

Source: TSG-RAN WG2.

Title: CRs (Rel-5 & Rel-6) to WG2 specifications for the removal of CPCH

The following CRs are in RP-050309:

Spec	CR	Rev	Phase	Subject	Cat	Version-Current	Version-New	Doc-2nd-Level	Workitem
25.301	0078	-	Rel-5	Feature Clean Up: Removal of CPCH	C	5.4.0	5.5.0	R2-051616	TEI5
25.301	0079	-	Rel-6	Feature Clean Up: Removal of CPCH	C	6.2.0	6.3.0	R2-051617	TEI5
25.302	0159	-	Rel-5	Feature Clean Up: Removal of CPCH	C	5.7.0	5.8.0	R2-051618	TEI5
25.302	0160	-	Rel-6	Feature Clean Up: Removal of CPCH	C	6.3.0	6.4.0	R2-051619	TEI5
25.303	0079	-	Rel-5	Feature Clean Up: Removal of CPCH	C	5.2.0	5.3.0	R2-051620	TEI5
25.303	0080	-	Rel-6	Feature Clean Up: Removal of CPCH	C	6.2.0	6.3.0	R2-051621	TEI5
25.306	0112	-	Rel-5	Feature Clean Up: Removal of CPCH	C	5.10.0	5.11.0	R2-051622	TEI5
25.306	0113	-	Rel-6	Feature Clean Up: Removal of CPCH	C	6.4.1	6.5.0	R2-051623	TEI5
25.321	0213	-	Rel-5	Feature Clean Up: Removal of CPCH	C	5.10.0	5.11.0	R2-051624	TEI5
25.321	0214	-	Rel-6	Feature Clean Up: Removal of CPCH	C	6.4.0	6.5.0	R2-051625	TEI5
25.331	2588	-	Rel-5	Feature Clean Up: Removal of CPCH	C	5.12.1	5.13.0	R2-051626	TEI5
25.331	2589	-	Rel-6	Feature Clean Up: Removal of CPCH	C	6.5.0	6.6.0	R2-051627	TEI5

3GPP TSG RAN WG2 #47
Athens, Greece
09 - 13 May 2005

Tdoc #R2-051616

CR-Form-v7.1	CHANGE REQUEST
# 25.301 CR 0078 # rev - # Current version: 5.4.0 #	

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

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

Title:	# Feature Clean Up: Removal of CPCH		
Source:	# RAN WG2		
Work item code:	# TEI5	Date:	# 14 April 2005
Category:	# C	Release:	# Rel-5
	Use <u>one</u> of the following categories: F (correction) A (corresponds to a correction in an earlier release) B (addition of feature), C (functional modification of feature) D (editorial modification) Detailed explanations of the above categories can be found in 3GPP TR 21.900 .		Use <u>one</u> of the following releases: <i>Ph2</i> (GSM Phase 2) <i>R96</i> (Release 1996) <i>R97</i> (Release 1997) <i>R98</i> (Release 1998) <i>R99</i> (Release 1999) <i>Rel-4</i> (Release 4) <i>Rel-5</i> (Release 5) <i>Rel-6</i> (Release 6) <i>Rel-7</i> (Release 7)

Reason for change:	# Decision taken at RAN plenary to remove unnecessary features
Summary of change:	# - Removed from section 3.2 - Removed from section 5.2.1.1 - Removed from section 5.3.1.1.2.1 - Removed from figure 4 and 5 - Removed from section 5.3.1.2 - Removed from section 5.3.5.10 - Removed from section 5.3.5.16 - Removed from section 5.3.6 - Removed from section 5.4.2 - Removed from section 5.6.4 - Removed from section 6.1 - Removed from section 6.2
Consequences if not approved:	# RAN decision not carried out.

Clauses affected:	# 3.2, 5.2.1.1, 5.3.1.1.2.1, 5.3.1.2, 5.3.5.10, 5.3.5.16, 5.3.6, 5.4.2, 5.6.4, 6.1, 6.2.								
Other specs affected:	<table border="1" style="display: inline-table; vertical-align: middle;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;">X</td> <td style="text-align: center;"></td> </tr> <tr> <td style="text-align: center;"></td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;"></td> <td style="text-align: center;">X</td> </tr> </table> Other core specifications # 25.302, 25.303, 25.306, 25.321, 25.331. Test specifications O&M Specifications	Y	N	X			X		X
Y	N								
X									
	X								
	X								

Other comments: ☹

How to create CRs using this form:

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

~~~~ Next Modified Section ~~~~

## 3.2 Abbreviations

For the purposes of the present document, the following abbreviations apply:

|                 |                                             |
|-----------------|---------------------------------------------|
| ARQ             | Automatic Repeat Request                    |
| AS              | Access Stratum                              |
| ASC             | Access Service Class                        |
| BCCH            | Broadcast Control Channel                   |
| BCH             | Broadcast Channel                           |
| BMC             | Broadcast/Multicast Control                 |
| C-              | Control-                                    |
| CC              | Call Control                                |
| CCCH            | Common Control Channel                      |
| CCH             | Control Channel                             |
| CCTrCH          | Coded Composite Transport Channel           |
| CN              | Core Network                                |
| <del>CPCH</del> | <del>Common Packet channel</del>            |
| CRC             | Cyclic Redundancy Check                     |
| CTCH            | Common Traffic Channel                      |
| DC              | Dedicated Control (SAP)                     |
| DCA             | Dynamic Channel Allocation                  |
| DCCH            | Dedicated Control Channel                   |
| DCH             | Dedicated Channel                           |
| DL              | Downlink                                    |
| DRNC            | Drift Radio Network Controller              |
| DSCH            | Downlink Shared Channel                     |
| DTCH            | Dedicated Traffic Channel                   |
| FACH            | Forward Link Access Channel                 |
| FCS             | Frame Check Sequence                        |
| FDD             | Frequency Division Duplex                   |
| GC              | General Control (SAP)                       |
| HARQ            | Hybrid Automatic Repeat Request             |
| HO              | Handover                                    |
| HS-DSCH         | High Speed Downlink Shared Channel          |
| HS-PDSCH        | High Speed Physical Downlink Shared Channel |
| ITU             | International Telecommunication Union       |
| kbps            | kilobits per second                         |
| L1              | Layer 1 (physical layer)                    |
| L2              | Layer 2 (data link layer)                   |
| L3              | Layer 3 (network layer)                     |
| LAC             | Link Access Control                         |
| LAI             | Location Area Identity                      |
| MAC             | Medium Access Control                       |
| MM              | Mobility Management                         |
| NAS             | Non-Access Stratum                          |
| Nt              | Notification (SAP)                          |
| PCCH            | Paging Control Channel                      |
| PCH             | Paging Channel                              |
| PDCP            | Packet Data Convergence Protocol            |
| PDU             | Protocol Data Unit                          |
| PHY             | Physical layer                              |
| PhyCH           | Physical Channels                           |
| RAB             | Radio Access Bearer                         |
| RACH            | Random Access Channel                       |
| RB              | Radio Bearer                                |
| RLC             | Radio Link Control                          |
| RNC             | Radio Network Controller                    |

|       |                                            |
|-------|--------------------------------------------|
| RNS   | Radio Network Subsystem                    |
| RNTI  | Radio Network Temporary Identity           |
| RRC   | Radio Resource Control                     |
| SAP   | Service Access Point                       |
| SDU   | Service Data Unit                          |
| SHCCH | Shared Channel Control Channel             |
| SRNC  | Serving Radio Network Controller           |
| SRNS  | Serving Radio Network Subsystem            |
| TCH   | Traffic Channel                            |
| TDD   | Time Division Duplex                       |
| TFCI  | Transport Format Combination Indicator     |
| TFI   | Transport Format Indicator                 |
| TFRI  | Transport Format and Resource Indicator    |
| TMSI  | Temporary Mobile Subscriber Identity       |
| TPC   | Transmit Power Control                     |
| TSN   | Transmit Sequence Number                   |
| U-    | User-                                      |
| UE    | User Equipment                             |
| UL    | Uplink                                     |
| UMTS  | Universal Mobile Telecommunications System |
| URA   | UTRAN Registration Area                    |
| USCH  | Uplink Shared Channel                      |
| UTRA  | UMTS Terrestrial Radio Access              |
| UTRAN | UMTS Terrestrial Radio Access Network      |
| UuS   | Uu (Radio Interface) Stratum               |

~~~~ Next Modified Section ~~~~

5.2.1.1 Transport channels

A general classification of transport channels is into two groups:

- common transport channels (where there is a need for inband identification of the UEs when particular UEs are addressed); and
- dedicated transport channels (where the UEs are identified by the physical channel, i.e. code and frequency for FDD and code, time slot and frequency for TDD).

Common transport channel types are (a more detailed description can be found in [4]):

- **Random Access Channel (RACH)**

A contention based uplink channel used for transmission of relatively small amounts of data, e.g. for initial access or non-real-time dedicated control or traffic data.

- ~~**Common Packet Channel (CPCH)**~~

~~A contention based channel used for transmission of bursty data traffic. This channel only exists in FDD mode and only in the uplink direction. The common packet channel is shared by the UEs in a cell and therefore, it is a common resource. The CPCH is fast power controlled.~~

- **Forward Access Channel (FACH)**

Common downlink channel without closed-loop power control used for transmission of relatively small amount of data.

- **Downlink Shared Channel (DSCH)**

A downlink channel shared by several UEs carrying dedicated control or traffic data.

- **Uplink Shared Channel (USCH)**

An uplink channel shared by several UEs carrying dedicated control or traffic data, used in TDD mode only.

- **Broadcast Channel (BCH)**

A downlink channel used for broadcast of system information into an entire cell.

- **Paging Channel (PCH)**

A downlink channel used for broadcast of control information into an entire cell allowing efficient UE sleep mode procedures. Currently identified information types are paging and notification. Another use could be UTRAN notification of change of BCCH information.

- **High Speed Downlink Shared Channel (HS-DSCH)**

A downlink channel shared between UEs by allocation of individual codes, from a common pool of codes assigned for the channel.

Dedicated transport channel types are:

- **Dedicated Channel (DCH)**

A channel dedicated to one UE used in uplink or downlink.

To each transport channel, there is an associated Transport Format (for transport channels with a fixed or slow changing rate) or an associated Transport Format Set (for transport channels with fast changing rate). A Transport Format is defined as a combination of encodings, interleaving, bit rate and mapping onto physical channels (see [4] for details). A Transport Format Set is a set of Transport Formats. E.g., a variable rate DCH has a Transport Format Set (one Transport Format for each rate), whereas a fixed rate DCH has a single Transport Format.

~~~~ Next Modified Section ~~~~

### 5.3.1.1.2 Mapping between logical channels and transport channels

#### 5.3.1.1.2.1 Mapping in Uplink

In Uplink, the following connections between logical channels and transport channels exist:

- CCCH can be mapped to RACH;
- DCCH can be mapped to RACH;
- ~~DCCH can be mapped to CPCH (in FDD mode only);~~
- DCCH can be mapped to DCH;
- DCCH can be mapped to USCH (in TDD mode only);
- DTCH can be mapped to RACH;
- ~~DTCH can be mapped to CPCH (in FDD mode only);~~
- DTCH can be mapped to DCH;
- DTCH can be mapped to USCH (in TDD mode only);
- SHCCH can be mapped to RACH (in TDD mode only);
- SHCCH can be mapped to USCH (in TDD mode only).

#### 5.3.1.1.2.2 Mapping in Downlink

In Downlink, the following connections between logical channels and transport channels exist:

- BCCH can be mapped to BCH;
- BCCH can be mapped to FACH;
- PCCH can be mapped to PCH;
- CCCH can be mapped to FACH;
- DCCH can be mapped to FACH;
- DCCH can be mapped to DSCH;
- DCCH can be mapped to HS-DSCH;
- DCCH can be mapped to DCH;
- DTCH can be mapped to FACH;
- DTCH can be mapped to DSCH;
- DTCH can be mapped to HS-DSCH;
- DTCH can be mapped to DCH;
- CTCH can be mapped to FACH;
- SHCCH can be mapped to FACH (in TDD mode only).
- SHCCH can be mapped to DSCH (in TDD mode only).

The mappings as seen from the UE and UTRAN sides are shown in Figure 4 and Figure 5 respectively.

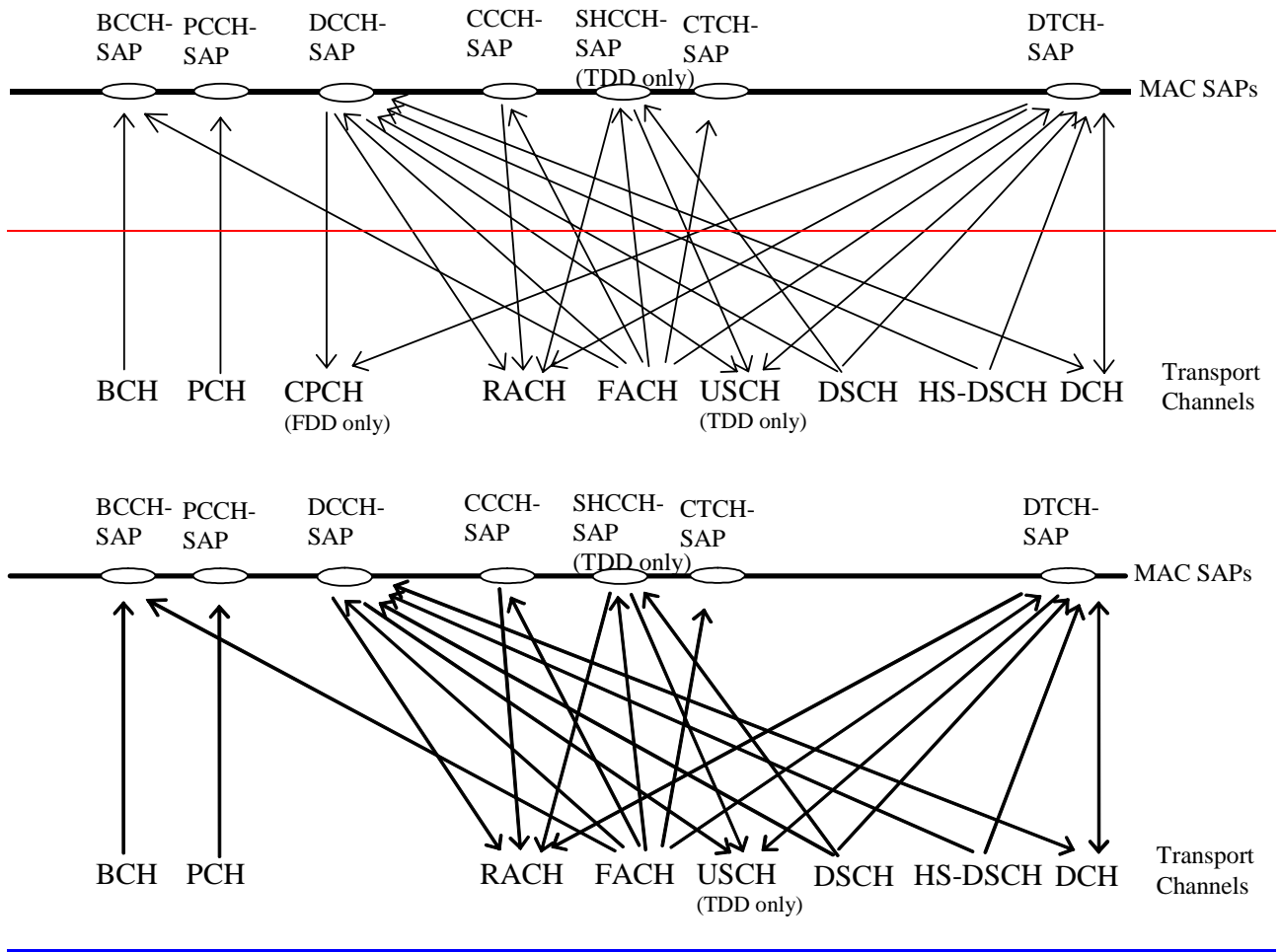


Figure 4: Logical channels mapped onto transport channels, seen from the UE side



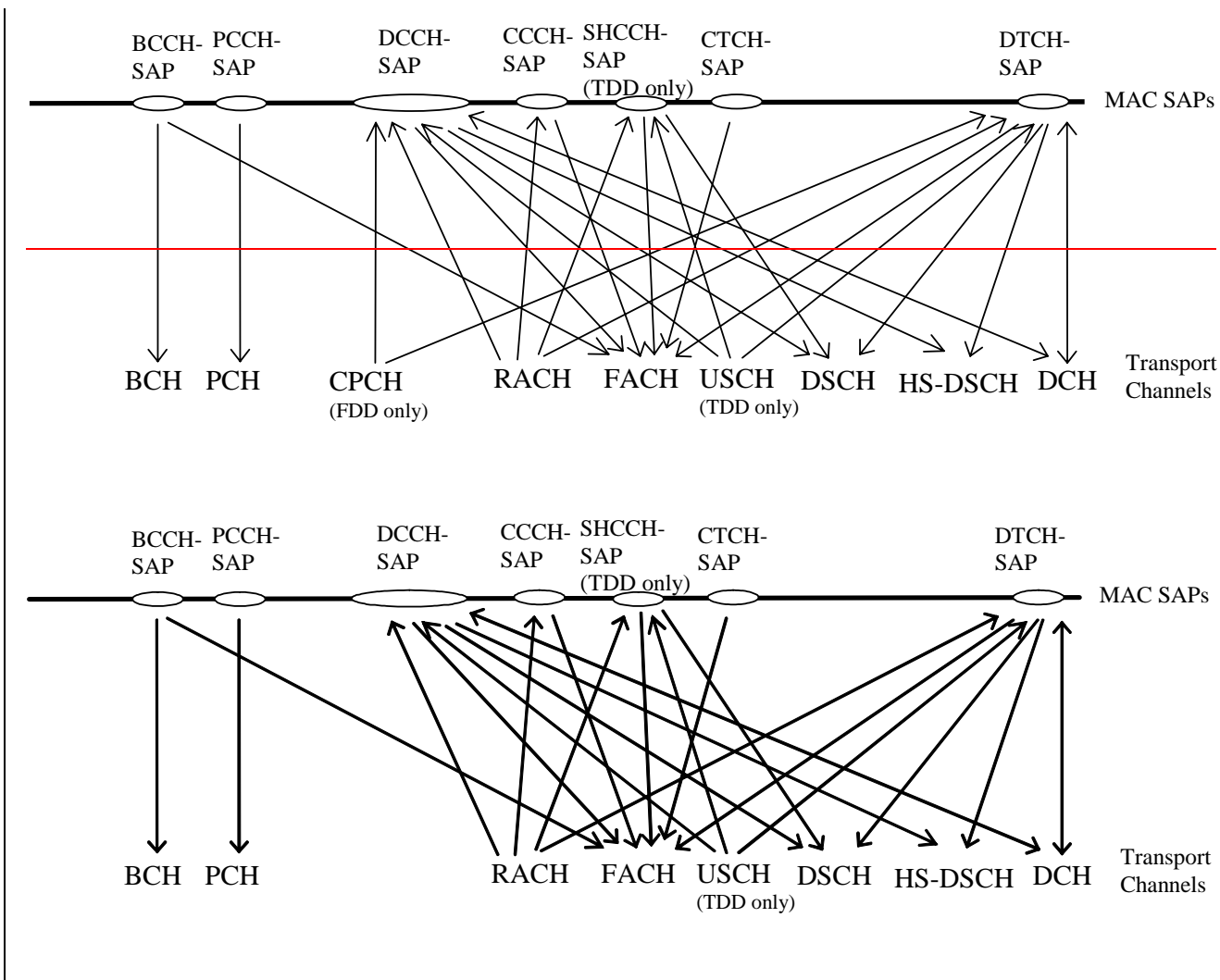


Figure 5: Logical channels mapped onto transport channels, seen from the UTRAN side

### 5.3.1.2 MAC functions

The functions of MAC include:

- **Mapping between logical channels and transport channels.** The MAC is responsible for mapping of logical channel(s) onto the appropriate transport channel(s).
- **Selection of appropriate Transport Format for each Transport Channel depending on instantaneous source rate.** Given the Transport Format Combination Set assigned by RRC, MAC selects the appropriate transport format within an assigned transport format set for each active transport channel depending on source rate. The control of transport formats ensures efficient use of transport channels.
- **Priority handling between data flows of one UE.** When selecting between the Transport Format Combinations in the given Transport Format Combination Set, priorities of the data flows to be mapped onto the corresponding Transport Channels can be taken into account. Priorities are e.g. given by attributes of Radio Bearer services and RLC buffer status. The priority handling is achieved by selecting a Transport Format Combination for which high priority data is mapped onto L1 with a "high bit rate" Transport Format, at the same time letting lower priority data be mapped with a "low bit rate" (could be zero bit rate) Transport Format. Transport format selection may also take into account transmit power indication from Layer 1.
- **Priority handling between UEs by means of dynamic scheduling.** In order to utilise the spectrum resources efficiently for bursty transfer, a dynamic scheduling function may be applied. MAC realises priority handling on common and shared transport channels. Note that for dedicated transport channels, the equivalent of the dynamic scheduling function is implicitly included as part of the reconfiguration function of the RRC sublayer.

NOTE: In the TDD mode the data to be transported are represented in terms of sets of resource units.

- **Identification of UEs on common transport channels.** When a particular UE is addressed on a common downlink channel, or when a UE is using the RACH, there is a need for inband identification of the UE. Since the MAC layer handles the access to, and multiplexing onto, the transport channels, the identification functionality is naturally also placed in MAC.
- **Multiplexing/demultiplexing of upper layer PDUs into/from transport blocks delivered to/from the physical layer on common transport channels.** MAC should support service multiplexing for common transport channels, since the physical layer does not support multiplexing of these channels.
- **Multiplexing/demultiplexing of upper layer PDUs into/from transport block sets delivered to/from the physical layer on dedicated transport channels.** The MAC allows service multiplexing for dedicated transport channels. This function can be utilised when several upper layer services (e.g. RLC instances) can be mapped efficiently on the same transport channel. In this case the identification of multiplexing is contained in the MAC protocol control information.
- **Traffic volume measurement.** Measurement of traffic volume on logical channels and reporting to RRC. Based on the reported traffic volume information, RRC performs transport channel switching decisions.
- **Transport Channel type switching.** Execution of the switching between common and dedicated transport channels based on a switching decision derived by RRC.
- **Ciphering.** This function prevents unauthorised acquisition of data. Ciphering is performed in the MAC layer for transparent RLC mode. Details of the security architecture are specified in [15].
- **Access Service Class selection for RACH ~~and CPCH~~ transmission.** The RACH resources (i.e. access slots and preamble signatures for FDD, timeslot and channelisation code for TDD) ~~and CPCH resources (i.e. access slots and preamble signatures for FDD only)~~ may be divided between different Access Service Classes in order to provide different priorities of RACH ~~and CPCH~~ usage. In addition it is possible for more than one ASC or for all ASCs to be assigned to the same access slot/signature space. Each access service class will also have a set of back-off parameters associated with it, some or all of which may be broadcast by the network. The MAC function applies the appropriate back-off and indicates to the PHY layer the RACH ~~and CPCH~~ partition associated to a given MAC PDU transfer.
- **HARQ functionality for HS-DSCH transmission.** The MAC-hs entity is responsible for establishing the HARQ entity in accordance with the higher layer configuration and handling all the tasks required to perform HARQ functionality. This functionality ensures delivery between peer entities by use of the ACK and NACK signalling between the peer entities.
- **In-sequence delivery and assembly/disassembly of higher layer PDUs on HS-DSCH.** The transmitting MAC-hs entity assembles the data block payload for the MAC-hs PDUs from the delivered MAC-d PDUs. The MAC-d PDUs that are assembled in any one MAC-hs PDU are the same priority, and from the same MAC-d flow. The receiving MAC-hs entity is then responsible for the reordering of the received data blocks according to the received TSN, per priority and MAC-d flow, and then disassembling the data block into MAC-d PDUs for in-sequence delivery to the higher layers.

~~~~ Next Modified Section ~~~~

5.3.5.10 ~~Data flow for DCCH mapped to CPCH~~ Void

~~For DCCH mapped to CPCH, unacknowledged or acknowledged transmission modes on RLC are employed. The MAC header is needed for logical channel service multiplexing. Figure 9 is the applicable data flow to this case.~~

5.3.5.11 Data flow for DTCH (non-transparent RLC) mapped to FACH/RACH

Mapping to FACH/RACH implies a DTCH with acknowledged or unacknowledged transmission on RLC. A MAC header is mandatory for FACH/RACH when carrying DTCH. The data flow shown in Figure 9 is applicable.

5.3.5.12 Data flow for DTCH (non-transparent RLC) mapped to DSCH

Mapping to DSCH implies a DTCH with acknowledged or unacknowledged transmission on RLC. A MAC header is mandatory when DTCH is mapped to a DSCH in FDD mode, i.e. the data flow in Figure 9 is applicable. In TDD mode a MAC header is optional, i.e. either the data flow in Figure 8 or Figure 9 is applicable.

5.3.5.13 Data flow for DTCH (non-transparent RLC) mapped to USCH

Mapping to USCH implies a DTCH with acknowledged or unacknowledged transmission on RLC. A MAC header is needed if DCCH and DTCH logical channels are multiplexed in MAC before mapping to a USCH, i.e. either the data flow in Figure 8 or Figure 9 is applicable.

5.3.5.14 Data flow for DTCH (transparent RLC) mapped to DCH

Continuous DTCH data stream is segmented into transport blocks on RLC and mapped on a DCH transport channel on MAC. The transport block size is naturally implied by the data rate. Both RLC and MAC sublayers are transparent, i.e. no protocol control information is added, when no multiplexing of DTCH on MAC is applied. The data flow shown in Figure 6 is applicable. If multiplexing on MAC is performed, a MAC header is needed, and Figure 7 applies.

5.3.5.15 Data flow for DTCH (non-transparent RLC) mapped to DCH

In this case acknowledged or unacknowledged transmission on RLC is applied. A MAC header is needed only if multiple DTCH logical channels are multiplexed in MAC before mapping to a DCH, i.e. either the data flow in Figure 8 or Figure 9 is applicable.

5.3.5.16 ~~Data flow for DTCH (non-transparent RLC) mapped to CPCH~~Void.

~~This case requires both non-transparent RLC and MAC operations. The data flow shown in Figure 9 is applicable.~~

5.3.5.17 Data flow for DCCH mapped to DCH

In this case non-transparent or transparent transmission mode on RLC is applied. A MAC header is needed only if DCCH and DTCH logical channels are multiplexed in MAC before mapping to a DCH, i.e. either the data flow in Figure 8 or Figure 9 is applicable.

