RACH

If neither the IEs "Secondary CCPCH info",nor the IE "Downlink DPCH info" is included, the UE shall

- start to receive the physical channel of type Secondary CCPCH that is given in system information to be used as default by FACH, and enter the CELL_FACH state.

The UE shall transmit an RRC CONNECTION SETUP COMPLETE message on the uplink DCCH, with contents as specified below. Actions that shall be performed by the UE for other IEs are specified in subclause 8.5.7

8.1.3.4.2   Message RRC CONNECTION SETUP COMPLETE contents to set

The UE shall include its capabilities in the RRC CONNECTION SETUP COMPLETE message, according to instructions in the system informationthe IE "Capability update requirement" in system information block type 1..

When the transmission of the RRC CONNECTION SETUP COMPLETE message has been confirmed by RLC the UE shall update its variable UE_CAPABILITY_TRANSFERRED which UE capabilities it has transmitted to the UTRAN and the procedure ends.

8.1.3.5   Abnormal cases: Physical channel failure or T300 timeout

- Upon expiry of timer T300, or

- if the UE failed to establish the physical channel(s) indicated in the message RRC CONNECTION SETUP message

the UE shall check the value of V300, and

- if V300 is equal to or smaller or equal than N300, the UE shall transmit a new RRC CONNECTION REQUEST message on the uplink CCCH, restart timer T300 and increase counter V300. The UE shall set the IEs in the RRC CONNECTION REQUEST message according to subclause 8.1.3.2.1

- If V300 is greater than N300, the UE shall enter idle mode. The procedure ends and a connection failure may be indicated to the non-access stratum. Other actions the UE shall perform when entering idle mode from connected mode are specified in subclause 8.5.2

8.1.3.6   Reception of an RRC CONNECTION REJECT message by the UE

When the UE receives an RRC CONNECTION REJECT message on the downlink CCCH, it shall compare the value of the IE "Initial UE identity" in the received RRC CONNECTION SETUP REJECT message with the value of the IE "Initial UE identity" in the last RRC CONNECTION REQUEST message sent by the UE.

- If the values are identical, the UE shall stop timer T300 and perform the actions in subclause 8.1.3.6.1

- If the values are different, the UE shall ignore the rest of the message

8.1.3.6.1   Message RRC CONNECTION REJECT contents to use

If the IE "wait time" is present, and

- if V300 is equal to or smaller or equal than N300, the UE shall wait at least the time stated in the IE "wait time", transmit a new RRC CONNECTION REQUEST message on the uplink CCCH, restart timer T300 and increase counter V300. UE shall set the IEs in the RRC CONNECTION REQUEST message according to subclause 8.1.3.2.1

- If V300 is greater than N300 the UE shall enter idle mode. The procedure ends and a connection failure may be indicated to the non-access stratum. Other actions the UE shall perform when entering idle mode from connected mode are specified in subclause 8.5.2

If the IE "wait time" is not present the UE shall

- enter idle mode. The procedure ends and a connection failure may be indicated to the non-access stratum. Other actions the UE shall perform when entering idle mode from connected mode are specified in subclause 8.5.2

8.1.3.7   Reception of an RRC CONNECTION SETUP COMPLETE message by the UTRAN

When UTRAN has received the RRC CONNECTION SETUP COMPLETE message, the procedure ends on the UTRAN side, and timer T350 shall be stopped.

8.1.3.8 ~~Abnormal case: T350 timeout~~

~~Upon expiry of timer T350, the procedure ends on the UTRAN side, and all context information for this UE may be deleted in UTRAN.~~
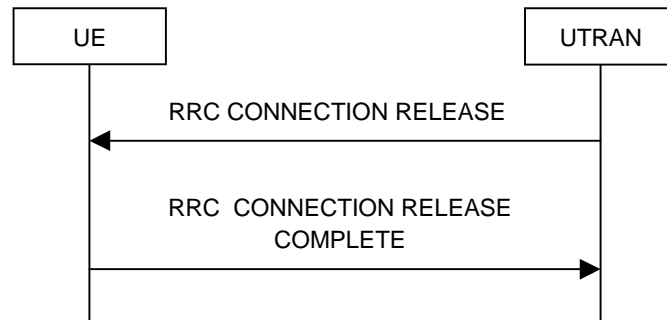
8.1.4 RRC connection release

Figure 6. RRC Connection Release procedure

8.1.4.1 General

The purpose with this procedure is to release the RRC connection including the signalling link and all radio bearers between the UE and the UTRAN.

8.1.4.2 Initiation

When the UE is in state Cell_DCH or Cell_FACH, the UTRAN can at anytime initiate a RRC connection release by transmitting an RRC CONNECTION RELEASE message using unacknowledged mode.

8.1.4.2.1 ~~Retransmission of message RRC CONNECTION RELEASE~~

UTRAN may transmit several RRC CONNECTION RELEASE messages to increase the probability of proper reception of the message by the UE. The number of repeated messages and the interval between the messages is a network option.

8.1.4.3 Reception of an RRC CONNECTION RELEASE message by the UE

The UE shall ~~be able to~~ 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

- When in state CELL_DCH, transmit an RRC CONNECTION RELEASE COMPLETE message using unacknowledged mode to the UTRAN and start timer T308.

- When in state CELL_FACH, transmit an RRC CONNECTION RELEASE COMPLETE message using acknowledged mode to the UTRAN

Any succeeding RRC CONNECTION RELEASE messages that are received by the UE shall be ignored.

A release indication should be given to the non-access stratum.

8.1.4.3.1 ~~Message RRC CONNECTION RELEASE contents to use~~

~~The IE "Number of RRC Message Transmissions" indicates the number of times to send the message RRC CONNECTION RELEASE COMPLETE and the~~ When in CELL_DCH state, UE shall initialise the counter V308 with the value of ~~this~~ the IE "Number of RRC Message Transmissions" ~~when in CELL_DCH state~~, which indicates the number of times to send the RRC CONNECTION RELEASE COMPLETE message.

8.1.4.4 ~~CELL_DCH:~~ Expiry of timer T308 in CELL_DCH state

When in state CELL_DCH and the timer T308 expires, the UE shall decrease V308 by one. If V308 is greater than zero, the UE shall retransmit ~~repeat~~ the RRC CONNECTION RELEASE COMPLETE message. If V308 is equal to zero, the UE shall release all its radio resources, enter idle mode and the procedure ends on the UE side. Actions the UE shall perform when entering idle mode are given in subclause 8.5.2

8.1.4.5 ~~CELL_FACH:~~ Successful transmission of the RRC CONNECTION RELEASE COMPLETE message in CELL_FACH state

When the UE is in state CELL_FACH and RLC has confirmed the transmission of the RRC CONNECTION RELEASE COMPLETE message it shall release all its radio resources, enter idle mode and the procedure ends on the UE side. Actions the UE shall perform when entering idle mode are given in subclause 8.5.2

8.1.4.6 Reception of an RRC CONNECTION RELEASE COMPLETE message by UTRAN

When UTRAN receives a RRC CONNECTION RELEASE COMPLETE message from the UE, it should release all UE dedicated resources and the procedure ends on the UTRAN side.

8.1.4.7 ~~CELL_FACH abnormal case: unsuccessful~~ Unsuccessful transmission of the RRC CONNECTION RELEASE COMPLETE message in CELL_FACH state

When the UE is in state CELL_FACH and does not succeed ~~to~~ in transmitting the RRC CONNECTION RELEASE COMPLETE message, it shall release all its radio resources, enter idle mode and the procedure ends on the UE side. Actions the UE shall perform when entering idle mode are given in subclause 8.5.2

8.1.4.8 ~~CELL_DCH abnormal case: detection~~ Detection of dedicated physical channel release by UTRAN in CELL_DCH state

If the release is performed from the state CELL_DCH, and UTRAN detects loss of a the dedicated physical channel according to subclause 8.5.6, UTRAN may release all UE dedicated resources, even if no RRC CONNECTION RELEASE COMPLETE message has been received.

8.1.4.9 ~~Abnormal case: n~~No reception of an RRC CONNECTION RELEASE COMPLETE message by UTRAN

If UTRAN does not receive any RRC CONNECTION RELEASE COMPLETE message, it should release all UE dedicated resources.
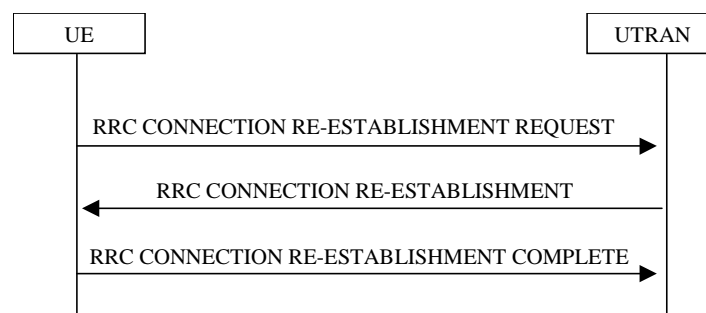
~~8.1.5~~ RRC connection re-establishment

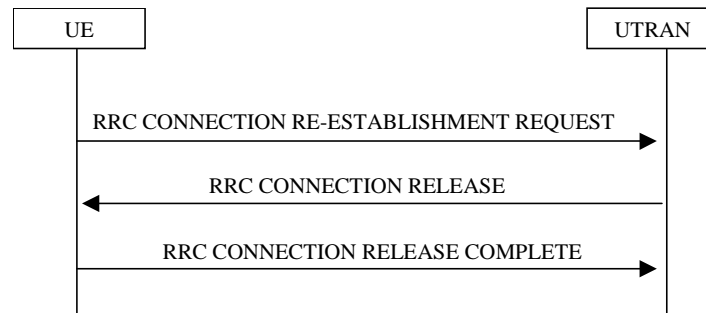**Figure 7. RRC Connection Re-establishment, successful case**

Figure 8. RRC Connection Re-establishment, failure case

8.1.5.1 General

The purpose ~~with~~ of this procedure is to re-establish a~~n~~ lost RRC connection.

8.1.5.2 Initiation

When a UE loses the radio connection due to e.g. radio link failure (see 8.5.6) in CELL_DCH state, the UE may initiate a new cell selection by transiting to CELL_FACH state and request re-establishment of an RRC connection.

The UE shall transmit an RRC CONNECTION RE-ESTABLISHMENT REQUEST message on the uplink CCCH, reset counter V301, and start timer T301.

8.1.5.1.1 Message RRC CONNECTION RE-ESTABLISHMENT REQUEST contents to set

The UE shall

- Set the IE "U-RNTI", ~~which the UE has in itself~~ to the value stored in the UE.

- Include ~~an~~ IE ~~intra-frequency measurement report~~ "Measured Results", ~~as instructed~~ 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.. ~~to do so in the System Information.~~

8.1.5.3 Reception of an RRC CONNECTION RE-ESTABLISHMENT REQUEST message by the UTRAN

UTRAN ~~shall~~ may either

- Initiate the RRC connection re-establishment procedure and t~~start timer T352 and t~~ransmit an RRC CONNECTION RE-ESTABLISHMENT message on the downlink DCCH on FACH or

- I~~i~~nitiate the RRC c~~C~~onnection r~~R~~elease procedure in CELL_FACH state. ~~when the UTRAN cannot accept RRC Connection Re-establishment from the UE.~~

8.1.5.3.1 Message RRC CONNECTION RE-ESTABLISHMENT contents to set

~~If transport channels are added, reconfigured or deleted in uplink and/or downlink, the UTRAN shall~~

~~- Set TFCS according to the new transport channel(s)~~

~~If activation time is used this time shall not be set to a larger value than T352.~~

~~[Note: Other IEs are included and set according to selection by the UTRAN.]~~

8.1.5.1.2 Message RRC CONNECTION RELEASE contents to set

~~The UTRAN shall~~

~~- set IE "Release Cause", according to the condition in UTRAN.~~

8.1.5.4 Reception of an RRC CONNECTION RE-ESTABLISHMENT message by the UE

Upon reception of the RRC CONNECTION RE-ESTABLISHMENT message tThe UE shall

- Stop timer T301

- Re-establish the RRC cConnection according to the IEs included in the RRC CONNECTION RE-ESTABLISHMENT message

- Tand transmit a RRC CONNECTION RE-ESTABLISHMENT COMPLETE message on the uplink DCCH using AM RLC.

8.1.5.4.1 Message RRC CONNECTION RE-ESTABLISHMENT contents to use

The UE shall use the contents of the RRC CONNECTION RE-ESTABLISHMENT message as specified in clause 8.5.7, unless specified otherwise in the following.

- For each reconfigured radio bearer use the multiplexing mapping option applicable for the transport channels used according to the IE "RB multiplexing mapping info".

- Configure MAC multiplexing if that is needed in order to use said transport channel(s).

- Use MAC logical channel priority when selecting TFC in MAC.

If neither the IEs "PRACH info" nor "Uplink DPCH info" is included, the UE shall

- Let the physical channel of type PRACH that is given in System Information Block Type 7 be the default in uplink and enter the CELL_FACH state.

If neither the IEs "Secondary CCPCH info" nor "Downlink DPCH info" is included, the UE shall

- Start to receive the physical channel of type Secondary CCPCH that is given in system information.

The UE shall use the transport channel(s) applicable for the physical channel types that is used. If neither the IE "TFS" is neither included nor previously stored in the UE for that transport channel(s), the UE shall

- Use the TFS given in system information

If none of the TFS stored is compatible with the physical channel, the UE shall

- Delete the stored TFS and use the TFS given in system information

If the IE "C-RNTI" is included, the UE shall

- Use that C-RNTI when using common transport channels of type RACH, FACH and CPCH in the current cell.

If the the IE "U-RNTI" IE is included, the UE shall update its identity.

If the IEs "CN domain identity" and "NAS system information" are included, the UE shall

- Fforward the content of the IE to the non-access stratum entity of the UE indicated by the IE "CN domain identity".

Actions that shall be performed by the UE, for other IEs are specified in chapter 8.5.7.

8.1.5.1.2 Message RRC CONNECTION RE-ESTABLISHMENT COMPLETE contents to set

The UE shall

- FFS.

8.1.5.5 Abnormal cases: T301 timeout or DPCH failure

- Upon expiry of timer T301, or

- if the UE failed to re-establish the RRC Connection indicated in the message RRC CONNECTION RE-ESTABLISHMENT message

the UE shall check the value of V301, and

- if V301 is equal to or smaller ~~or equal~~ than N301, the UE shall transmit a new RRC CONNECTION RE-ESTABLISHMENT REQUEST message on the uplink CCCH, restart timer T301 and increase counter V301. The UE shall set the IEs in *the* RRC CONNECTION RE-ESTABLISHMENT REQUEST message according to subclause 8.1.5.2.~~1~~

- If V301 is greater than N301, the UE shall enter idle mode. The procedure ends and a connection failure may be indicated to the non-access stratum. Other actions the UE shall perform when entering idle mode from connected mode are specified in subclause 8.5.2

~~8.1.5.6~~ Reception of an RRC CONNECTION RE-ESTABLISHMENT COMPLETE message by the UTRAN

When UTRAN has received the RRC CONNECTION RE-ESTABLISHMENT COMPLETE message, the procedure ends on the UTRAN side~~, and timer T352 shall be stopped~~.

~~8.1.5.7 Abnormal case: T352 timeout~~

~~Upon expiry of timer T352, the procedure ends on the UTRAN side, and all context information for this UE may be deleted in UTRAN.~~

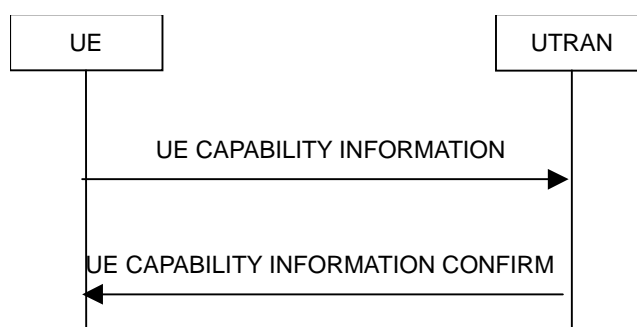## 8.1.6   Transmission of UE capability information

Figure 9. Transmission of UE capability information, normal flow

8.1.6.1   General

The UE capability update procedure is used by the UE to convey UE specific capability information to the UTRAN.

8.1.6.2   Initiation

The UE shall initiate the UE capability update procedure in the following situations:

- ~~Upon capability enquiry from the UTRAN, a~~After the UE has received a UE CAPABILITY ENQUIRY message from the UTRAN.

- After having performed cell reselection to a cell, ~~where~~ and the IE "capability update requirement"~~"~~ in system information block type 1 indicates the necessity to transmit capability information which ~~has~~ is not ~~been~~ indicated as previously sent in the variable UE_CAPABILITY_TRANSFERRED.

- If UE capabilities change during the RRC connection.~~ (E.g. change of power class)~~

The UE transmits the UE CAPABILITY INFORMATION message on the uplink DCCH using AM or UM RLC, starts timer T304 and resets counter V304.

8.1.6.2.1 ~~Message UE CAPABILITY INFORMATION contents to set~~

If the UE CAPABILITY INFORMATION message is sent upon establishment of an RRC connection, the UE shall

- ~~shall~~ set CN specific capability information into the the IE "NAS message" ~~IE~~ and UTRAN specific capability information to the corresponding information elements according to information stored in the UE.

- include one or more inter-system classmarks into the IEs "inter-system message" ~~IEs~~, according to the requirement given in the "Capability update requirement" IE in the SYSTEM INFORMATION message

If the UE CAPABILITY INFORMATION message is sent in response to a UE CAPABILITY ENQUIRY message, the UE shall

- include the UMTS specific UE capability information elements if requsted in the IE "System" in the IE "Capability update requirement" . ~~IE~~ in the UE CAPABILITY ENQUIRY message.

- include one or more inter-system classmarks into the IEs "inter-system message" ~~IEs~~, according to the requirement given in the IE "System" in the IE "Capability update requirement" ~~IE~~ in the UE CAPABILITY ENQUIRY message

8.1.6.3 Reception of an UE CAPABILITY INFORMATION message by the UTRAN

Upon reception of a UE CAPABILITY INFORMATION message, the UTRAN ~~shall~~ should transmit a UE CAPABILITY INFORMATION CONFIRM message on the downlink DCCH using UM or AM RLC. After the UE CAPABILITY INFORMATION CONFIRM message has been sent, the procedure is complete.

8.1.6.3.1 ~~Message UE CAPABILITY INFORMATION contents to use~~

~~The UTRAN shall store the capability information received from the UE.~~

~~The UTRAN specific capability information elements are stored to be further used for the configuration of UTRAN specific services for the UE.~~

~~The "NAS message" including CN specific capability information is forwarded to the CN.~~

~~The "inter-system message" including the inter-system classmark is stored to be further used for configuration of inter-system measurements and in the execution of inter-system handover.~~

8.1.6.3.2 ~~Message UE CAPABILITY INFORMATION CONFIRM contents to set~~

[Note: Currently only a message type IE is included in this message.]

8.1.6.4 Reception of the UE CAPABILITY INFORMATION CONFIRM message by the UE

Upon reception of a UE CAPABILITY INFORMATION CONFIRM message, the UE shall stop timer T304. It shall then update its ~~register on~~ variable UE_CAPABILITY_TRANSFERRED which UE capabilities it has transmitted to the UTRAN during the current RRC connection.

8.1.6.5 ~~Abnormal case:~~ T304 timeout

Upon expiry of timer T304 ~~and no UE CAPABILITY INFORMATION CONFIRM message has been received~~, the UE the UE shall check the value of V304 and

- If V304 is smaller or equal than N304, the UE shall retransmit a UE CAPABILITY INFORMATION message, restart timer T304 and increase counter V304.

- If V304 is greater than N304, the UE shall assume that radio link failure has occurred and initiate the RRC connection re-establishment procedure
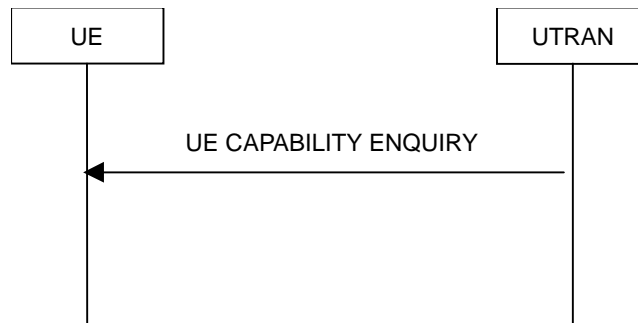
8.1.7 UE capability enquiry

Figure 10. UE capability enquiry procedure, normal flow

8.1.7.1 General

The UE capability enquiry can be used to request the UE to transmit its capability information related to any radio access network that is supported by the UE. ~~In particular, it can be used by the UTRAN to request an update of inter-system capability information from a dual mode terminal.~~

8.1.7.2 Initiation

The ~~UTRAN initiates the~~ UE capability enquiry procedure is initiated by ~~, if it needs an update of the UE's UMTS capability information or of its inter-system classmark.~~

~~The~~ UTRAN ~~shall~~ by transmitting ~~the~~ a UE CAPABILITY ENQUIRY message on the DCCH using the UM or AM SAP.

