**3GPP TSG-RAN WG2, Malmo, Sweden, 20-24 September 1999** **TSGR2#7(99) A09**

**Agenda Item:**

**Source: Rapporteur**

**Title: 25.331, RRC Protocol Specification, V1.3.1**

**Document for: Approval**

**Editors comments on V1.3.1:**

The main edits following the RAN2#6 meeting were incorporated in V1.3.0 which was sent on the email reflector on 27th August 1999. This document reflects a few minor updates based on suggestions and comments received subsequently (see the table below).

| Date of email | Source | Subject line | Comments incorporated |
|---|---|---|---|
| 29/08/99 | Nokia | RRC_STATES | Makes some proposed changes to the RRC states section. The only non-editorial change to the Ericsson text was to re-insert some text which had been deleted by Ericsson. The text refers to section 13.3.2.5 (Radio resource allocation tasks in Cell/FACH state). The text which has been re-inserted is: 'When there is either user or control data to transmit, a selection procedure determines whether the data should be transmitted on a common transport channel, or if a transition to CELL_DCH should be executed. The selection is dynamic and depends on e.g. traffic parameters (amount of data, packet burst frequency)'. |
| 01/09/99 | Ericsson | RRC_proc - timers | Concerning - 'Timer_Maximum_number_of_RRC_connection_setup_retrys_since_first_attempt' - No change made to the text in this version of RRC. The RRC_proc email discussion will provide a CR on this aspect. |
| 02/09/99 | NTT | RRC_proc - timers | |
| 01/09/99 | Alcatel | RRC_STATES | Regarding, modification to the editors note in section 13.3.1.9. Ericsson disagreed with the proposal made by Alcatel. Agreement was not reached and the text has not been changed. |
| 02/09/99 | Ericsson | RRC_STATES | |
| 03/09/99 | Siemens | RRC_STATES | A large CR was proposed to the RRC states section, this includes changes relevant to TDD. Whilst there was no disagreement to the proposal on the reflector, there are many sections containing text which might not all be considered editorial. Therefore I suggest it would be more formal for Siemens to submit their CR under agenda item 25.331 and for the changes to be incorporated in the next version of the spec. |
| 10/09/99 | Ericsson | Re: First version of RRC | Editorial change to the Figure in section 15.1.4.3 - agreed and change incorporated |
| 12/09/99 | Ericsson | A minor comment.. | Proposes to rename the Security Control procedure as Security Mode Control procedure. Changes have been incorporated (there was no disagreement on the email). Rather than changing the name of the message to 'security mode command' as proposed by Ericsson, I have proposed 'security mode control command'. |
| 14/09/99 | Nokia | Some comments.. | The semantics description for RF channel number priority was incorrect in V1.3.0. I have replaced it with the correct definition given in Tdoc 721. I have also added an |

| | | | |
|---|---|---|---|
| | | | editorial note stating that we await a response to a LS to determine whether this IE is needed. |

**Editors comments on V1.3.0:**

1) In Section 10.1.6.1 (SYSTEM INFORMATION) the IE's are not arranged exactly as described in Tdoc 721 (RRC-P report). Instead they have been re-arranged in a more logical order.

3) In the CPCH set Info IE (agreed for inclusion by the RRC-P email ad-hoc) there is a conditional parameter but the condition is not described.

4) I have kept the note on 'USCH capability request function' in the FAUSCH usage support IE in the UE CAPABILITY INFORMATION message. However, it's not clear why this is here - I thought FAUSCH was only used in FDD.

5) In Tdoc 721 (output of RRC-P email ad-hoc) in the RLC Info IE the in-sequence delivery parameter has been removed in the uplink (is this deliberate?)

6) In Chapter 13 (protocol states) the changes are marked with respect to Chapter 5 of 25.303 (Chapter 5 in 25.303 will now be deleted).

7) In Tdoc 796 it was stated that 'Downlink DPCH power control info' is to be sent per radio link, I have assumed that this is incorrect and that the IE is only sent per RRC connection.

8) The idle mode 'broadcast of system info' (8.1.1) and 'sending of system information in RRC connected mode' (8.3.8.2) procedures have been combined into a single procedure see 8.4.1, the change marks are shown relative to the text in 8.3.8.2 and 8.1.1.

9) I had difficulty editing in the changes described in Tdoc 756 (changes to protocol timers, Section 14.1), I would appreciate it if the group and NTT in particular could confirm that my editorial proposal is satisfactory.

10) I have moved section 9 'Primitives between RRC and upper layers' to the back of the document and have replaced it with 'Default actions on receipt of an IE'. This reflects our agreement that these default actions should not be placed in Section 10 , but rather should be read in conjunction with the part of the document dealing with procedures.

11) With regard to the cell update procedure it was necessary to merge the text provided by Ericsson (Tdoc 814) with some which had been agreed earlier in the meeting proposed by NTT - the RRC_proc email discussion should review the merge.

12) In my notes it says that the Qualcomm document 781 was agreed and that they will provide text, if they can do so within the next two weeks I could incorporate it in the final copy

# TS 25.331 V1.32.11 (1999-098)

*Technical Specification*

## 3rd Generation Partnership Project (3GPP); Technical Specification Group (TSG) RAN; Working Group 2 (WG2);

# RRC Protocol Specification

Reference
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Keywords
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# Contents

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[Editor's note: This paragraph has been modified from corresponding ETSI text in anticipation of a new version regarding 3GPP.]

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# Foreword

This Technical Specification has been produced by the 3GPP.
The contents of the present document are subject to continuing work within the TSG and may change following formal TSG approval. Should the TSG modify the contents of this TS, it will be re-released by the TSG with an identifying change of release date and an increase in version number as follows:

Version 3.y.z

where:

- x the first digit:
  - 1 presented to TSG for information;
  - 2 presented to TSG for approval;
  - 3 Indicates TSG approved document under change control.
- y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.
- z the third digit is incremented when editorial only changes have been incorporated in the specification.

# 1. Scope

The scope of this specification is to describe the Radio Resource Control protocol for the 3GPP radio system.

# 2. References

[1] UMTS 25.XX, 'Vocabulary for the UTRAN'

[2] 25.301, 'Radio Interface Protocol Architecture'

[3] 25.303, 'Description of UE states and procedures in connected mode'

# 3. Definitions, Symbols and abbreviations

## 3.1 Definitions

See [1] for definition of fundamental concepts and vocabulary

## 3.2 Abbreviations

| | |
|---|---|
| ACK | Acknowledgement |
| AICH | Acquisition Indicator CHannel |
| AM | Acknowledged Mode |
| AS | Access Stratum |
| ASN.1 | Abstract Syntax Notation.1 |
| BCCH | Broadcast Control Channel |
| BCFE | Broadcast Control Functional Entity |
| BER | Bite Error Rate |
| BLER | BLock Error Rate |
| BSS | Base Station Sub-system |
| C | Conditional |
| CCPCH | Common Control Physical CHannel |
| CCCH | Common Control Channel |
| CN | Core Network |
| CM | Connection Management |
| CPCH | Common Packet CHannel |
| C-RNTI | CRNC RNTI |
| DCA | Dynamic Channel Allocation |
| DCCH | Dedicated Control Channel |
| DCFE | Dedicated Control Functional Entity |
| DCH | Dedicated Channel |
| DC-SAP | Dedicated Control SAP |
| DL | Downlink |
| DRAC | Dynamic Resource Allocation Control |
| DTCH | Dedicated Traffic Channel |
| FACH | Forward Access Channel |
| FAUSCH | Fast Uplink Signalling Channel |
| FDD | Frequency Division Duplex |
| FFS | For Further Study |
| GC-SAP | General Control SAP |

| | |
|---|---|
| ID | Identifier |
| IMEI | International Mobile Equipment Identity |
| IMSI | International Mobile Subscriber Identity |
| IP | Internet Protocol |
| ISCP | Interference on Signal Code Power |
| LAI | Location Area Identity |
| L1 | Layer 1 |
| L2 | Layer 2 |
| L3 | Layer 3 |
| M | Mandatory |
| MAC | Media Access Control |
| MCC | Mobile Country Code |
| MM | Mobility Management |
| MNC | Mobile Network Code |
| MS | Mobile Station |
| NAS | Non Access Stratum |
| Nt-SAP | Notification SAP |
| NW | Network |
| O | Optional |
| ODMA | Opportunity Driven Multiple Access |
| PCCH | Paging Control Channel |
| PCH | Paging Channel |
| PDU | Protocol Data Unit |
| PLMN | Public Land Mobile Network |
| PNFE | Paging and Notification Control Functional Entity |
| PRACH | Physical Random Access CHannel |
| P-TMSI | Packet Temporary Mobile Subscriber Identity |
| QoS | Quality of Service |
| RAB | Radio access bearer |
| RAI | Routing Area Identity |
| RACH | Random Access CHannel |
| RB | Radio Bearer |
| RFE | Routing Functional Entity |
| RL | Radio Link |
| RLC | Radio Link Control |
| RNTI | Radio Network Temporary Identifier |
| RNC | Radio Network Controller |
| RRC | Radio Resource Control |
| RSCP | Received Signal Code Power |
| RSSI | Received Signal Strength Indicator |
| SAP | Service Access Point |
| SF | Spreading Factor |
| SIR | Signal to Interference Ratio |
| SSDT | Site Selection Diversity Transmission |
| S-RNTI | SRNC - RNTI |
| tbd | to be decided |
| TDD | Time Division Duplex |
| TF | Transport Format |
| TFCS | Transport Format Combination Set |
| TFS | Transport Format Set |
| TME | Transfer Mode Enitity |
| TMSI | Temporary Mobile Subscriber Identity |
| Tr | Transparent |
| Tx | Transmission |
| UE | User Equipment |
| UL | Uplink |
| UM | Unacknowledged Mode |
| UMTS | Universal Mobile Telecommunications System |
| UNACK | Unacknowledgement |
| URA | UTRAN Registration Area |

UTRAN UMTS Terrestrial Radio Access Network

# 4. General

The functional entities of the RRC layer are described below:

- Routing of higher layer messages to different MM/CM entities (UE side) or different core network domains (UTRAN side) is handled by the Routing Function Entity (**RFE**)

- Broadcast functions are handled in the broadcast control function entity (**BCFE**). The BCFE is used to deliver the RRC services which are required at the GC-SAP. The BCFE can usethe lower layer services provided by the Tr-SAP and UM-SAP.

- Paging of idle mode UE(s) is controlled by the paging and notification control function entity (**PNFE**). The PNFE is used to deliver the RRC services which are required at the Nt-SAP. The PNFE can use the lower layer services provided by the Tr-SAP and UM-SAP.

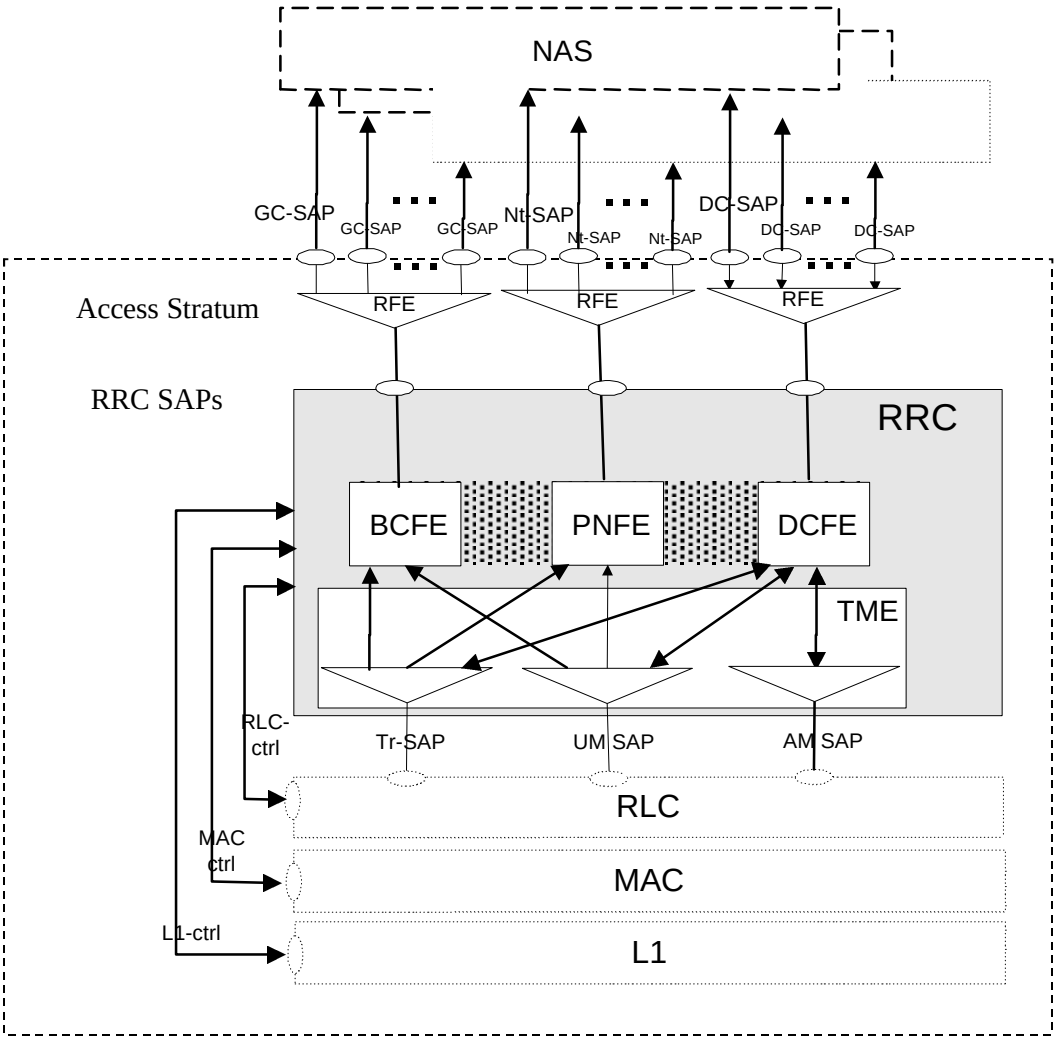
- The Dedicated Control Function Entity (**DCFE**) handles all functions specific to one UE. The DCFE is used to deliver the RRC services which are required at the DC-SAP and can use lower layer services of UM/AM-SAP and Tr-SAP depending on the message to be sent and on the current UE service state.

- The Transfer Mode Entity (TME) handles the mapping between the different entities inside the RRC layer and the SAP's provided by RLC.

*Logical information exchange is necessary also between the RRC sublayer functional entities. Most of that is implementation dependent and not necessary to present in detail in a specification.*

Figure 1~~Figure 1~~~~Figure 1~~ shows the RRC model for the UE side and Figure 3~~Figure 2~~~~Figure 2~~ shows the RRC model for the UTRAN side.

*[Editors note: Some further clarification in the diagrams may be beneficial to acknowledge the fact that a DC-SAP for example might be offered over a dedicated channel (with RRC terminated in SRNC) whereas GC-SAP and Nt-SAP may be offered over BCCH, PCH respectively in which cases RRC is located in Node B. It could be concluded from the figure that these channels use the same SAP offered by RLC (Tr-SAP, UM-SAP, AM-SAP) whereas in fact they will use different SAP's, though the SAP **type** might be the same]*


NAS
GC-SAP
GC-SAP
GC-SAP
Nt-SAP
Nt-SAP
Nt-SAP
DC-SAP
DC-SAP
DC-SAP
Access Stratum
RFE
RFE
RFE
RRC SAPs
RRC
BCFE
PNFE
DCFE
TME
RLC-ctrl
Tr-SAP
UM SAP
AM SAP
RLC
MAC ctrl
MAC
L1-ctrl
L1

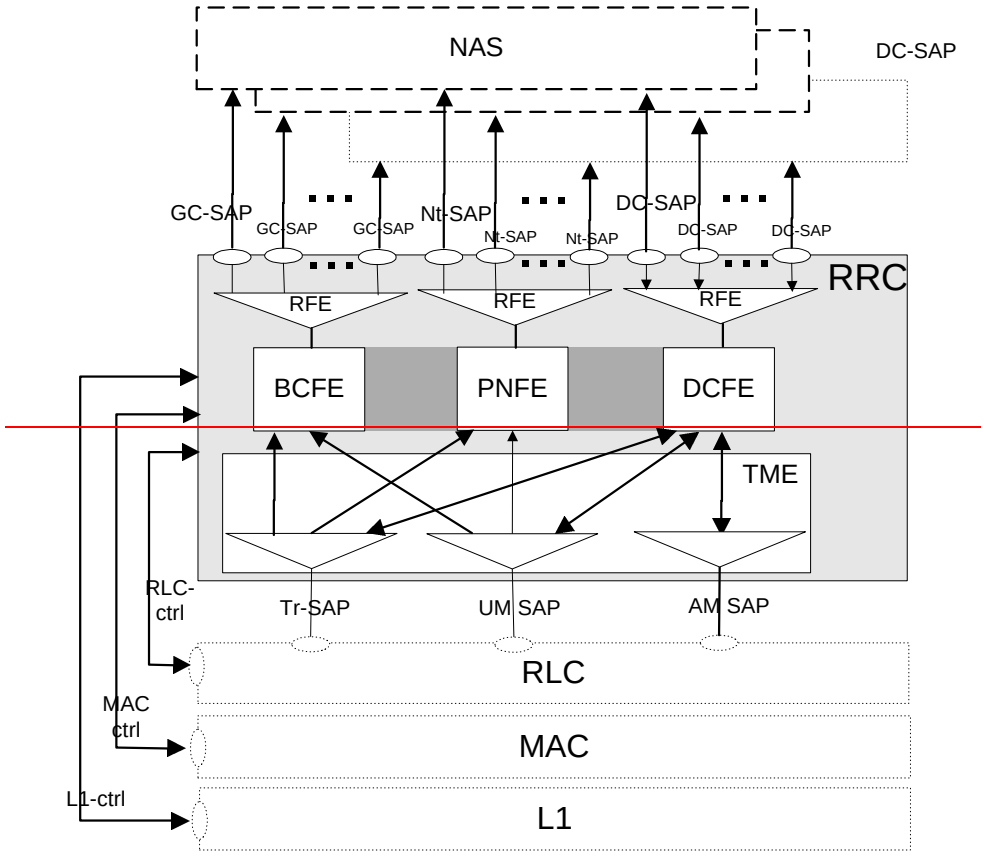

NAS
DC-SAP
GC-SAP
GC-SAP
GC-SAP
Nt-SAP
Nt-SAP
Nt-SAP
DC-SAP
DC-SAP
DC-SAP
RRC
RFE
RFE
RFE
BCFE
PNFE
DCFE
TME
RLC-ctrl
Tr-SAP
UM SAP
AM SAP
RLC
MAC ctrl
MAC
L1-ctrl
L1

**Figure 1) UE side model of RRC**

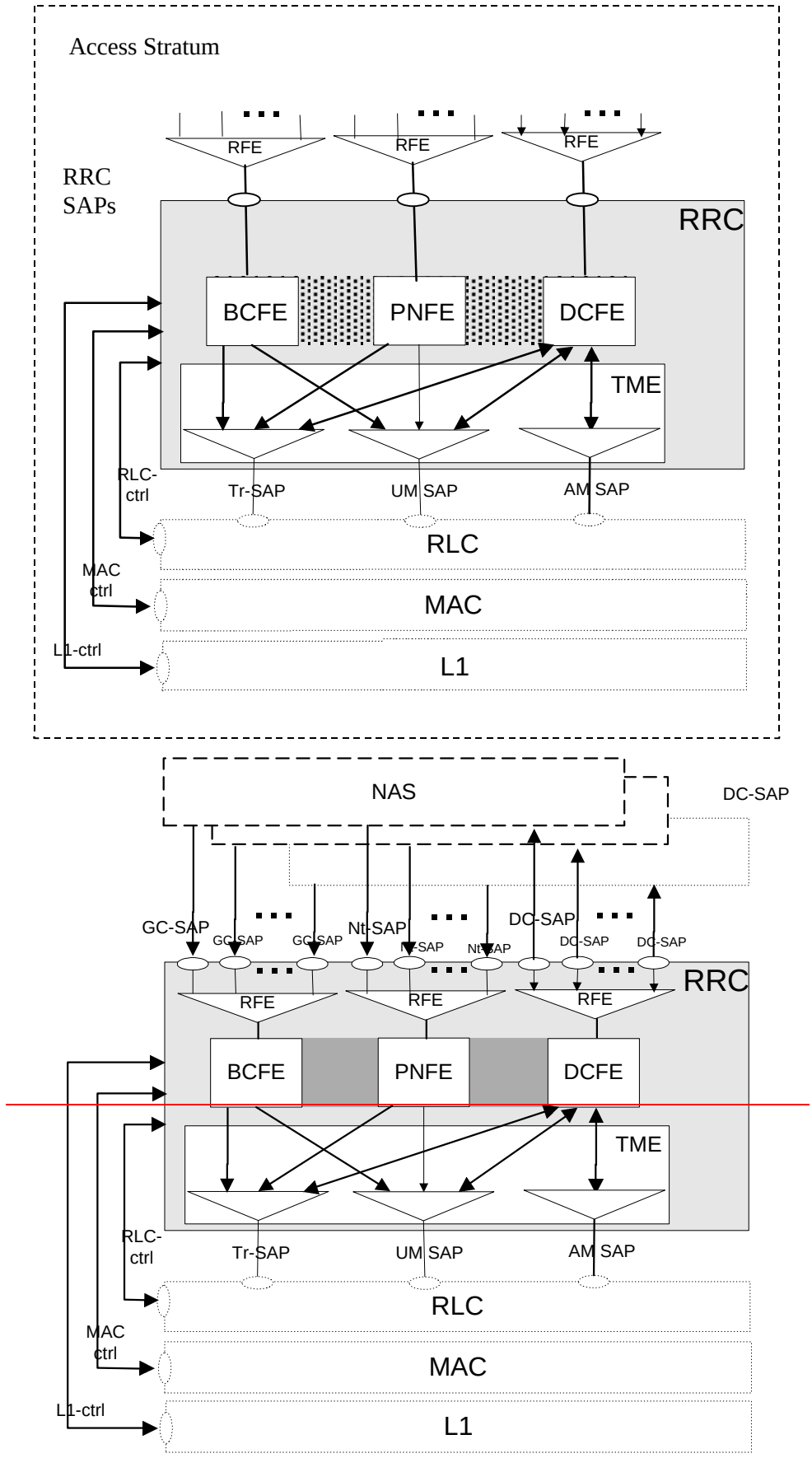



**Figure 322) UTRAN side RRC model**

# 5 RRC Services provided to upper layers

The RRC offers the following services to upper layers, a description of these services is provided in [2].

- **General Control**
- **Notification**
- **Dedicated control**

# 6 Services expected from lower layers

## 6.1 Services expected from Layer 2

## 6.2 Services expected from Layer 1

# 7 Functions of RRC

The RRC performs the functions listed below, a more detailed description of these functions is provided in 25.301:

- **Broadcast of information provided by the non-access stratum (Core Network).**
- **Broadcast of information related to the access stratum.**
- **Establishment, maintenance and release of an RRC connection between the UE and UTRAN**
- **Establishment, reconfiguration and release of Radio ~~Access~~ Bearers**
- **Assignment, reconfiguration and release of radio resources for the RRC connection**
- **RRC connection mobility functions**
- **Routing of higher layer PDU's**
- **Control of requested QoS**.
- **UE measurement reporting and control of the reporting.**
- **Outer loop power control.**
- **Control of ciphering.**
- **Slow DCA**.
- **Broadcast of ODMA relay node neighbour information**
- **Collation of ODMA relay nodes neighbour lists and gradient information**
- **Maintenance of number of ODMA relay node neighbours**
- **Establishment, maintenance and release of a route between ODMA relay nodes**
- **Interworking between the Gateway ODMA relay node and the UTRAN**
- **Contention resolution (TDD mode)**
- **Paging/notification.**
- **Initial cell selection and re-selection in idle mode.**
- **Arbitration of radio resoirces on uplink DCH**

- **RRC message integrity protection**

  The following functions are regarded as further study items:

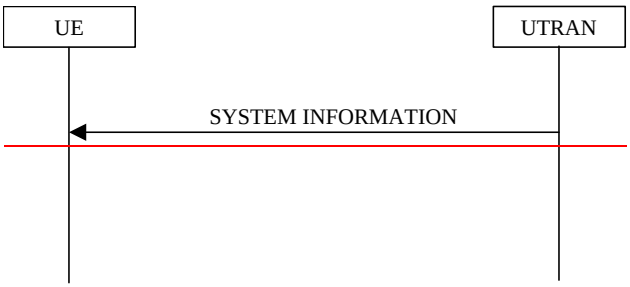
- **Congestion control.**
- **Arbitration of the radio resource allocation between the cells**.

# 8 Elementary RRC procedures

This section describes elementary RRC procedures used in the idle mode and in the connected mode. More description on the different UE modes is provided in [2].This section also describes procedures for establishing and releasing an RRC connection.

## 8.1 Idle mode procedures

### ~~8.1.1 Broadcast of system information~~




**~~Figure 3) Procedure for broadcast of system information~~**

~~This procedure is used for broadcasting system information from the network to all UEs in a cell. Only UEs that listen to the logical channel BCCH can be reached by this procedure. The system information is repeated on a regular basis and it includes information from both the access stratum and the non-access stratum. The initiative to change the system information can come from both the access stratum and non-access stratum.~~

~~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 master information block is scheduled with a fixed pre-defined repetition rate.~~

~~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.~~

~~*Note: A system information block may be segmented and carried in several transport blocks, but this mechanism is FFS.*~~

~~Figure 4 illustrates the relationship between the master information block and the system information blocks in a cell.~~

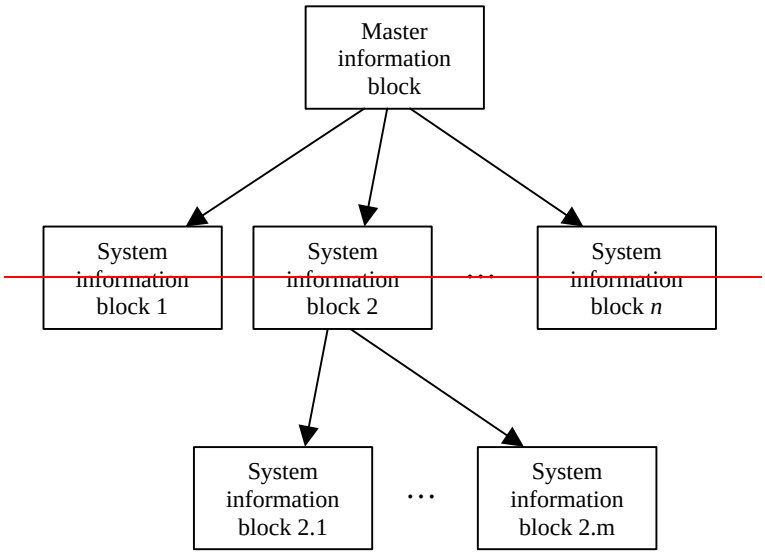



**Figure 4 The overall structure of system information.**

The information may be grouped into the following classes:

- information giving unique identification of the current network, location area, UTRAN registration area and cell
- information used for candidate cell measurements for handover and cell selection procedures
- information describing the current control channel structure
- information for controlling the random access channel utilisation
- information defining different options supported within the cell
- protocol information

*[Note: The actual grouping will be defined when the complete set of system information blocks have been specified. However, basically the same elementary procedure can be applied for all messages.]*When a system information block on the BCCH is modified, the message PAGING TYPE 1 can be sent on the PCCH to inform UE's about the changes. The message includes the information element *BCCH Modification Information*.

*[Note that other options will also be available to force the UE to re-read SYSTEM INFORMATION, for example timers in the UE could be used to trigger the UE into re-reading frequently changing SYSTEM INFORMATION].*

## 8.1.12 Paging

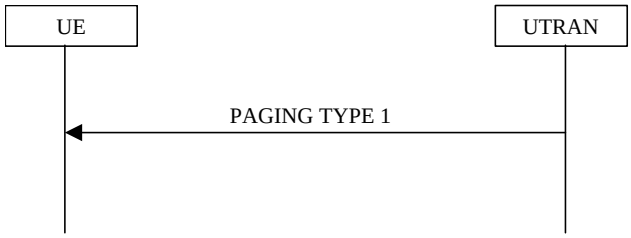



**Figure 755) Paging procedure**

This procedure is used to broadcast a PAGING TYPE 1 message from the network to selected UEs which are in idle mode. Only UEs which listen to the correct paging group can be reached by this procedure. The PAGING TYPE 1 message can be sent to either one or many UEs at the same time.

*[Note: The addresses which are to be used in the paging message (eg IMUI etc) are still to be defined]*

*[Note: The number of addresses to be used in the paging message needs to be defined]*

*[Note: the requirement to have different paging messages for UTRAN originated and CN originated RRC connected mode paging needs to be confirmed]*

### 8.1.23 Notification

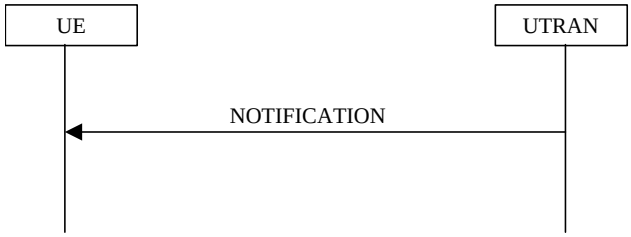



**Figure 866) Notification procedure**

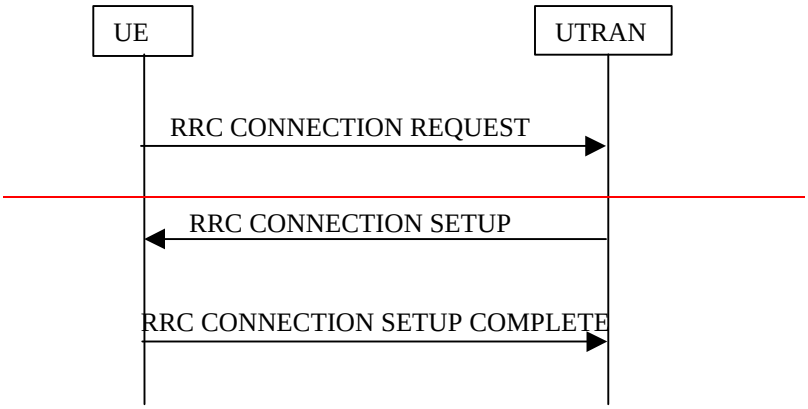
This procedure is used for broadcast of notification information to selected UEs in a cell. Only UEs that listen to the correct notification group can be reached by this procedure. The initiative to send a NOTIFICATION can come from both the access stratum and the non-access stratum. NOTIFICATION can be sent to either one or many UEs at the same time.

*[Note: Notification may be cell specific]*

*[Note: The usage of this procedure is FFS.]*

## 8.2 RRC connection establishment and release procedures

### ~~8.2.1 RRC Connection Establishment~~




**~~Figure 7) Procedure for RRC connection establishment~~**

~~This procedure is initiated from the UE side to establish an RRC connection, as a result of either:~~

~~(1)A request from the non-access stratum to establish the first signalling connection for the UE *[Note: For a GSM based Core Network some examples of reasons are: CM Service Request and Location Updating Request.]*, or~~

~~(2) A received paging request. [*Note: Whether the RRC connection is established with or without an explicit request from UE non-access stratum in this case is FFS.*]~~

~~The RRC connection establishment is initiated by the UE, which leaves the idle mode and sends an RRC CONNECTION REQUEST message using unassured mode on the uplink CCCH. As an initial identification in the RRC CONNECTION REQUEST message the UE uses a unique Non access stratum identity. This NAS identity could be either TMSI + LAI, P-TMSI + RAI, IMSI or IMEI. *[Note: This is pending confirmation from WG1 that the RACH can support the required payload when this type of ID is used]*~~

~~The UTRAN makes an assignment of radio resources and the Radio Network Temporary Identity (RNTI) to be used by the UE. The UTRAN then sends an RRC CONNECTION SETUP message to the UE using unassured mode on the downlink CCCH. The message includes radio resource parameters and the RNTI.~~

~~The UE then configures the layer 2 and layer 1 processing required to support the DCCH according to the radio resource parameters.~~

~~The procedure successfully ends when the network receives an RRC CONNECTION SETUP COMPLETE message. This message which is sent using acknowledged data transfer on the DCCH confirms that the UE has completed the procedure~~

~~Note also that on receipt of an RRC CONNECTION REQUEST message the RNC can allocate a FAUSCH channel for the UE for the particular cell on which the UE is camping. Alternatively the RNC can allocate FAUSCH channels for each of a number of cells within the URA in which the UE is currently staying, though this will depend on the type of UE. The FAUSCH channels allocated are conveyed to the UE in the RRC CONNECTION SETUP message.~~

~~The following procedure which could be used during RRC connection establishment is for further study:~~

~~On receipt of an RRC CONNECTION REQUEST message, the RNC may allocate a dedicated channel to the mobile station. It is also possible to setup macrodiversity at this point. To do so means that the RRC CONNECTION REQUEST message must contain a measurement report. In this case, the RNC executes branch addition (physical channel activation) to each cell (/NodeB) that will be included in the active set. After the physical channel(s) are setup on the UTRAN side, the RRC CONNECTION SETUP message is sent to the UE on the FACH channel. When the UE has activated the physical channels in the active set, it returns an RRC CONNECTION SETUP COMPLETE message.~~

## 8.2.1 RRC connection establishment procedure

### 8.2.1.1 Purpose

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

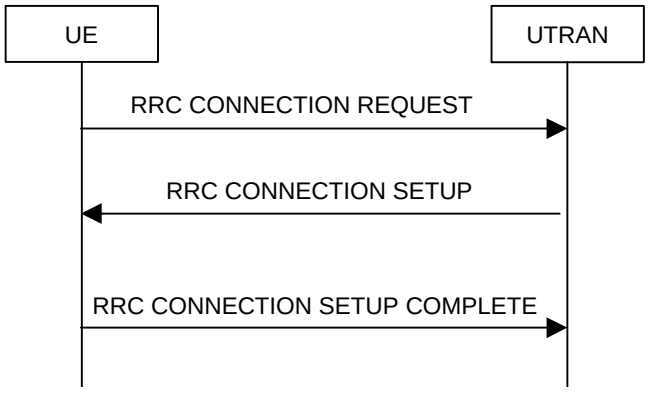



**Figure 10~~8~~) RRC Connection Establishment, network accepts RRC connection**

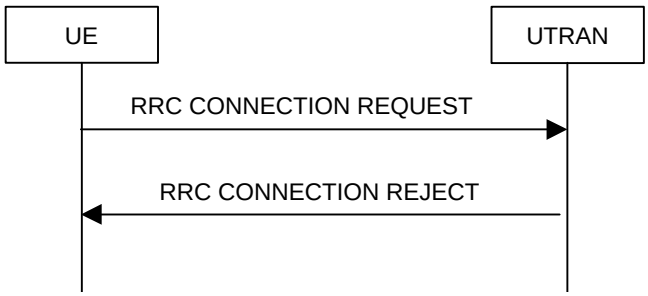



**Figure 119) RRC Connection Establishment, network rejects RRC connection**

### 8.2.1.2 Initiation

The non-access stratum in the UE may request establishment of an RRC connection.

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

#### 8.2.1.2.1 Message RRC CONNECTION REQUEST contents to set

The UE may set the IE "Establishment cause" according to indications from the non-access stratum.

The UE shall set the IE "Initial UE identity" according to subclause 0.

The UE shall indicate its capability in the IE "Initial UE capability".

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

### 8.2.1.3 Reception of RRC CONNECTION REQUEST by the UTRAN

UTRAN shall either

- start timer T350 and transmit an RRC CONNECTION SETUP on the downlink CCCH or
- transmit an RRC CONNECTION REJECT on the downlink CCCH. On the UTRAN side, the procedure ends and all context information for this UE may be deleted in UTRAN.

#### 8.2.1.3.1 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.

*[Editor's note: Other IEs are included and set according to selection by the UTRAN.]*

#### 8.2.1.3.2 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.

### 8.2.1.4 Reception of RRC CONNECTION SETUP 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, perform the actions according to 0 and transmit an RRC CONNECTION SETUP COMPLETE message on the uplink DCCH. When the RRC CONNECTION SETUP message has been successfully transmitted the procedure ends.
- If the values are different, the UE shall ignore the rest of the message

#### 8.2.1.4.1 Message RRC CONNECTION SETUP contents to use

The UE shall

- store the values of the IEs "S-RNTI" and "SRNC identity" and

- initiate the signalling link parameters according to the IEs “Signalling link type” and “RAB multiplexing 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” nor “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 “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.

Actions that shall be performed by the UE for other IEs are specified in subclause **Error! Reference source not found.**.

#### 8.2.1.4.2 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 information.

### 8.2.1.5 Abnormal cases: DPCH failure or T300 timeout

- Upon expiry of timer T300, or
- if the UE failed to establish the DPCH(s) indicated in the message RRC CONNECTION SETUP

the UE shall check the value of V300, and

- if V300 is 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 0.
- 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 0.

### 8.2.1.6 Reception of RRC CONNECTION REJECT 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 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 0.
- If the values are different, the UE shall ignore the rest of the message

#### 8.2.1.6.1 Message RRC CONNECTION REJECT contents to use

If the IE “wait time” is present, and

- if V300 is 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 0.
- 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 0.

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 0.

### 8.2.1.7 Reception of RRC CONNECTION SETUP COMPLETE 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.

#### 8.2.1.8 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.

#### 8.2.1.9 Actions when entering idle mode from connected mode

FFS

#### 8.2.1.10 Actions when entering CELL_DCH state

FFS

#### 8.2.1.11 Selection of initial UE identity

FFS

### 8.2.2 RRC Connection Release

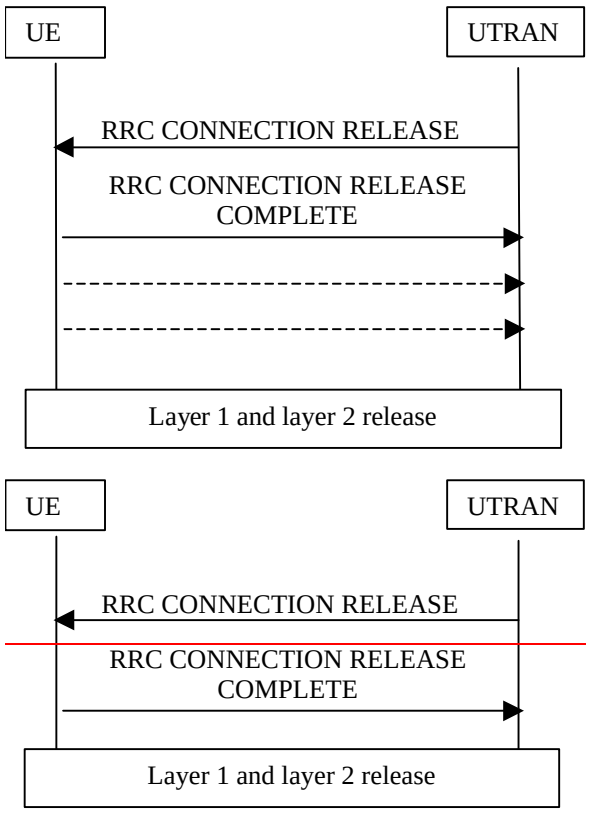



**Figure 12~~10~~8) RRC Connection release procedure**

A normal RRC connection release procedure is initiated from the UTRAN, e.g. when the last Signaling Connection is released. *[Note: Release in case of RRC connection failure is FFS.] [Note: Possibility for UE initiated RRC connection release is FFS.]*

Two variants of this procedure have been identified:

a) RRC connection release from state where dedicated physical channel is available

b) RRC connection release from state where there is no dedicated physical channel

In the former case (a) the UTRAN sends an RRC CONNECTION RELEASE message to the UE using unacknowledged mode on the DCCH. The UE then responds by sending an RRC CONNECTION RELEASE COMPLETE message to

the UTRAN. The UE then leaves the Connected Mode and initiates release of the layer 2 signalling link. The RRC Connection Release procedure ends when all UE dedicated resources (such as radio resources and radio ~~access~~ bearers) tied to the RRC connection are released and the RRC layer is transferred to idle mode.

In the latter case (b) the RRC layer entity in the network issues an RRC CONNECTION RELEASE message using unacknowledged mode on the DCCH. Upon reception of this message the UE-RRC sends an RRC CONNECTION RELEASE COMPLETE message to UTRAN using acknowledged mode on the DCCH. *[Note: Depending on RLC design, the acknowledgement to RRC CONNECTION RELEASE could be piggybacked to the RRC CONNECTION RELEASE COMPLETE MESSAGE, resulting in no additional messages. Therefore acked / unacked transmission is considered FFS.]*. After receiving the RRC CONNECTION RELEASE COMPLETE message the network RRC layer releases L2 resources and the RRC entity dedicated to this UE goes to Idle Mode. On receipt of the RRC CONNECTION RELEASE COMPLETE message the network also releases any FAUSCH channels which were allocated to the UE during RRC connection establishment.

In both cases the RRC CONNECTION RELEASE COMPLETE message may be sent one or several (up to N) times using Layer 3 (RRC) quick repeat. This is indicated by the dashed lines in Figure 12~~Figure 10~~.

### 8.2.3 RRC Connection re-establishment

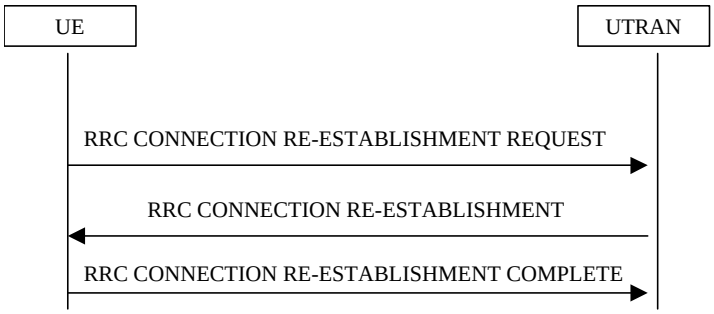



**Figure 13~~11~~9) RRC Connection re-establishment**

RRC connection re-establishment is needed, when a UE loses the radio connection due to e.g. radio link failure. After a new cell has been selected the UE RRC sends the NW RRC an RRC CONNECTION RE-ESTABLISHMENT REQUEST message. The NW RRC configures the NW and acknowledges the connection re-establishment to the UE RRC with an RRC CONNECTION RE-ESTABLISHMENT message. This message may contain the FAUSCH channel(s) valid for this cell, and possibly other cells of the same URA, if FAUSCH channels have been allocated earlier. The UE RRC configures the UE L1 to activate the new radio link(s). After the UE has synchronised to at least one radio link, the MAC and RLC layers can be configured (if necessary). After the UE has completed its configuration, it transmits an RRC CONNECTION RE-ESTABLISHMENT COMPLETE message to the network on the DCCH.

## 8.3 RRC connected mode procedures

### 8.3.1 Radio ~~Access~~ Bearer Related Procedures

### 8.3.1.1 Radio ~~Access~~ Bearer Establishment

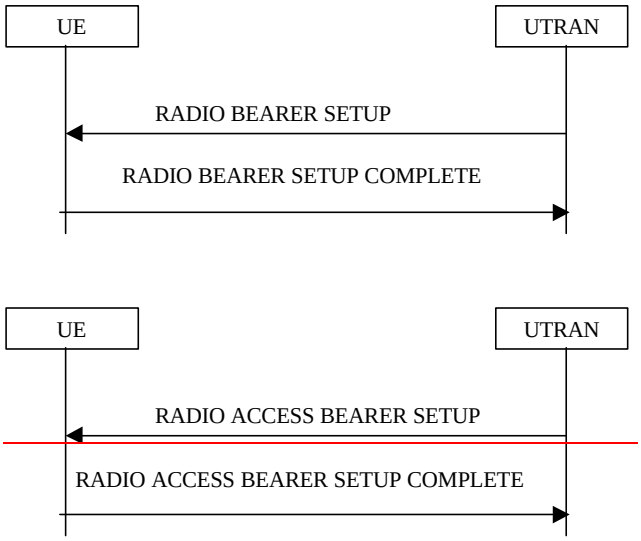



**Figure 14~~12~~10) Radio ~~Access~~ Bearer Establishment Procedure**

This procedure establishes a new radio ~~access~~ bearer. The establishment uses the QoS requirements in order to assign the appropriate RLC parameters, multiplexing priority for the DTCH, scheduling priority for DCH, TFS for DCH and update of TFCS. It may also include assignment of a physical channel(s) and change of the used transport channel types / RRC state.

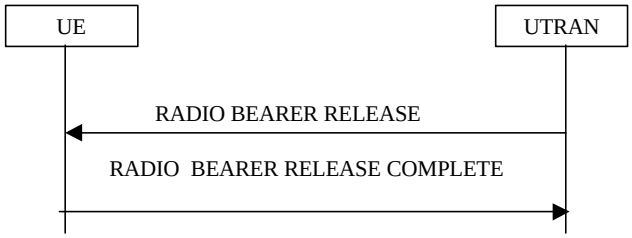
There are a number of alternative methods by which radio ~~access~~ bearers may be established:

a) Radio ~~Access~~ Bearer Establishment with dedicated physical channel activation
b) Radio ~~Access~~ Bearer Establishment with unsynchronised dedicated physical channel modification
c) Radio ~~Access~~ Bearer Establishment with synchronised dedicated physical channel modification
d) Radio ~~Access~~ Bearer Establishment without dedicated physical channel

A Radio ~~Access~~ Bearer Establishment is initiated when the RRC layer in the network sends a RADIO ~~ACCESS~~ BEARER SETUP message to its peer entity. This message contains L1, MAC and RLC parameters and in the synchronised case an activation time. RRC on the UE side then configures L1 and MAC and creates a new RLC entity associated with the new radio ~~access~~ bearer. A similar reconfiguration is also done on the network side. The UE then sends a RADIO ~~ACCESS~~ BEARER SETUP COMPLETE message back to the network.

*[Note: The possibility of establishing multiple radio ~~access~~ bearers within one message is FFS]*

### 8.3.1.2 Radio ~~Access~~ Bearer Release



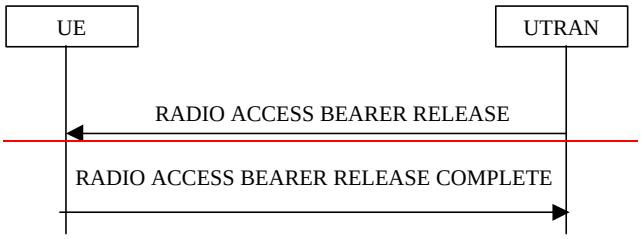



**Figure 15~~13~~~~11~~) Radio ~~Access~~ Bearer Release Procedure**

This procedure releases a radio ~~access~~ bearer. The RLC entity for the radio ~~access~~ bearer is released. The procedure may also release a DCH, which affects the TFCS. It may include release of physical channel(s) and change of the used transport channel types / RRC state.

The Radio ~~Access~~ Bearer Release procedure is initiated by the RRC layer on the NW side. A RADIO ~~ACCESS~~ BEARER RELEASE message is sent from the RRC layer in the network to its peer entity in the UE. This message includes possible new L1, MAC and RLC parameters for remaining radio ~~access~~ bearers and indentification of the radio ~~access~~ bearer to be released. *[Note: In synchronised case a specific activation time would be needed for the change of L1 and L2 configuration to avoid data loss.]*

The RRC on the UE side configures L1 and MAC, and releases the RLC entity associated to the released radio ~~access~~ bearer . A similar reconfiguration is also done on the network side.

Finally, RRC on the UE side sends a RADIO ~~ACCESS~~ BEARER RELEASE COMPLETE message to the network.