5.3.5.18 Data flow for CTCH mapped to FACH

For CTCH, unacknowledged transmission mode on RLC is employed. A MAC header is used for logical channel identification (CCCH, CTCH, DCCH, DTCH). The data flow shown in Figure 9 is applicable.

5.3.5.19 Data flow for DCCH mapped to HS-DSCH (TDD only)

For DCCH, both unacknowledged and acknowledged transmission mode on RLC is employed. A MAC header is mandatory when the DCCH is mapped to the HS-DSCH, i.e. the data flow in figure 9a is applicable.

5.3.5.20 Data flow for DTCH (non-transparent RLC) mapped to HS-DSCH

Mapping to DSCH implies a DTCH with acknowledged or unacknowledged transmission on RLC. A MAC header is mandatory when the DCCH is mapped to the HS-DSCH, i.e. the data flow in figure 9a is applicable.

5.3.6 Transport Channel, Logical Channel and MAC-d flow Numbering

The UE model for transport channel and logical channel numbering is defined by the following:

- For FACH transport channels:
 - A transport channel identity is associated with each FACH transport channel. Each identity is unique within the downlink FACHs mapped onto the same physical channel.
 - Transport channel identities can be allocated non sequentially.

- Transport channel identity is not used to determine the radio bearer mapping. The transport channels that can be used are determined from the available physical channels.
- Each downlink DCCH and DTCH has a unique logical channel identity.
- For RACH ~~and CPCH~~ transport channels:
 - A transport channel identity is associated with each RACH transport channel. Each identity is unique within the RACHs mapped onto the same PRACH.
 - ~~A transport channel identity is associated with each CPCH transport channel. Each identity is unique within the CPCHs mapped onto the same CPCH set.~~
 - Transport channel identities can be allocated non sequentially.
 - Transport channel identity is not used to determine the radio bearer mapping. The transport channels that can be used are determined from the available physical channels.
 - Each uplink DCCH and DTCH has a unique logical channel identity.
- For downlink DCH and DSCH transport channels:
 - A transport channel identity is associated with each downlink DCH transport channel. Each identity is unique within the downlink DCHs configured in the UE;
 - Transport channel identities can be allocated non sequentially.
 - A transport channel identity is associated with each DSCH transport channel. Each identity is unique within the DSCHs configured in the UE;
 - A logical channel identity is associated with each logical channel that is multiplexed with other logical channels before being mapped to a transport channel. Each identity is unique within the logical channels mapped to the same transport channel.
 - A logical channel that is mapped to DCH and DSCH simultaneously has one logical channel identity.
- For HS-DSCH:
 - A MAC-flow identity is associated with each MAC-d flow. Each identity is unique within the MAC-d flows configured in the UE;
 - A logical channel identity is associated with each logical channel that is multiplexed with other logical channels before being mapped to a MAC-d flow. Each identity is unique within the logical channels mapped to the same MAC-d flow.

A logical channel that is mapped to DCH and HS-DSCH simultaneously has one logical channel identity.
- For uplink DCH and USCH transport channels:
 - A transport channel identity is associated with each uplink DCH transport channel. Each identity is unique within the uplink DCHs configured in the UE;
 - Transport channel identities can be allocated non sequentially.
 - A transport channel identity is associated with each USCH transport channel. Each identity is unique within the USCHs configured in the UE;
 - A logical channel identity is associated with each logical channel that is multiplexed with other logical channels before being mapped to a transport channel. Each identity is unique within the logical channels mapped to the same transport channel.

~~~~ Next Modified Section ~~~~

## 5.4.2 RRC functions

The Radio Resource Control (RRC) layer handles the control plane signalling of Layer 3 between the UEs and UTRAN. The RRC performs the following functions:

- **Broadcast of information provided by the non-access stratum (Core Network).** The RRC layer performs system information broadcasting from the network to all UEs. The system information is normally repeated on a regular basis. The RRC layer performs the scheduling, segmentation and repetition. This function supports broadcast of higher layer (above RRC) information. This information may be cell specific or not. As an example RRC may broadcast Core Network location service area information related to some specific cells.
- **Broadcast of information related to the access stratum.** The RRC layer performs system information broadcasting from the network to all UEs. The system information is normally repeated on a regular basis. The RRC layer performs the scheduling, segmentation and repetition. This function supports broadcast of typically cell-specific information.
- **Establishment, re-establishment, maintenance and release of an RRC connection between the UE and UTRAN.** The establishment of an RRC connection is initiated by a request from higher layers at the UE side to establish the first Signalling Connection for the UE. The establishment of an RRC connection includes an optional cell re-selection, an admission control, and a layer 2 signalling link establishment. The release of an RRC connection can be initiated by a request from higher layers to release the last Signalling Connection for the UE or by the RRC layer itself in case of RRC connection failure. In case of connection loss, the UE requests re-establishment of the RRC connection. In case of RRC connection failure, RRC releases resources associated with the RRC connection.
- **Establishment, reconfiguration and release of Radio Bearers.** The RRC layer can, on request from higher layers, perform the establishment, reconfiguration and release of Radio Bearers in the user plane. A number of Radio Bearers can be established to an UE at the same time. At establishment and reconfiguration, the RRC layer performs admission control and selects parameters describing the Radio Bearer processing in layer 2 and layer 1, based on information from higher layers.
- **Assignment, reconfiguration and release of radio resources for the RRC connection.** The RRC layer handles the assignment of radio resources (e.g. codes, ~~CPCH channels~~) needed for the RRC connection including needs from both the control and user plane. The RRC layer may reconfigure radio resources during an established RRC connection. This function includes coordination of the radio resource allocation between multiple radio bearers related to the same RRC connection. RRC controls the radio resources in the uplink and downlink such that UE and UTRAN can communicate using unbalanced radio resources (asymmetric uplink and downlink). RRC signals to the UE to indicate resource allocations for purposes of handover to GSM or other radio systems.
- **RRC connection mobility functions.** The RRC layer performs evaluation, decision and execution related to RRC connection mobility during an established RRC connection, such as handover, preparation of handover to GSM or other systems, cell re-selection and cell/paging area update procedures, based on e.g. measurements done by the UE.
- **Paging/notification.** The RRC layer can broadcast paging information from the network to selected UEs. Higher layers on the network side can request paging and notification. The RRC layer can also initiate paging during an established RRC connection.
- **Routing of higher layer PDUs.** This function performs at the UE side routing of higher layer PDUs to the correct higher layer entity, at the UTRAN side to the correct RANAP entity.
- **Control of requested QoS.** This function shall ensure that the QoS requested for the Radio Bearers can be met. This includes the allocation of a sufficient number of radio resources.
- **UE measurement reporting and control of the reporting.** The measurements performed by the UE are controlled by the RRC layer, in terms of what to measure, when to measure and how to report, including both UMTS air interface and other systems. The RRC layer also performs the reporting of the measurements from the UE to the network.
- **Outer loop power control.** The RRC layer controls setting of the target of the closed loop power control.
- **Control of ciphering.** The RRC layer provides procedures for setting of ciphering (on/off) between the UE and UTRAN. Details of the security architecture are specified in [15].

- **Slow DCA.** Allocation of preferred radio resources based on long-term decision criteria. It is applicable only in TDD mode.
- **Arbitration of radio resources on uplink DCH.** This function controls the allocation of radio resources on uplink DCH on a fast basis, using a broadcast channel to send control information to all involved users.

NOTE: This function is implemented in the CRNC.

- **Initial cell selection and re-selection in idle mode.** Selection of the most suitable cell based on idle mode measurements and cell selection criteria.
- **Integrity protection.** This function adds a Message Authentication Code (MAC-I) to those RRC messages that are considered sensitive and/or contain sensitive information. The mechanism how the MAC-I is calculated is described in [14].
- **Initial Configuration for CBS**  
This function performs the initial configuration of the BMC sublayer.
- **Allocation of radio resources for CBS**  
This function allocates radio resources for CBS based on traffic volume requirements indicated by BMC. The radio resource allocation set by RRC (i.e. the schedule for mapping of CTCH onto FACH/S-CCPCH) is indicated to BMC to enable generation of schedule messages. The resource allocation for CBS shall be broadcast as system information.
- **Configuration for CBS discontinuous reception**  
This function configures the lower layers (L1, L2) of the UE when it shall listen to the resources allocated for CBS based on scheduling information received from BMC.
- **Timing advance control.** The RRC controls the operation of timing advance. It is applicable only in 3.84 Mcps TDD.

~~~~ Next Modified Section ~~~~

5.6.3 Void

5.6.4 ~~Protocol termination for CPCH~~ [Void](#)

~~The protocol termination for CPCH is identical to the termination for RACH. Figure 13 (for DCCH) presents the control plane protocol termination. Figure 14 presents the user plane protocol termination.~~

~~~~ Next Modified Section ~~~~

## 6.1 UE identification on the radio interface

A Radio Network Temporary Identity (RNTI) is used as an UE identifier on RACH/FACH, ~~RACH+CPCH/FACH~~ or, for FDD mode, also on DSCH by the MAC protocol, or on PCH by the RRC, when a RRC connection exists. For the HS-DSCH the UE identification is included by the physical layer with the help of a UE-specific CRC.

### Definition of UE identifiers

Several types of RNTIs exist. One is used within the Serving RNC and it is denoted by Serving RNC RNTI (S-RNTI). A second type is used within a cell controlled by a CRNC, when applicable, and it is denoted by Cell RNTI (C-RNTI). A third type is used within a cell controlled by a CRNC when a DSCH is allocated and it is denoted by DSCH-RNTI. A fourth type is used within a cell controlled by a CRNC when an HS-DSCH is configured and it is denoted by HS-DSCH-RNTI (H-RNTI).

S-RNTI is allocated for all UEs having a RRC connection. It is allocated by the Serving RNC and it is unique within the Serving RNC. S-RNTI is reallocated always when the Serving RNC for the RRC connection is changed and deallocated when the RRC connection is released.

In addition for each UE having an RRC connection, there is an identifier of its current serving RNC, which is denoted as SRNC identifier. The SRNC identifier together with S-RNTI is a unique identifier of the RRC connection within PLMN. The combination of SRNC identifier and S-RNTI is referred to as U-RNTI (UTRAN Radio Network Temporary Identity), which is used on the radio interface.

C-RNTI for a UE is allocated by a controlling RNC and it is unique within one cell controlled by the allocating CRNC. C-RNTI can be reallocated when a UE accesses a new cell with the cell update procedure.

DSCH-RNTI for a UE is allocated by controlling RNC when a DSCH channel is configured. DSCH-RNTI is unique within the cell carrying the DSCH.

H-RNTI for a UE is allocated by a controlling RNC and it is unique within one cell controlled by the allocating CRNC. H-RNTI is reallocated when an HS-DSCH cell change is performed.

### Usage of UE identifiers

U-RNTI is allocated to an UE having a RRC connection. It identifies the UE within UTRAN and is used as a UE identifier in cell update, URA update, RRC connection reestablishment and (UTRAN originated) paging messages and associated responses on the radio interface. The SRNC identifier within the U-RNTI is used by the Controlling RNC to route the received uplink messages towards the Serving RNC.

C-RNTI is used as a UE identifier in all other DCCH/DTCH common channel messages on the radio interface.

DSCH-RNTI is used as a UE identifier for DTCH and DCCH in downlink when mapped onto DSCH transport channel.

H-RNTI is used as a UE identifier for the HS-DSCH.

NAS identifiers are used as the UE identifier in the initial access CCCH message on the radio interface.

## 6.2 UE connection to UTRAN

The different levels of UE connection to UTRAN are listed below:

- No signalling connection exist  
The UE has no relation to UTRAN, only to CN. For data transfer, a signalling connection has to be established.
- Signalling connection exist  
There is a RRC connection between UE and UTRAN. The UE position can be known on different levels:
  - UTRAN Registration Area (URA) level  
The UE position is known on UTRAN registration area level. URA is a specified set of cell, which can be identified on the BCCH.
  - Cell level  
The UE position is known on cell level. Different channel types can be used for data transfer:
    - Common transport channels (RACH, FACH, ~~CPCH~~, DSCH, HS-DSCH);
    - Dedicated transport channels (DCH).

**3GPP TSG RAN WG2 #47**  
**Athens, Greece**  
**09 - 13 May 2005**

**Tdoc #R2-051617**

CR-Form-v7.1

## CHANGE REQUEST

# **25.301 CR 0079** # rev **-** # Current version: **6.2.0** #

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

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

|                        |                                                                                                                                                                                                                                                                                                                                                                 |              |                                                                                                                                                                                                                                                                                                           |
|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Title:</b>          | # Feature Clean Up: Removal of CPCH #                                                                                                                                                                                                                                                                                                                           |              |                                                                                                                                                                                                                                                                                                           |
| <b>Source:</b>         | # RAN WG2 #                                                                                                                                                                                                                                                                                                                                                     |              |                                                                                                                                                                                                                                                                                                           |
| <b>Work item code:</b> | # TEI5 #                                                                                                                                                                                                                                                                                                                                                        | <b>Date:</b> | # 14 April 2005 #                                                                                                                                                                                                                                                                                         |
| <b>Category:</b>       | # <b>C</b> #                                                                                                                                                                                                                                                                                                                                                    |              | <b>Release:</b> # Rel-6 #                                                                                                                                                                                                                                                                                 |
|                        | Use <u>one</u> of the following categories:<br><b>F</b> (correction)<br><b>A</b> (corresponds to a correction in an earlier release)<br><b>B</b> (addition of feature),<br><b>C</b> (functional modification of feature)<br><b>D</b> (editorial modification)<br>Detailed explanations of the above categories can be found in 3GPP <a href="#">TR 21.900</a> . |              | Use <u>one</u> of the following releases:<br><b>Ph2</b> (GSM Phase 2)<br><b>R96</b> (Release 1996)<br><b>R97</b> (Release 1997)<br><b>R98</b> (Release 1998)<br><b>R99</b> (Release 1999)<br><b>Rel-4</b> (Release 4)<br><b>Rel-5</b> (Release 5)<br><b>Rel-6</b> (Release 6)<br><b>Rel-7</b> (Release 7) |

|                                      |                                                                                                                                                                                                                                                                                                                                                                                                             |  |  |
|--------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| <b>Reason for change:</b>            | # Decision taken at RAN plenary to remove unnecessary features #                                                                                                                                                                                                                                                                                                                                            |  |  |
| <b>Summary of change:</b>            | # - Removed from section 3.2<br>- Removed from section 5.2.1.1<br>- Removed from section 5.3.1.1.2.1<br>- Removed from figure 4 and 5<br>- Removed from section 5.3.1.2<br>- Removed from section 5.3.5.10<br>- Removed from section 5.3.5.16<br>- Removed from section 5.3.6<br>- Removed from section 5.4.2<br>- Removed from section 5.6.4<br>- Removed from section 6.1<br>- Removed from section 6.2 # |  |  |
| <b>Consequences if not approved:</b> | # RAN decision not carried out. #                                                                                                                                                                                                                                                                                                                                                                           |  |  |

|                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |   |   |   |  |  |   |  |   |                                                                        |                                             |
|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|---|--|--|---|--|---|------------------------------------------------------------------------|---------------------------------------------|
| <b>Clauses affected:</b>     | # 3.2, 5.2.1.1, 5.3.1.1.2.1, 5.3.1.2, 5.3.5.10, 5.3.5.16, 5.3.6, 5.4.2, 5.6.4, 6.1, 6.2. #                                                                                                                                                                                                                                                                                                                                                                                       |   |   |   |  |  |   |  |   |                                                                        |                                             |
| <b>Other specs affected:</b> | <table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;">X</td> <td style="text-align: center;"></td> </tr> <tr> <td style="text-align: center;"></td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;"></td> <td style="text-align: center;">X</td> </tr> </table> | Y | N | X |  |  | X |  | X | Other core specifications<br>Test specifications<br>O&M Specifications | # 25.302, 25.303, 25.306, 25.321, 25.331. # |
| Y                            | N                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |   |   |   |  |  |   |  |   |                                                                        |                                             |
| X                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |   |   |   |  |  |   |  |   |                                                                        |                                             |
|                              | X                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |   |   |   |  |  |   |  |   |                                                                        |                                             |
|                              | X                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |   |   |   |  |  |   |  |   |                                                                        |                                             |



**Other comments:** ☹

### **How to create CRs using this form:**

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

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

|                                 |
|---------------------------------|
| ~~~~ Next Modified Section ~~~~ |
|---------------------------------|

## 3.2 Abbreviations

For the purposes of the present document, the following abbreviations apply:

|                 |                                             |
|-----------------|---------------------------------------------|
| ARQ             | Automatic Repeat Request                    |
| AS              | Access Stratum                              |
| ASC             | Access Service Class                        |
| BCCH            | Broadcast Control Channel                   |
| BCH             | Broadcast Channel                           |
| BMC             | Broadcast/Multicast Control                 |
| C-              | Control-                                    |
| CC              | Call Control                                |
| CCCH            | Common Control Channel                      |
| CCH             | Control Channel                             |
| CCTrCH          | Coded Composite Transport Channel           |
| CN              | Core Network                                |
| <del>CPCH</del> | <del>Common Packet channel</del>            |
| CRC             | Cyclic Redundancy Check                     |
| CTCH            | Common Traffic Channel                      |
| DC              | Dedicated Control (SAP)                     |
| DCA             | Dynamic Channel Allocation                  |
| DCCH            | Dedicated Control Channel                   |
| DCH             | Dedicated Channel                           |
| DL              | Downlink                                    |
| DRNC            | Drift Radio Network Controller              |
| DSCH            | Downlink Shared Channel                     |
| DTCH            | Dedicated Traffic Channel                   |
| E-DCH           | Enhanced Dedicated Channel                  |
| FACH            | Forward Link Access Channel                 |
| FCS             | Frame Check Sequence                        |
| FDD             | Frequency Division Duplex                   |
| GC              | General Control (SAP)                       |
| HARQ            | Hybrid Automatic Repeat Request             |
| HO              | Handover                                    |
| HS-DSCH         | High Speed Downlink Shared Channel          |
| HS-PDSCH        | High Speed Physical Downlink Shared Channel |
| ITU             | International Telecommunication Union       |
| kbps            | kilobits per second                         |
| L1              | Layer 1 (physical layer)                    |
| L2              | Layer 2 (data link layer)                   |
| L3              | Layer 3 (network layer)                     |
| LAC             | Link Access Control                         |
| LAI             | Location Area Identity                      |
| MAC             | Medium Access Control                       |
| MBMS            | Multimedia Broadcast Multicast Service      |
| MCCH            | MBMS point-to-multipoint Control Channel    |
| MM              | Mobility Management                         |
| MSCH            | MBMS point-to-multipoint Scheduling Channel |
| MTCH            | MBMS point-to-multipoint Traffic Channel    |
| NAS             | Non-Access Stratum                          |
| Nt              | Notification (SAP)                          |
| PCCH            | Paging Control Channel                      |
| PCH             | Paging Channel                              |
| PDCP            | Packet Data Convergence Protocol            |
| PDU             | Protocol Data Unit                          |

|       |                                            |
|-------|--------------------------------------------|
| PHY   | Physical layer                             |
| PhyCH | Physical Channels                          |
| RAB   | Radio Access Bearer                        |
| RACH  | Random Access Channel                      |
| RB    | Radio Bearer                               |
| RLC   | Radio Link Control                         |
| RNC   | Radio Network Controller                   |
| RNS   | Radio Network Subsystem                    |
| RNTI  | Radio Network Temporary Identity           |
| RRC   | Radio Resource Control                     |
| SAP   | Service Access Point                       |
| SDU   | Service Data Unit                          |
| SHCCH | Shared Channel Control Channel             |
| SRNC  | Serving Radio Network Controller           |
| SRNS  | Serving Radio Network Subsystem            |
| TCH   | Traffic Channel                            |
| TDD   | Time Division Duplex                       |
| TFCI  | Transport Format Combination Indicator     |
| TFI   | Transport Format Indicator                 |
| TFRI  | Transport Format and Resource Indicator    |
| TMSI  | Temporary Mobile Subscriber Identity       |
| TPC   | Transmit Power Control                     |
| TSN   | Transmit Sequence Number                   |
| U-    | User-                                      |
| UE    | User Equipment                             |
| UL    | Uplink                                     |
| UMTS  | Universal Mobile Telecommunications System |
| URA   | UTRAN Registration Area                    |
| USCH  | Uplink Shared Channel                      |
| UTRA  | UMTS Terrestrial Radio Access              |
| UTRAN | UMTS Terrestrial Radio Access Network      |
| UuS   | Uu (Radio Interface) Stratum               |

~~~~ Next Modified Section ~~~~

5.2.1.1 Transport channels

A general classification of transport channels is into two groups:

- common transport channels (where there is a need for inband identification of the UEs when particular UEs are addressed); and
- dedicated transport channels (where the UEs are identified by the physical channel, i.e. code and frequency for FDD and code, time slot and frequency for TDD).

Common transport channel types are (a more detailed description can be found in [4]):

- **Random Access Channel (RACH)**

A contention based uplink channel used for transmission of relatively small amounts of data, e.g. for initial access or non-real-time dedicated control or traffic data.

- ~~Common Packet Channel (CPCH)~~

~~—A contention based channel used for transmission of bursty data traffic. This channel only exists in FDD mode and only in the uplink direction. The common packet channel is shared by the UEs in a cell and therefore, it is a common resource. The CPCH is fast power controlled.~~

- **Forward Access Channel (FACH)**

Common downlink channel without closed-loop power control used for transmission of relatively small amount of data. In addition FACH is used to carry broadcast and multicast data.

- **Downlink Shared Channel (DSCH)**

A downlink channel shared by several UEs carrying dedicated control or traffic data.

- **Uplink Shared Channel (USCH)**

An uplink channel shared by several UEs carrying dedicated control or traffic data, used in TDD mode only.

- **Broadcast Channel (BCH)**

A downlink channel used for broadcast of system information into an entire cell.

- **Paging Channel (PCH)**

A downlink channel used for broadcast of control information into an entire cell allowing efficient UE sleep mode procedures. Currently identified information types are paging and notification. Another use could be UTRAN notification of change of BCCH information.

- **High Speed Downlink Shared Channel (HS-DSCH)**

A downlink channel shared between UEs by allocation of individual codes, from a common pool of codes assigned for the channel.

Dedicated transport channel types are:

- **Dedicated Channel (DCH)**

A channel dedicated to one UE used in uplink or downlink.

- **Enhanced Dedicated Channel (E-DCH)**

A channel dedicated to one UE used in uplink only. The E-DCH is subject to Node-B controlled scheduling and HARQ.