~~Message UE CAPABILITY ENQUIRY contents to set~~

~~The UTRAN shall indicate in the "Capability update requirement" IE, which inter-system classmarks, if any, should be updated, and if it also needs an update of UMTS capability information.~~

8.1.7.3 Reception of ~~message~~ an UE CAPABILITY ENQUIRY message by the UE

Upon reception of an UE CAPABILITY ENQUIRY message, the UE shall initiate the transmission of UE capability information procedure, which is specified in clause 8.1.6

~~8.1.7.4 Abnormal case~~

~~[Note: Is it useful to specify the UTRAN behaviour in detail for this procedure? This may be covered by the more general rules of handling radio link failure in connected mode.]~~
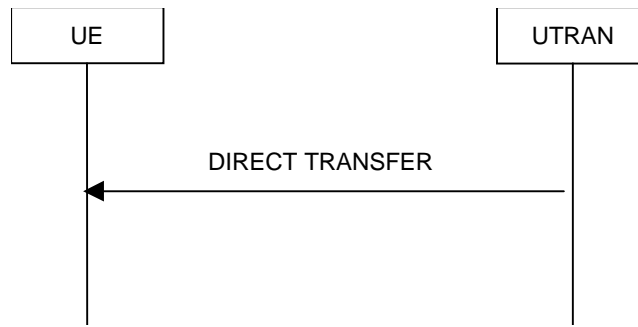
8.1.8 Direct transfer

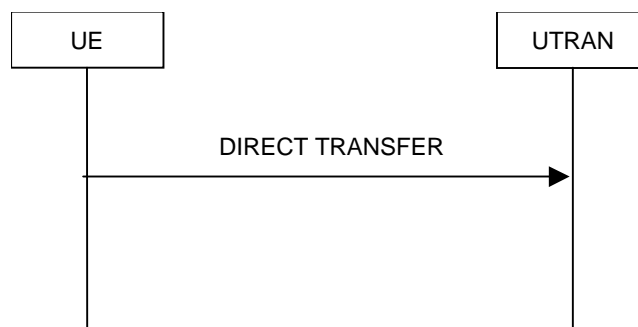**Figure 11. Direct transfer in the downlink, normal flow**

Figure 12. Direct transfer in the uplink, normal flow

8.1.8.1   General

The direct transfer procedure is used in both downlink and uplink to carry all higher layer (NAS) messages over the radio interface. It can also be used to establish and release signalling connections (FFS).

8.1.8.2   Initiation of direct transfer procedure in the UE

In the UE, the direct transfer procedure shall be initiated, when the upper layers request a transfer of a NAS message. The UE shall transmit the DIRECT TRANSFER message on the uplink DCCH using AM ~~or UM~~ RLC.

~~8.1.8.2.1   Message DIRECT TRANSFER (uplink) contents to set~~

The UE shall set <u>IE</u>"CN domain ~~identifier~~<u>identity</u>" to indicate~~,~~ <u> </u>which CN node the NAS message is destined to.

In, CELL_FACH state, ~~T~~the UE shall include <u>IE</u>"Measured results" into the DIRECT TRANSFER message, if the message is sent to establish a signalling connection and if RACH measurement reporting has been requested <u>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.</u>~~in the SYSTEM INFORMATION message~~.

8.1.8.3   Initiation of direct transfer procedure in the UTRAN

In the UTRAN, the direct transfer procedure shall be initiated, when the upper layers request the transfer of a NAS message or the release of a signalling connection (FFS)~~(.. ~~. The ~~UE ~~<u>UTRAN </u>shall transmit the DIRECT TRANSFER message on the downlink DCCH using AM ~~or UM~~ RLC.

8.1.8.3.1 Message DIRECT TRANSFER (downlink) contents to set

The UTRAN sets the IE"CN domain identifieridentity" to indicate, which CN domain the NAS message is originated from.

8.1.8.4 Reception of a DIRECT TRANSFER in message by the UTRAN

Upon reception of the DIRECT TRANSFER message the NAS message shall should be routed to the correct CN domain.

8.1.8.4.1 Message DIRECT TRANSFER (uplink) contents to use

The UTRAN routes the contents of the "NAS message" IE to the correct CN domain using the IE"CN domain identifieridentity" IE.

If the IE"measured Measured results" IE is present in the message, the UTRAN shall extract the contents to be used for radio resource control.

8.1.8.5 Reception of a DIRECT TRANSFER message by the UE

Upon reception of the DIRECT TRANSFER message, the UE RRC shall using the IE "CN Domain identifierty",

- route the contents of the higher layer PDU, if any, to the correct higher layer entity.

- route the signalling connection release indication, if any, to the correct higher layer entity (FFS).

8.1.8.5.1 Message DIRECT TRANSFER (downlink) contents to use

The UE RRC routes the contents of the "NAS message" IE to the correct higher layer entity using the "CN domain identifier" IE.

8.1.8.6 Abnormal cases

[Delivery of DIRECT TRANSFER messages is guaranteed by the the higher layers and, optionally, the acknowledged service in the RLC layer.]

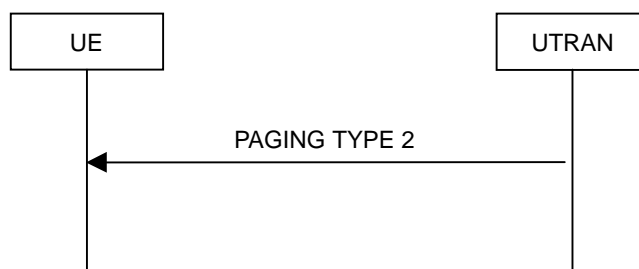## 8.1.9 Connected UE dedicated mode paging on DCCH

Figure 13. Connected mode UE dedicated paging on DCCH

8.1.9.1 General

This procedure is used to transmit dedicated paging information to selected one UEs in connected mode in states CELL_DCH and CELL_FACH. Upper layers in the network may request initiation of paging, to for e.g. to establish a signalling connection.

8.1.9.2 Initiation

~~Upper layers in the network may request paging of an UE.~~ For an UE in states CELL_DCH or CELL_FACH, UTRAN initiates the procedure by transmitting a PAGING TYPE 2 message on the DCCH.

~~8.1.9.2.1~~ ~~Message PAGING TYPE 2 contents to set~~

~~The IEs "Paging cause" and "Paging record type identifier" shall be set according to indications from the upper layers.~~

8.1.9.3 Reception of ~~message~~ an PAGING TYPE 2 message by the UE

The UE shall indicate paging and forward the paging cause and the paging record type indetifier to the upper layer entity indicated by the CN domain identity.

8.1.10 Security mode control

~~<note: this procedure should be updated in line with the agreed structure>~~
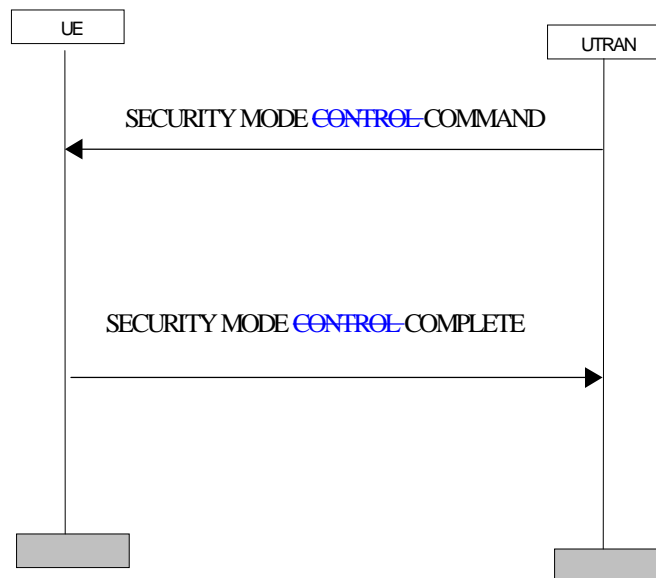
Figure 14*) Security mode control procedure*

8.1.10.1 General

The purpose of this procedure is to trigger the start of ciphering or to command the change of the cipher key, both for the signalling link and for any of the radio bearers.

8.1.10.2 Initiation

The UTRAN sends a SECURITY MODE COMMAND message on the downlink DCCH in AM RLC, using the old ciphering configuration.

For the signalling link, the UTRAN starts to cipher the messages, when the layer 2 acknowledgement for the SECURITY MODE COMMAND is received.

For radio bearers in TM RLC, the UTRAN may set the IE «"Activation Time"» ~~IE~~, both in uplink and in downlink, in order to synchronise the time instant at which the cipher key shall be switched.

8.1.10.3   Reception of SECURITY MODE COMMAND message by the UE

For the signalling link, the UE shall start to transmit using the new cipher configuration, and to receive and decipher messages.

If the IE «"Activation Time"»IE is included for radio bearers in TM RLC, the UE shall switch to the new cipher configuration at the specified time.

The UE shall send a SECURITY MODE COMPLETE message on the uplink DCCH in AM RLC, using the new cipher configuration. When the transmission of the SECURITY MODE COMPLETE message has been confirmed by RLC, the procedure ends.

8.1.10.4   Activation time too short

If the time specified by the IE «"Activation Time"»IE has elapsed, the UE shall switch immediately to the new cipher configuration.

8.1.10.5   Reception of SECURITY MODE COMPLETE message by the UTRAN

This procedure is used to trigger the start of ciphering, or to command the change of the cipher key, both for the signalling link and for a user plane connection. The ciphering is configured in both directions.

The SRNC sends a SECURITY MODE CONTROL COMMAND to the UE, which indicates the uplink Activation Time when the ciphering shall start to be applied in uplink. The SRNC then starts to decipher in the new ciphering configuration at the uplink Activation Time.

When the UE receives the SECURITY MODE CONTROL COMMAND message, it starts ciphering transmission in the uplink in the new configuration at the uplink Activation Time. It sends a SECURITY MODE CONTROL COMPLETE message, which includes a downlink Activation Time, and starts to receive in the new ciphering configuration at that Activation Time. When the SRNC receives the SECURITY MODE CONTROL COMPLETE, it starts ciphering transmission in the new configuration at the downlink Activation Time.

Note : The same procedure can be used for integrity control. But this is FFS.

8.2   Radio bearer control procedures

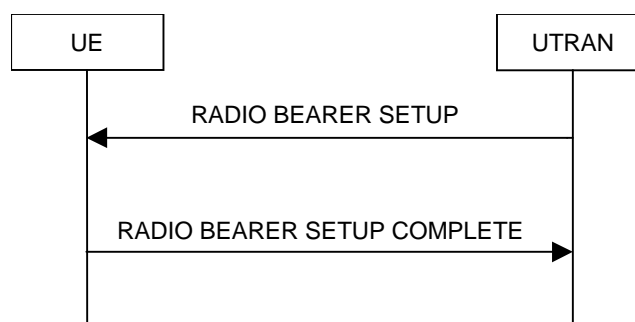## 8.2.1   Radio bearer establishment

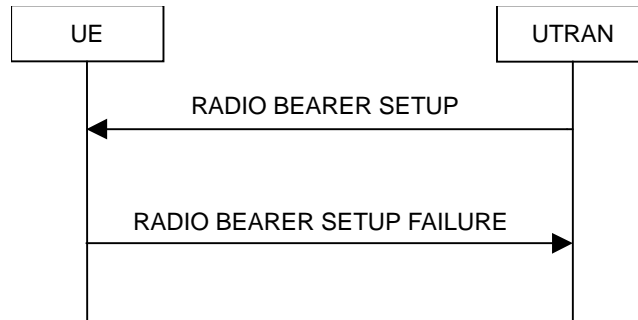**Figure 15. Radio Bearer Establishment, normal case**

Figure 16. Radio Bearer Establishment, UE reverts to old configuration

8.2.1.1 General

The purpose with this procedure is to establish new radio bearer(s). The procedure may also be used to establish a transport channel for the transparent transfer of signalling information A DCH which carries transparent mode DCCH information to control, e.g. the TFCS, may also be defined.

8.2.1.2 Initiation

The upper layer in the network may request an establishment of radio bearer(s).

To initiate the procedure, UTRAN shall transmits a RADIO BEARER SETUP message on the downlink DCCH using AM or UM RLC, and start timer T353.

8.2.1.2.1 Message RADIO BEARER SETUP contents to set

If transport channels are added, reconfigured or deleted in uplink and/or downlink, UTRAN shall

- Set TFCS according to the new transport channel(s)

If activation time is used this time shall not be set to a larger value than T353.

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

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

[Note: Other IEs are included and set according to selection by the UTRAN.]

8.2.1.3 Reception of a RADIO BEARER SETUP message by the UE

Upon reception of a RADIO BEARER SETUP message the UE shall perform actions as specified belowaccording to subclause 8.2.1.3.1 and transmit a RADIO BEARER SETUP COMPLETE message on the uplink DCCH using AM RLC. When the transmission of the RADIO BEARER SETUP COMPLETE message has been confirmed by RLC the procedure ends.

8.2.1.3.1 Message RADIO BEARER SETUP contents to use

The UE shall act upon all received information elements as specified in 8.5.7, unless specified otherwise in the following.

The UE shall

- For the new radio bearer(s), use the multiplexing option applicable for the transport channels used according to the IE "RB mapping info"

- For radio bearer(s) existing prior to the message, use the multiplexing option applicable for the transport channels

used, according to their IE "RB mapping info" or their previously stored multiplexing options.

- Configure MAC multiplexing if that is needed in order to use said transport channel(s).

- Use MAC logical channel priority when selecting TFC in MAC.

If the IE "C-RNTI" is included, the UE shall

- Use that C-RNTI when using common transport channels of type RACH, FACH and CPCH in the current cell.

If neither the IEs "PRACH info" nor the IE "Uplink DPCH info" is included, the UE shall

- Let the physical channel of type PRACH that is given in system information be the default in uplink and enter the CELL_FACH state.

If neither the IEs "Secondary CCPCH info" nor the IE "Downlink DPCH info" is included, the UE shall

- Start to receive the physical channel of type Secondary CCPCH that is given in system information.

The UE shall use the transport channel(s) applicable for the physical channel types that is used. If neither the IE "TFS" is included or previously stored in the UE for that transport channel(s), the UE shall

- Use the TFS given in system information

If none of the TFS stored is compatible with the physical channel, the UE shall

- Delete stored TFS and use the TFS given in system information

Actions that shall be performed by the UE, for other IEs are specified in subclause 8.5.7

8.2.1.3.2 Message RADIO BEARER SETUP COMPLETE contents to set

FFS

8.2.1.4 Abnormal case: Unsupported configuration in the UE

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

- Ttransmit a RADIO BEARER SETUP FAILURE message on the DCCH using AM RLC.

8.2.1.4.1 Message RADIO BEARER SETUP FAILURE contents to set

The UE shall set the cause value in and set the IE "failure cause" to the cause value "configuration unacceptable".

8.2.1.5 Abnormal case: Physical channel failure

If the UE failed to establish the physical channel(s) indicated in the message RADIO BEARER SETUP message the UE shall

- Revert to the configuration prior to the reception of the RADIO BEARER SETUP message (old configuration) and transmit a RADIO BEARER SETUP FAILURE message on the DCCH using AM RLC. The procedure ends and the UE resumes the normal operation as if no radio bearer establishment attempt had occurred.

A physical channel failure occurs in case the criteria as defined in 8.5.4 are not fulfilled.Criteria to be fulfilled for having a physical channel established are described in subclause 8.5.4

If the UE is unable to revert to the old configuration or if used, the activation time has expired, the UE shall

- Initiate a RRC connection re-establishment procedure according to subclause 8.1.5 containing

8.2.1.5.1 Message RADIO BEARER SETUP FAILURE contents to set

The UE shall set the cause value in and set the IE "failure cause" to the cause value "physical channel failure".

8.2.1.6 Reception of the RADIO BEARER SETUP COMPLETE message by the UTRAN

When UTRAN has received the RADIO BEARER SETUP COMPLETE message, UTRAN may delete any old configuration. Timer T353 is stopped and the procedure ends on the UTRAN side.

8.2.1.7   Reception of the RADIO BEARER SETUP FAILURE message by the UTRAN

When UTRAN has received the RADIO BEARER SETUP FAILURE message, UTRAN may restore the old and delete the new configuration. Timer T353 is stopped and the procedure ends on the UTRAN side. Upper layers should be notified of the failure.

8.2.1.8   Abnormal case: T353 timeout

Upon expiry of timer T353 and no RADIO BEARER SETUP COMPLETE or RADIO BEARER SETUP FAILURE message has been received, the UTRAN may delete the old and new configuration. All UE dedicated resources may then be cleared, unless the UE requests a re-establishment of the RRC connection.

8.2.2   Radio bearer reconfiguration
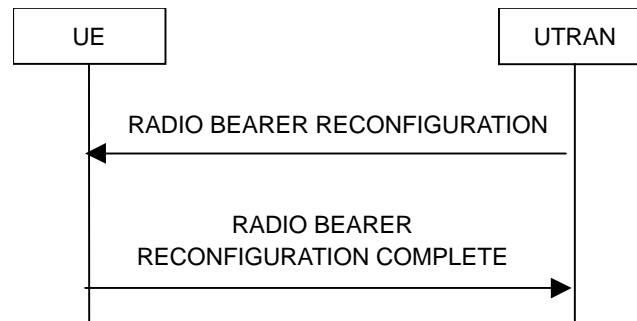
Figure 17. Radio bearer reconfiguration, normal flow

Figure 18. Radio bearer reconfiguration, failure case

8.2.2.1   General

The radio bearer reconfiguration procedure is used to reconfigure parameters for a radio bearer or the signalling link to reflect a change in QoS.

8.2.2.2   Initiation

The UTRAN shall initiates the procedure by transmitting a RADIO BEARER RECONFIGURATION message on the downlink DCCH using AM or UM RLC, and start timer T355.

8.2.2.2.1 ~~Message RADIO BEARER RECONFIGURATION contents to set~~

If transport channels are added, reconfigured or deleted in uplink and/or downlink, the UTRAN shall

- Set TFCS according to the new transport channel(s)

- UTRAN should indicate ~~for each reconfigured bearer, whether~~that uplink transmission ~~is~~ shall be suspended on certain radio bearers. ~~The suspension of uplink~~ Uplink transmission on a ~~signalling~~ radio bearer used by the RRC signalling~~is not applicable~~should not be suspended.

~~If activation time is used this time shall not be set to a larger value than T355.~~

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

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

~~[Note: Other IEs are included and set according to selection by the UTRAN.]~~

If the message is used to initiate a transition from CELL_DCH to CELL_FACH state, the UTRAN may assign a common channel configuration of a given cell and C-RNTI to be used in that cell to the UE.

8.2.2.3 Reception of a RADIO BEARER RECONFIGURATION message by the UE in CELL_DCH state
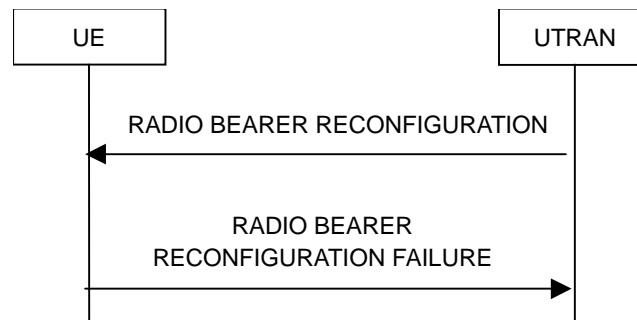
Upon reception of a RADIO BEARER RECONFIGURATION message in CELL_DCH state, the UE shall perform actions ~~according~~ specified ~~below.~~~~to subclause 8.2.2.3.1~~~~and transmit a RADIO BEARER RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC. When the transmission of the RADIO BEARER RECONFIGURATION COMPLETE message has been confirmed by RLC, the procedure ends.~~

~~If the RADIO BEARER RECONFIGURATION message is used to initiate a transition from CELL_DCH to CELL_FACH state, the RADIO BEARER RECONFIGURATION COMPLETE message shall be transmitted on the RACH after the UE has completed the state transition.~~

8.2.2.3.1 ~~Message RADIO BEARER RECONFIGURATION contents to use in CELL_DCH state~~

The UE shall act upon all received information elements as specified in 8.5.7, unless specified otherwise in the following.

The UE shall

- For each reconfigured radio bearer or signalling link, use the multiplexing option applicable for the transport channels used according to the IE "RB mapping info"

- Configure MAC multiplexing if that is needed in order to use said transport channel(s).

- Use MAC logical channel priority when selecting TFC in MAC.

- Suspend or resume uplink transmission for each radio bearer, as indicated by the IE "RB suspend/resume" ~~information element~~.

If neither the IE~~s~~ "PRACH info" nor the IE "Uplink DPCH info" is included, the UE shall

- Let the physical channel of type PRACH that is given in system information be the default in uplink and enter the CELL_FACH state.

If neither the IE~~s~~ "Secondary CCPCH info" nor the IE "Downlink DPCH info" is included, the UE shall

- Start to receive the physical channel of type Secondary CCPCH that is given in system information.

The UE shall use the transport channel(s) applicable for the physical channel types that is used. If neither the IE "TFS"

is included or previously stored in the UE for that transport channel(s), the UE shall

- Use the TFS given in system information

If none of the TFS stored is compatible with the physical channel, the UE shall

- Delete stored TFS and use the TFS given in system information

Actions that shall be performed by the UE, for other IEs are specified in subclause 8.5.7

If the RADIO BEARER RECONFIGURATION message is used to initiate a state transition to the CELL_FACH state and if an IE "pPrimary CCPCH info" and the IE "C-RNTI" to a given cell is are included, the UE shall

- Select the cell indicated by the IE "Primary CCPCH info" IE.

- Use the given C-RNTI when using common transport channels of type RACH, FACH and CPCH in that given cell after having completed the transition to that cell.

The UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC. When the transmission of the RADIO BEARER RECONFIGURATION COMPLETE message has been confirmed by RLC, the procedure ends.

If the RADIO BEARER RECONFIGURATION message is used to initiate a transition from CELL_DCH to CELL_FACH state, the RADIO BEARER RECONFIGURATION COMPLETE message shall be transmitted on the RACH after the UE has completed the state transition.

8.2.2.3.2 Message RADIO BEARER RECONFIGURATION COMPLETE contents to set in CELL_DCH state

FFS.

8.2.2.4 Reception of an RADIO BEARER RECONFIGURATION message by the UE in CELL_FACH state

Upon reception of a RADIO BEARER RECONFIGURATION message in CELL_ DCH FACH state, the UE shall perform actions accordingspecified below. to 8.2.2.4.1and transmit a RADIO BEARER RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC. When the transmission of the RADIO BEARER RECONFIGURATION COMPLETE message has been confirmed by RLC, the procedure ends.