Currently the following alternative methods have been identified by which Radio ~~Access~~ Bearers may be released:

a) Radio ~~Access~~ Bearer Release with unsynchronised dedicated physical channel modification
b) Radio ~~Access~~ Bearer Release with synchronised dedicated physical channel modification
c) Radio ~~Access~~ Bearer Release without dedicated physical channel modification

*[Note: When a radio ~~access~~ bearer carried on a DCH is released, it is FFS, whether the UE should acknowledge the RADIO ~~ACCESS~~ BEARER RELEASE message before making the reconfiguration (on the DCH) or after making the reconfiguration (on the RACH)]*

*[Note: The possibility of releasing multiple radio ~~access~~ bearers within one message is FFS]*

### 8.3.1.3 Radio ~~Access~~ Bearer and signalling link Reconfiguration

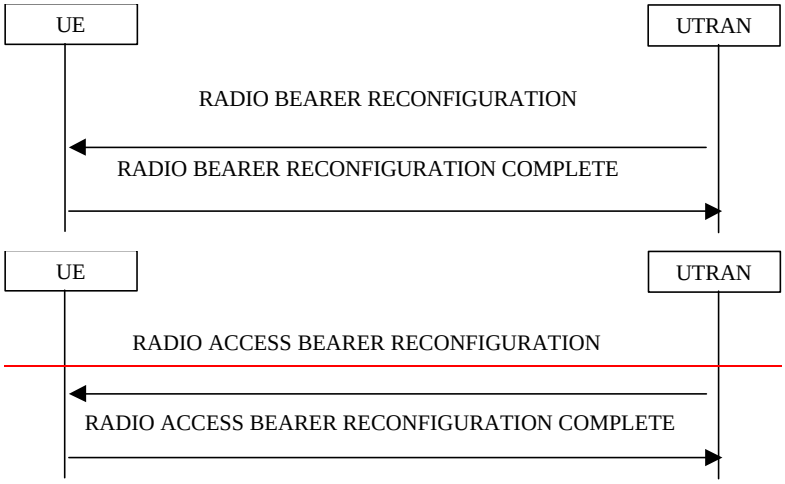



**Figure 16~~14~~~~12~~) Radio ~~Access~~ Bearer and signalling link Reconfiguration Procedure**

This procedure reconfigures parameters for a radio ~~access~~ bearer or the signalling link to reflect a change in QoS. It may

include change of RLC parameters, change of multiplexing priority for DTCH/DCCH, change of DCH scheduling priority, change of TFS for DCH, change of TFCS, assignment or release of physical channel(s) and change of used transport channel types.

Currently identified options by which Radio ~~Access~~ Bearers may be reconfigured:

a) Synchronised Radio ~~Access~~ Bearer reconfiguration
b) Unsynchronised Radio ~~Access~~ Bearer reconfiguration

*[Note: When the reconfiguration involves a change of transport channel (eg. from DCH/DCH to RACH/FACH), it is FFS, whether the UE should acknowledge the RADIO ~~ACCESS~~ BEARER RECONFIGURATION message before making the reconfiguration (eg. on the DCH) or after making the reconfiguration (eg. on the RACH)]*

*[Note: The possibility of reconfiguring multiple radio ~~access~~ bearers and signalling links within one message is FFS]*

## 8.3.2 Transport Channel Reconfiguration

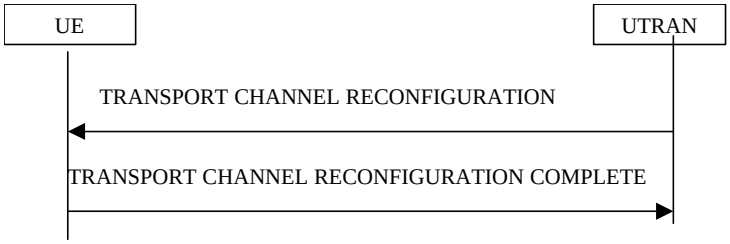



**Figure 17~~15~~~~13~~) Procedure for transport channel reconfiguration**

This procedure configures parameters related to a transport channel such as the TFS. The procedure also assigns a TFCS and may change physical channel parameters to reflect a reconfiguration of a transport channel in use.

A change of the transport format set for a transport channel is triggered in the RRC layer in the network. A TRANSPORT CHANNEL RECONFIGURATION message is then sent from the RRC layer in the network to its peer entity. This message contains the new transport format set, a new transport format combination set and may include physical channel parameters. *[Note1: In a synchronised procedure a specific activation time is needed for the change of L1 and L2 configuration to avoid data loss.]* When this message is received in the UE a reconfiguration of L1 and MAC is done. A similar reconfiguration is also done on the network side. Finally, a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message is returned to the network.

Currently identified options by which transport channels may be reconfigured:

a) Synchronised transport format set reconfiguration
b) Unsynchronised transport format set reconfiguration
c) Pre-configuration of TFS/TFCS for a transport channel not yet in use

*[Note: When the reconfiguration involves a change of transport channel it is for further study on what channel the UE should acknowledge the TRANSPORT CHANNEL RECONFIGURATION message, ie. whether it should acknowledge before making the reconfiguration (eg. on the DCH) or after making the reconfiguration (eg. on the RACH)]*

*[Note: The possibility of reconfiguring multiple transport channels within one message is FFS]*

### 8.3.3 Transport Format Combination Control


**Figure 18~~16~~14) Transport Format Combination Control Procedure**

The network uses this procedure to control which transport format combinations (within the transport format combination set) can be used by the UE in the uplink. An example of when this procedure might be used is when a congestion situation occurs such that it is desirable to temporarily restrict the TFC's in use.

This procedure is initiated with a TRANSPORT FORMAT COMBINATION CONTROL message sent from the network to the UE. This message defines the subset of the complete transport format combination set which the UE is allowed to use, or in case of removing a temporary restriction, a TFCS which is identical to the complete original set. The UE then reconfigures MAC which thereafter uses the new TFC set. The TRANSPORT FORMAT COMBINATION CONTROL message may be sent optionally using acknowledged or unacknowledged data transfer .

## 8.3.4 Physical Channel Reconfiguration Related Procedures

### 8.3.4.1 Physical channel Reconfiguration

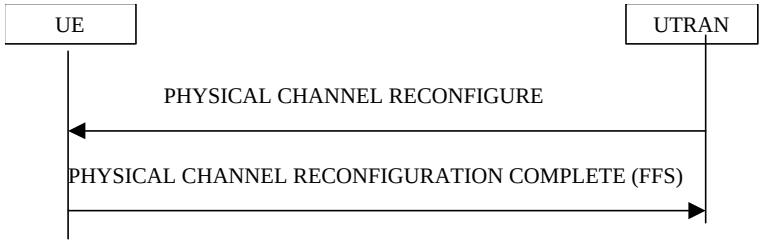



**Figure 19~~17~~~~15~~) Physical Channel Reconfiguration procedure**

This procedure may assign, replace or release a set of physical channels used by a UE. As a result of this, it may also change the used transport channel type (and RRC state). For example, when the first physical channel is assigned the UE enters the DCH/DCH state. When the last physical channel is released the UE leaves the DCH/DCH state and enters a state (and transport channel type) indicated by the network. A special case of using this procedure is to change the DL channelization code of a dedicated physical channel. *[Note: The procedure does not change the active set, in the downlink the same number of physical channels are added or replaced for each radio link.]*

Currently identified motivations for using this procedure (methods by which physical channels may be reconfigured):

a) Assignment of dedicated physical channel (switch from common channels to dedicated physical channel)
b) Synchronised replacement (modification) of dedicated physical channel (eg. for D/L code tree re-organisation)
c) Release dedicated physical channel (switch from dedicated physical channel to common channels).
d) This procedure can also be used to add further FAUSCH channels (e.g. for use in other cells of the URA, to which a UE might move in the future when the UE already has an RRC connection.)

### 8.3.4.2 Downlink Outer Loop Control


**Figure 20~~18~~) Downlink Outer Loop Control Procedure**

The network uses this procedure to control the downlink outer loop power control running in the UE. An example of when this procedure might be used is when a congestion situation occurs in downlink such that it is desirable to temporarily prevent the UE to increase its Eb/No target value, even if quality can not be maintained.

This procedure is initiated with a DOWNLINK OUTER LOOP CONTROL message sent from the network to the UE. This message indicates either that the UE is allowed to increase the Eb/No target value above its current value, or that the UE is not allowed to increase the Eb/No target value above its current value. On reception of this message, the UE applies or releases the restriction, according to the contents of the message.

The DOWNLINK OUTER LOOP CONTROL message shall be sent using unacknowledged (or acknowledged -FFS) data transfer.

## 8.3.5 Mobility Related Procedures

### 8.3.5.1 Modification of the active set when in Soft hand-over

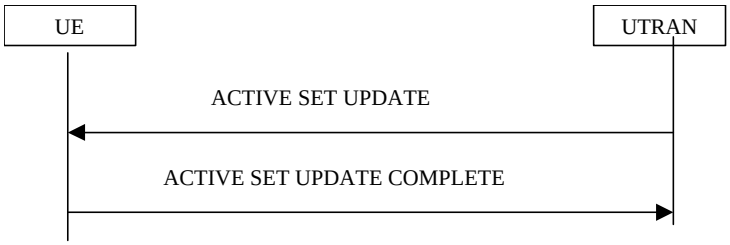



**Figure 211916) Procedure for modifying the active set when in soft hand-over**

There are three alternative ways of modifying the active set which have been identified:

a) Radio link addition
b) Radio link removal
c) Combined radio link addition and removal

Radio link addition is triggered in the network RRC layer. The NW RRC first configures the new radio link. Transmission and reception begin immediately. The NW RRC then sends an ACTIVE SET UPDATE message to the UE RRC. The UE RRC configures layer 1 to begin reception. After confirmation from the physical layer in the UE an ACTIVE SET UPDATE COMPLETE message is sent to the NW RRC

Radio link removal is triggered by the network RRC layer. The radio link is first deactivated by the UE and then in the NW. The NW RRC sends an ACTIVE SET UPDATE message to the UE RRC. The UE RRC requests UE L1 to terminate reception of the radio link(s) to be removed. After this the UE RRC acknowledges radio link removal with an ACTIVE SET UPDATE COMPLETE message to the NW RRC. The NW RRC proceeds to request the NW L1 to release the radio link.

The NW RRC determines the need for radio link replacement. When radio links are to be replaced, the NW RRC first configures the NW L1 to activate the radio link(s) that are being added. The NW RRC then sends an ACTIVE SET UPDATE message to the UE RRC, which configures the UE L1 to terminate reception on the removed radio link(s) and begin reception on the added radio link(s). If the UE active set is full, an old radio link has to be removed before a new one can be added. If the UE has only one radio link, then the replacement must be done in reverse order (first add, then remove). *Note: The present assumption is that the order of the replacement can be left to the UE.* The UE RRC acknowledges the replacement with an ACTIVE SET UPDATE COMPLETE message. The NW RRC then configures the NW L1 to terminate reception and transmission on the removed radio link.

*[Editors note: Presumably the radio link replacement procedure can be used for intra-frequency(make before break) hard hand-off]*

*[Editor's note: TDD active set update will also be supported if the L1 group identifies the requirement]*

### 8.3.5.2 Hard handover (FDD and TDD hard)

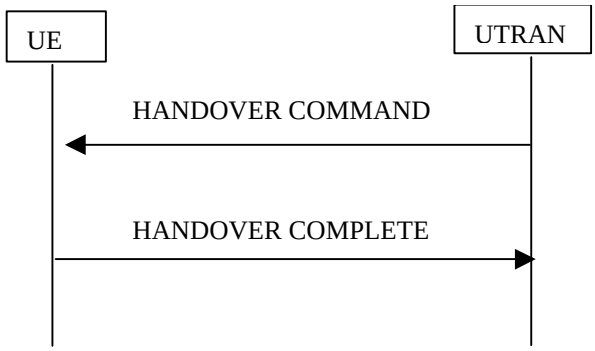



**Figure 2220~~17~~) Inter-frequency hard handover**

The NW RRC determines the need for inter-frequency hard handover and then configures the NW L1 to activate the new radio links. The NW L1 begins transmission and reception on the new links immediately. The NW RRC then sends the UE RRC a HANDOVER COMMAND message. The message indicates the radio resources that should be used for the new radio link, and can include a FAUSCH channel for the new cell, if the UE has not already been assigned a valid FAUSCH channel for the new cell. The UE RRC configures the UE L1 to terminate reception on the old radio link and begin reception on the new radio link.

After the UE L1 has achieved downlink synchronisation on the new frequency, a L2 link is established and the UE RRC sends a HANDOVER COMPLETE message to the NW RRC. After the L3 acknowledgement has been received, the NW RRC configures the NW L1 to terminate reception and transmission on the old radio link.

*[Note 1: Whether it should be possible to setup several radio links immediately on the new frequency is FFS.]*

*[Note 2: The suspension and resumption of the CC and MM signalling during handover is FFS.]*

### 8.3.5.3 Inter system hard hand-over (GSM/BSS to UTRAN)

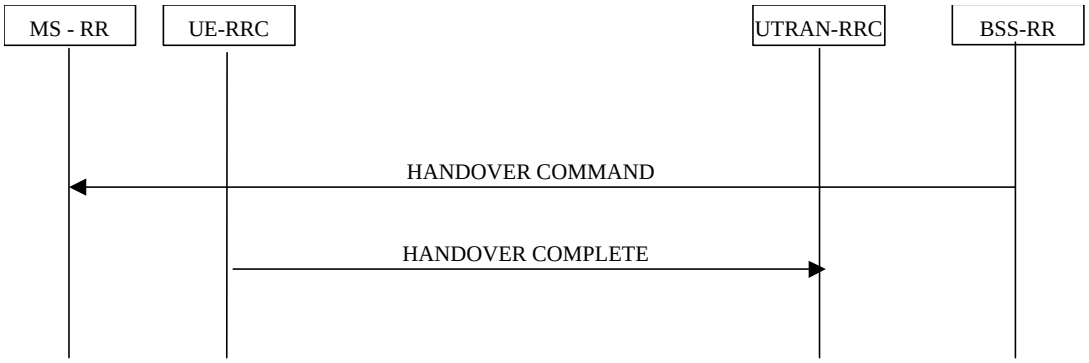



**Figure 2321~~18~~) Procedure for Inter-system hard hand-over - GSM to UTRAN**

The handover from GSM/BSS to UTRAN for a dual-mode GSM MS / UMTS UE is described.

On the network side, the RRC layer performs admission control and radio resource allocation, assigning an RNTI for the RRC connection and selecting radio resource parameters (such as transport channel type, transport format sets, etc).

The selected parameters including the RNTI, are transmitted to the UE via the upgraded GSM RR message HANDOVER COMMAND. Upon reception of the HANDOVER COMMAND message, the UE RRC configures L1

and L2 using these parameters to locally establish the DCCH logical channel . Layer 1 indicates to RRC when it has reached synchronisation. An RLC signalling link establishment is then initiated by the UE. A HANDOVER COMPLETE message is finally sent by the UE RRC.

### 8.3.5.4 Inter system hard hand-over (UTRAN to GSM/BSS, PSTN/ISDN domain services)

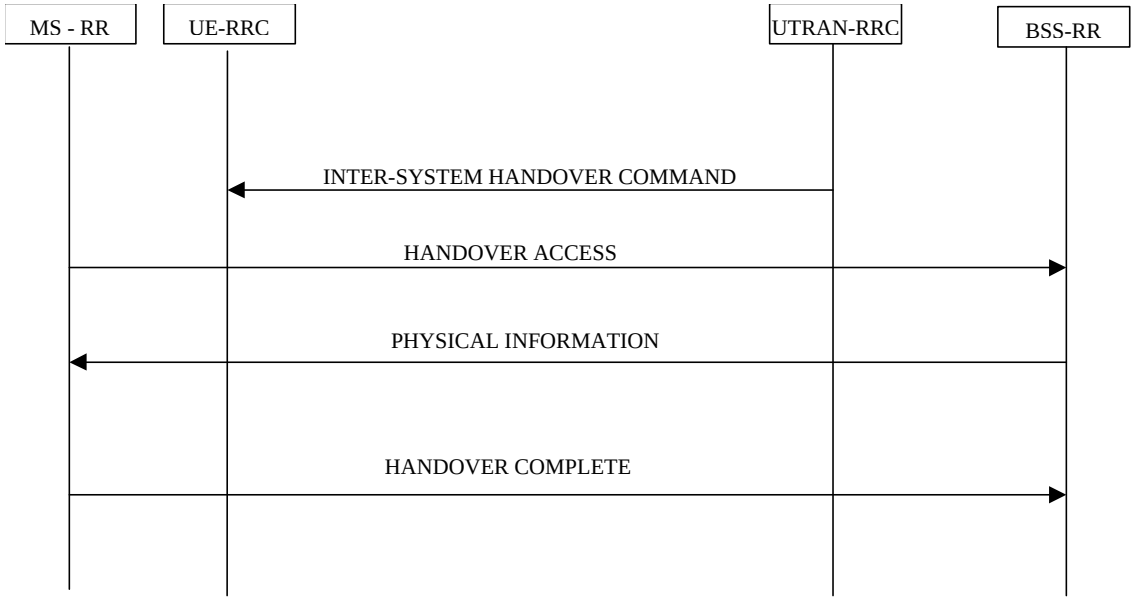



**Figure 24~~22~~~~19~~) Inter system hard hand-over (UTRAN to GSM/BSS), PSTN/ISDN services, successful case**

*[Note: The scope of this description is restricted to a UE having a connection only to PSTN/ISDN services, i.e. no simultaneous IP connection]*

For PSTN/ISDN domain services UTRAN Inter-System Handover procedure is initiated from the UTRAN.
The UTRAN RRC sends an INTER-SYSTEM HANDOVER COMMAND (type UTRAN-to-BSS HARD HANDOVER) to the UE to start the execution of the handover. This message contains all the information needed for the UE to be able to switch to the GSM cell and perform a GSM handover.

Upon reception of the HANDOVER COMMAND message, the UE RRC layer can then locally release the resources on the RLC, MAC and physical layers of the UE.

After having switched to the assigned GSM channel specified in the INTER-SYSTEM HANDOVER COMMAND, the MS RR sends a HANDOVER ACCESS message in successive layer 1 frames, just as it typically would have done for a conventional GSM handover initiation.

When the BSS-RR has received the HANDOVER ACCESS it indicates this to the CN/AS by sending a HANDOVER DETECT message. The BSS-RR sends a PHYSICAL INFORMATION message to the GSM MS in unacknowledged mode that contains various fields of physical layer related information allowing a proper transmission by the MS.
After layer 1 and layer 2 connections are successfully established, the GSM MS returns the HANDOVER COMPLETE message.

The UTRAN is then able to release the resources that were used by the UE in UTRAN Connected Mode.

If the UE is unable to execute the Inter-System Handover or if low layer failure occurs on the UE side GSM/BSS channel prior to HANDOVER COMPLETE being sent then the UE deactivates the new GSM/BSS channel and reactivates the UTRAN connection.The UE then sends an INTER-SYSTEM HANDOVER FAILURE message and resumes normal operation as if no Inter-System Handover attempt had occurred.

### 8.3.5.5 Inter system cell reselection (UTRAN to GSM/GPRS, IP domain services)

For IP domain services, intersystem cell reselection from UTRAN to GSM/GPRS is initiated by the UE, or ordered by the network with the INTER-SYSTEM HANDOVER COMMAND message.

### 8.3.5.6 Inter system cell reselection (GSM/GPRS to UTRAN, IP domain services)

For IP domain services, intersystem cell reselection from GSM/GPRS to UTRAN is initiated by the MS or by GSM/BSS according to GSM/GPRS specifications.

### 8.3.5.7 URA update

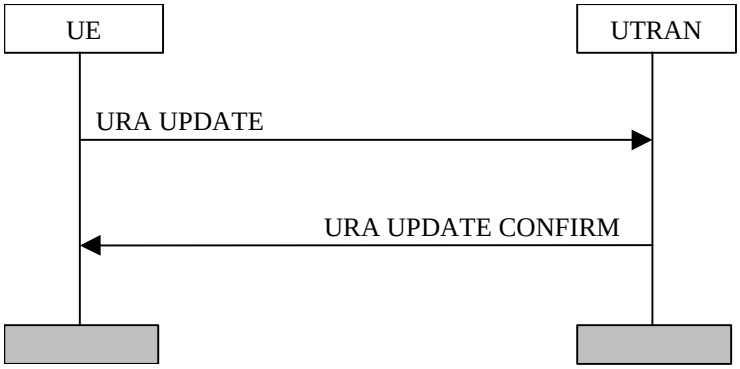



**Figure 2523~~20~~) URA update procedure.**

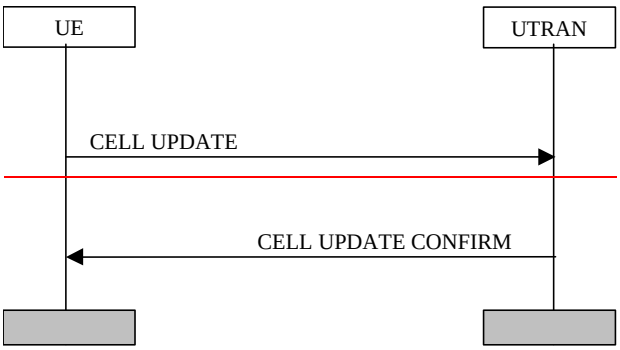
The URA update procedure is normally used by the UE to inform the UTRAN that the UE has switched to a new UTRAN registration area. In this case, the procedure is triggered after change of cell and after the UE has decoded from the BCCH the URA identifier(s) valid in that cell. The procedure can also be triggered by expiry of a URA update periodicity timer in the UE.

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 connected state shall always have one and only one valid URA.

To perform the URA update procedure the UE shall send a URA UPDATE message to the UTRAN. Upon reception of the message the UTRAN registers the change of URA, and sends a URA UPDATE CONFIRM message to the UE. The URA UPDATE CONFIRM message may include a new C-RNTI and/or S-RNTI plus SRNC identity. In the latter case, the UE shall transmit an RNTI REALLOCATION COMPLETE message as confirmation. In cells where multiple URAs are valid, the UTRAN shall assign the URA to the UE in the URA UPDATE CONFIRM message. The URA UPDATE CONFIRM message may also contain new NAS system information.

*[Note1: Whether it should be possible for the UTRAN to trigger a URA update request from the UE is FFS.]*

### ~~8.3.5.8 Cell update~~



~~**Figure 21) Cell update procedure.**~~

~~The cell update procedure is normally used by the UE to inform the UTRAN that the UE has switched to a new cell. In this case, the procedure is a forward handover procedure, and is triggered after change of cell and after the UE has read information broadcasted by UTRAN. The procedure can also be triggered by expiry of a cell update periodicity timer in the UE or in cases when the UE requests a new C-RNTI.~~

~~In case of cell reselection, the UE abandons the radio link to the old cell and establishes a radio link to the new cell. After that the UE sends a CELL UPDATE message to the UTRAN. Upon reception of the message the UTRAN registers any change of cell, and sends a CELL UPDATE CONFIRM message to the UE.~~

~~The CELL UPDATE CONFIRM message may include a new C-RNTI and S-RNTI plus SRNC identity. In this case the UE configures layer 2 to use the new identities and returns an RNTI REALLOCATION COMPLETE message as confirmation. In the CELL UPDATE CONFIRM message, the network can instruct the UE to start updating its location on URA level. In the transition to URA connected state, the CELL UPDATE CONFIRM message shall include a URA assignment, if multiple URAs are valid in the current cell. The CELL UPDATE CONFIRM message may also contain new NAS system information.~~

~~The cell update procedure can also include an update on which FAUSCH channel should be used in the new cell.~~

~~In case the UE is assigned a new C-RNTI and/or S-RNTI plus SRNC identity, a RNTI REALLOCATION COMPLETE message is sent by the UE to the network.~~

~~*[Note1: Whether it should be possible for the UTRAN to trigger a cell update request from the UE is FFS.]*~~

## 8.3.5.8 Cell update procedure

### 8.3.5.8.1 Purpose

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. UE can use CELL UPDATE message to notify the unrecoverable error in AM_RLC on c-plane *[Note 1]*.

*[Note 1: The RRC Connection re-establishment procedure can also be used in some cases]*

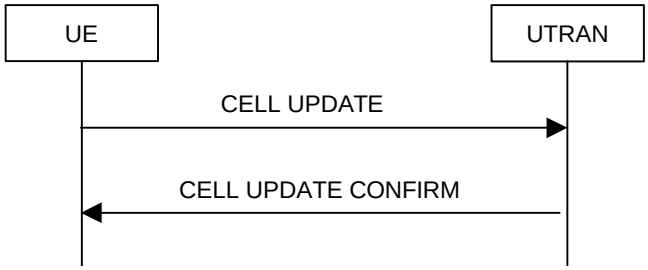



**Figure 27~~25~~) Cell update procedure, basic flow**

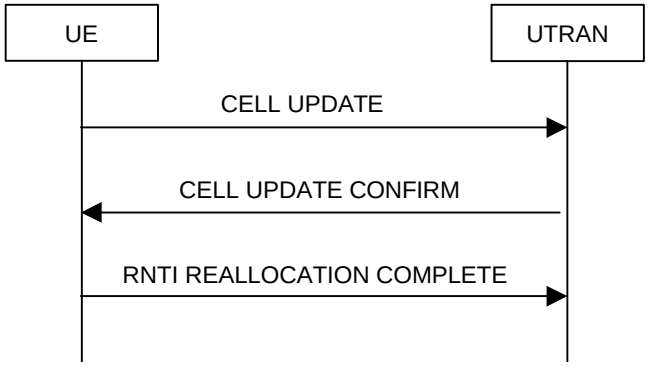



**Figure 28~~26~~) Cell update procedure with RNTI reallocation**

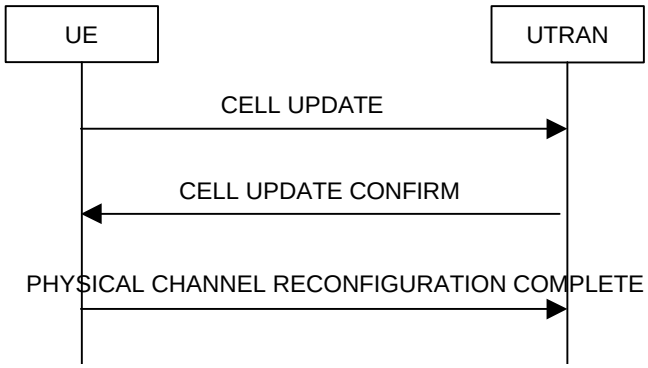



**Figure 2927) Cell update procedure with physical channel reconfiguration**

*[Editor's note: Physical channel reconfiguration complete is only used when common channels are configured (doesn't apply to dedicated channels)]*

#### 8.3.5.8.2 Initiation

##### 8.3.5.8.2.1 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

- 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 “cell reselection”.

##### 8.3.5.8.2.2 Cell update due to periodic cell update

When the UE is in CELL_RACH 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_RACH state and after each uplink message transmission in CELL_RACH state.

Upon expiry of timer T305, 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
- restart timer T305

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

##### 8.3.5.8.2.3 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 0 and 0.

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

#### 8.3.5.8.3 Reception of CELL UPDATE by the UTRAN

When the UTRAN receives a CELL UPDATE message, it shall 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.

#### 8.3.5.8.3.1 Message CELL UPDATE CONFIRM contents to set

UTRAN shall use the same S-RNTI and SRNC identity for the transmission of CELL UPDATE CONFIRM as the values of the IEs "S-RNTI" and "SRNC identity" in the received message CELL UPDATE.

UTRAN may allocate a new C-RNTI and/or a new S-RNTI plus SRNC identity for the UE. In that case UTRAN shall include those new identities in the IEs "new C-RNTI", "new S-RNTI" and "new SRNC identity", and start timer T361.

UTRAN may allocate new PRACH and/or Secondary CCPCH to the UE. In that case UTRAN shall include the IEs "PRACH info" and/or "Secondary CCPCH info". UTRAN shall start timer T357.

### 8.3.5.8.4 Reception of CELL UPDATE CONFIRM by the UE

When the UE receives a CELL UPDATE CONFIRM message on the downlink DCCH, it shall stop timer T302.

#### 8.3.5.8.4.1 Message CELL UPDATE CONFIRM contents to use

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

- update its identities and transmit an RNTI REALLOCATION COMPLETE message on the uplink DCCH. The procedure ends when the UE has transmitted that message and the UE shall go back to CELL_PCH state if the cell update procedure was initiated from that state.

If the CELL UPDATE CONFIRM message includes the IE "URA update indicator", 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", "new S-RNTI" nor "new SRNC identity", the UE shall

- Perform the actions stated in subclauses x and y *[Editor's note: a reference to general actions for these IEs.]*
- transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH. The procedure ends when the UE has transmitted that message and the UE shall go back to CELL_PCH state if the cell update procedure was initiated from that state.

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", "new S-RNTI" or "new SRNC identity", the UE shall

- Perform the actions stated in subclauses x and y *[Editor's note: a reference to general actions for these IEs.]*

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", "new S-RNTI" nor "new SRNC identity", the procedure ends and the UE shall go back to CELL_PCH state if the cell update procedure was initiated from that state.

### 8.3.5.8.5 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 UE shall set the IEs in the CELL UPDATE message according to subclause 0.
- 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 x.x.x.

#### 8.3.5.8.6 Reception of RNTI REALLOCATION COMPLETE by the UTRAN

See subclause x.x.x *[Editor's note: reference to the corresponding part of RNTI reeallocation procedure to be inserted here]*..

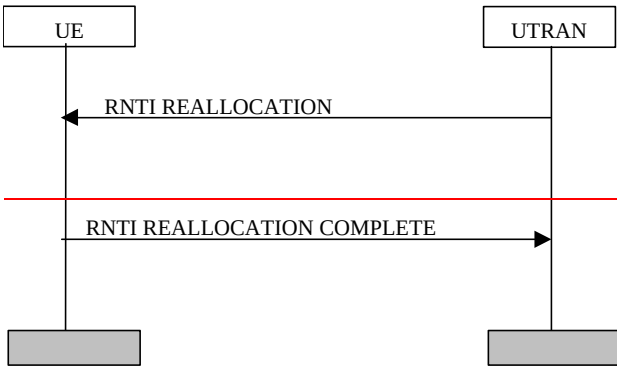
#### 8.3.5.8.7 Reception of PHYSICAL CHANNEL RECONFIGURATION COMPLETE by the UTRAN

FFS

#### 8.3.5.8.8 Abnormal case: T357 expiry

FFS

### ~~8.3.5.9 RNTI reallocation~~




**~~Figure 22) RNTI reallocation procedure~~**

~~This procedure is used by the network, to assign new Radio Network Temporary Identity (RNTI) information to a UE. It is initiated by the UTRAN by the sending of an RNTI REALLOCATION message. The RRC message contains new S-RNTI and SRNC identity and/or a new C-RNTI. It may also contain new NAS system information.~~

~~The UE starts to use the new identities and returns an RNTI REALLOCATION COMPLETE message as confirmation.~~

### 8.3.5.9 RNTI reallocation procedure

#### 8.3.5.9.1 Purpose

The purpose with this procedure is to allocate a new C-RNTI and/or S-RNTI plus SRNC identity to an UE in connected mode.

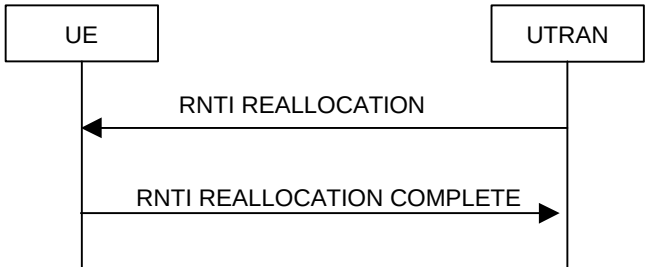



**Figure 31~~29~~) RNTI reallocation procedure, normal flow**

#### 8.3.5.9.2 Initiation

The UTRAN shall transmit an RNTI reallocation message to the UE on the downlink DCCH.

#### 8.3.5.9.3 Reception of RNTI REALLOCATION by the UE

When the UE receives an RNTI REALLOCATION message, it shall take the actions in subclause 0 and then transmit an RNTI REALLOCATION COMPLETE message on the uplink DCCH. The procedure ends.

##### 8.3.5.9.3.1 Message RNTI REALLOCATION contents to use

If the IEs “new S-RNTI” and “new SRNC identity” are present, the UE shall store and start to use the values of these IEs as the current S-SRNTI and SRNC-identity.

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 “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”.

#### 8.3.5.9.4 Reception of RNTI REALLOCATION by the network

When the network receives RNTI REALLOCATION COMPLETE, UTRAN shall delete any old C-RNTI and S-RNTI and SRNC identity. The procedure ends.

## 8.3.6 RRC Connected mode procedures which use Paging

### 8.3.6.1 Core network originated paging

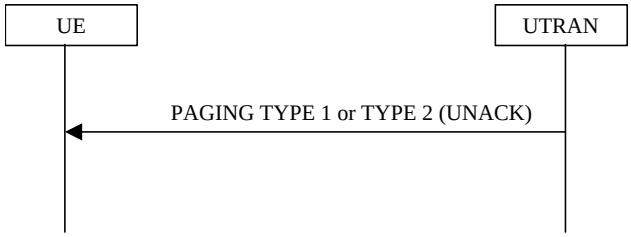



**Figure 32~~30~~~~23~~) Core network originated paging procedure in connected mode**

So far only one example of this procedure has been identified (two others are FFS):

a) UTRAN co-ordinates, UE is on DCCH (PAGING TYPE 2 message is used)
b) UTRAN co-ordinates, UE is on PCCH (FFS, PAGING TYPE 1 message would be used)
c) UE co-ordinates (FFS)

Consider case (a): This procedure enables the CN to request paging of a UE. Since the UE can be reached on the DCCH, the RRC layer formats a PAGING TYPE 2 message containing the UE paging identity and the NAS information, and the message is transmitted directly to the UE using unacknowledged data transfer.

*[Note: It is FFS whether only one paging message is required (as used for idle mode paging) or whether both Type 1 and Type 2 paging messages are required]*

### 8.3.6.2 UTRAN originated paging

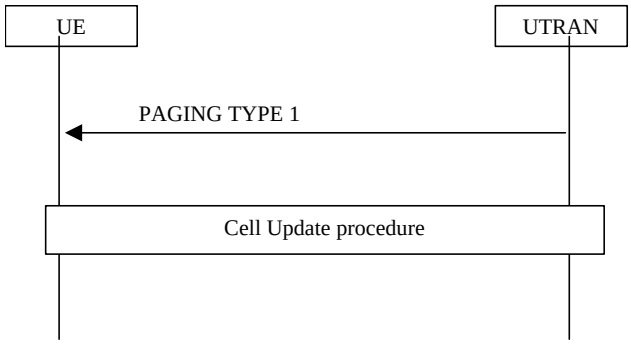



**Figure 3331124) UTRAN originated paging procedure in connected mode**

The RRC layer in the network can use this procedure to trigger a switch from PCH or URA connected state to RACH/FACH or RACH+FAUSCH/FACH state. A PAGING TYPE 1 message, containing the S-RNTI and SRNC identity is sent on the PCCH.

In the UE, the RRC layer continuously monitors the paging group on the PCH and compares the UE identities in the received paging messages with its own identities. When a match occurs, the RRC layer uses the cell update procedure to acknowledge the reception of paging and optionally obtain a new C-RNTI.

*[Note: It is FFS whether only only one paging message is required (as used for idle mode paging) or whether Type 1 and Type 2 paging messages are also required]*

## 8.3.7 Procedures related to measurement and monitoring

Monitored cells are grouped in the UE into two different categories:

1. Cells that belong to the **active set.** User information is sent from all these cells and they are simultaneously demodulated and coherently combined. These cells are involved in soft handover.

2. Cells that are not included in the active set, but are monitored for handover belong to the **monitored set.**

From an RRC point of view, the UE measurements can be grouped with respect to the type of measurement performed in theUE, i.e., what the UE shall measure. Examples are:

- Intra-frequency measurements: measurements on downlink physical channels with the same frequency as the active set.
- Inter-frequency measurements: measurements on downlink physical channels with 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.
- 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.

The same type of measurements can be used as input to different functions in UTRAN. For instance, an intra-frequency measurement in the UE can be used for handover, power control or operation and maintenance purposes in the network.

However, it should be possible to have a number of UE measurements running in parallel, where each measurement is controlled and reported independently of each other.

Each type of UE measurement is associated with a standardised measurement method that can be described with a limited number of parameters (threshold levels, triggering conditions etc) in the measurement control message from the network.

The measurement report to the network can be sent by either acknowledged or unacknowledged data transfer on the DCCH. The acknowledged mode may be employed for e.g. event-triggered measurement reports, while the unacknowledged mode may be used for e.g. periodical reporting with low periodicity. The network indicates (in the UE measurement control message) which reporting alternative the UE should use for the corresponding measurement.

After sending the initial random access message, the UE shall continue measurements performed in idle mode until a MEASUREMENT CONTROL message is received from UTRAN. This message indicates e.g. the parameters to be used for monitoring in connected mode.

On the DCH, 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, 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 sent to establish an RRC connection.
- RRC CONNECTION RE-ESTABLISHMENT REQUEST sent to re-establish an RRC connection.
- DIRECT TRANSFER sent uplink to establish a signalling connection.
- CELL UPDATE sent to respond to a UTRAN originated page.
- MEASUREMENT REPORT sent to report uplink traffic volume.

*[Note: Whether or not measured results can be appended to other messages and in other scenarios is FFS.]*

### 8.3.7.1 Measurement control


**Figure 343225) Measurement Control procedure**

This procedure is initiated from the UTRAN side to control a measurement in a specific UE. The UTRAN sends a MEASUREMENT CONTROL message to the UE on the DCCH. The message includes the information that controls the UE measurement. Examples of such information are:

1. **Measurement type**: One of the types from a predefined list where each type describes what the UE shall measure.
2. **Measurement identity number**: A reference number that is used by the UTRAN at modification of 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 specified measurement, e.g. 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. **Report 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. This is also used to specify whether the measurement report should be transmitted using either acknowledged or unacknowledged data transfer on the DCCH.

*[Editor's note: Details of how this procedure can make use of slotted mode operation is still under investigation]*

### 8.3.7.2 Measurement reporting


**Figure 3533326) Measurement Report procedure**

The Measurement Report procedure is initiated from the UE side when the reporting criteria are met. The message is sent using either acknowledged or unacknowledged data transfer on the DCCH. The UE sends a MEASUREMENT REPORT message to the UTRAN that includes the measurement identity number and the measurement results of the mandatory and optional report quantities that were defined in the corresponding MEASUREMENT CONTROL message.

*[Note: UE measurement reports can be sent without a prior Measurement Control message, e.g. reports of measurements that are predefined in the standard or defined via system information.]*

## 8.3.8 Other procedures in connected mode

### 8.3.8.1 Transmission of UE capability information

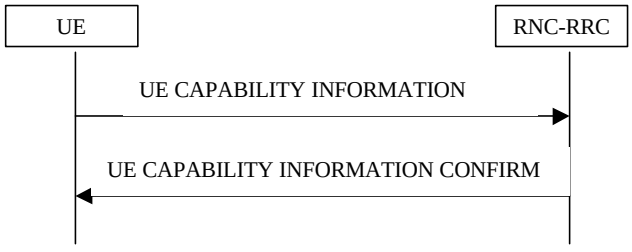
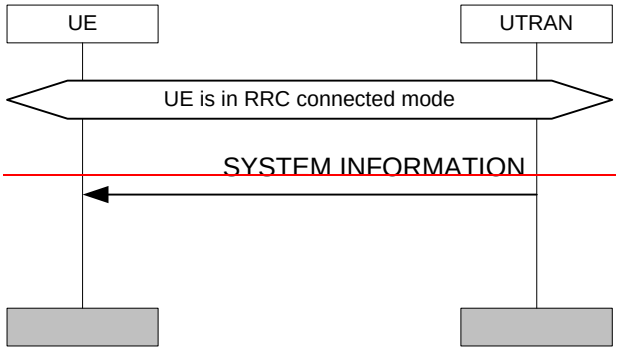



**Figure 3634327) Procedure for transmission of UE capability information**

The UE transfers its capability information to the network by transmitting the UE CAPABILITY INFORMATION message on the DCCH. The UTRAN acknowledges the successful update of UE capability by a UE CAPABILITY INFORMATION CONFIRM message. This procedure can (optionally) be performed after RRC Connection Setup

procedure and also during the lifetime of the RRC Connection if the UE capability information changes (e.g. due to change in UE power class). UE capability information can also be explicitly requested by the UTRAN *[Note: The mechanism for this is FFS]*.

### ~~8.3.8.2 Sending of system information in RRC connected mode~~




**~~Figure 28 Sending of system information to UE in RRC connected mode~~**

~~This procedure is used to transfer system information from the network to all connected mode UEs in a cell. The grouping of system information blocks is FFS.~~

~~Three ways have been identified by which this signalling can be conveyed:~~

- ~~On DCCH *[Note: This is FFS. The DCCH might be used to send modified system information blocks directly to the UE.]*~~
- ~~On BCCH *[Editors note, the BCCH may be used to convey information to a UE even when a DCCH exists. The current assumption is that where a DCH exists the BCCH is not used]*~~
- ~~On CCCH mapped onto a FACH or a DSCH control transport channel (provided the DSCH control transport channel exists). *[Editors note ,the CCCH may be used to convey information to a UE even when a DCCH exists].*~~

~~The UTRAN can notify the UE when system information blocks carried on the BCCH are modified. There are two ways to notify the UE:~~

- ~~On PCCH. The message PAGING TYPE 1 can be sent to all UE's on the PCCH to indicate that the system information has been modified. The message includes the information element *BCCH Modification Information*.~~
- ~~On CCCH. When system information is modified, the updated master information block can be broadcast on CCCH to all UEs listening to the FACH.~~

### 8.3.8.3 Direct transfer

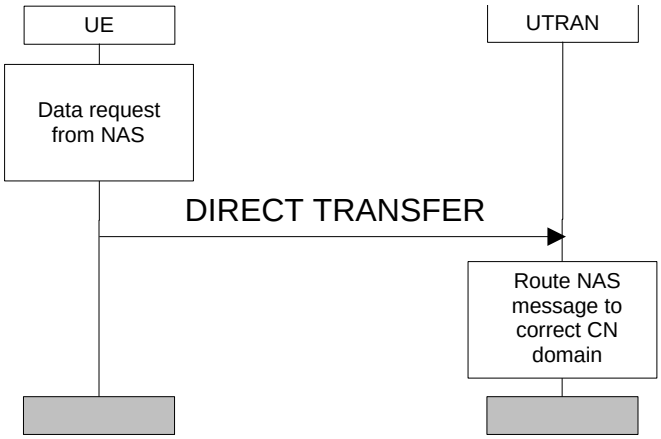



**Figure 38~~36~~~~29~~) Direct Transfer procedure in uplink**

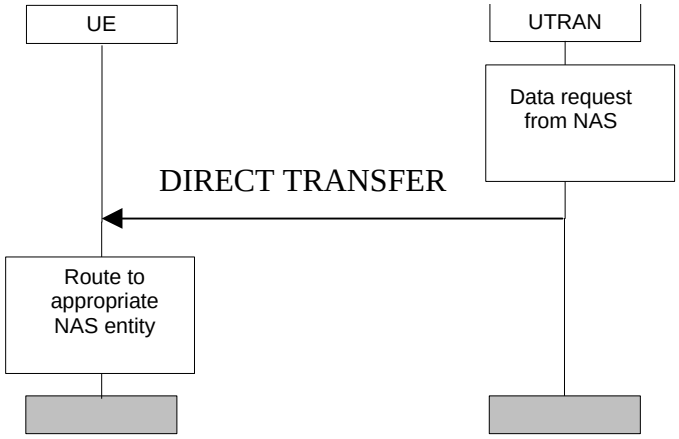



**Figure 39~~37~~~~30~~) Direct Transfer procedure in downlink**

The direct transfer procedure is used to carry all higher layer (NAS) messages over the radio interface. The DIRECT TRANSFER message includes the higher layer (NAS) message as payload and a CN domain identifier of the destination (in uplink) or originating (in downlink) core network node.

The DIRECT TRANSFER message is used both in uplink and in downlink and is conveyed on a DCCH.

Upon reception of the DIRECT TRANSFER message the higher layer PDU is routed – using the CN domain identifier parameter – in UE side to correct higher layer entity and in UTRAN side to correct CN domain.

### 8.3.8.4 RRC status procedure

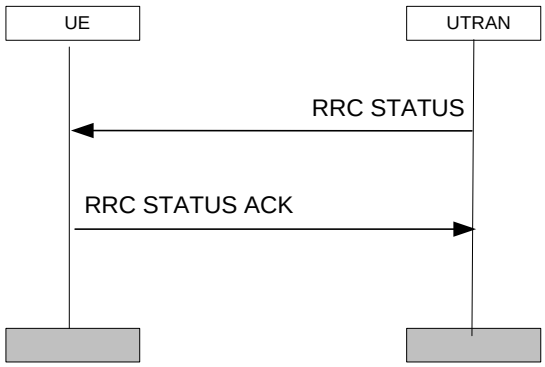



**Figure 40~~38~~~~31~~: *RRC status procedure***

*[Note: The following describes the use of the RRC status procedure for release of signalling connection. Other use of this procedure is FFS.]*

If a UE has signalling connections to CN1 and CN2, one of the nodes may request the UTRAN to release the RRC connection. In this case, without releasing the RRC connection the UTRAN needs to inform the corresponding MM entity in the UE that the signalling connection has been released, this is achieved using the RRC status procedure.

When the UTRAN receives a signalling connection release request from a core network node, it informs the UE of a signalling connection release with a RRC STATUS message. After receiving this message the UE RRC informs the corresponding UE MM entity of RRC connection release and sends a RRC STATUS ACK to the UTRAN. When the UTRAN receives the acknowledgement message it confirms the release of signalling connection to the core network node.

### 8.3.8.5 UE Capability Enquiry

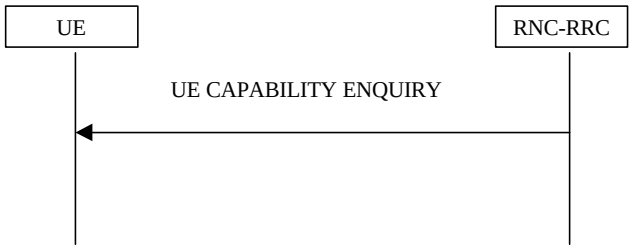



**Figure 41~~39~~~~32~~. UE capability Enquiry procedure.**

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 GSM capability information from a GSM-UMTS dual mode terminal.
The UE CAPABILITY ENQUIRY message is transmitted on the DCCH and it includes an indication of the desired UE capability information (e.g., GSM Classmark N)

### 8.3.8.6 Security mode control procedure

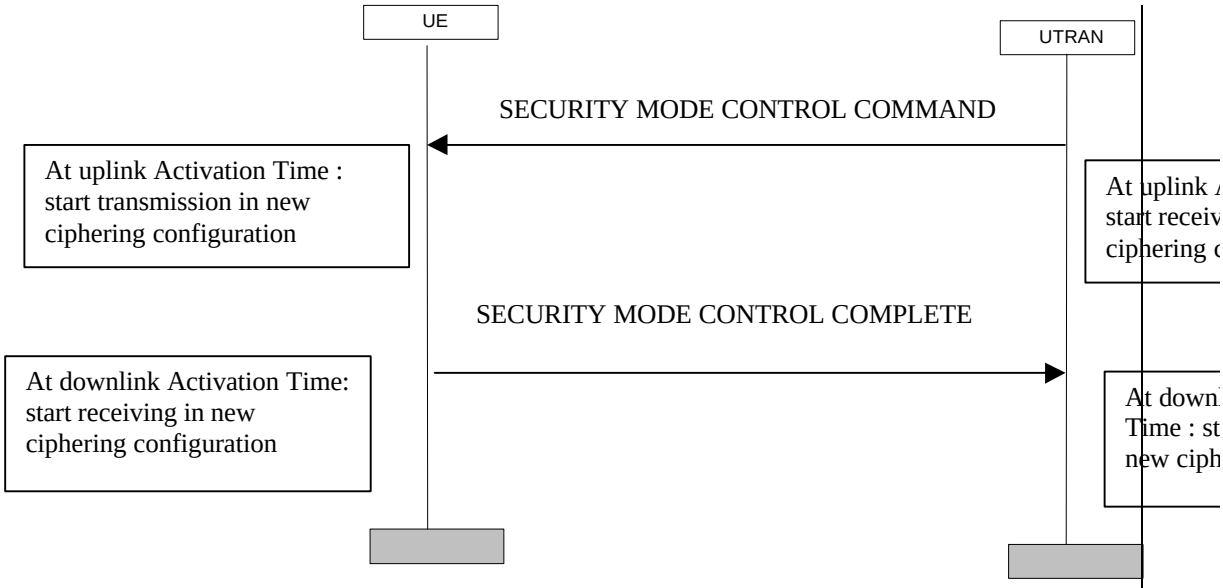



**Figure 4240)** *Security mode control procedure*

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.