To each transport channel, there is an associated Transport Format (for transport channels with a fixed or slow changing rate) or an associated Transport Format Set (for transport channels with fast changing rate). A Transport Format is defined as a combination of encodings, interleaving, bit rate and mapping onto physical channels (see [4] for details). A Transport Format Set is a set of Transport Formats. E.g., a variable rate DCH has a Transport Format Set (one Transport Format for each rate), whereas a fixed rate DCH has a single Transport Format.

~~~~ Next Modified Section ~~~~

### 5.3.1.1.2 Mapping between logical channels and transport channels

#### 5.3.1.1.2.1 Mapping in Uplink

In Uplink, the following connections between logical channels and transport channels exist:

- CCCH can be mapped to RACH;
- DCCH can be mapped to RACH;
- ~~DCCH can be mapped to CPCH (in FDD mode only);~~
- DCCH can be mapped to DCH;
- DCCH can be mapped to USCH (in TDD mode only);
- DCCH can be mapped to E-DCH;

- DTCH can be mapped to RACH;
- ~~DTCH can be mapped to CPCH (in FDD mode only);~~
- DTCH can be mapped to DCH;
- DTCH can be mapped to USCH (in TDD mode only);
- SHCCH can be mapped to RACH (in TDD mode only);
- SHCCH can be mapped to USCH (in TDD mode only);
- DTCH can be mapped to E-DCH.

#### 5.3.1.1.2.2 Mapping in Downlink

In Downlink, the following connections between logical channels and transport channels exist:

- BCCH can be mapped to BCH;
- BCCH can be mapped to FACH;
- PCCH can be mapped to PCH;
- CCCH can be mapped to FACH;
- DCCH can be mapped to FACH;
- DCCH can be mapped to DSCH;
- DCCH can be mapped to HS-DSCH;
- DCCH can be mapped to DCH;
- MCCH can be mapped to FACH;
- MSCH can be mapped to FACH;
- DTCH can be mapped to FACH;
- DTCH can be mapped to DSCH;
- DTCH can be mapped to HS-DSCH;
- DTCH can be mapped to DCH;
- CTCH can be mapped to FACH;
- MTCH can be mapped to FACH;
- SHCCH can be mapped to FACH (in TDD mode only);
- SHCCH can be mapped to DSCH (in TDD mode only).

The mappings as seen from the UE and UTRAN sides are shown in Figure 4 and Figure 5 respectively.

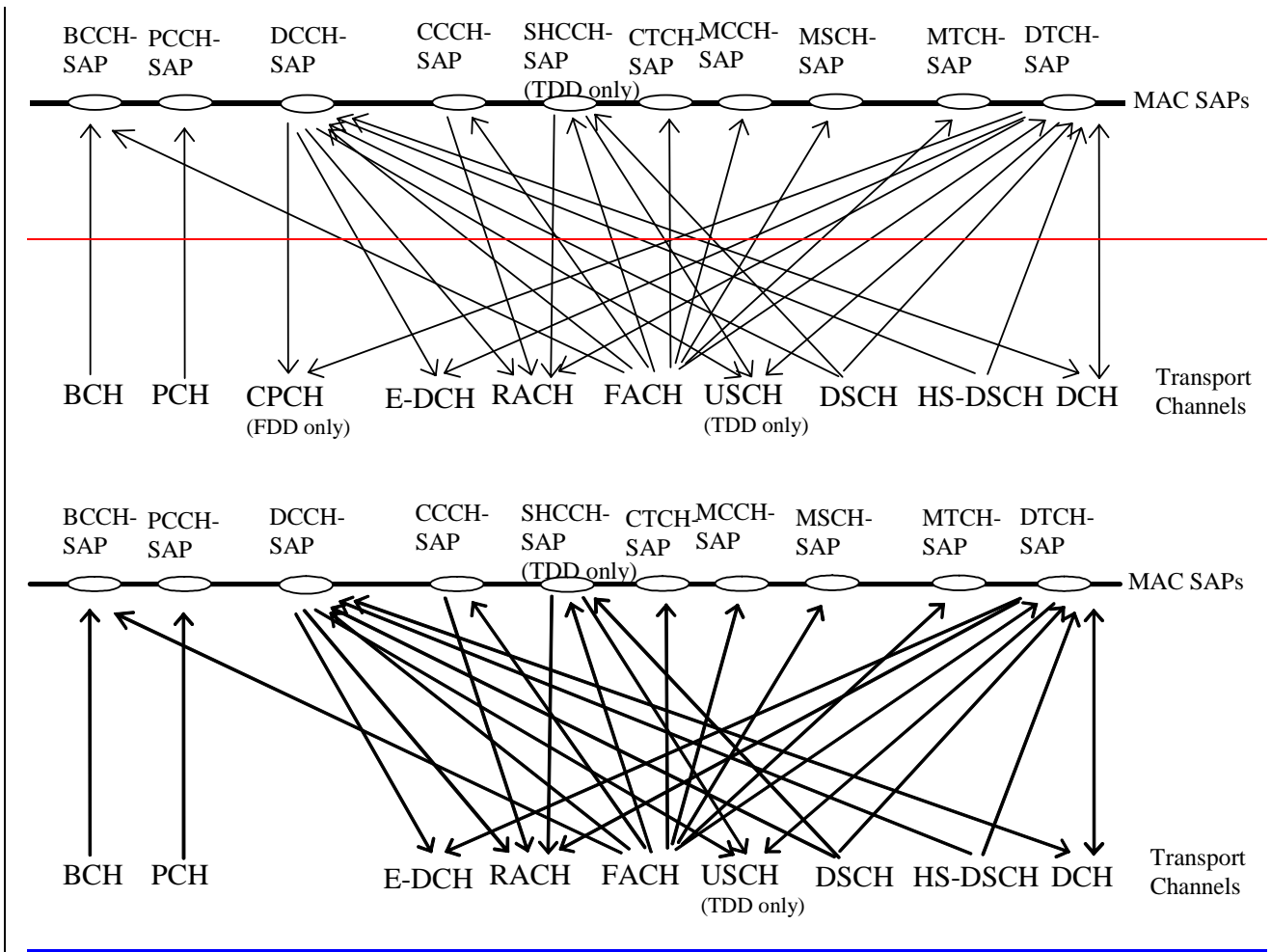


Figure 4: Logical channels mapped onto transport channels, seen from the UE side

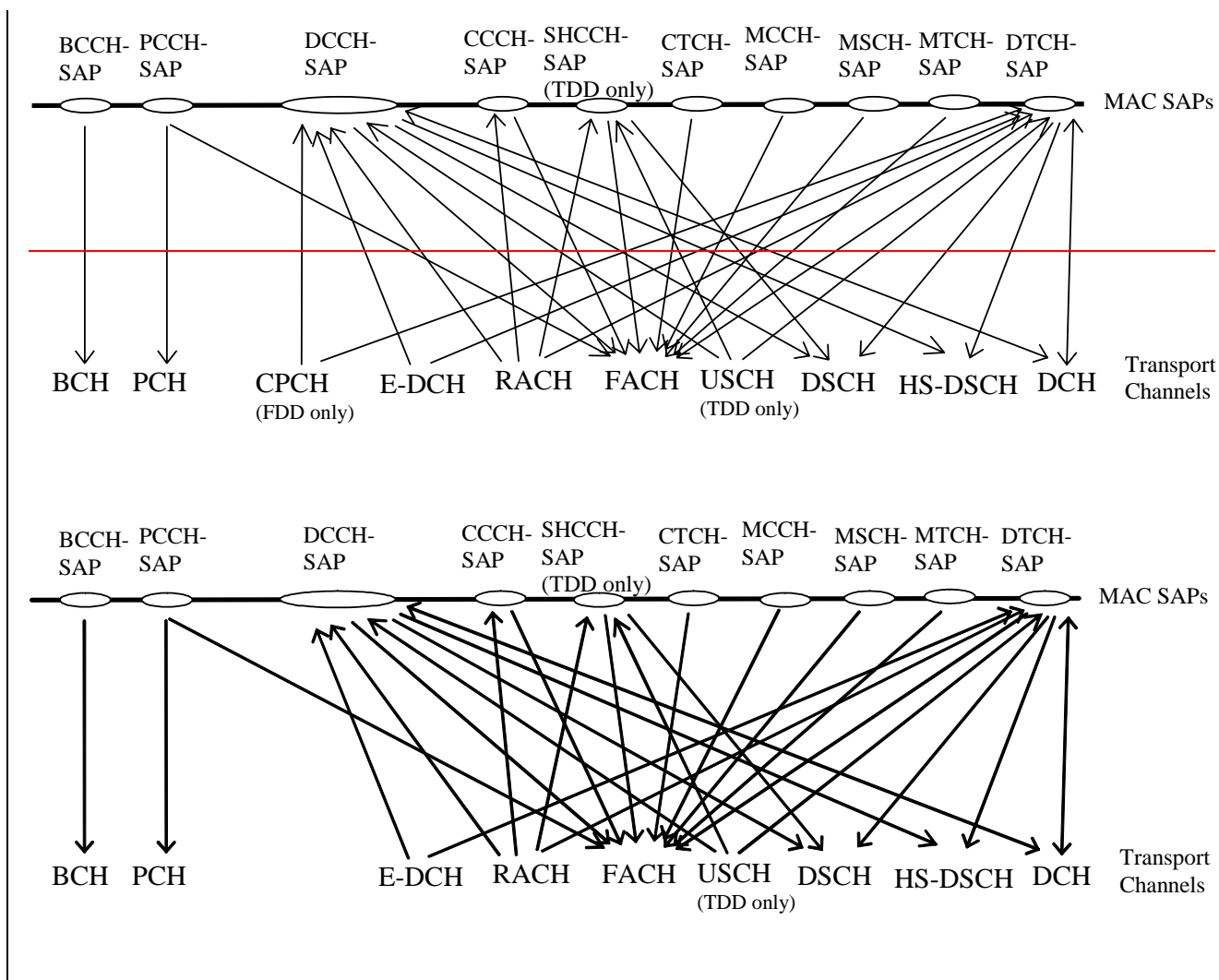


Figure 5: Logical channels mapped onto transport channels, seen from the UTRAN side

### 5.3.1.2 MAC functions

The functions of MAC include:

- **Mapping between logical channels and transport channels.** The MAC is responsible for mapping of logical channel(s) onto the appropriate transport channel(s).
- **Selection of appropriate Transport Format for each Transport Channel depending on instantaneous source rate.** Given the Transport Format Combination Set assigned by RRC, MAC selects the appropriate transport format within an assigned transport format set for each active transport channel depending on source rate. The control of transport formats ensures efficient use of transport channels.
- **Priority handling between data flows of one UE.** When selecting between the Transport Format Combinations in the given Transport Format Combination Set, priorities of the data flows to be mapped onto the corresponding Transport Channels can be taken into account. Priorities are e.g. given by attributes of Radio Bearer services and RLC buffer status. The priority handling is achieved by selecting a Transport Format Combination for which high priority data is mapped onto L1 with a "high bit rate" Transport Format, at the same time letting lower priority data be mapped with a "low bit rate" (could be zero bit rate) Transport Format. Transport format selection may also take into account transmit power indication from Layer 1.
- **Priority handling between UEs by means of dynamic scheduling.** In order to utilise the spectrum resources efficiently for bursty transfer, a dynamic scheduling function may be applied. MAC realises priority handling on common transport channels, shared transport channels and for the dedicated E-DCH transport channel. Note that

for dedicated transport channels other than E-DCH, the equivalent of the dynamic scheduling function is implicitly included as part of the reconfiguration function of the RRC sublayer.

NOTE: In the TDD mode the data to be transported are represented in terms of sets of resource units.

- **Identification of UEs on common transport channels.** When a particular UE is addressed on a common downlink channel, or when a UE is using the RACH, there is a need for inband identification of the UE. Since the MAC layer handles the access to, and multiplexing onto, the transport channels, the identification functionality is naturally also placed in MAC.
- **Multiplexing/demultiplexing of upper layer PDUs into/from transport blocks delivered to/from the physical layer on common transport channels.** MAC should support service multiplexing for common transport channels, since the physical layer does not support multiplexing of these channels.
- **Multiplexing/demultiplexing of upper layer PDUs into/from transport block sets delivered to/from the physical layer on dedicated transport channels.** The MAC allows service multiplexing for dedicated transport channels. This function can be utilised when several upper layer services (e.g. RLC instances) can be mapped efficiently on the same transport channel. In this case the identification of multiplexing is contained in the MAC protocol control information.
- **Traffic volume measurement.** Measurement of traffic volume on logical channels and reporting to RRC. Based on the reported traffic volume information, RRC performs transport channel switching decisions.
- **Transport Channel type switching.** Execution of the switching between common and dedicated transport channels based on a switching decision derived by RRC.
- **Ciphering.** This function prevents unauthorised acquisition of data. Ciphering is performed in the MAC layer for transparent RLC mode. Details of the security architecture are specified in [15].
- **Access Service Class selection for RACH and CPCH transmission.** The RACH resources (i.e. access slots and preamble signatures for FDD, timeslot and channelisation code for TDD) ~~and CPCH resources (i.e. access slots and preamble signatures for FDD only)~~ may be divided between different Access Service Classes in order to provide different priorities of RACH ~~and CPCH~~ usage. In addition it is possible for more than one ASC or for all ASCs to be assigned to the same access slot/signature space. Each access service class will also have a set of back-off parameters associated with it, some or all of which may be broadcast by the network. The MAC function applies the appropriate back-off and indicates to the PHY layer the RACH ~~and CPCH~~ partition associated to a given MAC PDU transfer.
- **HARQ functionality for HS-DSCH and E-DCH transmission.** The MAC-hs and MAC-e entities are responsible for establishing the HARQ entity in accordance with the higher layer configuration and handling all the tasks required to perform HARQ functionality. This functionality ensures delivery between peer entities by use of the ACK and NACK signalling between the peer entities.
- **In-sequence delivery and assembly/disassembly of higher layer PDUs on HS-DSCH.** The transmitting MAC-hs entity assembles the data block payload for the MAC-hs PDUs from the delivered MAC-d PDUs. The MAC-d PDUs that are assembled in any one MAC-hs PDU are the same priority, and from the same MAC-d flow. The receiving MAC-hs entity is then responsible for the reordering of the received data blocks according to the received TSN, per priority and MAC-d flow, and then disassembling the data block into MAC-d PDUs for in-sequence delivery to the higher layers.
- **In-sequence delivery and assembly/disassembly of higher layer PDUs on E-DCH.** The transmitting MAC-es/MAC-e entity assembles the data block payload for the MAC-e PDUs from the delivered MAC-d PDUs. The receiving MAC-es entity is then responsible for the reordering of the received data blocks according to the received TSN and Node-B tagging information, per re-ordering queue, and then disassembling the data block into MAC-d PDUs for in-sequence delivery to the higher layers.

~~~~ Next Modified Section ~~~~


5.3.5.10 ~~Data flow for DCCH mapped to CPCH~~ [Void](#)

~~For DCCH mapped to CPCH, unacknowledged or acknowledged transmission modes on RLC are employed. The MAC header is needed for logical channel service multiplexing. Figure 9 is the applicable data flow to this case.~~

5.3.5.11 Data flow for DTCH (non-transparent RLC) mapped to FACH/RACH

Mapping to FACH/RACH implies a DTCH with acknowledged or unacknowledged transmission on RLC. A MAC header is mandatory for FACH/RACH when carrying DTCH. The data flow shown in Figure 9 is applicable.

5.3.5.12 Data flow for DTCH (non-transparent RLC) mapped to DSCH

Mapping to DSCH implies a DTCH with acknowledged or unacknowledged transmission on RLC. A MAC header is mandatory when DTCH is mapped to a DSCH in FDD mode, i.e. the data flow in Figure 9 is applicable. In TDD mode a MAC header is optional, i.e. either the data flow in Figure 8 or Figure 9 is applicable.

5.3.5.13 Data flow for DTCH (non-transparent RLC) mapped to USCH

Mapping to USCH implies a DTCH with acknowledged or unacknowledged transmission on RLC. A MAC header is needed if DCCH and DTCH logical channels are multiplexed in MAC before mapping to a USCH, i.e. either the data flow in Figure 8 or Figure 9 is applicable.

5.3.5.14 Data flow for DTCH (transparent RLC) mapped to DCH

Continuous DTCH data stream is segmented into transport blocks on RLC and mapped on a DCH transport channel on MAC. The transport block size is naturally implied by the data rate. Both RLC and MAC sublayers are transparent, i.e. no protocol control information is added, when no multiplexing of DTCH on MAC is applied. The data flow shown in Figure 6 is applicable. If multiplexing on MAC is performed, a MAC header is needed, and Figure 7 applies.

5.3.5.15 Data flow for DTCH (non-transparent RLC) mapped to DCH

In this case acknowledged or unacknowledged transmission on RLC is applied. A MAC header is needed only if multiple DTCH logical channels are multiplexed in MAC before mapping to a DCH, i.e. either the data flow in Figure 8 or Figure 9 is applicable.

5.3.5.16 ~~Data flow for DTCH (non-transparent RLC) mapped to CPCH~~ [Void](#)

~~This case requires both non-transparent RLC and MAC operations. The data flow shown in Figure 9 is applicable.~~

5.3.5.17 Data flow for DCCH mapped to DCH

In this case non-transparent or transparent transmission mode on RLC is applied. A MAC header is needed only if DCCH and DTCH logical channels are multiplexed in MAC before mapping to a DCH, i.e. either the data flow in Figure 8 or Figure 9 is applicable.

5.3.5.18 Data flow for CTCH mapped to FACH

For CTCH, unacknowledged transmission mode on RLC is employed. A MAC header is used for logical channel identification (BCCH, CCCH, CTCH, SHCCH, DCCH, DTCH). The data flow shown in Figure 9 is applicable.

5.3.5.19 Data flow for DCCH mapped to HS-DSCH

For DCCH, both unacknowledged and acknowledged transmission mode on RLC is employed. A MAC header is mandatory when the DCCH is mapped to the HS-DSCH, i.e. the data flow in figure 9a is applicable.

5.3.5.20 Data flow for DTCH (non-transparent RLC) mapped to HS-DSCH

Mapping to DSCH implies a DTCH with acknowledged or unacknowledged transmission on RLC. A MAC header is mandatory when the DCCH is mapped to the HS-DSCH, i.e. the data flow in figure 9a is applicable.

5.3.5.21 Data flow for DCCH mapped to E-DCH

For DCCH, both unacknowledged and acknowledged transmission mode on RLC is employed. A MAC header is mandatory when the DCCH is mapped to the E-DCH, i.e. the data flow in figure 9b is applicable.

5.3.5.22 Data flow for DTCH (non-transparent RLC) mapped to E-DCH

Mapping to E-DCH implies a DTCH with acknowledged or unacknowledged transmission on RLC. A MAC header is mandatory when the DTCH is mapped to the E-DCH, i.e. the data flow in figure 9b is applicable.

5.3.5.23 Data flow for MCCH (non-transparent RLC) mapped to FACH

For MCCH mapped to FACH, unacknowledged transmission mode on RLC is employed. In case of MAC multiplexing the MAC header is needed for logical channel service multiplexing. The data flow in either Figure 8 or Figure 9 is applicable.

5.3.5.24 Data flow for MSCH (non-transparent RLC) mapped to FACH

For MSCH mapped to FACH, unacknowledged transmission mode on RLC is employed. In case of MAC multiplexing the MAC header is needed for logical channel service multiplexing. The data flow in either Figure 8 or Figure 9 is applicable.

5.3.5.25 Data flow for MTCH (non-transparent RLC) mapped to FACH

For MTCH mapped to FACH, unacknowledged transmission mode on RLC is employed. In case of MAC multiplexing the MAC header is needed for logical channel service multiplexing. The data flow in either Figure 8 or Figure 9 is applicable.

5.3.6 Transport Channel, Logical Channel and MAC-d flow Numbering

The UE model for transport channel and logical channel numbering is defined by the following:

- For FACH transport channels:
 - A transport channel identity is associated with each FACH transport channel. Each identity is unique within the downlink FACHs mapped onto the same physical channel.
 - Transport channel identities can be allocated non sequentially.
 - Transport channel identity is not used to determine the radio bearer mapping. The transport channels that can be used are determined from the available physical channels.
 - Each downlink DCCH and DTCH has a unique logical channel identity.
 - A MAC MBMS identity (MBMS-Id) is associated with each MBMS service carried on MTCH on FACH. The identity is unique within a FACH and the mapping of the MBMS service id to the MBMS-Id is provided on the MCCH.
- For RACH ~~and CPCH~~ transport channels:
 - A transport channel identity is associated with each RACH transport channel. Each identity is unique within the RACHs mapped onto the same PRACH.
 - ~~A transport channel identity is associated with each CPCH transport channel. Each identity is unique within the CPCHs mapped onto the same CPCH set.~~
 - Transport channel identities can be allocated non sequentially.
 - Transport channel identity is not used to determine the radio bearer mapping. The transport channels that can be used are determined from the available physical channels.
 - Each uplink DCCH and DTCH has a unique logical channel identity.

- For downlink DCH and DSCH transport channels:
 - A transport channel identity is associated with each downlink DCH transport channel. Each identity is unique within the downlink DCHs configured in the UE;
 - Transport channel identities can be allocated non sequentially.
 - A transport channel identity is associated with each DSCH transport channel. Each identity is unique within the DSCHs configured in the UE;
 - A logical channel identity is associated with each logical channel that is multiplexed with other logical channels before being mapped to a transport channel. Each identity is unique within the logical channels mapped to the same transport channel.
 - A logical channel that is mapped to DCH and DSCH simultaneously has one logical channel identity.
- For HS-DSCH:
 - A MAC-flow identity is associated with each MAC-d flow. Each identity is unique within the MAC-d flows configured in the UE;
 - A logical channel identity is associated with each logical channel that is multiplexed with other logical channels before being mapped to a MAC-d flow. Each identity is unique within the logical channels mapped to the same MAC-d flow.

A logical channel that is mapped to DCH and HS-DSCH simultaneously has one logical channel identity.
- For uplink DCH and USCH transport channels:
 - A transport channel identity is associated with each uplink DCH transport channel. Each identity is unique within the uplink DCHs configured in the UE;
 - Transport channel identities can be allocated non sequentially.
 - A transport channel identity is associated with each USCH transport channel. Each identity is unique within the USCHs configured in the UE;
 - A logical channel identity is associated with each logical channel that is multiplexed with other logical channels before being mapped to a transport channel. Each identity is unique within the logical channels mapped to the same transport channel.
- For E-DCH:
 - A DDI (Data Description Identity) is associated with each MAC-d PDU. The DDI values are unique within the UE;
 - In addition to indicating the MAC-d PDU size, the DDI value indicates MAC-d flow and logical channel for the MAC-d PDU within the MAC-e PDU.

~~~~ Next Modified Section ~~~~

## 5.4.2 RRC functions

The Radio Resource Control (RRC) layer handles the control plane signalling of Layer 3 between the UEs and UTRAN. The RRC performs the following functions:

- **Broadcast of information provided by the non-access stratum (Core Network).** The RRC layer performs system information broadcasting from the network to all UEs. The system information is normally repeated on a regular basis. The RRC layer performs the scheduling, segmentation and repetition. This function supports broadcast of higher layer (above RRC) information. This information may be cell specific or not. As an example RRC may broadcast Core Network location service area information related to some specific cells.

- **Broadcast of information related to the access stratum.** The RRC layer performs system information broadcasting from the network to all UEs. The system information is normally repeated on a regular basis. The RRC layer performs the scheduling, segmentation and repetition. This function supports broadcast of typically cell-specific information.
- **Establishment, re-establishment, maintenance and release of an RRC connection between the UE and UTRAN.** The establishment of an RRC connection is initiated by a request from higher layers at the UE side to establish the first Signalling Connection for the UE. The establishment of an RRC connection includes an optional cell re-selection, an admission control, and a layer 2 signalling link establishment. The release of an RRC connection can be initiated by a request from higher layers to release the last Signalling Connection for the UE or by the RRC layer itself in case of RRC connection failure. In case of connection loss, the UE requests re-establishment of the RRC connection. In case of RRC connection failure, RRC releases resources associated with the RRC connection.
- **Establishment, reconfiguration and release of Radio Bearers.** The RRC layer can, on request from higher layers, perform the establishment, reconfiguration and release of Radio Bearers in the user plane. A number of Radio Bearers can be established to an UE at the same time. At establishment and reconfiguration, the RRC layer performs admission control and selects parameters describing the Radio Bearer processing in layer 2 and layer 1, based on information from higher layers.
- **Assignment, reconfiguration and release of radio resources for the RRC connection.** The RRC layer handles the assignment of radio resources (e.g. codes, ~~CPC~~~~H~~~~channels~~) needed for the RRC connection including needs from both the control and user plane. The RRC layer may reconfigure radio resources during an established RRC connection. This function includes coordination of the radio resource allocation between multiple radio bearers related to the same RRC connection. RRC controls the radio resources in the uplink and downlink such that UE and UTRAN can communicate using unbalanced radio resources (asymmetric uplink and downlink). RRC signals to the UE to indicate resource allocations for purposes of handover to GSM or other radio systems.
- **RRC connection mobility functions.** The RRC layer performs evaluation, decision and execution related to RRC connection mobility during an established RRC connection, such as handover, preparation of handover to GSM or other systems, cell re-selection and cell/paging area update procedures, based on e.g. measurements done by the UE.
- **Paging/notification.** The RRC layer can broadcast paging information from the network to selected UEs. Higher layers on the network side can request paging and notification. The RRC layer can also initiate paging during an established RRC connection.
- **Routing of higher layer PDUs.** This function performs at the UE side routing of higher layer PDUs to the correct higher layer entity, at the UTRAN side to the correct RANAP entity.
- **Control of requested QoS.** This function shall ensure that the QoS requested for the Radio Bearers can be met. This includes the allocation of a sufficient number of radio resources.
- **UE measurement reporting and control of the reporting.** The measurements performed by the UE are controlled by the RRC layer, in terms of what to measure, when to measure and how to report, including both UMTS air interface and other systems. The RRC layer also performs the reporting of the measurements from the UE to the network.
- **Outer loop power control.** The RRC layer controls setting of the target of the closed loop power control.
- **Control of ciphering.** The RRC layer provides procedures for setting of ciphering (on/off) between the UE and UTRAN. Details of the security architecture are specified in [15].
- **Slow DCA.** Allocation of preferred radio resources based on long-term decision criteria. It is applicable only in TDD mode.
- **Arbitration of radio resources on uplink DCH.** This function controls the allocation of radio resources on uplink DCH on a fast basis, using a broadcast channel to send control information to all involved users.

NOTE: This function is implemented in the CRNC.

- **Initial cell selection and re-selection in idle mode.** Selection of the most suitable cell based on idle mode measurements and cell selection criteria.

- **Integrity protection.** This function adds a Message Authentication Code (MAC-I) to those RRC messages that are considered sensitive and/or contain sensitive information. The mechanism how the MAC-I is calculated is described in [14].
- **Initial Configuration for CBS**  
This function performs the initial configuration of the BMC sublayer.
- **Allocation of radio resources for CBS**  
This function allocates radio resources for CBS based on traffic volume requirements indicated by BMC. The radio resource allocation set by RRC (i.e. the schedule for mapping of CTCH onto FACH/S-CCPCH) is indicated to BMC to enable generation of schedule messages. The resource allocation for CBS shall be broadcast as system information.
- **Configuration for CBS discontinuous reception**  
This function configures the lower layers (L1, L2) of the UE when it shall listen to the resources allocated for CBS based on scheduling information received from BMC.
- **Timing advance control.** The RRC controls the operation of timing advance. It is applicable only in 3.84 Mcps TDD.
- **MBMS control.** The RRC controls the operation of MBMS point-to-point and point-to-multipoint radio bearers.