8.2.2.4.1 Message RADIO BEARER RECONFIGURATION contents to use in CELL_FACH state.

The UE shall act upon all received information elements as specified in 8.5.7, unless specified otherwise in the following.

The UE shall

- For each reconfigured radio bearer or signalling link, use the multiplexing option applicable for the transport channels used according to the IE "RB mapping info"

- Configure MAC multiplexing if that is needed in order to use said transport channel(s).

- Use MAC logical channel priority when selecting TFC in MAC.

- Suspend or resume uplink transmission for each radio bearer, as indicated by the IE "RB suspend/resume" information element.

If the IE "C-RNTI" is included, the UE shall

- Use that C-RNTI when using common transport channels of type RACH, FACH and CPCH in the current cell.

If neither the IEs "PRACH info" nor the IE "Uplink DPCH info" is included, the UE shall

- Let the physical channel of type PRACH that is given in system information be the default in uplink

If neither the IEs "Secondary CCPCH info" nor the IE "Downlink DPCH info" is included, the UE shall

- Start to receive the physical channel of type Secondary CCPCH that is given in system information.

The UE shall use the transport channel(s) applicable for the physical channel types that is used. If neither the IE "TFS" is included or previously stored in the UE for that transport channel(s), the UE shall

- Use the TFS given in system information

If none of the TFS stored is compatible with the physical channel, the UE shall

- Delete stored TFS and use the TFS given in system information

The UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC. When the transmission of the RADIO BEARER RECONFIGURATION COMPLETE message has been confirmed by RLC, the procedure ends. Actions that shall be performed by the UE, for other IEs are specified in subclause 8.5.7

8.2.2.4.2 Message RADIO BEARER RECONFIGURATION COMPLETE contents to set in CELL_FACH state

FFS.

8.2.2.5 Reception of a RADIO BEARER RECONFIGURATION COMPLETE message by the UTRAN

When UTRAN has received the RADIO BEARER RECONFIGURATION COMPLETE message, UTRAN may delete the old configuration. Timer T355 is stopped and the procedure ends on the UTRAN side.

8.2.2.6 Abnormal case: Unsupported configuration in the UE

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

- transmit a RADIO BEARER RECONFIGURATION FAILURE message on the DCCH using AM RLC.

8.2.2.6.1 Message RADIO BEARER RECONFIGURATION FAILURE contents to set

- The UE shall set the cause value in IE "failure cause" to "configuration unacceptable".

When the transmission of the RADIO BEARER RECONFIGURATION FAILURE message has been confirmed by RLC, the procedure ends.

8.2.2.7 Abnormal case: Physical channel failure

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

If the UE failed to establish the physical channel(s) indicated in the message RADIO BEARER RECONFIGURATION message the UE shall

- Revert to the configuration prior to the reception of the RADIO BEARER RECONFIGURATION message (old configuration)

- transmit a RADIO BEARER RECONFIGURATION FAILURE message on the DCCH using AM RLC.

- set the cause value in IE "failure cause" to "physical channel failure".

- When the transmission of the RADIO BEARER RECONFIGURATION FAILURE message has been confirmed by RLC, Tthe procedure ends and the UE shall resume the normal operation as if no radio bearer reconfiguration attempt had occurred.

Criteria to be fulfilled for having a physical channel established are described in subclause 8.5.4

If the UE is unable to revert to the old configuration or if used, the activation time has expired, the UE shall

- Initiate a RRC connection re-establishment procedure according to subclause 8.1.5

~~8.2.2.7.1~~ ~~Message RADIO BEARER RECONFIGURATION FAILURE contents to set~~

~~The UE shall set the cause value in IE "failure cause" to "physical channel failure".~~

8.2.2.8 Reception of a RADIO BEARER RECONFIGURATION FAILURE message by the UTRAN

When UTRAN has received the RADIO BEARER RECONFIGURATION FAILURE message, UTRAN may restore the old and delete the new configuration. ~~Timer T355 is stopped and t~~The procedure ends on the UTRAN side. Upper layers should be notified of the failure.

8.2.2.9 ~~Abnormal case: T355 timeout in~~No response from the UE in CELL DCH_state

~~Upon expiry of timer T355 in CELL_DCH state and~~If no RADIO BEARER RECONFIGURATION COMPLETE message or RADIO BEARER RECONFIGURATION FAILURE message has been received, the UTRAN may delete the old and new configuration. If the UE requests a re-establishment of the RRC connection, before all UE dedicated resources have been cleared, the new configuration may be re-assigned in the re-establishment procedure.

During transition from CELL_DCH to CELL_FACH, the UTRAN may also receive a~~n~~ CELL UPDATE message if the UE cannot use the assigned physical channel.

8.2.2.10 No response from the UE ~~Abnormal case: T355 timeout~~ in CELL_FACH state

~~Upon expiry of timer T355 and~~If no RADIO BEARER RECONFIGURATION COMPLETE message or RADIO BEARER RECONFIGURATION FAILURE message has been received, the UTRAN may delete the old and new configuration. If the UE makes a cell update before all UE dedicated resources have been cleared, the configuration procedure can be restarted~~. 8.2.2.11 Abnormal case: physical channel failure during transition from CELL_DCH to CELL_FACH~~

8.2.2.11 Physical channel failure during transition from CELL_DCH to CELL_FACH

If the UE fails to select the cell, which was assigned in the RADIO BEARER RECONFIGURATION message initiating transition from CELL_DCH to CELL_FACH, the UE shall ~~make~~ perform cell reselection ~~to another cell~~ and initiate the cell update procedure.

8.2.2.12 ~~Abnormal case:~~ Suspension of signalling bearer

If the RADIO BEARER RECONFIGURATION message includes a request to suspend the signalling link with the IE "RB suspend/resume" ~~IE~~, the UE shall

- Revert to the configuration prior to the reception of the RADIO BEARER RECONFIGURATION message (old configuration)

- ~~the UE shall not suspend uplink transmission on that bearer and it shall~~ send a RADIO BEARER RECONFIGURATION FAILURE message to the UTRAN.

- set the cause value in IE "failure cause" to "configuration unacceptable".

- When the transmission of the RADIO BEARER RECONFIGURATION FAILURE message has been confirmed by RLC, the procedure ends and the UE shall resume the normal operation as if no radio bearer reconfiguration attempt had occurred.

8.2.3 Radio bearer release
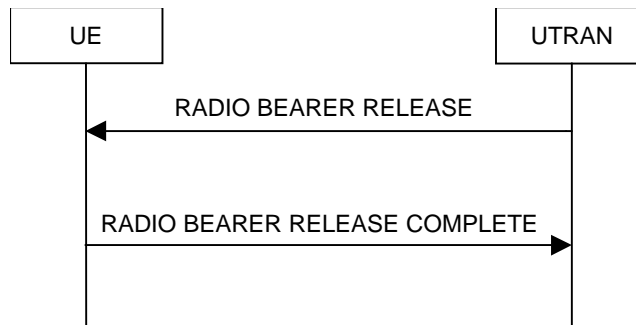
Figure 19. Radio Bearer Release, normal case
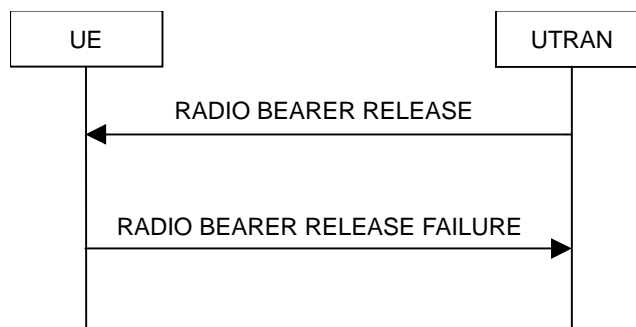
Figure 20. Radio Bearer Release, UE reverts to old configuration

8.2.3.1 Purpose

The purpose ~~with~~ of this procedure is to release existing radio bearer(s).

8.2.3.2 Initiation

The upper layer in the network may request a release of radio bearer(s).

To initiate the procedure, UTRAN ~~shall~~ transmits a RADIO BEARER RELEASE message on the downlink DCCH using AM or UM RLC~~., and start timer T354.~~

8.2.3.2.1 ~~Message RADIO BEARER RELEASE contents to set~~

If transport channels are added, reconfigured or deleted in uplink and/or downlink, UTRAN shall

- Set TFCS according to the new transport channel(s)

~~If activation time is used this time shall not be set to a larger value than T354.~~

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

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

~~[Note: Other IEs are included and set according to selection by the UTRAN.]~~

~~If the message is used to initiate a transition from CELL_DCH to CELL_FACH state, the UTRAN may assign a common channel configuration of a given cell and c-RNTI to be used in that cell to the UE.~~

8.2.3.3 Reception of a RADIO BEARER RELEASE message by the UE

Upon reception of a RADIO BEARER RELEASE message the UE shall perform the following actions ~~according to~~

subclause 8.2.3.3.1specified below and transmit a RADIO BEARER RELEASE COMPLETE message on the uplink DCCH using AM RLC. When the transmission of the RADIO BEARER RELEASE COMPLETE message has been confirmed by RLC the procedure ends.

If the RADIO BEARER RELEASE message is used to initiate a transition from CELL_DCH to CELL_FACH state, the RADIO BEARER RELEASE COMPLETE message shall be transmitted on the RACH after the UE has completed the state transition.

8.2.3.3.1 Message RADIO BEARER RELEASE contents to use

The UE shall act upon all received information elements as specified in 8.5.7, unless specified otherwise in the following.

The UE shall

- For the released radio bearer(s), delete all stored multiplexing options

- For all remaining radio bearer(s), use the multiplexing option applicable for the transport channels used according to their IE "RB mapping info" or their previously stored multiplexing options.

- Configure MAC multiplexing if that is needed in order to use said transport channel(s).

- Use MAC logical channel priority when selecting TFC in MAC.

If the IE "C-RNTI" is included, the UE shall

- Use that C-RNTI when using common transport channels of type RACH, FACH and CPCH in the current cell.

If neither the IEs "PRACH info" nor the IE "Uplink DPCH info" is included, the UE shall

- Let the physical channel of type PRACH that is given in system information be the default in uplink and enter the CELL_FACH state.

If neither the IEs "Secondary CCPCH info" nor the IE "Downlink DPCH info" is included, the UE shall

- Start to receive the physical channel of type Secondary CCPCH that is given in system information.

The UE shall use the transport channel(s) applicable for the physical channel types that is used. If neither the IE "TFS" is included or previously stored in the UE for that transport channel(s), the UE shall

- Use the TFS given in system information

If none of the TFS stored is compatible with the physical channel, the UE shall

- Delete stored TFS and use the TFS given in system information

    - If the RADIO BEARER RELEASE message is used to initiate a state transition to the CELL_FACH state and if an IE primary CCPCH info and C-RNTI to a given cell is included, the UE shall sSelect the cell indicated by the PCCPCH info IE.

    - Use the C-RNTI when using common transport channels of type RACH, FACH and CPCH in that given cell after having completed the transition to that cell.

Actions that shall be performed by the UE, for other IEs are specified in subclause 8.5.7The UE shall transmit a RADIO BEARER RELEASE COMPLETE message on the uplink DCCH using AM RLC. When the transmission of the RADIO BEARER RELEASE COMPLETE message has been confirmed by RLC the procedure ends.

If the RADIO BEARER RELEASE message is used to initiate a transition from CELL_DCH to CELL_FACH state, the RADIO BEARER RELEASE COMPLETE message shall be transmitted on the RACH after the UE has completed the state transition.

8.2.3.3.2 Message RADIO BEARER RELEASE COMPLETE contents to set

FFS

8.2.3.4 ~~Abnormal case:~~ Unsupported configuration in the UE

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

- Transmit a RADIO BEARER RELEASE FAILURE message on the DCCH using AM RLC~~.~~

~~8.2.3.4.1 Message RADIO BEARER RELEASE FAILURE contents to set~~

~~The UE shall set the cause value in~~ and set the value of the IE "failure cause" to "configuration unacceptable".

8.2.3.5 ~~Abnormal case~~: Physical channel failure

If the UE failed to establish the physical channel(s) indicated in the ~~message~~ RADIO BEARER RELEASE message the UE shall

- Revert to the configuration prior to the reception of the RADIO BEARER RELEASE message (old configuration) and transmit a RADIO BEARER RELEASE FAILURE message on the DCCH using AM RLC and set the value of the IE "failure cause" to "physical channel failure". The procedure ends and the UE resumes the normal operation as if no radio bearer release attempt had occurred.

A physical channel failure occurs in case the criteria as defined in 8.5.4 are not fulfilled.~~Criteria to be fulfilled for having a physical channel established are described in subclause 8.5.4~~

If the UE is unable to revert to the old configuration or if used, the activation time has expired, the UE shall

- Initiate a RRC connection re-establishment procedure according to subclause 8.1.5

~~8.2.3.5.1 Message RADIO BEARER RELEASE FAILURE contents to set~~

~~The UE shall set the cause value in IE "failure cause" to "physical channel failure".~~

8.2.3.6 Reception of the RADIO BEARER RELEASE COMPLETE message by the UTRAN

When UTRAN has received the RADIO BEARER RELEASE COMPLETE message, UTRAN may delete any old configuration~~. Timer T354 is stopped~~ and the procedure ends on the UTRAN side.

8.2.3.7 Reception of the RADIO BEARER RELEASE FAILURE message by the UTRAN

When UTRAN has received the RADIO BEARER RELEASE FAILURE message, UTRAN may restore the old and delete the new configuration~~. Timer T354 is stopped~~ and the procedure ends on the UTRAN side. Upper layers should be notified of the failure.

~~8.2.3.8 Abnormal case: T354 timeout~~

~~Upon expiry of timer T354 and no RADIO BEARER RELEASE COMPLETE or RADIO BEARER RELEASE FAILURE message has been received, the UTRAN may delete the old and new configuration. All UE dedicated resources may then be cleared, unless the UE requests a re-establishment of the RRC connection.~~

~~During transition from CELL_DCH to CELL_FACH, the UTRAN may also receive an CELL UPDATE message if the UE cannot use the assigned physical channel.~~

8.2.3.9 ~~Abnormal case: physical~~ Physical channel failure during transition from CELL_DCH to CELL_FACH

During transition from CELL_DCH to CELL_FACH, the UTRAN may also receive an CELL UPDATE message if the UE cannot use the assigned physical channel.

If the UE fails to select the cell, which was assigned in the RADIO BEARER RELEASE message initiating transition from CELL_DCH to CELL_FACH, the UE shall ~~make~~ perform cell reselection ~~to another cell~~ and initiate the cell update procedure.

8.2.4 Transport channel reconfiguration
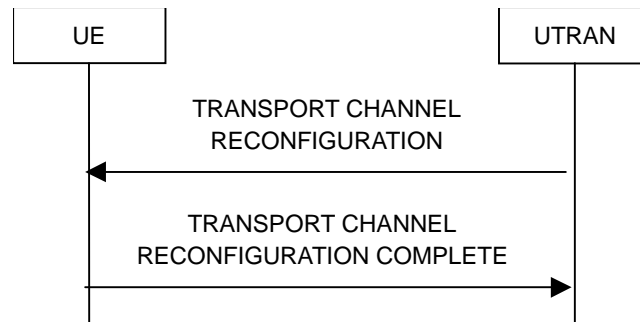
Figure 21. Transport channel reconfiguration, normal flow
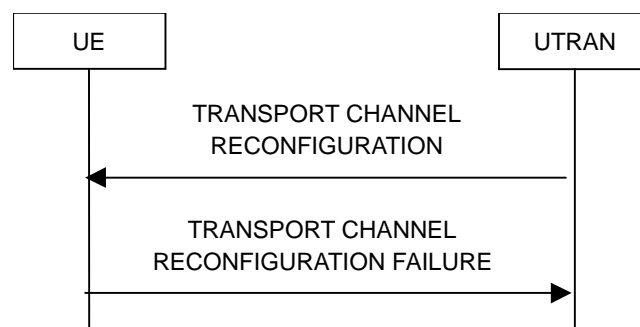
Figure 22. Transport channel reconfiguration, failure case

8.2.4.1 General

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

8.2.4.2 Initiation

The UTRAN shall transmit a TRANSPORT CHANNEL RECONFIGURATION message on the downlink DCCH using AM or UM RLC~~, and start timer T356~~.

~~8.2.4.2.1~~ ~~Message TRANSPORT CHANNEL RECONFIGURATION contents to set~~

If transport channels are added, reconfigured or deleted in uplink and/or downlink, the UTRAN shall

- Set TFCS according to the new transport channel(s)

~~If activation time is used this time shall not be set to a larger value than T356.~~

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

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

~~[Note: Other IEs are included and set according to selection by the UTRAN.]~~If the message is used to initiate a ~~transition from CELL_DCH to CELL_FACH state, the UTRAN may assign a common channel configuration of a given cell and c-RNTI to be used in that cell to the UE.~~

8.2.4.3 Reception of an TRANSPORT CHANNEL RECONFIGURATION message by the UE in CELL_DCH state

Upon reception of a TRANSPORT CHANNEL RECONFIGURATION message in CELL_DCH state, the UE shall perform the following actions. according to subclause 8.2.4.3.1 and transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC. When the transmission of the TRANSPORT CHANNEL RECONFIGURATION COMPLETE message has been confirmed by RLC, the procedure ends.

If the TRANSPORT CHANNEL RECONFIGURATION message is used to initiate a transition from CELL_DCH to CELL_FACH state, the TRANSPORT CHANNEL RECONFIGURATION COMPLETE message shall be transmitted on the RACH after the UE has completed the state transition.

8.2.4.3.1 Message TRANSPORT CHANNEL RECONFIGURATION contents to use in CELL_DCH state

The UE shall act upon all received information elements as specified in 8.5.7, unless specified otherwise in the following.

If neither the IEs "PRACH info" nor the IE "Uplink DPCH info" is included, the UE shall

- Let the physical channel of type PRACH that is given in system information be the default in uplink and enter the CELL_FACH state.

If neither the IEs "Secondary CCPCH info" nor the IE "Downlink DPCH info" is included, the UE shall

- Start to receive the physical channel of type Secondary CCPCH that is given in system information.

The UE shall use the transport channel(s) applicable for the physical channel types that is used. If neither the IE "TFS" is neither included nor previously stored in the UE for that transport channel(s), the UE shall

- Use the TFS given in system information

If none of the TFS stored is compatible with the physical channel, the UE shall

- Delete stored TFS and use the TFS given in system information

Actions that shall be performed by the UE, for other IEs are specified in subclause 8.5.7

If the TRANSPORT CHANNEL RECONFIGURATION message is used to initiate a state transition to the CELL_FACH state and if an the IE "Pprimary CCPCH info" and IE "C-RNTI" to a given cell is included, the UE shall

- Select the cell indicated by the IE "Primary CCPCH info" IE.

- Use the C-RNTI when using common transport channels of type RACH, FACH and CPCH in that given cell after having completed the transition to that cell.

The UE shall transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC. If the TRANSPORT CHANNEL RECONFIGURATION message is used to initiate a transition from CELL_DCH to CELL_FACH state, the TRANSPORT CHANNEL RECONFIGURATION COMPLETE message shall be transmitted on the RACH after the UE has completed the state transition. When the transmission of the TRANSPORT CHANNEL RECONFIGURATION COMPLETE message has been confirmed by RLC, the procedure ends.

8.2.4.3.2 Message TRANSPORT CHANNEL RECONFIGURATION COMPLETE contents to set in CELL_DCH state

FFS.

8.2.4.4 Reception of an TRANSPORT CHANNEL RECONFIGURATION message by the UE in CELL_FACH state

Upon reception of a TRANSPORT CHANNEL RECONFIGURATION message in CELL_FACH state, the UE shall perform the following actions according to subclause 8.2.4.4.1 and transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC. When the transmission of the TRANSPORT CHANNEL RECONFIGURATION COMPLETE message has been confirmed by RLC, the procedure ends.

8.2.4.4.1 Message TRANSPORT CHANNEL RECONFIGURATION contents to use in CELL_FACH state

The UE shall act upon all received information elements as specified in 8.5.7, unless specified otherwise in the following.

If the IE "C-RNTI" is included, the UE shall

- Use that C-RNTI when using common transport channels of type RACH, FACH and CPCH in the current cell.

If neither the IEs "PRACH info" nor IE "Uplink DPCH info" is included, the UE shall

- Let the physical channel of type PRACH that is given in system information be the default in uplink

If neither the IEs "Secondary CCPCH info" nor IE "Downlink DPCH info" is included, the UE shall

- Start to receive the physical channel of type Secondary CCPCH that is given in system information.

The UE shall use the transport channel(s) applicable for the physical channel types that is used. If neither the IE "TFS" is neither included nor previously stored in the UE for that transport channel(s), the UE shall

- Use the TFS given in system information

If none of the TFS stored is compatible with the physical channel, the UE shall

- Delete stored TFS and use the TFS given in system information

Actions that shall be performed by the UE, for other IEs are specified in subclause 8.5.7The UE shall transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC. When the transmission of the TRANSPORT CHANNEL RECONFIGURATION COMPLETE message has been confirmed by RLC, the procedure ends.

8.2.4.4.2 Message TRANSPORT CHANNEL RECONFIGURATION COMPLETE contents to set in CELL_FACH state

FFS.

8.2.4.5 Reception of the TRANSPORT CHANNEL RECONFIGURATION COMPLETE message by the UTRAN

When UTRAN has received the TRANSPORT CHANNEL RECONFIGURATION COMPLETE message, UTRAN may delete any old configuration and. Timer T356 is stopped and the the procedure ends on the UTRAN side.

UTRAN may delete the C-RNTI of the UE if the procedure caused the UE to leave the CELL_FACH state.