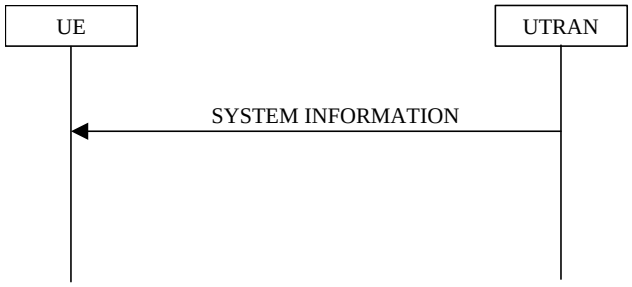
The SRNC sends a SECURITY MODE CONTROL COMMAND to the UE, which indicates the uplink Activation Time when the ciphering shall start to be applied in uplink. The SRNC then starts to decipher in the new ciphering configuration at the uplink Activation Time.

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.*

# 8.4 Procedures which apply to both idle and RRC Connected mode

## 8.4.1 Broadcast of system information




**~~Figure 5)~~ Figure 4341) Procedure for broadcast of system information**

This procedure is used for broadcasting system information from the network to idle mode- and connected mode ~~all~~ UEs in a cell. ~~Only UEs that listen to the logical channel BCCH can be reached by this procedure~~. The system information

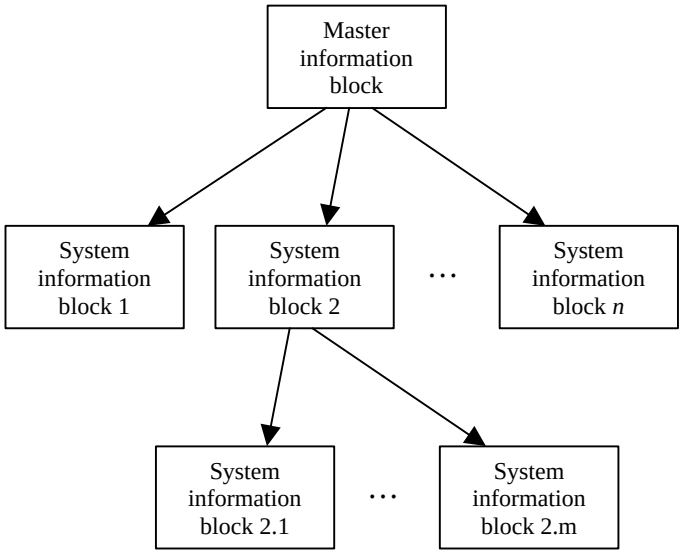
is repeated on a regular basis and it includes information from both the access stratum and the non-access stratum. The initiative to change the system information can come from both the access stratum and non-access stratum.

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. Idle mode- and connected mode UEs may acquire different combinations of 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 master information block is scheduled with a fixed pre-defined repetition rate.
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.

~~*Note: A system information block may be segmented and carried in several transport blocks, but this mechanism is FFS.*~~

Figure 6 illustrates the relationship between the master information block and the system information blocks in a cell.




~~Figure 6)~~ **Figure 4442) The overall structure of system information.**

The information may be grouped into the following classes:

- information giving unique identification of the current network, location area, UTRAN registration area and cell
- information used for candidate cell measurements for handover and cell selection procedures
- information describing the current control channel structure
- information for controlling the random access channel utilisation
- information for controlling the common packet channel utilisation
- information defining different options supported within the cell
- protocol information

*[Note: The actual grouping will be defined when the complete set of system information blocks have been specified. However, basically the same elementary procedure can be applied for all messages.]*

All system information blocks are broadcast on the BCCH. The BCCH is either mapped onto a BCH transport channel or a FACH transport channel.

*[Note: The DCCH might also be used to send modified system information blocks directly to the UE. This is FFS]*

~~Three ways have been identified by which this signalling can be conveyed:~~

~~- On DCCH *[Note: This is FFS. The DCCH might be used to send modified system information blocks directly to the UE.]*~~
~~- On BCCH *[Editors note, the BCCH may be used to convey information to a UE even when a DCCH exists. The current assumption is that where a DCH exists the BCCH is not used]*~~
~~- On CCCH mapped onto a FACH or a DSCH control transport channel (provided the DSCH control transport channel exists). *[Editors note ,the CCCH may be used to convey information to a UE even when a DCCH exists].*~~

> ~~*When a system information block on the BCCH is modified, the message PAGING TYPE 1 can be sent on the PCCH to inform UE's about the changes. The message includes the information element* BCCH Modification Information.~~

The UTRAN can notify the UE when system information blocks carried on the BCCH are modified. There are two ways to notify the UE:

- *On PCCH. The message PAGING TYPE 1 can be sent to all UE's on the PCCH to indicate that the system information has been modified. The message includes the information element* BCCH Modification Information.
- On B~~C~~CCH mapped onto a FACH transport channel. When system information is modified, the updated master information block can be broadcast ~~on CCCH~~ to all UEs listening to the FACH.

> [Note that other options will also be available to force the UE to re-read SYSTEM INFORMATION, for example timers in the UE could be used to trigger the UE into re-reading frequently changing SYSTEM INFORMATION].

# 9 Default actions on recepit of an IE~~Primitives between RRC and upper layers~~

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.

## 9.1 CN information elements

## 9.2 UTRAN mobility information elements

## 9.3 UE information elements

### 9.3.1 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.

*[Editor’s note: The new configuration is typically a dedicated physical channel present in the same message as the*

*"Activation time" IE.]*

# 9.4 Radio bearer information elements

# 9.5 Transport channel information elements

## 9.5.1 Transport Format Set

If the IEs "transport channel identity" and "Transport format set" is included, the UE shall

- store the transport format set for that transport channel.

## 9.5.2 Transport format combination set

If the IE "Transport format combination set" is included, the UE shall

- start to respect those transport format combinations.

## 9.5.3 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.

# 9.6 Physical channel information elements

## 9.6.1 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

## 9.6.2 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

## 9.6.3 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.

### 9.6.4 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 0.

### 9.6.5 Downlink DPCH info

If the IE “Downlink DPCH info” is included, the UE shall

- Activate the dedicated physical channels indicated by that IE

## 9.7 Measurement information elements

## 9.8 Other information elements

# 10 Message and information element functional definition and content

The function of each Radio Resource Control message together with message contents in the form of a list of information elements is defined in subclause 10.1.

Functional definitions of the information elements are then described in subclause 10.2.

Information elements are marked as either M- mandatory, O - Optional or C -conditional (see Table 1~~Table 1~~).

| Abbreviation | Meaning |
|---|---|
| M | IE's marked as Mandatory (M) will always be included in the message. |
| O | IE's marked as Optional (O) may or may not be included in the message. |
| C | IE's marked as Conditional (C) will be included in a message only if the condition is satisfied otherwise the IE is not included. |

**Table 1) meaning of abbreviations used in RRC messages and information elements**

## 10.1 Radio Resource Control messages

### 10.1.1 RRC Connection Mobility Messages

#### 10.1.1.1 ACTIVE SET UPDATE

*<Functional description of this message to be included here>*
RLC-SAP: t.b.d.
Logical channel: DCCH

Direction: UTRAN → UE

| Information Element | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| Message Type | M | | | |
| **UE information elements** | | | | |
| Activation time | O | | | |
| **Phy CH information elements** | | | | |
| Radio link addition information | | 0 to <MaxAddRLcount> | | Radio link addition information required for each RL to add |
| Primary CCPCH info | M | | | Note 1 |
| SSDT cell identity | C - ifSSDT~~O~~ | | | |
| Downlink DPCH info | M | | | |
| Radio link removal information | | 0 to <MaxDelRLcount> | | Radio link removal information required for each RL to remove |
| Primary CCPCH info | M | | | Note 1 |
| Gated Transmission Control Info | O | | | FFS, Note 2 |
| SSDT indicator | O | | | |

| Condition | Explanation |
|---|---|
| *ifSSDT* | This IE is only sent when SSDT is being used and a new radio link is added |

| Range bound | Explanation |
|---|---|
| *MaxAddRLcount* | Maximum number of radio links which can be added |
| *MaxDelRLcount* | Maximum number of radio links which can be removed/deleted |

~~*Range bound MaxAddRLcount*~~

~~Maximum number of radio links which can be added~~

~~*Range bound MaxDelRLcount*~~

~~Maximum number of radio links which can be removed/deleted~~

| ~~Information element category~~ | ~~Information elements~~ | ~~REFERENCE~~ | ~~TYPE~~ | ~~NOTE~~ | |
|---|---|---|---|---|---|
| | ~~Message Type~~ | | ~~M~~ | | |
| | | | | | |
| ~~UE information elements~~ | ~~Activation time~~ | | ~~O~~ | | |
| | | | | | |
| ~~Phy CH information elements~~ | ~~Primary CCPCH info~~ | | ~~M~~ | ~~Note 1~~ | ~~For each radio link to add~~ |
| | ~~SSDT cell identity~~ | | ~~O~~ | | |
| | ~~Downlink DPCH info~~ | | ~~M~~ | | |
| | | | | | |
| | ~~Primary CCPCH info~~ | | ~~M~~ | ~~Note 1~~ | ~~For each radio link to delete~~ |
| | | | | | |
| | ~~SSDT indicator~~ | | ~~O~~ | | |
| | | | | | |
| | | | | | |

*Note 1: If it is assumed that primary CCPCH downlink scrambling code is always allocated with sufficient reuse distances, primary CCPCH downlink scrambling code will be enough for designating the different radio links.*
*Note 2: The activation time should be present when the Gated Transmission control info is present in this message.*

## 10.1.1.2 ACTIVE SET UPDATE COMPLETE

*<Functional description of this message to be included here>*
RLC-SAP: t.b.d.
Logical channel: DCCH
Direction: UE→UTRAN

| Information Element | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| Message Type | M | | | |
| **Phy CH information elements** | | | | |
| SSDT indicator | O | | | |

| ~~Information element category~~ | ~~Information elements~~ | ~~REFERENCE~~ | ~~TYPE~~ | ~~NOTE~~ |
|---|---|---|---|---|
| | ~~Message Type~~ | | ~~M~~ | |
| | | | | |
| ~~Phy CH information elements~~ | ~~SSDT indicator~~ | | ~~O~~ | |
| | | | | |
| | | | | |

### 10.1.1.3 CELL UPDATE

This message is used by the UE to initiate a cell update procedure.
RLC-SAP: t.b.d.
Logical channel: CCCH~~t.b.d.~~
Direction: UE→UTRAN

| Information Element | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| Message Type | M | | | |
| **UE information elements** | | | | |
| SRNC identity | M | | | |
| S-RNTI | M | | | |
| Cell update cause | M | | | |
| AM_RLC error indication | O | | | Indicates AM_RLC unrecoverable error occurred on c-plane in the UE |
| **Measurement information elements** | | | | |
| Measurement identity number | | | | Intra-frequency measurement related report |
| Measured results | | | | |

| ~~Information element category~~ | ~~Information elements~~ | ~~REFERENCE~~ | ~~TYPE~~ | ~~NOTE~~ |
|---|---|---|---|---|
| | ~~Message Type~~ | | ~~M~~ | |
| | | | | |
| ~~UE information elements~~ | ~~S-RNTI~~ | | ~~M~~ | ~~FFS whether in RRC or MAC PDU.~~ |
| | ~~SRNC identity~~ | | ~~M~~ | |
| | ~~Cell update cause~~ | | ~~M~~ | |
| | | | | |
| ~~Measurement information elements~~ | ~~Measurement identity number~~ | | | ~~Intra-frequency measurement related report~~ |
| | ~~Measured results~~ | | | |
| | | | | |
| | | | | |

### 10.1.1.4 CELL UPDATE CONFIRM

This message confirms the cell update procedure and can be used to reallocate new RNTI information for the UE valid in the new cell.
RLC-SAP: Unacknowledged~~t.b.d.~~
Logical channel: DCCH~~t.b.d.~~
Direction: UTRAN→UE

| Information Element | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| Message Type | M | | | |
| **UE information elements** | | | | |
| ~~S-RNTI~~ | ~~M~~ | | | ~~FFS whether in RRC or MAC PDU~~ |
| ~~SRNC identity~~ | ~~M~~ | | | |
| SRNC identity | O | | | New SRNC identity |
| S-RNTI | O | | | New S-RNTI |
| C-RNTI | O | | | New C-RNTI |
| RLC re-configuration indicator | C-AM_RLC_recon | | | |
| **UTRAN mobility information elements** | | | | |
| URA update indicator | O | | | |
| URA identifier | O | | | |
| **CN information elements** | | | | |
| PLMN identity | O | | | (Note1,2) |
| CN related information | | 0 to <MaxNoCNdomains> | | CN related information to be provided for each CN domain |
| ~~PLMN identity~~ | ~~O~~ | | | ~~(Note1,2)~~ |
| CN domain identity | O | | | (Note1,2) |
| NAS system info | O | | | (Note1,2) |
| **Physical CH information elements (FFS Note 5)** | | | | |
| Frequency info | O (FFS) | | | |
| Uplink radio resources | | | | |
| Uplink DPCH power control info | O (FFS) | | | |
| CHOICE channel requirement | | | | |
| Uplink DPCH info | O (FFS) | | | |
| PRACH info (for RACH) | O (FFS) | | | |
| PRACH info (for FAUSCH) | O (FFS) | | | |
| Uplink timeslot info | O (FFS) | | | |
| Downlink radio resources | | | | |
| DL information per radio link | | 0 to <maxNoRLs> | | |
| Primary CCPCH info | O (FFS) | | | |
| Downlink DPCH info | O (FFS) | | | |
| Secondary CCPCH info | O (FFS) | | | |
| Downlink timeslot info | O (FFS) | | | Note 3 |
| SSDT indicator | O (FFS) | | | |
| CPCH SET Info | O (FFS) | | | UL/DL radio resource for CPCH control (Note4) |
| Gated Transmission Control info | O (FFS) | | | |
| Default DPCH Offset Value | O (FFS) | | | ~~FFS~~ |

| ~~Information element category~~ | ~~Information elements~~ | ~~REFERENCE~~ | ~~TYPE~~ | ~~NOTE~~ |
|---|---|---|---|---|
| | ~~Message Type~~ | | ~~M~~ | |
| | | | | |
| ~~UE information elements~~ | ~~S-RNTI~~ | | ~~M~~ | ~~FFS whether in RRC or MAC PDU.~~ |
| | ~~SRNC identity~~ | | ~~M~~ | |
| | ~~S-RNTI~~ | | ~~O~~ | ~~New S-RNTI~~ |
| | ~~SRNC identity~~ | | ~~O~~ | ~~New SRNC identity~~ |
| | ~~C-RNTI~~ | | ~~O~~ | ~~New C-RNTI~~ |
| | | | | |
| ~~UTRAN mobility information elements~~ | ~~URA update indicator~~ | | ~~O~~ | ~~When present, it instructs UE to make URA updating~~ |

| | | | | |
|---|---|---|---|---|
| | ~~URA identifier~~ | | ~~O~~ | ~~Indicates to the UE, which URA it shall use in case of overlapping URAs.~~ |
| | | | | |
| ~~CN information elements~~ | ~~PLMN identity~~ | | ~~O~~ | ~~(Note1,2)~~ |
| | ~~CN domain identity~~ | | ~~O~~ | ~~For each CN domain (Note1,2)~~ |
| | ~~NAS system info~~ | | ~~O~~ | ~~For each CN domain (Note1,2)~~ |
| | | | | |
| ~~Physical CH information elements~~ | ~~Default DPCH Offset Value~~ | | ~~O~~ | ~~FFS~~ |

| **CHOICE *channel requirement*** | **Condition under which the given *channel requirement* is chosen** |
|---|---|
| Uplink DPCH info | |
| PRACH info (for RACH) | |
| PRACH info (for FAUSCH) | |

| **Range Bound** | **Explanation** |
|---|---|
| *maxNoRLs* | Maximum number of radio links |
| *MaxNoCN domains* | Maximum number of CN domains |

| **Condition** | **Explanation** |
|---|---|
| *AM_RLC_recon* | This IE is only sent when the UTRAN requests AM RLC re-configuration |

~~*Range bound MaxNoCN domains*~~

~~Maximum number of CN domains~~

[Note1: It depends on the length of these information whether this message can be used to notify these information to UE.]
[Note2: Necessity of PLMN is FFS and for CN domain identity and NAS system information, the confirmation in SA WG2 is needed.]
Note 3: It is assumed that the DL timeslot configuration is the same for all radio links, whether or not macro-diversity is supported for TDD.
Note 4: How to map UL and DL radio resource in the message is FFS.
Note 5: The inclusion of any physical channel information elements requires further study

### 10.1.1.5 HANDOVER COMMAND

*<Functional description of this message to be included here>*
RLC-SAP: t.b.d.
Logical channel: DCCH
Direction: UTRAN → UE

| Information Element | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| Message Type | M | | | |
| **Phy CH information elements** | | | | |
| Frequency info | M | | | |
| Uplink radio resources | | | | |
| UL DPCH power control info | M | | | |
| UL DPCH info | M | | | |
| UL timeslot info | O | | | |
| Downlink radio resources | | | | |
| Link specific information | | 1~~0~~ to <MaxHoRL count> | | Provide information for each DL radio link. (Note 1) |
| Primary CCPCH info | M | | | |
| DL DPCH info | M | | | |
| ~~—~~DL timeslot info | O | | | Note 2 |
| SSDT indicator | O | | | |
| SSDT Cell ID | C ifSSDT | | | FFS |

| ~~Information element category~~ | ~~Information elements~~ | ~~REFERENCE~~ | ~~TYPE~~ | ~~NOTE~~ | |
|---|---|---|---|---|---|
| | ~~Message Type~~ | | ~~M~~ | | |
| | | | | | |
| ~~Phy CH information elements~~ | ~~Frequency info~~ | | ~~M~~ | | |
| | ~~UL DPCH power control info~~ | | ~~M~~ | | |
| | ~~UL DPCH info~~ | | ~~M~~ | | ~~Uplink radio resources~~ |
| | ~~UL timeslot info~~ | | ~~O~~ | | |
| | ~~Primary CCPCH info~~ | | ~~M~~ | ~~For each radio link. Note1~~ | ~~Downlink radio resources~~ |
| | ~~DL DPCH info~~ | | ~~M~~ | | |
| | ~~DL timeslot info~~ | | ~~O~~ | ~~Note 2~~ | |
| | ~~SSDT indicator~~ | | ~~O~~ | | |
| | | | | | |
| | | | | | |

| Condition | Explanation |
|---|---|
| *ifSSDT* | This IE is only sent when SSDT is used |

| Range Bound | Explanation |
|---|---|
| *MaxHoRLcount* | Maximum number of DL radio links which can be established on handover |

~~*Range bound MaxHoRLcount*~~

~~Maximum number of DL radio links which can be established on handover~~

Note1: The possibility to request the establishment of several radio links simultaneously with this message is FFS.
Note 2: It is assumed that the DL timeslot configuration is the same for all radio links, whether or not macro-diversity is supported for TDD.

## 10.1.1.6 HANDOVER COMPLETE

*<Functional description of this message to be included here>*
RLC-SAP: t.b.d.
Logical channel: DCCH
Direction: UE → UTRAN

| Information Element | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| Message Type | M | | | |
| **Phy CH information elements** | | | | |
| SSDT indicator | O | | | |

| ~~Information element category~~ | ~~Information elements~~ | ~~REFERENCE~~ | ~~TYPE~~ | ~~NOTE~~ |
|---|---|---|---|---|
| | ~~Message Type~~ | | ~~M~~ | |
| | | | | |
| ~~Phy CH information elements~~ | ~~SSDT indicator~~ | | ~~O~~ | |
| | | | | |
| | | | | |

### 10.1.1.7 INTER-SYSTEM HANDOVER COMMAND

This message is used for handover from UMTS to another system e.g. GSM. One or several messages from the other system can be included in the Inter-System message information element in this message. These messages are structured and coded according to that systems specification.

RLC-SAP: t.b.d.
Logical channel: DCCH
Direction: UTRAN→UE

| Information Element | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| Message Type | M | | | |
| **UE information elements** | | | | |
| Activation time | O | | | |
| **Other information elements** | | | | |
| Inter-System message | M | | | |

| ~~Information element category~~ | ~~Information elements~~ | ~~REFERENCE~~ | ~~TYPE~~ | ~~NOTE~~ |
|---|---|---|---|---|
| | ~~Message Type~~ | | ~~M~~ | |
| | | | | |
| ~~UE information elements~~ | ~~Activation time~~ | | ~~O~~ | |
| | | | | |
| ~~Other information elements~~ | ~~Inter-System message~~ | | ~~M~~ | |
| | | | | |
| | | | | |

### 10.1.1.8 INTER-SYSTEM HANDOVER FAILURE

This message is sent on the RRC connection used before the Inter-System Handover was executed. The message indicates that the UE has failed to seize the new channel in the other system.
RLC-SAP: t.b.d.
Logical channel: DCCH
Direction: UE→UTRAN

| Information Element | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| Message Type | M | | | |
| **UE information elements** | | | | |
| Inter-System handover failure cause | O | | | FFS |
| **Other Information elements** | | | | |
| Inter-System message | O | | | |

| ~~Information element category~~ | ~~Information elements~~ | ~~REFERENCE~~ | ~~TYPE~~ | ~~NOTE~~ |
|---|---|---|---|---|
| | ~~Message Type~~ | | ~~M~~ | |
| | | | | |
| ~~UE information elements~~ | ~~Inter-System handover failure cause~~ | | ~~O~~ | ~~FFS~~ |
| | | | | |
| ~~Other Information elements~~ | ~~Inter-System message~~ | | ~~O~~ | |
| | | | | |
| | | | | |

## 10.1.1.9 URA UPDATE

This message is used by the UE to initiate a URA update procedure.
RLC-SAP: t.b.d.
Logical channel: CCCH~~t.b.d.~~
Direction: UE→UTRAN

| Information Element | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| Message Type | M | | | |
| **UE information elements** | | | | |
| SRNC identity | M | | | |
| S-RNTI | M | | | ~~FFS whether in RRC or MAC PDU.~~ |
| URA update cause | M | | | |

| ~~Information element category~~ | ~~Information elements~~ | ~~REFERENCE~~ | ~~TYPE~~ | ~~NOTE~~ |
|---|---|---|---|---|
| | ~~Message Type~~ | | ~~M~~ | |
| | | | | |
| ~~UE information elements~~ | ~~S-RNTI~~ | | ~~M~~ | ~~FFS whether in RRC or MAC PDU.~~ |
| | ~~SRNC identity~~ | | ~~M~~ | |
| | ~~URA update cause~~ | | ~~M~~ | |
| | | | | |
| | | | | |

## 10.1.1.10 URA UPDATE CONFIRM

~~*<Functional description of this message to be included here>*~~This message confirms the URA update procedure and can be used to reallocate new RNTI information for the UE valid after the URA update.
RLC-SAP: t.b.d.
Logical channel: CCCH or DCCH~~t.b.d.~~
Direction: UTRAN→UE

| Information Element | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| Message Type | M | | | |
| **UE information elements** | | | | |
| SRNC identity | C-CCCH | | | ~~FFS whether in RRC or MAC PDU.~~ |
| S-RNTI | C-CCCH~~M~~ | | | |
| SRNC identity | O | | | New SRNC identity |
| S-RNTI | O | | | New S-RNTI |
| C-RNTI | O | | | New C-RNTI |
| **UTRAN mobility information elements** | | | | |
| URA identifier | O | | | |
| **CN information elements** | | | | |
| PLMN identity | O | | | (Note1,2) |
| CN related information | | 0 to <MaxNoCNdomains> | | CN related information to be provided for each CN domain |
| CN domain identity | O | | | (Note1,2) |
| NAS system info | O | | | (Note1,2) |
| | | | | |

| ~~Information element category~~ | ~~Information elements~~ | ~~REFERENCE~~ | ~~TYPE~~ | ~~NOTE~~ |
|---|---|---|---|---|
| | ~~Message Type~~ | | ~~M~~ | |
| | | | | |
| ~~UE information elements~~ | ~~S-RNTI~~ | | ~~M~~ | ~~FFS whether in RRC or MAC PDU.~~ |
| | ~~SRNC identity~~ | | ~~M~~ | |
| | ~~S-RNTI~~ | | ~~O~~ | ~~New S-RNTI~~ |
| | ~~SRNC identity~~ | | ~~O~~ | ~~New SRNC identity~~ |
| | ~~C-RNTI~~ | | ~~O~~ | ~~New C-RNTI~~ |
| | | | | |
| ~~UTRAN mobility information elements~~ | ~~URA identifier~~ | | ~~O~~ | ~~Indicates to the UE, which URA it shall use in case of overlapping URAs.~~ |
| | | | | |
| ~~CN information elements~~ | ~~PLMN identity~~ | | ~~O~~ | ~~(Note1,2)~~ |
| | ~~CN domain identity~~ | | ~~O~~ | ~~For each CN domain (Note1,2)~~ |
| | ~~NAS system info~~ | | ~~O~~ | ~~For each CN domain (Note1,2)~~ |
| | | | | |
| | | | | |

| Range Bound | Explanation |
|---|---|
| *MaxNoCN domains* | Maximum number of CN domains |

| Condition | Explanation |
|---|---|
| *CCCH* | This IE is only sent when CCCH is used |

~~*Range bound MaxNoCN domains*~~

~~Maximum number of CN domains~~

[Note1: It depends on the length of these information whether this message can be used to notify these information to UE.]
[Note2: Necessity of PLMN is FFS and for CN domain identity and NAS system information, the confirmation in SA WG2 is needed.]

## 10.1.1.11 RNTI REALLOCATION

*<Functional description of this message to be included here>*
RLC-SAP: t.b.d.
Logical channel: DCCH~~t.b.d.~~
Direction: UTRAN→UE

| Information Element | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| Message Type | M | | | |
| **UE information elements** | | | | |
| ~~S-RNTI~~ | ~~O~~ | | | ~~FFS whether in RRC or MAC PDU.~~ |
| ~~SRNC identity~~ | ~~O~~ | | | |
| S-RNTI | O | | | New S-RNTI |
| SRNC identity | O | | | New SRNC identity |
| C-RNTI | O | | | New C-RNTI |
| **CN information elements** | | | | |
| PLMN identity | O | | | (Note1,2) |
| CN related information | | 0 to <MaxNoCNdomains> | | CN related information to be provided for each CN domain |
| CN domain identity | O | | | (Note1,2) |
| NAS system info | O | | | (Note1,2) |
| | | | | |
| | | | | |

| ~~Information element category~~ | ~~Information elements~~ | ~~REFERENCE~~ | ~~TYPE~~ | ~~NOTE~~ |
|---|---|---|---|---|
| | ~~Message Type~~ | | ~~M~~ | |
| | | | | |
| ~~UE information elements~~ | ~~S-RNTI~~ | | ~~O~~ | ~~FFS whether in RRC or MAC PDU.~~ |
| | ~~SRNC identity~~ | | ~~O~~ | |
| | ~~S-RNTI~~ | | ~~O~~ | ~~New S-RNTI~~ |
| | ~~SRNC identity~~ | | ~~O~~ | ~~New SRNC identity~~ |
| | ~~C-RNTI~~ | | ~~O~~ | ~~New C-RNTI~~ |
| | | | | |
| ~~CN information elements~~ | ~~PLMN identity~~ | | ~~O~~ | ~~(Note1,2)~~ |
| | ~~CN domain identity~~ | | ~~O~~ | ~~For each CN domain (Note1,2)~~ |
| | ~~NAS system info~~ | | ~~O~~ | ~~For each CN domain (Note1,2)~~ |
| | | | | |
| | | | | |

| Range Bound | Explanation |
|---|---|
| *MaxNoCN domains* | Maximum number of CN domains |

~~*Range bound MaxNoCN domains*~~

~~Maximum number of CN domains~~

[Note1: It depends on the length of these information whether this message can be used to notify these information to UE.]
[Note2: Necessity of PLMN is FFS and for CN domain identity and NAS system information, the confirmation in SA WG2 is needed.]

## 10.1.1.12 RNTI REALLOCATION COMPLETE

This message is used to confirm the new RNTI information for the UE.
RLC-SAP: t.b.d.
Logical channel: DCCH
Direction: UE→UTRAN

| Information Element | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| Message Type | M | | | |

| ~~Information element category~~ | ~~Information elements~~ | ~~REFERENCE~~ | ~~TYPE~~ | ~~NOTE~~ |
|---|---|---|---|---|
| | ~~Message Type~~ | | ~~M~~ | |
| | | | | |
| | | | | |

## 10.1.2 Measurement Messages

### 10.1.2.1 MEASUREMENT CONTROL

*<Functional description of this message to be included here>*
RLC-SAP: t.b.d.
Logical channel: DCCH
Direction: UTRAN→UE

| Information Element | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| Message Type | M | | | |
| **Measurement Information elements** | | | | |
| Measurement Identity Number | M | | | |
| Measurement Command | M | | | |
| Measurement Type | O | | | |
| Measurement Reporting Mode | O | | | |
| **CHOICE Measurement** | | | | |
| Intra-frequency | | | | |
| Intra-frequency cell info | | | | Measurement object |
| Intra-frequency measurement quantity | C event trigger | | | |
| Intra-frequency measurement reporting quantity | O | | | Note 1 |
| **CHOICE report criteria** | | | | |
| Intra-frequency measurement reporting criteria | | | | |
| Periodical reporting | | | | |
| Inter-frequency | | | | |
| Inter-frequency cell info | | | | Measurement object |
| Inter-frequency measurement quantity | C event trigger | | | |
| Inter-frequency measurement reporting quantity | O | | | Note 1 |
| **CHOICE report criteria** | | | | |
| Inter-frequency measurement reporting criteria | | | | |
| Periodical reporting | | | | |
| Inter-system | | | | |
| Inter-system cell info | | | | Measurement object |
| Inter-system measurement quantity | C event trigger | | | |
| Inter-system measurement reporting quantity | O | | | Note 1 |
| **CHOICE report criteria** | | | | |
| Inter-system measurement reporting criteria | | | | |
| Periodical reporting | | | | |
| Traffic Volume | | | | |
| Traffic volume measurement Object | | | | |
| Traffic volume measurement quantity | C event trigger | | | |
| Traffic volume measurement reporting quantity | O | | | Note 1 |
| **CHOICE report criteria** | | | | |
| Traffic volume measurement reporting criteria | | | | |
| Periodical reporting | | | | |
| Quality | | | | |
| Quality measurement Object | | | | |
| Quality measurement quantity | C event trigger | | | |
| Quality measurement reporting quantity | O | | | Note 1 |
| **CHOICE report criteria** | | | | |
| Quality measurement reporting criteria | | | | |
| Periodical reporting | | | | |
| UE internal | | | | |
| UE internal measurement quantity | C event trigger | | | |

| | | | | |
|---|---|---|---|---|
| UE internal measurement reporting quantity | O | | | Note 1 |
| **CHOICE report criteria** | | | | |
| UE internal measurement reporting criteria | | | | |
| Periodical reporting | | | | |

| Information Element | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| Message Type | M | | | |
| **Measurement Information elements** | | | | |
| Measurement Identity Number | M | | | |
| Measurement Command | M | | | |
| Measurement Type | O | | | |
| Measurement Reporting Mode | O | | | |
| **CHOICE Measurement Object** | | | | |
| - Intra-frequency cell info | | | | If Measurement Type = Intra frequency measurement |
| - Inter-frequency cell info | | | | If Measurement Type = Inter frequency measurement |
| - Inter-system cell info | | | | If Measurement Type = Inter system measurement |
| - Traffic volume measurement object | | | | If Measurement Type = Traffic volume measurement |
| - Quality measurement object | | | | If Measurement Type = Quality measurement |
| **CHOICE Measurement Quantity** | C event trigger | | | |
| - Intra-frequency measurement quantity | | | | If Measurement Type = Intra frequency measurement |
| - Inter-frequency measurement quantity | | | | If Measurement Type = Inter frequency measurement |
| - Inter-system measurement quantity | | | | If Measurement Type = Inter system measurement |
| - Traffic volume measurement quantity | | | | If Measurement Type = Traffic volume measurement |
| - Quality measurement quantity | | | | If Measurement Type = Quality measurement |
| - UE Internal measurement quantity | | | | If Measurement Type = UE Internal measurement |
| **CHOICE Reporting quantity (Note 1)** | O | | | |
| - Intra-frequency measurement reporting quantity | | | | If Measurement Type = Intra frequency measurement |
| - Inter-frequency measurement reporting quantity | | | | If Measurement Type = Inter frequency measurement |
| - Inter-system measurement reporting quantity | | | | If Measurement Type = Inter system measurement |
| - Traffic volume measurement reporting quantity | | | | If Measurement Type = Traffic volume measurement |
| - Quality measurement reporting quantity | | | | If Measurement Type = Quality measurement |
| - UE Internal measurement reporting quantity | | | | If Measurement Type = UE Internal measurement |
| **CHOICE Measurement Reporting Criteria (Note 2)** | C | | | Periodical reporting criteria is used only in periodical reporting mode and others are used in event trigger mode |
| - Intra-frequency measurement reporting criteria | | | | If Measurement Type = Intra frequency measurement |
| - Inter-frequency measurement reporting criteria | | | | If Measurement Type = Inter frequency measurement |
| - Inter-system measurement reporting criteria | | | | If Measurement Type = Inter system measurement |
| - Traffic volume measurement reporting criteria | | | | If Measurement Type = Traffic volume measurement |
| - Quality measurement reporting criteria | | | | If Measurement Type = Quality measurement |
| - UE Internal measurement reporting criteria | | | | If Measurement Type = UE Internal measurement |
| - Periodical reporting criteria | | | | |

| Information element category | Information elements | | REFERENCE | TYPE | NOTE |
|---|---|---|---|---|---|
| | Message Type | | | M | |
| | | | | | |
| Measurement Information elements | Measurement Identity Number | | | M | |
| | Measurement Command | | | M | |
| | Measurement Type | | | O | |
| | Measurement Reporting Mode | | | O | |
| | Measurement Object | Intra-frequency cell info | | C | If Measurement Type = Intra frequency measurement |
| | | Inter-frequency cell info | | C | If Measurement Type = Inter frequency measurement |
| | | Inter-system cell info | | C | If Measurement Type = Inter system measurement |
| | | Traffic volume measurement object | | C | If Measurement Type = Traffic volume measurement |
| | | Quality measurement object | | C | If Measurement Type = Quality measurement |
| | | | | | |
| | Measurement Quantity (Note1) | Intra-frequency measurement quantity | | C | If Measurement Type = Intra frequency measurement |
| | | Inter-frequency measurement quantity | | C | If Measurement Type = Inter frequency measurement |
| | | Inter-system measurement quantity | | C | If Measurement Type = Inter system measurement |
| | | Traffic volume measurement quantity | | C | If Measurement Type = Traffic volume measurement |
| | | Quality measurement quantity | | C | If Measurement Type = Quality measurement |
| | | UE Internal measurement quantity | | C | If Measurement Type = UE Internal measurement |
| | | | | | |
| | Reporting quantity (Note2) | Intra-frequency measurement reporting quantity | | O | If Measurement Type = Intra frequency measurement |
| | | Inter-frequency measurement reporting quantity | | O | If Measurement Type = Inter frequency measurement |
| | | Inter-system measurement reporting quantity | | O | If Measurement Type = Inter system measurement |
| | | Traffic volume measurement reporting quantity | | O | If Measurement Type = Traffic volume measurement |
| | | Quality measurement reporting quantity | | O | If Measurement Type = Quality measurement |
| | | UE Internal measurement reporting quantity | | O | If Measurement Type = UE Internal measurement |
| | | | | | |
| | Measurement Reporting Criteria (Note3) | Intra-frequency measurement reporting criteria | | C | If Measurement Type = Intra frequency measurement |
| | | Inter-frequency measurement reporting criteria | | C | If Measurement Type = Inter frequency measurement |

| | | | | | |
|---|---|---|---|---|---|
| | | ~~Inter-system measurement reporting criteria~~ | | ~~C~~ | ~~If Measurement Type = Inter system measurement~~ |
| | | ~~Traffic volume measurement reporting criteria~~ | | ~~C~~ | ~~If Measurement Type = Traffic volume measurement~~ |
| | | ~~Quality measurement reporting criteria~~ | | ~~C~~ | ~~If Measurement Type = Quality measurement~~ |
| | | ~~UE Internal measurement reporting criteria~~ | | ~~C~~ | ~~If Measurement Type = UE Internal measurement~~ |
| | | ~~Periodical reporting criteria~~ | | ~~C~~ | |
| | | | | | |

| **Condition** | **Explanation** |
|---|---|
| *event trigger* | This element is only included in the message which is sent in event trigger reporting mode. |

| **CHOICE *Measurement*** | **Condition under which the given *Measurement* is chosen** |
|---|---|
| intra-frequency | if measurement type=Intra-frequency measurement |
| inter-frequency | if measurement type=Inter-frequency measurement |
| inter-system | if measurement type=Intra-system measurement |
| traffic volume | if measurement type=traffic volume measurement |
| Quality | if measurement type=Quality measurement |
| UE internal | if measurement type=UE internal measurement |
| | |
| **CHOICE *reporting criteria*** | **Condition under which the given *reporting criteria* is chosen** |
| ******* measurement reporting criteria | Chosen when event triggering is required |
| periodical reporting | Chosen when periodical reporting is required |

~~*Condition event trigger*~~

~~*This element is only necessary Note 1: Necessary only in event trigger reporting mode.*~~

Note 1~~2~~: It is FFS whether it is necessary to separate the reporting quantity for each type.
~~Note 23: Periodical reporting criteria is used only in periodical reporting mode and others are used in event trigger mode.~~
Note~~-~~ 2~~234~~: The network may order the UE to report other measurements when UE internal measurements are reported

## 10.1.2.2 MEASUREMENT REPORT

*<Functional description of this message to be included here>*
RLC-SAP: t.b.d.
Logical channel: DCCH
Direction: UE→UTRAN

| Information Element | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| Message Type | M | | | |
| **Measurement Information Elements** | | | | |
| Measurement report information | | 1~~0~~ to <maxMeas RepCount> | | Send Measurement Report information for each measurement report in the message (Note 1) |
| Measurement identity number | M | | | |
| Measured Results | C MR required~~No te 3~~ | | | |
| **CHOICE event result** | C event trigger | | | Note 1,2 |
| Intra-frequency measurement event results | | | | |
| Inter-frequency measurement event results | | | | |
| Inter-system measurement event results | | | | |
| Traffic volume measurement event results | | | | |
| Quality measurement event results | | | | |

| ~~Information element category~~ | ~~Information elements~~ | | ~~REFERENCE~~ | ~~TYPE~~ | ~~NOTE~~ | |
|---|---|---|---|---|---|---|
| | ~~Message Type~~ | | | ~~M~~ | | |
| | | | | | | |
| ~~Measurement Information elements~~ | ~~Measurement Identity Number~~ | | | ~~M~~ | | ~~For each meas.rep. in this message (Note 1)~~ |
| | | | | | | |
| | ~~Event Result~~ | ~~Intra-frequency measurement event results~~ | | ~~C~~ | ~~Necessary only in event trigger reporting mode (Note 2)~~ | |
| | | ~~Inter-frequency measurement event results~~ | | ~~C~~ | | |
| | | ~~Inter-system measurement event results~~ | | ~~C~~ | | |
| | | ~~Traffic volume measurement event results~~ | | ~~C~~ | | |
| | | ~~Quality measurement event results~~ | | ~~C~~ | | |
| | | | | | | |
| | ~~Measured Results~~ | | | ~~O~~ | ~~Necessary only when indicated optionally by Reporting Quantity in Measurement Control~~ | |
| | | | | | | |

| Condition | Explanation |
|---|---|
| *event trigger* | This element is only included in the message which is sent in event trigger reporting mode. |
| *MR required* | This information element is included by the sender only if indicated optionally by Reporting Quantity in Measurement Control |

| Range Bound | Explanation |
|---|---|

| | |
|---|---|
| *MaxMeasRepCount* | Maximum number of Measurement reports in a message |

| **CHOICE *event result*** | **Condition under which the given *event result* is chosen** |
|---|---|
| intra-frequency measurement event results | |
| inter-frequency measurement event results | |
| inter-system measurement event results | |
| traffic volume measurement event results | |
| Quality measurement event results | |

~~*Range bound MaxMeasRepCount*~~

~~Maximum number of Measurement reports in a message~~

~~*Condition event trigger*~~

~~*This element is only necessary in event trigger reporting mode.*~~

~~*Condition Note 3*~~

~~*Editors note) Agreed text is as follows, however it doesn't seem very clear: Necessary only when indicated optionally by Reporting Quantity in Measurement Control*~~

*Note 1: Whether~~If~~ it is possible to send multiple~~any~~ measurement results that are identified by different measurement identity numbers in the same Measurement Report is FFS. An alternative solution is to allow~~dmi~~t only one measurement identity number per Measurement Report and concatenate different Measurement Reports in the RLC layer instead.*

*Note 2: If it is possible to send many measurement results that are identified by different events in the same Measurement Report is FFS.*

## 10.1.3 Paging and Notification Messages

### 10.1.3.1 NOTIFICATION

*<Functional description of this message to be included here>*
RLC-SAP: t.b.d.
Logical channel: PCCH
Direction: UTRAN → UE

| **Information Element** | **Presence** | **Range** | **IE type and reference** | **Semantics description** |
|---|---|---|---|---|
| Message Type | M | | | |

| ~~**Information element category**~~ | ~~**Information elements**~~ | ~~**REFERENCE**~~ | ~~**TYPE**~~ | ~~**NOTE**~~ |
|---|---|---|---|---|
| | ~~Message Type~~ | | ~~M~~ | |
| | | | | |
| | | | | |

### 10.1.3.2 PAGING TYPE 1

This message is used to send information on the paging channel. One or several UEs, in idle or connected mode,can be paged in one message, which also can contain other information.

RLC-SAP: t.b.d.
Logical channel: PCCH
Direction: UTRAN → UE

| Information Element | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| Message Type | M | | | |
| **UE Information elements** | | | | |
| Paging record ~~information~~ | | 1~~0~~ to <Page Count> | | |
| ~~Paging record~~ | ~~M~~ | | | |
| **Other information elements** | | | | |
| BCCH modification info | O | | | FFS |

| ~~Information element Category~~ | ~~RRC Information element~~ | ~~REFERENCE~~ | ~~TYPE~~ | ~~NOTE~~ |
|---|---|---|---|---|
| | ~~Message Type~~ | | ~~M~~ | |
| | | | | |
| ~~UE Information elements~~ | ~~Paging record~~ | | ~~M~~ | ~~One paging record for each UE to be paged.~~ |
| | | | | |
| ~~Other information elements~~ | ~~BCCH modification info~~ | | ~~O~~ | ~~FFS~~ |
| | | | | |
| | | | | |

~~*Range bound Page Count*~~

~~Number of UE's paged in the Paging Type 1 message~~

| Range Bound | Explanation |
|---|---|
| *Page Count* | Number of UE's paged in the Paging Type 1 message |

## 10.1.3.3 PAGING TYPE 2

This message is used to page an UE in connected mode, when using the DCCH for CN originated paging.
RLC-SAP: t.b.d.
Logical channel: DCCH
Direction: UTRAN → UE

| Information Element | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| Message Type | M | | | |
| **CN Information elements** | | | | |
| CN domain identity | M | | | |
| **UE Information elements** | | | | |
| ~~CN domain identity~~ | ~~M~~ | | | |
| Paging cause | M | | | |

| ~~Information element Category~~ | ~~RRC Information element~~ | ~~REFERENCE~~ | ~~TYPE~~ | ~~NOTE~~ |
|---|---|---|---|---|
| | ~~Message Type~~ | | ~~M~~ | |
| | | | | |
| ~~UE Information elements~~ | ~~CN domain identity~~ | | ~~M~~ | |
| | | | | |
| | ~~Paging cause~~ | | ~~M~~ | |
| | | | | |
| | | | | |
| | | | | |

## 10.1.4 RRC Connection Establishment and maintenance messages

### 10.1.4.1 RRC CONNECTION RE-ESTABLISHMENT

*<Functional description of this message to be included here>*

RLC-SAP: t.b.d.

Logical channel: DCCH~~t.b.d.~~

Direction: UTRAN → UE

| Information Element | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| Message Type | M | | | |
| **Physical CH information elements (FFS Note 3)** | | | | |
| Frequency info | O (FFS) | | | |
| Uplink radio resources | | | | |
| Uplink DPCH power control info | O (FFS) | | | |
| CHOICE channel requirement | | | | |
| Uplink DPCH info | O (FFS) | | | |
| PRACH info (for RACH) | O (FFS) | | | |
| PRACH info (for FAUSCH) | O (FFS) | | | |
| Uplink timeslot info | O (FFS) | | | |
| Downlink radio resources | | | | |
| DL information per radio link | | 0 to <maxNoRLs> | | |
| Primary CCPCH info | O (FFS) | | | |
| Downlink DPCH info | O (FFS) | | | |
| Secondary CCPCH info | O (FFS) | | | |
| Downlink timeslot info | O (FFS) | | | Note 1 |
| SSDT indicator | O (FFS) | | | |
| CPCH SET Info | O (FFS) | | | UL/DL radio resource for CPCH control (Note 2) |
| Default DPCH Offset Value | O (FFS) | | | |

| ~~Information element category~~ | ~~Information elements~~ | ~~REFERENCE~~ | ~~TYPE~~ | ~~NOTE~~ |
|---|---|---|---|---|
| | ~~Message Type~~ | | ~~M~~ | |
| | | | | |
| ~~Physical CH information elements~~ | ~~Default DPCH Offset Value~~ | | ~~O~~ | |

| **CHOICE *channel requirement*** | **Condition under which the given *channel requirement* is chosen** |
|---|---|
| Uplink DPCH info | |
| PRACH info (for RACH) | |
| PRACH info (for FAUSCH) | |

| **Range Bound** | **Explanation** |
|---|---|
| *maxNoRLs* | Maximum number of radio links |

Note 1: It is assumed that the DL timeslot configuration is the same for all radio links, whether or not macro-diversity is supported for TDD.

Note 2: How to map UL and DL radio resource in the message is FFS.