~~~~ Next Modified Section ~~~~

5.6.3 Void

5.6.4 ~~Protocol termination for CPCH~~Void

~~The protocol termination for CPCH is identical to the termination for RACH. Figure 13 (for DCCH) presents the control plane protocol termination. Figure 14 presents the user plane protocol termination.~~

~~~~ Next Modified Section ~~~~

## 6.1 UE identification on the radio interface

A Radio Network Temporary Identity (RNTI) is used as an UE identifier on RACH/FACH, ~~RACH+CPCH/FACH~~ or, for FDD mode, also on DSCH by the MAC protocol, or on PCH by the RRC, when a RRC connection exists. For the HS-DSCH the UE identification is included by the physical layer with the help of a UE-specific CRC.

### Definition of UE identifiers

Several types of RNTIs exist. One is used within the Serving RNC and it is denoted by Serving RNC RNTI (S-RNTI). A second type is used within a cell controlled by a CRNC, when applicable, and it is denoted by Cell RNTI (C-RNTI). A third type is used within a cell controlled by a CRNC when a DSCH is allocated and it is denoted by DSCH-RNTI. A fourth type is used within a cell controlled by a CRNC when an HS-DSCH is configured and it is denoted by HS-DSCH-RNTI (H-RNTI). A fifth type is used within a cell when an E-DCH is configured to a UE and it is denoted by E-RNTI.

S-RNTI is allocated for all UEs having a RRC connection. It is allocated by the Serving RNC and it is unique within the Serving RNC. S-RNTI is reallocated always when the Serving RNC for the RRC connection is changed and deallocated when the RRC connection is released.

In addition for each UE having an RRC connection, there is an identifier of its current serving RNC, which is denoted as SRNC identifier. The SRNC identifier together with S-RNTI is a unique identifier of the RRC connection within

PLMN. The combination of SRNC identifier and S-RNTI is referred to as U-RNTI (UTRAN Radio Network Temporary Identity), which is used on the radio interface.

C-RNTI for a UE is allocated by a controlling RNC and it is unique within one cell controlled by the allocating CRNC. C-RNTI can be reallocated when a UE accesses a new cell with the cell update procedure.

DSCH-RNTI for a UE is allocated by controlling RNC when a DSCH channel is configured. DSCH-RNTI is unique within the cell carrying the DSCH.

H-RNTI for a UE is allocated by a controlling RNC and it is unique within one cell controlled by the allocating CRNC. H-RNTI is reallocated when an HS-DSCH cell change is performed.

E-RNTI for a UE is allocated by the Node-B and it is valid within one cell. E-RNTI may be reallocated when the serving E-DCH cell changes. Several UEs may use the same E-RNTI.

### Usage of UE identifiers

U-RNTI is allocated to an UE having a RRC connection. It identifies the UE within UTRAN and is used as a UE identifier in cell update, URA update, RRC connection reestablishment and (UTRAN originated) paging messages and associated responses on the radio interface. The SRNC identifier within the U-RNTI is used by the Controlling RNC to route the received uplink messages towards the Serving RNC.

C-RNTI is used as a UE identifier in all other DCCH/DTCH common channel messages on the radio interface.

DSCH-RNTI is used as a UE identifier for DTCH and DCCH in downlink when mapped onto DSCH transport channel.

H-RNTI is used as a UE identifier for the HS-DSCH.

E-RNTI is used as a UE identifier when controlling UE uplink resources on the E-DCH.

NAS identifiers are used as the UE identifier in the initial access CCCH message on the radio interface.

## 6.2 UE connection to UTRAN

The different levels of UE connection to UTRAN are listed below:

- No signalling connection exist  
The UE has no relation to UTRAN, only to CN. For data transfer, a signalling connection has to be established.
- Signalling connection exist  
There is a RRC connection between UE and UTRAN. The UE position can be known on different levels:
  - UTRAN Registration Area (URA) level  
The UE position is known on UTRAN registration area level. URA is a specified set of cell, which can be identified on the BCCH.
  - Cell level  
The UE position is known on cell level. Different channel types can be used for data transfer:
    - Common transport channels (RACH, FACH, ~~CPCH~~, DSCH, HS-DSCH);
    - Dedicated transport channels (DCH, E-DCH).

3GPP TSG RAN WG2 #47  
Athens, Greece  
09 - 13 May 2005

Tdoc #R2-051618

CR-Form-v7.1

# CHANGE REQUEST

# 25.302 CR 0159 # rev - # Current version: 5.7.0 #

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

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

|                                                                                                                                                                                                                                                                                                                                                                                       |                                     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|
| <b>Title:</b>                                                                                                                                                                                                                                                                                                                                                                         | # Feature Clean Up: Removal of CPCH |
| <b>Source:</b>                                                                                                                                                                                                                                                                                                                                                                        | # RAN WG2                           |
| <b>Work item code:</b>                                                                                                                                                                                                                                                                                                                                                                | # TEI5                              |
| <b>Date:</b>                                                                                                                                                                                                                                                                                                                                                                          | # 14 April 2005                     |
| <b>Category:</b>                                                                                                                                                                                                                                                                                                                                                                      | # C                                 |
| <p>Use <u>one</u> of the following categories:</p> <p><b>F</b> (correction)<br/> <b>A</b> (corresponds to a correction in an earlier release)<br/> <b>B</b> (addition of feature),<br/> <b>C</b> (functional modification of feature)<br/> <b>D</b> (editorial modification)</p> <p>Detailed explanations of the above categories can be found in 3GPP <a href="#">TR 21.900</a>.</p> |                                     |
| <b>Release:</b>                                                                                                                                                                                                                                                                                                                                                                       | # Rel-5                             |
| <p>Use <u>one</u> of the following releases:</p> <p>Ph2 (GSM Phase 2)<br/> R96 (Release 1996)<br/> R97 (Release 1997)<br/> R98 (Release 1998)<br/> R99 (Release 1999)<br/> Rel-4 (Release 4)<br/> Rel-5 (Release 5)<br/> Rel-6 (Release 6)<br/> Rel-7 (Release 7)</p>                                                                                                                 |                                     |

|                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Reason for change:</b> | # Decision taken at RAN plenary to remove unnecessary features                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Summary of change:</b> | #                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|                           | <ul style="list-style-type: none"> <li>- Remove from Section 3.2</li> <li>- Remove from Section 6.1</li> <li>- Remove from Figure 2</li> <li>- Remove from Section 7.2</li> <li>- Remove from Section 8.1</li> <li>- Remove from Section 8.2</li> <li>- Remove from Section 9.3.13</li> <li>- Remove from Section 9.3.14</li> <li>- Remove from Section 9.3.16</li> <li>- Remove from Section 10.1</li> <li>- Remove from Section 10.1.1</li> <li>- Remove from Section 10.1.5</li> <li>- Remove from Section 10.1.6</li> <li>- Remove from Section 10.1.7</li> <li>- Remove from Section 10.2</li> <li>- Remove from Section 10.2.1.6</li> <li>- Remove from Section 10.2.2</li> <li>- Remove from Section 10.2.2.12</li> <li>- Remove from Section 10.2.2.13</li> <li>- Remove from Section 10.2.2.14</li> <li>- Remove from Section 10.2.2.15</li> <li>- Remove from Section 10.3.2</li> <li>- Remove from Section 10.3.3</li> </ul> |

|                                      |                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                     |          |          |   |          |  |  |  |          |  |  |          |                                                                                                                 |
|--------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------|---|----------|--|--|--|----------|--|--|----------|-----------------------------------------------------------------------------------------------------------------|
|                                      |                                                                                                                                                                                                                                          | - Remove from Section 10.3.5.8<br>- Remove from Section 10.3.5.9<br>- Remove from Section 10.3.5.12<br>- Remove from Section 10.3.5.13<br>- Remove from Section 10.3.5.14<br>- Remove from Section 10.3.5.15<br>- Remove from Annex A               |          |          |   |          |  |  |  |          |  |  |          |                                                                                                                 |
| <b>Consequences if not approved:</b> | ⌘                                                                                                                                                                                                                                        | RAN decision not carried out.                                                                                                                                                                                                                       |          |          |   |          |  |  |  |          |  |  |          |                                                                                                                 |
| <b>Clauses affected:</b>             | ⌘                                                                                                                                                                                                                                        | 3.2, 6.1, 7.2, 8.1, 8.2, 9.3.13, 9.3.14, 9.3.16, 10.1, 10.1.1, 10.1.5, 10.1.6, 10.1.7, 10.2, 10.2.1.6, 10.2.2, 10.2.2.12, 10.2.2.13, 10.2.2.14, 10.2.2.15, 10.3.2, 10.3.3, 10.3.5.8, 10.3.5.9, 10.3.5.12, 10.3.5.13, 10.3.5.14, 10.3.5.15, Annex A. |          |          |   |          |  |  |  |          |  |  |          |                                                                                                                 |
| <b>Other specs affected:</b>         | <table border="1"> <tr> <td></td> <td><b>Y</b></td> <td><b>N</b></td> </tr> <tr> <td>⌘</td> <td><b>X</b></td> <td></td> </tr> <tr> <td></td> <td></td> <td><b>X</b></td> </tr> <tr> <td></td> <td></td> <td><b>X</b></td> </tr> </table> |                                                                                                                                                                                                                                                     | <b>Y</b> | <b>N</b> | ⌘ | <b>X</b> |  |  |  | <b>X</b> |  |  | <b>X</b> | Other core specifications ⌘ 25.301, 25.303, 25.306, 25.321, 25.331<br>Test specifications<br>O&M Specifications |
|                                      | <b>Y</b>                                                                                                                                                                                                                                 | <b>N</b>                                                                                                                                                                                                                                            |          |          |   |          |  |  |  |          |  |  |          |                                                                                                                 |
| ⌘                                    | <b>X</b>                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                     |          |          |   |          |  |  |  |          |  |  |          |                                                                                                                 |
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| <b>Other comments:</b>               | ⌘                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                     |          |          |   |          |  |  |  |          |  |  |          |                                                                                                                 |

**How to create CRs using this form:**

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



~~~~ Next Modified Section ~~~~

3.2 Abbreviations

For the purposes of the present document, the following abbreviations apply:

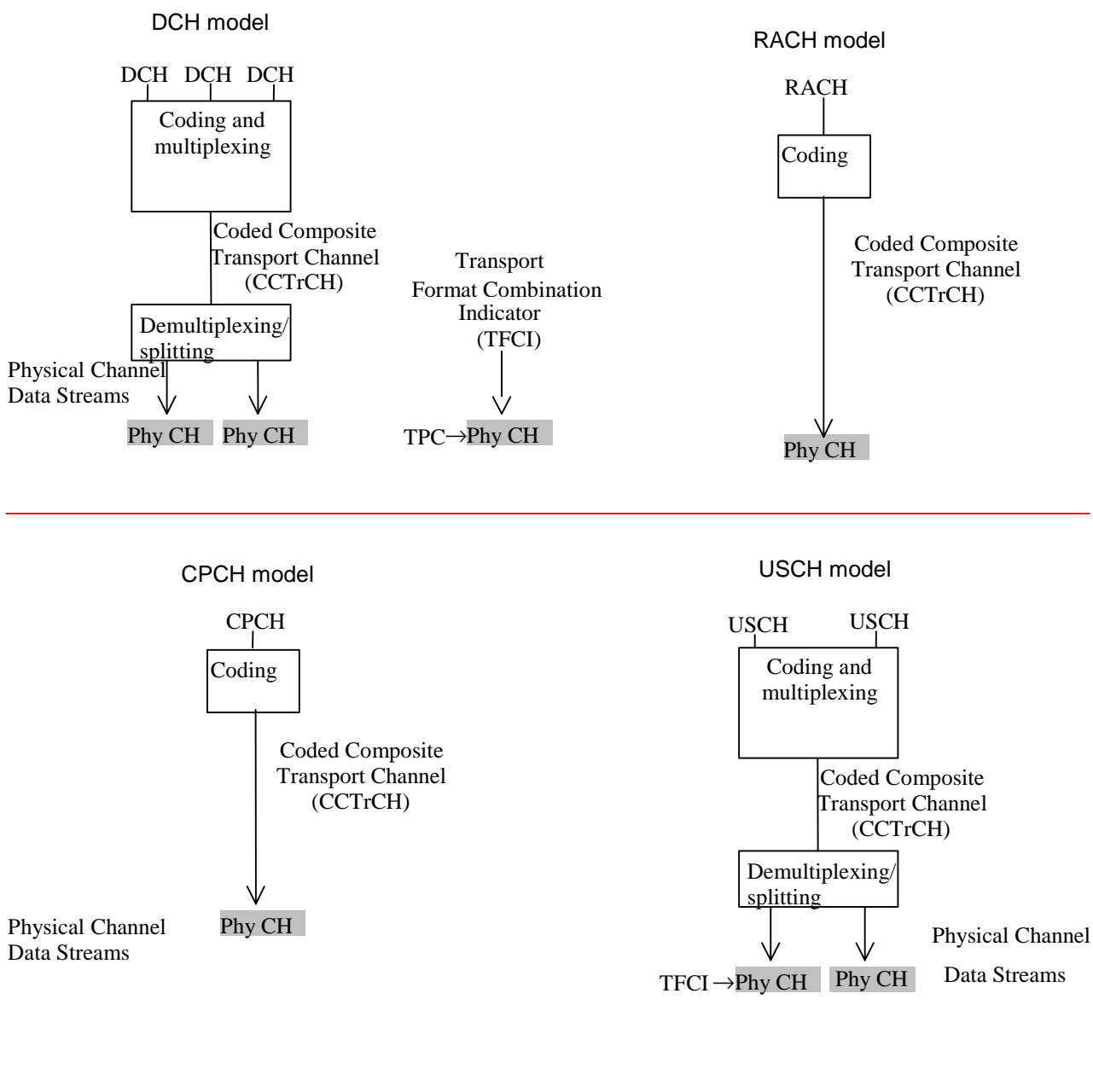
| | |
|----------------|---|
| ARQ | Automatic Repeat Request |
| BCCH | Broadcast Control Channel |
| BCH | Broadcast Channel |
| C- | Control- |
| CC | Call Control |
| ECC | CPCH Control Command |
| CCCH | Common Control Channel |
| CCH | Control Channel |
| CCTrCH | Coded Composite Transport Channel |
| CN | Core Network |
| CQI | Channel Quality Indicator |
| CRC | Cyclic Redundancy Check |
| DC | Dedicated Control (SAP) |
| DCA | Dynamic Channel Allocation |
| DCCH | Dedicated Control Channel |
| DCH | Dedicated Channel |
| DL | Downlink |
| DRNC | Drift Radio Network Controller |
| DSCH | Downlink Shared Channel |
| DTCH | Dedicated Traffic Channel |
| FACH | Forward Link Access Channel |
| FCS | Fame Check Sequence |
| FDD | Frequency Division Duplex |
| GC | General Control (SAP) |
| HS-DPCCH | High Speed Dedicated Physical Control CHannel |
| HS-DSCH | High Speed Downlink Shared CHannel |
| HS-SCCH | High Speed Shared Control CHannel |
| HS-SICH | High Speed Shared Information CHannel |
| HO | Handover |
| ITU | International Telecommunication Union |
| kbps | kilo-bits per second |
| L1 | Layer 1 (physical layer) |
| L2 | Layer 2 (data link layer) |
| L3 | Layer 3 (network layer) |
| LAC | Link Access Control |
| LAI | Location Area Identity |
| MAC | Medium Access Control |
| MM | Mobility Management |
| Nt | Notification (SAP) |
| PCCH | Paging Control Channel |
| PCH | Paging Channel |
| PDU | Protocol Data Unit |
| PHY | Physical layer |
| PhyCH | Physical Channels |
| RACH | Random Access Channel |
| RLC | Radio Link Control |
| RNC | Radio Network Controller |
| RNS | Radio Network Subsystem |
| RNTI | Radio Network Temporary Identity |
| RRC | Radio Resource Control |
| SAP | Service Access Point |

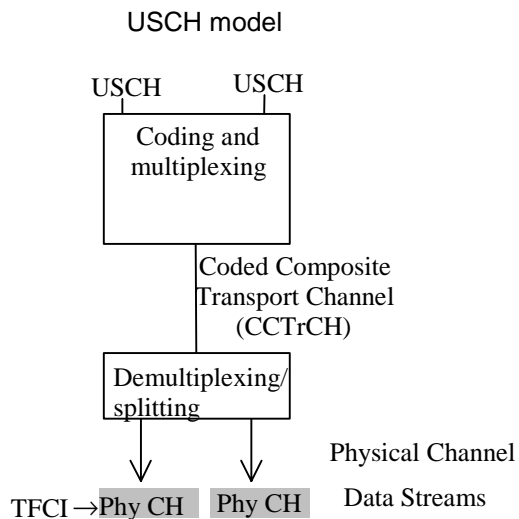
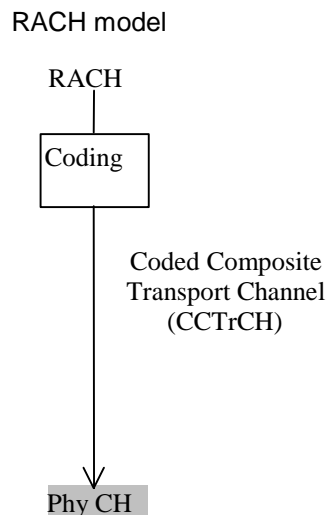
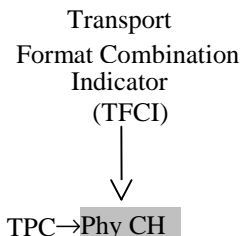
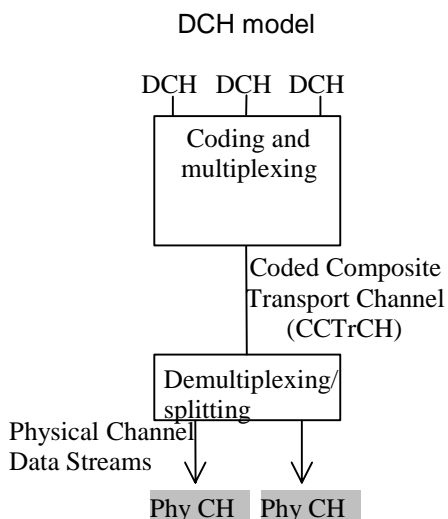
| | |
|-------|--|
| SDU | Service Data Unit |
| SRNC | Serving Radio Network Controller |
| SRNS | Serving Radio Network Subsystem |
| SS | Synchronisation Shift |
| TCH | Traffic Channel |
| TDD | Time Division Duplex |
| TFCI | Transport Format Combination Indicator |
| TFI | Transport Format Indicator |
| TFRI | Transport Format and Resource Indicator |
| TMSI | Temporary Mobile Subscriber Identity |
| TPC | Transmit Power Control |
| TSN | Transmission Sequence Number |
| U- | User- |
| UE | User Equipment |
| UL | Uplink |
| UMTS | Universal Mobile Telecommunications System |
| URA | UTRAN Registration Area |
| UTRA | UMTS Terrestrial Radio Access |
| UTRAN | UMTS Terrestrial Radio Access Network |

~~~~ Next Modified Section ~~~~

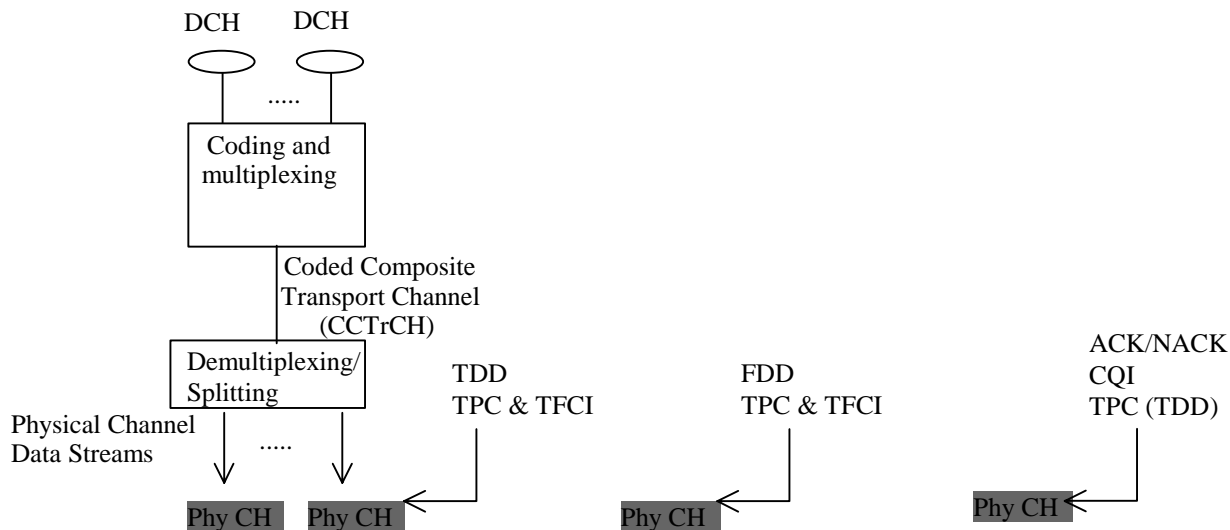
## 6.1 Uplink models

Figure 2 shows models of the UE's physical layer in the uplink for both FDD and TDD mode. It shows the models for DCH, RACH, ~~CPCH (the latter two used in FDD mode only)~~ and USCH (TDD only). Some restriction exist for the use of different types of transport channel at the same time, these restrictions are described in the clause "UE Simultaneous Physical Channel combinations". More details can be found in [3] and [4].





DCH model with HS-DSCH support



NOTE 1: CPCH is for FDD only.

NOTE 2: USCH is for TDD only.

Figure 2: Model of the UE's physical layer - uplink

The DCH model shows that one or several DCHs can be processed and multiplexed together by the same coding and multiplexing unit. The detailed functions of the coding and multiplexing unit are not defined in the present document but in [3] and [4]. The single output data stream from the coding and multiplexing unit is denoted *Coded Composite Transport Channel (CCTrCH)*.

The bits on a CCTrCH Data Stream can be mapped on the same Physical Channel and should have the same C/I requirement.

On the downlink, multiple CCTrCH can be used simultaneously with one UE. In the case of FDD, only one fast power control loop is necessary for these different CCTrCH, but the different CCTrCH can have different C/I requirements to provide different QoS on the mapped Transport Channels. In the case of TDD, different power control loops can be applied for different CCTrCH. One physical channel can only have bits coming from the same CCTrCH.

On the uplink and in the case of FDD, only one CCTrCH can be used simultaneously. On the uplink and in the case of TDD, multiple CCTrCH can be used simultaneously.

When multiple CCTrCH are used by one UE, one or several TFCI can be used, but each CCTrCH has only zero or one corresponding TFCI. In the case of FDD, these different words are mapped on the same DPCH. In the case of TDD, these different TFCIs can be mapped on different DPCH.

The data stream of the CCTrCH is fed to a data demultiplexing/splitting unit that demultiplexes/splits the CCTrCH's data stream onto one or several *Physical Channel Data Streams*.

The current configuration of the coding and multiplexing unit is either signalled to, or optionally blindly detected by, the network for each 10 ms frame. If the configuration is signalled, it is represented by the *Transport Format Combination Indicator (TFCI)* bits. Note that the TFCI signalling only consists of pointing out the current transport format combination within the already configured transport format combination set. In the uplink there is only one TFCI representing the current transport formats on all DCHs of one CCTrCH simultaneously. In FDD mode, the physical channel data stream carrying the TFCI is mapped onto the physical channel carrying the power control bits and the pilot. In TDD mode the TFCI is time multiplexed onto the same physical channel(s) as the DCHs. The exact locations and coding of the TFCI are signalled by higher layers.

The DCH and USCH have the possibility to perform Timing Advance in TDD mode.

The model for the RACH case shows that RACH is a common type transport channel in the uplink. RACHs are always mapped one-to-one onto physical channels (PRACHs), i.e. there is no physical layer multiplexing of RACHs, and there can only be one RACH TrCH and no other TrCH in a RACH CCTrCH. Service multiplexing is handled by the MAC layer. In one cell several RACHs/PRACHs may be configured. If more than one PRACH is configured in a cell, the UE performs PRACH selection as specified in [4].

In FDD, the RACHs mapped to the PRACHs may all employ the same Transport Format and Transport Format Combination Sets, respectively. It is however also possible that individual RACH Transport Format Sets are applied on each available RACH/PRACH.

In TDD, there is no TFCI transmitted in the burst, and therefore each RACH is configured with a single transport format within its TFS. The RACHs mapped to the PRACHs may all employ the same Transport Format. It is however also possible that individual RACH Transport Formats are applied on each available RACH/PRACH combination.

The available pairs of RACH and PRACHs and their parameters are indicated in system information. In FDD mode, the various PRACHs are distinguished either by employing different preamble scrambling codes, or by using a common scrambling code but distinct (non-overlapping) partitions of available signatures and available subchannels. In TDD mode, the various PRACHs are distinguished either by employing different timeslots, or by using a common timeslot but distinct (non-overlapping) partitions of available channelisation codes and available subchannels. Examples of RACH/PRACH configurations are given in [6].

~~The CPCH, which is another common type transport channel, has a physical layer model as shown in figure 2. There is always a single CPCH transport channel mapped to a PCPCH physical channel which implies a one-to-one correspondence between a CPCH TFI and the TFCI conveyed on PCPCH. There can only be one CPCH TrCH and no other TrCH in a CPCH CCTrCH. A CPCH transport channel belongs to a CPCH set which is identified by the application of a common, CPCH set specific scrambling code for access preamble and collision detection, and multiple PCPCH physical channels. Each PCPCH shall employ a subset of the Transport Format Combinations implied by the Transport Format Set of the CPCH set. A UE can request access to CPCH transport channels of a CPCH set, which is assigned when the service is configured for CPCH transmission.~~

In FDD in case of a configured HS-DSCH one physical channel (HS-DPCCH) is configured for the reporting of HS-DSCH transport block acknowledgement / negative acknowledgement and channel quality indicator. In TDD in case of a configured HS-DSCH a shared physical channel (HS-SICH) is configured for the reporting of HS-DSCH transport block acknowledgement / negative acknowledgement, channel quality indicator and transmit power control symbols.

## 7.2 Types of Transport Channels

A general classification of transport channels is into two groups:

- common channels; and
- dedicated channels (where the UEs can be unambiguously identified by the physical channel, i.e. code and frequency).

Common transport channel types are:

1. Random Access Channel(s) (RACH) characterised by:
  - existence in uplink only;
  - limited data field;
  - collision risk;
  - open loop power control.
2. Forward Access Channel(s) (FACH) characterised by:
  - existence in downlink only;
  - possibility to use slow power control;
  - possibility to change rate fast (each 10ms); and
  - lack of inner loop power control.

3. Broadcast Channel (BCH) characterised by:

- existence in downlink only;
- low fixed bit rate; and
- requirement to be broadcast in the entire coverage area of the cell.

4. Paging Channel (PCH) characterised by:

- existence in downlink only;
- association with a physical layer signal, the Page Indicator, to support efficient sleep mode procedures; and
- requirement to be broadcast in the entire coverage area of the cell.

5. Downlink Shared Channel(s) (DSCH) characterised by:

- existence in downlink only;
- possibility to use beamforming;
- possibility to use slow power control;
- possibility to use inner loop power control, when associated with dedicated channel(s);
- possibility to be broadcast in the entire cell;
- always associated with another channel (DCH or FACH (TDD)).

~~6. CPCH Channel characterised by:~~

- ~~— existence in FDD only;~~
- ~~— existence in uplink only;~~
- ~~— inner loop power control on the message part;~~
- ~~— possibility to change rate fast;~~
- ~~— collision detection;~~
- ~~— open loop power estimate for pre-amble power ramp up.~~

~~7. Uplink Shared channel (USCH) characterised by:~~

- ~~- used in TDD only;~~
- ~~- existence in uplink only;~~
- ~~- possibility to use beam forming;~~
- ~~- possibility to use power control;~~
- ~~- possibility to change rate fast;~~
- ~~- possibility to use Uplink Synchronisation;~~
- ~~- possibility to use Timing advance.~~

~~8. High Speed Downlink Shared Channel (HS-DSCH) characterised by:~~

- ~~- existence in downlink only;~~
- ~~- possibility to use beamforming;~~
- ~~- possibility of applying link adaptation by varying the modulation, coding and transmit power;~~
- ~~- possibility to be broadcast in the entire cell;~~

- always associated with a DPCH and one or more shared physical control channel.

Dedicated transport channel type:

1. Dedicated Channel (DCH) characterised by:

- existing in uplink or downlink;
- possibility to use beam forming;
- possibility to change rate fast (each 10ms);
- inner loop power control;
- possibility to use timing advance in uplink (TDD only);
- possibility to use Uplink Synchronisation.

To each transport channel, there is an associated Transport Format (for transport channels with a fixed or slow changing rate) or an associated Transport Format Set (for transport channels with fast changing rate).

~~~~ Next Modified Section ~~~~

8.1 FDD Uplink

The table describes the possible combinations of FDD physical channels that can be supported in the uplink on the same frequency by one UE simultaneously.