8.2.4.6 Abnormal case: Unsupported configuration in the UE

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

- transmit a TRANSPORT CHANNEL RECONFIGURATION FAILURE message on the DCCH using AM RLC

and set th cause value in IE "Failure Cause" to "configuration unacceptable".

8.2.4.6.1 Message TRANSPORT CHANNEL RECONFIGURATION FAILURE contents to set

The UE shall set the cause value in IE "failure cause" to "configuration unacceptable".

8.2.4.7 Abnormal case: Physical channel failure

If the UE failed to establish the physical channel(s) indicated in the message TRANSPORT CHANNEL RECONFIGURATION message the UE shall

- Revert to the configuration prior to the reception of the TRANSPORT CHANNEL RECONFIGURATION message (old configuration) and transmit a TRANSPORT CHANNEL RECONFIGURATION FAILURE message on the DCCH using AM RLC and set the cause value in IE "Failure Cause" to "physical channel failure". The procedure ends and the UE resumes the normal operation as if no transport channel reconfiguration attempt had occurred.

A physical channel failure occurs in case the criteria as defined in 8.5.4 are not fulfilled.Criteria to be fulfilled for having a physical channel established are described in subclause 8.5.4

If the UE is unable to revert to the old configuration or if used, the activation time has expired, the UE shall

- Initiate a RRC connection re-establishment procedure according to subclause 8.1.5

8.2.4.7.1 Message TRANSPORT CHANNEL RECONFIGURATION FAILURE contents to set

The UE shall set the cause value in IE "failure cause" to "physical channel failure".

8.2.4.8 Reception of the TRANSPORT CHANNEL RECONFIGURATION FAILURE message by the UTRAN

When UTRAN has received the TRANSPORT CHANNEL RADIO BEARER RECONFIGURATION FAILURE message, UTRAN may restore the old and delete the new configuration. Timer T356 is stopped and the procedure ends on the UTRAN side. Upper layers should be notified of the failure.

8.2.4.9 Abnormal case: T356 timeout in Non-receipt of TRANSPORT CHANNEL CONFIGURATION COMPLETE message and TRANSPORT CHANNEL RECONFIGURATION FAILURE message in CELL_DCH state

Upon expiry of timer T356 and noIf UTRAN does not receive TRANSPORT CHANNEL RECONFIGURATION COMPLETE message or TRANSPORT CHANNEL RECONFIGURATION FAILURE message has been received, the UTRAN it may delete the old and new configuration. If the UE requests a re-establishment of the RRC connection, before all UE dedicated resources have been cleared, the new configuration may be re-assigned in the re-establishment procedure.

During transition from CELL_DCH to CELL_FACH, the UTRAN may also receive an CELL UPDATE message if the UE cannot use the assigned physical channel.

8.2.4.10 Abnormal case: T356 timeout inNon-receipt of TRANSPORT CHANNEL CONFIGURATION COMPLETE message and TRANSPORT CHANNEL RECONFIGURATION FAILURE message in CELL_FACH state

Upon expiry of timer T356 and noIf UTRAN does not receive TRANSPORT CHANNEL RECONFIGURATION COMPLETE message or TRANSPORT CHANNEL RECONFIGURATION FAILURE message has been received, the UTRAN it may delete the old and new configuration. If the UE makes a cell update before all UE dedicated resources have been cleared, the configuration procedure can be restarted.

8.2.4.11 ~~Abnormal case:~~ ~~Pp~~hysical channel failure during transition from CELL_DCH to CELL_FACH

If the UE fails to select the cell, which was assigned in the <u>TRANSPORT CHANNEL RECONFIGURATION</u> ~~XXX~~ message~~ initiating~~ transition from CELL_DCH to CELL_FACH, the UE shall ~~make~~ <u>perform</u> cell reselection ~~to another cell~~ and initiate the cell update procedure.

8.2.5 Transport format combination control
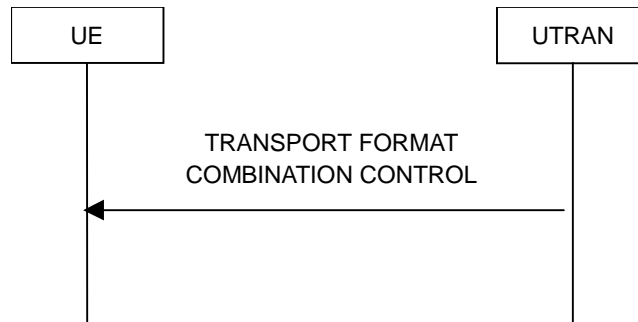
Figure 23. Transport format combination control, normal flow

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

The UTRAN shall transmit the TRANSPORT FORMAT COMBINATION CONTROL message on the donwlink DCCH using AM or UM RLC.

8.2.5.2.1 ~~Message TRANSPORT CHANNEL COMBINATION CONTROL contents to set~~

~~To restrict allowed transport format combinations, the UTRAN shall set the allowed TFCs in the "TFC subset" IE.~~

~~To remove previous restrictions of allowed transport format combination, the UTRAN shall set "full transport format combination set" in the "TFC subset" IE.~~

8.2.5.3 Reception of <u>a</u> TRANSPORT CHANNEL COMBINATION CONTROL <u>message</u> by the UE

Upon reception of the TRANSPORT CHANNEL COMBINATION CONTROL message, the UE shall configure the allowed transport format combinations as defined in subclause 8.5.7.5.3

8.2.6 Physical channel reconfiguration
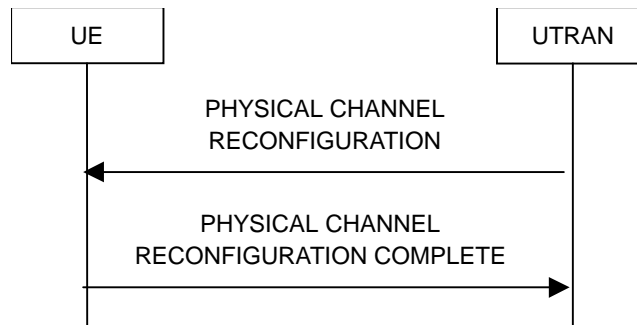
Figure 24. Physical channel reconfiguration, normal flow
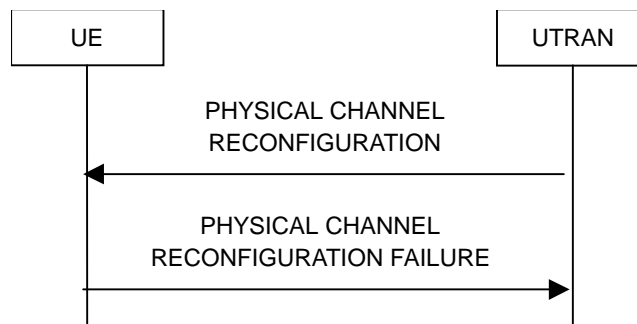
Figure 25. Physical channel reconfiguration, failure case

8.2.6.1   General

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

8.2.6.2   Initiation

To initiate the procedure, Tthe UTRAN shall transmits a PHYSICAL CHANNEL RECONFIGURATION message on the downlink DCCH using AM or UM RLC, and start timer T357.

8.2.6.2.1   Message PHYSICAL CHANNEL RECONFIGURATION contents to set

If activation time is used this time shall not be set to a larger value than T357.

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

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

[Note: Other IEs are included and set according to selection by the UTRAN.]

If the message is used to initiate a transition from CELL_DCH to CELL_FACH state, the UTRAN may assign a common channel configuration of a given cell and eC-RNTI to be used in that cell to the UE.

8.2.6.3 Reception of a PHYSICAL CHANNEL RECONFIGURATION message by the UE in CELL_DCH state

Upon reception of a PHYSICAL CHANNEL RECONFIGURATION message, the UE shall perform the following actions. according to subclause 8.2.6.3.1and transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC. When the transmission of the PHYSICAL CHANNEL RECONFIGURATION COMPLETE message has been confirmed by RLC, the procedure ends.

If the PHYSICAL CHANNEL RECONFIGURATION message is used to initiate a transition from CELL_DCH to CELL_FACH state, the PHYSICAL CHANNEL RECONFIGURATION COMPLETE message shall be transmitted on the RACH after the UE has completed the state transition.

8.2.6.3.1 Message PHYSICAL CHANNEL RECONFIGURATION contents to use in CELL_DCH state

The UE shall act upon all received information elements as specified in 8.5.7, unless specified otherwise in the following.

If the IE "C-RNTI" is included, the UE shall

- Use that C-RNTI when using common physical channels of type RACH, FACH and CPCH in the current cell.

If neither the IEs "PRACH info" nor IE "Uplink DPCH info" is included, the UE shall

- Let the physical channel of type PRACH that is given in system information be the default in uplink and enter the CELL_FACH state.

If neither the IEs "Secondary CCPCH info" nor IE "Downlink DPCH info" is included, the UE shall

- Start to receive the physical channel of type Secondary CCPCH that is given in system information.

The UE shall use the physical channel(s) applicable for the physical channel types that is used. If neither thethe IE "TFS" is neither included nor previously stored in the UE for that physical channel(s), the UE shall

- Use the TFS given in system information

If none of the TFS stored is compatible with the physical channel, the UE shall

- Delete stored TFS and use the TFS given in system information

Actions that shall be performed by the UE, for other IEs are specified in subclause 8.5.7

If the PHYSICAL CHANNEL RECONFIGURATION message is used to initiate a state transition to the CELL_FACH state and if an IE "Pprimary CCPCH info" and IE "C-RNTI" to a given cell is included, the UE shall

- Select the cell indicated by the IE "Primary CCPCH info" IE.

- Use the C-RNTI when using common transport channels of type RACH, FACH and CPCH in that given cell after having completed the transition to that cell.

The UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC. When the transmission of the PHYSICAL CHANNEL RECONFIGURATION COMPLETE message has been confirmed by RLC, the procedure ends.

If the PHYSICAL CHANNEL RECONFIGURATION message is used to initiate a transition from CELL_DCH to CELL_FACH state, the PHYSICAL CHANNEL RECONFIGURATION COMPLETE message shall be transmitted on the RACH after the UE has completed the state transition.

8.2.6.4 Reception of PHYSICAL CHANNEL RECONFIGURATION by the UE in CELL_FACH state

Upon reception of a PHYSICAL CHANNEL RECONFIGURATION message, the UE shall read the IE "DRX indicator".

If the IE "DRX indicator" is set to "DRX with Cell updating" or "DRX with URA Updating" or "No DRX", the UE shall

- Perform actions according to subclause 8.2.6.4.1

- Transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC

- When the transmission of the PHYSICAL CHANNEL RECONFIGURATION COMPLETE message has been confirmed by RLC, the UE shall delete its C-RNTI, move to Cell_PCH state and start updating its location on the URA level. This ends the procedure.

If the IE "DRX indicator" is set to "DRX with URA updating", the UE shall

- Perform actions according to 8.2.6.4.1

- Transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC

- When the transmission of the PHYSICAL CHANNEL RECONFIGURATION COMPLETE message has been confirmed by RLC, the UE shall delete its C-RNTI, move to URA_PCH and start updating its location on the URA level. This ends the procedure.

If the IE "DRX indicator" is set to "DRX with URA updating", the UE shall

- Perform actions according to subclause 8.2.6.4.1 and transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC. When the transmission of the PHYSICAL CHANNEL RECONFIGURATION COMPLETE message has been confirmed by RLC, the procedure ends.

8.2.6.4.1   Message PHYSICAL CHANNEL RECONFIGURATION contents to use in CELL_FACH state

The UE shall act upon all received information elements as specified in 8.5.7, unless specified otherwise in the following.

If the IE C-RNTI is included, the UE shall

- Use that C-RNTI when using common physical channels of type RACH, FACH and CPCH in the current cell.

If neither the IEs "PRACH info" nor IE "Uplink DPCH info" is included, the UE shall

- Let the physical channel of type PRACH that is given in system information be the default in uplink and enter the CELL_FACH state.

If neither the IEs "Secondary CCPCH info" nor IE "Downlink DPCH info" is included, the UE shall

- Start to receive the physical channel of type Secondary CCPCH that is given in system information.

The UE shall use the physical channel(s) applicable for the physical channel types that is used. If neither the IE "TFS" is included or previously stored in the UE for that physical channel(s), the UE shall

- Use the TFS given in system information

If none of the TFS stored is compatible with the physical channel, the UE shall

- Delete stored TFS and use the TFS given in system information

If the IE "DRX Indicator" is set to "DRX with URA updating", the UE shall

- Transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC. When the transmission of the PHYSICAL CHANNEL RECONFIGURATION COMPLETE message has been confirmed by RLC, the UE shall delete its C-RNTI, move to Cell_PCH state and start updating its location on the URA level. This ends the procedure.

If the IE "DRX indicator" is set to "DRX with URA updating", the UE shall

- Perform actions detailed below

- Transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC

- When the transmission of the PHYSICAL CHANNEL RECONFIGURATION COMPLETE message has been confirmed by RLC, the UE shall delete its C-RNTI, move to URA_PCH and start updating its location on the URA level. This ends the procedure.

If the IE "DRX indicator" is set to "No DRX", the UE shall

- Perform actions detailed below and transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC. When the transmission of the PHYSICAL CHANNEL RECONFIGURATION COMPLETE message has been confirmed by RLC, the procedure ends.

Actions that shall be performed by the UE, for other IEs are specified in subclause 8.5.7

8.2.6.4.2 Message PHYSICAL CHANNEL RECONFIGURATION COMPLETE contents to set

FFS.

8.2.6.5 Reception of PHYSICAL CHANNEL RECONFIGURATION COMPLETE message by the UTRAN

When UTRAN has received the PHYSICAL CHANNEL RECONFIGURATION COMPLETE message, UTRAN may delete any old configuration. Timer T357 is stopped and the procedure ends on the UTRAN side.

UTRAN may delete the C-RNTI of the UE if the procedure caused the UE to leave the CELL_FACH state.

8.2.6.6 Abnormal case: Unsupported configuration in the UE

If the UE instructs the UE to use a configuration which it does not support, the UE shall

- transmit a PHYSICAL CHANNEL RECONFIGURATION FAILURE message on the DCCH using AM RLC and shall set the cause value in IE "failure cause" to "configuration unacceptable"..

8.2.6.6.1 Message PHYSICAL CHANNEL RECONFIGURATION FAILURE contents to set

The UE shall set the cause value in IE "failure cause" to "configuration unacceptable".

8.2.6.7 Abnormal case: Physical channel failure

If the UE failed to establish the physical channel(s) indicated in the message PHYSICAL CHANNEL RECONFIGURATION message the UE shall

- Revert to the configuration prior to the reception of the PHYSICAL CHANNEL RECONFIGURATION message (old configuration) and transmit a PHYSICAL CHANNEL RECONFIGURATION FAILURE message on the DCCH using AM RLC and shall set the cause value in IE "failure cause" to "physical channel failure".. The procedure ends and the UE resumes the normal operation as if no physical channel reconfiguration attempt had occurred.

A physical channel failure occurs in case the criteria as defined in 8.5.4 are not fulfilled. Criteria to be fulfilled for

having a physical channel established are described in subclause 8.5.4

If the UE is unable to revert to the old configuration or if used, the activation time has expired, the UE shall

- Initiate a RRC connection re-establishment procedure according to subclause 8.1.5

8.2.6.7.1 Message PHYSICAL CHANNEL RECONFIGURATION FAILURE contents to set

The UE shall set the cause value in IE "failure cause" to "physical channel failure".

8.2.6.8 Reception of the PHYSICAL CHANNEL RECONFIGURATION FAILURE message by the UTRAN

When UTRAN has received the PHYSICAL CHANNEL RADIO BEARER RECONFIGURATION FAILURE message, UTRAN may restore the old and delete the new configuration. Timer T357 is stopped and the procedure ends on the UTRAN side. Upper layers should be notified of the failure.

8.2.6.9 Abnormal case: T357 timeout Non-receipt of PHYSICAL CHANNEL RECONFIGURATION COMPLETE message or PHYSICL CHANNEL RECONFIGURATION FAILURE message in CELL_DCH state

Upon expiry of timer T357 and If no PHYSICAL CHANNEL RECONFIGURATION COMPLETE messageor PHYSICAL CHANNEL RECONFIGURATION FAILURE message has been received, the UTRAN may delete the old and new configuration. If the UE requests a re-establishment of the RRC connection, before all UE dedicated resources have been cleared, the new configuration may be re-assigned in the re-establishment procedure.

During transition from CELL_DCH to CELL_FACH, the UTRAN may also receive an CELL UPDATE message if the UE cannot use the assigned physical channel.

8.2.6.10 Abnormal case: T357 timeout Non-receipt of PHYSICAL CHANNEL RECONFIGURATION COMPLETE message or PHYSICL CHANNEL RECONFIGURATION FAILURE message in CELL_FACH state

Upon expiry of timer T357 and If no PHYSICAL CHANNEL RECONFIGURATION COMPLETE message or PHYSICAL CHANNEL RECONFIGURATION FAILURE message has been received, the UTRAN may delete the old and new configuration. If the UE makes a cell update before all UE dedicated resources have been cleared, the configuration procedure can be restarted.

8.2.6.11 Abnormal case: physical Physical channel failure during transition from CELL_DCH to CELL_FACH

If the UE fails to select the cell, which was assigned in the PHYSICAL CHANNEL RECONFIGURATION XXX message initiating transition from CELL_DCH to CELL_FACH, the UE shall make perform cell reselection to another cell and initiate the cell update procedure.

8.2.7 Physical Shared Channel Allocation [TDD only]

Figure 26: Physical Shared Channel Allocation

8.2.7.1 General

The purpose of this procedure is to allocate physical resources to USCH or DSCH transport channels in TDD mode, for temporary usage by a UE.

8.2.7.2 Initiation

~~Precondition:~~ The UE is in the CELL_FACH or CELL_DCH state, and at least one RAB using USCH or DSCH has been established.

~~Triggering event: The RRC in the CRNC is aware that the UE needs capacity for USCH and/or DSCH has decided to allocate physical resources to the respective shared channel.~~

~~Action taken:~~ The ~~RRC in the C-RNC~~UTRAN sends the ~~message~~ "PHYSICAL SHARED CHANNEL RECONFIGURATION" message ~~in~~ via the SHCCH ~~over the FACH~~, to allocate PUSCH or PDSCH resources to exactly one CCTrCH.

~~8.2.7.2.1 Message PHYSICAL SHARED CHANNEL ALLOCATION contents to set~~

~~The C-RNTI is used to address the UE.~~

~~If Physical Channels (PUSCH or PDSCH) shall be allocated, the message shall include the parameters PUSCH Allocation pending, TFCS ID, CCTrCH Activation CFN, CCTrCH Duration, the PUSCH or PDSCH Information, and an optional Timing Advance information.~~

~~*Note: The message can also be used to block or enable the UE to issue PUSCH capacity requests, without allocating PUSCH or PDSCH, as shown in the PUSCH CAPACITY REQUEST procedure below. In this case, no TFCS ID and no PUSCH or PDSCH Information is included.*~~

~~• The TFCS ID specifies the CCTrCH for which Physical Channels (PUSCH or PDSCH) are allocated.~~

~~• CCTrCH Activation CFN shall be the frame number at which the physical channels are available to that CCTrCH.~~

~~• CCTrCH Duration shall specify the number of frames for which the physical channels are available.~~

~~If the message is used to allocate resources to a CCTrCH that carries DSCH channels, the message shall include PDSCH Information for the respective PDSCH channels.~~

~~If the message is used to allocate resources to a CCTrCH that carries USCH channels, the message shall include PUSCH Information for the respective PUSCH channels.~~

~~Whenever PUSCH resources for Uplink transmission are allocated in the message, the optional "Timing Advance" parameter may be added.~~

~~In any case the message shall include the parameter "PUSCH allocation pending" which assumes the values "pending" or "not pending": PUSCH allocation "pending" has the effect of blocking the UE for some time to issue PUSCH capacity requests on the RACH.~~

8.2.7.3 Reception of a PHYSICAL SHARED CHANNEL ALLOCATION message by the UE

The UE shall check the C-RNTI to see if the UE is addressed by the message. If so, the UE shall evaluate the message and use the IEs as specified below.

~~8.2.7.3.1 Message PHYSICAL SHARED CHANNEL ALLOCATION contents to use~~

If the CCTrCH addressed by the TFCS-Id in the ~~message~~ PHYSICAL SHARED CHANNEL ALLOCATION message

is a CCTrCH for DSCH, the UE shall:

- decode the IEs "CCTrCH Activation CFN" and the IE "CCTrCH Duration", to determine the time interval for which the allocation shall be valid;

- configure Layer 1 according to the PDSCH information, for the specified time interval;

- start receiving the PDSCH where the TFCI is included;

- receive the PDSCHs, and decode and demultiplex them into the respective DSCH channels according to the TFCI.

If the CCTrCH addressed by the TFCS-Id in the message PHYSICAL SHARED CHANNEL ALLOCATION is a CCTrCH for USCH, the UE shall:

- decode the IEs "CCTrCH Activation CFN" and the IE "CCTrCH Duration", to determine the time interval for which the allocation shall be valid;

- configure Layer 1 according to the PUSCH information, for the specified time interval;

- evaluate and apply the potential Timing Advance value for uplink transmissions;

- determine the TFCS subset and hence the TFCI values which are possible given the PUSCH allocation for that CCTrCH;

- configure the MAC-sh in the UE with this TFCS restriction if necessary;

- transmit USCH Transport Block Sets as required, within the TFCS limits given by the PUSCH allocation.

In addition, the UE shall evaluate the IE "PUSCH Allocation Pending" parameter: If its value is "pending", the UE starts a timer T311. As long as this timer is running, the UE is not allowed to use the RACH for potential USCH capacity requests. See the USCH CAPACITY REQUEST procedure.

In addition if the message contains an optional IE "Timing Advance Information" the UE shall configure the Layer 1 with the new Timing Advance.