Note 3: All parameters in this message are FFS

## 10.1.4.2 RRC CONNECTION RE-ESTABLISHMENT COMPLETE

*<Functional description of this message to be included here>*
RLC-SAP: t.b.d.
Logical channel: DCCH
Direction: UE → UTRAN

| Information Element | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| Message Type | M | | | |

| ~~Information element category~~ | ~~Information elements~~ | ~~REFERENCE~~ | ~~TYPE~~ | ~~NOTE~~ |
|---|---|---|---|---|
| | ~~Message Type~~ | | ~~M~~ | |
| | | | | |
| | | | | |

## 10.1.4.3 RRC CONNECTION RE-ESTABLISHMENT REQUEST

*<Functional description of this message to be included here>*
RLC-SAP: t.b.d.
Logical channel: CCCH~~t.b.d~~
Direction: UE → UTRAN

| Information Element | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| Message Type | M | | | |
| **UE information elements** | | | | |
| SRNC identity | M | | | |
| S-RNTI | M | | | ~~FFS whether conveyed on RRC or MAC.~~ |
| **Measurement information elements** | | | | |
| Measurement information | | 1~~0~~ to <MeasRep Count> | | Send Measurement information for each measurement report in the message |
| Measurement identity number | M | | | Refers to system information. Note 1 |
| Measured results | M | | | |

| ~~Information element category~~ | ~~Information elements~~ | ~~REFERENCE~~ | ~~TYPE~~ | ~~NOTE~~ | |
|---|---|---|---|---|---|
| | ~~Message Type~~ | | ~~M~~ | | |
| | | | | | |
| ~~UE information elements~~ | ~~S-RNTI~~ | | ~~M~~ | ~~FFS whether conveyed on RRC or MAC.~~ | |
| | ~~SRNC identity~~ | | ~~M~~ | | |
| | | | | | |
| ~~Measurement information elements~~ | ~~Measurement identity number~~ | | ~~M~~ | ~~Refers to system information. Note 1~~ | ~~For each measurement report~~ |
| | ~~Measured results~~ | | ~~M~~ | | |
| | | | | | |
| | | | | | |

Note 1: The necessity and usage of Measurement identity number in this message is FFS.

~~*Range bound MeasRepCount*~~

~~Number of measurement reports in the message~~

| Range Bound | Explanation |
|---|---|
| *MeasRepCount* | Number of measurement reports in the message |

## 10.1.4.4 RRC CONNECTION RELEASE

<*Functional description of this message to be included here*>
RLC-SAP: t.b.d.
Logical channel: DCCH
Direction: UTRAN→UE

| Information Element | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| Message Type | M | | | |
| **UE information elements** | | | | |
| Release cause | M | | | |
| Number of Quick Repeat | M | | | |

| ~~Information element category~~ | ~~Information elements~~ | ~~REFERENCE~~ | ~~TYPE~~ | ~~NOTE~~ |
|---|---|---|---|---|
| | ~~Message Type~~ | | ~~M~~ | |
| | | | | |
| ~~UE information elements~~ | ~~Release cause~~ | | ~~M~~ | |
| | | | | |
| | ~~Number of Quick Repeat~~ | | ~~M~~ | |
| | | | | |
| | | | | |

## 10.1.4.5 RRC CONNECTION RELEASE COMPLETE

<*Functional description of this message to be included here*>
RLC-SAP: t.b.d.
Logical channel: DCCH
Direction: UE → UTRAN

| Information Element | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| Message Type | M | | | |

| ~~Information element category~~ | ~~Information elements~~ | ~~REFERENCE~~ | ~~TYPE~~ | ~~NOTE~~ |
|---|---|---|---|---|
| | ~~Message Type~~ | | ~~M~~ | |
| | | | | |
| | | | | |

## 10.1.4.6 RRC CONNECTION REQUEST

RRC Connection Request is the first message transmitted by the UE when setting up an RRC Connection to the network.
RLC-SAP: t.b.d.
Logical channel: CCCH
Direction: UE → UTRAN

| Information Element | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| Message Type | M | | | |
| **UE information elements** | | | | |
| Initial UE identity | M | | | ~~FFS whether conveyed on RRC or MAC.~~ |
| Establishment cause | M | | | |
| Initial UE capability | O | | | Necessity is FFS |
| **Measurement information elements** | | | | |
| Measurement information | | 1~~0~~ to <MeasRep Count> | | Send Measurement information for each measurement report in the message |
| Measurement identity number | M | | | Refers to system information. Note 1 |
| Measured results | M | | | |

| ~~Information element category~~ | ~~Information elements~~ | ~~REFERENCE~~ | ~~TYPE~~ | ~~NOTE~~ | |
|---|---|---|---|---|---|
| | ~~Message Type~~ | | ~~M~~ | | |
| | | | | | |
| ~~UE information elements~~ | ~~Initial UE identity~~ | | ~~M~~ | ~~FFS whether conveyed on RRC or MAC.~~ | |
| | ~~Establishment cause~~ | | ~~M~~ | | |
| | ~~Initial UE capability~~ | | ~~O~~ | ~~Necessity is FFS~~ | |
| | | | | | |
| ~~Measurement information elements~~ | ~~Measurement identity number~~ | | ~~M~~ | ~~Refers to system information. Note 1~~ | ~~For each measurement report~~ |
| | ~~Measured results~~ | | ~~M~~ | | |
| | | | | | |
| | | | | | |

Note 1: The necessity and usage of Measurement identity number in this message is FFS.

~~*Range bound MeasRepCount*~~

~~Number of measurement reports in the message~~

| Range Bound | Explanation |
|---|---|
| *MeasRepCoun* | Number of measurement reports in the message |

## 10.1.4.7 RRC CONNECTION SETUP

This message is used by the network to accept the establishment of an RRC connection for an UE, including assignment of signalling link information, transport channel information and optionally physical channel information.
RLC-SAP: t.b.d.
Logical channel: CCCH
Direction: UTRAN → UE

| Information Element | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| Message Type | M | | | |
| **UE information elements** | | | | |
| Initial UE identity | M | | | ~~FFS whether conveyed on RRC or MAC.~~ |
| S-RNTI | M | | | |
| SRNC identity | M | | | |
| C-RNTI | O | | | Only if assigned to a common transport channel |
| Activation time | O | | | |
| **~~RAB~~RB information elements** | | | | |
| ~~RAB~~RB identity | M | | | Indicates the signalling link |
| Signalling link type | M | | | |
| ~~RAB~~RB multiplexing info | M | | | For the signalling link |
| **TrCH information elements** | | | | |
| TFCS | O | | | Uplink TFCS |
| TFCS | O | | | Downlink TFCS |
| TFC subset | O | | | |
| Uplink transport channel information~~s~~ | | 0 to <MaxULTrCHCount> | | Send transport channel information for each new Uplink transport channel |
| ~~Transport channel information~~ | | ~~0 to <MaxULTrCHCount>~~ | | ~~Send transport channel information for each new Uplink transport channel~~ |
| ~~—~~Transport channel identity | M | | | |
| ~~—~~TFS | M | | | |
| Downlink transport channel information~~s~~ | | 0 to <MaxDLTrCHCount> | | Send transport channel information for each new downlink transport channel |
| ~~Transport channel information~~ | | ~~0 to <MaxDLTrCHCount>~~ | | ~~Send transport channel information for each new downlink transport channel~~ |
| ~~—~~Transport channel identity | M | | | |
| ~~—~~TFS | M | | | |
| **PhyCH information elements** | | | | |
| Frequency info | O | | | |
| Uplink DPCH power control info | O | | | |
| Uplink radio resource information | ~~O~~ | | | |
| Uplink timeslot info | O | | | |
| **CHOICE channel requirement** | O | | | |
| Uplink DPCH info | | | | |
| PRACH info (for RACH) | | | | |
| Downlink radio resource information | | | | |
| Downlink DPCH power control info | O | | | |
| Downlink DPCH compressed mode info | O | | | |
| Downlink information | ~~O~~ | 0 to <MaxRLcount> | | Send downlink information for each radio link to be set-up |
| Primary CCPCH info | | | | |
| Downlink DPCH info | | | | |
| Secondary CCPCH info | | | | |
| Downlink timeslot info | O | | | Note 1 |
| SSDT indicator | O | | | FFS |
| SSDT Cell ID | C ifSSDT | | | FFS |
| CPCH SET Info | O | | | UL/DL radio resource for CPCH control (Note2) |
| Gated Transmission Control info | O, FFS | | | Note 3~~FFS~~ |
| Default DPCH Offset Value | O | | | |

| Information element category | Information elements | REFERENCE | TYPE | NOTE | |
|---|---|---|---|---|---|
| | Message Type | | M | | |
| | | | | | |
| UE information elements | Initial UE identity | | M | FFS whether conveyed on RRC or MAC. | |
| | S-RNTI | | M | | |
| | SRNC identity | | M | | |
| | C-RNTI | | O | Only if assigned to a common transport channel | |
| | Activation time | | O | | |
| | | | | | |
| RAB information elements | RAB identity | | M | Indicates the signalling link | |
| | Signalling link type | | M | | |
| | RAB multiplexing info | | M | For the signalling link | |
| | | | | | |
| TrCH information elements | TFCS | | O | Uplink TFCS | |
| | TFCS | | O | Downlink TFCS | |
| | TFC subset | | O | | |
| | Transport channel identity | | M | For each new transport channel | Uplink transport channels |
| | TFS | | M | | |
| | | | | | |
| | Transport channel identity | | M | For each new transport channel | Downlink transport channels |
| | TFS | | M | | |
| | | | | | |
| | | | | | |
| PhyCH information elements | Frequency info | | O | | |
| | Uplink DPCH power control info | | O | | |
| | | | | | |
| | Uplink DPCH info | | O | Maximum one of these | Uplink radio resources |
| | PRACH info | | O | | |
| | Uplink timeslot info | | O | | |
| | | | | | |
| | Primary CCPCH info | | O | For each radio link | Downlink radio resources |
| | Downlink DPCH info | | O | | |
| | Secondary CCPCH info | | O | | |
| | Downlink timeslot info | | O | Note 1 | |
| | | | | | |
| | SSDT indicator | | O | Necessity is FFS | |
| | Gated Transmission Control info | | O | FFS | |
| | Default DPCH Offset Value | | O | | |
| | | | | | |

| Condition | Explanation |
|---|---|
| *ifSSDT* | This IE is sent only when SSDT is to be used |

| Range Bound | Explanation |
|---|---|
| *MaxULTrCHCoun* | Maximum number of new uplink transport channels |
| *MaxDLTrCHCount* | Maximum number of new downlink transport channels |
| *MaxRLcoun* | Maximum number of radio links to be set up |

| CHOICE *channel requirement* | Condition under which the given *channel requirement* is chosen |
|---|---|
| Uplink DPCH info | |
| PRACH info | |

*Range bound MaxULTrCHCount*

Maximum number of new uplink transport channels

~~*Range bound MaxDLTrCHCount*~~

~~Maximum number of new downlink transport channels~~

~~*Range bound MaxRLcount*~~

~~Maximum number of radio links to be set up~~

Note 1: It is assumed that the DL timeslot configuration is the same for all radio links, whether or not macro-diversity is supported for TDD.
Note 2: How to map UL and DL radio resource in the message is FFS.
Note 3: The activation time should be present when the Gated Transmission control info is present in this message.

## 10.1.4.8 RRC CONNECTION SETUP COMPLETE

This message confirms the establishment of the RRC Connection by the UE.
RLC-SAP: t.b.d.
Logical channel: DCCH
Direction: UE → UTRAN

| Information Element | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| Message Type | M | | | |
| **Phy CH information elements** | ~~M~~ | | | |
| SSDT indicator | O | | | FFS |

| ~~Information element category~~ | ~~Information elements~~ | ~~REFERENCE~~ | ~~TYPE~~ | ~~NOTE~~ |
|---|---|---|---|---|
| | ~~Message Type~~ | | ~~M~~ | |
| ~~Phy CH information elements~~ | ~~SSDT indicator~~ | | ~~O~~ | ~~Necessity is FFS~~ |
| | | | | |

## 10.1.4.9 RRC CONNECTION REJECT

This message is transmitted by the network when the requested RRC connection cannot be accepted.
RLC-SAP: t.b.d.
Logical channel: CCCH
Direction: UTRAN → UE

| Information Element | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| Message Type | M | | | |
| **UE information elements** | | | | |
| Initial UE identity | M | | | ~~FFS whether conveyed on RRC or MAC.~~ |
| Rejection cause | M | | | |
| Wait time | O | | | |

| ~~Information element category~~ | ~~Information elements~~ | ~~REFERENCE~~ | ~~TYPE~~ | ~~NOTE~~ |
|---|---|---|---|---|
| | ~~Message Type~~ | | ~~M~~ | |
| | | | | |
| ~~UE information elements~~ | ~~Initial UE identity~~ | | ~~M~~ | ~~FFS whether conveyed on RRC or MAC.~~ |
| | ~~Rejection cause~~ | | ~~M~~ | |
| | ~~Wait time~~ | | ~~O~~ | |
| | | | | |
| | | | | |

## 10.1.4.10 RRC STATUS

This message is transmitted by the network when the network requests UE to release one of several signalling connections.
RLC-SAP: t.b.d.
Logical channel: DCCH
Direction: UTRAN → UE

| Information Element | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| Message Type | M | | | |
| **CN information elements** | | | | |
| CN domain identity | M | | | |

| ~~Information element category~~ | ~~Information elements~~ | ~~REFERENCE~~ | ~~TYPE~~ | ~~NOTE~~ |
|---|---|---|---|---|
| | ~~Message Type~~ | | ~~M~~ | |
| | | | | |
| ~~CN information elements~~ | ~~CN domain identity~~ | | ~~M~~ | |
| | | | | |
| | | | | |

## 10.1.4.11 RRC STATUS ACK

This message is transmitted by UE as an acknowledgement for RRC STATUS message.
RLC-SAP: t.b.d.
Logical channel: DCCH
Direction: UE → UTRAN

| Information Element | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| Message Type | M | | | |

| ~~Information element category~~ | ~~Information elements~~ | ~~REFERENCE~~ | ~~TYPE~~ | ~~NOTE~~ |
|---|---|---|---|---|
| | ~~Message Type~~ | | ~~M~~ | |
| | | | | |
| | | | | |

## 10.1.5 Radio ~~Access~~ Bearer control messages

### 10.1.5.1 PHYSICAL CHANNEL RECONFIGURATION

This message is used by UTRAN to assign, replace or release a set of physical channels used by a UE.
RLC-SAP: t.b.d.
Logical channel: DCCH
Direction: UTRAN → UE

| Information Element | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| Message Type | M | | | |
| **UE Information elements** | | | | |
| Activation time | O | | | |
| C-RNTI | C - RACH/FACH | | | |
| **UTRAN mobility Information elements** | | | | |
| URA update indicator | C - PCH and optional | | | |
| **Physical Channel information elements** | | | | |
| Frequency info | O | | | |
| Uplink DPCH power control info | O | | | |
| Uplink radio resource information | | | | |
| **CHOICE channel requirement** | O | | | |
| Uplink DPCH info | | | | |
| PRACH Info (for RACH) | | | | |
| PRACH info (for FAUSCH) | | | | |
| Uplink timeslot info | O | | | |
| Downlink radio resource information | | | | |
| Downlink DPCH power control info | O | | | |
| Downlink DPCH compressed mode info | O | | | |
| Downlink information | ~~O~~ | 0 to <Max RLcount> | | Send downlink information for each radio link |
| Primary CCPCH info | | | | |
| Downlink DPCH info | | | | |
| Secondary CCPCH info | | | | For FACH |
| Secondary CCPCH info | | | | For PCH |
| Downlink timeslot info | O | | | Note 1 |
| SSDT indicator | O | | | FFS |
| SSDT Cell ID | C ifSSDT | | | FFS |
| CPCH SET Info | O | | | UL/DL radio resource for CPCH control (Note2) |
| ~~Gated Transmission Control info~~ | ~~O~~ | | | ~~FFS~~ |
| Default DPCH Offset Value | O | | | |

| ~~Information element category~~ | ~~Information elements~~ | ~~REFERENCE~~ | ~~TYPE~~ | ~~NOTE~~ | |
|---|---|---|---|---|---|
| | ~~Message Type~~ | | ~~M~~ | | |
| | | | | | |
| ~~UE Information elements~~ | ~~Activation time~~ | | ~~O~~ | | |
| | ~~C-RNTI~~ | | ~~O~~ | ~~Only RACH/FACH~~ | |
| | | | | | |
| ~~UTRAN mobility Information elements~~ | ~~URA update indicator~~ | | ~~O~~ | ~~When PCH shall be used, and when present, it instructs the UE to make URA updating~~ | |
| | | | | | |
| ~~PhyCH information elements~~ | ~~Uplink DPCH power control info~~ | | ~~O~~ | | |
| | ~~Frequency info~~ | | ~~O~~ | | |
| | ~~Uplink DPCH info~~ | | ~~O~~ | ~~Maximum one of these~~ | ~~Uplink radio resources~~ |
| | ~~PRACH info~~ | | ~~O~~ | | |
| | ~~Uplink time slot info~~ | | ~~O~~ | | |
| | | | | | |
| | ~~Primary CCPCH info~~ | | ~~O~~ | ~~For each radio link~~ | ~~Downlink radio resources~~ |
| | ~~Downlink DPCH info~~ | | ~~O~~ | | |
| | ~~Secondary CCPCH info~~ | | ~~O~~ | ~~For FACH~~ | |
| | ~~Secondary CCPCH info~~ | | ~~O~~ | ~~For PCH~~ | |
| | ~~Downlink timeslot info~~ | | ~~O~~ | ~~Note 1~~ | |
| | | | | | |
| | ~~SSDT indicator~~ | | ~~O~~ | ~~Necessity is FFS~~ | |
| | | | | | |
| | ~~Gated Transmission Control info~~ | | ~~O~~ | ~~FFS~~ | |
| | ~~Default DPCH Offset Value~~ | | ~~O~~ | | |
| | | | | | |

| **Condition** | **Explanation** |
|---|---|
| *ifSSDT* | This IE is only sent when SSDT is used and when a new DCH is being activated |
| *RACH/FACH* | This information element is only included in the sent message when using RACH/FACH |
| *PCH* | This information element is only included in the sent message when PCH is being used and is optional even then. |

| **Range Bound** | **Explanation** |
|---|---|
| *MaxRLcount* | Maximum number of radio links to be set up |

| **CHOICE *channel requirement*** | **Condition under which the given *channel requirement* is chosen** |
|---|---|
| Uplink DPCH info | |
| PRACH info (for FAUSCH) | |
| PRACH info (for RACH) | |

~~*Condition RACH/FACH*~~

~~This information element is only sent when using RACH/FACH~~

~~*Condition PCH*~~

~~This information element is only used when PCH is being used and is optional even then.~~

~~*Range bound MaxRLcount*~~

~~Maximum number of radio links to be set up~~

Note 1: It is assumed that the DL timeslot configuration is the same for all radio links, whether or not macro-diversity is supported for TDD.
Note 2: How to map UL and DL radio resource in the message is FFS.

### 10.1.5.2 PHYSICAL CHANNEL RECONFIGURATION COMPLETE

This message is sent from the UE when a physical channel reconfiguration has been done.
RLC-SAP: t.b.d.
Logical channel: DCCH
Direction: UE → UTRAN

| Information Element | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| Message Type | M | | | |
| **Phy CH information elements** | | | | |
| SSDT indicator | O | | | Necessity is FFS |

| ~~Information element category~~ | ~~Information elements~~ | ~~REFERENCE~~ | ~~TYPE~~ | ~~NOTE~~ |
|---|---|---|---|---|
| | ~~Message Type~~ | | ~~M~~ | |
| | | | | |
| ~~Phy CH information elements~~ | ~~SSDT indicator~~ | | ~~O~~ | ~~Necessity is FFS~~ |
| | | | | |
| | | | | |

### 10.1.5.3 RADIO ~~ACCESS~~ BEARER RECONFIGURATION

This message is sent from UTRAN to reconfigure parameters related to a change of QoS. This procedure can also change the multiplexing of MAC, reconfigure transport channels and physical channels.
RLC-SAP: t.b.d.
Logical channel: DCCH
Direction: UTRAN → UE

| Information Element | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| Message Type | M | | | |
| **UE Information elements** | | | | |
| Activation time | O | | | |
| C-RNTI | C - RACH/FACH | | | |
| **~~RAB~~RB information elements** | | | | |
| ~~RAB~~RB information | | 0 to <Max~~RAB~~RBcount> | | ~~RAB~~RB information is sent for each ~~RAB~~RB affected by this message |
| ~~RAB~~RB identity | M | | | |
| RLC info | O | | | FFS |
| ~~RAB~~RB multiplexing info | M | | | |
| **Transport Channel Information Elements** | | | | |
| TFCS | O | | | for uplink DCHs |
| TFCS | O | | | for downlink DCHs |
| TFC subset | O | | | for DCHs in uplink |
| Uplink transport channels | | | | |
| Transport channel identity | ~~O~~ | 0 to <MaxDelTrCH> | | |
| Reconfigured TrCH information | ~~O~~ | 0 to <MaxReconAddTrCH> | | |
| Transport channel identity | M | | | |
| TFS | M | | | |
| DRAC information | C DRAC | 1~~0~~ to <MaxReconAddTrCH> | | |
| Dynamic Control | | | | |
| Transmission time validity | | | | |
| Time duration before retry | | | | |
| Silent period duration before release | | | | |
| Downlink transport channels | | | | |
| Transport channel identity | ~~O~~ | 0 to <MaxDelTrCH> | | |
| Reconfigured TrCH information | | 0 to <MaxReconAddTrCH> | | |
| Transport channel identity | M | | | |
| TFS | M | | | |
| **Physical Channel information elements** | | | | |
| Frequency info | O | | | |
| Uplink DPCH power control info | O | | | |
| Uplink radio resource information | O | | | |
| **CHOICE channel requirement** | O | | | |
| Uplink DPCH info | | | | |
| PRACH info (for RACH) | | | | |
| PRACH info (for FAUSCH) | | | | |
| Uplink timeslot info | O | | | |
| Downlink radio resource information | | | | |
| Downlink DPCH power control info | O | | | |
| Downlink DPCH compressed | O | | | |

| | | | | |
|---|---|---|---|---|
| mode info | | | | |
| Downlink information | ~~O~~ | 0 to <Max RLcount> | | Send downlink information for each radio link |
| Primary CCPCH info | | | | |
| Downlink DPCH info | | | | |
| Secondary CCPCH info | | | | |
| Downlink timeslot info | O | | | Note 1 |
| SSDT indicator | O | | | FFS |
| CPCH SET Info | O | | | UL/DL radio resource for CPCH control (Note2) |
| Gated Transmission Control info | O | | | FFS, Note 3 |
| Default DPCH Offset Value | O | | | |

| ~~Information element category~~ | ~~Information elements~~ | ~~REFERENCE~~ | ~~TYPE~~ | ~~NOTE~~ | |
|---|---|---|---|---|---|
| | ~~Message Type~~ | | ~~M~~ | | |
| | | | | | |
| ~~UE Information elements~~ | ~~Activation time~~ | | ~~O~~ | | |
| | ~~C-RNTI~~ | | | ~~Only RACH/FACH~~ | |
| | | | | | |
| ~~RAB information elements~~ | ~~RAB identity~~ | | ~~M~~ | | ~~For each RAB affected by this message~~ |
| | ~~RLC info~~ | | ~~O~~ | ~~FFS~~ | |
| | ~~RAB multiplexing info~~ | | ~~M~~ | | |
| | | | | | |
| ~~TrCH information elements~~ | ~~TFCS~~ | | ~~O~~ | ~~for uplink DCHs~~ | |
| | ~~TFCS~~ | | ~~O~~ | ~~for downlink DCHs~~ | |
| | ~~TFC subset~~ | | ~~O~~ | ~~for DCHs in uplink~~ | |
| | | | | | |
| | ~~Transport channel identity~~ | | ~~O~~ | ~~For each removed transport channel~~ | ~~Uplink transport channels~~ |
| | ~~Transport channel identity~~ | | ~~O~~ | ~~For each reconfigured or added transport channel~~ | |
| | | | | | |
| | ~~TFS~~ | | ~~O~~ | | |
| | ~~Dynamic Control~~ | | ~~O~~ | ~~For each reconfigured or added transport channel controlled by DRAC~~ | |
| | ~~Transmission time validity~~ | | ~~O~~ | | |

| | | | | | |
|---|---|---|---|---|---|
| | ~~Time duration before retry~~ | | ~~O~~ | | |
| | ~~Silent period duration before release~~ | | ~~O~~ | | |
| | | | | | |
| | ~~Transport channel identity~~ | | ~~O~~ | ~~For each removed transport channel~~ | ~~Downlink transport channels~~ |
| | ~~Tranpsort channel identity~~ | | ~~O~~ | ~~For each reconfigured or added transport channel~~ | |
| | ~~TFS~~ | | ~~O~~ | | |
| | | | | | |
| ~~PhyCH information elements~~ | ~~Uplink DPCH power control info~~ | | ~~O~~ | | |
| | | | | | |
| | ~~Frequency info~~ | | ~~O~~ | | |
| | | | | | |
| | ~~Uplink DPCH info~~ | | ~~O~~ | ~~Maximum one of these~~ | ~~Uplink radio resources~~ |
| | ~~PRACH info~~ | | ~~O~~ | | |
| | ~~Uplink timeslot info~~ | | ~~O~~ | | |
| | | | | | |
| | ~~Primary CCPCH info~~ | | ~~O~~ | ~~For each radio link~~ | ~~Downlink radio resources~~ |
| | ~~Downlink DPCH info~~ | | ~~O~~ | | |
| | ~~Secondary CCPCH info~~ | | ~~O~~ | | |
| | ~~Downlink timeslot info~~ | | ~~O~~ | ~~Note 1~~ | |
| | | | | | |
| | ~~SSDT indicator~~ | | ~~O~~ | ~~Necessity is FFS~~ | |
| | | | | | |
| | ~~Gated Transmission Control info~~ | | ~~O~~ | ~~FFS~~ | |
| | ~~Default DPCH Offset Value~~ | | ~~O~~ | | |
| | | | | | |

| **Condition** | **Explanation** |
|---|---|
| *RACH/FACH* | This information element is only sent when using RACH/FACH |
| *DRAC* | These information elements are only sent for transport channels which use the DRAC procedure |

| **Range Bound** | **Explanation** |
|---|---|
| *MaxRLcount* | Maximum number of radio links |
| *MaxRBcount* | Maximum number of RBs to be reconfigured |
| *MaxDelTrCHcount* | Maximum number of Transport CHannels to be removed |
| *MaxReconAddTrCH* | Maximum number of transport channels to add and reconfigure |

| **CHOICE *channel requirement*** | **Condition under which the given *channel requirement* is chosen** |
|---|---|
| Uplink DPCH info | |
| PRACH info (for RACH) | |
| PRACH info (for FAUSCH) | |

~~*Condition RACH/FACH*~~

~~This information element is only sent when using RACH/FACH~~

~~*Condition DRAC*~~

~~These information elements are only sent for transport channels which use the DRAC procedure~~

~~*Range bound MaxRLcount*~~

~~Maximum number of radio links~~

~~*Range bound MaxRABcount*~~

~~Maximum number of RABs to be reconfigured~~

~~*Range bound MaxDelTrCHcount*~~

~~Maximum number of Transport CHannels to be removed~~

~~*Range bound MaxReconAddTrCH*~~

~~Maximum number of transport channels to add and reconfigure~~

Note 1: It is assumed that the DL timeslot configuration is the same for all radio links, whether or not macro-diversity is supported for TDD.
Note 2: How to map UL and DL radio resource in the message is FFS.
Note 3: The activation time should be present when the Gated Transmission control info is present in this message.

### 10.1.5.4 RADIO ~~ACCESS~~ BEARER RECONFIGURATION COMPLETE

This message is sent from the UE when a ~~RAB~~RB and signalling link reconfiguration has been done.
RLC-SAP: t.b.d.
Logical channel: DCCH
Direction: UE → UTRAN

| Information Element | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| Message Type | M | | | |
| **Phy CH information elements** | | | | |
| SSDT indicator | O | | | FFS |

| ~~Information element category~~ | ~~Information elements~~ | ~~REFERENCE~~ | ~~TYPE~~ | ~~NOTE~~ |
|---|---|---|---|---|
| | ~~Message Type~~ | | ~~M~~ | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| ~~Phy CH information elements~~ | ~~SSDT indicator~~ | | ~~O~~ | ~~Necessity is FFS~~ |
| | | | | |
| | | | | |

### 10.1.5.5 RADIO ~~ACCESS~~ BEARER RELEASE

*<Functional description of this message to be included here>*
RLC-SAP: t.b.d.
Logical channel: DCCH
Direction: UTRAN → UE

| Information Element | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| Message Type | M | | | |
| **UE Information elements** | | | | |
| Activation time | O | | | |
| C-RNTI | C - RACH/FACH | | | |
| **~~RAB~~RB information elements** | | | | |
| ~~RAB~~RB identity | ~~M~~ | 1~~0~~ to <MaxRel~~R~~ ~~AB~~RBcount> | | |
| ~~RAB~~RB identity | ~~O~~ | 0 to <MaxOther ~~RAB~~RBcount> | | |
| ~~RAB~~RB multiplexing info | O | | | |
| **Transport Channel Information Elements** | | | | |
| TFCS | O | | | for uplink DCHs |
| TFCS | O | | | for downlink DCHs |
| TFC subset | O | | | for DCHs in uplink |
| Uplink transport channels | | | | |
| Transport channel identity | ~~O~~ | 0 to <MaxDelTrCH> | | |
| Reconfigured TrCH information | ~~O~~ | 0 to <MaxReconAddFFSTrCH> | | |
| Transport channel identity | M | | | |
| TFS | M | | | |
| DRAC information | C DRAC | 1~~0~~ to <MaxReconAddFFSTrCH> | | |
| Dynamic Control | | | | |
| Transmission time validity | | | | |
| Time duration before retry | | | | |
| Silent period duration before release | | | | |
| Downlink transport channels | | | | |
| Transport channel identity | ~~O~~ | 0 to <MaxDelTrCH> | | |
| Reconfigured TrCH information | ~~O~~ | 0 to <MaxReconAddTrCH> | | Editor : this limit should probably also be MaxReconAddFFSTrCH |
| Transport channel identity | M | | | |
| TFS | M | | | |
| **Physical Channel information elements** | | | | |
| Frequency info | O | | | |
| Uplink DPCH power control info | O | | | |
| Uplink radio resource information | O | | | |
| Gated Transmission Control info | O, FFS | | | Note 3 |
| CPCH SET Info | O | | | UL/DL radio resource for CPCH control (Note2) |
| **CHOICE channel requirement** | O | | | |
| Uplink DPCH info | | | | |
| PRACH info (for FAUSCH) | | | | |
| PRACH info (for RACH) | | | | |

| | | | | |
|---|---|---|---|---|
| Uplink timeslot info | O | | | |
| Downlink radio resource information | | | | |
| Downlink information | ~~O~~ | 0 to <Max RLcount> | | Send downlink information for each radio link to be set-up |
| Primary CCPCH info | | | | |
| Downlink DPCH info | | | | |
| Secondary CCPCH info | | | | |
| Downlink timeslot info | O | | | Note 1 |

| Information element category | Information elements | REFERENCE | TYPE | NOTE | |
|---|---|---|---|---|---|
| | Message Type | | M | | |
| | | | | | |
| UE Information elements | Activation time | | O | | |
| | C-RNTI | | O | Only RACH/FACH | |
| | | | | | |
| RAB information elements | RAB identity | | M | For each released RAB | |
| | RAB identity | | O | For each other RAB affected by this message | |
| | RAB multiplexing info | | O | | |
| | | | | | |
| TrCH information elements | TFCS | | O | for uplink DCHs | |
| | | | | | |
| | TFCS | | O | for downlink DCHs | |
| | | | | | |
| | TFC subset | | O | for DCHs in uplink | |
| | | | | | |
| | Transport channel identity | | O | For each removed transport channel | Uplink transport channels |
| | Transport channel identity | | O | For each reconfigured or added (FFS) transport channel | |
| | TFS | | O | | |
| | Dynamic Control | | O | For each reconfigured or added (FFS) transport channel, controlled by DRAC | |
| | Transmission time validity | | O | | |
| | Time duration before retry | | O | | |
| | Silent period duration before release | | O | | |
| | | | | | |
| | Transport channel identity | | O | For each removed transport channel | Downlink transport channels |
| | Transport channel identity | | O | For each reconfigured or added transport channel | |
| | TFS | | O | | |
| | | | | | |
| PhyCH information elements | Uplink DPCH power control info | | O | | |
| | | | | | |
| | Frequency info | | O | | |
| | | | | | |
| | Uplink DPCH info | | O | Maximum one of these | Uplink radio resources |
| | PRACH info | | O | | |
| | Uplink timeslot info | | O | | |
| | | | | | |
| | Primary CCPCH info | | O | For each radio link | Downlink radio resources |
| | Downlink DPCH info | | O | | |
| | Secondary CCPCH info | | O | | |
| | Downlink timeslot info | | O | Note 1 | |
| | | | | | |
| | | | | | |

| Condition | Explanation |
|---|---|
| *RACH/FACH* | This information element is only sent when using RACH/FACH |
| *DRAC* | These information elements are only sent for |

| | |
|---|---|
| | transport channels which use the DRAC procedure |

| **Range Bound** | **Explanation** |
|---|---|
| *MaxRLcount* | Maximum number of radio links |
| *MaxDelRBcount* | Maximum number of RBs to be released/deleted |
| *MaxOtherRBcount* | Maximum number of Other RBs (ie RB's not being released) affected by the procedure |
| *MaxDelTrCHcount* | Maximum number of Transport CHannels to be removed |
| *MaxReconAddFFSTrCH* | Maximum number of transport channels to add (FFS) and reconfigure |

| **CHOICE *channel requirement*** | **Condition under which the given *channel requirement* is chosen** |
|---|---|
| Uplink DPCH info | |
| PRACH Info (for RACH) | |
| PRACH info (for FAUSCH) | |

~~*Condition RACH/FACH*~~

~~This information element is only sent when using RACH/FACH~~

~~*Condition DRAC*~~

~~These information elements are only sent for transport channels which use the DRAC procedure~~

~~*Range bound MaxRLcount*~~

~~Maximum number of radio links~~

~~*Range bound MaxDelRABcount*~~

~~Maximum number of RABs to be released/deleted~~

~~*Range bound MaxOtherRABcount*~~

~~Maximum number of Other RABs (ie RAB's not being released) affected by the procedure~~

~~*Range bound MaxDelTrCHcount*~~

~~Maximum number of Transport CHannels to be removed~~

~~*Range bound MaxReconAddFFSTrCH*~~

~~Maximum number of transport channels to add (FFS) and reconfigure~~

Note 1: It is assumed that the DL timeslot configuration is the same for all radio links, whether or not macro-diversity is supported for TDD.
Note 2: How to map UL and DL radio resource in the message is FFS.
Note 3: The activation time should be present when the Gated Transmission control info is present in this message.

## 10.1.5.6 RADIO ~~ACCESS~~ BEARER RELEASE COMPLETE

*<Functional description of this message to be included here>*
RLC-SAP: t.b.d.
Logical channel: DCCH

Direction: UE → UTRAN

| Information Element | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| Message Type | M | | | |
| | | | | |

| ~~Information element category~~ | ~~Information elements~~ | ~~REFERENCE~~ | ~~TYPE~~ | ~~NOTE~~ |
|---|---|---|---|---|
| | ~~Message Type~~ | | ~~M~~ | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

## 10.1.5.7 RADIO ~~ACCESS~~ BEARER SETUP

*<Functional description of this message to be included here>*
RLC-SAP: t.b.d.
Logical channel: DCCH
Direction: UTRAN → UE

| Information Element | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| Message Type | M | | | |
| **CN information elements** | | | | |
| NAS binding info | M | | | |
| CN domain identity | | | | |
| **UE Information elements** | | | | |
| Activation time | O | | | |
| C-RNTI | C - RACH/FACH | | | |
| **~~RAB~~RB information elements** | | | | |
| ~~RAB~~RB identity | M | | | For the new ~~RAB~~RB |
| RLC info | M | | | |
| ~~RAB~~RB multiplexing info | M | | | |
| Information for other ~~RAB~~RB's affected by this message | ~~O~~ | 0 to <MaxOther ~~RAB~~RBcount> | | |
| ~~RAB~~RB identity | M | | | |
| ~~RAB~~RB multiplexing info | M | | | |
| **Transport Channel Information Elements** | | | | |
| TFCS | O | | | for uplink DCHs |
| TFCS | O | | | for downlink DCHs |
| TFC subset | O | | | for DCHs in uplink |
| Uplink transport channels | | | | |
| Transport channel identity | ~~O~~ | 0 to <MaxDelTrCH> | | editor should this be FFS also? |
| Reconfigured TrCH information | ~~O~~ | 0 to <MaxReconAddTrCH> | | |
| Transport channel identity | M | | | |
| TFS | M | | | |
| DRAC information | C DRAC | 1~~0~~ to <MaxReconAddTrCH> | | |
| Dynamic Control | | | | |
| Transmission time validity | | | | |
| Time duration before retry | | | | |
| Silent period duration before release | | | | |
| Downlink transport channels | | | | |
| Transport channel identity | ~~O~~ | 0 to <MaxDelTrCH> | | FFS |
| Reconfigured TrCH information | ~~O~~ | 0 to <MaxReconAddTrCH> | | |
| Transport channel identity | M | | | |
| TFS | M | | | |
| **Physical Channel information elements** | | | | |
| Frequency info | O | | | |
| Uplink DPCH power control info | O | | | |
| Uplink radio resource information | O | | | |
| CPCH SET Info | O | | | UL/DL radio resource for CPCH control (Note2) |
| **CHOICE channel requirement** | O | | | |
| Uplink DPCH info | | | | |

| | | | | |
|---|---|---|---|---|
| PRACH Info (for RACH) | | | | |
| PRACH info (for FAUSCH) | | | | |
| Uplink timeslot info | O | | | |
| Downlink radio resource information | | | | |
| Downlink DPCH power control info | O | | | |
| Downlink DPCH compressed mode info | O | | | |
| Downlink information | ~~O~~ | 0 to <Max RLcount> | | Send downlink information for each radio link |
| Primary CCPCH info | | | | |
| Downlink DPCH info | | | | |
| Secondary CCPCH info | | | | |
| Downlink timeslot info | O | | | Note 1 |
| SSDT indicator | O | | | FFS |
| SSDT Cell ID | C ifSSDT | | | FFS |
| Gated Transmission Control info | O | | | FFS |
| Default DPCH Offset Value | O | | | |

| Information element category | Information elements | REFERENCE | TYPE | NOTE | |
|---|---|---|---|---|---|
| | Message Type | | M | | |
| | | | | | |
| CN information elements | NAS binding info | | M | Transparent non-access stratum info e.g. bearer identity. | |
| | CN domain identity | | | | |
| UE Information elements | Activation time | | O | | |
| | C-RNTI | | O | Only RACH/FACH | |
| | | | | | |
| RAB information elements | RAB identity | | M | For the new RAB | |
| | RLC info | | M | | |
| | RAB multiplexing info | | M | | |
| | | | | | |
| | RAB identity | | O | For each other RAB affected by this message | |
| | RAB multiplexing info | | O | | |
| | | | | | |
| TrCH information elements | TFCS | | O | for uplink DCHs | |
| | | | | | |
| | TFCS | | O | for downlink DCHs | |
| | | | | | |
| | TFC subset | | O | for DCHs in uplink | |
| | | | | | |
| | Transport channel identity | | O | For each removed transport channel | Uplink transport channels |
| | Transport channel identity | | O | For each reconfigured or added transport channel | |
| | TFS | | O | | |
| | Dynamic Control | | O | For each reconfigured or added transport channel, controlled by DRAC | |
| | Transmission time validity | | O | | |
| | Time duration before retry | | O | | |
| | Silent period duration before release | | O | | |
| | | | | | |
| | Transport channel identity | | O | For each removed (FFS) transport channel | Downlink transport channels |
| | Transport channel identity | | O | For each reconfigured or added transport channel | |
| | TFS | | O | | |
| | | | | | |
| PhyCH information elements | Uplink DPCH power control info | | O | | |
| | | | | | |
| | Frequency info | | O | | |
| | | | | | |
| | Uplink DPCH info | | O | Maximum one of these | Uplink radio resources |
| | PRACH info | | O | | |
| | Uplink timeslot info | | O | | |
| | | | | | |
| | Primary CCPCH info | | O | For each radio link | Downlink radio resources |
| | Downlink DPCH info | | O | | |
| | Secondary CCPCH info | | O | | |
| | Downlink timeslot info | | O | Note 1 | |
| | | | | | |
| | SSDT indicator | | O | Necessity is FFS | |
| | | | | | |

| | | | | |
|---|---|---|---|---|
| | ~~Gated Transmission Control info~~ | | ~~O~~ | ~~FFS~~ |
| | ~~Default DPCH Offset Value~~ | | ~~O~~ | |
| | | | | |

| Condition | Explanation |
|---|---|
| *RACH/FACH* | This information element is only sent when using RACH/FACH |
| *ifSSDT* | This IE is only sent when SSDT is used and when a new DCH is being activated |

| Range Bound | Explanation |
|---|---|
| *MaxRLcount* | Maximum number of radio links |
| *MaxDelTrCHcount* | Maximum number of Transport CHannels to be removed |
| *MaxReconAddcount* | Maximum number of Transport CHannels reconfigured or added |
| *MaxOtherRBcount* | Maximum number of Other RBs (ie RB's not being released) affected by the procedure |

| **CHOICE *channel requirement*** | **Condition under which the given *channel requirement* is chosen** |
|---|---|
| Uplink DPCH info | |
| PRACH info (for FAUSCH) | |
| PRACH info (for RACH) | |

~~*Condition RACH/FACH*~~

~~This information element is only sent when using RACH/FACH~~

~~*Range bound MaxRLcount*~~

~~Maximum number of radio links to be set up~~

~~*Range bound MaxDelTrCHcount*~~

~~Maximum number of Transport CHannels to be removed~~

~~*Range bound MaxReconAddcount*~~

~~Maximum number of Transport CHannels reconfigured or added~~

~~*Range bound MaxOtherRABcount*~~

~~Maximum number of Other RABs (ie RAB's not being released) affected by the procedure~~

Note 1: It is assumed that the DL timeslot configuration is the same for all radio links, whether or not macro-diversity is supported for TDD.
Note 2: How to map UL and DL radio resource in the message is FFS.
Note 3: The activation time should be present when the Gated Transmission control info is present in this message.

## 10.1.5.8 RADIO ~~ACCESS~~ BEARER SETUP COMPLETE

*<Functional description of this message to be included here>*
RLC-SAP: t.b.d.
Logical channel: DCCH
Direction: UE → UTRAN

| Information Element | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| Message Type | M | | | |
| **Phy CH information elements** | | | | |
| SSDT indicator | O | | | FFS |

| ~~Information element category~~ | ~~Information elements~~ | ~~REFERENCE~~ | ~~TYPE~~ | ~~NOTE~~ |
|---|---|---|---|---|
| | ~~Message Type~~ | | ~~M~~ | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| ~~Phy CH information elements~~ | ~~SSDT indicator~~ | | ~~O~~ | ~~Necessity is FFS~~ |
| | | | | |
| | | | | |

## 10.1.5.9 TRANSPORT CHANNEL RECONFIGURATION

This message is used by UTRAN to configure the transport channel of a UE. This also includes a possible reconfiguration of physical channels. The message can also be used to assign a TFC subset and reconfigure physical channel.
RLC-SAP: t.b.d.
Logical channel: DCCH
Direction: UTRAN → UE

| Information Element | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| Message Type | M | | | |
| **UE Information elements** | | | | |
| Activation time | O | | | |
| C-RNTI | C - RACH/FACH | | | |
| Control only state timer | O | | | FFS |
| **Transport Channel Information Elements** | | | | |
| TFCS | O | | | for uplink DCHs |
| TFCS | O | | | for downlink DCHs |
| TFC subset | O | | | for DCHs in uplink |
| Uplink transport channels | | | | |
| Reconfigured TrCH information | ~~O~~ | 0 to <MaxReconTrCH> | | |
| Transport channel identity | | | | |
| TFS | | | | |
| DRAC information | C DRAC | 1~~0~~ to <MaxReconTrCHDRAC> | | |
| Dynamic Control | | | | |
| Transmission time validity | | | | |
| Time duration before retry | | | | |
| Silent period duration before release | | | | |
| Downlink transport channels | | | | |
| Reconfigured TrCH information | | 0 to <MaxReconTrCH> | | |
| Transport channel identity | | | | |
| TFS | | | | |
| **Physical Channel information elements** | | | | |
| Frequency info | O | | | |
| Uplink DPCH power control info | O | | | |
| Uplink radio resource information | | | | |
| CPCH SET Info | O | | | UL/DL radio resource for CPCH control (Note2) |
| **CHOICE channel requirement** | O | | | |
| Uplink DPCH info | | | | |
| PRACH info (for FAUSCH) | | | | |
| PRACH info (for RACH) | | | | |
| Uplink timeslot info | O | | | |
| Downlink radio resource information | | | | |
| Downlink DPCH power control info | O | | | |
| Downlink DPCH compressed mode info | O | | | |
| Downlink information | ~~O~~ | 0 to <MaxRLcount> | | Send downlink information for each radio link |
| Primary CCPCH info | | | | |
| Downlink DPCH info | | | | |
| Secondary CCPCH info | | | | |
| Downlink timeslot info | O | | | Note 1 |
| SSDT indicator | O | | | FFS |
| SSDT Cell ID | C ifSSDT | | | FFS |
| Gated Transmission Control info | O | | | FFS, Note 3 |
| Default DPCH Offset Value | O | | | |

| Information element category | Information elements | REFERENCE | TYPE | NOTE | |
|---|---|---|---|---|---|
| | Message Type | | M | | |
| | | | | | |
| UE Information elements | Activation time | | O | | |
| | C-RNTI | | O | Only RACH/FACH | |
| | Control-only-state-timer | | O | FFS | |
| | | | | | |
| TrCH information elements | TFCS | | O | for uplink DCHs | |
| | | | | | |
| | TFCS | | O | for downlink DCHs | |
| | | | | | |
| | TFC subset | | O | for DCHs in uplink | |
| | | | | | |
| | Transport channel identity | | O | For each reconfigured transport channel | Uplink transport channels |
| | TFS | | O | | |
| | Dynamic Control | | O | For each reconfigured transport channel, controlled by DRAC | |
| | Transmission time validity | | O | | |
| | Time duration before retry | | O | | |
| | Silent period duration before release | | O | | |
| | | | | | |
| | Transport channel identity | | O | For each reconfigured transport channel | Downlink transport channels |
| | TFS | | O | | |
| | | | | | |
| PhyCH information elements | Uplink DPCH power control info | | O | | |
| | | | | | |
| | Frequency info | | O | | |
| | | | | | |
| | Uplink DPCH info | | O | Maximum one of these | Uplink radio resources |
| | PRACH info | | O | | |
| | Uplink timeslot info | | O | | |
| | | | | | |
| | Primary CCPCH info | | O | For each radio link | Downlink radio resources |
| | Downlink DPCH info | | O | | |
| | Secondary CCPCH info | | O | | |
| | Downlink timeslot info | | O | Note 1 | |
| | | | | | |
| | SSDT indicator | | O | Necessity is FFS | |
| | | | | | |
| | Gated Transmission Control info | | O | FFS | |
| | Default DPCH Offset Value | | O | | |
| | | | | | |

| Condition | Explanation |
|---|---|
| *ifSSDT* | This IE is only sent when SSDT is used and when a new DCH is being activated |
| *RACH/FACH* | This information element is only sent when using RACH/FACH |

| Range Bound | Explanation |
|---|---|
| *MaxRLcount* | Maximum number of radio links to be set up |
| *MaxReconcount* | Maximum number of Transport CHannels reconfigured |

| | |
|---|---|
| *MaxReconTrCHDRAC* | Maximum number of Transport CHannels which are controlled by DRAC and which are reconfigured |

| **CHOICE *channel requirement*** | **Condition under which the given *channel requirement* is chosen** |
|---|---|
| Uplink DPCH info | |
| PRACH info (for RACH) | |
| PRACH info (for FAUSCH) | |

~~*Condition RACH/FACH*~~

~~This information element is only sent when using RACH/FACH~~

~~*Range bound MaxRLcount*~~

~~Maximum number of radio links to be set up~~

~~*Range bound MaxReconcount*~~

~~Maximum number of Transport CHannels reconfigured~~

~~*Range bound MaxReconTrCHDRAC*~~

~~Maximum number of Transport CHannels which are controlled by DRAC and which are reconfigured~~

Note 1: It is assumed that the DL timeslot configuration is the same for all radio links, whether or not macro-diversity is supported for TDD.
Note 2: How to map UL and DL radio resource in the message is FFS.
Note 3: The activation time should be present when the Gated Transmission control info is present in this message.