Table 1: FDD Uplink

| | Physical Channel Combination | Transport Channel Combination | Mandatory or dependent on UE radio access capabilities | Comment |
|---|---|--|--|--|
| 1 | PRACH | RACH | Mandatory | The PRACH physical channel includes the preambles and the message. |
| 2 | PCPCH consisting of one control and one data part during the message portion | CPCH | Depending on UE radio access capabilities | The PCPCH physical channel includes the preambles and the message. The maximum channel bit rate is dependent on UE radio access capabilities. |
| 3 | DPCCH+DPDCH | One or more DCH coded into a single CCTrCH | Mandatory | The maximum number of DCHs and the maximum channel bit rate are dependent on UE radio access capabilities. |
| 4 | DPCCH+ more than one DPDCH | One or more DCH coded into a single CCTrCH | Depending on UE radio access capabilities | The maximum number of DCHs and the maximum channel bit rate are dependent on UE radio access capabilities. |
| 5 | DPCCH+one or more DPDCH+ HS-DPCCH | One or more DCH coded into a single CCTrCH | Depending on UE radio access capabilities | The maximum number of DCHs and the maximum bit rate are dependent on UE radio access capabilities. This combination is required in case HS-DSCH(s) are configured. |

8.2 FDD Downlink

The table describes the possible combinations of FDD physical channels that can be supported in the downlink on the same frequency by one UE simultaneously.

Table 2: FDD Downlink

| | Physical Channel Combination | Transport Channel Combination | Mandatory dependent on UE radio access capabilities | Comment |
|---|------------------------------|--|--|---|
| 1 | PCCPCH | BCH | Mandatory | |
| 2 | SCCPCH | One or more FACH
Or
PCH
Or
one or more FACH + PCH | Mandatory | The maximum channel bit rate that can be supported is dependent on the UE radio access capabilities.
The PCH is included when the UE needs to receive paging on the SCCPCH.
The reception of (one or more FACH + PCH) is to enable the reception of broadcast services on the CTCH, mapped to one of the FACH. |
| 3 | PCCPCH + SCCPCH | BCH + (one or more FACH or PCH or (one or more FACH + PCH)) | Mandatory | Simultaneous reception of PCCPCH and SCCPCH is only needed at occurrences when the UE needs to read system information on BCH while being in CELL_FACH state, i.e. continuous reception of both PCCPCH and SCCPCH at the same time is not required.
The requirement holds for PCCPCH and SCCPCH sent in different cells or in the same cell.
The PCH is included when the UE needs to receive paging on the SCCPCH.
The reception of (one or more FACH + PCH) is to enable the reception of broadcast services on the CTCH, mapped to one of the FACH. |
| 4 | SCCPCH + AICH | (One or more FACH or PCH or (one or more FACH + PCH))+ RACH in uplink
Or
(one or more FACH or PCH or (one or more FACH + PCH))+ CPCH in uplink | Mandatory | The maximum channel bit rate that can be supported is dependent on the UE radio access capabilities.
The PCH is included when the UE needs to receive paging on the SCCPCH.
The reception of (one or more FACH + PCH) is to enable the reception of broadcast services on the CTCH, mapped to one of the FACH.
This physical channel combination facilitates the preamble portion of the CPCH in the uplink |
| 5 | SCCPCH + DPCCH | (One or more FACH or PCH or (one or more FACH + PCH))+ CPCH in uplink | Depending on UE radio access capabilities | This physical channel combination facilitates the message portion of the CPCH in the uplink
The PCH is included when the UE needs to receive paging on the SCCPCH.
The reception of (one or more FACH + PCH) is to enable the reception of broadcast services on the CTCH, mapped to one of the FACH. |
| 6 | More than one SCCPCH | More than one (one or more FACH or PCH or (one or more FACH + PCH)) | Depending on UE radio access capabilities | The PCH is included when the UE needs to receive paging on the SCCPCH.
The reception of (one or more FACH + PCH) is to enable the reception of broadcast services on the CTCH, mapped to one of the FACH. |
| 7 | PICH | N/A | Mandatory | |
| 8 | DPCCH + DPDCH | One or more DCH coded into a single CCTrCH | Mandatory | The maximum number of DCHs and the maximum channel bit rate are dependent on UE radio access capabilities. |

| | Physical Channel Combination | Transport Channel Combination | Mandatory dependent on UE radio access capabilities | Comment |
|----|--|---|--|--|
| 9 | DPCCH + more than one DPDCH | One or more DCH coded into a single CTrCH | Depending on UE radio access capabilities | The maximum number of DCHs and the maximum channel bit rate are dependent on UE radio access capabilities. |
| 10 | One or more PDSCH + DPCCH + one or more DPDCH | One or more DSCH coded into a single CTrCH + one or more DCH coded into a single CTrCH | Depending on UE radio access capabilities | The maximum number of DCHs and the maximum channel bit rate are dependent on UE radio access capabilities. |
| 11 | SCCPCH + DPCCH + one or more DPDCH | One or more FACH + one or more DCH coded into a single CTrCH | Depending on UE radio access capabilities | The maximum number of DCHs and the maximum channel bit rate are dependent on UE radio access capabilities. This combination of physical channels is used for DRAC control of an uplink DCH and for receiving services such as cell broadcast or multicast whilst in connected mode. NOTE 1 |
| 12 | SCCPCH + one or more PDSCH + DPCCH + one or more DPDCH | One or more FACH + one or more DSCH coded into a single CTrCH + one or more DCH coded into a single CTrCH | Depending on UE radio access capabilities | The maximum number of DCHs and the maximum channel bit rate are dependent on UE radio access capabilities. This combination of physical channels is used for simultaneous DSCH and DRAC control of an uplink DCH. NOTE 1 |
| 13 | One DPCCH + more than one DPDCH | More than one DCH coded into one or more CTrCH | Depending on UE radio access capabilities | |
| 14 | PCCPCH (neighbour cell) + DPCCH + one or more DPDCH + zero, one, or more PDSCH | BCH (neighbour cell) + one or more DCHs + zero, one or more DSCH | Mandatory | This combination is required by a UE in CELL_DCH state to be able to read the SFN of a neighbouring cell and support "SFN-CFN observed time difference" and "SFN-SFN observed time difference" measurements. |
| 15 | DPCCH + one or more DPDCH + one or more HS-SCCH + zero, one or more HS-PDSCH | One HS-DSCH coded into a single CTrCH + one or more DCH coded into a single CTrCH | Depending on UE radio access capabilities | The maximum number of DCHs and the maximum channel bit rate are dependent on UE radio access capabilities. NOTE 2 |
| 16 | PCCPCH (neighbour cell) + DPCCH + one or more DPDCH + one or more HS-SCCH + zero, one or more HS-PDSCH | BCH (neighbour cell) + one or more DCHs + one HS-DSCH | Depending on UE radio access capabilities | This combination is required by a UE in CELL_DCH state to be able to read the SFN of a neighbouring cell and support "SFN-CFN observed time difference" and "SFN-SFN observed time difference" measurements while HS-DSCH(s) are configured. NOTE 2 |

NOTE 1: When both DRAC and CTCH are configured in one cell, the UTRAN should transmit DRAC info and CTCH info on the same S-CCPCH in order to minimize the number of S-CCPCH to be read by the UE. A UE which supports the simultaneous reception of S-CCPCH and DPCH, shall be capable of switching between different S-CCPCH in order to listen to DRAC info and CTCH info that are not scheduled in the same time intervals. If the UE is ordered to listen to CTCH and DRAC info on different S-CCPCH in the same time interval, it shall listen to DRAC info in priority.

NOTE 2: When one or more HS-PDSCHs are received, it is sufficient for the UE to monitor only one HS-SCCH.

~~~~ Next Modified Section ~~~~

### 9.3.13 ~~Detected PCPCH access preambles~~ [Void](#)

|                   |                                                                                                                                                                                               |
|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Measurement       | <del>Detected PCPCH Access preambles</del>                                                                                                                                                    |
| Source            | <del>L1(Node B)</del>                                                                                                                                                                         |
| Destination       | <del>RRC (RNC)</del>                                                                                                                                                                          |
| Reporting Trigger | <del>Periodic, event triggered, On demand</del>                                                                                                                                               |
| Description       | <del>This measurement indicates the total number of detected access preambles per access frame on the PCPCHs belonging to a CPCH set. This measurement is applicable for FDD mode only.</del> |

### 9.3.14 ~~Acknowledged PCPCH access preambles~~ [Void](#)

|                   |                                                                                                                                                                                                                                                                                |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Measurement       | <del>Acknowledged PCPCH access preambles</del>                                                                                                                                                                                                                                 |
| Source            | <del>L1(Node B)</del>                                                                                                                                                                                                                                                          |
| Destination       | <del>RRC (RNC)</del>                                                                                                                                                                                                                                                           |
| Reporting Trigger | <del>Periodic, event triggered, On demand</del>                                                                                                                                                                                                                                |
| Description       | <del>This measurement indicates the total number of acknowledged PCPCH access preambles per access frame on the PCPCHs, where an access frame consists of fifteen access slots from access slot #0 to access slot #14. This measurement is applicable for FDD mode only.</del> |

### 9.3.15 SIR

|                   |                               |
|-------------------|-------------------------------|
| Measurement       | SIR                           |
| Source            | L1(Node B)                    |
| Destination       | RRC (RNC)                     |
| Reporting Trigger | Periodic, event triggered     |
| Description       | Signal to Interference Ratio. |

### 9.3.16 PRACH/**PCPCH** Propagation Delay

|                   |                                                                                                                                                |
|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| Measurement       | Propagation delay                                                                                                                              |
| Source            | L1( Node B)                                                                                                                                    |
| Destination       | RRC (RNC)                                                                                                                                      |
| Reporting Trigger | Event triggered, periodic                                                                                                                      |
| Description       | The one-way propagation delay as measured during <b>either</b> PRACH or <b>PCPCH</b> access. This measurement is applicable for FDD mode only. |

~~~~ Next Modified Section ~~~~

10.1 Generic names of primitives between layers 1 and 2

The primitives between layer 1 and layer 2 are shown in table 7.

Table 7: Primitives between layer 1 and 2

| Generic Name | Parameter | | | |
|-----------------------------------|---|--|------------------------|--|
| | REQ | IND | RESP | CNF |
| PHY-Access | Transport Format subset (1), ASC selected for Transport Block Set to be transmitted (5) | Not Defined | Not Defined | access information (1) |
| PHY-Data | TFI, Transport Block Set, CFN _{CELL} , TTI within CFN (6), Paging Indicators (2), ASC selected for that Transport Block Set (3), HS-DSCH information (6) | TFI, Transport Block Set, CRC check result, TD (4), HARQ process (6) | Not Defined | Not Defined |
| PHY-CPCH_Status | Transport Format subset (1) | Not Defined | Not Defined | Transport Format subset (1) |
| PHY-Status | Not Defined, HARQ status | Event value, Feedback information (6) | Not Defined | Not Defined |

NOTE (1): FDD only.
 NOTE (2): PCH only
 NOTE (3): 3.84 Mcps TDD RACH only
 NOTE (4): optional, TDD only
 NOTE (5): FDD and 1.28 Mcps TDD RACH only
 NOTE (6): HS-DSCH only

10.1.1 PHY-Access-REQ

The PHY-Access-REQ primitive is used to request access to either a RACH ~~or a CPCH~~ transport channel from the physical layer. A PHY-Access primitive is submitted once before the actual data for peer-to-peer communication is passed to the physical layer using the PHY-Data primitive. This primitive is used in FDD and 1.28 Mcps TDD only.

Parameters:

- Transport Format subset.
- ASC selected for Transport Block Set to be transmitted (RACH only)

~~~~ Next Modified Section ~~~~

### 10.1.5 ~~PHY-CPCH\_Status-REQ~~Void

~~The PHY-CPCH\_Status-REQ primitive is used by MAC to request CPCH status information that is broadcast on CSICH. The parameter Transport Format subset allows to restrict the CPCH status information request to a limited number of CPCH channels of the given CPCH set. This primitive is used in FDD only.~~

~~**Parameters:**~~

- ~~— Transport Format subset.~~

### 10.1.6 ~~PHY-CPCH\_Status-CNF~~Void

~~The PHY-CPCH\_Status-CNF primitive is used by L1 to indicate CPCH status information that is broadcast on CSICH. Status information is represented in terms of a Transport format subset that is permitted to be employed by the UE. This primitive is used in FDD only.~~

**Parameters:**

~~—Transport Format subset~~

### 10.1.7 PHY-Status-IND

The PHY-Status-IND primitive can be used by the layer 1 to notify higher layers of an event that has occurred.

**Parameters:**

- Feedback information (HS-DSCH only);
- Event value:
  - ~~CPCH Emergency stop was completed;~~
  - ~~CPCH Start of Message Indicator was received;~~
  - ~~CPCH Start of Message Indicator was not received;~~
  - L1 hardware failure has occurred.
  - ~~CPCH End of Transmission was received~~

## 10.2 Generic names of primitives between layers 1 and 3

The status primitives between layer 1 and 3 are shown in table 8.

**Table 8: Status primitives between layer 1 and 3**

| Generic Name                              | Parameter                                            |                             |                        |                        |
|-------------------------------------------|------------------------------------------------------|-----------------------------|------------------------|------------------------|
|                                           | REQ                                                  | IND                         | RESP                   | CNF                    |
| <b>CPHY-Sync</b>                          | Not Defined                                          | CCTrCH ID (1)               | Not Defined            | Not Defined            |
| <b>CPHY-Out-of-Sync</b>                   | Not Defined                                          | CCTrCH ID (1)               | Not Defined            | Not Defined            |
| <b>CPHY-Measurement</b>                   | transmission power threshold, measurement parameters | measurement parameters      | Not Defined            | Not Defined            |
| <b>CPHY-Error</b>                         | Not Defined                                          | error code                  | Not Defined            | Not Defined            |
| <del><b>CPHY-CPCH-EOT</b></del>           | <del>Not Defined</del>                               | <del>No Parameter (2)</del> | <del>Not Defined</del> | <del>Not Defined</del> |
| NOTE (1): TDD only.<br>NOTE (2): FDD only |                                                      |                             |                        |                        |

~~~~ Next Modified Section ~~~~

10.2.1.6 ~~CPHY-CPCH-EOT-IND~~ Void

~~The CPHY-CPCH-EOT-IND primitive is used by L1 to indicate RRC of an end of CPCH transmission event has occurred. This primitive is used in FDD only.~~

Parameters:

~~—No Parameter.~~

10.2.2 CONTROL PRIMITIVES

The control primitives between layer 1 and 3 are shown in table 9.

Table 9: Control primitives between layer 1 and 3

| Generic Name | Parameter | | | |
|--------------------------------|----------------------------------|------------------|------------------|------------------|
| | REQ | IND | RESP | CNF |
| CPHY-TrCH-Config | transport channel description | Not Defined | Not Defined | No Parameter |
| CPHY-TrCH-Release | No Parameter | Not Defined | Not Defined | No Parameter |
| CPHY-RL-Setup | physical channel description | Not Defined | Not Defined | No Parameter |
| CPHY-RL-Release | No Parameter | Not Defined | Not Defined | No Parameter |
| CPHY-RL-Modify | physical channel description | Not Defined | Not Defined | No Parameter |
| CPHY-Commit | activation time | Not Defined | Not Defined | Not Defined |
| CPHY-CPCH-Estop | No Parameter (1) | No Parameter (1) | No Parameter (1) | No Parameter (1) |
| CPHY-Out-of-Sync-Config | Out of Sync detection parameters | Not Defined | Not Defined | No Parameter |
| NOTE (1): FDD only. | | | | |

~~~~ Next Modified Section ~~~~

### 10.2.2.12 ~~CPHY-CPCH-Estop-IND~~Void

~~The CPHY-CPCH-Estop-IND primitive is used by L1 to notify RRC of a CPCH emergency stop message has been received. This primitive is used in FDD only.~~

**Parameters:**

~~— No Parameter.~~

### 10.2.2.13 ~~CPHY-CPCH-Estop-RESP~~Void

~~This primitive is sent from UE RRC to L1 for emergency stop of the CPCH transmission. After receiving this primitive, UE L1 stopping its transmission on the related CPCH. This primitive is used in FDD only.~~

**Parameters:**

~~— No Parameter.~~

### 10.2.2.14 ~~CPHY-CPCH-Estop-REQ~~Void

~~This primitive is sent from RRC to L1 for CPCH Emergency Stop. This primitive is sent for triggering of a CPCH emergency stop. After receiving this primitive, Node B L1 sends CPCH Estop Command to UE. This CPCH Estop Command is all 1 bits pattern in the CCC field of DL-DPCCH for CPCH. This primitive is used in FDD only.~~

**Parameters:**

~~— No Parameter.~~

### 10.2.2.15 ~~CPHY-CPCH-Estop-CNF~~Void

~~This primitive is sent from Node B L1 to RRC for confirming the emergency stop of the CPCH. This primitive is used in FDD only.~~

**Parameters:**

~~— No Parameter.~~

~~~~ Next Modified Section ~~~~

10.3.2 Event value

- Maximum transmission power has been reached.
- Allowable transmission power has been reached.
- Average transmission power is below allowable transmission power.
- Loss of DL DPCH.
- ~~Completion of CPCH Emergency stop.~~
- ~~CPCH Start of Message Indicator was received.~~
- ~~CPCH Start of Message Indicator was not received.~~
- ~~Maximum number of frames for CPCH transmission has been reached.~~
- ~~End of Frame for CPCH transmission has been received.~~

10.3.3 Access Information

- Ready for RACH data transmission (in case of FDD mode: when Ack on AICH has been received, in case of 1.28 Mcps TDD: when Ack on FPACH has been received);
- timeout, no response on AICH (FDD only) or AP-AICH (FDD only) or FPACH (1.28 Mcps TDD only) has been received while maximum number of access preamble transmissions (FDD only) /synchronisation attempts (1.28 Mcps TDD only) has been performed.

The following values of this parameter apply to FDD only:

- NACK on AICH or AP-AICH has been received;
- ~~ready for CPCH data transmission (CD or CD/CA information received on CD/CA-ICH);~~
- mismatch of CD/CA-ICH signatures;
- no response on CD/CA-ICH received;
- timeout, no CD/CA-ICH received.

~~~~ Next Modified Section ~~~~

#### 10.3.5.8 Downlink DPCH

- Transmission Time offset value.
- DL scrambling code:
  - DL Channelisation code.
- Tx diversity mode:

- FB mode (FDD only).
- Slot structure ( $N_{\text{pilot}}$ ,  $N_{\text{TPC}}$ ,  $N_{\text{TFCI}}$ ,  $N_{\text{FBI}}$ ,  $N_{\text{data1}}$ ,  $N_{\text{data2}}$ ) (FDD only).
- ~~Special slot structure only for CPCH ( $N_{\text{pilot}}$ ,  $N_{\text{TPC}}$ ,  $N_{\text{TFCI}}$ ,  $N_{\text{ecc}}$ ) (FDD only)~~
- Burst Type (3.84 Mcps TDD only).
- DPCH midamble shift (TDD only).
- Timeslot (TDD only).
- Offset (TDD only).
- Repetition period (TDD only).
- Repetition length (TDD only).
- TFCI presence (TDD only).

#### 10.3.5.9 ~~PCPCH (Physical Common Packet Channel)~~Void

- ~~— CPCH Set ID to which this PCPCH belongs;~~
- ~~— Parameters related to the AP preamble:~~
  - ~~— Access Preamble (AP) scrambling code;~~
  - ~~— available AP signatures/subchannels for access request;~~
- ~~— Parameters related to the CD preamble:~~
  - ~~— CD preamble scrambling code;~~
  - ~~— available CD signatures/subchannels;~~
- ~~— Parameters related to PCPCH message part:~~
  - ~~— PCPCH scrambling code;~~
  - ~~— PCPCH Channelisation code;~~
  - ~~— data rate (spreading factor);~~
  - ~~—  $N_{\text{frames\_max}}$ : Maximum length of CPCH message in radio frames.~~

~~~~ Next Modified Section ~~~~

10.3.5.12 ~~AP-AICH~~Void

- ~~CPCH Set ID.~~
- ~~— Scrambling code.~~
- ~~— Channelisation code.~~
- ~~— Tx diversity mode.~~

10.3.5.13 ~~CD-ICH~~Void

- ~~CPCH Set ID.~~

~~—Scrambling code.~~

~~—Channelisation code.~~

~~—Tx diversity mode.~~

~~NOTE:—This physical channel is used in conjunction with PCPCH when UE Channel Selection is active.~~

10.3.5.14 ~~CD/CA-ICH~~Void

~~- CPCH Set ID.~~

~~—Scrambling code.~~

~~—Channelisation code.~~

~~—Tx diversity mode.~~

~~NOTE:—This physical channel is used in conjunction with PCPCH when Channel Assignment is active.~~

10.3.5.15 ~~CSICH~~Void

~~- CPCH Set ID.~~

~~—Scrambling code.~~

~~—Channelisation code.~~

~~—Tx diversity mode.~~

~~NOTE:—The values for the parameters need to be consistent with the AP-AICH that is time multiplexed with this CSICH.~~

~~~~ Next Modified Section ~~~~

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## Annex A (normative): Description of Transport Formats

The following table describes the characterisation of a Transport Format.

**Table A.1: Characterisation of Transport Format**

|                  |                                                              | <b>Attribute values</b>                                      | <b>BCH</b>                                             | <b>PCH</b>                                                  | <b>FACH</b>                                                  | <b>RACH</b>                                                                           |
|------------------|--------------------------------------------------------------|--------------------------------------------------------------|--------------------------------------------------------|-------------------------------------------------------------|--------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Dynamic part     | Transport Block Size                                         | 0 to 5 000<br>1 bit granularity                              | 246                                                    | 1 to 5000<br>1 bit granularity                              | 0 to 5 000<br>1 bit granularity                              | 0 to 5 000<br>1 bit granularity                                                       |
|                  | Transport Block Set Size                                     | 0 to 200 000<br>1 bit granularity                            | 246                                                    | 1 to 200 000<br>1 bit granularity                           | 0 to 200 000<br>1 bit granularity                            | 0 to 200 000<br>1 bit granularity                                                     |
|                  | Transmission Time Interval (option for TDD only)             | 10, 20 ms, 40 and 80 ms                                      |                                                        |                                                             |                                                              |                                                                                       |
| Semi-static part | Transmission Time Interval (FDD, option for TDD NRT bearers) | 10, 20 ms, 40 and 80 ms                                      | 20 ms                                                  | 10ms for FDD, 20ms for TDD                                  | 10, 20 ms, 40 and 80 ms                                      | 10 ms and 20 ms for FDD, 10 ms for 3.84 Mcps TDD 5ms, 10ms and 20ms for 1.28 Mcps TDD |
|                  | Type of channel coding                                       | No Coding (TDD only)<br>Turbo coding<br>Convolutional coding | Convolutional coding                                   | Convolutional coding                                        | No coding (TDD only)<br>Turbo coding<br>Convolutional coding | Convolutional coding                                                                  |
|                  | Code rates                                                   | 1/2, 1/3                                                     | 1/2 for FDD and 3.84 Mcps TDD<br>1/3 for 1.28 Mcps TDD | 1/2 for FDD and 3.84 Mcps TDD<br>1/2, 1/3 for 1.28 Mcps TDD | 1/2, 1/3                                                     | 1/2                                                                                   |
|                  | CRC size                                                     | 0, 8, 12, 16, 24                                             | 16                                                     | 0, 8, 12, 16, 24                                            | 0, 8, 12, 16, 24                                             | 0, 8, 12, 16, 24                                                                      |
|                  | Resulting ratio after static rate matching                   | 0,5 to 4                                                     |                                                        |                                                             |                                                              |                                                                                       |

|                  |                                                              | Attribute values                                             | CPCH                                                                                                        | DCH                                                          | DSCH                                                         | USCH                                                         |
|------------------|--------------------------------------------------------------|--------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|--------------------------------------------------------------|--------------------------------------------------------------|
| Dynamic part     | Transport Block Size                                         | 0 to 5 000<br>1 bit granularity                              | <del>0 to 5 000</del><br><del>1 bit</del><br><del>granularity</del>                                         | 0 to 5 000<br>1 bit<br>granularity                           | 0 to 5 000<br>1 bit granularity                              | 0 to 5 000<br>1 bit<br>granularity                           |
|                  | Transport Block Set Size                                     | 0 to 200 000<br>1 bit granularity                            | <del>0 to 200 000</del><br><del>1 bit</del><br><del>granularity</del>                                       | 0 to 200 000<br>1 bit<br>granularity                         | 0 to 200 000<br>1 bit granularity                            | 0 to 200 000<br>1 bit<br>granularity                         |
|                  | Transmission Time Interval (option for TDD only)             | 10, 20 ms, 40 and 80 ms                                      |                                                                                                             | 10, 20 ms, 40 and 80 ms                                      | 10, 20 ms, 40 and 80 ms                                      | 10, 20 ms, 40 and 80 ms                                      |
| Semi-static part | Transmission Time Interval (FDD, option for TDD NRT bearers) | 10, 20 ms, 40 and 80 ms                                      | <del>10, 20 ms,</del><br><del>40 and 80</del><br><del>ms</del>                                              | 10, 20 ms, 40 and 80 ms                                      | 10, 20 ms, 40 and 80 ms                                      | 10, 20 ms, 40 and 80 ms                                      |
|                  | Type of channel coding                                       | No coding (TDD only)<br>Turbo coding<br>Convolutional coding | <del>No coding</del><br><del>(TDD only)</del><br><del>Turbo coding</del><br><del>Convolutional coding</del> | No coding (TDD only)<br>Turbo coding<br>Convolutional coding | No coding (TDD only)<br>Turbo coding<br>Convolutional coding | No coding (TDD only)<br>Turbo coding<br>Convolutional coding |
|                  | code rates (in case of convolutional coding)                 | 1/2, 1/3                                                     | <del>1/2, 1/3</del>                                                                                         | 1/2, 1/3                                                     | 1/2, 1/3                                                     | 1/2, 1/3                                                     |
|                  | CRC size                                                     | 0, 8, 12, 16, 24                                             | <del>0, 8, 12, 16,</del><br><del>24</del>                                                                   | 0, 8, 12, 16, 24                                             | 0, 8, 12, 16, 24                                             | 0, 8, 12, 16, 24                                             |
|                  | Resulting ratio after static rate matching                   | 0,5 to 4                                                     |                                                                                                             |                                                              |                                                              |                                                              |

**3GPP TSG RAN WG2 #47**  
**Athens, Greece**  
**09 - 13 May 2005**

**Tdoc #R2-051619**

CR-Form-v7.1

## CHANGE REQUEST

# **25.302 CR 0160** # rev **-** # Current version: **6.3.0** #

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

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

|                        |                                                                                                                                                                                                                                                                                                                                                                 |                 |                                                                                                                                                                                                                                                                                                           |
|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Title:</b>          | # Feature Clean Up: Removal of CPCH                                                                                                                                                                                                                                                                                                                             |                 |                                                                                                                                                                                                                                                                                                           |
| <b>Source:</b>         | # RAN WG2                                                                                                                                                                                                                                                                                                                                                       |                 |                                                                                                                                                                                                                                                                                                           |
| <b>Work item code:</b> | # TEI5                                                                                                                                                                                                                                                                                                                                                          | <b>Date:</b>    | # 14 April 2005                                                                                                                                                                                                                                                                                           |
| <b>Category:</b>       | # <b>C</b>                                                                                                                                                                                                                                                                                                                                                      | <b>Release:</b> | # Rel-6                                                                                                                                                                                                                                                                                                   |
|                        | Use <u>one</u> of the following categories:<br><b>F</b> (correction)<br><b>A</b> (corresponds to a correction in an earlier release)<br><b>B</b> (addition of feature),<br><b>C</b> (functional modification of feature)<br><b>D</b> (editorial modification)<br>Detailed explanations of the above categories can be found in 3GPP <a href="#">TR 21.900</a> . |                 | Use <u>one</u> of the following releases:<br><b>Ph2</b> (GSM Phase 2)<br><b>R96</b> (Release 1996)<br><b>R97</b> (Release 1997)<br><b>R98</b> (Release 1998)<br><b>R99</b> (Release 1999)<br><b>Rel-4</b> (Release 4)<br><b>Rel-5</b> (Release 5)<br><b>Rel-6</b> (Release 6)<br><b>Rel-7</b> (Release 7) |

|                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Reason for change:</b> | # Decision taken at RAN plenary to remove unnecessary features                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Summary of change:</b> | #                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|                           | <ul style="list-style-type: none"> <li>- Remove from Section 3.2</li> <li>- Remove from Section 6.1</li> <li>- Remove from Section 7.2</li> <li>- Remove from Section 8.1</li> <li>- Remove from Section 8.2</li> <li>- Remove from Section 9.3.13</li> <li>- Remove from Section 9.3.14</li> <li>- Remove from Section 9.3.16</li> <li>- Remove from Section 10.1</li> <li>- Remove from Section 10.1.1</li> <li>- Remove from Section 10.1.5</li> <li>- Remove from Section 10.1.6</li> <li>- Remove from Section 10.1.7</li> <li>- Remove from Section 10.2</li> <li>- Remove from Section 10.2.1.6</li> <li>- Remove from Section 10.2.2</li> <li>- Remove from Section 10.2.2.12</li> <li>- Remove from Section 10.2.2.13</li> <li>- Remove from Section 10.2.2.14</li> <li>- Remove from Section 10.2.2.15</li> <li>- Remove from Section 10.3.2</li> <li>- Remove from Section 10.3.3</li> <li>- Remove from Section 10.3.5.8</li> </ul> |

|                                      |   |                                                                                                                                                                                                                                                                                     |
|--------------------------------------|---|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                      |   | <ul style="list-style-type: none"> <li>- Remove from Section 10.3.5.9</li> <li>- Remove from Section 10.3.5.12</li> <li>- Remove from Section 10.3.5.13</li> <li>- Remove from Section 10.3.5.14</li> <li>- Remove from Section 10.3.5.15</li> <li>- Remove from Annex A</li> </ul> |
| <b>Consequences if not approved:</b> | ⌘ | RAN decision not carried out.                                                                                                                                                                                                                                                       |

|                              |   |                                                                                                                                                                                                                                                     |   |   |   |  |  |   |  |   |                                                                                                                  |
|------------------------------|---|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|---|--|--|---|--|---|------------------------------------------------------------------------------------------------------------------|
| <b>Clauses affected:</b>     | ⌘ | 3.2, 6.1, 7.2, 8.1, 8.2, 9.3.13, 9.3.14, 9.3.16, 10.1, 10.1.1, 10.1.5, 10.1.6, 10.1.7, 10.2, 10.2.1.6, 10.2.2, 10.2.2.12, 10.2.2.13, 10.2.2.14, 10.2.2.15, 10.3.2, 10.3.3, 10.3.5.8, 10.3.5.9, 10.3.5.12, 10.3.5.13, 10.3.5.14, 10.3.5.15, Annex A. |   |   |   |  |  |   |  |   |                                                                                                                  |
| <b>Other specs affected:</b> | ⌘ | <table border="1"> <tr> <td>Y</td> <td>N</td> </tr> <tr> <td>X</td> <td></td> </tr> <tr> <td></td> <td>X</td> </tr> <tr> <td></td> <td>X</td> </tr> </table>                                                                                        | Y | N | X |  |  | X |  | X | Other core specifications ⌘ 25.301, 25.303, 25.306, 25.321, 25.331.<br>Test specifications<br>O&M Specifications |
| Y                            | N |                                                                                                                                                                                                                                                     |   |   |   |  |  |   |  |   |                                                                                                                  |
| X                            |   |                                                                                                                                                                                                                                                     |   |   |   |  |  |   |  |   |                                                                                                                  |
|                              | X |                                                                                                                                                                                                                                                     |   |   |   |  |  |   |  |   |                                                                                                                  |
|                              | X |                                                                                                                                                                                                                                                     |   |   |   |  |  |   |  |   |                                                                                                                  |
| <b>Other comments:</b>       | ⌘ |                                                                                                                                                                                                                                                     |   |   |   |  |  |   |  |   |                                                                                                                  |

**How to create CRs using this form:**

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

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