Note that the message can also be used to block or enable the UE to issue PUSCH capacity requests, without allocating PUSCH or PDSCH, as shown in the PUSCH capacity request procedure below. In this case, no TFCS-ID and no PUSCH or PDSCH Information is included.

8.2.78.2.8   PUSCH capacity request [TDD only]

```
┌──────┐                                              ┌───────┐
│  UE  │                                              │ UTRAN │
└──────┘                                              └───────┘
   │              PUSCH CAPACITY REQUEST                  │
   │ ───────────────────────────────────────────────────>│
   │                                                      │
   │          PHYSICAL SHARED CHANNEL ALLOCATION          │
   │ <───────────────────────────────────────────────────│
   │                                                      │
```

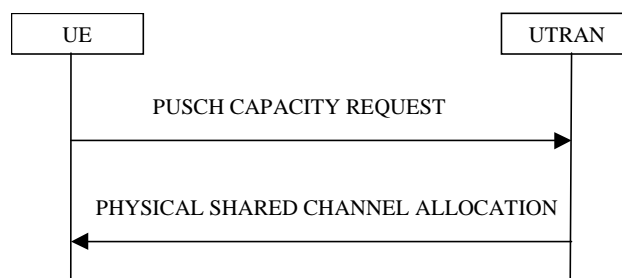**Figure 27. PUSCH Capacity request procedure**

8.2.8.1   General

With this procedure, the UE transmits its request for PUSCH resources to the UTRAN. In the normal case, the UTRAN responds with a "PHYSICAL SHARED CHANNEL ALLOCATION" message, which either allocates the requested PUSCH resources, or allocates a PDSCH resource, or may just serve as an acknowledgement, indicating that PUSCH

allocation is pending.

With the ~~message~~ PUSCH CAPACITY REQUEST message, the UE can request capacity for one or more USCH.

<Note: Triggering of the capacity request is controlled by the measurement control procedure. It is FFS whether a measurement report message can be used instead of the PUSCH capacity request message.>

8.2.8.2   Initiation

The UE is in the CELL_FACH or CELL_DCH state, and at least one RAB using USCH has been established. The RRC in the UE sees the requirement to allocate physical resources (PUSCH) to an USCH channel.

The RRC decides to send a PUSCH capacity request on the ~~RACH~~SHCCH. This is possible if

- No USCH transmission takes place, where the capacity request for further PUSCH resources could be included, and

- The UE has been informed by the UTRAN that no PUSCH allocation is pending – or the timer T311 has been expired.

- The timer T310 (capacity request repetition timer) is not running.

So the UE sends a PUSCH CAPACITY REQUEST message on the uplink SHCCH ~~on the RACH~~, resets counter V310, and starts timer T310.

~~8.2.8.2.1   Message PUSCH CAPACITY REQUEST contents to set~~

With one PUSCH CAPACITY REQUEST message, capacity for one or more USCH can be requested. It shall include these information elements:

- C-RNTI to be used as UE identity.

- Radio Bearer ID, for each radio bearer requiring capacity on USCH.

- RLC buffer payload for these radio bearers

As an option, the message may include:

- Intra-frequency measurement report

The object to be measured shall have been configured before. A typical example is the interference in a DL Time Slot.

8.2.8.3   Reception of a PUSCH CAPACITY REQUEST message by the UTRAN

~~Once the RRC in C-RNC receives the PUSCH CAPACITY REQUEST, it~~ The UTRAN should~~all~~ send a ~~message~~ PHYSICAL SHARED CHANNEL ALLOCATION message to the UE, either for allocating PUSCH or PDSCH resources, or just as an acknowledgement, announcing a pending PUSCH allocation.

~~8.2.8.3.1   Message PHYSICAL SHARED CHANNEL ALLOCATION contents to set~~

~~The contents of that message is the same as in the Physical Shared Channel Allocation procedure. It may or may not contain PUSCH channels to allocate. However it shall include the parameter "PUSCH Allocation Pending". If this is set to "pending", the UE is temporarily inhibited to send any further PUSCH capacity requests on the RACH.~~

8.2.8.4   Reception of a PHYSICAL SHARED CHANNEL ALLOCATION message by the UE

Once the UE receives this message with the correct C-RNTI included, it shall stop the timer T310 and shall evaluate the message~~.~~

8.2.8.4.1 Message PHYSICAL SHARED CHANNEL ALLOCATION contents to use

The UE shall evaluate the message as described in the Physical Shared Channel Allocation procedure. In particular, it shall take the parameter IE "PUSCH Allocation Pending" into account: If this parameter IE has the value "pending", the UE shall start the timer T311. As long as this timer is running, the UE is prohibited to send PUSCH Capacity Requests on the SHCCH via the RACH.

If the parameter IE "PUSCH Allocation Pending" indicates ""not pending","., the UE shall stop the timer T311, and is allowed to send PUSCH Capacity Requests on the RACH SHCCH again.

If the PUSCH capacity allocated in this message is not sufficient for all the USCH transmission requests which the UE may have, the RRC in the UE may decide to issue further PUSCH Capacity Requests, either on the USCH or on the RACH SHCCH – provided the RACH SHCCH is available, i.e. timer T311 is not running..

8.2.8.5 Abnormal case: T310 time out

Upon expiry of timer T310, the UE shall

- If V310 is equal to or smaller or equal than N310, transmit a new PUSCH CAPACITY REQUEST message on the Uplink SHCCH, restart timer T310 and increase counter V310. The UE shall set the IEs in the PUSCH CAPACITY REQUEST message as specified above.

8.2.8.6 Abnormal case: Maximum number of re-attempts exceeded

In this case the UE stops the procedure. – It can start another PUSCH capacity request CAPACITY REQUEST procedure if the UE-RRC sees the need for it.

8.2.9 Downlink power outer loop control
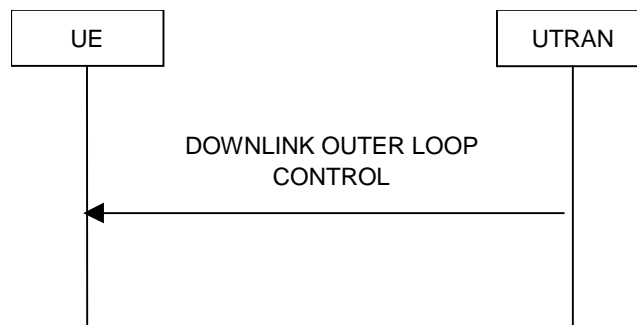
Figure 28) Downlink Outer Loop Control , normal flow

8.2.9.1 General

The downlink outer loop control procedure is used to control the downlink outer loop power control running in the UE.

8.2.9.2 Initiation

The UTRAN shall may transmit the DOWNLINK OUTER LOOP CONTROL message on the downnlink DCCH using AM or UM RLC.

~~8.2.9.2.1 Message DOWNLINK OUTER LOOP CONTROL contents to set~~

To prevent the UE from increasing its DL Eb/No target value above its current value, the UTRAN <u>should</u> ~~shall~~ set the "Downlink Outer Loop Control" IE to TRUE.

To remove the previous restriction on the downlink outer loop power control, the UTRAN <u>should</u> ~~shall~~ set the "Downlink Outer Loop Control" IE to FALSE.

8.2.9.3 Reception of DOWNLINK OUTER LOOP CONTROL <u>message</u> by the UE

Upon reception of the DOWNLINK OUTER LOOP CONTROL message, the UE shall read the <u>IE</u> "Downlink Outer Loop Control" ~~IE~~.

~~8.2.9.3.1 Message DOWNLINK OUTER LOOP CONTROL contents to use~~

If the <u>IE</u> "Downlink Outer Loop Control" ~~IE~~ is set to TRUE, the UE shall prevent its DL Eb/No target value from increasing above the current value.

If the <u>IE</u> "Downlink Outer Loop Control" ~~IE~~ is set to FALSE, the UE shall remove the above restriction.

8.3 RRC connection mobility procedures

8.3.1 Cell update
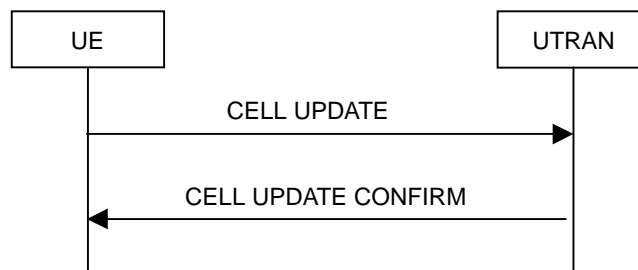
Figure 29. Cell update procedure, basic flow
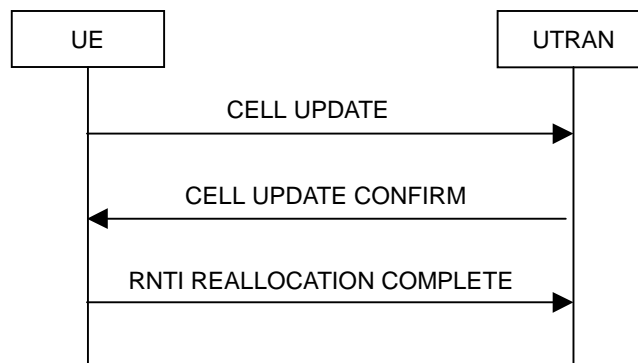
Figure 30. Cell update procedure with RNTI reallocation
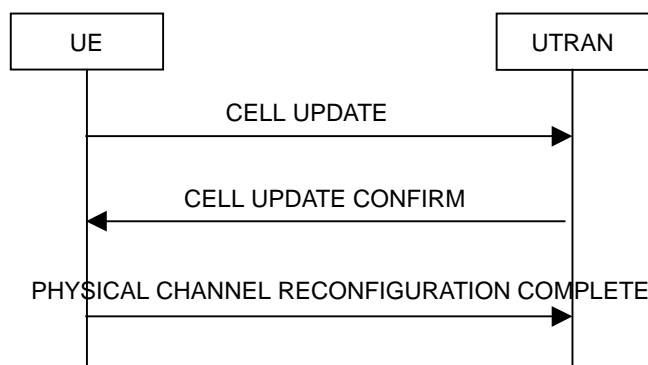
Figure 31. Cell update procedure with physical channel reconfiguration

8.3.1.1   General

The main purpose of the cell update procedure is to update UTRAN with the current cell of the UE after cell reselection in CELL_FACH or CELL_PCH state. It may also be used for supervision of the RRC connection, even if no cell reselection takes place. The cell update procedure can also be used to re-configure the ~~c plane~~ AM~~ ~~ RLC entities for the signalling link. The UE can use a CELL UPDATE message to notify the unrecoverable error in an AM ~~ ~~RLC entity for the signalling link ~~on c plane~~ [Note 1].

[Note: ~~Physical channel reconfiguration~~PHYSICAL CHANNEL RECONFIGURATION ~~complete~~ COMPLETE message is only used when common channels are configured (doesn't apply to dedicated channels)]

8.3.1.2   Initiation

A UE in CELL_FACH, CELL_PCH or URA_PCH state may apply the cell update procedure for a number of purposes. The specific requirements the UE shall take into account for each case are specified in the following:

- In CELL_FACH or CELL_PCH ~~and URA_PCH~~ state, the UE shall perform the cell update procedure when selecting another cell (cell reselection)

- In CELL_FACH and CELL_PCH state, the UE shall perform the cell update procedure upon expiry of T305 while the UE is in the service area. The UE shall only perform this periodic cell updating if configured by means of the IE "Information for periodical cell and URA update" in System Information Block Type 2. The UE shall initially start timer T305 upon entering CELL_FACH or CELL_PCH state

- In CELL_PCH state and URA_PCH state, the UE shall initiate the cell update procedure if it wants to transmit UL data

- In CELL_PCH and URA_PCH state, the UE shall perform the cell update procedure when receiving a PAGING TYPE 1 message as in subclause 8.1.2.3

~~8.3.1.2.1   Cell update due to cell reselection~~

~~When the UE is in CELL_FACH or CELL_PCH state and originates from an UTRA cell and makes a successful reselection of another UTRA cell, it shall~~ The UE shall start the cell update procedure by

- ~~moving~~move to CELL_FACH state, if not already in that state

- ~~sending~~transmit a CELL UPDATE message on the uplink CCCH,

- ~~starting~~start timer T302 and ~~resetting~~reset counter V302

The IE "cell update cause" shall be used as follows; ~~set to "cell reselection".~~

- In case of cell reselection: "cell reselection",

- In case of periodic cell updating: "periodic cell update",

- In case of UL data transmission: "UL data transmission",

- In case of paging response: "paging response".

The IE "AM_RLC error indication" shall be set when the UE detects unrecoverable error in an AM –RLC entity for the signalling link.

The UE shall include an intra-frequency measurement report in the CELL UPDATE message, 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.

8.3.1.2.2   Cell update due to periodical cell update

When the UE is in CELL_FACH or CELL_PCH state, the UE shall perform periodic cell updating according to the system information. The timer T305 shall be reset when entering CELL_FACH or CELL_PCH state and after the completion of the Cell Update Procedure in CELL_FACH or CELL_PCH state.

Upon expiry of timer T305 and the UE detects that it is in the service area, the UE shall

•   move to CELL_FACH state, if not already in that state

•   transmit a CELL UPDATE message on the uplink CCCH,

•   start timer T302 and reset counter V302

The IE "Cell update cause" shall be set to "periodic cell update".

8.3.1.2.3   Cell update due to UL data transmission

When the UE is in CELL_PCH or URA_PCH state, the UE shall perform cell updating if the UE wants to transmit UL data. The timer T305 shall be reset after the completion of the Cell Update Procedure in CELL_FACH state.

The UE shall

•   move to CELL_FACH state, if not already in that state

•   transmit a CELL UPDATE message on the uplink CCCH,

•   start timer T302 and reset counter V302

The IE "Cell update cause" shall be set to "UL data transmission".

8.3.1.2.4   Cell update due to paging response

When the UE is in CELL_PCH and URA_PCH state, the UE shall perform a cell update procedure, when receiving a PAGING TYPE 1 message as in subclause 8.1.2.3 The timer T305 shall be reset after the completion of the Cell Update Procedure in CELL_FACH state.

The UE shall

•   move to CELL_FACH state

•   transmit a CELL UPDATE message on the uplink CCCH,

•   start timer T302 and reset counter V302

The IE "Cell update cause" shall be set to "paging response".

8.3.1.3   ~~Abnormal cases:~~ T305 expiry and the UE detects that it is out of service area

When the T305 expires and the UE detects that it is out of service area which is specified in subclause 8.5.5, the UE shall

•   start timer T307

•   search for cell to camp

8.3.1.3.1   Re-entering of service area

When the UE detects that it is no longer out of service area before the expiry of T307, the UE shall

•   transmit a ~~Cell Update~~ CELL UPDATE message on the uplink CCCH

8.3.1.3.2 Expiry of timer T307

When the T307 expires, the UE shall

- move to idle mode

- release all dedicated resources

- indicate a RRC connection failure to the non-access stratum

Other actions the UE shall perform when entering idle mode from connected mode are specified in subclause 8.5.2

- When the T307 expires, the UE shall move to idle mode. UE shall release all dedicated resources and a connection failure may be indicated to the non-access stratum Other actions the UE shall perform when entering idle mode from connected mode are specified in subclause 8.5.2

8.3.1.3.3 Message CELL UPDATE contents to set

The IE "Cell update cause" shall be set to the event causing the transmission of the CELL UPDATE message, see subclauses 8.3.1.2.1, 8.3.1.2.2, 8.3.1.2.3 and 8.3.1.2.4.

The IE "AM_RLC error indication" shall be set when the UE detects unrecoverable error in AM_RLC error on c-plane.

The UE shall include an intra-frequency measurement report in the CELL UPDATE message, when instructed to do so in the system information.

8.3.1.4 Reception of an CELL UPDATE message by the UTRAN

When the UTRAN receives a CELL UPDATE message, it shall should transmit a CELL UPDATE CONFIRM message on the downlink DCCH.

When the UTRAN detects AM_RLC error, it waits for CELL UPDATE message from the UE and when the UTRAN receives it, UTRAN commands the UE to re-configure AM_RLC by sending CELL UPDATE CONFIRM message. This procedure can be used not only in the case of AM_RLC error but also in the case that UTRAN wants to re-configure AM_RLC for other reasons such as in the case when SRNC Relocation is initiated without keeping RLC status (current counters) from old SRNC to new SRNC.

When the UTRAN receives an IE "Cell update cause" which is set to "UL data transmission" or "paging response", the UE and the UTRAN states shall be transit to CELL_FACH state.

When the UTRAN detects the frequent Cell Updating with no data transmission on UL and DL, the UE and the UTRAN states may be transit to URA_PCH state.

8.3.1.4.1 Message CELL UPDATE CONFIRM contents to set

UTRAN shall use the same U-RNTI for the transmission of CELL UPDATE CONFIRM message as the values of the IE "U-RNTI" in the received message CELL UPDATE message.

UTRAN may allocate a new C-RNTI and/or a new U-RNTI for the UE. In that case UTRAN shall include those new identities in the IEs "new C-RNTI", and an additional IE "new U-RNTI", and start timer T361.

UTRAN may allocate new PRACH and/or Secondary CCPCH for FACH to the UE. In that case UTRAN shall include the IEs "PRACH info" and/or "Secondary CCPCH info". UTRAN shall start timer T357. When the UTRAN receives an IE "Cell update cause" which is set to "UL data transmission", the UTRAN shall include these parameters.

UTRAN may set "DRX indicator" to "DRX with URA updating"and optionally "URA Id" when the UTRAN orders the UE to change its state to URA_PCH state.

UTRAN may set "DRX indicator" to "DRX with Cell updating" to order the UE to change its state to Cell_PCH state.

UTRAN may set "DRX indicator" to "No DRX" to order the UE to change its state to Cell_FACH state.

8.3.1.5 Reception of the CELL UPDATE CONFIRM message by the UE

Upon receiving the CELL UPDATE CONFIRM message, the UE shall stop timer T302.

The UE shall act upon all received information elements as specified in 8.5.7, unless specified otherwise in the following.

If the CELL UPDATE CONFIRM message includes the IEs "CN domain identity" and the IE "NAS system information", the UE shall forward the content of the IE "NAS system information" to the non-access stratum entity of the UE identified by the IE "CN domain identity".

If the CELL UPDATE CONFIRM message includes the IE "URA-Id" the UE shall store this URA identity.

If the CELL UPDATE CONFIRM message does not include IE "new C-RNTI", IE "new U-RNTI", IE "PRACH info" nor IE "Secondary CCPCH info", no RRC response message is sent to the UTRAN.

If the CELL UPDATE CONFIRM message includes the IE "new C-RNTI" and optionally the IE "new U-RNTI" but does not include IE "PRACH info" nor IE "Secondary CCPCH info", the UE shall update its identities and transmit an RNTI REALLOCATION COMPLETE message on the uplink DCCH using the PRACH indicated in the broadcasted system information.

If the CELL UPDATE CONFIRM message includes the IEs "PRACH info" and/or the IE "Secondary CCPCH info", the UE shall

- Perform the actions stated in subclauses 8.5.7.6.2 and 8.5.7.6.3

- update its identities if the CELL UPDATE CONFIRM message includes the IE new C-RNTI" and optionally the IE "new U-RNTI"

- transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using the PRACH inidicated in CELL UPDATE CONFIRM message

If the CELL UPDATE CONFIRM message includes the IE "DRX indicator" and if it is set to "DRX with Cell updating", the UE shall transit to Cell_PCH state.

If the CELL UPDATE CONFIRM message includes the IE "DRX indicator" and if it is set to "DRX with URA updating", the UE shall transit to URA_PCH state.

If the CELL UPDATE CONFIRM message includes the IE "DRX indicator" and if it is set to "No DRX" or if the IE "Cell update cause" in CELL UPDATE message was set to "UL data transmission" or "paging response", the UE shall remain in CELL_FACH state.

If the CELL UPDATE CONFIRM message does not include the IE "DRX indicator" or if the IE "Cell update cause" in CELL UPDATE message was set to "periodic cell update" or "cell reselection", the UE shall return to the state it was in before initiating the cell update procedure.

If the CELL UPDATE CONFIRM message includes the IE "DRX cycle length", the UE shall update DRX cycle length.

In case none of the above conditions apply, the UE shall return to the state it was in before initiating the cell update procedure.

In case the UE ends in CELL_FACH or CELL_PCH state and periodic cell updating is configured, it shall reset timer T305.

In case the UE does not end in CELL_FACH state, it shall delete its C-RNTI.

- When the UE receives a CELL UPDATE CONFIRM message on the downlink DCCH, it shall stop timer T302 and restart timer T305

8.3.1.5.1 Message CELL UPDATE CONFIRM contents to use

If the CELL UPDATE CONFIRM message includes the IEs "new C-RNTI" and optionally "new U-RNTI", the UE shall

- update its identities and transmit an RNTI REALLOCATION COMPLETE message on the uplink DCCH. The procedure ends when the RLC has confirmed the transmission of that message and the UE shall go back to CELL_PCH state and delete its C-RNTI if the cell update procedure was initiated from that state and the IE "Cell update cause" in CELL UPDATE message was not set to "UL data transmission" nor "paging response". The UE shall transit to CELL_FACH state if the IE "Cell update cause" in CELL UPDATE message was set to "UL data transmission" or "paging response" or if optionally the IE "DRX indicator" was included and set to "No DRX".

If the CELL UPDATE CONFIRM message includes the IE "DRX indicator" set to "DRX with Cell updating", the UE shall

- enter Cell_PCH state, after all other possible actions.