## 10.1.5.10 TRANSPORT CHANNEL RECONFIGURATION COMPLETE

This message is sent from the UE when a transport channel reconfiguration has been done.
RLC-SAP: t.b.d.
Logical channel: DCCH
Direction: UE → UTRAN

| **Information Element** | **Presence** | **Range** | **IE type and reference** | **Semantics description** |
|---|---|---|---|---|
| Message Type | M | | | |
| **Phy CH information elements** | | | | |
| SSDT indicator | O | | | FFS |

| ~~**Information element category**~~ | ~~**Information elements**~~ | ~~**REFERENCE**~~ | ~~**TYPE**~~ | ~~**NOTE**~~ |
|---|---|---|---|---|
| | ~~Message Type~~ | | ~~M~~ | |
| | | | | |
| | | | | |
| | | | | |
| ~~Phy CH information elements~~ | ~~SSDT indicator~~ | | ~~O~~ | ~~Necessity is FFS~~ |
| | | | | |
| | | | | |

Note: The usage of this message for indicating the cell the UE will select in the DCH->RACH/FACH case, is FFS.

### 10.1.5.11 TRANSPORT FORMAT COMBINATION CONTROL

*<Functional description of this message to be included here>*
RLC-SAP: t.b.d.
Logical channel: DCCH
Direction: UTRAN→UE

| Information Element | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| Message Type | M | | | |
| **TrCH information elements** | | | | |
| TFC subset | M | | | For uplink DCH's multiplexed onto a CCTrCH |

| ~~Information element category~~ | ~~Information elements~~ | ~~REFERENCE~~ | ~~TYPE~~ | ~~NOTE~~ |
|---|---|---|---|---|
| | ~~Message Type~~ | | ~~M~~ | |
| | | | | |
| ~~TrCH information elements~~ | ~~TFC subset~~ | | ~~M~~ | ~~for DCHs in UL~~ |
| | | | | |
| | | | | |

### 10.1.5.12 DOWNLINK OUTER LOOP CONTROL

*<Functional description of this message to be included here>*
RLC-SAP: UM or AM (FFS)
Logical channel: DCCH
Direction: UTRAN→UE

| Information Element | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| Message Type | M | | | |
| **PhyCH information elements** | | | | |
| Downlink Outer Loop Control | M | | | Indicates whether the UE is allowed or not to increase its Eb/No target value above its current value |

## 10.1.6 System Information Messages

### 10.1.6.1 SYSTEM INFORMATION

*<Functional description of this message to be included here>*
RLC-SAP: t.b.d.
Logical channel: BCCH or DCCH or CCCH
Direction: UTRAN → UE

*NOTE: The division of the system information into messages is FFS.*

| Information Element | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| Message Type | M | | | |
| **CN information elements** | | | | |
| PLMN Identity | M | | | |
| CN information | | 1~~0~~ to <maxCNdomains> | | Send CN information for each CN domain. Information must be included for at least one core network domain type. |
| CN domain identity | M | | | |
| NAS system information | M | | | |
| **UTRAN mobility information elements** | | | | |
| URA identity | ~~M~~ | 1~~0~~ to <maxURAcount> | | |
| Information for periodic cell and URA update | M | | | |
| Cell identity | M | | | The necessity and usage of cell identity is FFS. |
| Cell selection and re-selection info | M | | | |
| **UE information** | | | | |
| Uplink access control info | M | | | |
| CPCH parameters | O | | | For all UE's assigned any CPCH set in this cell |
| UE Timers & Counters | M | | | |
| DRAC information | ~~O~~ | 0 to <maxDRACclasses> | | DRAC information is sent for each class of terminal |
| Transmission probability | | | | |
| Maximum bit rate | | | | |
| **PhyCH information elements** | | | | |
| ~~PRACH power control info~~ | ~~M~~ | | | |
| Frequency info | O | | | |
| Primary CPCCH Info | O | | | |
| AICH Info | M | | | |
| PICH Info | M, FFS | | | |
| CPCH SET Info | O | | | UL/DL radio resource for CPCH control (Note3,4) |
| CPCH set persistency values | O | | | For each CPCH SET (Note5) |
| | | | | |
| RACH information | ~~M~~ | 1~~0~~ to <maxRACHcount> | | |
| ~~Frequency info~~ | ~~O~~ | | | |
| PRACH info | M | | | |
| PRACH power control info | M | | | |
| FACH information | ~~M~~ | 1~~0~~ to <maxFACHcount> | | |
| ~~Frequency info~~ | ~~O~~ | | | |
| Secondary CCPCH info | M | | | |
| PCH information | ~~M~~ | 1~~0~~ to <maxPCHcount> | | |
| ~~Frequency info~~ | ~~O~~ | | | |
| Secondary CCPCH info | M | | | |
| **Measurement information elements** | | | | |
| Measurement Identity Number | M | | | |
| Measurement Type | O | | | |
| Measurement reporting mode | O | | | |
| Periodical reporting criteria | C-perRep | | | |
| Intra-frequency measurement information | C - Intrafreq | ~~0 to <maxIntrafreqcount>~~ | | |

| | | | | |
|---|---|---|---|---|
| ~~Measurement Identity Number~~ | ~~M~~ | | | ~~Note 1~~ |
| ~~Measurement object information~~ | | ~~0 to <max MeasObjCount>~~ | | |
| ~~—~~Intra-frequency cell info | M | | | Measurement object |
| Intra-frequency measurement quantity | M | | | |
| Intra-frequency measurement reporting criteria | O~~M~~ | | | |
| Intra-frequency measurement reporting quantity | O | | | |
| Intra-frequency reporting quantity for RACH reporting | C - RACHrep | | | |
| Inter-frequency measurement information | C - Interfreq | ~~0 to <maxInterfreqcount>~~ | | |
| ~~Measurement Identity Number~~ | ~~M~~ | | | ~~Note 1~~ |
| ~~Measurement object information~~ | | ~~0 to <max MeasObjCount>~~ | | |
| ~~—~~Inter-frequency cell info | ~~M~~ | | | Measurement object |
| Inter-frequency measurement quantity | O~~M~~ | | | |
| Inter-frequency measurement reporting quantity | O | | | |
| Inter-frequency measurement reporting criteria | M | | | |
| Inter-system measurement information | C - Intersys | ~~0 to <maxInterSyscount>~~ | | |
| ~~Measurement Identity Number~~ | ~~M~~ | | | ~~Note 1~~ |
| ~~Measurement object information~~ | | ~~0 to <max MeasObjCount>~~ | | |
| ~~—~~Inter-system cell info | ~~M~~ | | | Measurement object |
| Inter-system measurement quantity | M | | | |
| Inter-system measurement reporting quantity | O | | | |
| Inter-system measurement reporting criteria | M | | | |

| Information element category | Information elements | REFERENCE | TYPE | NOTE | |
|---|---|---|---|---|---|
| | Message Type | | M | | |
| | | | | | |
| CN information elements | PLMN Identity | | M | | |
| | CN domain identity | | M | | For each Core Network Domain.<br><br>Information must be included for at least one core network domain type. |
| | NAS system information | | M | | |
| | | | | | |
| UTRAN mobility information elements | URA identity | | M | | For each URA |
| | Information for periodic cell and URA update | | M | | *Note: not for each URA any more* |
| | Cell identity | | M | The necessity and usage of cell identity is FFS. | |
| | Cell selection and re-selection info | | M | | |
| | | | | | |
| UE information elements | Uplink access control info | | M | | |
| | | | | | |
| | Transmission probability | | O | For all UE having DCH controlled by DRAC procedure | For each class of UE Note2 |
| | Maximum bit rate | | O | | |
| | | | | | |
| PhyCH information elements | Frequency info | | O | For each RACH | |
| | PRACH info | | M | | |
| | | | | | |
| | Frequency info | | O | For each FACH on secondary CCPCH | |
| | Secondary CCPCH info | | M | | |
| | | | | | |
| | Frequency info | | O | For each PCH on secondary CCPCH | |
| | Secondary CCPCH info | | M | | |
| | | | | | |
| | PRACH power control info | | M | | |
| | | | | | |
| Measurement Information elements | Measurement Identity Number | | M | Note 1 | For each Intra-frequency measurement control |
| | | | | | |
| | Intra-frequency cell info | | M | For each measurement object | |
| | | | | | |
| | Intra-frequency measurement quantity | | M | | |
| | | | | | |
| | Intra-frequency measurement reporting criteria | | M | | |
| | Intra-frequency reporting quantity for RACH reporting | | C | Only included if RACH reporting is indicated in the reporting criteria | |

| | | | | | |
|---|---|---|---|---|---|
| | ~~Measurement Identity Number~~ | | ~~M~~ | ~~Note 1~~ | ~~For each Inter-frequency measurement control~~ |
| | | | | | |
| | ~~Inter-frequency cell info~~ | | ~~M~~ | ~~For each measurement object~~ | |
| | | | | | |
| | ~~Inter-frequency measurement quantity~~ | | ~~M~~ | | |
| | | | | | |
| | ~~Inter-frequency measurement reporting criteria~~ | | ~~M~~ | | |
| | | | | | |
| | ~~Measurement Identity Number~~ | | ~~M~~ | ~~Note 1~~ | ~~For each Inter-system measurement control~~ |
| | | | | | |
| | ~~Inter-system cell info~~ | | ~~M~~ | ~~For each measurement object~~ | |
| | | | | | |
| | ~~Inter-system measurement quantity~~ | | ~~M~~ | | |
| | | | | | |
| | ~~Inter-system measurement reporting criteria~~ | | ~~M~~ | | |
| | | | | | |
| | | | | | |

| **Condition** | **Explanation** |
|---|---|
| *intersys* | Measurement type=Inter system measurement |
| *interfreq* | Measurement type=Inter frequency measurement |
| *intrafreq* | Measurement type=Intra frequency measurement |
| *perRep* | Periodical reporting specified |
| *RACH-rep* | This information element is only included if RACH reporting is indicated in the reporting criteria |

| **Range Bound** | **Explanation** |
|---|---|
| *MaxCNdomains* | Maximum number of CN domains |
| *MaxURAcount* | Maximum number of URA's in a cell |
| *MaxDRACclasses* | Maximum number of UE classes which would require different DRAC parameters |
| *MaxRACHcount* | Maximum number of RACH's |
| *MaxFACHcount* | Maximum number of FACH's mapped onto secondary CCPCH's |
| *MaxPCHcount* | Maximum number of PCH's mapped onto secondary CCPCH's |
| *MaxIntraFreqCount* | Maximum number of intra frequency measurement control |
| *MaxInterFreqCount* | Maximum number of inter frequency measurement control |
| *MaxInterSysCount* | Maximum number of inter system measurement control |
| *MaxMeasObjCount* | Maximum number of Measurement Objects |

~~*Condition RACH-rep*~~

~~This information element is only included if RACH reporting is indicated in the reporting criteria~~

~~*Range bound MaxCNdomains*~~

~~Maximum number of CN domains~~

~~*Range bound MaxURAcount*~~

~~Maximum number of URA's in a cell~~

~~*Range bound MaxDRACclasses*~~

~~Maximum number of UE classes which would require different DRAC parameters~~

~~*Range bound MaxRACHcount*~~

~~Maximum number of RACH's~~

~~*Range bound MaxFACHcount*~~

~~Maximum number of FACH's mapped onto secondary CCPCH's~~

~~*Range bound MaxPCHcount*~~

~~Maximum number of PCH's mapped onto secondary CCPCH's~~

~~*Range bound MaxIntraFreqCount*~~

~~Maximum number of intra frequency measurement control~~

~~*Range bound MaxInterFreqCount*~~

~~Maximum number of inter frequency measurement control~~

~~*Range bound MaxInterSysCount*~~

~~Maximum number of inter system measurement control~~

~~*Range bound MaxMeasObjCount*~~

~~Maximum number of Measurement Objects~~

Note 1: The ~~necessity and~~ usage of Measurement identity number in this message is FFS.
Note 2: The split of parameters into several System Information message X is FFS.
Note 3: How to map UL and DL radio resource in the message is FFS.
Note 4: Possible to set several CPCH SET info.(FFS)
Note 5: “CPCH persistency value” and “CPCH SET Info” may be mapped to different SYSTEM INFORMATION blocks.

## 10.1.7 Other Messages

### 10.1.7.1 UE CAPABILITY INFORMATION

*<Functional description of this message to be included here>*
RLC-SAP: t.b.d.
Logical channel: DCCH

Direction: UE → UTRAN

| Information Element | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| Message Type | M | | | |
| **CN information elements** | | | | |
| NAS message | M | | | Includes the CN capability information |
| **UE information elements** | | | | |
| 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 |

| ~~Information element category~~ | ~~Information elements~~ | ~~REFERENCE~~ | ~~TYPE~~ | ~~NOTE~~ | |
|---|---|---|---|---|---|
| | ~~Message Type~~ | | ~~M~~ | | |
| | | | | | |
| ~~CN information elements~~ | ~~NAS message~~ | | ~~M~~ | ~~Includes the CN capability information~~ | |
| | | | | | |
| ~~UE information elements~~ | ~~Power control capability~~ | | ~~M~~ | | ~~UTRAN capability information~~ |
| | ~~Code resource capability~~ | | ~~M~~ | | |
| | ~~UE mode capability~~ | | ~~M~~ | | |
| | ~~Transport CH support capability~~ | | ~~O~~ | | |
| | ~~Ciphering capability~~ | | ~~M~~ | | |
| | ~~Macro diversity capability~~ | | ~~M~~ | | |
| | | | | | |
| ~~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.

## 10.1.7.2 UE CAPABILITY INFORMATION CONFIRM

<*Functional description of this message to be included here*>
RLC-SAP: t.b.d.
Logical channel: DCCH
Direction: UTRAN → UE

| Information Element | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| Message Type | M | | | |

| ~~Information element category~~ | ~~Information elements~~ | ~~REFERENCE~~ | ~~TYPE~~ | ~~NOTE~~ |
|---|---|---|---|---|
| | ~~Message Type~~ | | ~~M~~ | |
| | | | | |
| | | | | |

### 10.1.7.3 DIRECT TRANSFER

<*Functional description of this message to be included here*>
RLC-SAP: t.b.d.
Logical channel: DCCH
Direction: both

| Information Element | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| Message Type | M | | | |
| **CN information elements** | | | | |
| CN domain identity | M | | | |
| NAS message | M | | | |
| **Measurement information elements** | | | | |
| Measured results | O | | | |

| ~~Information element category~~ | ~~Information elements~~ | ~~REFERENCE~~ | ~~TYPE~~ | ~~NOTE~~ |
|---|---|---|---|---|
| | ~~Message Type~~ | | ~~M~~ | |
| | | | | |
| ~~CN information elements~~ | ~~CN domain identity~~ | | ~~M~~ | |
| | | | | |
| | ~~NAS message~~ | | ~~M~~ | |
| | | | | |
| ~~Measurement information elements~~ | ~~Measured results~~ | | ~~O~~ | ~~Intra-frequency measurement related report~~ |
| | | | | |

### 10.1.7.4 SECURITY CONTROL COMMAND

RLC-SAP: t.b.d.
Logical channel: DCCH
Direction: UTRAN to UE

| Information Element | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| Message Type | M | | | |
| **CN Information elements** | | | | |
| CN domain identity | M | | | Indicates which cipher key is Applicable |
| **RB Information elements** | | | | |
| Radio bearer identity | | 1 to <maxReconRBs> | | Radio bearer identity 0 indicates the signalling link and is always present |
| **UE information elements** | | | | |
| Activation Time | M | | | Start of the new ciphering configuration in uplink for all the radio bearers |

| Range Bound | Explanation |
|---|---|
| *MaxReconRBs* | For each radio bearer that is reconfigured |

## 10.1.7.5 SECURITY CONTROL RESPONSE

RLC-SAP: t.b.d.
Logical channel: DCCH
Direction: UE to UTRAN

| Information Element | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| Message Type | M | | | |
| **RB Information elements** | | | | |
| Radio bearer identity | | 1 to <maxReconRBs> | | Radio bearer identity 0 indicates the signalling link and is always present |
| **UE information elements** | | | | |
| Activation Time | M | | | Start of the new ciphering configuration in uplink for all the radio bearers |

| Range Bound | Explanation |
|---|---|
| *MaxReconRBs* | For each radio bearer that is reconfigured |

# 10.2 Information element functional definitions

## 10.2.1 CN Information elements

### 10.2.1.1 CN domain identity

Points out the core network domain (e.g. IP or PSTN/ISDN CN domain).

### 10.2.1.2 NAS binding info

A field with non-access stratum information to bind a ~~RAB~~RB to the non-access stratum. This information is transparent to RRC.

### 10.2.1.3 NAS message

A non-access stratum message to be transferred transparently through UTRAN.

### 10.2.1.4 NAS system information

System information that belongs to the non-access stratum (e.g. LAC, RA code etc). This information is transparent to RRC.

### 10.2.1.5 PLMN identity

| Information Element/Group name | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| MCC, Mobile Country Code | M | | | |
| MNC, Mobile Network Code | M | | | |

| ~~Parameters~~ | ~~REFERENCE~~ | ~~TYPE~~ | ~~NOTE~~ |
|---|---|---|---|
| ~~MCC, Mobile Country Code~~ | | ~~M~~ | |
| ~~MNC, Mobile Network Code~~ | | ~~M~~ | |

## 10.2.2 UTRAN mobility Information elements

### 10.2.2.1 Cell identity

Identity of a cell within a PLMN.
*Note: The necessity and usage of this information element is FFS.*

### 10.2.2.2 Cell selection and re-selection info

| Information Element/Group name | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| Standby allowed reception level (dBm) | M | | | The usage of these parameters needs clarification FFS. |
| Standby prohibited reception level (dBm) | M | | | |
| Threshold for Cell Re-selection (dB) | M | | | |
| Allowed reception SIR (dB) | M | | | |
| Radio link timeout | | | | |

| ~~Parameters~~ | ~~REFERENCE~~ | ~~TYPE~~ | ~~NOTE~~ | |
|---|---|---|---|---|
| ~~Standby allowed reception level (dBm)~~ | | ~~M~~ | | ~~The usage of these parameters needs clarification FFS.~~ |
| ~~Standby prohibited reception level (dBm)~~ | | ~~M~~ | | |
| ~~Threshold for Cell Re-selection (dB)~~ | | ~~M~~ | | |
| ~~Allowed reception SIR (dB)~~ | | ~~M~~ | | |
| ~~Radio link timeout~~ | | | | |

### 10.2.2.3 Information for periodic cell and URA update

This information element indicates information to support mechanisms for periodical cell/URA update procedures. It is mapped on System Information message.

| Information Element/Group name | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| T_periodical_cell_update | M | | | Value “0” indicated no periodical Cell Update mechanism activated. |
| T_periodical_ura_update | M | | | Value “0” indicated no periodical URA Update mechanism activated. |

~~FFS.~~

### 10.2.2.4 URA identity

Gives the i~~I~~dentity of the UTRAN Registration Area. It can be used to indicate to the UE which URA it shall use in case of overlapping URAs.

### 10.2.2.5 URA update indicator

When present in a message, it instructs the UE to start to update its location on URA level.

## 10.2.3 UE Information elements

### 10.2.3.1 Uplink access control info

| Information Element/Group name | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| Access class | M | | | FFS |
| Dynamic persistence level | M | | | FFS |

| ~~Parameters~~ | ~~REFERENCE~~ | ~~TYPE~~ | ~~NOTE~~ |
|---|---|---|---|
| ~~Access class~~ | | ~~M~~ | ~~FFS~~ |
| ~~Dynamic persistence level~~ | | ~~M~~ | ~~FFS~~ |

### 10.2.3.2 C-RNTI

The controlling RNC RNTI identifies an UE having a RRC connection within an controlling RNC.

### 10.2.3.3 S-RNTI

The serving RNC RNTI is allocated to an UE having a RRC connection and identifies the UE within its serving RNC.

### 10.2.3.4 SRNC identity

Identifies the serving RNC for an UE having an RRC connection.

### 10.2.3.5 Initial UE identity

This information element identifies the UE at a request of an RRC connection.

| Information Element/Group name | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| **CHOICE UE Identity** | M | | | |
| IMSI | | | | International Mobile Subscriber Identity |
| TMSI + LAI | | | | Temporary Mobile Subscriber Identity and Location Area Identity |
| P-TMSI + RAI | | | | Packet Temporary Mobile Subscriber Identity and Routing Area Identity |
| IMEI | | | | International Mobile Subscriber Identity |

| ~~Parameters~~ | ~~REFERENCE~~ | ~~TYPE~~ | ~~NOTE~~ | | |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| ~~IMSI~~ | | ~~O~~ | ~~International Mobile Subscriber Identity~~ | ~~One of these NAS identities is used~~ | |
| ~~TMSI + LAI~~ | | ~~O~~ | ~~Temporary Mobile Subscriber Identity and Location Area Identity~~ | | |
| ~~P-TMSI + RAI~~ | | ~~O~~ | ~~Packet Temporary Mobile Subscriber Identity and Routing Area Identity~~ | | |
| ~~IMEI~~ | | ~~O~~ | ~~International Mobile Subscriber Identity~~ | | |
| | | | | | |

| **CHOICE *UE Identity*** | **Condition under which the given *UE identity* is used** |
|---|---|
| IMSI | |
| TMSI+LAI | |
| P-TMSI+RAI | |
| IMEI | |

~~*CHOICE UE Identity*~~

~~One of the four UE identities must be used, the conditions under which each ID is used is as follows....~~

*[Note: The use of these identities is pending confirmation from WG1 that the RACH can support the required payload when these types of ID are used]*

.

### 10.2.3.6 Activation time

Activation Time defines the frame number (or offset to some known frame number) in which the operation/changes caused by the related message should be executed.
Current assumption is that a connection based CFN (Connection Frame Number) that is known by MS and SRNC could be used.

### 10.2.3.7 Wait time

Wait time defines the time period the UE has to wait before repeating the rejected procedure.

### 10.2.3.8 Control-only-state timer

This IE indicates for how long the UE shall stay in the control-only-state. *Editors note: the exact usage of this IE needs some clarification.*

### 10.2.3.9 Paging record

| Information Element/Group name | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| Paging originator | M | Enumerated (UTRAN,CN) | | |
| Paging cause | C isCN | | | |
| CN domain identity | C isCN | | | |
| **CHOICE Identity** | M | | | |
| IMSI | | | | ~~For idle mode pages~~ |
| TMSI | | | | |
| P-TMSI | | | | |
| Connected mode ID | | | | ~~For connected mode pages~~ |
| S-RNTI | M | | | |
| SRNC identity | M | | | |

| Condition | Explanation |
|---|---|
| *isCN* | This information element is included where the page is originated from the CN. |

| CHOICE *Identity* | Condition under which the given *Identity* is chosen |
|---|---|
| IMSI | For idle mode pages |
| TMSI | For idle mode pages |
| P-TMSI | For idle mode pages |
| Connected mode ID | For connected mode pages |

| ~~Parameters~~ | ~~REFERENCE~~ | ~~TYPE~~ | ~~NOTE~~ | | |
|---|---|---|---|---|---|
| ~~Paging originator~~ | | ~~M~~ | ~~UTRAN/CN~~ | | |
| ~~Paging cause~~ | | ~~C~~ | ~~For CN originated pages~~ | | |
| ~~CN domain identity~~ | | | | | |
| | | | | | |
| ~~IMSI~~ | | ~~O~~ | ~~International Mobile Subscriber Identity~~ | ~~One of these formats is used~~ | ~~For idle mode pages~~ |
| ~~TMSI~~ | | ~~O~~ | ~~Temporary Mobile Subscriber Identity~~ | | |
| ~~P-TMSI~~ | | ~~O~~ | ~~Packet Temporary Mobile Subscriber Identity~~ | | |
| ~~S-RNTI~~ | | ~~O~~ | ~~For connected mode pages~~ | | |
| ~~SRNC identity~~ | | | | | |

### 10.2.3.10 Establishment cause

Cause for an RRC connection establishment request (originating call, emergency call, paging response, location update request, forward inter-system handover etc).

### 10.2.3.11 Release cause

Cause for release of RRC connection.

### 10.2.3.12 Rejection cause

Cause for rejection of RRC connection establishment request.

### 10.2.3.13 Paging cause

Cause for a CN originated page. *Editors note: The usage of this IE needs further clarification.*

### 10.2.3.14 Initial UE capability

This is the UE capability information given in the RRC connection request message. The exact type of information is FFS.

| Information Element/Group name | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| Support for Transport CH | O | | | Indicates which transport channels are supported |

### 10.2.3.15 Power control capability

| Information Element/Group name | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| Transmission power capability | M | | | |

| ~~Parameters~~ | ~~REFERENCE~~ | ~~TYPE~~ | ~~NOTE~~ |
|---|---|---|---|
| ~~Transmission power capability~~ | | ~~M~~ | |
| | | | |
| | | | |

Note: The WG1 and WG4 discussion should be concluded before the contents of this IE can be finalized.

### 10.2.3.16 Code resource capability

| Information Element/Group name | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| DL multi-code capability | | | | |
| UL multi-code capability | | | | |
| DL Spreading factor capability | | | | |
| UL Spreading factor capability | | | | |

| ~~Parameters~~ | ~~REFERENCE~~ | ~~TYPE~~ | ~~NOTE~~ |
|---|---|---|---|
| ~~DL multi-code capability~~ | | | |
| ~~UL multi-code capability~~ | | | |
| ~~DL Spreading factor capability~~ | | | |
| ~~UL Spreading factor capability~~ | | | |

Note: The WG1 and WG4 discussion should be concluded before the contents of this IE can be finalized.

### 10.2.3.17 UE mode capability

| Information Element/Group name | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| System capability | | 0 to <maxSystemCount> | Enumerated (UMTS, GSM, Others) | |
| UMTS capability | | 0 to <maxModecount> | Enumerated (TDD, FDD) | |
| Chip rate capability | | | | |
| Radio Frequency capability | | | | |
| Variable duplex distance capability | | | | |

| Range Bound | Explanation |
|---|---|
| *MaxSystemCount* | Maximum number of Systems supported by the UE |

| | |
|---|---|
| *maxModeCount* | Maximum number of UMTS modes supported by the UE |

| ~~Parameters~~ | ~~REFERENCE~~ | ~~TYPE~~ | ~~NOTE~~ |
|---|---|---|---|
| ~~System capability (UMTS/GSM/others)~~ | | | |
| ~~UMTS capability (TDD/FDD)~~ | | | |
| ~~Chip rate capability~~ | | | |
| ~~Radio Frequency capability~~ | | | |
| ~~Variable duplex distance capability~~ | | | |

Note: The WG1 and WG4 discussion should be concluded before the contents of this IE can be finalized.

## 10.2.3.18 Transport channel support capability

| Information Element/Group name | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| Maximum number of DCHs | | | Integer | |
| Support for Transport CH | | | | |

| ~~Parameters~~ | ~~REFERENCE~~ | ~~TYPE~~ | ~~NOTE~~ |
|---|---|---|---|
| ~~Maximum number of DCHs~~ | | | |
| ~~Support for Transport CH~~ | | | |
| | | | |

Note: The WG1 and WG4 discussion should be concluded before the contents of this IE can be finalized.

## 10.2.3.19 Ciphering capability

| Information Element/Group name | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| Ciphering Algorithm capability | M | | Enumerated | |

| ~~Parameters~~ | ~~REFERENCE~~ | ~~TYPE~~ | ~~NOTE~~ |
|---|---|---|---|
| ~~Ciphering Algorithm capability~~ | | ~~M~~ | |
| | | | |
| | | | |

Note: The WG1 and WG4 discussion should be concluded before the contents of this IE can be finalized.

## 10.2.3.20 Macro diversity capability

| Information Element/Group name | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| Maximum number of RLs | M | | Integer | |

| Parameters | REFERENCE | TYPE | NOTE |
|---|---|---|---|
| Maximum number of RLs | | M | |
| | | | |
| | | | |

Note: The WG1 and WG4 discussion should be concluded before the contents of this IE can be finalized.

## 10.2.3.21 Cell update cause

Indicates the cause for s cell update. Examples of causes are cell reselection and periodic cell update.

### 10.2.3.22 URA update cause

Indicates the cause for s URA update. Examples of causes are change of URA and periodic URA update.

### 10.2.3.23 Number of Quick Repeat

Indicates the number of quick repeat for RRC Connection Release Complete message.

### 10.2.3.24 Inter-system handover failure cause

The purpose of this IE is to provide a reason for the failure of the Inter-system handover.

### 10.2.3.25 Transmission probability

Indicates the probability for a mobile to be allowed to transmit on a DCH controlled by DRAC procedure.

### 10.2.3.26 Maximum bit rate

Indicates the maximum user bit rate allowed on a DCH controlled by DRAC procedure for the transmission period (Transmission time validity).

### 10.2.3.27 Capability Update Requirement

This IE indicates to the UE, which is capable of inter-system handover, whether it should send a complete update of its capabilities in the given system (e.g. GSM) immediately after having established an RRC connection.

| Information Element/Group name | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| System | M | | Enumerated (GSM,..) | |
| Early Capability Update | M | | Boolean | |

| ~~Parameters~~ | ~~REFERENCE~~ | ~~TYPE~~ | ~~NOTE~~ |
|---|---|---|---|
| ~~System~~ | | ~~M~~ | ~~E.g. GSM~~ |
| ~~Early Capability Update~~ | | ~~M~~ | ~~Yes / No~~ |

### 10.2.3.28 CPCH Parameters

These parameters are used by any UE using any CPCH set allocated to the Node B which is broadcasting this system information.

| Information Element/Group name | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| NS_IP | M | | | Number of slots for initial delay for given priority level |
| Priority level | M | | | |
| Backoff control parameters | | | | |
| N_ap_retrans_max | M | | | Max number of AP transmissions without AP-AICH response (access cycle), a PHY parameter. |
| N_access_fails | M | | | Max number of access cycles without AP-AICH response for link failure, a MAC parameter. |
| NS_bo_no aich | M | | | Max number of slots for UE backoff after N ap_retrans_max unsuccessful AP access attempts, a MAC parameter. |
| NF_bo_busy | M | | | Max number of frames for UE backoff after access attempt to busy CPCH, a MAC parameter. |
| NF_bo_all_busy | M | | | Max number of frames for UE backoff after access attempt to last busy CPCH, a MAC parameter. |
| NF_bo_collision | M | | | Max number of frames for UE backoff after collision on CPCH, a MAC parameter. |
| T_CPCH | M | | | CPCH channel timing -Number of slots used to determine Tau values for CPCH channel timing |

Note: The WG1 and WG2 discussion should be concluded before the contents of these IEs can be finalized. All of the IEs may be considered optional (O) if the UE is programmed with default values for each IE.

## 10.2.3.29 UE Timers and Counters

This information element indicates timers and maximum values of each counter used in UE.

| Information Element/Group name | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| Timer_await_RRC_connection_setup | M | | | |
| Timer_Maximum_number_of_RRC_connection_setup_re-trys_since_first_attempt | M | | | |
| Maximum value of Counter_Max_Number_of_connection_setup_transmissions_in_this_cell | M | | | |
| Timers_out_of_service_area | M | | | |
| Timer_await_cell_update_confirm | M | | | |
| Timer_await_ura_update_confirm | M | | | |
| Maximum value of Counter_await_cell_update_confirm | M | | | |
| Maximum value of Counter_await_ura_update_confirm | M | | | |

#### 10.2.3.30 AM_RLC error indication

Indicates AM_RLC unrecoverable error occurred on c-plane in the UE.

#### 10.2.3.31 RLC re-configuration indicator

This IE is used to re-configure AM RLC on c-plane.

## 10.2.4 Radio ~~Access~~ Bearer Information elements

### 10.2.4.1 ~~RAB~~RB identity

An identification number for the ~~RAB~~RB affected by a certain message.

## 10.2.4.2 RLC info

| Information Element/Group name | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| Uplink RLC info | | | | |
| RLC mode | M | | enumerated (Acknowledged, Non Acknowledged or Transparent mode data transfer. ) | ,]Note 1 |
| - RLC in-sequence delivery | O | | Boolean | Indication if RLC should preserve the order of higher layer PDUs that were transmitted through RLC. [Note: It is FFS if this parameter always is the same in both UL and DL.] |
| RLC PDU size | C – ifNotDerived O | | Integer | Size of RLC Protocol Data Units. |
| Transmission RLC discard | C-NonTr | | | |
| TRLC transmission window size | C-ACKO | | Integer | A flow control parameter used to set the maximum number of RLC PDUs sent without getting them acknowledged |
| Polling info | C-ACK | | | |
| - RLC retransmission info | M | | | This could be the number of attempts to retransmit a RLC PDU before it is discarded, or different timer values. |
| Downlink RLC info | | | | |
| RLC mode | M | | enumerated (Acknowledged, Non Acknowledged or Transparent mode data transfer. ) | Note 1 |
| IRLC in-sequence delivery | O | | Boolean | |
| RLC PDU Size | C – ifNotDerived M | | Integer | |
| Reception RLC discard timer | C- timer | | | |
| RLC transmission Receiving window size (FFS - Note 2) | C-ACKO | | Integer | |
| RLC retransmission infoDownlink RLC status Info | C-ACKM | | | Is this needed to send to the UE for downlink? |

| Condition | Explanation |
|---|---|
| *Timer* | This IE is only sent if timer based discard is used without explicit signalling |
| *NonTr* | This IE is only sent when the RLC is non-transparent |
| *Ack* | This IE is only sent when the RLC uses acknowledged mode |

*Condition c – ifNotDerived*

RLC PDU size may be derived from transport block size and not explicitly transferred across the radio interface

| ~~Parameters~~ | ~~REFERENCE~~ | ~~TYPE~~ | ~~NOTE~~ | |
|---|---|---|---|---|
| ~~RLC mode~~ | | ~~M~~ | ~~Indicates if the RLC entity for a certain RAB should use Acknowledged, Non Acknowledged or Transparent mode data transfer. [Note: It is FFS if this parameter always is the same in both UL and DL.]~~ | ~~Uplink RLC info~~ |
| ~~RLC in-sequence delivery~~ | | ~~O~~ | ~~Indication if RLC should preserve the order of higher layer PDUs that were transmitted through RLC. [Note: It is FFS if this parameter always is the same in both UL and DL.]~~ | |
| ~~RLC PDU size~~ | | ~~C~~ | ~~Size of RLC Protocol Data Units. See Note 1~~ | |
| ~~RLC transmission window size~~ | | ~~O~~ | ~~A flow control parameter used to set the maximum number of RLC PDUs sent without getting them acknowledged~~ | |
| ~~RLC retransmission info~~ | | ~~M~~ | ~~This could be the number of attempts to retransmit a RLC PDU before it is discarded, or different timer values.~~ | |
| ~~RLC mode~~ | | ~~M~~ | | ~~Downlink RLC info~~ |
| ~~RLC in-sequence delivery~~ | | ~~O~~ | | |
| ~~RLC PDU Size~~ | | ~~M~~ | ~~Note 1~~ | |
| ~~RLC transmission window size~~ | | ~~O~~ | | |
| ~~RLC retransmission info~~ | | ~~O~~ | ~~Is this needed to send to the UE for downlink?~~ | |

~~*Note1: RLC PDU size may be derived from transport block size and not explicitly transfered across the radio interface.*~~
*Note 1: It is FFS if this IE always includes the same parameter values for both uplink and downlink RLC.*

*Note 2:It is FFS whether "Receiving window size" is necessary or not.*

### 10.2.4.2.1 RLC Mode

Indicates if Acknowledged, Unacknowledged or Transparent mode RLC should be used.

### 10.2.4.2.2 In-sequence delivery

Indication if RLC should preserve the order of higher layer PDUs when these are delivered.

### 10.2.4.2.3 PU size

Indicates the size of RLC Payload Units.

### 10.2.4.2.4 Transmission RLC Discard

| Information Element/Group name | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| SDU Discard Mode | M | | | Different modes for discharge the RLC buffer on the transmitter side;<br>Timer based with explicit signalling, Timer based without explicit signalling or Discard after Max_DAT retransmissions.<br>For unacknowledged mode only Timer based without explicit signalling is applicable. |
| Timer_discard | C-timer | | | Elapsed time before a SDU is discarded. |
| Max_DAT | C-discard | | | Number of retransmissions of a PU before a SDU is discarded. |

| Condition | Explanation |
|---|---|
| *Timer* | This IE is only sent if timer based discard is used without explicit signalling |
| *discard* | This IE is only sent when the SDU discard technique is to discard SDU's after a given number of PU re-transmissions |

#### 10.2.4.2.5 Transmission window size

Maximum number of RLC PUs sent without getting them acknowledged. This parameter is needed if acknowledged mode is used.

#### 10.2.4.2.6 Receiving window size (FFS)

Maximum number of RLC PUs allowed to be received. This parameter is needed if acknowledged mode is used.(Necessity is FFS.)

#### 10.2.4.2.7 Polling info

| Information Element/Group name | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| Timer_poll_prohibit | O | | | Minimum time between polls |
| Timer_poll | O | | | Started when poll is transmitted. New poll when timer expires and no STATUS received. |
| Poll_PU | O | | | Poll at every Poll_PU PU |
| Poll_SDU | O | | | Poll at every Poll_SDU SDU |
| Last transmission PU poll | O | | | Indicates if poll at last PU in transmission buffer |
| Last retransmission PU poll | O | | | Indicates if poll at last PU in retransmission buffer |
| Poll_Window | O | | | Poll at Poll_Window % of transmission window |
| Timer_poll_periodic | O | | | Timer for periodic polling |

Note: At least one or more parameters are necessary when polling info is sent.

#### 10.2.4.2.8 Reception RLC discard Timer

Elapsed time before a SDU is discarded. Only present if timer based discard mode without explicit signalling is chosen.

#### 10.2.4.2.9 Downlink RLC STATUS info

| Information Element/Group name | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| Timer_Status_Prohibit | O | | | Minimum time between STATUS reports |
| Timer_EPC | O | | | Timer for EPC |
| Missing PU Indicator | O | | | Indicates if UE should send a STATUS report for each missing PU that is detected |
| Timer_STAUS_periodic | O | | | Timer for periodic STATUS reports |

### 10.2.4.3 Signalling link type

The purpose of the Signalling Link Type information element is to indicate the RLC parameters needed for the signalling link.

Each possible value of Signalling Link Type information element refers to a predefined set of parameters. Details FFS.

### 10.2.4.4 ~~RAB~~RB multiplexing info

A multiplexing option for each possible transport channel this ~~RAB~~RB can be multiplexed on.

| Information Element/Group name | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| Information for each multiplexing option | | 1~~0~~ to <maxMuxOptionsCount> | | |
| Uplink multi-plexing | | | | |
| Transport channel identity | O | | | This is the ID of a transport channel that this ~~RAB~~RB could be mapped onto. |
| Logical channel identity | O | | | This parameter is used to distinguish logical channels multiplexed by MAC on a transport channel. |
| MAC logical channel priority | O | | | This includes both priority between different users traffic when using a common or shared channel, and between different ~~RAB~~RBs (or logical channels) traffic for a certain user. Different priorities for one users´ ~~RAB~~RBs are mapped (through the MAC´s T and C/T MUXes) to the TFC selection algorithm. *[Note: Usage and precise meaning of this is FFS.]* |
| Downlink multi-plexing | | | | |
| Transport channel identity | O | | | |
| Logical channel identity | O | | | |

| ~~Parameters~~ | ~~REFERENCE~~ | ~~TYPE~~ | ~~NOTE~~ | | |
|---|---|---|---|---|---|
| ~~Transport channel identity~~ | | ~~O~~ | ~~This is the ID of a transport channel that this RAB could be mapped onto.~~ | ~~Uplink multi-plexing~~ | ~~For each multi-plexing option~~ |
| ~~Logical channel identity~~ | | ~~O~~ | ~~This parameter is used to distinguish logical channels multiplexed by MAC on a transport channel.~~ | | |
| ~~MAC logical channel priority~~ | | ~~O~~ | ~~This includes both priority between different users traffic when using a common or shared channel, and between different RABs (or logical channels) traffic for a certain user. Different priorities for one users´ RABs are mapped (through the MAC´s T and C/T MUXes) to the TFC selection algorithm. [Note: Usage and precise meaning of this is FFS.]~~ | | |
| ~~Transport channel identity~~ | | ~~O~~ | | ~~Downlink multi-plexing~~ | |
| ~~Logical channel identity~~ | | ~~O~~ | | | |

Note: The necessity of dividing ~~RAB~~RB multiplexing into in uplink and downlink is FFS.

## 10.2.5 Transport CH Information elements

### 10.2.5.1 Transport Format Combination Set

Indicates the allowed combinations of already defined Transport formats.

### 10.2.5.2 Transport Format Combination Subset

Indicates which Transport format combinations in the already defined Transport format combination set that are allowed.

### 10.2.5.3 Transport channel identity

This information element is used to distinguish transport channels (both common and dedicated transport channels).

### 10.2.5.4 Transport Format Set (TFS)

| Information Element/Group name | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| Transport block size(s) | | | | (dynamic) |
| Transport Block Set Size(s) | | | | (dynamic) |
| Transmission time interval | | | | (semi-static) |
| Type of channel coding | | | | (semi-static) |
| Rate matching | | | | (semi-static) |

| ~~Parameters~~ | ~~REFERENCE~~ | ~~TYPE~~ | ~~NOTE~~ |
|---|---|---|---|
| ~~Transport block size(s)~~ | | | ~~(dynamic)~~ |
| ~~Transport Block Set Size(s)~~ | | | ~~(dynamic)~~ |
| ~~Transmission time interval~~ | | | ~~(semi-static)~~ |
| ~~Type of channel coding~~ | | | ~~(semi-static)~~ |
| ~~Rate matching~~ | | | ~~(semi-static)~~ |

### 10.2.5.5 Dynamic Control

Indicates if this transport channel is controlled by DRAC procedure or not.

### 10.2.5.6 Transmission time validity

Indicates the duration for which permission is granted on a DCH controlled by DRAC procedure.

### 10.2.5.7 Time duration before retry

Indicates the time duration before retrying to get the transmission permission on a DCH controlled by DRAC procedure, in case permission has not been granted.

### 10.2.5.8 Silent period duration before release

Indicates the maximum silent period duration before releasing the resource. This parameter may be merged with the Fkp-b parameter defined in the ‘Transmission stop and resumption control’ procedure defined in [1].

(Note: [1] RAN/WG1 S1.14 document)

# 10.2.6 Physical CH Information elements

## 10.2.6.1 Frequency info

| Information Element/Group name | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| UTRA RF Channel Number | M | | | A unique identifier for the channel raster and its associated parameters (as described by the other parameters within this info element) |
| Raster Position | O | | | Provided to enable the definition of permitted carrier frequency associated to the specific UTRA RF Channel Number parameter |
| ~~Frequency number~~ | ~~M~~ | | | ~~Designate the centerfrequency of the uplink carrier~~ |
| Duplex distance | O | | | |
| Chip rate | O | | | |
| ~~Mode~~RF Channel Type | O | enumerated (TDD, FDD) | | Identifies whether the UTRA RF Channel Number corresponds to FDD/ TDD/ uplink/ downlink only |

| ~~Parameters~~ | ~~REFERENCE~~ | ~~TYPE~~ | ~~NOTE~~ |
|---|---|---|---|
| ~~Frequency number~~ | | ~~M~~ | ~~Designate the centerfrequency of the uplink carrier~~ |
| ~~Duplex distance~~ | | ~~O~~ | |
| ~~Chip rate~~ | | ~~O~~ | |
| ~~Mode~~ | | ~~O~~ | ~~Designate FDD or TDD mode~~ |

## 10.2.6.2 Primary CCPCH info

| Information Element/Group name | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| DL scrambling code | O~~M~~ | | | DL scrambling code used for Primary CCPCH |
| STTD indicator | O | | | |

| ~~Parameters~~ | ~~REFERENCE~~ | ~~TYPE~~ | ~~NOTE~~ |
|---|---|---|---|
| ~~DL scrambling code~~ | | ~~M~~ | ~~DL scrambling code used for Primary CCPCH~~ |

## 10.2.6.3 Secondary CCPCH info

| Information Element/Group name | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| DL scrambling code | C - DLscode | | | |
| STTD indicator | O | | | |
| Channelization code | M | | | |

| Parameters | REFERENCE | TYPE | NOTE |
|---|---|---|---|
| DL scrambling code | | O | Only needed if different from DL scrambling code of Primary CCPCH |
| Channelization code | | M | |

| Condition | Explanation |
|---|---|
| *DLscode* | The DL scrambling code information element is only sent if it is different from the DL scrambling code of the Primary CCPCH |

*Condition C - DLscode*

The DL scrambling code information element is only needed if it is different from the DL scrambling code of Primary CCPCH

## 10.2.6.4 PRACH info (for RACH)

| Information Element/Group name | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| Access slot | M | 10 to <maxAccessSlots> | | |
| Preamble spreading code | M | 10 to <maxPcodes> | | |
| Preamble signature | M | 10 to <maxPsigs> | | |
| Spreading factor | M | 10 to <maxRates> | | |

| Range Bound | Explanation |
|---|---|
| *MaxAccessSlots* | Maximum number of allowed access slots for the preambles |
| *MaxPcodes* | Maximum number of codes to use for spreading of the preamble. There is also a one to one mapping from preamble code to what scrambling code to use for the message part. |
| *MaxPsigs* | Maximum number of allowed preamble signatures. |
| *MaxRates* | Maximum number of rates or SF that are allowed to use on the data part (I-branch) in the message part of the random access |

*Range bound MaxAccessSlots*

Maximum number of allowed access slots for the preambles

*Range bound MaxPcodes*

Maximum number of codes to use for spreading of the preamble. There is also a one to one mapping from preamble code to what scrambling code to use for the message part.

*Range bound MaxPsigs*

Maximum number of allowed preamble signatures.