~~~~ Next Modified Section ~~~~

3.2 Abbreviations

For the purposes of the present document, the following abbreviations apply:

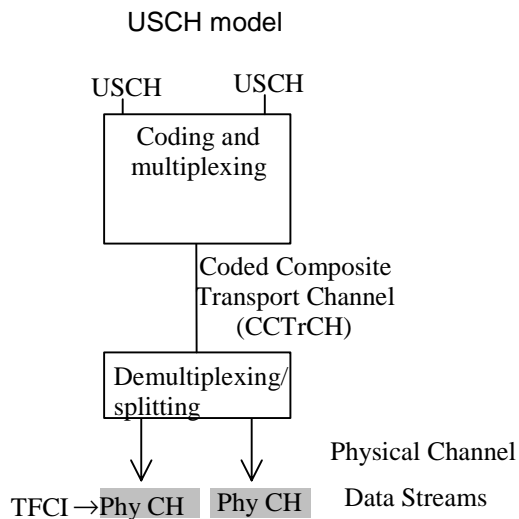
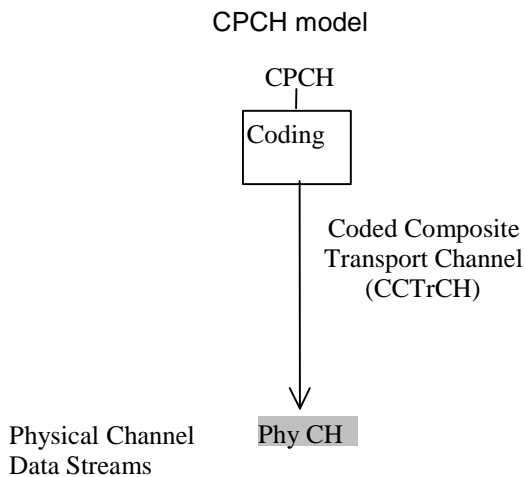
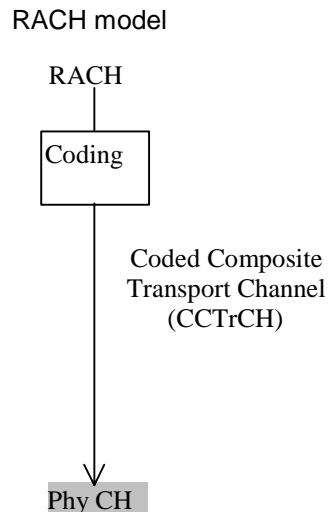
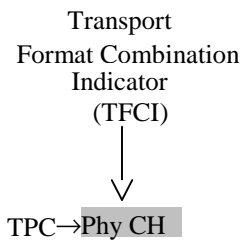
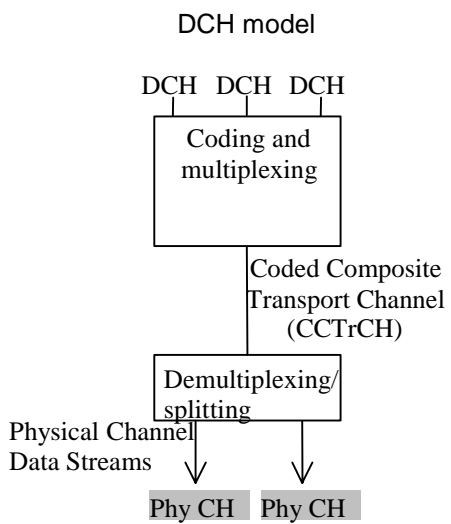
| | |
|----------------|---|
| ARQ | Automatic Repeat Request |
| BCCH | Broadcast Control Channel |
| BCH | Broadcast Channel |
| C- | Control- |
| CC | Call Control |
| CCC | CPCH Control Command |
| CCCH | Common Control Channel |
| CCH | Control Channel |
| CCTrCH | Coded Composite Transport Channel |
| CN | Core Network |
| CQI | Channel Quality Indicator |
| CRC | Cyclic Redundancy Check |
| DC | Dedicated Control (SAP) |
| DCA | Dynamic Channel Allocation |
| DCCH | Dedicated Control Channel |
| DCH | Dedicated Channel |
| DL | Downlink |
| DRNC | Drift Radio Network Controller |
| DSCH | Downlink Shared Channel |
| DTCH | Dedicated Traffic Channel |
| E-AGCH | E-DCH Absolute Grant Channel |
| E-DCH | Enhanced DCH |
| E-DPCCH | E-DCH Dedicated Physical Control Channel |
| E-DPDCH | E-DCH Dedicated Physical Data Channel |
| E-HICH | E-DCH HARQ Acknowledgement Indicator Channel |
| E-RGCH | E-DCH Relative Grant Channel |
| E-TFC | E-DCH Transport Format Combination |
| FACH | Forward Link Access Channel |
| FCS | Fame Check Sequence |
| FDD | Frequency Division Duplex |
| F-DPCH | Fractional Dedicated Physical Channel |
| GC | General Control (SAP) |
| HARQ | Hybrid Automatic Repeat Request |
| HS-DPCCH | High Speed Dedicated Physical Control Channel |
| HS-DSCH | High Speed Downlink Shared Channel |
| HS-SCCH | High Speed Shared Control Channel |
| HS-SICH | High Speed Shared Information Channel |
| HO | Handover |
| ITU | International Telecommunication Union |
| kbps | kilo-bits per second |
| L1 | Layer 1 (physical layer) |
| L2 | Layer 2 (data link layer) |
| L3 | Layer 3 (network layer) |
| LAC | Link Access Control |
| LAI | Location Area Identity |
| MAC | Medium Access Control |
| MBMS | Multimedia Broadcast Multicast Service |
| MCCH | MBMS point-to-multipoint Control Channel |
| MICH | MBMS notification Indicator Channel |
| MM | Mobility Management |
| MSCH | MBMS point-to-multipoint Scheduling Channel |
| MTCH | MBMS point-to-multipoint Traffic Channel |
| Nt | Notification (SAP) |
| PCCH | Paging Control Channel |

| | |
|-------|--|
| PCH | Paging Channel |
| PDU | Protocol Data Unit |
| PHY | Physical layer |
| PhyCH | Physical Channels |
| RACH | Random Access Channel |
| RLC | Radio Link Control |
| RNC | Radio Network Controller |
| RNS | Radio Network Subsystem |
| RNTI | Radio Network Temporary Identity |
| RRC | Radio Resource Control |
| SAP | Service Access Point |
| SDU | Service Data Unit |
| SRNC | Serving Radio Network Controller |
| SRNS | Serving Radio Network Subsystem |
| SS | Synchronisation Shift |
| TCH | Traffic Channel |
| TDD | Time Division Duplex |
| TFCI | Transport Format Combination Indicator |
| TFI | Transport Format Indicator |
| TFRI | Transport Format and Resource Indicator |
| TMSI | Temporary Mobile Subscriber Identity |
| TPC | Transmit Power Control |
| TSN | Transmission Sequence Number |
| U- | User- |
| UE | User Equipment |
| UL | Uplink |
| UMTS | Universal Mobile Telecommunications System |
| URA | UTRAN Registration Area |
| UTRA | UMTS Terrestrial Radio Access |
| UTRAN | UMTS Terrestrial Radio Access Network |

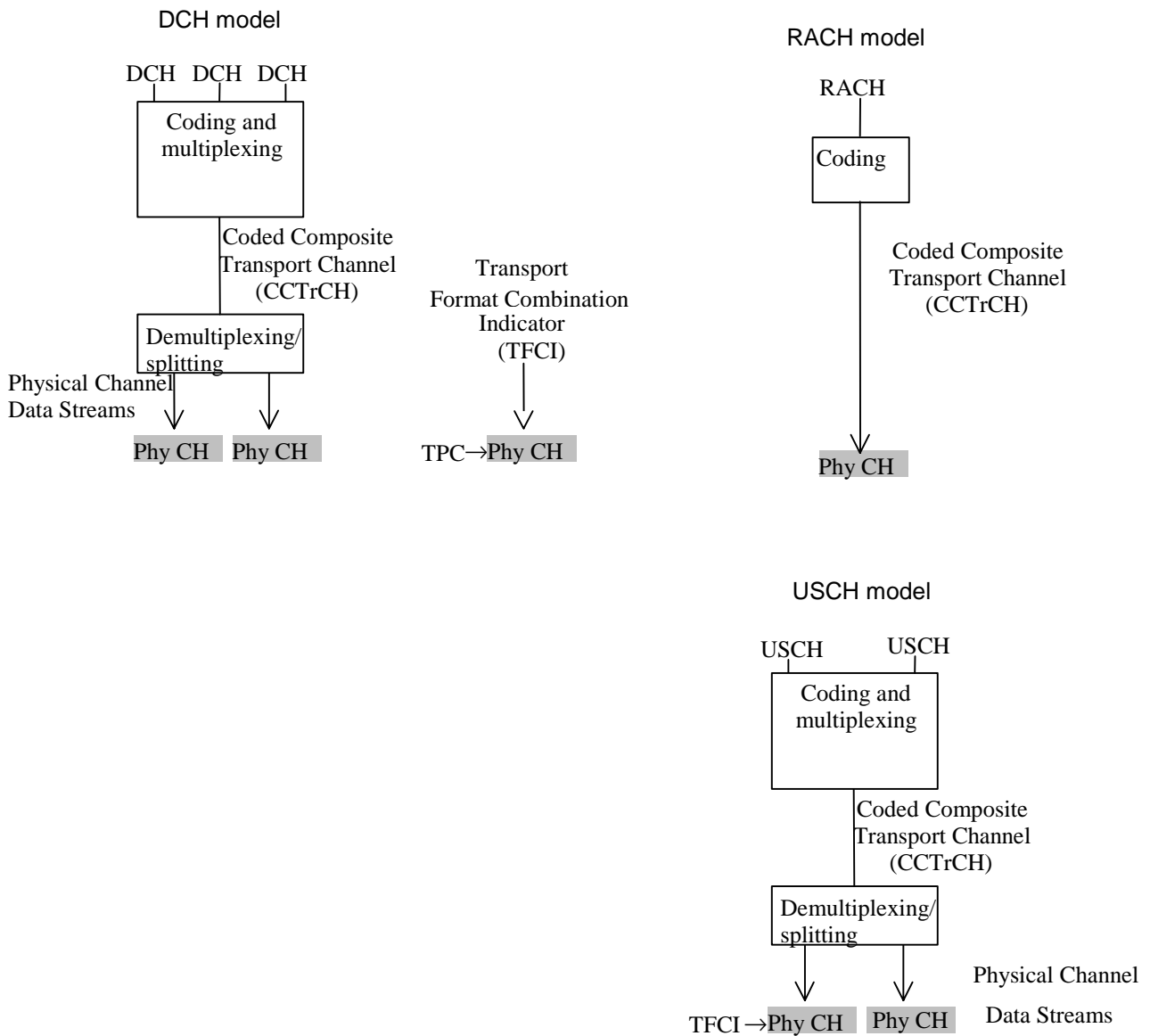
~~~~ Next Modified Section ~~~~

## 6.1 Uplink models

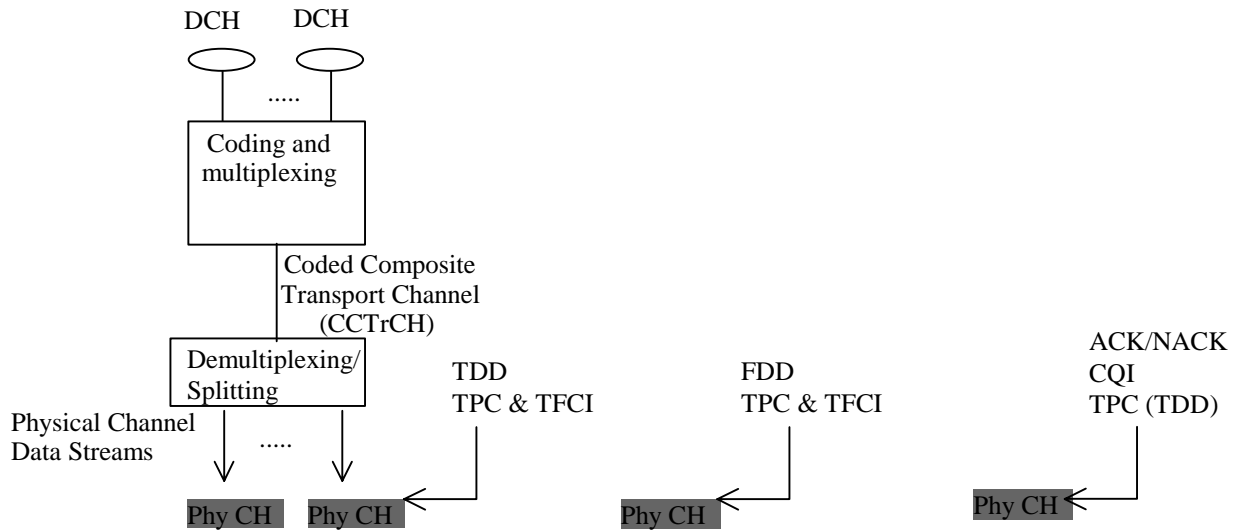
Figure 2 shows models of the UE's physical layer in the uplink for both FDD and TDD mode. It shows the models for DCH, E-DCH, RACH, ~~CPCH (the latter three used in FDD mode only)~~ and USCH (TDD only). Some restriction exist for the use of different types of transport channel at the same time, these restrictions are described in the clause "UE Simultaneous Physical Channel combinations". More details can be found in [3] and [4].



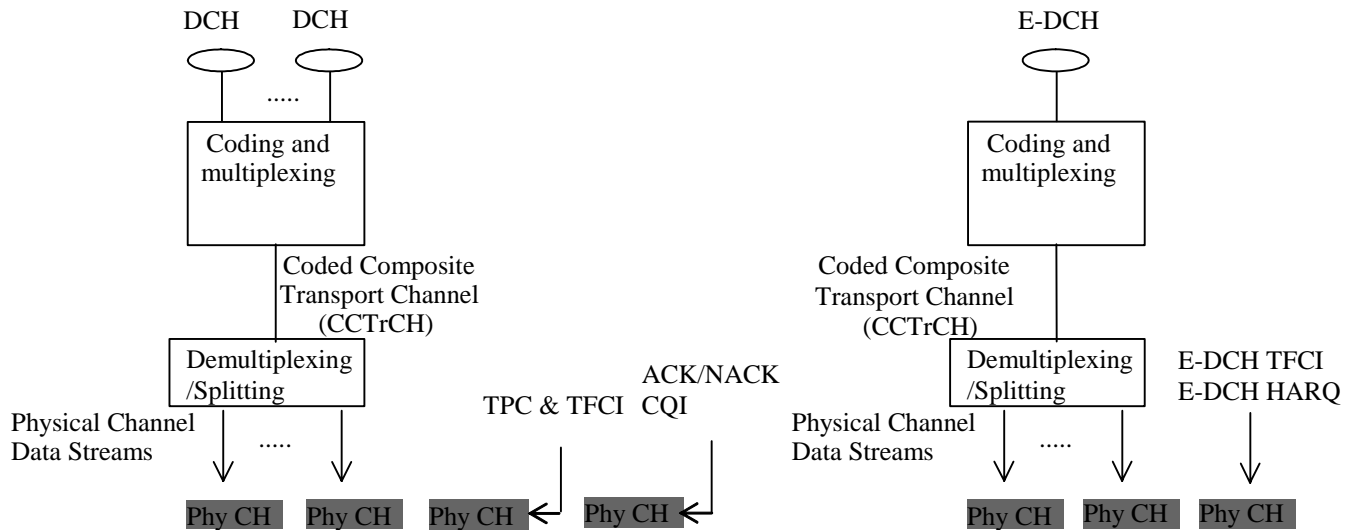




DCH model with HS-DSCH support



DCH and E-DCH model with HS-DSCH support



~~NOTE 1: CPCH is for FDD only.~~

NOTE 2: USCH is for TDD only.

NOTE 3: E-DCH is for FDD only.

**Figure 2: Model of the UE's physical layer - uplink**

The DCH model shows that one or several DCHs can be processed and multiplexed together by the same coding and multiplexing unit. The detailed functions of the coding and multiplexing unit are not defined in the present document but in [3] and [4]. The single output data stream from the coding and multiplexing unit is denoted *Coded Composite Transport Channel (CCTrCH)*.

The bits on a CCTrCH Data Stream can be mapped on the same Physical Channel and should have the same C/I requirement.

On the downlink, multiple CCTrCH can be used simultaneously with one UE. In the case of FDD, only one fast power control loop is necessary for these different CCTrCH, but the different CCTrCH can have different C/I requirements to provide different QoS on the mapped Transport Channels. In the case of TDD, different power control loops can be applied for different CCTrCH. One physical channel can only have bits coming from the same CCTrCH.

On the uplink and in the case of FDD, when E-DCH is not configured, only one CCTrCH can be used simultaneously. On the uplink and in the case of TDD, multiple CCTrCH can be used simultaneously.

On the uplink and in case of FDD, two CCTrCHs are used simultaneously when the E-DCH Transport Channel is configured.

When multiple CCTrCH are used by one UE, one or several TFCI can be used, but each CCTrCH has only zero or one corresponding TFCI. In the case of FDD, these different words are mapped on the same DPCCCH. In the case of TDD, these different TFCIs can be mapped on different DPCH.

The data stream of the CCTrCH is fed to a data demultiplexing/splitting unit that demultiplexes/splits the CCTrCH's data stream onto one or several *Physical Channel Data Streams*.

The current configuration of the coding and multiplexing unit is either signalled to, or optionally blindly detected by, the network for each 10 ms frame. If the configuration is signalled, it is represented by the *Transport Format Combination Indicator (TFCI)* bits. Note that the TFCI signalling only consists of pointing out the current transport format combination within the already configured transport format combination set. In the uplink there is only one TFCI representing the current transport formats on all DCHs of one CCTrCH simultaneously. In FDD mode, the physical channel data stream carrying the TFCI is mapped onto the physical channel carrying the power control bits and the pilot. In TDD mode the TFCI is time multiplexed onto the same physical channel(s) as the DCHs. The exact locations and coding of the TFCI are signalled by higher layers.

The DCH and USCH have the possibility to perform Timing Advance in TDD mode.

The model for the RACH case shows that RACH is a common type transport channel in the uplink. RACHs are always mapped one-to-one onto physical channels (PRACHs), i.e. there is no physical layer multiplexing of RACHs, and there can only be one RACH TrCH and no other TrCH in a RACH CCTrCH. Service multiplexing is handled by the MAC layer. In one cell several RACHs/PRACHs may be configured. If more than one PRACH is configured in a cell, the UE performs PRACH selection as specified in [4].

In FDD, the RACHs mapped to the PRACHs may all employ the same Transport Format and Transport Format Combination Sets, respectively. It is however also possible that individual RACH Transport Format Sets are applied on each available RACH/PRACH.

In TDD, there is no TFCI transmitted in the burst, and therefore each RACH is configured with a single transport format within its TFS. The RACHs mapped to the PRACHs may all employ the same Transport Format. It is however also possible that individual RACH Transport Formats are applied on each available RACH/PRACH combination.

The available pairs of RACH and PRACHs and their parameters are indicated in system information. In FDD mode, the various PRACHs are distinguished either by employing different preamble scrambling codes, or by using a common scrambling code but distinct (non-overlapping) partitions of available signatures and available subchannels. In TDD mode, the various PRACHs are distinguished either by employing different timeslots, or by using a common timeslot but distinct (non-overlapping) partitions of available channelisation codes and available subchannels. Examples of RACH/PRACH configurations are given in [6].

~~The CPCH, which is another common type transport channel, has a physical layer model as shown in figure 2. There is always a single CPCH transport channel mapped to a PCPCH physical channel which implies a one to one correspondence between a CPCH TFI and the TFCI conveyed on PCPCH. There can only be one CPCH TrCH and no other TrCH in a CPCH CCTrCH. A CPCH transport channel belongs to a CPCH set which is identified by the application of a common, CPCH set specific scrambling code for access preamble and collision detection, and multiple PCPCH physical channels. Each PCPCH shall employ a subset of the Transport Format Combinations implied by the Transport Format Set of the CPCH set. A UE can request access to CPCH transport channels of a CPCH set, which is assigned when the service is configured for CPCH transmission.~~

In FDD in case of a configured HS-DSCH one physical channel (HS-DPCCH) is configured for the reporting of HS-DSCH transport block acknowledgement / negative acknowledgement and channel quality indicator. In TDD in case of

a configured HS-DSCH a shared physical channel (HS-SICH) is configured for the reporting of HS-DSCH transport block acknowledgement / negative acknowledgement, channel quality indicator and transmit power control symbols.

The E-DCH is applicable to the FDD mode only. There can only be one E-DCH TrCH and no other TrCH in a E-DCH CCH. The E-DCH CCH is carried on E-DPDCH(s) physical channel(s). E-DCH TFCI and E-DCH HARQ information are carried on a E-DPCCH physical channel. It is FFS whether some E-DCH scheduling information is also carried by the physical layer.

~~~~ Next Modified Section ~~~~

7.2 Types of Transport Channels

A general classification of transport channels is into two groups:

- common channels; and
- dedicated channels (where the UEs can be unambiguously identified by the physical channel, i.e. code and frequency).

Common transport channel types are:

1. Random Access Channel(s) (RACH) characterised by:
 - existence in uplink only;
 - limited data field;
 - collision risk;
 - open loop power control.
2. Forward Access Channel(s) (FACH) characterised by:
 - existence in downlink only;
 - possibility to use slow power control;
 - possibility to change rate fast (each 10ms); and
 - lack of inner loop power control.
3. Broadcast Channel (BCH) characterised by:
 - existence in downlink only;
 - low fixed bit rate; and
 - requirement to be broadcast in the entire coverage area of the cell.
4. Paging Channel (PCH) characterised by:
 - existence in downlink only;
 - association with a physical layer signal, the Page Indicator, to support efficient sleep mode procedures; and
 - requirement to be broadcast in the entire coverage area of the cell.
5. Downlink Shared Channel(s) (DSCH) characterised by:
 - existence in downlink only;
 - possibility to use beamforming;
 - possibility to use slow power control;

- possibility to use inner loop power control, when associated with dedicated channel(s);
- possibility to be broadcast in the entire cell;
- always associated with another channel (DCH or FACH (TDD)).