If the CELL UPDATE CONFIRM message includes the IE "DRX indicator" set to "DRX with URA_updating", the UE shall

- ~~enter URA_PCH state, after all other possible actions. If the CELL UPDATE CONFIRM message also includes the IE "URA-Id" the UE shall store this URA identity.~~

~~If the CELL UPDATE CONFIRM message includes the IEs "PRACH info" and/or "Secondary CCPCH info", but not the IEs "new C-RNTI", nor "new U-RNTI", the UE shall~~

- ~~Perform the actions stated in subclauses 8.5.7.6.2 and 8.5.7.6.3~~

- ~~transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH. The procedure ends when the RLC has confirmed the transmission of that message and the UE shall go back to CELL_PCH state and delete its C-RNTI if the cell update procedure was initiated from that state and the IE "Cell update cause" in CELL UPDATE message was not set to "UL data transmission" or "paging response". The UE shall transit to CELL_FACH state if the IE "Cell update cause" in CELL UPDATE message was set to "UL data transmission" or "paging response". The UE shall transit to CELL_FACH state if the IE "DRX indicator" was set to "No DRX".~~

~~If the CELL UPDATE CONFIRM message includes the IEs "PRACH info" and/or "Secondary CCPCH info", and at least one of the IEs "new C-RNTI", or "new U-RNTI", the UE shall~~

- ~~Perform the applicable actions stated in subclause 8.5.7~~

~~If the CELL UPDATE CONFIRM message includes the IEs "CN domain identity" and "NAS system information", the UE shall forward the content of the IE to the non-access stratum entity of the UE indicated by the IE "CN domain identity".~~

~~If the CELL UPDATE CONFIRM message includes the neither the IEs "PRACH info", "Secondary CCPCH info", "new C-RNTI", nor "new U-RNTI", the procedure ends and the UE shall go back to CELL_PCH state and delete its C-RNTI if the cell update procedure was initiated from that state. The UE shall transit to CELL_FACH state if the IE "DRX indicator" was set to "No DRX".~~

8.3.1.6   ~~Abnormal cases:~~ T302 expiry or cell reselection

- Upon expiry of timer T302, and/or

- upon reselection of another UTRA cell when waiting for the CELL UPDATE CONFIRM message,

the UE shall check the value of V302 and

- If V302 is smaller or equal than N302, the UE shall retransmit a CELL UPDATE message on the uplink CCCH, restart timer T302 and increase counter V302. The IE "Cell update cause" shall be set to the event causing the transmission of the CELL UPDATE message, see subclauses 8.3.1.2.~~1, 8.3.1.2.2, 8.3.1.2.3 and 8.3.1.2.4~~

- If V302 is greater than N302, the UE shall enter idle mode. The procedure ends and a connection failure may be indicated to the non-access stratum. Other actions the UE shall perform when entering idle mode from connected mode are specified in subclause 8.5.2

8.3.1.7   Reception of **the** RNTI REALLOCATION COMPLETE **message** by the UTRAN

See subclause 8.3.3.4

8.3.1.8   Reception of **the** PHYSICAL CHANNEL RECONFIGURATION COMPLETE **message** by the UTRAN

~~When the UTRAN receives PHYSICAL CHANNEL RECONFIGURATION message, the procedure ends.~~~~FFS~~

~~8.3.1.9   Abnormal case: T357 expiry~~

~~FFS~~

8.3.2   URA update
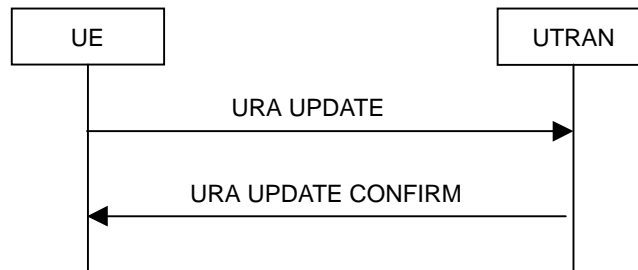
Figure 32. URA update procedure, basic flow
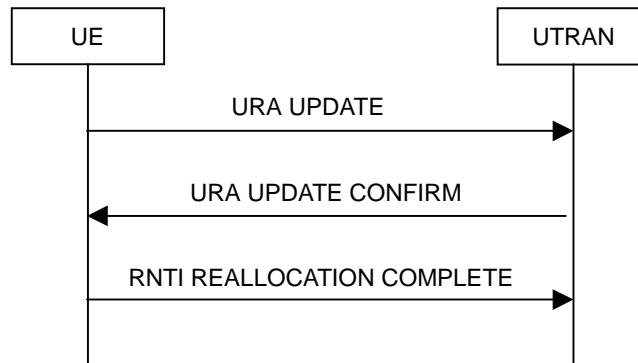
Figure 33. URA update procedure with RNTI reallocation

8.3.2.1 General

The main purpose of the URA update procedure is to update UTRAN with the current URA of the UE after URA reselection in URA_PCH state. It may also be used for supervision of the RRC connection, even if no URA reselection takes place. UTRAN registration areas may be hierarchical to avoid excessive signalling. This means that several URA identifiers may be broadcast in one cell and that different UEs in one cell may reside in different URAs. A UE in URA_PCH state shall always have one and only one valid URA. The URA UPDATE CONFIRM message may also contain new NAS system information.

8.3.2.2 Initiation

8.3.2.2.1 URA update due to URA reselection

A UE in URA_PCH state may apply the URA update procedure for a number of purposes. The specific requirements the UE shall take into account for each case are specified in the following:

- In URA_PCH state, the UE shall perform the URA update procedure when the current URA assigned to the UE is not present in the list of URA IDs broadcast in a cell

- In URA_PCH state, the UE shall perform the URA update procedure upon expiry of T306 while the UE is in the service area. The UE shall only perform this periodic URA updating if configured by means of the IE "Information for periodical cell and URA update" in System Information Block Type 2. The UE shall initially start timer T306 upon entering URA_PCH state

~~When the UE is in URA_PCH state and the current URA assigned to the UE is not present in the list of URA IDs broadcast in a cell,~~ The UE shall start the URA update procedure by

~~, it shall~~

- temporarily stor~~ing~~e the list of URA IDs broadcasted in a cell

- move~~ing~~ to CELL_FACH state

- ~~transmit~~sending a URA UPDATE message on the uplink CCCH,

- start<u>ing</u> timer T303 and reset<u>ting</u> counter V303

<u>The IE "URA update cause" shall be set as follows;</u>

- <u>In case of URA reselection, to: "URA reselection",</u>

- <u>In case of periodic URA updating, to: "periodic URA update",</u>

~~The IE "URA update cause" shall be set to "URA reselection".~~

~~8.3.2.2.2 URA update due to periodical URA update~~

~~When the UE is in URA_PCH state, the UE shall perform periodic URA updating according to the system information. The timer T306 shall be reset when entering URA_PCH state and after the completion of the URA Update Procedure.~~

~~Upon expiry of timer T306 and the UE detects that it is in the service area, which is specified in subclause 8.5.4, the UE shall~~

~~• move to CELL_FACH state~~

~~• transmit a URA UPDATE message on the uplink CCCH,~~

~~• start timer T303 and reset counter V303~~

~~The IE "URA update cause" shall be set to "periodic URA update".~~

8.3.2.3 ~~Abnormal cases:~~ T306 expiry and the UE detects that it is out of service area

When the T306 expires and the UE detects that it is out of service area, which is specified in subclause 8.5.4, the UE shall

- start timer T307

- search for cell to camp

8.3.2.3.1 Re-entering of service area

When the UE detects that it is no longer out of service area before the expiry of T307, the UE shall

- transmit URA ~~Update~~ <u>UPDATE</u> message on the uplink CCCH

8.3.2.3.2 Expiry of timer T307

When the T307 expires<u>, the UE shall</u>

- ~~the UE shall~~ move to idle state

- <u>release all dedicated resources</u>

- <u>indicate a RRC connection failure to the non-access stratum</u>

<u>Other actions the UE shall perform when entering idle mode from connected mode are specified in subclause 8.5.2</u>

~~8.3.2.4 Message URA UPDATE contents to set~~

~~The IE "URA update cause" shall be set to the event causing the transmission of the URA UPDATE message, see subclauses 8.3.2.2.1 and 8.3.2.2.2.~~

8.3.2.5 Reception of <u>an</u> URA UPDATE <u>message</u> by the UTRAN

When the UTRAN receives a URA UPDATE message, it ~~shall~~<u>should</u> transmit a URA UPDATE CONFIRM message on the downlink CCCH or DCCH.

~~8.3.2.5.1 Message URA UPDATE CONFIRM contents to set~~

~~UTRAN may allocate a new C-RNTI and/or a new U-RNTI for the UE. In that case UTRAN shall include those new identities in the IEs "new C-RNTI","new U-RNTI",~~

The UTRAN ~~shall~~ <u>should</u> assign the URA ID to the UE in the URA UPDATE CONFIRM message in a cell where

multiple URAs are valid.

8.3.2.6 Reception of an URA UPDATE CONFIRM message by the UE

Upon receiving the URA UPDATE CONFIRM message, the UE shall stop timer T303 and restart timer T306.

- When the UE receives a URA UPDATE CONFIRM message on the downlink CCCH or DCCH, it shall stop timer T303 and restart timer T306.

8.3.2.6.1 Message URA UPDATE CONFIRM contents to use

If the URA UPDATE CONFIRM message includes the IEs "new C-RNTI" and optionally IE "new U-RNTI", the UE shall

update its identities and transmit an RNTI REALLOCATION COMPLETE message on the uplink DCCH. using the PRACH indicated in the broadcasted system information.

If the URA UPDATE CONFIRM message includes the IE "URA ID", the UE shall

- confirm whether indicated URA ID is in the list of URA IDs which is temporarily stored in the UE

- update URA ID and store in itself.

If the URA UPDATE CONFIRM message does not include the IE "URA ID", the UE shall

- confirm whether only one URA ID exists in the list of URA IDs which is temporarily stored in the UE

- update URA ID and stored in itself.

If the URA UPDATE CONFIRM message includes the IEs "CN domain identity" and "NAS system information", the UE shall

- forward the content of the IE to the non-access stratum entity of the UE indicated by the IE "CN domain identity".

In all cases the UE shall, after other possible actions:

- retrieve secondary CCPCH info (for PCH) from the SYSTEM INFORMATION broadcasted from the new cell

- delete its C-RNTI and

- transit to URA_PCH state. The procedure ends.

8.3.2.7 Abnormal cases: Confirmation error of URA ID list

- When indicated URA ID is not included in the list of URA IDs or

- when the URA ID is not inidicated and the list of URA IDs includes more than one URA ID,

the UE shall check the value of V303 and

- If V303 is smaller or equal than N303, the UE shall retransmit a URA UPDATE message on the uplink CCCH, restart timer T303 and increase counter V303. The UE shall set the IEs in the URA UPDATE message according to subclause 8.3.2.2.1 and 8.3.2.2.2

- If V303 is greater than N303, the UE shall enter idle mode. The procedure ends and a connection failure may be indicated to the non-access stratum. Other actions the UE shall perform when entering idle mode from connected mode are specified in subclause 8.5.2

8.3.2.8 Abnormal cases: T303 expiry or URA reselection

- Upon expiry of timer T303, and/or

- upon reselection of another UTRA cell when waiting for the URA UPDATE CONFIRM message,

the UE shall check the value of V303 and

- If V303 is smaller or equal than N303, the UE shall retransmit a URA UPDATE message on the uplink CCCH, restart timer T303 and increase counter V303. The UE shall set the IEs in the URA UPDATE message according to subclause 8.3.2.2.1 and 8.3.2.2.2

- If V303 is greater than N303, the UE shall enter idle mode. The procedure ends and a connection failure may be

indicated to the non-access stratum. Other actions the UE shall perform when entering idle mode from connected mode are specified in subclause 8.5.2

8.3.2.9 Reception of the RNTI REALLOCATION COMPLETE message by the UTRAN

See subclause 8.3.3.4

8.3.3 RNTI reallocation
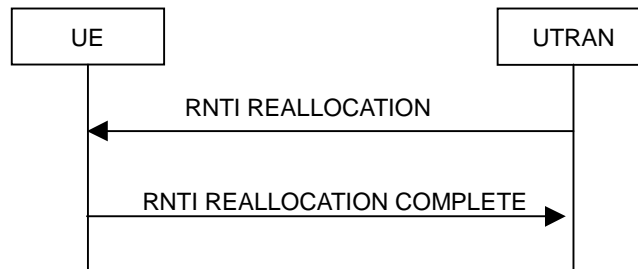
Figure 34) RNTI reallocation procedure, normal flow

8.3.3.1 Purpose8.3.3.1 General

The purpose withof this procedure is to allocate a new C-RNTI and/or U-RNTI to an UE in connected mode.

8.3.3.2 Initiation

To initiate the procedureThe UTRAN shall transmits an RNTI reallocation REALLOCATION message to the UE on the downlink DCCH.

8.3.3.3 Reception of RNTI REALLOCATION message by the UE

When the UE receives an RNTI REALLOCATION message, it shall take the following actions in subclause 8.1.4.3.1 and then transmit an RNTI REALLOCATION COMPLETE message on the uplink DCCH. The procedure ends when the transmission of the RNTI REALLOCATION COMPLETE message has been confirmed by RLC.

8.3.3.3.1 Message RNTI REALLOCATION contents to use

If the IE "new U-RNTI" are is present, the UE shall store and start to use the values of these IEs as the current U-RNTI.

If the IE "new C-RNTI" is present, the UE shall store and start to use the value of this IE.

If the IEs "CN domain identity" and the IE "NAS system information" are included, the UE shall forward the content of the IE to the non-access stratum entity of the UE indicated by the IE "CN domain identity".

8.3.3.4 Reception of an RNTI REALLOCATION COMPLETE message by the UTRAN

When the network receives RNTI REALLOCATION COMPLETE message, UTRAN shall may delete any old C-RNTI and old U-RNTI. The procedure ends.

8.3.4 Active set update in soft handover
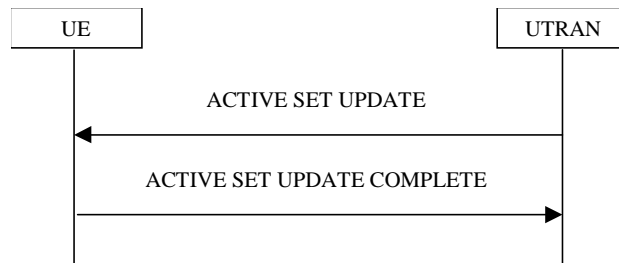
Figure 35. Active Set Update procedure, successful case
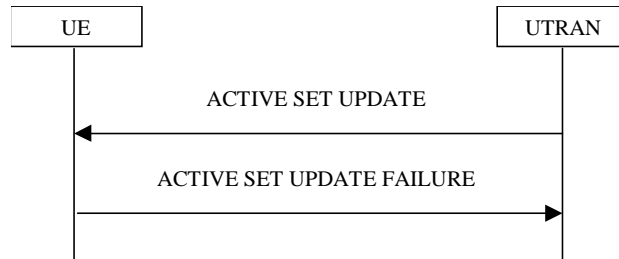
Figure 36. Active Set Update procedure, failure case

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 allocating the new RLs. Also the UE should keep on using the transmitter during the reallocation process.

8.3.4.~~1~~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 ~~shall~~should

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

In all cases, UTRAN ~~shall~~should

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

~~- Start timer T360.~~

~~8.3.4.1.1 Message ACTIVE SET UPDATE contents to set~~

UTRAN ~~shall~~ should include the following information:

- IE "Radio Link Addition Information": Downlink DPCH information and other optional parameters relevant for the additional radio links with Primary CCPCH info used for the reference ID to indicate which radio link to add. This IE is need in case a) and c).

- IE "Radio Link Removal Information": Primary CCPCH info used for the reference ID to indicate which radio link

to remove. This IE is need in case b) and c).

If SRNC relocation is performed simultaneously during active set update ~~procedure~~ when all radio links are replaced simultaneously, the UTRAN shall include the IE "U-RNTI" ~~IE~~ and IE "CN domain identity" and IE "NAS system information" ~~IEs~~ in the ACTIVE SET UPDATE messages.

8.3.4.2   Reception of ~~message~~ an ACTIVE SET UPDATE message by the UE

~~The UE shall take the following actions:~~

- Upon reception of an ACTIVE SET UPDATE message the UE shall ~~perform actions according to subclause 8.3.4.2.1 and transmit an ACTIVE SET UPDATE COPMLETE message on the uplink DCCH using AM RLC. When the transmission of the ACTIVE SET UPDATE COMPLETE message has been confirmed by RLC the procedure ends.~~

8.3.4.2.1   ~~Message ACTIVE SET UPDATE contents to use~~

The UE shall

- at 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 indicated to remove, shall be removed before adding RL, which is indicated to add.

~~If the UE active set is full or becomes full, an RL, which is indicated to remove, shall be removed before adding RL, which is indicated to add.~~

- If the ACTIVE SET UPDATE message includes the IE "U-RNTI" ~~IE~~, ~~the UE shall~~ update its identity.

- If the ACTIVE SET UPDATE message includes the IE~~s~~ "CN domain identity" and the IE "NAS system information", the UE shall forward the content of the IE to the non-access stratum entity of the UE indicated by the IE "CN domain identity".

- transmit an ACTIVE SET UPDATE COMPLETE message on the uplink DCCH using AM RLC. When the transmission of the ACTIVE SET UPDATE COMPLETE message has been confirmed by RLC the procedure ends on the UE side.

8.3.4.2.2   ~~Message ACTIVE SET UPDATE COMPLETE contents to set~~

~~UE shall include the following information:~~

~~• IE "physical CH information elements": optional parameters relevant for the new active set.~~

8.3.4.3   Abnormal case: Unsupported configuration in the UE

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

- Transmit a ACTIVE SET UPDATE FAILURE message on the DCCH using AM RLC.

8.3.4.3.1   ~~Message ACTIVE SET UPDATE FAILURE contents to set~~

~~UE shall include the following information:~~

- Set the IE "failure cause" to "configuration unacceptable".

8.3.4.4   Reception of ~~message~~ 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) which are indicated to remove to the UE in case b) and c)

- and ~~the UTRAN stops the T360 and~~ the procedure ends on the UTRAN side.

8.3.4.5 Reception of ~~message~~ 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 which are indicated to add to the UE. ~~The UTRAN stops the T360 and t~~The procedure ends on the UTRAN side.

~~8.3.4.6 Abnormal case: T360 timeout~~

~~Upon expiry of timer T360 and no ACTIVE SET UPDATE COMPLETE or ACTIVE SET UPDATE FAILURE message has been received, the UTRAN may delete the new and old radio links. After the UTRAN deleted all the radio links, the UTRAN may wait for the UE to request a re-establishment of the RRC Connection. The UE context may then be cleared, unless the UE requests a re-establishment of the RRC Connection for a certain time period.~~

8.3.5 Hard handover
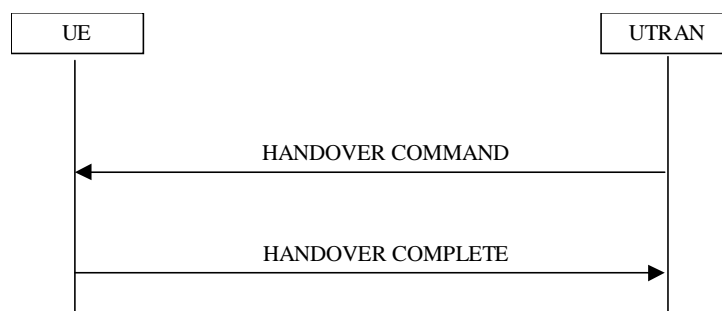
Figure 37. Hard handover, successful case
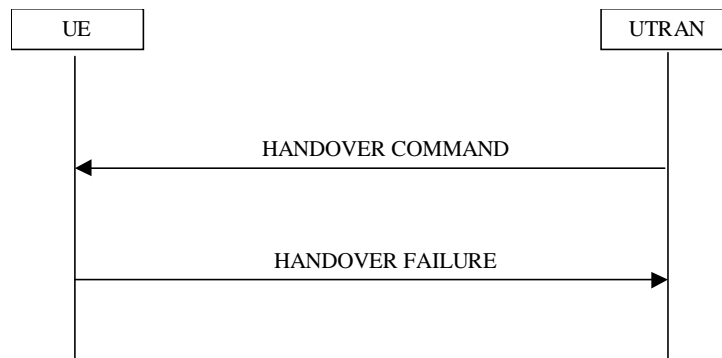
Figure 38. Hard handover, failure case

8.3.5.1 General

The purposes of the hard handover procedure are;

- to change the ~~radio~~ frequency ~~band~~ of the connection between the UE and UTRAN

- to change ~~the~~ cell ~~on the same frequency but no~~in a network that does not support ~~of~~ macro diversity, and

- to change the mode between TDD and FDD.

This procedure may be used in CELL_DCH state.

8.3.5.2 Initiation

UTRAN ~~shall~~should

- Configure new radio links in new physical configuration and L1 starts TX/RX on the new links immediately.

- ~~Start timer T358~~.

- Send a HANDOVER COMMAND message on downlink DCCH using AM or UM RLC.

8.3.5.2.1 ~~Message HANDOVER COMMAND contents to set~~

UTRAN ~~shall~~ should include the following information:

IE "physical CH information elements": frequency info, uplink radio resources, downlink radio resources and other optional parameters relevant for the target physical CH configuration in new physical configuration.

If SRNC relocation is performed simultaneously during active set update, the UTRAN ~~shall~~ should include the IE "U-RNTI" ~~IE~~ and IE "CN related information[]"."CN domain identity" and IE "CN related information[]"."NAS system information" ~~IEs~~ in the HANDOVER COMMAND message. The IE "PLMN identity" is optional in the message, but the condition for the presence of this IE is FFS.

8.3.5.3 Reception of ~~message~~ an HANDOVER COMMAND message by the UE

~~The UE shall take the following actions:~~The UE shall act upon all received information elements as specified in 8.5.7, unless specified otherwise in the following:

- ~~Upon reception of a HANDOVER COMMAND message~~ the UE shall perform actions according to ~~subclause 8.3.5.3.1~~ below and transmit a HANDOVER CO~~MP~~MLETE message on the uplink DCCH using AM RLC. When the transmission of the HANDOVER COMPLETE message has been confirmed by RLC the procedure ends.