~~*Range bound MaxRates*~~

~~Maximum number of rates or SF that are allowed to use on the data part (I branch) in the message part of the random access~~

| ~~Parameters~~ | ~~REFERENCE~~ | ~~TYPE~~ | ~~NOTE~~ |
|---|---|---|---|
| ~~Access slot~~ | | ~~M~~ | ~~For each allowed access slot for the preambles~~ |
| ~~Preamble spreading code~~ | | ~~M~~ | ~~For each code to use for spreading of the preamble. There is also a one to one mapping from preamble code to what scrambling code to use for the message part.~~ |
| ~~Preamble signature~~ | | ~~M~~ | ~~For each allowed preamble signature.~~ |
| ~~Spreading factor~~ | | ~~M~~ | ~~For each rate or SF that are allowed to use on the data part (I branch) in the message part of the random access~~ |

## 10.2.6.5 PRACH power control info

| Information Element/Group name | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| UL target SIR | M | | | |
| Primary CCPCH DL TX power | M | | | |
| UL interference | M | | | |
| Constant value | M | | | *Note: it should be clarified from WG1 whether this is the same as UL target SIR.* |
| AICH transmission timing parameter | M | | | |
| Power offset $\Delta P_0$ | M | | | Power step when no acquisition indicator is received |
| Power offset $\Delta P_1$ | M | | | Power step when negative acquisition is received |

| ~~Parameters~~ | ~~REFERENCE~~ | ~~TYPE~~ | ~~NOTE~~ |
|---|---|---|---|
| ~~UL target SIR~~ | | ~~M~~ | |
| ~~Primary CCPCH DL TX power~~ | | ~~M~~ | |
| ~~UL interference~~ | | ~~M~~ | |
| ~~Constant value~~ | | ~~M~~ | ~~*Note: it should be clarified from WG1 whether this is the same as UL target SIR.*~~ |
| ~~AICH transmission timing parameter~~ | | ~~M~~ | |
| ~~Power offset $\Delta P_0$~~ | | ~~M~~ | ~~Power step when no acquisition indicator is received~~ |
| ~~Power offset $\Delta P_1$~~ | | ~~M~~ | ~~Power step when negative acquisition is received~~ |

*NOTE: The usage of these parameters needs clarification and are also dependent on the WG1 RACH discussions.*

### 10.2.6.6 Uplink DPCH info

| Information Element/Group name | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| UL scrambling code | M | | | What short or long uplink scrambling code a certain UE should use |
| DPCCH channelization code | M | | | SF of the channelization code for control part. *[The necessity of this parameter is FFS.]* |
| DPDCH channelization code | ~~M~~ | 1~~0~~ to <maxDPDCHcount> | | SF of the channelization code for data part |
| | | | | |

| ~~Parameters~~ | ~~REFERENCE~~ | ~~TYPE~~ | ~~NOTE~~ | |
|---|---|---|---|---|
| ~~UL scrambling code~~ | | ~~M~~ | ~~What short or long uplink scrambling code a certain UE should use~~ | |
| ~~DPCCH channelization code~~ | | ~~M~~ | ~~SF of the channelization code for control part. *[The necessity of this parameter is FFS.]*~~ | |
| ~~DPDCH channelization code~~ | | ~~M~~ | ~~SF of the channelization code for data part~~ | ~~For each DPDCH~~ |

| Range Bound | Explanation |
|---|---|
| *MaxDPDCHcount* | Maximum number of DPDCH's |

~~*Range bound MaxDPDCHcount*~~

~~Maximum number of DPDCH's~~

### 10.2.6.7 Uplink DPCH power control info

Interference level measured for a frequency at the UTRAN access point used by UE to set DPCH initial output power.

### 10.2.6.8 Downlink DPCH info

| Information Element/Group name | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| DL scrambling code | C - DLscode | | | |
| DL channelization code | ~~M~~ | 1~~0~~ to <maxDPCHcount> | | Channelization codes to be used in the downlink for DPCH |
| Transmission diversity mode | C-STTD | | Enumerated (Open loop mode-STTD), feedback mode 1, feedback mode 2, feedback mode 3 | |

| Parameters | REFERENCE | TYPE | NOTE | |
|---|---|---|---|---|
| DL scrambling code | | O | Only needed if different from DL scrambling code of Primary CCPCH | |
| DL channelization code | | M | Channelization codes to be used in the downlink for DPCH | For each DPCH |

| Condition | Explanation |
|---|---|
| *STTD* | This IE is only sent if STTD is applied |
| *DLscode* | The DL scrambling code information element is only sent if it is different from the DL scrambling code of Primary CCPCH |

| Range Bound | Explanation |
|---|---|
| *MaxDPCHcount* | Maximum number of DPCH's |

*Condition C - DLscode*

The DL scrambling code information element is only needed if it is different from the DL scrambling code of Primary CCPCH

*Range bound MaxDPCHcount*

Maximum number of DPCH's

## 10.2.6.9 Uplink timeslot info

| Information Element/Group name | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| Slot number | M | 10 to <maxSlotcount> | | Timeslot to be used in uplink (TDD only) |

| Parameters | REFERENCE | TYPE | NOTE | |
|---|---|---|---|---|
| Slot number | | M | Timeslot to be used in uplink (TDD only) | For each slot |

| Range Bound | Explanation |
|---|---|
| *MaxSlotcount* | Maximum number of slots |

*Range bound MaxSlotcount*

Maximum number of slots

## 10.2.6.10 Downlink timeslot info

| Information Element/Group name | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| Slot number | ~~M~~ | 1~~0~~ to <maxSlotcount> | | Timeslot to be used in downlink (TDD only) |

| Range Bound | Explanation |
|---|---|
| *MaxSlotcount* | Maximum number of slots |

~~*Range bound MaxSlotcount*~~

~~Maximum number of slots~~

| ~~Parameters~~ | ~~REFERENCE~~ | ~~TYPE~~ | ~~NOTE~~ | |
|---|---|---|---|---|
| ~~Slot number~~ | | ~~M~~ | ~~Timeslot to be used in downlink (TDD only)~~ | ~~For each slot~~ |

## 10.2.6.11 SSDT indicator

This information element indicates the status (e.g. initiated/terminated) of the Site Selection Diversity Transmit power control (SSDT). In the direction UTRAN to UE it is used to change the SSDT status. In the direction UE to UTRAN it is used to confirm the SSDT status by the UE. The parameter 'code word set' indicates how cell identities are coded (using many bits or few, values are long, medium, or short).

| Information Element/Group name | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| Code Word Set | M | | Enumerated (long, medium, short, SSDT off) | |

| ~~Parameters~~ | ~~REFERENCE~~ | ~~TYPE~~ | ~~NOTE~~ |
|---|---|---|---|
| ~~Code Word Set~~ | | ~~M~~ | ~~Values: long, medium, short, SSDT off~~ |

## 10.2.6.12 SSDT cell identity

This IE is used to associate a cell identity with a given radio link

| Information Element/Group name | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| temporary id | M | | | |

| ~~Parameters~~ | ~~REFERENCE~~ | ~~TYPE~~ | ~~NOTE~~ |
|---|---|---|---|
| ~~temporary id~~ | | ~~M~~ | |

### 10.2.6.13 Gated Transmission Control info (FFS)

| Information Element/Group name | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| Gating pattern | M | | Enumerated (periodical or, random) (FFS)) | |
| Gating rate | M | | Enumerated (Full rate no gating, 1/3 2 gating, 1/5 4 gating or 0 1/8 gating (FFS)) | Indicates gated transmission rate |
| Gating activation time | M | | FFS | |

| Parameters | REFERENCE | TYPE | NOTE |
|---|---|---|---|
| Gating pattern | | M | Indicates periodical or random (FFS) |
| Gating rate | | M | Indicates no gating, 1/2 gating, 1/4 gating or 1/8 gating (FFS) |
| Gating activation time | | M | FFS |

### 10.2.6.14 Default DPCH Offset Value

Indicates the default offset value within interleaving size at a resolution of 512chip (1/5 slot) to offset CFN in the UE. This is used to distribute discontinuous transmission periods in time and also to distribute NodeB-RNC transmission traffics in time. Even though the CFN is offset by DOFF, the start timing of the interleaving will be the timing that "CFN mod (interleaving size)"=0 (e.g. interleaving size: 2,4,8) in both UE and SRNC.

### 10.2.6.15 RF channel number priority

| Information Element/Group name | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| RF channel number priority | M | | | Enable the setting of priority of the UTRA RF Channel Number parameter, to facilitate efficient system/ cell/ channel identification and selection processes |

*[Editor's note: a Liaison has been sent to determine whether this IE is necessary]*

### 10.2.6.16 AICH Info

| Information Element/Group name | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| DL scrambling code | C-primCCPCH | | | |
| Channelization code | M | | | |
| STTD indicator | O | | | |

| Condition | Explanation |
|---|---|
| *primCCPCH* | This IE is only included if the DL scrambling code is different to that of the primary CCPCH |

| | |
|---|---|
| | |

## 10.2.6.17 PICH Info

| Information Element/Group name | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| | | | | |

## 10.2.6.18 PRACH info (for FAUSCH)

| Information Element/Group name | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| Fast access slot | | 1 to <maxAS> | | |
| Preamble spreading code | | 1 to <maxPreambleSC> | | |
| Preamble signature | | 1 to <maxPreambleSigs> | | |
| FAUSCH usage | | | | Indicates true/false for “use for DCH allocation”, “use for USCH capability request”. |

| Range Bound | Explanation |
|---|---|
| *maxAS* | Number of access slots for the preambles (Every 16 chips) |
| *maxPreambleSC* | Number of preamble spreading codes |
| *maxPreambleSigs* | Number of allowed preamble signatures |

## 10.2.6.19 CPCH set info

This IE may be broadcast in the System Information message or assigned by SRNC. It is pseudo-static in a cell.

| Information Element/Group name | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| CPCH set ID | C | | | Indicates the ID number for a particular CPCH set allocated to a cell.<br>Necessity is FFS. |
| AP preamble code | O | | | 256 chip preamble code for AP in UL |
| AP-AICH channelisation code | O | | | 256 chip channelisation code for AP-AICH in DL |
| CD preamble code | O | | | 256 chip preamble code for CD in UL |
| CD-AICH channelisation code | O | | | 256 chip channelisation code for CD-AICH in DL |
| Signature code N | O | | | Signature code for CPCH channel selection in UL. 16 signatures, 16 bits each, N from 1-16. |
| CPCH channel info | | 0 to <maxCPCHs> | | |
| UL scrambling code | O | | | |
| UL channelisation code | O | | | |
| DL channelisation code | O | | | |
| NF_max (Max packet length in frames) | O | | | |
| Signature pointer (maps to set of signatures for this channel) | O | | | |

| Range Bound | Explanation |
|---|---|
| *MaxCPCHs* | Maximum number of CPCH channels in a CPCH set (max=16 with 1 signature per channel) |

Note: Whether several CPCH Set Info with different QoS can be set in a cell is FFS.

### 10.2.6.20 CPCH persistency values

This IE is dynamic and is used by RNC for load balancing and congestion control. This is broadcast often in the system information message.

| Information Element/Group name | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| CPCH set ID | M | | | Identifier for CPCH set info. |
| PV_CPCHn | M | | | Persistency value for CPCHn. One PV for each CPCH channel in this CPCH set. |

### 10.2.6.21 Downlink DPCH compressed mode info

This information element indicates the parameters of the downlink compressed mode to be used by the UE in order to perform inter-frequency measurements.

| Information Element/Group name | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| TGL | M | | | Transmission Gap length expressed in number of slots |
| CFN | M | | | Connection Frame Number when the first compressed frame starts |
| SN | M | | | Slot number when the transmission gap starts (within the CFN) |
| TGP | M | | | Transmission Gap Period indicates the number fo frames between two sets of consecutive compressed frames containing up to 2 transmission gaps |
| TGD | M | | | Transmission Gap distance indicates the number of frames between two consecutive transmission gaps within a transmission gap period. |
| PD | M | | | Total number of TGPs |
| PCM | M | | | Power control mode during the frame after the compressed frame. Indicates whether normal PC mode or compressed PC mode is applied |
| DeltaEb/No | M | | | Delta in DL Eb/No target value to be set in the UE during the compressed frames (Note 1) |
| DeltaEb/Noafter | M | | | Delta in DL Eb/No target value to be set in the UE one frame after the compressed frames (Note 1) |

*[Editors Note 1: The current assumptions is that the delta will be zero or positive]*

### 10.2.6.22 Downlink DPCH power control information

This information element indicates the range of Eb/No target values and the initial Eb/No target value to be set in the UE on this physical, channel for the downlink closed loop power control.

| Information Element/Group name | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| Initial Eb/No target value | M | | | Initial Eb/No value to be used for the DL closed loop power control. |
| Min Eb/No target value | M | | | Minimum Eb/No value that can be set by the DL closed loop power control. |
| Max Eb/No target value | M | | | Maximum Eb/No value that can be set by the DL closed loop power control. |

### 10.2.6.23 Downlink Outer Loop Control

This information element indicates whether the UE is allowed or not to increase its downlink Eb/No target value above the current value.

## 10.2.7 Measurement Information elements

### 10.2.7.1 Measurement Identity Number

A reference number that is used by the UTRAN at modification and release of the measurement, and by the UE in the measurement report.

### 10.2.7.2 Measurement Command

One out of three different measurement commands

- Setup: Setup a new measurement.
- Modify: Modify a previously specified measurement, e.g. change the reporting criteria.
- Release: Stop a measurement and clear all information in the UE that are related to that measurement.

### 10.2.7.3 Measurement Type

One of the types from a predefined list where each type describes what the UE shall measure. The types are:

- Intra-frequency measurements
- Inter-frequency measurements
- Inter-system measurements
- Traffic volume measurements
- Quality measurements
- UE internal measurement

### 10.2.7.4 Reference time difference to cell

The reference time difference to cell indicates the time difference between the primary CCPCH of the current cell and the primary CCPCH of a neighbouring cell. It is notified to UE by System Information or Measurement Control message.
In case of macro-diversity the reference is the primary CCPCH of one the cells used in the active set.

*Editors note: Exactly how the reference cell is pointed out in this case in the messages is FFS.*

### 10.2.7.5 Measured time difference to cell

The measured time difference to cell indicates the time difference which is measured by UE between CFN in the UE and the SFN of the target neighbouring cell. It is notified to SRNC by Measurement Report message or Measurement Information Element in other RRC messages.

### 10.2.7.6 Measurement reporting mode

Contains the type of Measurement Report transfer mode and the indication of periodical/event trigger.

| Information Element/Group name | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| Measurement Report Transfer Mode | M | | enumerated (Acknowledged / Unacknowledged) | |
| Periodical Reporting / Event Trigger Reporting Mode | M | | enumerated (Periodical reporting / Event trigger) | |

| ~~Parameters~~ | ~~REFERENCE~~ | ~~TYPE~~ | ~~NOTE~~ |
|---|---|---|---|
| ~~Measurement Report Transfer Mode~~ | | ~~M~~ | ~~Acknowledged / Unacknowledged~~ |
| ~~Periodical Reporting / Event Trigger Reporting Mode~~ | | ~~M~~ | ~~Periodical reporting / Event trigger~~ |

## 10.2.7.7 Intra-frequency cell info

Contains the measurement object information for an intra-frequency measurement.

| Information Element/Group name | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| Primary CCPCH info | M | | | |
| Primary CCPCH DL TX power | O | | | |
| UL load | O | | | FFS |
| SFN Measurement Indicator | M | | | |

| ~~*Parameters*~~ | ~~*REFERENCE*~~ | ~~*TYPE*~~ | ~~*NOTE*~~ |
|---|---|---|---|
| ~~Primary CCPCH info~~ | | ~~M~~ | |
| ~~Primary CCPCH DL TX power~~ | | ~~O~~ | |
| ~~UL load~~ | | ~~O~~ | ~~FFS~~ |
| | | | |
| ~~SFN Measurement Indicator~~ | | ~~M~~ | |

## 10.2.7.8 Inter-frequency cell info

Contains the measurement object information for an inter-frequency measurement.

| Information Element/Group name | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| Frequency info | M | | | |
| Primary CCPCH info | M | | | |
| Primary CCPCH DL TX power | O | | | FFS |
| UL load | O | | | FFS |
| Reference time difference to cell | O | | | FFS |

| ~~Parameters~~ | ~~REFERENCE~~ | ~~TYPE~~ | ~~NOTE~~ |
|---|---|---|---|
| ~~Frequency info~~ | | ~~M~~ | |
| ~~Primary CCPCH info~~ | | ~~M~~ | |
| ~~Primary CCPCH DL TX power~~ | | ~~O~~ | ~~FFS~~ |
| ~~UL load~~ | | ~~O~~ | ~~FFS~~ |
| ~~Reference time difference to cell~~ | | ~~O~~ | ~~FFS~~ |

## 10.2.7.9 Inter-system cell info

Contains the measurement object information for an inter-system measurement.

| Information Element/Group name | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| System type | M | | enumerated (GSM,..) | |
| System specific measurement info | | | enumerated (frequency, timeslot, colour code, output power.) | |

| ~~Parameters~~ | ~~REFERENCE~~ | ~~TYPE~~ | ~~NOTE~~ |
|---|---|---|---|
| ~~System type~~ | | ~~M~~ | ~~E.g. GSM~~ |
| | | | |
| ~~System specific measurement info~~ | | | ~~E.g frequency, timeslot, colour code, output power.~~ |

## 10.2.7.10 Traffic volume measurement object

Contains the measurement object information for a traffic volume measurement.

| Information Element/Group name | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| Target Transport CH ID | M | | | |

| ~~Parameters~~ | ~~REFERENCE~~ | ~~TYPE~~ | ~~NOTE~~ |
|---|---|---|---|
| ~~Target Transport CH ID~~ | | ~~M~~ | |

## 10.2.7.11 Quality measurement object (FFS)

*(Note: Only the section is made.)*

## 10.2.7.12 Intra-frequency measurement quantity

The quantity the UE shall measure in case of intra-frequency measurement. It also includes the filtering of the measurements.

| Information Element/Group name | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| Primary CCPCH RX $E_c/I_0$ | O | | | One of these is mandatory |
| Primary CCPCH RX SIR (RSCP/ISCP) | O FFS | | | |
| Primary CCPCH RX power (RSCP) | O FFS | | | |
| Path loss | O FFS | | | |
| Path loss plus UL load | O FFS | | | |

| ~~Parameters~~ | ~~REFERENCE~~ | ~~TYPE~~ | ~~NOTE~~ | |
|---|---|---|---|---|
| ~~Primary CCPCH RX $E_c/I_0$~~ | | ~~O~~ | | ~~One of these is mandatory~~ |
| ~~Primary CCPCH RX SIR (RSCP/ISCP)~~ | | ~~O~~ | ~~FFS~~ | |
| ~~Primary CCPCH RX power (RSCP)~~ | | ~~O~~ | ~~FFS~~ | |
| ~~Path loss~~ | | ~~O~~ | ~~FFS~~ | |
| ~~Path loss plus UL load~~ | | ~~O~~ | ~~FFS~~ | |

(Note: Above measurements except for Ec/Io are not concluded in WG1)

### 10.2.7.13 Inter-frequency measurement quantity (FFS)

The quantity the UE shall measure in case of inter-frequency measurement. It also includes the filtering of the measurements.

| Information Element/Group name | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| $E_c/I_0$ | O FFS | | | One of these is mandatory |
| DL Path loss | O FFS | | | |
| SIR | O FFS | | | |
| DL path loss plus UL interference | O FFS | | | |
| Received signal code power (RSCP) | O FFS | | | |

| ~~Parameters~~ | ~~REFERENCE~~ | ~~TYPE~~ | ~~NOTE~~ | |
|---|---|---|---|---|
| ~~$E_c/I_0$~~ | | ~~O~~ | ~~FFS~~ | ~~One of these is mandatory~~ |
| ~~DL Path loss~~ | | ~~O~~ | ~~FFS~~ | |
| ~~SIR~~ | | ~~O~~ | ~~FFS~~ | |
| ~~DL path loss plus UL interference~~ | | ~~O~~ | ~~FFS~~ | |
| ~~Received signal code power (RSCP)~~ | | ~~O~~ | ~~FFS~~ | |

### 10.2.7.14 Inter-system measurement quantity (FFS)

The quantity the UE shall measure in case of inter-system measurement. It also includes the filtering of the measurements.

| Information Element/Group name | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| $E_c/I_0$ | O FFS | | | One of these is mandatory |
| Signal strength | O | | | |
| Path loss | O FFS | | | |
| Colour code | C - GSM | | | |

| ~~Parameters~~ | ~~REFERENCE~~ | ~~TYPE~~ | ~~NOTE~~ | |
|---|---|---|---|---|
| ~~$E_c/I_0$~~ | | ~~O~~ | ~~FFS~~ | ~~One of these is mandatory~~ |
| ~~Signal strength~~ | | ~~O~~ | | |
| ~~Path loss~~ | | ~~O~~ | ~~FFS~~ | |
| ~~Colour code~~ | | ~~M~~ | ~~GSM only~~ | |

| Condition | Explanation |
|---|---|
| *GSM* | This information element is only sent when the system being measured is a GSM system |

~~*Condition C-GSM*~~

~~This information elemt is conditional on the system being a GSM system~~

### 10.2.7.15 Traffic volume measurement quantity

Contains the measurement quantity information for a traffic volume measurement.

| Information Element/Group name | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| RLC buffer payload | M | | | |

| ~~Parameters~~ | ~~REFERENCE~~ | ~~TYPE~~ | ~~NOTE~~ |
|---|---|---|---|
| ~~RLC buffer payload~~ | | ~~M~~ | |

(Note: If there is no other measurement quantity, this parameter can be removed since it can be implicitly known by UE.)

## 10.2.7.16 UE internal measurement quantity

The quantity the UE shall measure in case of UE internal measurement.

| Information Element/Group name | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| UE Tx power | O | | | One of these is mandatory |
| UE RSSI | O | | | |

| ~~Parameters~~ | ~~REFERENCE~~ | ~~TYPE~~ | ~~NOTE~~ | |
|---|---|---|---|---|
| ~~UE Tx power~~ | | ~~O~~ | | ~~One of these is mandatory~~ |
| ~~UE RSSI~~ | | ~~O~~ | | |

## 10.2.7.17 Quality measurement quantity (FFS)

*(Note: Only the section is made.)*

## 10.2.7.18 Intra-frequency reporting quantity

Contains the reporting quantity information for an intra-frequency measurement.

| Information Element/Group name | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| Primary CCPCH RX $E_c/I_0$ | O | | | |
| Primary CCPCH RX SIR (RSCP/ISCP) | O | | | FFS |
| Primary CCPCH RX power (RSCP) | O | | | FFS |
| Path loss plus UL load | O | | | FFS |
| Measured time difference to cell | O | | | |
| DL Transport CH BLER | O | | | |
| DL Transport CH BER | O | | | FFS |
| UE Transmission Power | O | | | |
| UE Position | O | | | |
| Cell ID | O | | | FFS |

| ~~Parameters~~ | ~~REFERENCE~~ | ~~TYPE~~ | ~~NOTE~~ |
|---|---|---|---|
| ~~Primary CCPCH RX $E_c/I_0$~~ | | ~~O~~ | |
| ~~Primary CCPCH RX SIR (RSCP/ISCP)~~ | | ~~O~~ | ~~FFS~~ |
| ~~Primary CCPCH RX power (RSCP)~~ | | ~~O~~ | ~~FFS~~ |
| ~~Path loss plus UL load~~ | | ~~O~~ | ~~FFS~~ |
| ~~Measured time difference to cell~~ | | ~~O~~ | |
| ~~DL Transport CH BLER~~ | | ~~O~~ | |
| ~~DL Transport CH BER~~ | | ~~O~~ | ~~FFS~~ |
| ~~UE Transmission Power~~ | | ~~O~~ | |
| ~~UE Position~~ | | ~~O~~ | |
| ~~Cell ID~~ | | ~~O~~ | ~~FFS~~ |

(Note: It is FFS whether the reporting quantity parameters used in different measurement types can be used commonly for all types of reporting quantity. If they can, only “Reporting Quantity” is enough instead of specifying 5 types of reporting quantity.)

## 10.2.7.19 Intra-frequency reporting quantity for RACH reporting

Contains the reporting quantity information for an intra-frequency measurement report, which is sent on the RACH.

| Information Element/Group name | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| Primary CCPCH RX $E_c/I_0$ | O | | | |
| Primary CCPCH RX SIR (RSCP/ISCP) | O | | | FFS |
| Primary CCPCH RX power (RSCP) | O | | | FFS |
| Path loss plus UL load | O | | | FFS |
| Measured time difference to cell | O | | | |
| DL Transport CH BLER | O | | | FFS |
| DL Transport CH BER | O | | | FFS |
| UE Transmission Power | O | | | FFS |
| UE Position | O | | | FFS |
| Cell ID | O | | | FFS |

| ~~Parameters~~ | ~~REFERENCE~~ | ~~TYPE~~ | ~~NOTE~~ |
|---|---|---|---|
| ~~Primary CCPCH RX $E_c/I_0$~~ | | ~~O~~ | |
| ~~Primary CCPCH RX SIR (RSCP/ISCP)~~ | | ~~O~~ | ~~FFS~~ |
| ~~Primary CCPCH RX power (RSCP)~~ | | ~~O~~ | ~~FFS~~ |
| ~~Path loss plus UL load~~ | | ~~O~~ | ~~FFS~~ |
| ~~Measured time difference to cell~~ | | ~~O~~ | |
| ~~DL Transport CH BLER~~ | | ~~O~~ | ~~FFS~~ |
| ~~DL Transport CH BER~~ | | ~~O~~ | ~~FFS~~ |
| ~~UE Transmission Power~~ | | ~~O~~ | ~~FFS~~ |
| ~~UE Position~~ | | ~~O~~ | ~~FFS~~ |
| ~~Cell ID~~ | | ~~O~~ | ~~FFS~~ |

## 10.2.7.20 Inter-frequency reporting quantity (FFS)

*(Note: Only the section is made.)*

## 10.2.7.21 Inter-system reporting quantity (FFS)

*(Note: Only the section is made.)*

## 10.2.7.22 Traffic volume reporting quantity

Contains the reporting quantity information for a traffic volume measurement.

| Information Element/Group name | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| RLC buffer payload for each ~~RAB~~RB | O | | | |
| DL Transport CH BLER | O | | | |
| DL Transport CH BER | O | | | FFS |
| UE Transmission Power | O | | | |
| UE Position | O | | | |
| Cell ID | O | | | FFS |

| ~~Parameters~~ | ~~REFERENCE~~ | ~~TYPE~~ | ~~NOTE~~ |
|---|---|---|---|
| ~~RLC buffer payload for each RAB~~ | | ~~O~~ | |
| ~~DL Transport CH BLER~~ | | ~~O~~ | |
| ~~DL Transport CH BER~~ | | ~~O~~ | ~~FFS~~ |
| ~~UE Transmission Power~~ | | ~~O~~ | |
| ~~UE Position~~ | | ~~O~~ | |
| ~~Cell ID~~ | | ~~O~~ | ~~FFS~~ |

(Note: It is FFS whether the reporting quantity parameters used in different measurement types can be used commonly for all types of reporting quantity. If they can, only “Reporting Quantity” is enough instead of specifying 5 types of reporting quantity.

## 10.2.7.23 Quality reporting quantity (FFS)

*(Note: Only the section is made.)*

## 10.2.7.24 Intra-frequency measurement reporting criteria

The triggering of the event-triggered reporting for an intra-frequency measurement. All events concerning intra-frequency measurements are labeled 1x where x is a, b, c….
Event 1a: A Primary CCPCH enters the Reporting Range [Note1]
Event 1b: A Primary CCPCH leaves the Reporting Range [Note2]
Event 1c: A Non-active Primary CCPCH becomes better than an active Primary CCPCH [Note3]
Event 1d: Change of best cell [Note4, 5]
Event 1e: Other types of ranking of Primary CCPCHs (FFS)

| Information Element/Group name | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| Max number of reporting cells | M | | | Common parameter for all events |
| RACH measurement reporting parameters | | | | Group name |
| Maximum number of reported cells on RACH | M | | | |
| Parameters required for each event | | 0 to <maxEvent count> | | |
| Event ID | M | | | 1a, 1b, 1c, 1d or 1e |
| Triggering condition | C - clause 0 | | enumerated | Indicates whether event shall be triggered by:<br>-Active set cells only<br>-Monitored set cells only<br>-Both active set cells and monitored set cells |
| Reporting Range | C - clause 1 | | | In event 1a,1b |
| Hysteresis | C & O - clause 2 | | | In event 1a, 1b, 1c,1d |
| Reporting deactivation threshold | C - clause 3 | | | In event 1a<br>Indicates the maximum number of cells allowed in the active set in order for event 1a to occur.<br>Value 0 indicates "not applicable". |
| Replacement activation threshold | C - clause 4 | | | In event 1c<br>Indicates the minimum number of cells allowed in the active set in order for event 1c to occur.<br>Value 0 indicates "not applicable". |
| Time to trigger | M | | | Indicates the period of time between the timing of event detection and the timing of sending Measurement Report. |
| Amount of reporting | M | | | Measurement for the indicated Transport CH ID is “released” after the indicated amount of reporting from the UE itself.<br>FFS |
| Reporting interval | M | | | Indicates the interval of periodical reporting when such reporting is triggered by an event. A zero value indicates that event triggered periodical reporting shall not be applied. |

| ~~Parameters~~ | | ~~REFERENCE~~ | ~~TYPE~~ | ~~NOTE~~ |
|---|---|---|---|---|
| | | | | |
| ~~Common parameter for all events~~ | ~~Max number of reporting cells~~ | | ~~M~~ | |
| | | | | |
| ~~For each event~~ | ~~Event ID~~ | | ~~M~~ | ~~1a, 1b, 1c, 1d or 1e~~ |
| | ~~Reporting Range~~ | | ~~C~~ | ~~In event 1a,1b~~ |
| | ~~Hysteresis~~ | | ~~O~~ | ~~In event 1a, 1b, 1c,1d~~ |

| | | | | |
|---|---|---|---|---|
| | ~~Reporting deactivation threshold~~ | | ~~C~~ | ~~In event 1a Indicates the maximum number of cells allowed in the active set in order for event 1a to occur. Value 0 indicates "not applicable".~~ |
| | ~~Replacement activation threshold~~ | | ~~C~~ | ~~In event 1c Indicates the minimum number of cells allowed in the active set in order for event 1c to occur. Value 0 indicates "not applicable".~~ |
| | ~~Time to trigger~~ | | ~~M~~ | ~~Indicates the period of time between the timing of event detection and the timing of sending Measurement Report.~~ |
| | ~~Amount of reporting~~ | | ~~M~~ | ~~Measurement for the indicated Transport CH ID is "released" after the indicated amount of reporting from the UE itself. FFS~~ |
| | ~~Reporting interval~~ | | ~~M~~ | ~~Indicates the interval of periodical reporting when such reporting is triggered by an event. A zero value indicates that event triggered periodical reporting shall not be applied.~~ |
| | | | | |
| ~~For RACH measurement reporting~~ | ~~Maximum number of reported cells on RACH~~ | | ~~M~~ | |
| | | | | |

| **Condition** | **Explanation** |
|---|---|
| *Clause 0* | This parameter is only sent in event 1a,1b, 1e, 1f |
| *Clause 1* | This parameter is only sent in event 1a,1b |
| *Clause 2* | This parameter is only sent in event 1a,1b, 1c,1d |
| *Clause 3* | This parameter is only sent in event 1a |
| *Clause 4* | This parameter is only sent in event 1c |

~~*Condition C – Clause 1*~~

~~This parameter is only sent in event 1a,1b~~

~~*Condition C& O – Clause 2*~~

~~This parameter is only sent in event 1a,1b, 1c,1d~~

~~*Condition C – Clause 3*~~

~~This parameter is only sent in event 1a~~

~~*Condition C – Clause 4*~~

~~This parameter is only sent in event 1c~~

[Note1: whether or not PCCPCH can be active is FFS]
[Note2: whether or not PCCPCH can be non-active is FFS]
[Note3: Details are FFS: It has been suggested to divide this event into two cases; I) a non-active PCCPCH exceeds the weakest active PCCPCH, II) a non-active PCCPCH exceeds the strongest active PCCPCH]
[Note4: When best PCCPCH in active set changes, all active cells are reported.]
[Note5: Whether this event can result in the reporting of non-active cells in addition to active cells is FFS.]

## 10.2.7.25 Inter-frequency measurement reporting criteria (FFS)

The triggering of the measurement report, e.g. periodical, event-triggered or immediate reporting for an inter-frequency measurement. Here is also specified if the measurement report should be transmitted using either acknowledged or unacknowledged data transfer on the DCCH.

| Information Element/Group name | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| | | | | |

| ~~Parameters~~ | ~~REFERENCE~~ | ~~TYPE~~ | ~~NOTE~~ | |
|---|---|---|---|---|
| | | | | |

## 10.2.7.26 Inter-system measurement reporting criteria (FFS)

The triggering of the measurement report, e.g. periodical, event-triggered or immediate reporting for an inter-system measurement. Here is also specified if the measurement report should be transmitted using either acknowledged or unacknowledged data transfer on the DCCH.

## 10.2.7.27 Traffic volume measurement reporting criteria

Contains the measurement reporting criteria information for a traffic volume measurement.

| Information Element/Group name | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| Parameters sent for each transport channel | | 1~~0~~ to <maxTrCH count> | | |
| Transport CH ID | M | | | |
| Threshold | M | | | |
| —Time to trigger | M | | | Indicates the period of time between the timing of event detection and the timing of sending Measurement Report. |
| —Pending time after trigger | M | | | Indicates the period of time during which it is forbidden to send any new measurement reports with the same measurement ID even if the triggering condition is fulfilled again. |
| —Amount of reporting | M | | | Measurement for the indicated Transport CH ID is “released” after the indicated amount of reporting from the UE itself.<br>FFS |
| —Reporting interval | M | | | Indicates the interval of periodical report during the event is in the detected state<br>FFS |

| Parameters | | REFERENCE | TYPE | NOTE |
|---|---|---|---|---|
| Common parameter for all transport CH | | | | |
| | | | | |
| For each transport CH | Transport CH ID | | M | |
| | Threshold | | M | |
| | Time to trigger | | M | Indicates the period of time between the timing of event detection and the timing of sending Measurement Report. |
| | Pending time after trigger | | M | Indicates the period of time during which it is forbidden to send any new measurement reports with the same measurement ID even if the triggering condition is fulfilled again. |
| | Amount of reporting | | M | Measurement for the indicated Transport CH ID is "released" after the indicated amount of reporting from the UE itself. FFS |
| | Reporting interval | | M | Indicates the interval of periodical report during the event is in the detected state FFS |
| | | | | |

| Range Bound | Explanation |
|---|---|
| *MaxTrCHcount* | Maximum number of transport channels |

*Range bound MaxTrCHcount*

Maximum number of transport channels

## 10.2.7.28 Quality measurement reporting criteria (FFS)

*(Note: Only the section is made.)*

## 10.2.7.29 UE internal measurement reporting criteria

The triggering of the event-triggered reporting for a UE internal measurement. All events concerning UE internal measurements are labelled 6x where x is a, b, c….
Event 6a: The UE Tx power becomes larger than an absolute threshold
Event 6b: The UE Tx power becomes less than an absolute threshold
Event 6c: The UE Tx power reaches its minimum value
Event 6d: The UE Tx power reaches its maximum value
Event 6e: The UE RSSI reaches the UE's dynamic receiver range

| Information Element/Group name | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| Parameters sent for each UE internal measurement event | | 1~~0~~ to <maxEvent count> | | |
| Event ID | M | | | 6a, 6b, 6c, 6d or 6e |
| Time-to-trigger | M | | | Indicates the period of time between the timing of event detection and the timing of sending Measurement Report. |
| Tx power threshold | C - clause 1 | | | In event 6a, 6b |

| Parameters | | REFERENCE | TYPE | NOTE |
|---|---|---|---|---|
| | | | | |
| For each event | Event ID | | M | 6a, 6b, 6c, 6d or 6e |
| | Time-to-trigger | | M | Indicates the period of time between the timing of event detection and the timing of sending Measurement Report. |
| | Tx power threshold | | C | In event 6a, 6b |
| | | | | |

| Condition | Explanation |
|---|---|
| *Clause 1* | This parameter is only sent in event 6a,6b |

~~*Condition C – Clause 1*~~

~~This parameter is only sent in event 6a,6b~~

## 10.2.7.30 Periodical reporting criteria

Contains the periodical reporting criteria information. It is necessary only in the periodical reporting mode.

| Information Element/Group name | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| Max number of reporting cells | O | | | Indicates the maximum number of cells to report. |
| Amount of reporting | O | | | Measurement is “released” after the indicated amount of reporting from the UE itself |
| Reporting interval | O | | | Indicates the interval of periodical report. |

| ~~Parameters~~ | | ~~REFERENCE~~ | ~~TYPE~~ | ~~NOTE~~ |
|---|---|---|---|---|
| | ~~Max number of reporting cells~~ | | ~~O~~ | ~~Indicates the maximum number of cells to report.~~ |
| | ~~Amount of reporting~~ | | ~~O~~ | ~~Measurement is “released” after the indicated amount of reporting from the UE itself~~ |
| | ~~Reporting interval~~ | | ~~O~~ | ~~Indicates the interval of periodical report.~~ |
| | | | | |

### 10.2.7.31 Intra-frequency measurement event results

This IE contains the measurement event results that are reported to UTRAN for intra-frequency measurements.

| Information Element/Group name | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| Event ID | M | | | |
| Primary CCPCH info | M | | | |

| ~~Parameters~~ | ~~REFERENCE~~ | ~~TYPE~~ | ~~NOTE~~ |
|---|---|---|---|
| ~~Event ID~~ | | ~~M~~ | |
| ~~Primary CCPCH info~~ | | ~~M~~ | |
| | | | |
| | | | |

### 10.2.7.32 Inter-frequency measurement event results (FFS)

This IE contains the measurement event results that are reported to UTRAN for inter-frequency measurements.
The further division of this IE into parameters is FFS.

### 10.2.7.33 Inter-system measurement event results (FFS)

This IE contains the measurement event results that are reported to UTRAN for inter-system measurements.
The further division of this IE into parameters is FFS.

### 10.2.7.34 Traffic volume measurement event results

Contains the event result for a traffic volume measurement.

| Information Element/Group name | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| Transport CH ID | M | | | |

| ~~Parameters~~ | ~~REFERENCE~~ | ~~TYPE~~ | ~~NOTE~~ |
|---|---|---|---|
| ~~Transport CH ID~~ | | ~~M~~ | |

### 10.2.7.35 Quality measurement event results (FFS)

*(Note: Only the section is made.)*

### 10.2.7.36 Measured results

Contains the measured results of the quantity indicated optionally by Reporting Quantity in Measurement Control.
"Measured results" can be used for both event trigger mode and periodical reporting mode.

| Information Element/Group name | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| ~~RAB~~RB ID<br>+ RLC buffers payload | O | | | |
| PCCPCH Info<br>+ Primary CCPCH RX $E_c/I_0$ | O | | | |
| PCCPCH Info<br>+ Primary CCPCH RX SIR (RSCP/ISCP) | O | | | FFS |
| PCCPCH Info<br>+ Primary CCPCH RX power (RSCP) | O | | | FFS |
| PCCPCH Info<br>+ Path loss | O | | | FFS |
| PCCPCH Info<br>+ Path loss plus UL load | O | | | FFS |
| PCCPCH Info<br>+ Measured time difference to cell | O | | | |
| DL Transport CH BLER | O | | | |
| DL Transport CH BER | O | | | FFS |
| UE Transmission Power | O | | | |
| UE Position | O | | | |
| Cell ID | O | | | FFS |

| ~~Parameters~~ | ~~REFERENCE~~ | ~~TYPE~~ | ~~NOTE~~ |
|---|---|---|---|
| ~~RAB ID<br>+ RLC buffers payload~~ | | ~~O~~ | |
| ~~PCCPCH Info<br>+ Primary CCPCH RX $E_c/I_0$~~ | | ~~O~~ | |
| ~~PCCPCH Info<br>+ Primary CCPCH RX SIR (RSCP/ISCP)~~ | | ~~O~~ | ~~FFS~~ |
| ~~PCCPCH Info<br>+ Primary CCPCH RX power (RSCP)~~ | | ~~O~~ | ~~FFS~~ |
| ~~PCCPCH Info<br>+ Path loss~~ | | ~~O~~ | ~~FFS~~ |
| ~~PCCPCH Info<br>+ Path loss plus UL load~~ | | ~~O~~ | ~~FFS~~ |
| ~~PCCPCH Info<br>+ Measured time difference to cell~~ | | ~~O~~ | |
| ~~DL Transport CH BLER~~ | | ~~O~~ | |
| ~~DL Transport CH BER~~ | | ~~O~~ | ~~FFS~~ |
| ~~UE Transmission Power~~ | | ~~O~~ | |
| ~~UE Position~~ | | ~~O~~ | |
| ~~Cell ID~~ | | ~~O~~ | ~~FFS~~ |
| | | | |

### 10.2.7.37 SFN Measurement Indicator

Indicates whether the UE should read cell SFN of the target neighbour cell or not.

## 10.2.8 Other Information elements

### 10.2.8.1 BCCH modification info

Indicates modification of the System Information on BCCH.

| Information Element/Group name | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| BCCH modification type | M | | | FFS |
| Modification time | O | | | FFS |

| ~~Parameters~~ | ~~REFERENCE~~ | ~~TYPE~~ | ~~NOTE~~ |
|---|---|---|---|
| ~~BCCH modification type~~ | | ~~M~~ | ~~FFS~~ |
| ~~Modification time~~ | | ~~O~~ | ~~FFS~~ |

### 10.2.8.2 Inter-system message

This Information Element contains one or several messages that are structured and coded according to the specification used for the system type indicated by the first parameter.

| Information Element/Group name | Presence | Range | IE type and reference | Semantics description |
|---|---|---|---|---|
| System type | M | | Enumerated (GSM,..) | |
| Message(s) | M | | | Formatted and coded according to specification for the indicated system type. |

| ~~Parameters~~ | ~~REFERENCE~~ | ~~TYPE~~ | ~~NOTE~~ |
|---|---|---|---|
| ~~System type~~ | | ~~M~~ | ~~E.g. GSM~~ |
| ~~Message(s)~~ | | ~~M~~ | ~~Formatted and coded according to specification for the indicated system type.~~ |

# 11 Message and Information element abstract syntax (with ASN.1)

This chapter contains definitions for RRC PDUs and IEs using a subset of ASN.1 as specified in I2.01. PDU and IE definitions are grouped into separate ASN.1 modules.

*Note that the proposal is to keep both chapter 10 and 11 (at least until all messages and information elements are fully discussed and agreed by 3GPP RAN WG2). Chapter 10 is intended to give an abstract description (in English) of the messages and information elements whereas chapter 11 should contain the exact normative definitions with all necessary details.*

# 12 Message transfer syntax

Transfer syntax for RRC PDUs is derived from their abstract syntax definitions by use of encoding rules.

# ~~13 Protocol states~~

~~Service state diagram(s) of the RRC sublayer. (E.g. like in GSM0407.)~~

# 13 Protocol states

~~The proposed state diagram has been based on a few key assumptions. The set of states shall be comprehensive enough in order to satisfy the range of QoS requirements from very fast packet access to optimum saving of the resources (Node B h/w, UE power, air interface capacity). A comprehensive set of states between the two extremes is required for optimization purposes.~~

## ~~2.1~~13.1 ~~UE~~ RRC States and State Transitions including GSM ~~(PSTN / ISDN only)~~

Figure 45~~Figure 43~~~~Figure 2~~ shows the ~~main UE~~ RRC states ~~(Cell Connected State and URA Connected State)~~ in Connected Mode, including transitions between UTRAN connected mode and GSM connected mode for PSTN/ISDN domain services, and between UTRAN connected mode and GSM/GPRS packet modes for IP domain services. It also shows the transitions between Idle Mode and UTRAN Connected Mode and further the transitions ~~between Cell Connected and URA Connected States~~within UTRAN connected Mode.

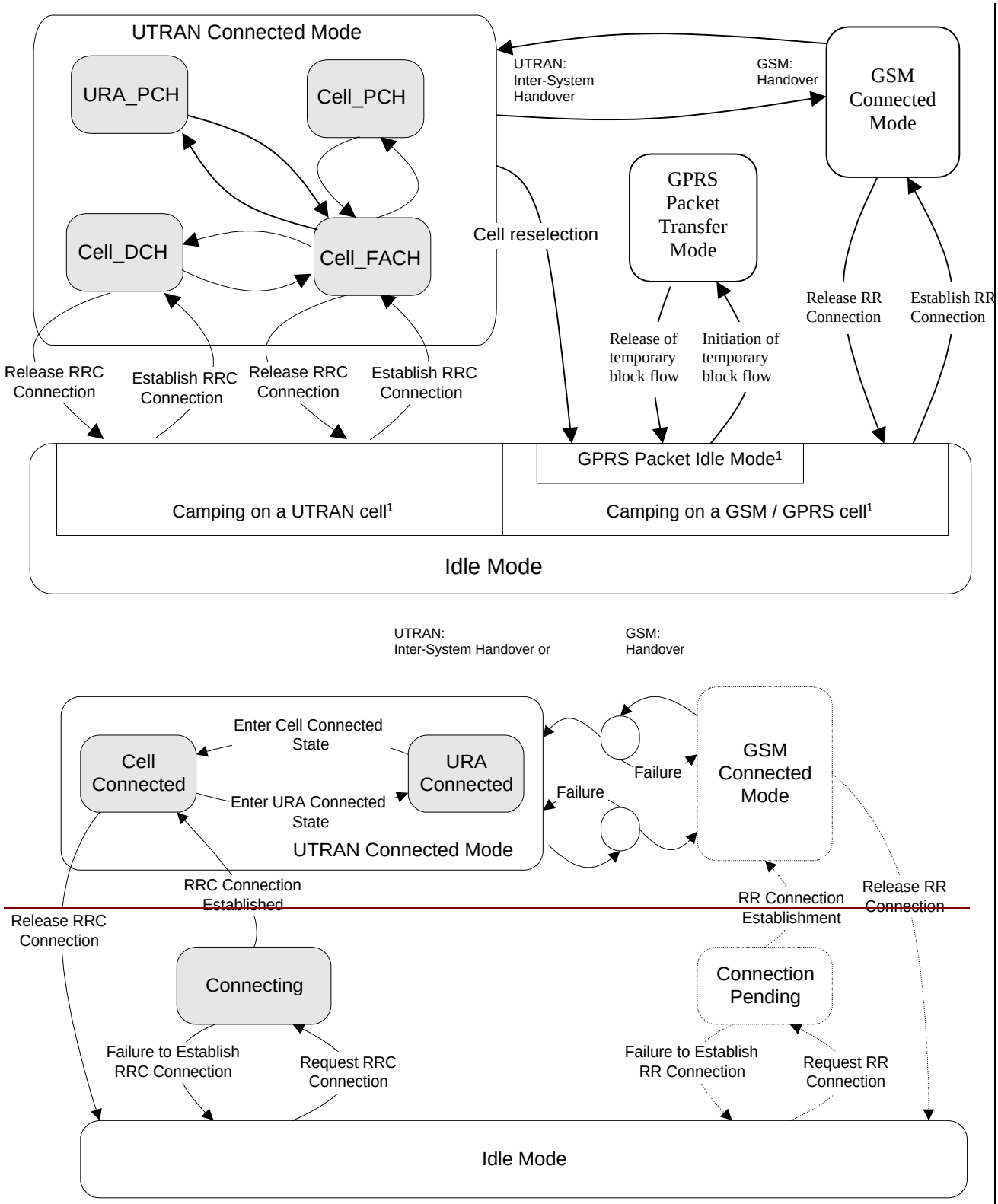



**Figure 45432: ~~UE~~ RRC States and State Transitions including GSM ~~(PSTN/ISDN only)~~**

**[1: The indicated division within Idle Mode is only included for clarification and shall not be interpreted as states.]**

It shall be noted that not all states may be applicable for all UE connections. For a given QoS requirement on the UE connection, only a subset of the states may be relevant.