~~6. CPCH Channel characterised by:~~

- ~~— existence in FDD only;~~
- ~~— existence in uplink only;~~
- ~~— inner loop power control on the message part;~~
- ~~— possibility to change rate fast;~~
- ~~— collision detection;~~
- ~~— open loop power estimate for pre-amble power ramp up.~~

7. Uplink Shared channel (USCH) characterised by:

- used in TDD only;
- existence in uplink only;
- possibility to use beam forming;
- possibility to use power control;
- possibility to change rate fast;
- possibility to use Uplink Synchronisation;
- possibility to use Timing advance.

8. High Speed Downlink Shared Channel (HS-DSCH) characterised by:

- existence in downlink only;
- possibility to use beamforming;
- possibility of applying HARQ;
- possibility of applying link adaptation by varying the modulation, coding and transmit power;
- possibility to be broadcast in the entire cell;
- always associated with a DPCH and one or more shared physical control channel.

Dedicated transport channel type:

1. Dedicated Channel (DCH) characterised by:

- existing in uplink or downlink;
- possibility to use beam forming;
- possibility to change rate fast (each 10ms);
- inner loop power control;
- possibility to use timing advance in uplink (TDD only);
- possibility to use Uplink Synchronisation.

2. Dedicated Channel (E-DCH) characterised by:

- existing in uplink only;

- possibility to change rate fast (each TTI);
- inner loop power control;
- possibility of applying HARQ;
- possibility of applying link adaptation by varying the coding and transmit power;
- always associated with a DPCCH and one or more physical control channel.

To each transport channel, there is an associated Transport Format (for transport channels with a fixed or slow changing rate) or an associated Transport Format Set (for transport channels with fast changing rate).

~~~~ Next Modified Section ~~~~

## 8.1 FDD Uplink

The table describes the possible combinations of FDD physical channels that can be supported in the uplink on the same frequency by one UE simultaneously.

**Table 1: FDD Uplink**

|   | Physical Channel Combination                                                            | Transport Channel Combination                         | Mandatory or dependent on UE radio access capabilities | Comment                                                                                                                                                       |
|---|-----------------------------------------------------------------------------------------|-------------------------------------------------------|--------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | PRACH                                                                                   | RACH                                                  | Mandatory                                              | The PRACH physical channel includes the preambles and the message.                                                                                            |
| 2 | <del>PCPCH consisting of one control and one data part during the message portion</del> | <del>CPCH</del>                                       | <del>Depending on UE radio access capabilities</del>   | <del>The PCPCH physical channel includes the preambles and the message. The maximum channel bit rate is dependent on UE radio access capabilities.</del>      |
| 3 | DPCCH+DPDCH                                                                             | One or more DCH coded into a single CTrCH             | Mandatory                                              | The maximum number of DCHs and the maximum channel bit rate are dependent on UE radio access capabilities.                                                    |
| 4 | DPCCH+ more than one DPDCH                                                              | One or more DCH coded into a single CTrCH             | Depending on UE radio access capabilities              | The maximum number of DCHs and the maximum channel bit rate are dependent on UE radio access capabilities.                                                    |
| 5 | DPCCH+one or more DPDCH+ HS-DPCCH                                                       | One or more DCH coded into a single CTrCH             | Depending on UE radio access capabilities              | The maximum number of DCHs and the maximum bit rate are dependent on UE radio access capabilities. In this combination HS-DSCH(s) are configured in downlink. |
| 6 | DPCCH+one or more DPDCH+E-DPCCH+one or more E-DPDCH                                     | One or more DCH coded into a single CTrCH + One E-DCH | Depending on UE radio access capabilities              | The maximum number of DCHs and the maximum channel bit rate are dependent on UE radio access capabilities.                                                    |
| 7 | DPCCH+one or more DPDCH+ HS-DPCCH+E-DPCCH+ one or more E-DPDCH                          | One or more DCH coded into a single CTrCH + One E-DCH | Depending on UE radio access capabilities              | The maximum number of DCHs and the maximum bit rate are dependent on UE radio access capabilities. In this combination HS-DSCH(s) are configured in downlink. |
| 8 | DPCCH+HS-DPCCH+E-DPCCH+ one or more E-DPDCH (This combination is FFS)                   | One E-DCH                                             | Depending on UE radio access capabilities              | The maximum bit rate are dependent on UE radio access capabilities. In this combination HS-DSCH(s) are configured in downlink.                                |

## 8.2 FDD Downlink

The table describes the possible combinations of FDD physical channels that can be supported in the downlink on the same frequency by one UE simultaneously.

**Table 2: FDD Downlink**

|   | <b>Physical Channel Combination</b> | <b>Transport Channel Combination</b>                                                                                                                             | <b>Mandatory dependent on UE radio access capabilities</b> | <b>Comment</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|---|-------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | PCCPCH                              | BCH                                                                                                                                                              | Mandatory                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 2 | SCCPCH                              | One or more FACH<br>Or<br>PCH<br>Or<br>one or more FACH + PCH                                                                                                    | Mandatory                                                  | The maximum channel bit rate that can be supported is dependent on the UE radio access capabilities.<br>The PCH is included when the UE needs to receive paging on the SCCPCH.<br>The reception of (one or more FACH + PCH) is to enable the reception of broadcast services on the CTCH, mapped to one of the FACH.                                                                                                                                                                                                                                            |
| 3 | PCCPCH + SCCPCH                     | BCH + (one or more FACH or PCH or (one or more FACH + PCH))                                                                                                      | Mandatory                                                  | Simultaneous reception of PCCPCH and SCCPCH is only needed at occurrences when the UE needs to read system information on BCH while being in CELL_FACH state, i.e. continuous reception of both PCCPCH and SCCPCH at the same time is not required.<br>The requirement holds for PCCPCH and SCCPCH sent in different cells or in the same cell.<br>The PCH is included when the UE needs to receive paging on the SCCPCH.<br>The reception of (one or more FACH + PCH) is to enable the reception of broadcast services on the CTCH, mapped to one of the FACH. |
| 4 | SCCPCH + AICH                       | (One or more FACH or PCH or (one or more FACH + PCH))+ RACH in uplink<br><del>Or<br/>(one or more FACH or PCH or (one or more FACH + PCH))+ CPCH in uplink</del> | Mandatory                                                  | The maximum channel bit rate that can be supported is dependent on the UE radio access capabilities.<br>The PCH is included when the UE needs to receive paging on the SCCPCH.<br>The reception of (one or more FACH + PCH) is to enable the reception of broadcast services on the CTCH, mapped to one of the FACH.<br><del>This physical channel combination facilitates the preamble portion of the CPCH in the uplink</del>                                                                                                                                 |
| 5 | <del>SCCPCH + DPCH</del>            | <del>(One or more FACH or PCH or (one or more FACH + PCH))+ CPCH in uplink</del>                                                                                 | <del>Depending on UE radio access capabilities</del>       | <del>This physical channel combination facilitates the message portion of the CPCH in the uplink<br/>The PCH is included when the UE needs to receive paging on the SCCPCH.<br/>The reception of (one or more FACH + PCH) is to enable the reception of broadcast services on the CTCH, mapped to one of the FACH.</del>                                                                                                                                                                                                                                        |

|    | <b>Physical Channel Combination</b>                                            | <b>Transport Channel Combination</b>                                                                      | <b>Mandatory dependent on UE radio access capabilities</b> | <b>Comment</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|----|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6  | More than one SCCPCH                                                           | More than one (one or more FACH or PCH or (one or more FACH + PCH))                                       | Depending on UE radio access capabilities                  | The PCH is included when the UE needs to receive paging on the SCCPCH.<br>The reception of (one or more FACH + PCH) is to enable the reception of broadcast services on the CTCH, mapped to one of the FACH.<br>One or more FACHs are used to enable the reception of MBMS (i.e., MCCH, MSCH and MTCH). The maximum number of SCCPCHs and the maximum bit rate depend on the UE implementation. The combination includes the case where one or more MBMS FACHs are transmitted on the same SCCPCH as used for non-MBMS FACH or PCH. |
| 7  | PICH                                                                           | N/A                                                                                                       | Mandatory                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 8  | DPCCH + DPDCH                                                                  | One or more DCH coded into a single CcTCH                                                                 | Mandatory                                                  | The maximum number of DCHs and the maximum channel bit rate are dependent on UE radio access capabilities.                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 9  | DPCCH + more than one DPDCH                                                    | One or more DCH coded into a single CcTCH                                                                 | Depending on UE radio access capabilities                  | The maximum number of DCHs and the maximum channel bit rate are dependent on UE radio access capabilities.                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 10 | One or more PDSCH + DPCCH + one or more DPDCH                                  | One or more DSCH coded into a single CcTCH + one or more DCH coded into a single CcTCH                    | Depending on UE radio access capabilities                  | The maximum number of DCHs and the maximum channel bit rate are dependent on UE radio access capabilities.                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 11 | SCCPCH + DPCCH + one or more DPDCH                                             | One or more FACH + one or more DCH coded into a single CcTCH                                              | Depending on UE radio access capabilities                  | The maximum number of DCHs and the maximum channel bit rate are dependent on UE radio access capabilities.<br>This combination of physical channels is used for DRAC control of an uplink DCH and for receiving services such as cell broadcast or multicast whilst in connected mode. NOTE 1                                                                                                                                                                                                                                       |
| 12 | SCCPCH + one or more PDSCH + DPCCH + one or more DPDCH                         | One or more FACH + one or more DSCH coded into a single CcTCH + one or more DCH coded into a single CcTCH | Depending on UE radio access capabilities                  | The maximum number of DCHs and the maximum channel bit rate are dependent on UE radio access capabilities.<br>This combination of physical channels is used for simultaneous DSCH and DRAC control of an uplink DCH. NOTE 1                                                                                                                                                                                                                                                                                                         |
| 13 | One DPCCH + more than one DPDCH                                                | More than one DCH coded into one or more CcTCH                                                            | Depending on UE radio access capabilities                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 14 | PCCPCH (neighbour cell) + DPCCH + one or more DPDCH + zero, one, or more PDSCH | BCH (neighbour cell) + one or more DCHs + zero, one or more DSCH                                          | Mandatory                                                  | This combination is required by a UE in CELL_DCH state to be able to read the SFN of a neighbouring cell and support "SFN-CFN observed time difference" and "SFN-SFN observed time difference" measurements.                                                                                                                                                                                                                                                                                                                        |
| 15 | DPCCH + one or more DPDCH + one or more HS-SCCH + zero, one or more HS-PDSCH   | One HS-DSCH coded into a single CcTCH + one or more DCH coded into a single CcTCH                         | Depending on UE radio access capabilities                  | The maximum number of DCHs and the maximum channel bit rate are dependent on UE radio access capabilities. NOTE 2                                                                                                                                                                                                                                                                                                                                                                                                                   |



|    | <b>Physical Channel Combination</b>                                                                                                                       | <b>Transport Channel Combination</b>                                                | <b>Mandatory dependent on UE radio access capabilities</b> | <b>Comment</b>                                                                                                                                                                                                                                                                                         |
|----|-----------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 16 | PCCPCH (neighbour cell) + DPCCH + one or more DPDCH + one or more HS-SCCH + zero, one or more HS-PDSCH                                                    | BCH (neighbour cell) + one or more DCHs + one HS-DSCH                               | Depending on UE radio access capabilities                  | This combination is required by a UE in CELL_DCH state to be able to read the SFN of a neighbouring cell and support "SFN-CFN observed time difference" and "SFN-SFN observed time difference" measurements while HS-DSCH(s) are configured. NOTE 2                                                    |
| 17 | DPCCH + one or more DPDCH + one or more E-HICH + one E-AGCH + one or more E-RGCH                                                                          | One or more DCH coded into a single CCTrCH                                          | Depending on UE radio access capabilities                  | The maximum number of DCHs and the maximum channel bit rate are dependent on UE radio access capabilities. In this combination E-DCH is configured in uplink.                                                                                                                                          |
| 18 | DPCCH + one or more DPDCH + one or more HS-SCCH + zero, one or more HS-PDSCH+ one or more E-HICH + one E-AGCH + one or more E-RGCH                        | One HS-DSCH coded into a single CCTrCH + one or more DCH coded into a single CCTrCH | Depending on UE radio access capabilities                  | The maximum number of DCHs and the maximum channel bit rate are dependent on UE radio access capabilities. In this combination E-DCH is configured in uplink. NOTE 2                                                                                                                                   |
| 19 | PCCPCH (neighbour cell) + DPCCH + one or more DPDCH + one or more HS-SCCH + zero, one or more HS-PDSCH + one or more E-HICH + E-AGCH + one or more E-RGCH | BCH (neighbour cell) + one or more DCHs + one HS-DSCH                               | Depending on UE radio access capabilities                  | This combination is required by a UE in CELL_DCH state to be able to read the SFN of a neighbouring cell and support "SFN-CFN observed time difference" and "SFN-SFN observed time difference" measurements while HS-DSCH(s) are configured. In this combination E-DCH is configured in uplink. NOTE 2 |
| 20 | F-DPCH + one or more HS-SCCH + zero, one or more HS-PDSCH                                                                                                 | One HS-DSCH coded into a single CCTrCH                                              | Depending on UE radio access capabilities                  | The maximum channel bit rate are dependent on UE radio access capabilities. NOTE 2                                                                                                                                                                                                                     |
| 21 | PCCPCH (neighbour cell) + F-DPCH + one or more HS-SCCH + zero, one or more HS-PDSCH                                                                       | BCH (neighbour cell) + one HS-DSCH                                                  | Depending on UE radio access capabilities                  | This combination is required by a UE in CELL_DCH state to be able to read the SFN of a neighbouring cell and support "SFN-CFN observed time difference" and "SFN-SFN observed time difference" measurements while HS-DSCH(s) are configured. NOTE 2                                                    |
| 22 | F-DPCH + one or more HS-SCCH + zero, one or more HS-PDSCH+ one or more E-HICH + one E-AGCH + one or more E-RGCH                                           | One HS-DSCH coded into a single CCTrCH                                              | Depending on UE radio access capabilities                  | The maximum channel bit rate are dependent on UE radio access capabilities. In this combination E-DCH is configured in uplink. NOTE 2                                                                                                                                                                  |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Physical Channel Combination                                                                                                              | Transport Channel Combination                                       | Mandatory dependent on UE radio access capabilities | Comment                                                                                                                                                                                                                                                                                                |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|-----------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 23                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | PCCPCH (neighbour cell) + F-DPCH + one or more HS-SCCH + zero, one or more HS-PDSCH+ one or more E-HICH + one E-AGCH + one or more E-RGCH | BCH (neighbour cell) + one HS-DSCH                                  | Depending on UE radio access capabilities           | This combination is required by a UE in CELL_DCH state to be able to read the SFN of a neighbouring cell and support "SFN-CFN observed time difference" and "SFN-SFN observed time difference" measurements while HS-DSCH(s) are configured. In this combination E-DCH is configured in uplink. NOTE 2 |
| 24                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | MICH                                                                                                                                      | N/A                                                                 | Depending on UE radio access capabilities           |                                                                                                                                                                                                                                                                                                        |
| 25                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | MICH + PICH                                                                                                                               | N/A                                                                 | Depending on UE radio access capabilities           |                                                                                                                                                                                                                                                                                                        |
| 26                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | MICH + one SCCPCH                                                                                                                         | More than one (one or more FACH or PCH or (one or more FACH + PCH)) | Depending on UE radio access capabilities           | Allowing MBMS notification indication during reception of non-MBMS FACH or PCH.                                                                                                                                                                                                                        |
| 27                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | PICH + one or more SCCPCH                                                                                                                 | One or more FACH                                                    | Depending on UE radio access capabilities           | The maximum number of SCCPCHs and the maximum bit rate depend on the UE implementation.                                                                                                                                                                                                                |
| NOTE 1: When both DRAC and CTCH are configured in one cell, the UTRAN should transmit DRAC info and CTCH info on the same S-CCPCH in order to minimize the number of S-CCPCH to be read by the UE. A UE, which supports the simultaneous reception of S-CCPCH and DPCH, shall be capable of switching between different S-CCPCH in order to listen to DRAC info and CTCH info that are not scheduled in the same time intervals. If the UE is ordered to listen to CTCH and DRAC info on different S-CCPCH in the same time interval, it shall listen to DRAC info in priority. |                                                                                                                                           |                                                                     |                                                     |                                                                                                                                                                                                                                                                                                        |
| NOTE 2: When one or more HS-PDSCHs are received, it is sufficient for the UE to monitor only one HS-SCCH.                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                           |                                                                     |                                                     |                                                                                                                                                                                                                                                                                                        |

~~~~ Next Modified Section ~~~~

9.3.13 ~~Detected PCPCH access preambles~~ [Void](#)

| | |
|------------------------------|---|
| Measurement | Detected PCPCH Access preambles |
| Source | L1(Node B) |
| Destination | RRC (RNC) |
| Reporting Trigger | Periodic, event triggered, On demand |
| Description | This measurement indicates the total number of detected access preambles per access frame on the PCPCHs belonging to a CPCH set. This measurement is applicable for FDD mode only. |

9.3.14 ~~Acknowledged PCPCH access preambles~~ [Void](#)

| | |
|------------------------------|--|
| Measurement | Acknowledged PCPCH access preambles |
| Source | L1(Node B) |
| Destination | RRC (RNC) |
| Reporting Trigger | Periodic, event triggered, On demand |
| Description | This measurement indicates the total number of acknowledged PCPCH access preambles per access frame on the PCPCHs, where an access frame consists of fifteen access slots from access slot #0 to access slot #14. This measurement is applicable for FDD mode only. |

9.3.15 SIR

| | |
|-------------------|-------------------------------|
| Measurement | SIR |
| Source | L1(Node B) |
| Destination | RRC (RNC) |
| Reporting Trigger | Periodic, event triggered |
| Description | Signal to Interference Ratio. |

9.3.16 PRACH/~~PCPCH~~ Propagation Delay

| | |
|-------------------|---|
| Measurement | Propagation delay |
| Source | L1(Node B) |
| Destination | RRC (RNC) |
| Reporting Trigger | Event triggered, periodic |
| Description | The one-way propagation delay as measured during either -PRACH or -PCPCH-access.
This measurement is applicable for FDD mode only. |

~~~~ Next Modified Section ~~~~

## 10.1 Generic names of primitives between layers 1 and 2

The primitives between layer 1 and layer 2 are shown in table 7.

**Table 7: Primitives between layer 1 and 2**

| Generic Name                      | Parameter                                                                                                                                                                                           |                                                                                |                        |                                        |
|-----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|------------------------|----------------------------------------|
|                                   | REQ                                                                                                                                                                                                 | IND                                                                            | RESP                   | CNF                                    |
| <b>PHY-Access</b>                 | Transport Format subset (1), ASC selected for Transport Block Set to be transmitted (5)                                                                                                             | Not Defined                                                                    | Not Defined            | access information (1)                 |
| <b>PHY-Data</b>                   | TFI, E-TFI (8), Transport Block Set, CFN <sub>CELL</sub> , TTI within CFN (7), Paging Indicators (2), ASC selected for that Transport Block Set (3), HS-DSCH information (6), E-DCH information (8) | TFI, E-TFI (8) Transport Block Set, CRC check result, TD (4), HARQ process (7) | Not Defined            | Not Defined                            |
| <del><b>PHY-CPCH_Status</b></del> | <del>Transport Format subset (4)</del>                                                                                                                                                              | <del>Not Defined</del>                                                         | <del>Not Defined</del> | <del>Transport Format subset (4)</del> |
| <b>PHY-Status</b>                 | HARQ status (7)                                                                                                                                                                                     | Event value, HS-DSCH Feedback information (7)                                  | Not Defined            | Not Defined                            |

NOTE (1): FDD only.  
 NOTE (2): PCH only  
 NOTE (3): 3.84 Mcps TDD RACH only  
 NOTE (4): optional, TDD only  
 NOTE (5): FDD and 1.28 Mcps TDD RACH only  
 NOTE (6): HS-DSCH only  
 NOTE (7): HS-DSCH and E-DCH only  
 NOTE (8): E-DCH only

### 10.1.1 PHY-Access-REQ

The PHY-Access-REQ primitive is used to request access to either a RACH ~~or a CPCH~~ transport channel from the physical layer. A PHY-Access primitive is submitted once before the actual data for peer-to-peer communication is passed to the physical layer using the PHY-Data primitive. This primitive is used in FDD and 1.28 Mcps TDD only.

**Parameters:**

- Transport Format subset.
- ASC selected for Transport Block Set to be transmitted (RACH only)

~~~~ Next Modified Section ~~~~

10.1.5 ~~PHY-CPCH_Status-REQ~~Void

~~The PHY-CPCH_Status-REQ primitive is used by MAC to request CPCH status information that is broadcast on CSICH. The parameter Transport Format subset allows to restrict the CPCH status information request to a limited number of CPCH channels of the given CPCH set. This primitive is used in FDD only.~~

~~**Parameters:**~~

- ~~- Transport Format subset.~~

10.1.6 ~~PHY-CPCH_Status-CNF~~Void

~~The PHY-CPCH_Status-CNF primitive is used by L1 to indicate CPCH status information that is broadcast on CSICH. Status information is represented in terms of a Transport format subset that is permitted to be employed by the UE. This primitive is used in FDD only.~~

Parameters:

~~—Transport Format subset~~

10.1.7 PHY-Status-IND

The PHY-Status-IND primitive can be used by the layer 1 to notify higher layers of an event that has occurred.

Parameters:

- Feedback information (HS-DSCH and E-DCH only);
- Event value:
 - ~~—CPCH Emergency stop was completed;~~
 - ~~—CPCH Start of Message Indicator was received;~~
 - ~~—CPCH Start of Message Indicator was not received;~~
 - L1 hardware failure has occurred.
 - ~~CPCH End of Transmission was received~~

10.2 Generic names of primitives between layers 1 and 3

The status primitives between layer 1 and 3 are shown in table 8.

Table 8: Status primitives between layer 1 and 3

| Generic Name | Parameter | | | |
|---|--|-----------------------------|------------------------|------------------------|
| | REQ | IND | RESP | CNF |
| CPHY-Sync | Not Defined | CCTrCH ID (1) | Not Defined | Not Defined |
| CPHY-Out-of-Sync | Not Defined | CCTrCH ID (1) | Not Defined | Not Defined |
| CPHY-Measurement | transmission power threshold, measurement parameters | measurement parameters | Not Defined | Not Defined |
| CPHY-Error | Not Defined | error code | Not Defined | Not Defined |
| CPHY-CPCH-EOT | Not Defined | No Parameter (2) | Not Defined | Not Defined |
| NOTE (1): TDD only.
NOTE (2): FDD only | | | | |

~~~~ Next Modified Section ~~~~

#### 10.2.1.6 ~~CPHY-CPCH-EOT-IND~~Void

~~The CPHY-CPCH-EOT-IND primitive is used by L1 to indicate RRC of an end of CPCH transmission event has occurred. This primitive is used in FDD only.~~

**Parameters:**

~~—No Parameter.~~

~~~~ Next Modified Section ~~~~

10.2.2.12 ~~CPHY-CPCH-Estop-IND~~[Void](#)

~~The CPHY-CPCH-Estop-IND primitive is used by L1 to notify RRC of a CPCH emergency stop message has been received. This primitive is used in FDD only.~~

Parameters:

~~— No Parameter.~~

10.2.2.13 ~~CPHY-CPCH-Estop-RESP~~[Void](#)

~~This primitive is sent from UE RRC to L1 for emergency stop of the CPCH transmission. After receiving this primitive, UE L1 stopping its transmission on the related CPCH. This primitive is used in FDD only.~~

Parameters:

~~— No Parameter.~~

10.2.2.14 ~~CPHY-CPCH-Estop-REQ~~[Void](#)

~~This primitive is sent from RRC to L1 for CPCH Emergency Stop. This primitive is sent for triggering of a CPCH emergency stop. After receiving this primitive, Node B L1 sends CPCH-Estop-Command to UE. This CPCH-Estop-Command is all 1-bits pattern in the CCC field of DL-DPCCH for CPCH. This primitive is used in FDD only.~~

Parameters:

~~— No Parameter.~~

10.2.2.15 ~~CPHY-CPCH-Estop-CNF~~[Void](#)

~~This primitive is sent from Node B L1 to RRC for confirming the emergency stop of the CPCH. This primitive is used in FDD only.~~

Parameters:

~~— No Parameter.~~

~~~~ Next Modified Section ~~~~

### 10.3.2 Event value

- Maximum transmission power has been reached.
- Allowable transmission power has been reached.
- Average transmission power is below allowable transmission power.
- Maximum number of retransmissions has been reached.
- Loss of DL-DPCCH.
- ~~- Completion of CPCH Emergency stop.~~
- ~~— CPCH Start of Message Indicator was received.~~
- ~~— CPCH Start of Message Indicator was not received.~~
- ~~— Maximum number of frames for CPCH transmission has been reached.~~
- ~~— End of Frame for CPCH transmission has been received.~~

### 10.3.3 Access Information

- Ready for RACH data transmission (in case of FDD mode: when Ack on AICH has been received, in case of 1.28 Mcps TDD: when Ack on FPACH has been received);
- timeout, no response on AICH (FDD only) or AP-AICH (FDD only) or FPACH (1.28 Mcps TDD only) has been received while maximum number of access preamble transmissions (FDD only) /synchronisation attempts (1.28 Mcps TDD only) has been performed.

The following values of this parameter apply to FDD only:

- NACK on AICH or AP-AICH has been received;
- ~~ready for CPCH data transmission (CD or CD/CA information received on CD/CA ICH);~~
- mismatch of CD/CA-ICH signatures;
- no response on CD/CA-ICH received;
- timeout, no CD/CA-ICH received.

~~~~ Next Modified Section ~~~~

10.3.5.8 Downlink DPCH

- Transmission Time offset value.
- DL scrambling code:
 - DL Channelisation code.
- Tx diversity mode:
 - FB mode (FDD only).
- Slot structure (N_{pilot} , N_{TPC} , N_{TFCI} , N_{FBI} , N_{data1} , N_{data2}) (FDD only).
- ~~Special slot structure only for CPCH (N_{pilot} , N_{TPC} , N_{TFCI} , N_{ECC}) (FDD only)~~
- Burst Type (3.84 Mcps TDD only).
- DPCH midamble shift (TDD only).
- Timeslot (TDD only).
- Offset (TDD only).
- Repetition period (TDD only).
- Repetition length (TDD only).
- TFCI presence (TDD only).