- The UE shall be able to receive an HANDOVER COMMAND message and perform an hard handover, even if no prior UE measurements have been performed on the target cell and/or frequency

- The UE in CELL_DCH is allowed to release all resources for the old connection before allocation of the new resources. The UE should also turn off the transmitter when the resource reallocation process takes place.

8.3.5.3.1 ~~Message HANDOVER COMMAND contents to use~~

The UE shall

- Release the old physical CH configuration.

- Re-establish the physical CH configuration on new physical configuration according to the IE "Physical CH Information Element".

If the HANDOVER COMMAND message includes the IE "U-RNTI" ~~IE~~, the UE ~~shall~~ should update its identity.

If the HANDOVER COMMAND message includes the IEs "CN related information[]"."CN domain identity" and IEs "CN related information[]"."NAS system information", the UE shall forward the content of the IE to the non-access stratum entity of the UE indicated by the IE "CN domain identity".

~~The UE shall perform actions for other Ies accoring to subclause 8.5.7.~~The UE shall transmit an HANDOVER COMPLETE message on the uplink DCCH, with contents as specified below. When the transmission of HANDOVER COMPLETE message has been confirmed by RLC the procedure ends..

8.3.5.3.1 ~~Message HANDOVER COMPLETE contents to set~~

UE should include the following information:

- IE "physical CH information elements": optional parameters relevant for the target physical CH configuration in new physical configuration.

8.3.5.4 ~~Abnormal case:~~ Unsupported configuration in the UE

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

- Transmit a HANDOVER FAILURE message on the DCCH using AM RLC.

8.3.5.4.1 ~~Message HANDOVER FAILURE contents to set~~

UE shall include the following information:

- IE "failure cause" to "configuration unacceptable".

8.3.5.5 ~~Abnormal case:~~ Physical channel failure

If the UE fails to establish the physical channel(s) indicated in the ~~message~~ HANDOVER COMMAND message the UE shall

- Revert to the configuration prior to the reception of the HANDOVER COMMAND message (old configuration) and transmit a HANDOVER FAILURE message on the DCCH using AM RLC. The procedure ends and the UE resumes the normal operation as if no hard handover attempt had occurred.

A physical channel failure occurs in case the criteria as defined in 8.5.4 are not fulfilled.~~Criteria to be fulfilled for having a physical channel established are specified in subclause 8.5.4~~

If the UE is unable to revert back to the old configuration, the UE shall

- Initiate a RRC connection re-establishment procedure according to subclause 8.1.5

8.3.5.5.1 ~~Message HANDOVER FAILURE contents to set~~

UE shall include the following information:

- IE "failure cause" to "physical channel failure".

8.3.5.6 Reception of ~~message~~ the HANDOVER COMPLETE message by the UTRAN

When the UTRAN has received the HANDOVER COMPLETE message, UTRAN may delete any old configuration. ~~Timer T358 is stopped and~~ the procedure ends on the UTRAN side.

8.3.5.7 Reception of ~~message~~ the HANDOVER FAILURE message by the UTRAN

When the UTRAN has received the HANDOVER FAILURE message, UTRAN may delete any new configuration. ~~Timer T358 is stopped and~~ the procedure ends on the UTRAN side.

8.3.5.8 ~~Abnormal case: T358 timeout~~

~~Upon expiry of timer T358 and no HANDOVER COMPLETE or HANDOVER FAILURE message has been received, the UTRAN may delete the old and new configuration. After the UTRAN deleted all the configurations, the UTRAN may wait for the UE to request a re-establishment of the RRC Connection. The UE context may then be cleared, unless the UE requests a re-establishment of the RRC Connection for a certain time period.~~

8.3.6 Inter-system handover to UTRAN

Figure 39. Inter system handover to UTRAN, successful case

8.3.6.1   General

The purpose of the inter system handover procedure is to , ~~controlled~~ unnder the control of ~~by~~ the network, transfer a connection between the UE and another radio access system (e.g. GSM) to UTRAN.

8.3.6.2 Initiation

The procedure is initiated when the UE is connected to an~~other~~ radio access system other than UTRAN, e.g. GSM, and, using system specific procedures, is ordered by that radio access system to make a handover to UTRAN.

A ~~message~~ XXXX message is sent to the UE via the system from which inter- system handover is performed.

[Editor´s note: Message XXXX needs to be defined.]

~~8.3.6.2.1   Message XXXX contents to set~~

UTRAN should provide the following information to the other system to be included in the XXXX message.

- UE information elements
- R~~A~~B information elements
- TrCH information elements
- PhyCH information elements

~~If~~ Whether the other radio access system also provide other information is FFS.

8.3.6.3   Reception of ~~message~~ XXXX message by the UE

~~The UE shall take the following actions:~~

~~• If the UE succeeds to establish the connection to UTRAN, it shall transmit a HANDOVER COMPLETE message on the uplink DCCH~~

~~8.3.6.3.1   Message XXXX contents to use~~

The UE shall act upon all received information elements as specified in 8.5.7, unless specified otherwise in the following:

The UE shall

- Store the value of the IE "U-RNTI" and
- Initiate the signalling link parameters according to the IEs "Signalling link type" and "RB mapping info".

If additional RB IEs are included, the UE shall

- use the multiplexing option applicable for the transport channels used according to the IE "RB mapping info"
- Configure MAC multiplexing if that is needed in order to use said transport channel(s).
- Use MAC logical channel priority when selecting TFC in MAC.

If the IE "C-RNTI" is included, the UE shall

- Use that C-RNTI when using common transport channels of type RACH, FACH and CPCH in the current cell.

If neither the IE~~s~~ "PRACH info" nor the IE "Uplink DPCH info" is included, the UE shall

- Let the physical channel of type PRACH that is given in system information be the default in uplink and enter the CELL_FACH state.

If neither the IE~~s~~ "Secondary CCPCH info" nor the IE "Downlink DPCH info" is included, the UE shall

- Start to receive the physical channel of type Secondary CCPCH that is given in system information.

The UE shall use the transport channel(s) applicable for the physical channel types that is used. If neither the IE "TFS" is included or previously stored in the UE for that transport channel(s), the UE shall

- Use the TFS given in system information

If none of the TFS stored is compatible with the physical channel, the UE shall

- Delete stored TFS and use the TFS given in system information

If the UE succeeds to establish the connection to UTRAN, it shall transmit a HANDOVER COMPLETE message on the uplink DCCH. When the transmission of the HANDOVER COMPLETE message has been confirmed by RLC, the procedure ends.

Actions that shall be performed by the UE, for other IEs are specified in subclause 8.5.7

8.3.6.3.2 Message HANDOVER COMPLETE contents to set

There are no requirements on the UE concerning the information elements to be provided within the handover complete message.

8.3.6.4 ~~Abnormal case:~~ UE fails to perform handover

If the UE does not succeed to establish the connection to UTRAN, it shall terminate the procedure including release of the associated resources and indicate the failure to the other radio access system.

Upon receiving an indication about the failure from the other radio access system, UTRAN should release the associated resources and the context information concerning this UE.

8.3.6.5 Reception of message HANDOVER COMPLETE by the UTRAN

Upon receiving a HANDOVER COMPLETE message, UTRAN should consider the inter- system handover procedure as completed succesfully and indicate this to the CN.

8.3.6.5.1 Message HANDOVER COMPLETE contents to use

There are no requirements on UTRAN concerning the handling of information elements included in the HANDOVER COMPLETE message.

8.3.7 Inter-system handover from UTRAN
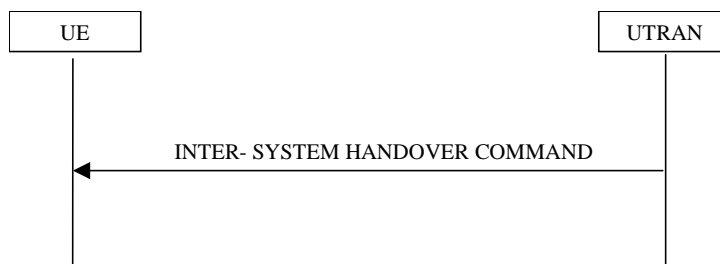
Figure 40. Inter system handover from UTRAN, successful case
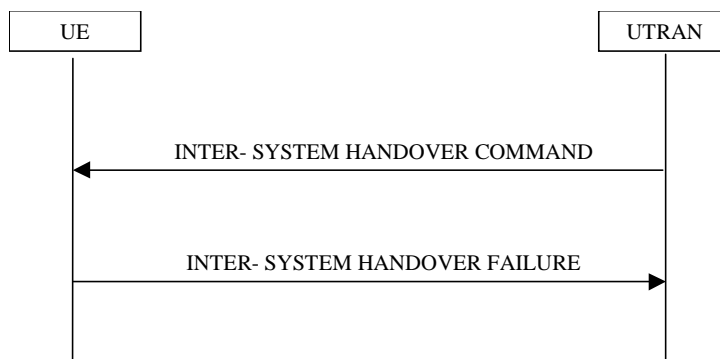
Figure 41. Inter system handover from UTRAN, failure case

8.3.7.1 General

The purpose of the inter system handover procedure is to, controlled by the network, transfer a connection between the UE and UTRAN to another radio access system (e.g. GSM). This procedure may be used in CELL_DCH and CELL_FACH state.

8.3.7.2 Initiation

The procedure is initiated when UTRAN orders a UE in CELL_DCH or CELL_FACH state, to make a handover to another radio access system than UTRAN, e.g. GSM.

~~UTRAN shall.~~

~~• start timer T359 and~~

~~•~~ To initiate the procedure, UTRAN sends an INTER- SYSTEM HANDOVER COMMAND message.

~~8.3.7.2.1 Message INTER- SYSTEM HANDOVER COMMAND contents to set~~

~~UTRAN shall include the following information:~~

~~• IE "inter system message": candidate/ target cell identifier(s), radio parameters relevant for the other radio access system~~

8.3.7.3 Reception of ~~message~~ an INTER- SYSTEM HANDOVER COMMAND message by the UE

The UE shall take the following actions:

- Establish the connection to the other radio access system, by using the contents of the IE "Inter system message". This IE contains candidate/ target cell identifier(s) and radio parameters relevant for the other radio access system.

- switch the current connection to the other radio access system

NOTE 1 Requirements concerning the establishment of the radio connection towards the other radio access system and the signalling procedure are outside the scope of this specification.

NOTE 2 The release of the UMTS radio resources is initiated by the other system.

~~• If the UE succeeds to establish the connection to other radio access system, the release of the UTRAMTS radio resources is initiated by the other system.~~

~~8.3.7.3.1 Message INTER- SYSTEM HANDOVER COMMAND contents to use~~

~~There are no requirements on the UE concerning the handling of information elements included in the HANDOVER COMPLETE message.~~

8.3.7.4 Successful completion of the inter-system handover

Upon successfully completing the handover, UTRAN should release the radio connection and remove all context information for the concerned UE.

8.3.7.5 ~~Abnormal case:~~ UE fails to complete requested handover

If the UE does not succeed to establish the connection to the other radio access system, it shall

- resume the connection to UTRAN using the resources used before receiving the INTER-SYSTEM HANDOVER COMMAND message and

- transmit the INTER-SYSTEM HANDOVER FAILURE message. When the transmission of the INTER-SYSTEM FAILURE message has been confirmed by RLC, the procedure ends.

8.3.7.5.1 ~~Message INTER-SYSTEM HANDOVER FAILURE contents to set~~

~~FFS~~

8.3.7.6 Reception of an INTER-SYSTEM HANDOVER FAILURE message by UTRAN

Upon receiving an INTER-SYSTEM HANDOVER FAILURE message. UTRAN may release the resources in the other radio access system.should stop timer T359.

8.3.7.7 Abnormal case: expiry of timer T359 in UTRAN

In case timer T359 expires while UTRAN is waiting for a CN initiated release, UTRAN should indicate a radio connection failure and wait for the CN to release the radio connection.

8.3.8 Inter-system cell reselection to UTRAN

8.3.8.1 General

The purpose of the inter system cell reselection procedure to UTRAN is to, controlled byunder the control of the UE and to some extent the other radio access system, transfer a connection between the UE and another radio access system (e.g. GSM/GPRS) to UTRAN.

8.3.8.2 Initiation

When the UE makes an inter-system cell reselection to UTRAN according to the criteria specified in TS 25.304, it shall initiate this procedure. The inter-system cell reselection made by the UE may use system information broadcast from the other radio access system or UE dedicated information.

The UE shall initiate an RRC connection establishment procedure as specified in subclauses 8.1.3 except that the IE "establishment cause" in the RRC CONNECTION REQUEST message shall be set to "Inter-system cell reselection".

and 8.3.8.2.1 After initiating an RRC connection establishment, the UE shall release all resources specific to the other radio access system.

8.3.8.2.1 Message RRC CONNECTION REQUEST contents to set

The UE shall set the IE "establishment cause" to "inter-system cell reselection

• Other IEs shall be set according to subclause 8.1.3.2.1

8.3.8.3 Abnormal case: UE fails to complete an inter-system cell reselection

If the inter-system cell reselection fails before the UE has initiated the RRC connection establishment the UE may return back to the other radio access system.

If the RRC connection establishment fails the UE shall enter idle mode.

8.3.9 Inter-system cell reselection from UTRAN

8.3.9.1 General

The purpose of the inter system cell reselection procedure from UTRAN is to, controlled byunder the control of the UE and to some extent the network, transfer a connection between the UE and UTRAN to another radio access system (e.g. GSM/GPRS).

8.3.9.2 Initiation

This procedure may be initiated in states CELL_FACH or CELL_PCH. *[Note: the usage of the procedure in state URA_PCH is FFS.]*

When the UE based on received system information makes a cell reselection to another radio access system other than UTRAN, e.g. GSM/GPRS, according to the criteria specified in TS 25.304, the UE shall.

• start timer T309

• initiate anthe establishment of a connection to the other radio access system according to its specifications

8.3.9.3 Successful cell reselection

When the UE has succeededs to in reselecting a cell in the other radio access system and has initiated an establishment of a connection, it shall stop timer T309 and release all UTRAN specific resources.

UTRAN should release all UE dedicated resources upon indication that the UE has completed a connection establishment to the other radio access system.

8.3.9.4 Expiry of timer T309

If the timer T309 expires before the UE succeeds to initiate an establishment of a connection to the other radio access system, the UE it shall resume the connection to UTRAN using the resources used before initiating the inter system cell reselection procedure.

8.4 Measurement procedures

The UE measurements are grouped into 6 different types of measurementscategories, according to what the UE should measure.

The different types of measurements are:

- **Intra-frequency measurements**: measurements on downlink physical channels at the same frequency as the active set. Detailed description is found in subclause 14.1.

- **Inter-frequency measurements**: measurements on downlink physical channels at frequencies that differ from the frequency of the active set.

- **Inter-system measurements**: measurements on downlink physical channels belonging to another radio access system than UTRAN, e.g. PDC or GSM.

- **Traffic volume measurements**: measurements on uplink traffic volume. Detailed description is found in subclause 14.2.

- **Quality measurements**: Measurements of quality parameters, e.g. downlink transport block error rate.

- **Internal measurements**: Measurements of UE transmission power and UE received signal level. Detailed description is found in subclause 14.3.

The same type of measurements may be used as input to different functions in UTRAN. However, the UE shall support having a number of measurements running in parallel. The UE shall also support that each measurement is controlled and reported independently of each every other measurement.

Cells that the UE is monitoring (e.g. for handover measurements) are grouped in the UE into two different categories:

1. Cells, that which belong to the **active set.** In TDD: Always only one cell belongs to an active set. User information is sent from all these cells and they are simultaneously demodulated and coherently combined. In FDD, these cells are involved in soft handover. In TDD the active set always comprises of one cell only.

2. Cells, that which are not included in the active set, but are monitored belong to the **monitored set.**

UTRAN may start a measurement in the UE by transmitting a MEASUREMENT CONTROL message. This message includes the following measurement control information:

1. **Measurement type**: One of the types listed above describing what the UE shall measure.

2. **Measurement identity number**: A reference number that should be used by the UTRAN when modifying or releasing the measurement and by the UE in the measurement report.

3. **Measurement command**: One out of three different measurement commands

    *   Setup: Setup a new measurement.

    *   Modify: Modify a previously defined measurement, e.g. to change the reporting criteria.

    *   Release: Stop a measurement and clear all information in the UE that are related to that measurement.

4. **Measurement objects:** The objects the UE shall measure on, and corresponding object information.

5. **Measurement quantity:** The quantity the UE shall measure. This also includes the filtering of the measurements.

6. **Reporting quantities:** The quantities the UE shall include in the report in addition to the quantities that are mandatory to report for the specific event.

7. **Measurement reporting criteria**: The triggering of the measurement report, e.g. periodical or event-triggered reporting. The events are described for each measurement type in chapter 14.

8. **Reporting mode**: This specifies whether the UE shall transmit the measurement report using acknowledged or unacknowledged data transfer of RLC.

All these measurement parameters depend on the measurement type and are described in more detail in chapter 14.

When the reporting criteria ~~is~~ are fulfilled, i.e. ~~the~~ a specified event occurred or the time since last report indicated for periodical reporting has elapsed, the UE shall send a MEASUREMENT REPORT message to UTRAN.

In idle mode, the UE shall perform measurements according to the measurement control ~~messages~~ information ~~sent~~ included in System Information Block Type 11, which is transmitted on the BCCH.

~~A UE in~~ In ~~connected mode~~ CELL_FACH, CELL_PCH or URA_PCH state, the UE shall perform measurements according to the measurement control information included in System Information Block Type 12, which is transmitted on the BCCH. If the UE has not received System Information Block Type 12, it shall perform measurements according to the measurement control information included in System Information Block Type 11, which is transmitted on the BCCH.

~~that has not received a dedicated measurement control message shall also use the measurement control messages sent in SYSTEM INFORMATION on the BCCH.~~

~~The UTRAN may divide the measurement control information in SYSTEM INFORMATION into idle mode and connected mode SIBs. However, if connected mode information is missing, a connected mode UE shall use the same measurement control message as for idle mode.~~

~~On the~~ In CELL_DCH state, the UE shall report radio link related measurements to the UTRAN with a *MEASUREMENT REPORT message*. In order to receive information for the establishment of immediate macrodiversity (FDD) or to support the DCA algorithm (TDD), the UTRAN may also request the UE to append radio link related measurement reports to the following messages sent on the RACH:

- RRC CONNECTION REQUEST <u>message</u> sent to establish an RRC connection.

- RRC CONNECTION RE-ESTABLISHMENT REQUES<u>T</u> message ~~T~~ sent to re-establish an RRC connection.

- DIRECT TRANSFER <u>message</u> sent uplink to establish a signalling connection.

- CELL UPDATE <u>message</u> sent to respond to a UTRAN originated page.

- MEASUREMENT REPORT <u>message</u> sent to report uplink traffic volume.

- CAPACITY REQUEST <u>message</u> sent to request PUSCH capacity (TDD only)

[Note: Whether or not measured results can be appended to other messages and in other scenarios is FFS.]

8.4.1 Measurement control

Figure 42. Measurement Control, normal case
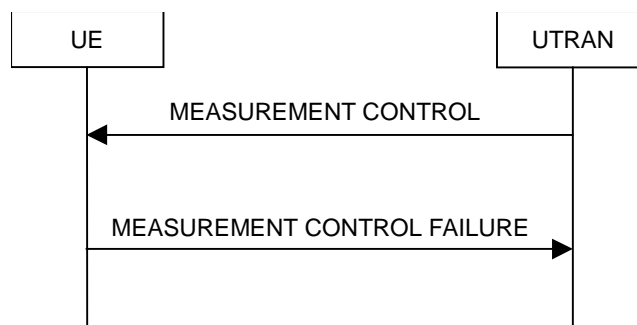
Figure 43. Measurement Control, UE reverts to old measurements

8.4.1.1 General

The purpose ~~with~~ of ~~this~~ the measurement control procedure is to- Setup, <u>m</u>~~M~~odify or <u>r</u>~~R~~elease a measurement in the UE.

8.4.1.2 Initiation

The UTRAN may request a measurement in the UE to be setup, modified or released <u>with a</u> -

UTRAN shall transmit a MEASUREMENT CONTROL message<u>, which is transmitted</u> on the downlink DCCH using AM RLC.

~~8.4.1.2.1 Message MEASUREMENT CONTROL contents to set~~

When a new measurement is setup, UTRAN should set the IE "<u>M</u>~~m~~easurement identity number" to a value<u>,</u> ~~that~~ <u>which</u> is

not used for other measurements.

UTRAN should take the UE capabilities into account when a measurement is ~~configured~~ assigned to~~in~~ the UE.

~~[Note: Other IEs are included and set according to selection by the UTRAN.]~~

8.4.1.3 Reception of a MEASUREMENT CONTROL message by the UE

Upon reception of a MEASUREMENT CONTROL message the UE shall perform ~~the following~~ actions specified in 8.5.7. unless otherwise specified below. ~~After according to subclause 8.4.1.3.1. T~~these actions ~~have been performed, the~~ end the procedure ~~is complete~~.

8.4.1.3.1 ~~Message MEASUREMENT CONTROL contents to use~~

The UE shall

- Read the IE "~~m~~Measurement command*"*

If the IE "measurement command" has the value "setup", the UE shall

- ~~Associate~~ Store this measurement ~~with~~ in the variable MEASUREMENT_IDENTITY ~~identity number given in~~ according to the IE "measurement identity number"

- Store into the variable MEASUREMENT_IDENTITY the control information defined by IE~~s~~ ~~giving~~ "~~M~~measurement object~~s~~", the IE "~~M~~measurement quantity", the IE "~~R~~reporting quantity", the IE "~~M~~measurement reporting criteria" and the IE "~~R~~reporting mode"*,* ~~that~~ which are valid for this measurement type and

- ~~Start~~ Begin measurements according to the stored ~~IEs~~ control information for this measurement identity number

See chapter 14 for detailed description of a measurement object, measurement quantity and measurement reporting criteria for the different types of measurements.