After power on, the UE stays in Idle Mode until it transmits a request to establish an RRC Connection. In Idle Mode the connection of the UE is closed on all layers of the UTRAN. In Idle Mode the UE is identified by non-access stratum identities such as IMSI, TMSI and P-TMSI. In addition, the UTRAN has no own information about the individual Idle

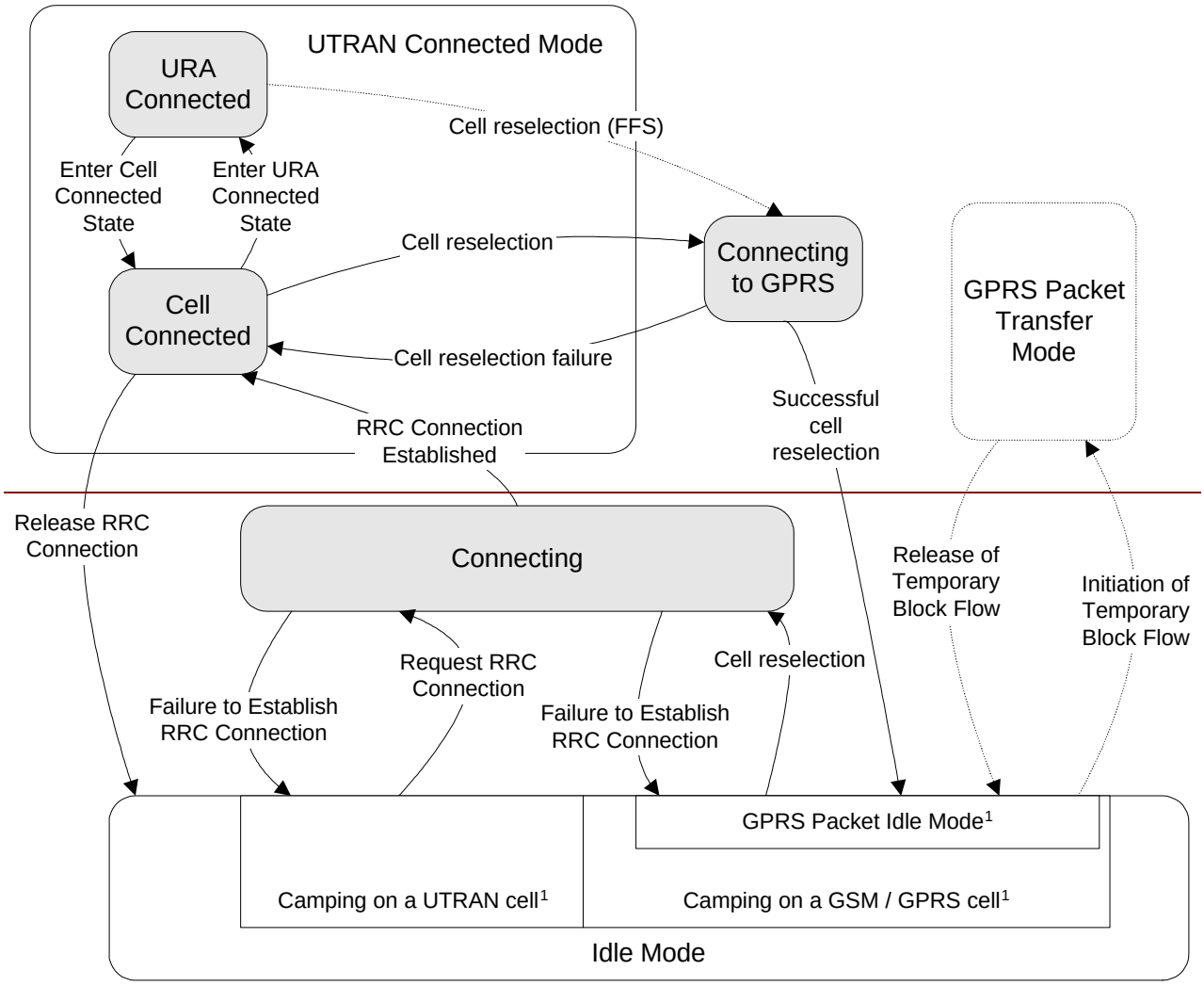
Mode UE:s, and it can only address e.g. all UE:s in a cell or all UE:s ~~in a~~monitoring a paging ~~group~~occasion. The UE behaviour within this mode is described in /4/.

The UTRAN Connected Mode is entered when the RRC Connection is established. ~~This is done via the Connecting State.~~ The UE is assigned a radio network temporary identity (RNTI) to be used as UE identity on common transport channels. *[Note: The exact definition of RRC connection needs further refinement.]* The ~~main~~ RRC states within UTRAN Connected Mode reflect the level of UE connection and which transport channels that can be used by the UE. For inactive stationary data users the UE may fall back to PCH ~~in~~ on both the Cell ~~Connected and~~ URA ~~Connected States~~levels. That is, upon the need for paging, the UTRAN shall check the current level of connection of the given UE, and decide whether the paging message shall be sent within the URA, or should it be sent via a specific cell.

~~The UE states indicated between UTRAN Connected Mode and GSM Connected Mode are transition states where the UE, in case of failure, has the possibility to re-establish the connection in the mode it originated from.~~

~~When using PSTN / ISDN domain services, UTRAN is using an Inter-System Handover Procedure and GSM is using a Handover procedure for the transition from UTRAN Connected Mode to GSM Connected Mode.~~

## ~~5.2UE RRC States and State Transitions including GSM / GPRS (IP only)~~




**~~Figure 3: UE RRC states and State Transitions including GSM/GPRS (IP only)~~**

**~~[1: The indicated "Radio access modes" in Idle Mode are only included for clarification and shall not be interpreted as states.]~~**

~~The UE states "Connecting to GPRS" and "Connecting" indicated in figure 2 between UTRAN Connected Mode and Idle mode (GPRS Packet Idle Mode) are transition states where the UE, in case of failure, has the possibility to re-establish the connection in the mode it originated from.~~

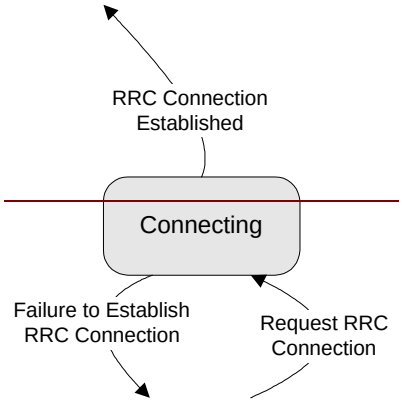
~~When using IP domain services, The UE initiates cell reselection from GSM/GPRS to change from Idle Mode to "Connecting" state, from that state the UE is using the RRC Connection Establishment procedure for the transition from "Connecting" to Cell Connected state.~~
~~When the RRC Connection is established from Idle Mode (GPRS Packet Idle Mode) the RRC CONNECTION REQUEST message contains an indication, that UTRAN needs to continue an already established GPRS UE context from the CN. This indication allows UTRAN to e.g. prioritize the RRC CONNECTION REQUEST from the UE.~~
~~In Cell Connected or URA Connected (FFS) State UTRAN is using UE or Network initiated cell reselection to change from Cell Connected or URA Connected (FFS) state to "Connecting to GPRS" state. If the cell reselection was successful the UE enters Idle Mode (GPRS Packet Idle Mode). The UE sends a packet channel request from Idle Mode (GPRS Packet Idle mode) to establish a Temporary Block flow and enter GPRS Packet Transfer Mode. In the GPRS Packet Transfer Mode the UE sends a RA Update request message. The RA Update Request message sent from the UE contains an indication that GSM/GPRS need to continue an already established UTRAN UE context from the CN. This means that the RA Update request is always sent for the transition from UTRAN Connected Mode to GSM/GPRS regardless if the RA is changed or not.~~
~~*[Note: The reason for using RA update instead of a new message is to reduce the impact on the existing GSM/GPRS specification.]*~~

## ~~5.3~~13.2 Transition from Idle Mode to ~~Connecting State~~UTRAN Connected Mode

The transition to the ~~Connecting State~~UTRAN Connected Mode from the Idle Mode can only be initiated by the UE by transmitting a request for an RRC Connection. The event is triggered either by a paging request from the network or by a request from upper layers in the UE.

## ~~3.4Connecting State~~

~~In the Connecting State (Figure 3) the UE has transmitted a request for an RRC connection and it waits for a response. No mobility procedures take place in this state.~~
~~In this state, the UE transmits on RACH transport channel in the uplink and receives the FACH transport channel in the downlink. Only the logical channel CCCH can be used, since no RNTI is assigned. Connecting state is shown in Figure 3.~~




**~~Figure 4: Connecting State~~**

### ~~3.4.1Transition to Connected Mode~~

When the UE receives a message from the network that confirms the RRC connection establishment, the UE enters the ~~cell connected~~CELL_FACH or CELL_DCH state of UTRAN Connected Mode.

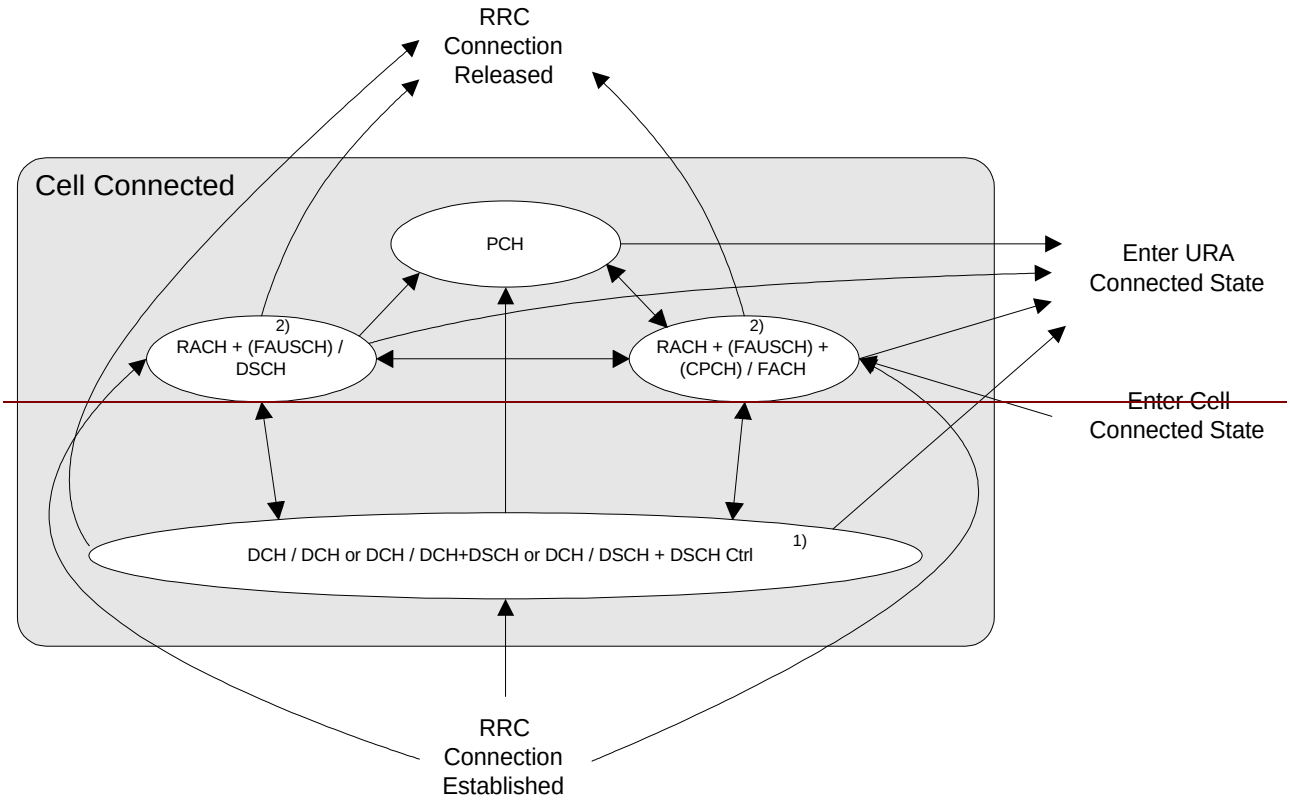
### ~~5.4.2~~Transition to Idle Mode

In the case of a failure to establish the RRC Connection the UE goes back to Idle Mode. Possible causes are radio link failure, a received reject response from the network or lack of response from the network (timeout).

# ~~5.5~~13.3 UTRAN Connected Mode States and Transitions

## ~~2.5.1Cell Connected State~~

~~In this state, the position of the UE is known on cell level. The RRC Connection mobility is handled by handover procedures including soft handover, hard handover and cell updates. Both uplink and downlink data transfer is possible.~~




**~~Figure 5: Substates within Cell Connected State~~**

**~~[1): Inclusion of the DCH / DSCH + DSCH Ctrl substate is based on the assumption that DSCH Ctrl contains power control bits. If these PC bits don't exist, this substate is not needed.]~~**

~~[1): The channels shown in parenthesis (FAUSCH and CPCH) are available in these substate~~s after allocation to the UE.]~~DCH / DCH, DCH / DCH + DSCH and DCH / DSCH + DSCH Ctrl substates~~

## 13.3.1 CELL_DCH state

~~These substates~~ The CELL_DCH state is ~~are~~ characterized by

- A dedicated physical channel is allocated to the UE in uplink and downlink.
- The UE is known on cell level according to its current active set.
- ~~the allocation of a d~~Dedicated transport channels, downlink shared transport channels, and a combination of these transport channels can be used ~~to~~ by the UE.

The CELL_DCH-state~~s are~~ is entered from the ~~Connecting State~~Idle Mode through the setup of an RRC connection, or by establishing a dedicated physical channel ~~(DCH)~~ from the ~~RACH / FACH, RACH + FAUSCH / FACH, RACH + FAUSCH / DSCH or RACH / DSCH substates~~CELL_FACH state.

A PDSCH may be assigned to the UE in this state, to be used for a DSCH.

These ~~substates~~ CELL_DCH state is ~~are~~ further divided depending on the type of information that is allowed to be transmitted on the dedicated channel(s) and the downlink shared channel. The substates are shown in Figure 50~~Figure 47Figure 6~~.

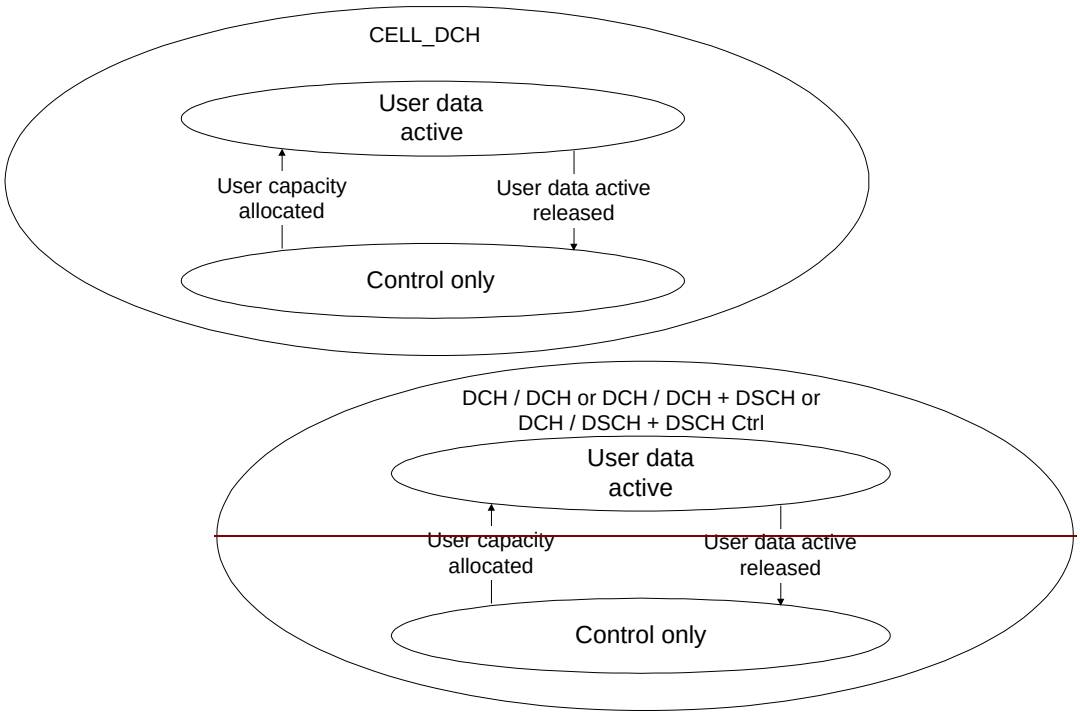



**Figure 5047~~6~~: Substates in ~~DCH / DCH, DCH / DCH + DSCH and DCH / DSCH + DSCH Ctrl substates~~CELL_DCH state**

## ~~2.5.1.1.1~~13.3.1.1 Control only substate

[Editor's note: The applicability of the control only substate to the TDD-mode is FFS. ]

In Control only substate, the uplink and downlink DCHs are allocated, but no user data frames can be exchanged with the exception of data that uses the signalling connection e.g. SMS. Signalling in this substate includes link maintenance and higher layer signalling.

The Control only substate is provided to save air interface capacity and provide efficient packet transfer capacity allocation.

## ~~5.5.1.1.2~~13.3.1.2 User data active substate

In this substate UTRAN has allocated transmission resources for the UE and it may transmit data without a prior request up to the peak capacity that is currently granted to that UE.

~~In DCH/DCH+DSCH state s~~Some part or all of the DTCH resources can be allocated from the DSCH.

~~5.5.1.1.3Transition from DCH/DCH to DCH/DCH+DSCH substate~~

~~FFS.~~

~~5.5.1.1.4Transition from DCH/DCH+DSCH to DCH/DCH substate~~

~~FFS.~~

~~5.5.1.1.5Transition from DCH/DCH to DCH/DSCH+DSCH Ctrl substate~~

~~FFS.~~

~~5.5.1.1.6Transition from DCH/DSCH+DSCH Ctrl to DCH/DCH substate~~

~~FFS.~~

## ~~5.5.1.1.7~~13.3.1.3 Transition from ~~DCH/DCH or DCH/DCH+DSCH or DCH / DSCH + DSCH Ctrl~~CELL_DCH to Idle Mode

Transition to Idle Mode is realised through the release of the RRC connection.

### ~~5.5.1.1.8~~13.3.1.4 Transition from ~~DCH/DCH or DCH/DCH+DSCH~~CELL_DCH to ~~RACH / FACH sub~~CELL_FACH state

Transition to ~~RACH/~~CELL_FACH ~~sub~~state can occur either
a) through the expiration of an inactivity timer ($T_{DCH}$),
b) at the end of the time period for which the dedicated / shared channel was allocated or
c) via explicit signalling.

~~2.5.1.1.9Transition from DCH/DCH or DCH/DCH+DSCH to RACH+FAUSCH/FACH substate~~

~~Similar to 3.4.1.1.8, differences FFS.~~

~~5.5.1.1.10Transition from DCH/DCH or DCH/DCH+DSCH to RACH/DSCH or RACH+FAUSCH/DSCH substates~~

~~FFS.~~

~~5.5.1.1.11Transition from DCH/DCH or DCH/DCH+DSCH to PCH substate~~

~~FFS.~~

~~5.5.1.1.12Transition from DCH/DCH or DCH/DCH+DSCH to URA Connected state~~

~~FFS.~~

### ~~5.5.1.1.13~~13.3.1.5 Radio Resource Allocation tasks (~~DCH/DCH and DCH/DCH+DSCH~~CELL_DCH)

For the DCH, several physical channel allocation strategies may be applied. The allocations can be either permanent (needing a DCH release message) or based on time or amount-of-data.
Resource allocation can be done separately for each packet burst with fast signalling on the DCH. Transition out of the Control only state is either triggered by user capacity allocation or by timeout (no data transaction requests received within a specified time period).
For each radio frame the UE and the network indicate the current data rate (in uplink and downlink respectively) using the transport format combination indicator (TFCI). If the configured set of combinations (i.e. transport format set for one transport channel) are found to be insufficient to retain the QoS requirements for a transport channel, the network initiates a reconfiguration of the transport format set (TFS) for that transport channel. This reconfiguration can be done during or in between data transmission. Further, the network can reconfigure the physical channel allowing an increase or decrease of the peak data rate.

For the uplink data transmission, the UE reports the observed traffic volume to the network in order for the network to re-evaluate the current allocation of resources. This report contains e.g. the amount of data to be transmitted or the buffer status in the UE.
If during data transfer the UE is unable to transmit at the requested output power when using the peak allocated capacity, the UE shall reduce transmission rate within the current 10 ms radio frame in order to maintain the closed-loop power control.

### ~~5.5.1.1.14~~13.3.1.6 RRC Connection mobility tasks (~~DCH/DCH and DCH/DCH+DSCH~~CELL_DCH)

Depending on the amount and frequency of data macrodiversity (soft handover) may or may not be applied.
The RRC Connection mobility is handled by measurement reporting, soft handover and hard handover procedures.

### ~~1.1.1.1.1.1~~13.3.1.7 Localised Service Area (LSA) support

[Editor's note: A liaison statement to SMG12 has been sent to receive guidance on the functionalities that would need to be defined in UTRAN to support SoLSA-like (Support of LSA, GSM) services.]

In case of a network-controlled handover procedure, UTRAN shall take into account the local support of LSA service and the enventual subscription information of the UE to those LSA regarding the provision of service to the UE.
Regarding soft handover, the following principles are applied by UTRAN:

- For "LSA only" UE, the RRC connection shall be maintained by UTRAN as long as at least one cell of the active set belongs to a UE subscribed LSA.
- For "LSA exclusive access" cells, UTRAN shall prevent such cell from being part of the active set if the UE has not subscribed to the corresponding LSA

Regarding network controlled hard handover, the following principles are applied by UTRAN:

- For "LSA only" UE, UTRAN shall prevent the UE from being handed over a cell which does not belong to a UE subscribed LSA.
- For "LSA exclusive access" cells, UTRAN shall prevent the UE from being handed over such a cell if the UE has not subscribed to the corresponding LSA

### 13.3.1.8 UE Measurements (CELL_DCH)

The UE shall perform measurements and transmit measurement reports according to the measurement control information.
The UE shall use the connected mode measurement control information received in other states until new measurement control information has been assigned to the UE.

### 13.3.1.9 Transfer and update of system information (CELL_DCH)

UEs with certain capabilities shall read system information broadcast on FACH. *[Editors note: Currently it is only UEs having DRAC capabilities that need to read system information on FACH.]*

## ~~1.5.1.2~~13.3.2 CELL_FACH ~~RACH + (FAUSCH) + (CPCH) / FACH substates~~state

~~*[Note: Channels in parenthesis available after allocation.]*~~
The CELL_FACH state is characterised by:

- No dedicated physical channel is allocated to the UE.
- The UE ~~the~~ continuously monitors a FACH in the downlink
- The UE is assigned a default common or shared transport channel in the uplink (e.g. RACH) that it can use anytime according to the access procedure for that transport channel
- The position of the UE is known by UTRAN on cell level according to the cell where the UE last made a cell update.

In the ~~RACH /~~CELL_FACH substate the UE shall perform~~s~~ the following actions:

- listens to an FACH
- listens to the BCH transport channel of the serving cell for the decoding of system information messages ~~(FFS)~~
- initiates a cell update procedure on cell change of another UTRA cell
- Use C-RNTI assigned in the current cell as the UE identity on common transport channels unless when a new cell is selected
- transmits uplink control signals and small data packets on the RACH.
- transmits uplink control signals and larger data packets on CPCH when resources are allocated to cell and UE is assigned use of those CPCH resources.

Furthermore, the UE ~~can~~ may use the FAUSCH to trigger the allocation of a new DCH by ~~RNC~~UTRAN. Further rate adaptation can be done via the DCCH of the new DCH.

~~1.1.1.1.1Transition from RACH/FACH to RACH+FAUSCH/FACH substate~~

~~FFS.~~

~~1.1.1.1.2Transition from RACH+FAUSCH/FACH to RACH/FACH substate~~

~~FFS.~~

### ~~1.1.1.1.3~~13.3.2.1 Transition from ~~RACH/~~CELL_FACH to CELL_DCH ~~/DCH or DCH/DCH+DSCH sub~~state~~s~~

A transition occurs, when a dedicated ~~transport~~ physical channel is established via explicit signalling. ~~Examples of these procedures are given in section **Error! Reference source not found.**~~
~~Details of the transition to DCH/DCH+DSCH FFS.~~

~~5.5.1.2.4Transition from RACH+FAUSCH/FACH to DCH/DCH or DCH/DCH+DSCH substates~~

The state transition ~~is~~ may also be done by using the FAUSCH.

### 5.5.1.2.513.3.2.2 Transition from RACH/CELL_FACH or RACH+FAUSCH/FACH to CELL_PCH substate

Since the UE performs continuous reception of FACH in this substate, it should be moved to the CELL_PCH substate if the data service has not been active for a while. When an inactivity timer ($T_{rf}$) expires, the UE state is changed to CELL_PCH in order to decrease power consumption. Also, when coming from CELL_PCH substate, and after the cell update procedure has been performed, the UE state is changed back to CELL_PCH substate if neither the UE nor the network has any data to transmit.
When coming from the RACH+FAUSCH/CELL_FACH substate, the FAUSCH is still available in the CELL_PCH substate after the transition.

### 5.5.1.2.613.3.2.3 Transition from RACH/CELL_FACH or RACH+FAUSCH/FACH to Idle Mode

The release of the RRC connection moves the UE to the idle mode.

### 5.5.1.2.7Transition from RACH/FACH or RACH+FAUSCH/FACH to RACH / DSCH state

FFS.

### 5.5.1.2.813.3.2.4 Transition from RACH/CELL_FACH or RACH+FAUSCH/FACH to URA_PCH Connected State

To perform the URA update procedure, UE is moved temporarily from URA_PCH Connected to RACH /CELL_ FACH or RACH + FAUSCH / FACH substate. After the URA update is completed, UE state is changed back to URA _PCHConnected.
If FAUSCH is intended to be used in URA Connected _PCH State, a FAUSCH transport channel needs to be allocated for the intended cells in the URA prior to this transition.

### 5.5.1.2.913.3.2.5 Radio Resource Allocation Tasks (RACH/CELL_FACH and RACH+FAUSCH/FACH)

In the RACH /CELL_ FACH substate the UE will monitor an FACH. It is enabled to transmit uplink control signals and it may be able to transmit small data packets on the RACH. The network can assign the UE stransport channel parameters (e.g. transport format sets) in advance, to be used when a DCH is used. When the physical channel for DCH is assigned, the transport channel typeUE state is changed to CELL_DCH is switched to DCH and the assigned TFS for the DCH can be used.
The UE shall use the common physical channel and transport channel configuration according to the system information when no UE dedicated common physical channel or transport channel channel configuration has been assigned.

For the uplink data transmission, the UE reports the observed traffic volume to the network in order for the network to re-evaluate the current allocation of resources. This report contains e.g. the amount of data to be transmitted or the buffer status in the UE.
When there is either user or control data to transmit, a selection procedure determines whether the data should be transmitted on a common transport channel, or if a transition to CELL_DCH should be executed. The selection is dynamic and depends on e.g. traffic parameters (amount of data, packet burst frequency).

, or if a dedicated transport channel should be allocated. The selection should be dynamic and depend on traffic parameters (amount of data, packet burst frequency).

### 5.5.1.2.10Radio Resource Allocation Tasks (RACH+CPCH/FACH)

The UTRAN can assign CPCH resources to the UE in RACH/CELL_FACH substate. When CPCH resources are assigned, the UE will continue to monitor FACHs. The UE may use the RACH to transmit uplink control signals and small data packets. The UE also may choose to transmit data packets, larger than those carried on the RACH, on the CPCH channel. The UE selects either the RACH or one of the CPCH channels to make maximum use of the capacity available on that channel.
The UE provides the UTRAN with CPCH measurement data which includes data queue depth (current size of data buffers), average access time for each CPCH channel used, and average traffic volume on each CPCH channel used. With these measurands and the UTRAN MAC-d measurement reports, the UTRAN can reallocate network resources on a periodic basis. The UTRAN allocates CPCH Sets to each cell and assigns UEs to one of the cell's CPCH Sets. The UEs can dynamically access the CPCH resources without further UTRAN control.

## ~~5.5.1.2.11~~13.3.2.6 RRC Connection mobility tasks (~~RACH + (FAUSCH) + (CPCH) /~~CELL_FACH)

~~*[Note: Channels in parenthesis available after allocation.]*~~

In this ~~sub~~state the location of the UE is known on cell level. A cell update procedure is used to report to the UTRAN, when the UE selects a new cell to observe the common downlink channels of a new ~~Node B~~cell. ~~In this substate measurement reporting and hard handover procedures can be used.~~ Downlink data transmission on the FACH can be started without prior paging.

In ~~RACH /~~CELL_FACH ~~sub~~state an ~~RACH /~~CELL_ FACH cell set comparable to the active set of a dedicated channel in SHO is maintained both in the UE and in the network. The ~~RACH /~~CELL_ FACH cell set representes a list of cells which have the potential to serve the UE from radio signal strength perspective. The UE performs measurements and reporting for the ~~RACH /~~CELL_ FACH cell set using the same procedures as in ~~DCH/DCH+DSCH substates~~CELL_DCH state. The thresholds required for triggering a measurement report may be different from those in ~~DCH based substates~~CELL_DCH state.

The ~~RACH/~~CELL_FACH cell set information is used by the network to decide whether the user data can be routed directly via a cell to a specific UE or soft handover would be required when resuming the DCH operation. In addition, the ~~RACH/~~CELL_FACH cell set information provides the means for the network to evaluate potential interference conditions and select a suitable amount of capacity when moving the UE in the DCH active substate, for both uplink and downlink data transfer.

The UE monitors the broadcast channel and system information on BCCH of its own and neighbour cells and from this the need for the updating of cell location is identified.

The UE shall perform cell reselection and upon selecting a new UTRA cell, it shall initiate a cell update procedure. Upon selecting a new cell belonging to another radio access system than UTRA, the UE shall enter idle mode and make an access to that system according to its specifications.

### 13.3.2.7 UE Measurements (CELL_FACH)

The UE shall perform measurements and transmit measurement reports according to the measurement control information.

The UE shall use the measurement control information according to the system information when no UE dedicated measurement control information has been assigned.

### ~~1.1.1.1.12~~13.3.2.8 Transfer and update of system information (CELL_FACH)

The UE shall read the BCH to acquire valid system information. For each acquisition, the UE may need different combinations of system information broadcast on BCH. The scheduling on the broadcast channel is done in such way that the UE knows when the requested information can be found.

When the system information is modified, the scheduling information is updated to reflect the changes in system information transmitted on BCH. The new scheduling information is broadcast on FACH in order to inform UEs about the changes. If the changes are applicable for the UE, the modified system information is read on BCH.

## ~~5.5.1.3RACH/DSCH and RACH+FAUSCH/DSCH substates~~

~~FFS.~~

## ~~5.5.1.4~~13.3.3 CELL_PCH ~~sub~~state

The CELL_PCH state is characterised by:

- No dedicated physical channel is allocated to the UE
- The UE uses DRX for monitoring a PCH via an allocated PICH.
- No uplink activity is possible.
- The position of the UE is known by UTRAN on cell level according to the cell where the UE last made a cell update in CELL_FACH state.

In this ~~sub~~state the UE performs the following actions:

- ~~listens to the PCH transport channel for the decoding of paging and notification messages sent by the network~~monitor the paging occasions according to the DRX cycle and receive paging information on the PCH

—

- listens to the BCH transport channel of the serving cell for the decoding of system information messages
- initiates a cell update procedure on cell change.

The DCCH logical channel cannot be used in this substate. If the network wants to initiate any activity, it needs to make a paging request on the PCCH logical channel in the known cell to initiate any downlink activity.

### 5.5.1.4.113.3.3.1 Transition from CELL_PCH to URA Connected _PCH State

The only overhead in keeping a UE in the CELL_PCH substate is the potential possibility of cell updating, when the UE moves to other cells.
To reduce this overhead, the UE is moved to the URA Connected _PCH State when low activity is observed. This can be controlled with an inactivity timer, and optionally, with a counter, which counts the number of cell updates. When the number of cell updates has exceeded certain limits (a network parameter), then UTRAN orders the UE changes to the URA Connected _PCH State. This transition is made via the CELL_FACH state.
*[Editor's note: If the coverage area of FAUSCH is expanded from one cell to several cells in the URA in relation to the execution of this transition, the new FAUSCH allocation information for each new cell in the URA needs to be exchanged either in RACH+FAUSCH/FACH the CELL_FACH or a CELL_DCH-based substate prior to a transition from CELL_PCH to URA connected _PCH state. For proper operation, this shouldn't be observed as increased activity.]*

### 5.5.1.4.213.3.3.2 Transition from CELL_PCH to RACH/CELL_FACH substate

The UE is transferred to RACH/>CELL_FACH substate either by a command (packet paging) from UTRAN or through any uplink access.

### 5.5.1.4.3Transition from PCH to RACH+FAUSCH/FACH substate

If a valid FAUSCH transport channel is allocated for the current cell, the UE changes to RACH+FAUSCH/CELL_FACH substate as soon as it uses the FAUSCH to allocate a DCH.

### 5.5.1.4.4Transition from PCH to RACH/DSCH or RACH+FAUSCH/DSCH substates

FFS.

### 5.5.1.4.513.3.3.3 Radio Resource Allocation Tasks (CELL_PCH)

In CELL_PCH substate no resources have been granted for data transmission. For this purpose, a transition to another substate has to be executed.
The UE may use Discontinuous Reception (DRX) in order to reduce power consumption. When DRX is used the UE needs only to receive at one paging occasion per DRX cycle. The UE may be instructed to use a specific DRX cycle length by the network. The UE shall determine its paging occasions in the same way as for Idle Mode, see TS 25.304.

### 5.5.1.4.613.3.3.4 RRC Connection mobility tasks (CELL_PCH)

In the CELL_PCH substate, the UE mobility is performed through cell reselection procedures, which may differ from the one defined in S2.04TS 25.304.
The UE shall perform cell reselection and upon selecting a new UTRA cell, it shall Cell updating is initiated by the UE which, upon the detection of the new cell, moves to RACH/CELL_FACH substate and initiates a cell update procedure in the new cell. After the cell update procedure has been performed, the UE shall change its state is changed back to CELL_PCH substate if neither the UE nor the network has any more data to transmit.
Upon selecting a new cell belonging to another radio access system than UTRA, the UE shall enter idle mode and make an access to that system according to its specifications.

### 13.3.3.5 UE Measurements (CELL_PCH)

The UE shall perform measurements and transmit measurement reports according to the measurement control information.
The UE shall use the measurement control information according to the system information when no UE dedicated measurement control information has been assigned.

### 1.1.1.1.713.3.3.6 Transfer and update of system information (CELL_PCH)

The UE shall read the BCH to acquire valid system information. For each acquisition, the UE may need different combinations of system information broadcast on BCH. The scheduling on the broadcast channel is done in such way that the UE knows when the requested information can be found.

## ~~5.5.2~~13.3.4 URA ~~Connected~~ _PCH State

The URA_PCH state is characterised by:

- Neither an uplink nor a downlink dedicated physical channel is allocated to the UE
- The UE uses DRX for monitoring a PCH via an allocated PICH.
- No uplink activity is possible
- ~~In URA Connected State () T~~the location of ~~a~~ the UE is known on UTRAN Registration area level according to the URA assigned to the UE during the last URA update in CELL_FACH state.

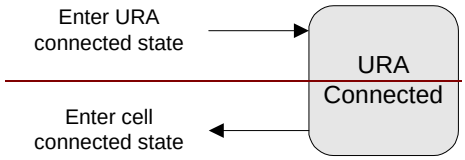
In this ~~sub~~state the UE performs the following actions:

- monitor the paging occasions according to the DRX cycle and receive paging information on the PCH
- ~~listens to the PCH transport channel for the decoding of paging and notification messages sent by the network~~
- listens to the BCH transport channel of the serving cell for the decoding of system information messages
- initiates a URA updating procedure on URA change.

The DCCH logical channel cannot be used in this ~~sub~~state. If the network wants to initiate any activity, it needs to make a paging request on the PCCH logical channel within the URA where the location of the UE is known. If the UE needs to transmit anything to the network, it goes to the ~~RACH/~~CELL_FACH ~~sub~~state ~~of the Cell Connected State~~. In addition, the UE can also use the FAUSCH for requesting a DCH in the whole URA or parts of it, if the UE has been allocated - on entering the connected mode or via explicit signalling later on - a FAUSCH channel for the cell, which the UE is currently camping on.

The transition to URA ~~Connected~~ _PCH State can be controlled with an inactivity timer, and optionally, with a counter which counts the number of cell updates. When the number of cell updates has exceeded certain limits (a network parameter), then the UE changes to the URA ~~Connected~~ _PCH State.

URA updating is initiated by the UE which, upon the detection of the Registration area, sends the network the Registration area update information on the RACH of the new cell.




**~~Figure 7: URA Connected State~~**

### ~~5.5.2.1~~13.3.4.1 Transition from URA ~~Connected~~ _PCH State to Cell ~~Connected~~ _FACH State

Any activity causes the UE to be transferred to ~~RACH / FACH or RACH + FAUSCH /~~CELL_ FACH ~~substate of the Cell Connected~~ State. Uplink access is performed by either RACH or FAUSCH, if a FAUSCH transport channel for the current cell has been allocated.

Note that the release of an RRC connection is not possible in the URA ~~Connected~~ _PCH State. The UE will first move to Cell ~~Connected~~ _FACH State to perform the release signalling.

### ~~5.5.2.2~~13.3.4.2 Radio Resource Allocation Tasks (URA ~~Connected~~ _PCH)

In URA ~~Connected~~ PCH State no resources have been granted for data transmission. For this purpose, a transition to ~~a suitable substate of~~ CellFACH ~~Connected~~ State has to be executed.

The UE may use Discontinuous Reception (DRX) in order to reduce power consumption. When DRX is used the UE needs only to receive at one paging occasion per DRX cycle. The UE may be instructed to use a specific DRX cycle length by the network. The UE shall determine its paging occasions in the same way as for Idle Mode, see TS 25.304.

### ~~5.5.2.3~~13.3.4.3 RRC Connection mobility tasks (URA ~~Connected~~ _PCH)

In URA ~~Connected~~ _PCH State the location of a UE is known on UTRAN Registration area level.

In this state, the UE mobility is performed through URA reselection procedures, which may differ from the definitions in S2.04. The UE shall perform cell reselection and upon selecting a ~~If the~~ new UTRA cell belong~~s~~ing to an ~~different~~ URA which does not match the URA used by the UE, the UE shall move~~s~~ to ~~RACH/~~CELL_FACH ~~substate of the cell connected~~ state and initiates a URA update towards the network. After the URA update procedure has been performed,

the UE shall change its state ~~is changed~~ back to URA ~~connected~~ _PCH state if neither the UE nor the network has any more data to transmit.
Upon selecting a new cell belonging to another radio access system than UTRA, the UE shall enter idle mode and make an access to that system according to its specifications (FFS).

#### 13.3.4.4 UE Measurements

The UE shall perform measurements and transmit measurement reports according to the measurement control information.
The UE shall use the measurement control information according to the system information when no UE dedicated measurement control information has been assigned.

#### ~~3.4.3.4~~13.3.4.5 Transfer and update of system information (URA_PCH)

The same mechanisms to transfer and update system information as for state CELL_PCH are applicable for UEs in URA_PCH state, see section 0~~0~~~~3.3.3.4.7~~.

## 13.4 Inter-system handover with PSTN/ISDN domain services

When using PSTN / ISDN domain services, UTRAN is using an Inter-System Handover Procedure and GSM is using a Handover procedure for the transition from UTRAN Connected Mode to GSM Connected Mode.

## 13.5 Inter-system handover with IP domain services

When using IP domain services, the UE initiates cell reselection from a GSM/GPRS cell to a UTRAN cell and then uses the RRC Connection Establishment procedure for the transition to UTRAN Connected mode.
When the RRC Connection is established from Idle Mode (GPRS Packet Idle Mode) the RRC CONNECTION REQUEST message contains an indication, that UTRAN needs to continue an already established GPRS UE context from the CN. This indication allows UTRAN to e.g. prioritize the RRC CONNECTION REQUEST from the UE.
In UTRAN connected mode UTRAN is using UE or network initiated cell reselection to change from a UTRAN cell to a GSM/GPRS cell. If the cell reselection was successful the UE enters Idle Mode (GPRS Packet Idle Mode). The UE sends a packet channel request from Idle Mode (GPRS Packet Idle mode) to establish a Temporary Block flow and enter GPRS Packet Transfer Mode. In the GPRS Packet Transfer Mode the UE sends a RA Update request message. The RA Update Request message sent from the UE contains an indication that GSM/GPRS need to continue an already established UTRAN UE context from the CN. This means that the RA Update request is always sent for the transition from UTRAN Connected Mode to GSM/GPRS regardless if the RA is changed or not.
*[Note: The reason for using RA update instead of a new message is to reduce the impact on the existing GSM/GPRS specification.]*

## ~~5.6~~13.6 Inter-system handover with simultaneous IP and PSTN/ISD~~G~~N domain services

*[Note: This is an initial assumption that needs to be seen by SMG2 and requiring checking by SMG2, when the work on this item has progressed.]*

### ~~2.6.1~~13.6.1 Inter-system handover UTRAN to GSM / BSS

For a UE in CELL ~~Connected~~ _DCH state ~~on a dedicated channel~~ using both PSTN / ISDN and IP Domain services the Inter-system handover procedure is based on measurement reports from the UE but initiated from UTRAN.
The UE performs the Inter-system handover from UTRAN Connected Mode to GSM Connected Mode first. When the UE has sent handover complete message to GSM / BSS the UE initiates a temporary block flow towards GPRS and sends a RA update request.
If the Inter-system handover from UTRAN Connected Mode to GSM Connected Mode was successful the handover is considered as successful regardless if the UE was able to establish a temporary block flow or not towards GPRS.
In case of Inter-system handover failure the UE has the possibility to go back to UTRAN Connected Mode and re-establish the connection in the state it originated from without attempting to establish a temporary block flow. If the UE has the option to try to establish a temporary block flow towards GSM / GPRS after Inter-system handover failure is FFS.

### ~~5.6.2~~13.6.2Inter-system handover GSM / BSS to UTRAN

For a UE in GSM Connected Mode using both PSTN / ISDN and IP domain services the Inter-system handover procedure is based on measurement reports from the UE but initiated from GSM / BSS.
The UE performs the Inter-system handover from GSM Connected Mode to UTRAN Connected Mode.
In UTRAN Connected Mode both services are established in parallel.
If the Inter-System handover from GSM Connected mode to UTRAN Connected Mode was successful the handover is considered as successful.
In case of Inter-system handover failure the UE has the possibility to go back to GSM Connected Mode and re-establish the connection in the state it originated from.

# 14 Protocol timers, counters and other parameters

Description of timers and counters and possible other parameters related to RRC procedures.

## 14.1 TIMERS for UE

| Timer | Start | Stop | At expiry |
|---|---|---|---|
| Timers_out_of_service_area | Only the timing when Timer_Periodical_cell/ura_Update expired | When the service area detected (Action 1) | Transits to IDLE mode (Action 2) |

(Action 1) The UE initiates Cell/URA Update procedure.
(Action 2) Connection failure is indicated to the NAS

| Timer | Start | Stop | At expiry |
|---|---|---|---|
| Timer_await_RRC_connection_setup | When RRC Connection Request is sent in case Counter_Max_Number_of_connection_setup_transmissions_in_this_cell established or incremented | When RRC Connection Setup is received (Action 1)<br><br>When RRC Connection Reject is received (Action 2) | Increase Counter_Max_Number_of_connection_setup_transmissions_in_this_cell |
| Timer_Maximum_number_of_RRC_connection_setup_re-trys_since_first_attempt | When the AS in UE requested to establish RRC Connection from the NAS | When RRC Connection is established (Action 3)<br><br>When RRC Connection is failed (Action 4) | Enter IDLE mode (Action 4) |

(Action 1) Send RRC Connection Setup Complete message.
(Action 2) Wait at least the time stated in the IE "wait time" and reties with increasing Counter_await_RRC_connection_setup by 1.
(Action 3) Connection establishment is indicated to the NAS.
(Action 4) Connection failure is indicated to the NAS.

| Timer | Start | Stop | At expiry |
|---|---|---|---|
| T_periodical_cell_update (Note1) | When Cell Update Confirm is received | When the UE enters other state or substate | Send Cell Update message to the UTRAN. |
| T_periodical_ura_update (Note2) | When URA Update Confirm is received | When the UE enters other state or substate | Send URA Update message to the UTRAN. |

Note1: UE establishes T_periodical_cell_update when the UE enters Cell connected RACH/FACH or PCH substate.
Note2: UE establishes T_periodical_ura_update when the UE enters URA connected PCH substate.

| Timer | Start | Stop | At expiry |
|---|---|---|---|

| | | | |
|---|---|---|---|
| Timer_await_cell_update_confirm | When Counter_await_cell_update_confirm established or incremented | When Cell Update Confirm is received (Action 1)<br><br>When Cell Update Reject (ffs) is received (Action 2) | Increase Counter_await_cell_update_confirm |
| Timer_await_ura_update_confirm | When Counter_await_ura_update_confirm established or incremented | When URA Update Confirm is received (Action 3)<br><br>When URA Update Reject (ffs) is received (Action 4) | Increase Counter_await_ura_update_confirm |

(Action 1) Send RNTI Re-allocation Complete message if there are new SRNC ID and SRNTI allocated.
(Action 2) Search for other cell if it is indicated in the Cell Update Reject message (ffs).
(Action 3) Send URA Update Complete message.
(Action 4) Search for other cell if it is indicated in the URA Update Reject message (ffs).

## 14.2 COUNTERS for UE

| Timer | Reset | Increment | Reach max value |
|---|---|---|---|
| Counter_Max_Number_of_connection_setup_transmissions_in_this_cell | When initiates RRC connection procedure in case Timer_Maximum_number_of_RRC_connection_setup_re-trys_since_first_attempt established or in case the UE detects a new cell while Timer_Maximum_number_of_RRC_connection_setup_re-trys_since_first_attemptis running. | Timer expires | Enter IDLE mode Stop Timer_Maximum_number_of_RRC_connection_setup_re-trys_since_first_attempt |

| COUNTER | Reset | Increment | Reach max value |
|---|---|---|---|
| Counter_await_cell_update_confirm | When initiates cell update procedure in case the UE detects a new cell or triggered by the expiry of Timer_periodical_cell_update | Timer expires | Enter IDLE mode (Action 1) |
| Counter_await_ura_update_confirm | When initiates ura update procedure in case the UE detects a new URA or triggered by the expiry of Timer_periodical_URA_update | Timer expires | Enter IDLE mode (Action 1) |

(Action 1) Connection failure is indicated to the NAS.

# 15 Specific functions

## 15.1 Intra-frequency measurements

### 15.1.1 Intra-frequency measurement quantities

1. Downlink $E_c/I_0$ (chip energy per total received channel power density)
2. *Downlink path loss. (FFS)*
3. *Downlink received signal code power (RSCP) after despreading. (FFS)*

4. *Downlink signal-to-interference ratio (SIR) after despreading on a specific DL physical channel (RSCP/ISCP).(FFS)*

## 15.1.2 Intra-frequency reporting events

Within the measurement reporting criteria field in the Measurement Control message the UTRAN notifies the UE which events should trigger a measurement report. Examples of intra-frequency reporting events that would be useful for intra-frequency handover evaluation are given below. Note that normally the UEs do not need to report all these events. The listed events are the toolbox from which the UTRAN can choose the reporting events that are needed for the implemented handover evaluation function, or other radio network functions.

All the illustrated events are measured with respect to any of the measurement quantities given in section 15.1.1. The measurement objects are the monitored primary common control physical channels (PCCPCH). The reporting events are marked with vertical arrows in the figures below.

*[Note: The events below are numbered 1A, 1B, 1C,… since all intra-frequency reporting events would be labeled 1X, inter-frequency reporting events would be labeled 2X, and so on for the other measurement types.]*

### 15.1.2.1 Reporting event 1A: A Primary CCPCH enters the reporting range

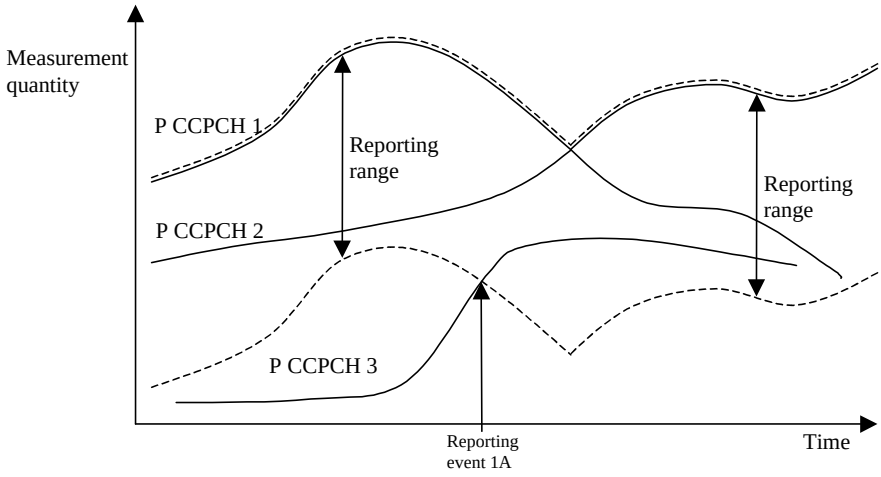



**Figure 53~~49~~~~33~~ Event-triggered report when a primary CCPCH enters the reporting range.**

When event 1A is ordered by UTRAN in a measurement control message, the UE shall send a measurement report when a primary CCPCH enters the reporting range. The reporting range is defined relative to the best primary CCPCH and is given in the measurement reporting criteria field in the MEASUREMENT CONTROL message.

The addition window of cells in event 1A is configured with the **reporting range** parameter common to many reporting events and an optional **hysteresis** parameter, which can be used to distinguish the addition window from reporting windows related to other measurement events.

The occurrence of event 1A is conditional on a **report deactivation threshold** parameter. This parameter indicates the maximum number of cells allowed in the active set for measurement reports to be triggered by event 1A to be transmitted.

Event 1A may be enhanced with an addition timer, which is configured with the **time-to-trigger** parameter (see section 15.1.4.2). If a time-to-trigger value is used, a cell must continuously stay within the reporting range for the given time period, before the UE shall send a measurement report.

*[Note: It is FFS, whether the cells triggering event 1A may be in the active set.]*

### 15.1.2.2 Reporting event 1B: A primary CCPCH leaves the reporting range

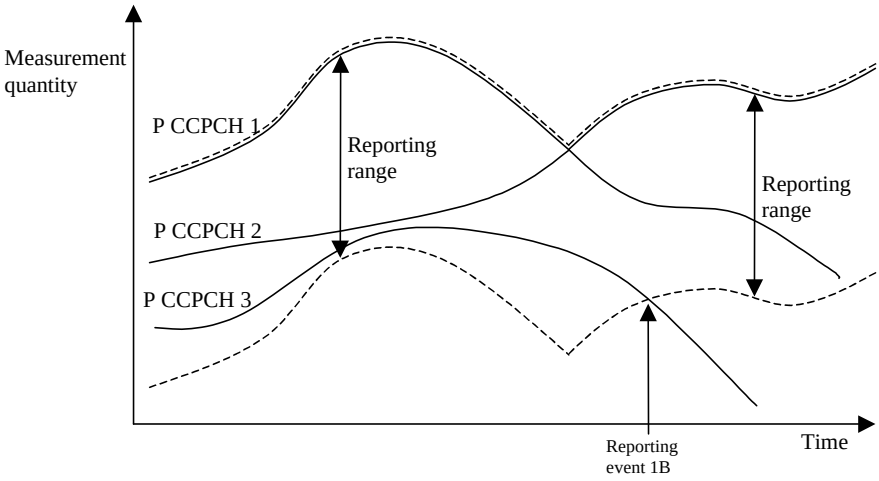



**Figure 54~~50~~~~34~~ Event-triggered report when a primary CCPCH leaves the reporting range.**

When this event is ordered by UTRAN in a measurement control message, the UE shall send a measurement report when a primary CCPCH leaves the reporting range. The reporting range is defined relative to the best primary CCPCH and is given in the measurement reporting criteria field in the MEASUREMENT CONTROL message.

The drop window of cells in event 1B is configured with the **reporting range** parameter common to many reporting events and an optional **hysteresis** parameter, which can be used to distinguish the drop window from reporting windows related to other measurement events.

Event 1B may be enhanced with a drop timer, which is configured with the **time-to-trigger** parameter. If the timer is used, the weakening cell must continuously stay below the reporting range for the given time period before the UE may send a measurement report.

*[Note: It is FFS whether cells triggering event 1B may belong to the monitored set cells, which are currently not in the active set]*

### 15.1.2.3 Reporting event 1C: A non-active primary CCPCH becomes better than an active primary CCPCH

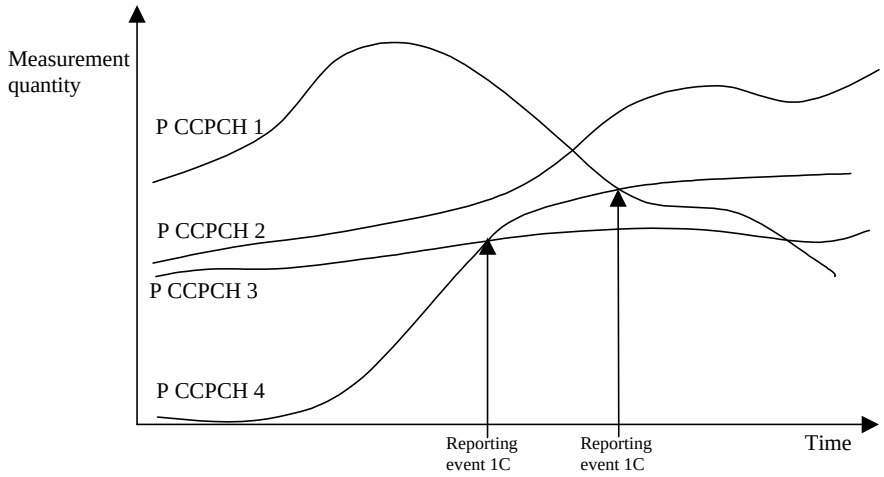



**Figure 55~~51~~~~35~~ A primary CCPCH that is not included in the active set becomes better than a primary CCPCH that is in the active set.**

In this example the cells belonging to PCCPCH 1, 2 and 3 are supposed to be in the active set, but the cell transmitting PCCPCH 4 is not (yet) in the active set.

If a primary CCPCH that is not included in the active set becomes better than a primary CCPCH that is in the active set, and event 1C has been ordered by UTRAN, this event shall trigger a report to be sent from the UE.

This event may be used for replacing cells in the active set. It is activated if the number of active cells is equal to or greater than a **replacement activation threshold** parameter that UTRAN signals to the UE in the MEASUREMENT CONTROL message. This parameter indicates the minimum number of cells required in the active set for measurement reports triggered by event 1C to be transmitted.

### 15.1.2.4 Reporting event 1D: Change of best cell

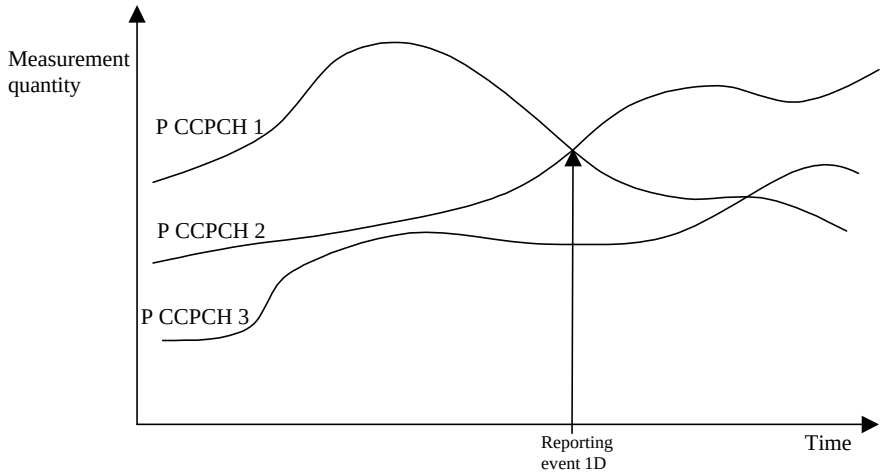



**Figure 56~~5236~~ A primary CCPCH becomes better than the previously best primary CCPCH.**

If any of the primary CCPCHs within the reporting range becomes better than the previously best primary CCPCH, and event 1D has been ordered by UTRAN then this event shall trigger a report to be sent from the UE. The corresponding report contains (at least) the new best primary CCPCH.

### 15.1.2.5 Reporting event 1E: A Primary CCPCH becomes better than an absolute threshold

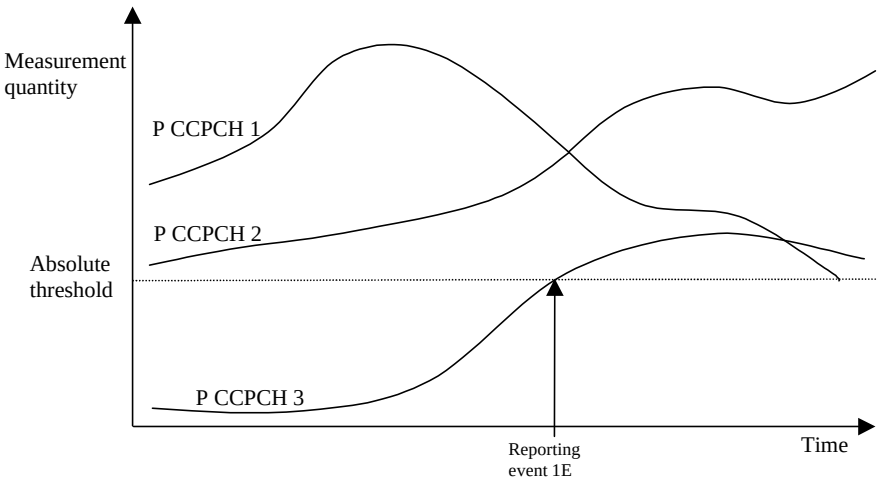



**Figure 57~~5337~~ Event-triggered report when a Primary CCPCH becomes better than an absolute threshold.**

When this event is ordered by UTRAN in a measurement control message the UE shall send a report when the Measurement quantity of a Primary CCPCH becomes better than an absolute threshold. The corresponding report contains (at least) the involved Primary CCPCH.

### 15.1.2.6 Reporting event 1F: A Primary CCPCH becomes worse than an absolute threshold

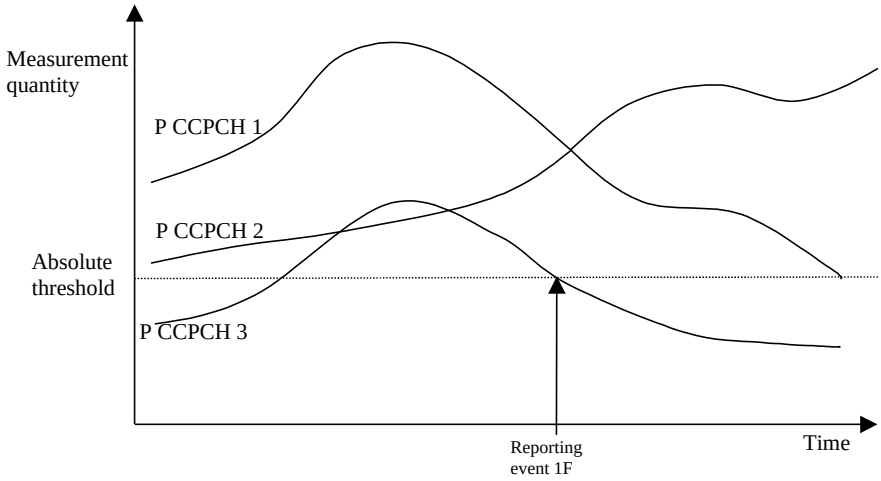



**Figure 585438 Event-triggered report when a Primary CCPCH becomes worse than an absolute threshold.**

When this event is ordered by the UTRAN in a measurement control message the UE shall send a report when a primary CCPCH becomes worse than an absolute threshold. The corresponding report contains (at least) the involved Primary CCPCH.

## 15.1.3 Event-triggered periodic intra-frequency measurement reports

### 15.1.3.1 Cell addition failure

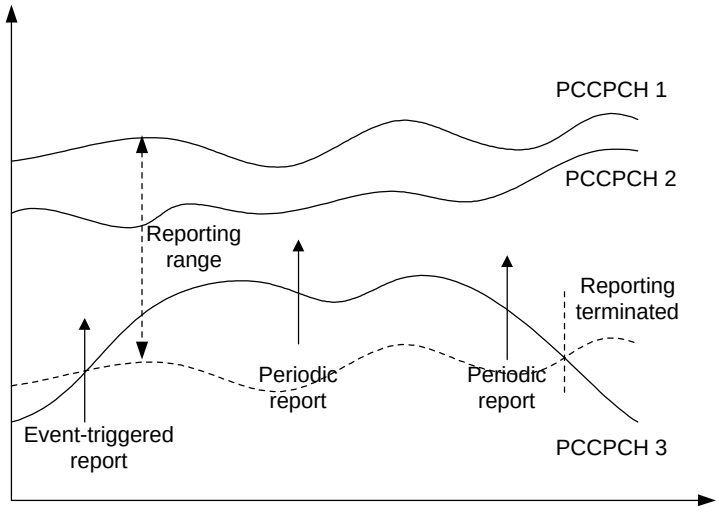



**Figure 595539 Periodic reporting triggered by event 1A**

When a cell enters the reporting range and triggers event 1A, the UE shall transmit a MEASUREMENT REPORT to the UTRAN and typically this may result in an update of the active set. However, in some situations the UTRAN may be unable to add a strong cell to the active set typically due to capacity shortage for example.

The UE shall continue reporting after the initial report by reverting to periodical measurement reporting if the reported cell is not added to the active set. This is illustrated in Figure 59Figure 55Figure 39. During periodic reporting the UE

shall transmit MEASUREMENT REPORT messages to the UTRAN at predefined intervals. The reports shall include reporting information of the cells in the current active set and of the monitored cell(s) in the reporting range.

Event-triggered periodic measurement reporting shall be terminated either when there are no longer any monitored cell(s) within the reporting range or when the UTRAN has added cells to the active set so that it includes the maximum number of cells (defined by the **reporting deactivation threshold** parameter), which are allowed for event 1A to be triggered.

The reporting period is assigned by the UTRAN. If the reporting period is set to zero event-triggered measurement reporting shall not be applied.

### 15.1.3.2 Cell replacement failure

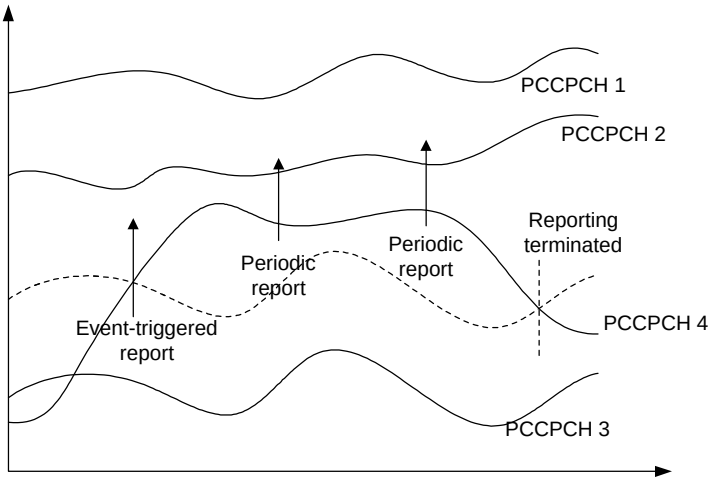



**Figure 6056~~56~~~~40~~ Periodic reporting triggered by event 1C**

When a cell enters the replacement range and triggers event 1C, the UE shall transmit a MEASUREMENT REPORT to the UTRAN and typically this may result in the replacement of the weakest active cell. If the UTRAN is unable to replace the cell due to for example capacity shortage, it is beneficial to receive continuous reports in this case as well.

The UE shall revert to periodical measurement reporting if the UTRAN does not update the active set after the transmission of the measurement report. This is illustrated in Figure 60~~Figure 56~~~~Figure 40~~. During periodic reporting the UE shall transmit MEASUREMENT REPORT messages to the UTRAN at predefined intervals. The reports shall include reporting information of the cells in the current active set and of the monitored cell(s) in the replacement range.

Event-triggered periodic measurement reporting shall be terminated either when there are no longer any monitored cell(s) within the replacement range or when the UTRAN has removed cells from the active set so that there are no longer the minimum amount of active cells for event 1C to be triggered (as defined by the **replacement activation threshold** parameter).

The reporting period is assigned by the UTRAN. If the reporting period is set to zero, event-triggered measurement reporting shall not be applied.

## 15.1.4 Mechanisms available for modifying intra-frequency measurement reporting behaviour

### 15.1.4.1 Hysteresis

To limit the amount of event-triggered reports, a hysteresis parameter may be connected with each reporting event given above. The value of the hysteresis is given to the UE in the Reporting criteria field of the Measurement Control message.

In the example in Figure 61~~Figure 57~~~~Figure 41~~, the hysteresis ensures that the event 1D (primary CCPCH 2 becomes the best cell) is not reported until the difference is equal to the hysteresis value. The fact that primary CCPCH 1 becomes best afterwards is not reported at all in the example since the primary CCPCH 1 does not become sufficiently better than the primary CCPCH 2.

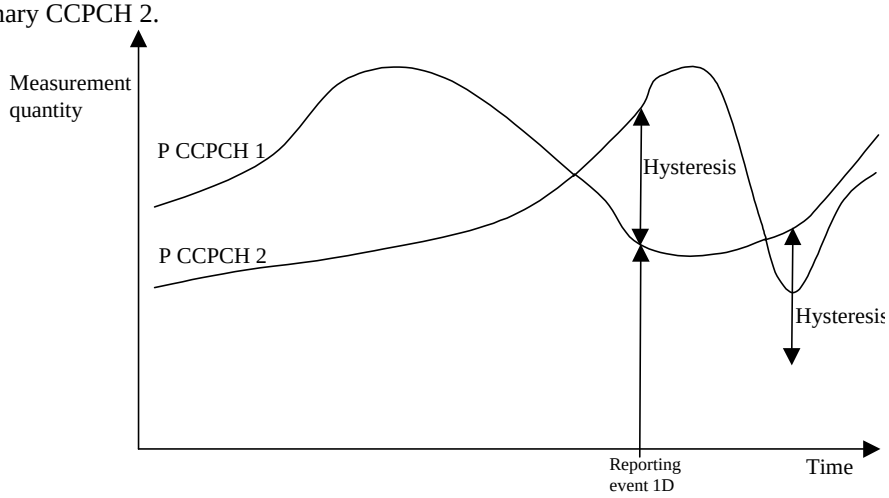



**Figure 61~~57~~~~41~~ Hysteresis limits the amount of measurement reports.**

## 15.1.4.2 Time-to-trigger

To limit the measurement signalling load, a time-to-trigger parameter could be connected with each reporting event given above. The value of the time-to-trigger is given to the UE in the Reporting criteria field of the Measurement Control message.

The effect of the time-to-trigger is that the report is triggered only after the conditions for the event have existed for the specified time-to-trigger. In the example in Figure 63~~Figure 58~~~~Figure 42~~, the use of time-to-trigger means that the event (primary CCPCH 3 enters the reporting range) is not reported until is has been within the range for the time given by the time-to-trigger parameter.

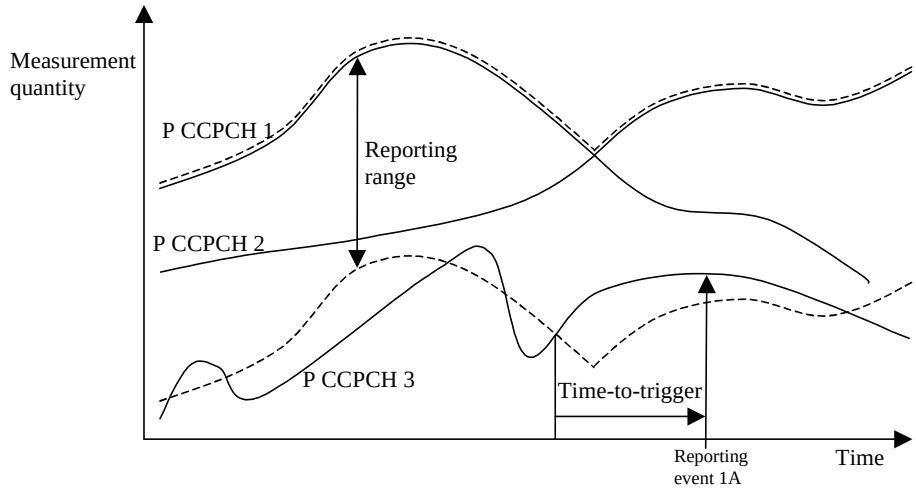



**Figure 63~~58~~~~42~~ Time-to-trigger limits the amount of measurement reports.**

Note that the time-to-trigger could be combined with hysteresis, i.e. a hysteresis value is added to the measurement quantity before evaluating if the time-to-trigger timer should be started.

### 15.1.4.3 Cell individual offsets

For each cell that is monitored, an offset can be assigned with inband signalling. The offset can be either positive or negative. The offset is added to the measurement quantity before the UE evaluates if an event has occurred. The UE receives the cell individual offsets for each primary CCPCH in the measurement object field of the MEASUREMENT CONTROL message.

For example, in Figure 65~~Figure 59~~~~Figure 43~~, since an offset is added to primary CCPCH 3, it is the dotted curve that is used to evaluate if an event occurs. Hence, this means that measurement reports from UE to UTRAN are triggered when primary CCPCH plus the corresponding offset, i.e. the dotted curve, leaves and enters the reporting range and when it gets better than primary CCPCH 1 (if these events have been ordered by UTRAN). This offset mechanism provides the network with an efficient tool to change the reporting of an individual primary CCPCH.

By applying a positive offset, as in Figure 65~~Figure 59~~~~Figure 43~~, the UE will send measurement reports as if the primary CCPCH is offset *x* dB better than what it really is. This could be useful if the operator knows that a specific cell is interesting to monitor more carefully, even though it is not so good for the moment. In the example in Figure 65~~Figure 59~~~~Figure 43~~, the operator might know by experience that in this area primary CCPCH 3 can become good very quickly (e.g. due to street corners) and therefore that it is worth reporting more intensively. Depending on the implemented handover evaluation algorithm, this may result in the cell with primary CCPCH 3 being included in the active set earlier than would have been the case without the positive offset.

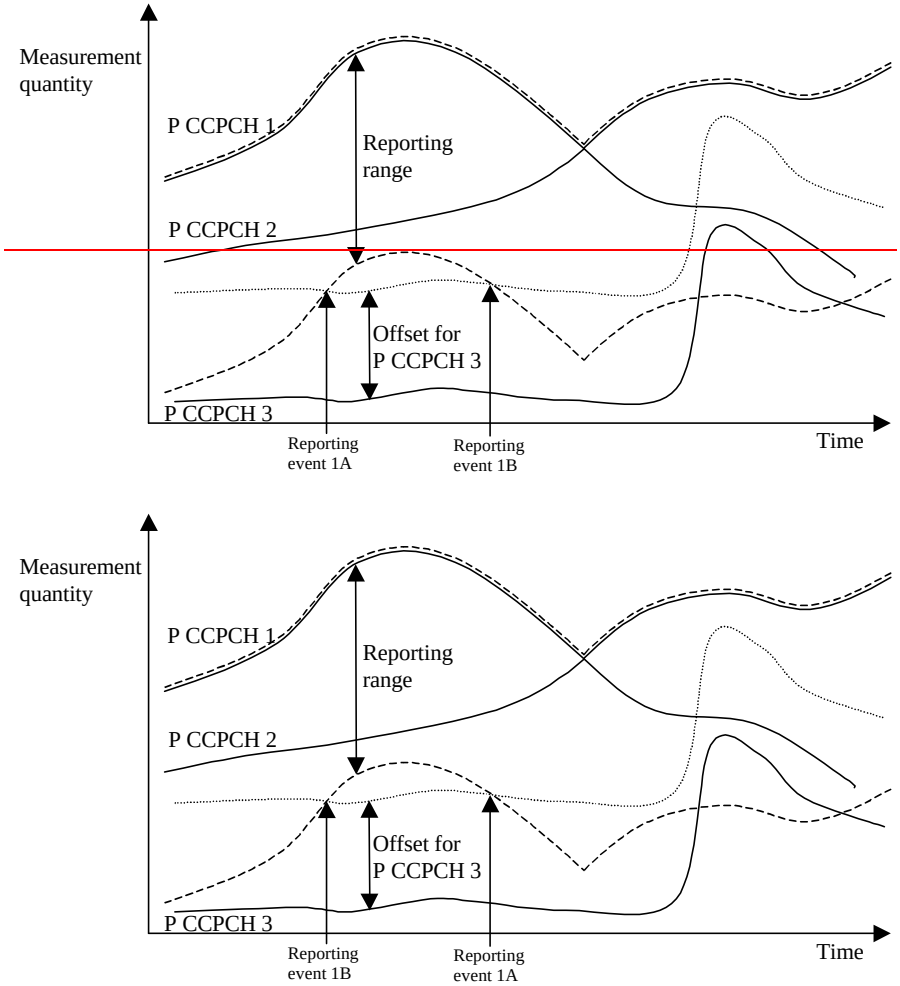



**Figure 65~~59~~~~43~~ A positive offset is applied to primary CCPCH 3 before event evaluation in the UE.**

Correspondingly, the operator can choose to apply a negative offset to a primary CCPCH. Then the reporting on that primary CCPCH is limited and the corresponding cell may be, at least temporarily excluded from the active set.

The cell individual offset can be seen as a tool to move the cell border. It is important to note that the offset is added before triggering events, i.e. the offset is added by the UE before evaluating if a measurement report should be sent as opposed to offsets that are applied in the network and used for the actual handover evaluation.

### 15.1.4.4 Forbid a Primary CCPCH to affect the reporting range

The reporting range affects the reporting events 1A and 1B presented above. The reporting range is defined relative to the best Primary CCPCH. However, there could be cases where it is good to forbid a specific Primary CCPCH to affect the reporting range. For example in Figure 67~~Figure 60~~~~Figure 44~~ the network has requested the UE to not let Primary CCPCH 3 affect the reporting range. This mechanism could be effective if the operator knows by experience that the quality of Primary CCPCH 3 is very unstable in a specific area and therefore should not affect the reporting of the other Primary CCPCHs.

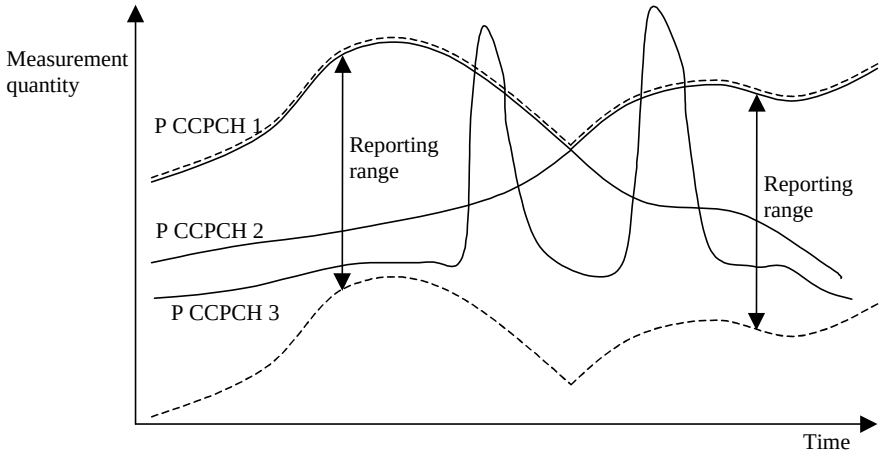



**Figure 67~~60~~~~44~~ Primary CCPCH 3 is forbidden to affect the reporting range.**

## 15.1.5 Report quantities

In the event-triggered measurement reports, mandatory information connected to the events is always reported. For instance, at the event "a primary CCPCH enters the reporting range" the corresponding report identifies the primary CCPCH that entered the range.

However, besides this mandatory information, UTRAN should be able to optionally require additional measurement information in the report to support the radio network functions in UTRAN. Furthermore, it will allow the UTRAN to use the UE as a general tool for radio network optimisation if necessary.

Examples of report quantities that may be appended to the measurement reports are:
*[Note: This list is general and does also apply for reports of other measurement types than the intra-frequency type. The list is not final.]*

- Downlink transport channel block error rate
- Downlink transport channel bit error rate
- Downlink $E_c/I_0$ on primary CCPCH (e.g. used for initial DL power setting on new radio links.)
- Time difference between the received primary CCPCH frame-timing from the target cell and the earliest received existing DPCH path. *[Note: This measurement is identified in 25.211 [2] (denoted* $\mathbf{T_m}$ *in chapter 7)]*
- UE transmit power
- *UE position (FFS)*
- *Downlink SIR (RSCP/ISCP) on the traffic channels after RAKE combining (FFS)*
- *Downlink SIR (RSCP/ISCP) on primary CCPCH (e.g. used for initial DL power setting on new radio links.)(FFS)*

# 15.2 Traffic Volume Measurements

## 15.2.1 Traffic Volume Measurement Quantity

For traffic volume measurements in the UE only one quantity is measured. This quantity is RLC buffer payload in number of bytes. In order to support a large variation of bit rates and RLC buffer size capabilities, a non-linear scale should be used *[Note: details are FFS]*. Since, the expected traffic includes both new and retransmitted RLC payload units all these should be included in the payload measure. It should also be noted that traffic volume measurements are only applicable for acknowledged and unacknowledged mode.
According to what is stated in the Measurement Control message, the UE should support measuring of buffer payload for a specific ~~RAB~~RB, ~~RAB~~RBs multiplexed onto the same Transport channel and the total UE buffer payload (the same as one transport channel for a UE that uses RACH).

## 15.2.2 Traffic Volume reporting events

Traffic volume can be reported in two different ways, periodical and event triggered. For periodical reporting the UE simply measures the number of bytes for the transport channel (i.e. the RLC buffers of the ~~RAB~~RBs multiplexed onto that transport channel) stated in the measurement control message and reports the traffic volume at the given time instants. Event triggered reporting is performed when a threshold is exceeded.
The reporting quantities which should be included in the report is stated in the measurement control message. This could for example be which ~~RAB~~RBs or RLC buffers to include when sending the payload to the network.

### 15.2.2.1 Reporting event 4 A: RLC buffer payload exceeds an absolute threshold

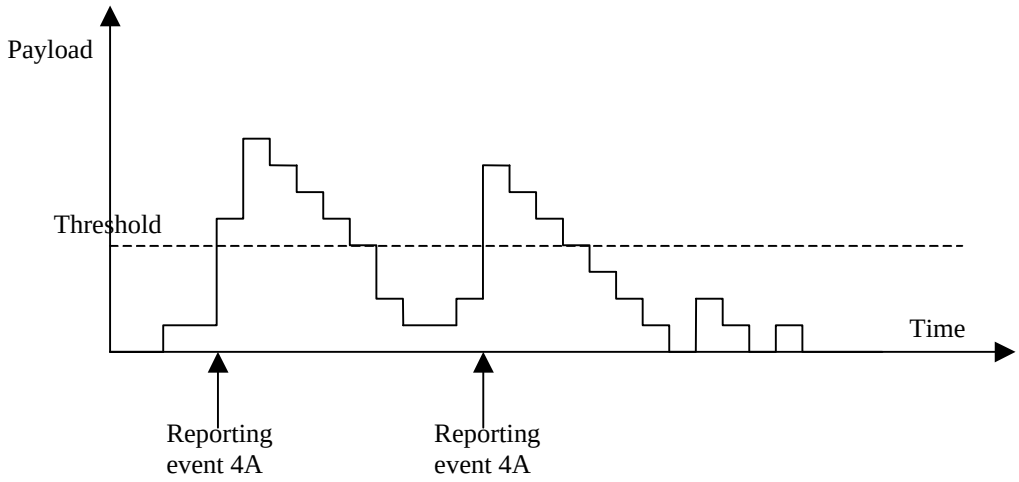



**Figure 69~~61~~~~45~~ Event triggered report when RLC buffer payload exceeds a certain threshold.**

If the monitored payload exceeds an absolute threshold, this is an event that could trigger a report. The corresponding report contains at least which transport channel triggered the report.

## 15.2.3 Traffic volume reporting mechanisms

Traffic volume measurement triggering could be associated with both a *time-to-trigger* and a *pending time after trigger*. The time-to-trigger is used to get time domain hysteresis, i.e. the condition must be fulfilled during the time-to-trigger time before a report is sent. Pending time after trigger is used to limit consecutive reports when one traffic volume measurement report already has been sent. This is described in detail below.

### 15.2.3.1 Pending time after trigger

This timer is started in the UE when a measurement report has been triggered. The UE is then forbidden to send any new measurement reports with the same measurement ID during this time period even when the triggering condition is

fulfilled again. Instead the UE waits until the timer has suspended. If the payload is still above the threshold when the timer has expired the UE sends a new measurement report. Otherwise it waits for a new triggering.

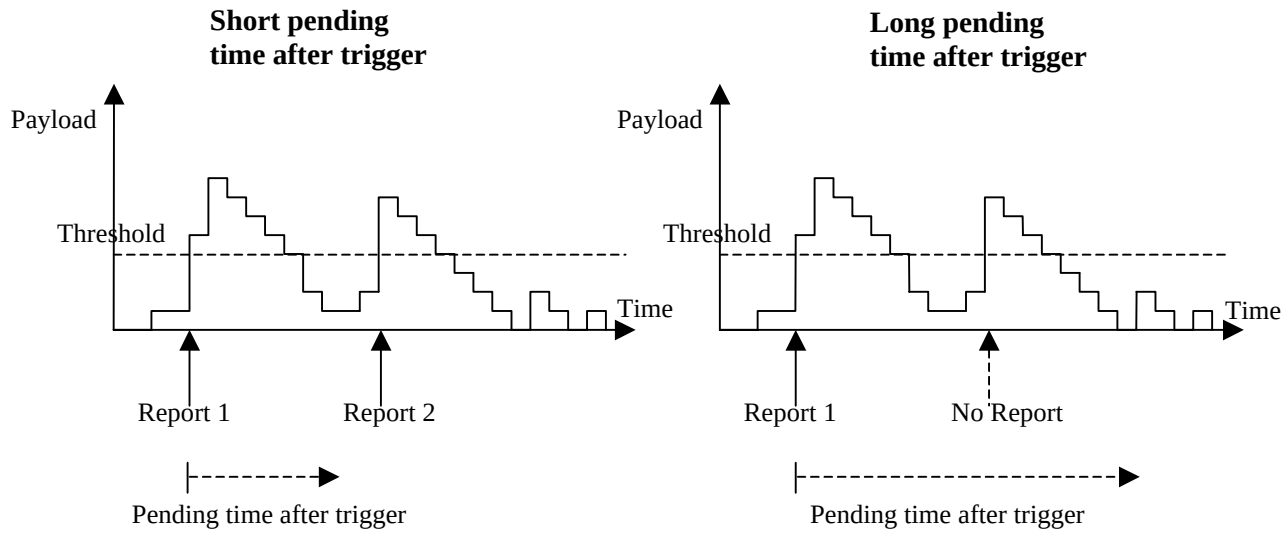



**Figure 7062~~46~~ Pending time after trigger limits the amount of consecutive measurement reports.**

Figure 70~~Figure 62~~~~Figure 46~~ shows that by increasing the pending time after trigger a triggered second event does not result in a measurement report.

# 15.3 UE internal measurements

## 15.3.1 UE internal measurement quantities

For UE internal measurements the following measurement quantities exist:

1. UE transmission (Tx) power
2. UE received signal strength power (RSSI)

## 15.3.2 UE internal measurement reporting events

In the Measurement reporting criteria field in the Measurement Control messages, the UTRAN notifies the UE of which events should trigger a measurement report. UE internal measurement reporting events that can trigger a report are given below. The reporting events are marked with vertical arrows in the figures below. All events can be combined with time-to-trigger. In that case, the measurement report is only sent if the condition for the event has been fulfilled for the time given by the time-to-trigger parameter

*[Note: The reporting events are numbered 6A, 6B, 6C,.. where 6 denotes that the event belongs to the type UE internal measurements.]*

### 15.3.2.1 Reporting event 6A: The UE Tx power becomes larger than an absolute threshold

When this event is ordered by UTRAN in a measurement control message, the UE shall send a measurement report when the UE transmission power becomes larger than a predefined threshold. The corresponding report identifies the threshold that was exceeded.

### 15.3.2.2 Reporting event 6B: The UE Tx power becomes less than an absolute threshold

When this event is ordered by UTRAN in a measurement control message, the UE shall send a measurement report when the UE transmission power becomes less than a predefined threshold. The corresponding report identifies the threshold that the UE Tx power went below.

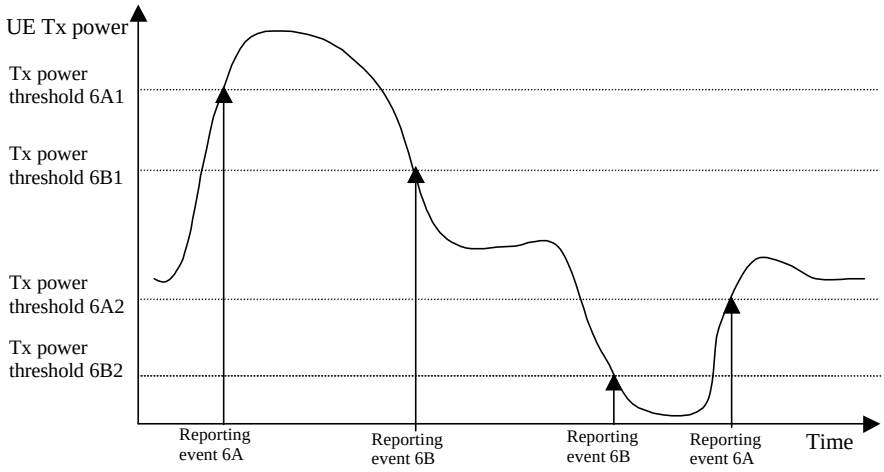



**Figure 7163~~47~~ Event-triggered measurement reports when the UE Tx power becomes larger or less than absolute thresholds.**

### 15.3.2.3 Reporting event 6C: The UE Tx power reaches its minimum value

When this event is ordered by UTRAN in a measurement control message, the UE shall send a measurement report when the UE Tx power reaches its minimum value.

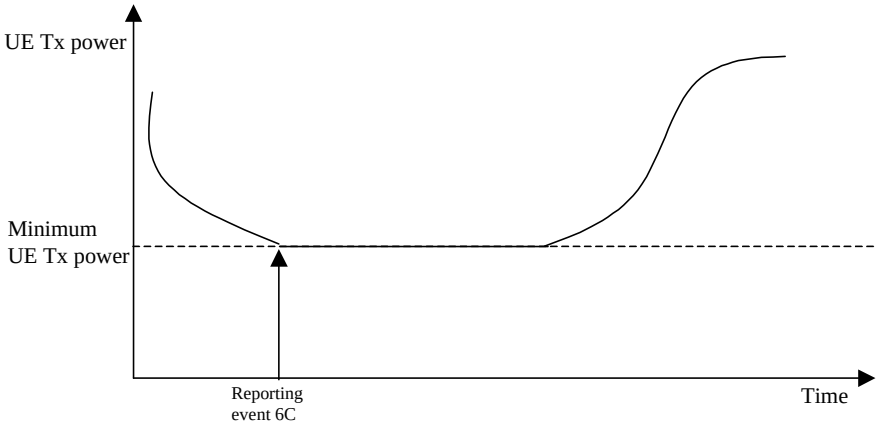



**Figure 7264~~48~~ Event-triggered measurement report when the UE Tx power reaches its minimum value.**

### 15.3.2.4 Reporting event 6D: The UE Tx power reaches its maximum value

When this event is ordered by UTRAN in a measurement control message, the UE shall send a measurement report when the UE Tx power reaches its maximum value.

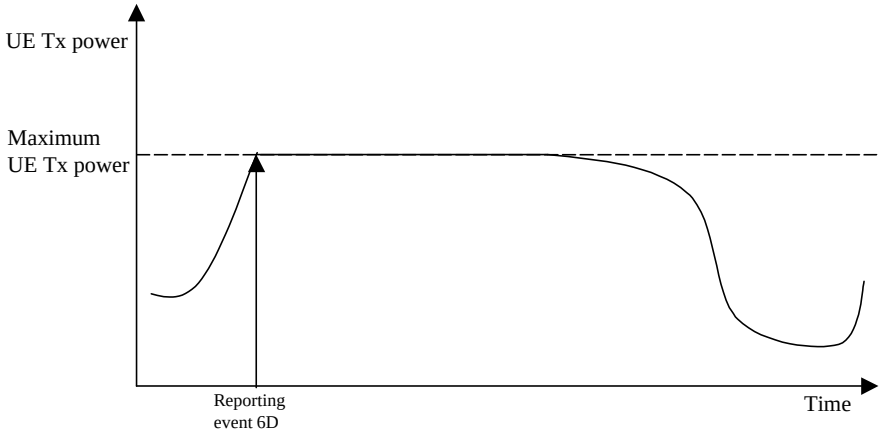



**Figure 73~~65~~~~49~~ Event-triggered report when the UE Tx power reaches its maximum value.**

### 15.3.2.5 Reporting event 6E: The UE RSSI reaches the UE's dynamic receiver range

When this event is ordered by UTRAN in a measurement control message, the UE shall send a measurement report when the UE RSSI reaches the UE's dynamic receiver range.

## 15.4 -Dynamic Resource Allocation Control of Uplink DCH

The network uses this procedure to dynamically control the allocation of resources on an uplink DCH, this is achieved by sending transmission probability and maximum data rate information elements.

This procedure is initiated with a SYSTEM INFORMATION message from the NW RRC and applies to all UEs having uplink DCH's that are dynamically controlled by this procedure. Such uplink DCH's could be established through ~~RAB~~RB establishment procedure, ~~RAB~~RB reconfiguration procedure, ~~RAB~~RB release procedure or Transport Channel Reconfiguration procedure by using a 'Dynamic Control' parameter to indicate that the DCH is controlled by the DRAC procedure.

This function is launched by UE upon reception of a SYSTEM INFORMATION message comprising DRAC parameters (ptr, Max. bit rate).

1. The UE randomly selects p [0,1].
2. The UE then checks its permission: if $p<p_{tr}$ the permission is granted for $T_{validity}$ frames, otherwise the UE waits for $T_{retry}$ frames before re-attempting access.
3. A new subset of TFCS is sent to MAC, according to the permission result and to maximum bit rate granted. This subset of TFCS shall only affect DCH that are controlled by this procedure.

Transmission time validity, Time duration before retry and Silent period duration before release are indicated to the UE together with the "Dynamic Control' parameter (i.e. at the establishment of a DCH controlled by this procedure) and may eventually be changed through ~~RAB~~RB reconfiguration.

When the UE is in soft handover, the UE may have to listen to the CCCH system information of 1 or several cells in the Active Set in order to react to the most stringent parameters, e.g. the lowest product ptr*max bit rate. In case of conflict in the reception of multiple FACH, the UE shall listen to the FACH with a priority order corresponding to the rank of cells in its Active Set (i.e. the FACH of the best received cells should be listened to first).

Whether the support for DRAC function is dependent on the UE capability or UE service capability is FFS

## 15.5 Downlink outer loop power control

This function is implemented in the UE in order to set the Eb/No target value used for the downlink closed loop power control. This Eb/No value is set according to some quality measurements performed in the UE, in order to maintain the quality requirements (FER or BER).

The UE shall set the Eb/No within the range allocated by the RNC when the physical channel has been set up or reconfigured. It shall not increase the Eb/No target value before the closed loop power control has converged on the current value. The UE may estimate whether the closed loop power control has converged on the current value, by comparing the averaged measured Eb/No to the Eb/No target value.

If the UE has received a DL outer loop control message from UTRAN indicating that the Eb/No target value shall not be increased above the current value, it shall record the current value as the maximum allowed value for the outer loop power control function, until it receives a new DL outer loop control message from UTRAN indicating that the restriction is removed.

# 16 Primitives between RRC and upper layers

# 176 -Handling of unknown, unforeseen and erroneous protocol data

This section specifies procedures for the handling of unknown, unforeseen, and erroneous protocol data by the receiving entity. These procedures are called "error handling procedures".

# 187 -SDL

This section describes the functionality of the protocol in descriptive SDL.

# 198 Appendices: Examples of operation

# 19 History

| Document history | | |
|---|---|---|
| **Date** | **Version** | **Comment** |
| January 1999 | 0.0.1 | Created following the first 3GPP WG2 meeting . Text from two documents were merged. These documents were:<br><br>ETSI SMG2 UMTS L23 EG document: 'Description of the RRC protocol, YY.31, v0.2.0, ETSI L23EG Tdoc 065/99, January 19, 1999.<br><br>and<br><br>TTC/ARIB document: 'Draft UE-UTRAN L3 RRC signalling protocol', Vol. 9, Ver 1.0.0, January 14, 1999, ETSI L23 EG Tdoc 010/99<br><br>The ETSI document was taken as the baseline document and change marks are given in v 0.0.1 of S2.31 with respect to the ETSI document. |
| March 1999 | 0.0.2 | Updated according to 3GPP template. There were no changes to S2.31 agreed at the January 1999 meeting |
| April 1999 | 0.1.0 | Updated to include new message and information element functional descriptions as described in TSGR2#3(99)220 (report of RRC email ad-hoc). New chapter headings 10-17 have been added and Annex 1 removed. Text updated to reflect new definitions for paging messages. |
| April 1999 | TS 25.331<br><br>V1.0.0 | Noted by TSG-RAN as TS 25.331V1.0.0 |
| May 1999 | V1.0.1 | Tables in Section 10 edited so that they read correctly when opened from WORD 6.0 |
| June 1999 | V1.1.0 | Edited following May 1999 RAN2meeting. Includes modifications to RRC procedures agreed in RRC procedures email ad-hoc (and mostly captured in Tdoc 376). Note that new procedures on RNTI re-allocation and RRC status added. Also includes a large number of modifications to RRC parameters and information elements most of which were captured in Tdoc 380. Updated to WORD 97. |
| July 1999 | V1.2.0 | Edited following the RAN2 meeting held in July 1999. Includes changes agreed in an email discussion, these changes were in the main captured in Tdoc 525. Also includes changes agreed at the RRC ad-hoc which was held during the meeting (See Tdoc 680). A number of other changes were also agreed - see meeting minutes. |

| | | |
|---|---|---|
| August 1999 | V1.2.1 | Minor editing performed prior to RAN2 meeting #6. Some alignment between 25.303 and 25.331 performed. |
| August 1999 | V1.3.0 | First draft edits performed following RAN2 meeting #6 (August 1999, Sophia Antipolis). |
| September 1999 | V1.3.1 | Includes a few minor editorials based on comments received by email |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