If the IE "~~M~~measurement command*"* has the value "modify*"*,*"*, the UE shall

- Retrieve the stored measurement ~~IEs~~ information associated with the identity ~~given~~ indicated in the IE "measurement identity number"

- If any of the IEs ~~giving~~ "measurement object~~s~~", IE "measurement quantity", IE "reporting quantity", IE "measurement reporting criteria" or IE "reporting mode" are present in the MEASUREMENT CONTROL message, the control information defined by that ~~at~~ IE shall replace the corresponding stored ~~IE~~information.

- Store the new set of IEs and associate them with the measurement identity number and

- Resume the measurements according to the new stored ~~set of~~ measurement ~~IEs~~control information.

If the IE "measurement command*"* has the value "release", the UE shall

- ~~Stop~~ Terminate the measurement associated with the identity given in the IE "measurement identity number"

- Clear all stored ~~configuration~~ measurement control information ~~related~~ associated to this measurement identity number.

After the above actions have been performed, the procedure is complete.

8.4.1.4 ~~Abnormal case:~~ Unsupported measurement in the UE

If UTRAN instructs the UE to perform a measurement that is not supported by the UE, the UE shall

- ~~Keep~~ Retain the measurement configuration that was valid before the MEASUREMENT CONTROL message was received.

- Transmit a MEASUREMENT CONTROL FAILURE message on the DCCH using AM RLC.

8.4.1.4.1 ~~Message MEASUREMENT CONTROL FAILURE contents to set~~

The UE shall set the cause value in IE "failure cause" to "unsupported measurement".

8.4.1.5   Reception of the MEASUREMENT CONTROL FAILURE message by the UTRAN

When the UTRAN receives a MEASUREMENT CONTROL FAILURE message, the procedure ends.

8.4.2   Measurement report

Figure 44. Measurement report, normal case

8.4.2.1   PurposeGeneral

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

8.4.2.2   Initiation

In CELL_DCH state, Tthe UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH when the reporting criteria stored in variable MEASUREMENT_IDENTITY are fulfilled for any of theongoing measurements that which 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 fulfilled for an ongoing traffic volume measurement which is being performed in the UE.

In CELL_PCH or URA_PCH state, the UE shall first perform the cell update procedure 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 an ongoing traffic volume measurement which is being performed in the UE.

Criteria areis fulfilled if either

- The time indicated in the stored IE "Pperiodical reporting" has elapsed since the last measurement report with this measurement identity number was sent or initiated, ora given measurement was either initiated or since the last measurement report related to this measurement was transmitted.

- An eEvent in stored IE "Mmeasurement reporting criteria" was triggered. EDetailed event descriptionvents and report triggering of reports for mechanisms that may be setup in the UE by UTRAN, for the different measurement types are described in detail in cChapter 14.

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

8.4.2.2.1   Message MEASUREMENT REPORT contents to set

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

- Set the IE "measurement identity number " to the measurement identity number that which is associated with that measurement in variable MEASUREMENT_IDENTITY

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

If the MEASUREMENT REPORT message was triggered by an event (i.e. not a periodical report), the UE shall

- Set the measurement event results according to the event that triggered the MEASUREMENT REPORT

~~messagereport~~

8.4.2.3   Reception of a MEASUREMENT REPORT message by the UTRAN

When the UTRAN receives the MEASUREMENT REPORT message, the measurement reporting procedure ends.

8.5   General procedures

8.5.1   Selection of initial UE identity

FFS

8.5.2   Actions when entering idle mode

FFS

8.5.3   Actions when entering CELL_DCH state

FFS

8.5.4   Physical channel establishment criteria

FFS

8.5.5   Detection of out of service area

FFS

8.5.6   Radio link failure criteria

FFS

8.5.7   ~~Default~~ Generic actions on receipt of an information element

~~When any of the following IEs are received by the UE in any RRC message, the UE shall perform the actions specified below, unless specified otherwise.~~

8.5.7.1   CN information elements

8.5.7.2   UTRAN mobility information elements

8.5.7.3   UE information elements

8.5.7.3.1   Activation time

If the IE "Activation time" is present, the UE shall

•   activate the new configuration present in the same message as this IE at the indicated time.

[Note: The new configuration is typically a dedicated physical channel present in the same message as the "Activation time" IE.]

8.5.7.3.6 UTRAN DRX Cycle length

The UE may use Discontinuous Reception (DRX) in Cell_PCH or URA_PCH state in order to reduce power consumption. When DRX is used the UE needs only to monitor at one PICH Monitoring Occasion within one Paging Occasion per DRX cycle. The UE shall determine its paging occasions in the same way as for Idle Mode, sSee section 3.1 of TS 25.304 for further details and definitions. The DRX cycle length shall be 2^k*PBP frames, where k is an integer and PBP is the paging block periodicity.

If the IE "UTRAN DRX cycle length is included, the UE shall

- sStore that value as the current UTRAN DRX Cycle length

8.5.7.3.7 DRX Indicator

If the IE "DRX Indicator" is included and is set to, "DRX with cell updating", the UE shall

- use the current UTRAN DRX Cycle length as DRX cycle length in the formulas for calculating Paging Occasion and PICH Monitoring Occasion and,

    - calculate frame number for the Paging Occasions by using the same formula as in Idle Mode, see section 8 of TS 25.304,

    - calculate the PICH Monitoring Occasions by using the same formula as in Idle Mode. Ssee section 8 of TS25.304.

If the IE "DRX Indicator" is included and is set to, DRX with URA updating, the UE shall

- use the current UTRAN DRX Cycle length and

- calculate frame number for the Paging Occasions by using the same formula as in Idle Mode, see section 8 of TS 25.304,

- calculate the PICH Monitoring Occasions by using the same formula as in Idle Mode. See section 8 of TS25.304.

If no IMSI is available, the UE should use a default number xxxx (tbd) instead of IMSI in the formulas defined for calculations of the frame number the Paging Occasion Occur and the PICH Monitoring Occasion.

If the IE "DRX Indicator" is included and is set to, "no DRX" the UE shall

stop using DRX.

8.5.7.4 Radio bearer information elements

8.5.7.4.1 RB mapping info

If the IEs "RB identity" and the IE "RB mapping info" are included, the UE shall

- If any, delete all previously stored multiplexing options for that radio bearer.

- Store each new multiplexing option for that radio bearer.

8.5.7.4.2 RLC Info

If the IEs "RB identity" and the IE "RLC Info" are included, the UE shall

- Configure the transmitting and receiving RLC entities in the UE for that radio bearer accordingly.

8.5.7.5 Transport channel information elements

8.5.7.5.1 Transport Format Set

If the IEs "transport channel identity" and the IE "Transport format set" is included, the UE shall

- store the transport format set for that transport channel.

8.5.7.5.2 Transport format combination set

If the IE "Transport format combination set" is included, the UE shall

- start to respect those transport format combinations.

8.5.7.5.3 Transport format combination subset

If the IE "Transport format combination subset" is included, the UE shall

- restrict the transport format combination set to that transport format combination subset. If the transport format combination subset indicates the "full transport format combination set" any restriction on transport format combination set is released and the UE may use the full transport format combination set.

8.5.7.6 Physical channel information elements

8.5.7.6.1 Frequency info

If the IE "Frequency info" is included the UE shall

- Store that frequency as the active frequency and

- Tune to that frequency.

If the IE "Frequency info" is not included and the UE has a stored active frequency, the UE shall

- Continue to use the stored active frequency

If the IE "Frequency info" is not included and the UE has no stored active frequency, it shall

- map any used physical channels on the frequency given in system information as default

8.5.7.6.2 PRACH info

If the IE "PRACH info" is included, the UE shall

- Release any active dedicated physical channels in the uplink and

- let the PRACH be the default in the uplink for RACH

8.5.7.6.3 Secondary CCPCH info

If the IE "Secondary CCPCH info" is included and the IE "PICH info" is not included, the UE shall

- Start to receive that Secondary CCPCH in the downlink and

- enter the CELL_FACH state if not already in that state.

8.5.7.6.4 Uplink DPCH info

If the IE "Uplink DPCH info" is included, the UE shall

- Release any active uplink physical channels, activate the given physical channels and

- enter the CELL_DCH state if not already in that state. Additional actions the UE shall perform when entering the CELL_DCH state from another state are specified in subclause 8.5.3

8.5.7.6.5 Downlink DPCH info

If the IE "Downlink DPCH info" is included, the UE shall

- Activate the dedicated physical channels indicated by that IE

8.5.7.6.6 Maximum allowed UL TX power

If the IE "Maximum allowed UL TX power" is included, the UE shall

- Keep the UE uplink transmit power below the indicated power value. If the current UE uplink transmit power is above the indicated power value, the UE shall decrease the power to a level below the power value.

8.5.7.7   Measurement information elements

8.5.7.8   Other information elements

13 Protocol timers, counters and other parameters

13.1 Timers for UE

Timer	Value Range (seconds)	Relations	Start	Stop	At expiry
T300			Transmission of RRC CONNECTION REQUEST	Reception of RRC CONNECTION SETUP	Retransmit RRC CONNECTION REQUEST if V300 =< N300, else go to Idle mode
T301			Transmission of RRC CONNECTION REESTABLISHMENT REQUEST	Reception of RRC CONNECTION REESTABLISHMENT	Retransmit RRC CONNECTION REESTABLISH REQUEST if V301 =< N301, else go to Idle mode
T302			Transmission of CELL UPDATE	Reception of CELL UPDATE CONFIRM	Retransmit CELL UPDATE if V302 =< N302, else, go to Idle mode
T303			Transmission of URA UPDATE	Reception of URA UPDATE CONFIRM	Retransmit URA UPDATE if V303 =< N303, else go to Idle mode
T304			Transmission of UE CAPABILITY INFORMATION	Reception of UE CAPABILITY INFORMATION CONFIRM	Retransmit UE CAPABILITY INFORMATION if V304 =< N304, else initiate RRC connection reestablishment
T305			Entering CELL_FACH or CELL_PCH state. Reception of CELL UDPATE CONFIRM.	Entering another state.	Transmit CELL UPDATE.
T306			Entering URA_PCH state. Reception of URA UDPATE CONFIRM.	Entering another state.	Transmit URA UPDATE.
T307			When the timer T305 or T306 has expired and the UE detects that it is out of service area.	When the UE detects that it is no longer out of service area. Initiate cell update or URA update procedure depending on state	Transit to idle mode

Timer	Value Range (seconds)	Relations	Start	Stop	At expiry
T308			Transmission of RRC CONNECTION RELEASE COMPLETE	Not stopped	Transmit RRC CONNECTION RELEASE COMPLETE if V308 =< N308, else go to idle mode.
T309			Upon reselection of a cell belonging to another radio access system from connected mode	Successful establishment of a connection in the new cell	Resume the connection to UTRAN
T310			Transmission of PUSCH CAPACITY REQUEST	Reception of PHYSICAL SHARED CHANNEL ALLOCATION	Transmit PUSCH CAPACITY REQUEST if V310 =< N310, else procedure stops.
T311			Reception of PHYSICAL SHARED CHANNEL ALLOCATION message with the parameter "PUSCH Allocation Pending" set to "pending".	Reception of PHYSICAL SHARED CHANNEL ALLOCATION message with parameter "PUSCH Allocation Pending" set to "not pending".	UE may initiate a PUSCH capacity request procedure.

13.2   Timers for UTRAN

Timer	Value range (seconds)	Relations	Start	Stop	At expiry
T350		SIB_REP[1] Activation time[2]	Transmission of RRC CONNECTION SETUP	Reception of RRC CONNECTION SETUP COMPLETE	Release UE context if no RRC CONNECTION RE-ESTABLISHMENT REQUEST received
T352		SIB_REP Activation time	Transmission of RRC CONNECTION RE-ESTABLISHMENT	Reception of RRC CONNECTION RE-ESTABLISHMENT COMPLETE	Release UE context

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[1] SIB_REP is the repetition of a System Information Block (SIB)). If a specific SIB has to be read prior to transmission of a COMPLETE message from the UE this timer should be set to at least SIB_REP to ensure the UE can read the SIB.

[2] This timer should be set to value so it expires after the used activation time for this procedure, if any

Timer	Value range (seconds)	Relations	Start	Stop	At expiry
T353		SIB_REP Activation time	Transmission of RADIO BEARER SETUP	Reception of RADIO BEARER SETUP COMPLETE or RADIO BEARER SETUP FAILURE	Release UE context if no RRC CONNECTION RE-ESTABLISHMENT REQUEST received
T354		SIB_REP Activation time	Transmission of RADIO BEARER RELEASE	Reception of RADIO BEARER RELEASE COMPLETE or RADIO BEARER RELEASE FAILURE	Release UE context if no RRC CONNECTION RE-ESTABLISHMENT REQUEST received
T355		SIB_REP Activation time	Transmission of RADIO BEARER RECONFIGURATION	Received RADIO BEARER RECONFIGURATION COMPLETE or RADIO BEARER RECONFIGURATION FAILURE	Release UE context if no RRC CONNECTION RE-ESTABLISHMENT REQUEST received
T356		SIB_REP Activation time	Sent TRANSPORT CHANNEL RECONFIGURATION	Received TRANSPORT CHANNEL RECONFIGURATION COMPLETE or TRANSPORT CHANNEL RECONFIGURATION FAILURE	Release UE context if no RRC CONNECTION RE-ESTABLISHMENT REQUEST received
T357		SIB_REP Activation time	Sent PHYSICAL CHANNEL RECONFIGURATION	Received PHYSICAL CHANNEL RECONFIGURATION COMPLETE or PHYSICAL CHANNEL RECONFIGURATION FAILURE	Release UE context if no RRC CONNECTION RE-ESTABLISHMENT REQUEST received
T358		Activation time	Sent HANDOVER COMMAND	Received HANDOVER COMPLETE or HANDOVER FAILURE	Release UE context if no RRC CONNECTION RE-ESTABLISHMENT REQUEST received
T359			Sent INTER-SYSTEM HANDOVER COMMAND	Successful handover to other radio access system or received INTER-SYSTEM HANDOVER FAILURE	Release UE context if no RRC CONNECTION RE-ESTABLISHMENT REQUEST received

13.3 Counters for UE

Counter	Reset	Incremented	When reaching max value
V300	When initiating the procedure RRC connection establishment	Upon expiry of T300.	When V300 > N300, the UE enters idle mode.
V301	When initiating the procedure RRC connection reestablishment	Upon expiry of T301.	When V301 > N301, the UE enters idle mode.
V302	When initiating the procedure Cell update	Upon expiry of T302	When V302 > N302 the UE enters idle mode.
V303	When initiating the procedure URA update	Upon expiry of T303	When V302 > N303 the UE enters idle mode.
V304	When sending the first UE CAPABILITY INFORMATION message.	Upon expiry of T304	When V304 > N304 the UE initiates the RRC connection re-establishment procedure

Counter	Reset	Decremented	When reaching zero
V308	When sending the first RRC CONNECTION RELEASE COMPLETE message in a RRC connection release procedure.	Upon expiry of T308	When V308 =0 the UE stops re-transmitting the RRC CONNECTION RELEASE COMPLETE message.

Counter	Reset	Incremented	When reaching max value
V310	When sending the first PUSCH CAPACITY REQUEST message in a PUSCH capacity reqest procedure	Upon expiry of T310	When V310 > N310 the UE stops re-transmitting the PUSCH CAPACITY REQUEST message.

13.4 Counters for UTRAN

Counter	Reset	Incremented	When reaching max value

13.5 UE constants and parameters

Constant	Value	Usage

Constant	Value	Usage
N300		Maximum number of retransmissions of the RRC CONNECTION REQUEST message
N301		Maximum number of retransmissions of the RRC CONNECTION REESTABLISHMENT REQUEST message
N302		Maximum number of retransmissions of the CELL UPDATE message
N303		Maximum number of retransmissions of the URA UPDATE message
N304		Maximum number of retransmissions of the UE CAPABILITY INFORMATION message
N310		Maximum number of retransmission of the PUSCH CAPACITY REQUEST message

13.6   UTRAN constants and parameters

Constant	Value	Usage

Document **(R2-99g35)**

e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

25.331	CR	**050**	Current Version:	3.0.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑   *↑ CR number as allocated by MCC support team*

For submission to:	TSG-RAN#6	for approval	**X**	strategic		(for SMG
list expected approval meeting # here ↑		for information		non-strategic		use only)

Form: CR cover sheet, version 2 for 3GPP and SMG   *The latest version of this form is available from:* ftp://ftp.3gpp.org/Information/CR-Form-v2.doc

Proposed change affects: (U)SIM ☐   ME **X**   UTRAN / Radio **X**   Core Network ☐
(at least one should be marked with an X)

Source:	TSG-RAN WG2	**Date:**	1999-11-05

Subject:	UE capability information elements

Work item:	

Category:	F	Correction			**Release:**	Phase 2	
	A	Corresponds to a correction in an earlier release				Release 96	
(only one category	B	Addition of feature				Release 97	
shall be marked	C	Functional modification of feature				Release 98	
with an X)	D	Editorial modification	**X**			Release 99	**X**
						Release 00	

Reason for change:	It has been agreed that the UE capability information will be included in the RRC CONNECTION SETUP COMPLETE message as well as the UE CAPABILITY INFORMATION message.
	The UE capability information elements for UTRAN needs now to be included in at least two RRC messages and the list of information is the same. To make the maintenance of the UE capability information elements easier (as the discussion is still ongoing), it is proposed to join most of them into one IE "UE radio capability". This IE can be included in all necessary messages, and the update of the exact parameters needs only to be done at one location.

Clauses affected:	8.1.3.4, 10.1.4.8, 10.1.7.1, 10.2.3.x (new)

Other specs affected:	Other 3G core specifications		→ List of CRs:	
	Other GSM core specifications		→ List of CRs:	
	MS test specifications		→ List of CRs:	
	BSS test specifications		→ List of CRs:	
	O&M specifications		→ List of CRs:	

Other comments:	

help.doc

<-------- double-click here for help and instructions on how to create a CR.

8.1.3.4 Reception of a RRC CONNECTION SETUP message by the UE

The UE shall compare the value of the IE "Initial UE identity" in the received RRC CONNECTION SETUP message with the value of the IE "Initial UE identity" in the most recent RRC CONNECTION REQUEST message sent by the UE.

- If the values are identical, the UE shall stop timer T300, and perform the following actions according . to subclause 8.1.3.4.1 and transmit an RRC CONNECTION SETUP COMPLETE message on the uplink DCCH. When the transmission of the RRC CONNECTION SETUP COMPLETE message has been confirmed by RLC the procedure ends.

- If the values are different, the UE shall ignore the rest of the message

8.1.3.4.1 Message RRC CONNECTION SETUP contents to use

The UE shall act upon all received information elements as specified in 8.5.7, unless specified otherwise in the following.

The UE shall

- store the values of the IE "U-RNTI" and

- initiate the signalling link parameters according to the IEs "Signalling link type" and the IE "RAB multiplexing mapping info".

If the IE "C-RNTI" is included, the UE shall

- use that C-RNTI on common transport channels in the current cell.

If neither the IEs "PRACH info (for RACH)",nor the IE "Uplink DPCH info" is included, the UE shall

- let the physical channel of type PRACH that is given in system information to be the default in uplink for RACH

If neither the IEs "Secondary CCPCH info",nor the IE "Downlink DPCH info" is included, the UE shall

- start to receive the physical channel of type Secondary CCPCH that is given in system information to be used as default by FACH, and enter the CELL_FACH state.

The UE shall transmit an RRC CONNECTION SETUP COMPLETE message on the uplink DCCH, with contents as specified below. Actions that shall be performed by the UE for other IEs are specified in subclause 8.5.7

8.1.3.4.2 Message RRC CONNECTION SETUP COMPLETE contents to set

The UE shall include its capabilities in the IE "UE radio capability" RRC CONNECTION SETUP COMPLETE message, according to instructions in the system informationthe IE "Capability update requirement" in system information block type 1..

When the transmission of the RRC CONNECTION SETUP COMPLETE message has been confirmed by RLC the UE shall update its variable UE_CAPABILITY_TRANSFERRED which UE capabilities it has transmitted to the UTRAN and the procedure ends.

10.1.4.8 RRC CONNECTION SETUP COMPLETE

This message confirms the establishment of the RRC Connection by the UE.

RLC-SAP: AM

Logical channel: DCCH

Direction: UE → UTRAN

Information Element	Presence	Range	IE type and reference	Semantics description
Message Type	M			
Phy CH information elements				
CHOICE *mode*				
FDD				
SSDT indicator	O			FFS
UE information elements				
UE radio capability	M			

10.1.7.1 UE CAPABILITY INFORMATION

<Functional description of this message to be included here>

RLC-SAP: AM or UM

Logical channel: DCCH

Direction: UE → UTRAN

Information Element	Presence	Range	IE type and reference	Semantics description
Message Type	M			
CN information elements				
CN domain identifier	M			
NAS message	M			Includes the CN capability information
UE information elements				
UE radio capability	M			
Power control capability	M			
Code resource capability	M			
UE mode capability	M			
Transport CH support capability	O			
Ciphering capability	M			
Macro diversity capability	M			
FAUSCH usage support	O			Indicates true/false for "DCH allocation function", "USCH capability request function".
Other information elements				
Inter-system message	O			Includes inter-system classmark

Note: The WG1 and WG4 discussion should be concluded before the contents of this message can be finalized.

10.2.3.x UE radio capability

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
Power control capability	M			
Code resource capability	M			
UE mode capability	M			
Transport CH support capability	O			
Ciphering capability	M			
Macro diversity capability	M			
FAUSCH usage support	O			Indicates true/false for "DCH allocation function", "USCH capability request function".

Note: The overall discussion on UE capability parameters should be concluded before the contents of this information element can be finalized.