10.3.5.8a F-DPCH (FDD only)

- Transmission Time offset value.
- DL scrambling code:
 - DL Channelisation code.

10.3.5.9 ~~PCPCH (Physical Common Packet Channel)~~Void

- ~~— CPCH Set ID to which this PCPCH belongs;~~
- ~~— Parameters related to the AP preamble:

 - ~~— Access Preamble (AP) scrambling code;~~
 - ~~— available AP signatures/subchannels for access request;~~~~
- ~~— Parameters related to the CD preamble:

 - ~~— CD preamble scrambling code;~~
 - ~~— available CD signatures/subchannels;~~~~
- ~~— Parameters related to PCPCH message part:

 - ~~— PCPCH scrambling code;~~
 - ~~— PCPCH Channelisation code;~~
 - ~~— data rate (spreading factor);~~
 - ~~— N_frames_max: Maximum length of CPCH message in radio frames.~~~~

~~~~ Next Modified Section ~~~~

### 10.3.5.12 ~~AP-AICH~~Void

- ~~— CPCH Set ID.~~
- ~~— Scrambling code.~~
- ~~— Channelisation code.~~
- ~~— Tx diversity mode.~~

### 10.3.5.13 ~~CD-ICH~~Void

- ~~— CPCH Set ID.~~
- ~~— Scrambling code.~~
- ~~— Channelisation code.~~
- ~~— Tx diversity mode.~~

~~NOTE:— This physical channel is used in conjunction with PCPCH when UE Channel Selection is active.~~

### 10.3.5.14 ~~CD/CA-ICH~~Void

- ~~— CPCH Set ID.~~
- ~~— Scrambling code.~~
- ~~— Channelisation code.~~
- ~~— Tx diversity mode.~~

~~NOTE:— This physical channel is used in conjunction with PCPCH when Channel Assignment is active.~~



10.3.5.15 ~~CSICH~~Void

~~—CPCH Set ID.~~

~~—Scrambling code.~~

~~—Channelisation code.~~

~~—Tx diversity mode.~~

~~NOTE:—The values for the parameters need to be consistent with the AP AICH that is time multiplexed with this CSICH.~~

~~~~ Next Modified Section ~~~~

Annex A (normative): Description of Transport Formats

The following table describes the characterisation of a Transport Format.

Table A.1: Characterisation of Transport Format

| | | Attribute values | BCH | PCH | FACH | RACH |
|------------------|--|--|---|--|--|---|
| Dynamic part | Transport Block Size | 0 to 5 000
1 bit granularity | 246 | 1 to 5000
1 bit granularity | 0 to 5 000
1 bit granularity | 0 to 5 000
1 bit granularity |
| | Transport Block Set Size | 0 to 200 000
1 bit granularity | 246 | 1 to 200 000
1 bit granularity | 0 to 200 000
1 bit granularity | 0 to 200 000
1 bit granularity |
| | Transmission Time Interval (option for TDD only) | 10, 20 ms, 40 and 80 ms | | | | |
| Semi-static part | Transmission Time Interval (FDD, option for TDD NRT bearers) | 10, 20 ms, 40 and 80 ms | 20 ms | 10ms for FDD, 20ms for TDD | 10, 20 ms, 40 and 80 ms | 10 ms and 20 ms for FDD, 10 ms for 3.84 Mcps TDD 5ms, 10ms and 20ms for 1.28 Mcps TDD |
| | Type of channel coding | No Coding (TDD only)
Turbo coding
Convolutional coding | Convolutional coding | Convolutional coding | No coding (TDD only)
Turbo coding
Convolutional coding | Convolutional coding |
| | Code rates | 1/2, 1/3 | 1/2 for FDD and 3.84 Mcps TDD 1/3 for 1.28 Mcps TDD | 1/2 for FDD and 3.84 Mcps TDD 1/2, 1/3 for 1.28 Mcps TDD | 1/2, 1/3 | 1/2 |
| | CRC size | 0, 8, 12, 16, 24 | 16 | 0, 8, 12, 16, 24 | 0, 8, 12, 16, 24 | 0, 8, 12, 16, 24 |
| | Resulting ratio after static rate matching | 0,5 to 4 | | | | |

| | | Attribute values | CPCH | DCH | DSCH | USCH |
|------------------|--|--|---|--|--|--|
| Dynamic part | Transport Block Size | 0 to 5 000
1 bit granularity | 0 to 5 000
1 bit
granularity | 0 to 5 000
1 bit granularity | 0 to 5 000
1 bit granularity | 0 to 5 000
1 bit granularity |
| | Transport Block Set Size | 0 to 200 000
1 bit granularity | 0 to 200 000
1 bit
granularity | 0 to 200 000
1 bit granularity | 0 to 200 000
1 bit granularity | 0 to 200 000
1 bit granularity |
| | Transmission Time Interval (option for TDD only) | 10, 20 ms, 40 and 80 ms | | 10, 20 ms, 40 and 80 ms | 10, 20 ms, 40 and 80 ms | 10, 20 ms, 40 and 80 ms |
| Semi-static part | Transmission Time Interval (FDD, option for TDD NRT bearers) | 10, 20 ms, 40 and 80 ms | 10, 20 ms,
40 and 80
ms | 10, 20 ms, 40 and 80 ms | 10, 20 ms, 40 and 80 ms | 10, 20 ms, 40 and 80 ms |
| | Type of channel coding | No coding (TDD only)
Turbo coding
Convolutional coding | No coding
(TDD only)
Turbo coding
Convolutional coding | No coding (TDD only)
Turbo coding
Convolutional coding | No coding (TDD only)
Turbo coding
Convolutional coding | No coding (TDD only)
Turbo coding
Convolutional coding |
| | code rates (in case of convolutional coding) | 1/2, 1/3 | 1/2, 1/3 | 1/2, 1/3 | 1/2, 1/3 | 1/2, 1/3 |
| | CRC size | 0, 8, 12, 16, 24 | 0, 8, 12, 16,
24 | 0, 8, 12, 16, 24 | 0, 8, 12, 16, 24 | 0, 8, 12, 16, 24 |
| | Resulting ratio after static rate matching | 0,5 to 4 | | | | |

| | | HS-DSCH |
|--------------|----------------------------------|--|
| Dynamic part | Transport Block Size | 1 to 200 000
8 bit granularity |
| | Transport Block Set Size | 1 to 200 000
8 bit granularity |
| | Modulation scheme | QPSK, 16 QAM |
| | Redundancy version/Constellation | 1 to 8 |
| Static part | Transmission Time Interval | 2ms for FDD
5 ms for 1.28 Mcps TDD
10 ms for 3.84 Mcps TDD |
| | Type of channel coding | Turbo coding |
| | Code rates | 1/3 |
| | CRC size | 24 |

| E-DCH | | |
|------------------|----------------------------|--|
| Dynamic part | Transport Block Size | 1 to 200 000
8 bit granularity
FFS ? |
| | Transport Block Set Size | 1 to 200 000
8 bit granularity
FFS ? |
| | Redundancy version | 0 to 3 |
| Semi-static part | Transmission Time Interval | 2ms, 10ms |
| Static part | Type of channel coding | Turbo coding |
| | Code rates | 1/3 |
| | CRC size | 24 |

NOTE 1: The maximum size of the Transport Block has been chosen so as to avoid any need for segmentation in the physical layer into sub-blocks (segmentation should be avoided in the physical layer).

NOTE 2: Code rate is fixed to 1/3 in case of Turbo coding.

NOTE 3: All channels using the same resources as the BCH (i.e. the same timeslot and code, e.g. in a multiframe pattern) have to use different Transport Formats than the BCH to allow the identification of the BCH channel by physical layer parameters. Due to the differing parameters, decoding of other transport channels than BCH will result in an erroneous CRC.

3GPP TSG RAN WG2 #47
Athens, Greece
09 - 13 May 2005

Tdoc #R2-051620

CR-Form-v7.1

CHANGE REQUEST

25.303 CR 0079 # rev - # Current version: 5.2.0

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

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

| | |
|---|-------------------------------------|
| Title: | # Feature Clean Up: Removal of CPCH |
| Source: | # RAN WG2 |
| Work item code: | # TEI5 |
| Date: | # 14 April 2005 |
| Category: | # C |
| <p>Use <u>one</u> of the following categories:</p> <p>F (correction)
 A (corresponds to a correction in an earlier release)
 B (addition of feature),
 C (functional modification of feature)
 D (editorial modification)</p> <p>Detailed explanations of the above categories can be found in 3GPP TR 21.900.</p> | |
| Release: | # Rel-5 |
| <p>Use <u>one</u> of the following releases:</p> <p>Ph2 (GSM Phase 2)
 R96 (Release 1996)
 R97 (Release 1997)
 R98 (Release 1998)
 R99 (Release 1999)
 Rel-4 (Release 4)
 Rel-5 (Release 5)
 Rel-6 (Release 6)
 Rel-7 (Release 7)</p> | |

| | |
|--------------------------------------|---|
| Reason for change: | # Decision taken at RAN plenary to remove unnecessary features |
| Summary of change: | # - Remove from Section 3.2
- Remove from Section 4
- Remove from Section 5.1
- Remove from Section 5.2
- Remove from Section 5.3.1
- Remove from Section 6.2.1.1.5
- Remove Figure 9
- Remove from Section 6.3.3
- Remove Figure 21
- Remove Figure 22
- Remove from Section 6.7.4
- Remove Figure 47 |
| Consequences if not approved: | # RAN decision not carried out. |

| | | | | | | | | | | | | | |
|------------------------------|--|---------------------------|---|--|---|--|---------------------------|--|---|---------------------|--|---|--------------------|
| Clauses affected: | # 3.2, 4, 5.1, 5.2, 5.3.1, 6.2.1.1.5, 6.3.3, 6.7.4. | | | | | | | | | | | | |
| Other specs affected: | <table border="1"> <tr> <td>Y</td> <td>N</td> <td></td> </tr> <tr> <td>X</td> <td></td> <td>Other core specifications</td> </tr> <tr> <td></td> <td>X</td> <td>Test specifications</td> </tr> <tr> <td></td> <td>X</td> <td>O&M Specifications</td> </tr> </table> | Y | N | | X | | Other core specifications | | X | Test specifications | | X | O&M Specifications |
| Y | N | | | | | | | | | | | | |
| X | | Other core specifications | | | | | | | | | | | |
| | X | Test specifications | | | | | | | | | | | |
| | X | O&M Specifications | | | | | | | | | | | |
| | # 25.301, 25.302, 25.306, 25.321, 25.331. | | | | | | | | | | | | |

Other comments: ☹

How to create CRs using this form:

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

~~~~ Next Modified Section ~~~~

## 3.2 Abbreviations

For the purposes of the present document, the following abbreviations apply:

|                 |                                  |
|-----------------|----------------------------------|
| ASC             | Access Service Class             |
| <del>CPCH</del> | <del>Common Packet CHannel</del> |
| DC-SAP          | Dedicated Control SAP            |
| DCH             | Dedicated transport CHannels     |
| RNTI            | Radio Network Temporary Identity |

## 4 General Description of Connected Mode

The connected mode is entered when the RRC connection is established. The UE is assigned a Radio Network Temporary Identity (RNTI) to be used as UE identity on common transport channels. Two types of RNTI exist. The Serving RNC allocates an s-RNTI for all UEs having an RRC connection. The combination of s-RNTI and an RNC-ID is unique within a PLMN. c-RNTI is allocated by each Controlling RNC through which UE is able to communicate on DCCH. c-RNTI is always allocated by UTRAN when a new UE context is created to an RNC, but the UE needs its c-RNTI only for communicating on common transport channels.

The UE leaves the connected mode and returns to idle mode when the RRC connection is released or at RRC connection failure.

Within connected mode the level of UE connection to UTRAN is determined by the quality of service requirements of the active radio bearers and the characteristics of the traffic on those bearers.

The UE-UTRAN interface is designed to support a large number of UEs using packet data services by providing flexible means to utilize statistical multiplexing. Due to limitations, such as air interface capacity, UE power consumption and network h/w availability, the dedicated resources cannot be allocated to all of the packet service users at all times.

Variable rate transmission provides the means that for services of variable rate the data rate is adapted according to the maximum allowable output power.

The UE state in the connected mode defines the level of activity associated to the UE. The key parameters of each state are the required activity and resources within the state and the required signalling prior to the data transmission. The state of the UE shall at least be dependent on the application requirement and the period of inactivity.

~~Common Packet Channel (CPCH) uplink resources are available to UEs with an access protocol similar to the RACH. The CPCH resources support uplink packet communication for numerous UEs with a set of shared, contention-based CPCH channels allocated to the cell.~~

The different levels of UE connection to UTRAN are listed below:

- No signalling connection exists  
The UE is in idle mode and has no relation to UTRAN, only to CN. For data transfer, a signalling connection has to be established.
- Signalling connection exists  
When at least one signalling connection exists, the UE is in connected mode and there is normally an RRC connection between UE and UTRAN. The UE position can be known on different levels:
  - UTRAN Registration Area (URA) level  
The UE position is known on URA level. The URA is a set of cells
  - Cell level  
The UE position is known on cell level. Different transport channel types can be used for data transfer:
  - Common transport channels (RACH / FACH, DSCH, ~~CPCH~~)

- Dedicated transport CHannels (DCH)

Assuming that there exists an RRC connection, there are two basic families of RRC connection mobility procedures, URA updating and handover. Different families of RRC connection mobility procedures are used in different levels of UE connection (cell level and URA level):

- URA updating is a family of procedures that updates the UTRAN registration area of a UE when an RRC connection exists and the position of the UE is known on URA level in the UTRAN;
- handover is a family of procedures that adds or removes one or several radio links between one UE and UTRAN when an RRC connection exists and the position of the UE is known on cell level in the UTRAN.

---

## 5 Radio Bearer Control - Overview of Procedures

### 5.1 Configurable parameters

The following layer 1, MAC and RLC parameters should be configurable by RRC. The list is not complete.

- Radio bearer parameters, e.g.:
  - RLC parameters per RLC link (radio bearer), which may include e.g. PDU size and timeout values. Used by RLC.
  - Multiplexing priority per DCCH/DTCH. Used by MAC in case of MAC multiplexing of logical channels.
- Transport channel parameters, e.g.:
  - Scheduling priority per transport channel. Used by MAC in case of layer 1 multiplexing of transport channels.
  - Transport format set (TFS) per transport channel. Used by MAC and L1.
  - Transport format combination set (TFCS) per UE. Used by MAC and L1.
  - Allowed subset of TFCS per UE. Used by MAC.
  - ~~CPCCH access parameters per CPCCH channel. Used by MAC and L1.~~
- Physical channel parameters, which may include e.g. carrier frequency and codes. Used by L1.

### 5.2 Typical configuration cases

Table 1 gives a proposal which main combination cases of parameter configuration that shall be supported, in terms of which parameters that shall be able to configure simultaneously (by one procedure). Note that the "Transport channel type switching" is not a parameter as such, it only indicates that switching of transport channel type may take place for that combination case.

**Table 1: Typical configuration cases.**  
**An "X" indicates that the parameter can (but need not) be configured**

| Parameter                    |                                       | Layer  | A | B | C | D | E | F |
|------------------------------|---------------------------------------|--------|---|---|---|---|---|---|
| Radio bearer parameters      | RLC parameters                        | RLC    | X |   |   |   |   |   |
|                              | Logical channel multiplexing priority | MAC    | X |   |   |   |   |   |
| Transport channel parameters | Transport channel scheduling priority | MAC    | X |   |   |   |   |   |
|                              | TFS                                   | L1+MAC | X | X |   |   |   |   |
|                              | TFCS                                  | L1+MAC | X | X |   |   |   |   |
|                              | Subset of TFCS                        | MAC    |   |   |   |   | X | X |
|                              | Transport channel type switching      | MAC    | X | X | X |   |   |   |
| Physical channel parameters  |                                       | L1     | X | X | X | X |   |   |

Case A is typically when a radio bearer is established or released, or when the QoS of an existing radio bearer need to be changed.

Case B is when the traffic volume of a radio bearer has changed so the TFS used on the DCH need to be changed, which may in turn affect any assigned set of physical channels. Another example is to make the UE use a new transport channel and at the same time supplying the TFS for that channel.

Case C is when the traffic volume of one radio bearer has changed so that the used transport channel type is changed, e.g. from CELL\_FACH to CELL\_DCH ~~or when the CPCH Set assigned to a UE is switched~~. This case includes the assignment or release of a set of physical channels.

Case D is e.g. the change of used DL channelisation code, when a DCH is currently used. No transport channel type switching takes place.

Case E is a temporary restriction and/or a release of restriction for usage of the TFCS by the UE (total uplink rate).

Case F is used to dynamically control the allocation of resources on uplink DCHs in the CRNC, using broadcast information such as transmission probability and maximum bit rate.

## 5.3 RRC Elementary Procedures

### 5.3.1 Category 1: Radio Bearer Configuration

The first category of procedures includes Case A and are characterized by:

- are executed upon request by higher layers and the parameter configuration is based on QoS;
- affects L1, MAC and RLC.

There are three RRC procedures included in this category:

- **Radio Bearer Establishment:** this procedure establishes a new radio bearer. The establishment includes, based on QoS, assignment of RLC parameters, multiplexing priority for the DTCH, ~~CPCH Set assignment~~, 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.
- **Radio Bearer Release:** this procedure releases a radio bearer. The RLC entity for the radio 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.
- **Radio Bearer Reconfiguration:** this procedure reconfigures parameters for a radio bearer (e.g. the signalling link) to reflect a change in QoS. It may include change of RLC parameters, change of multiplexing priority for DTCH/DCCH, ~~CPCH Set assignment~~, 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.



~~~~ Next Modified Section ~~~~

6.2.1.1.5 ~~Radio Bearer Establishment with CPCH Channel Allocation~~[Void](#)

~~When the RNC determines the need to assign CPCH UL resources to a UE, the RNC sends an RB Setup message to the UE. Since the CPCH physical parameters are broadcast in the BCCH, the RB Setup message does not include a DPCH part. The Transport Channel information includes the CPCH set (CPCH Set ID#) to which the UE is to be assigned. MAC entities are configured: MAC D and MAC C/SH in the UE, MAC C/SH in the CRNC, and MAC D in the SRNC. Node B MAC controls access to the individual CPCH channels in the CPCH set. However, Node B MAC does not require configuration, since it was configured to control the CPCH set when the CPCH set was initially allocated to that cell. The Node B MAC can function independently of the number of UEs assigned to the CPCH set. Once the RB setup is complete, the UE may access the CPCH when the logical channel for this RB next presents data to send in the uplink direction.~~

~~The message flow diagram for RB establishment for CPCH is similar to the RB establishment without Dedicated Physical Channel (see subclause 6.2.1.1.4).~~

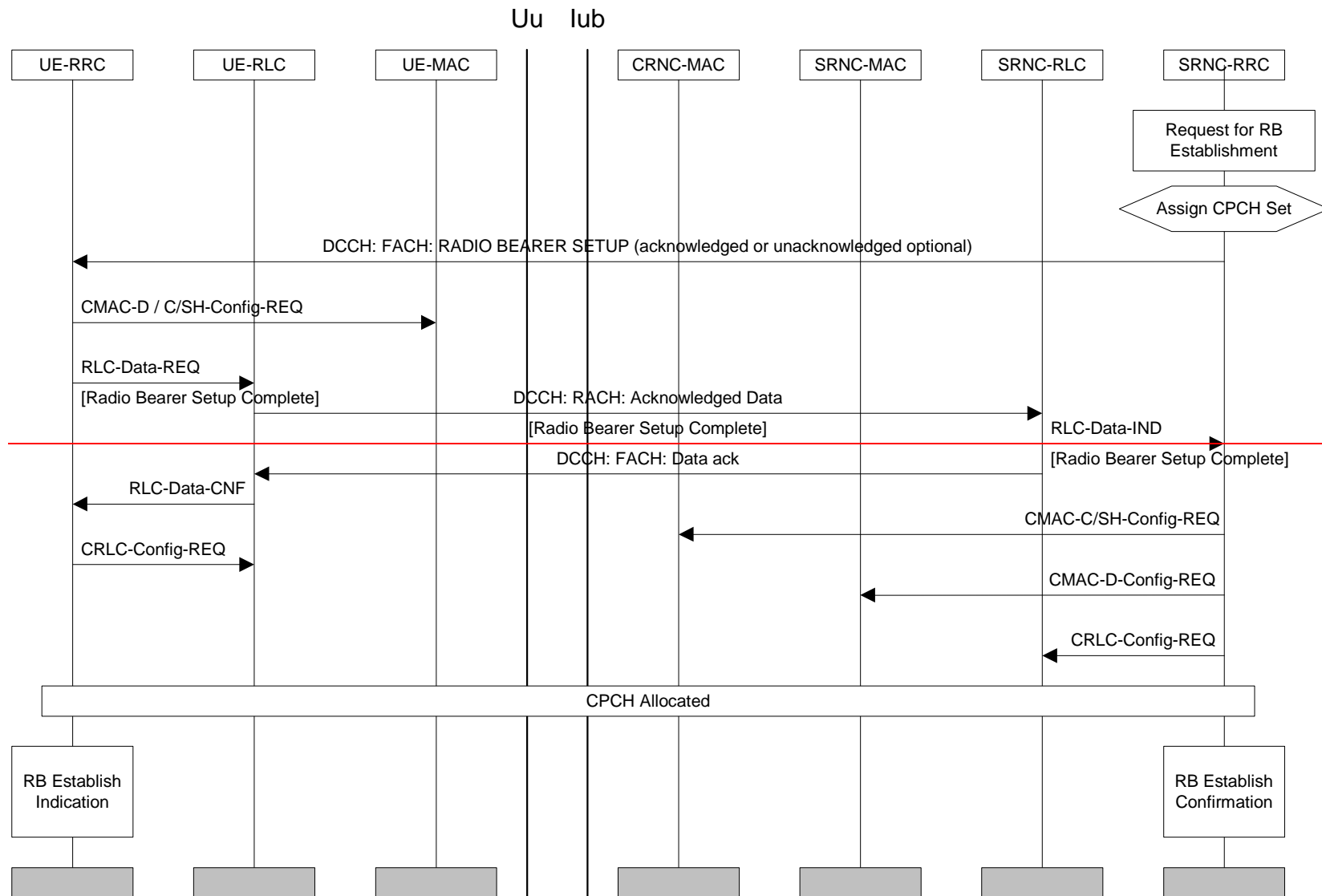


Figure 9: Radio Bearer Establishment with CPCH Channel Allocation

~~~~ Next Modified Section ~~~~

### 6.3.3 Data transmission on CPCHVoid

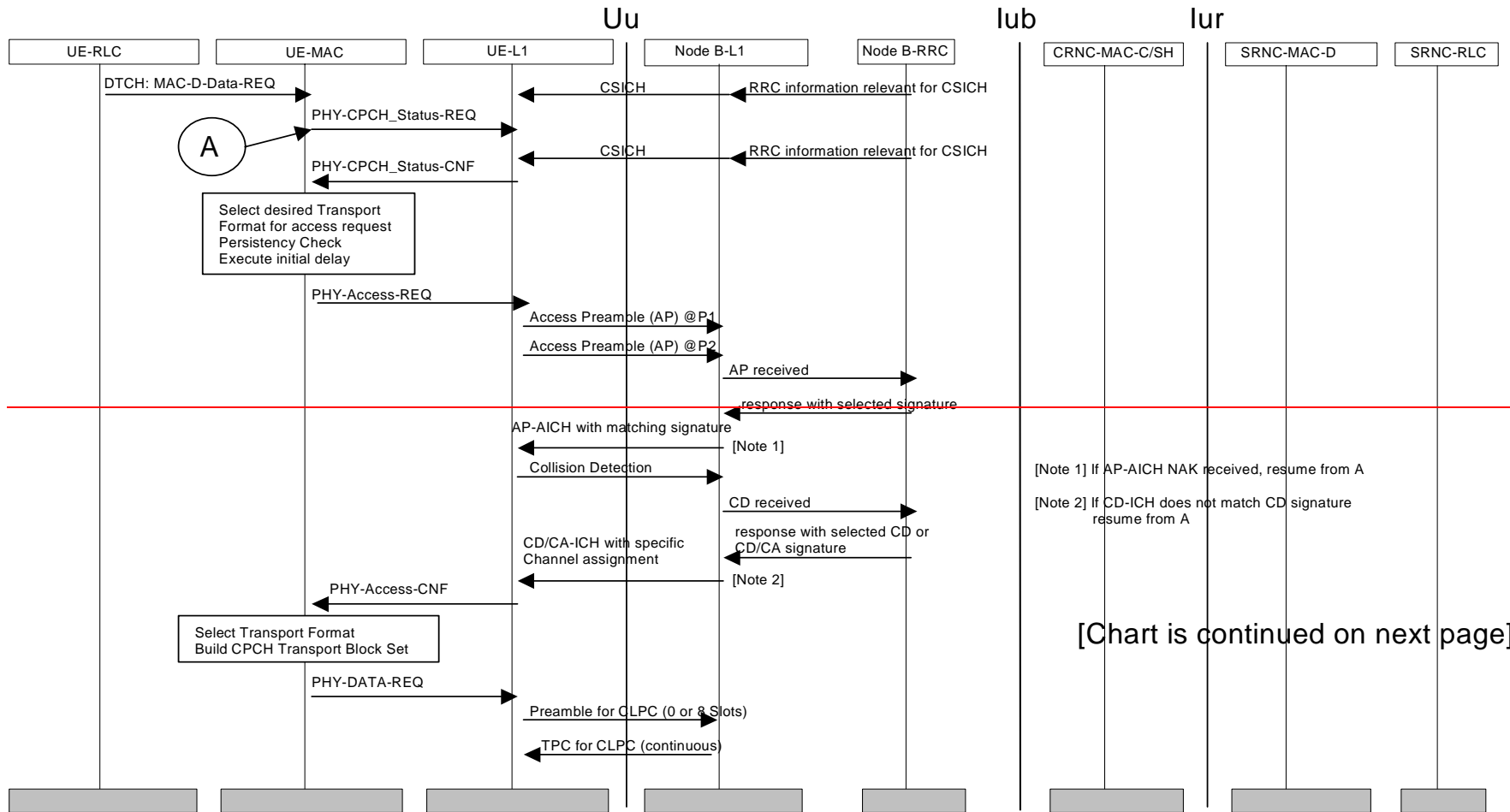


Figure 21: Example of data transmission on CPCH (page 1 of 2)

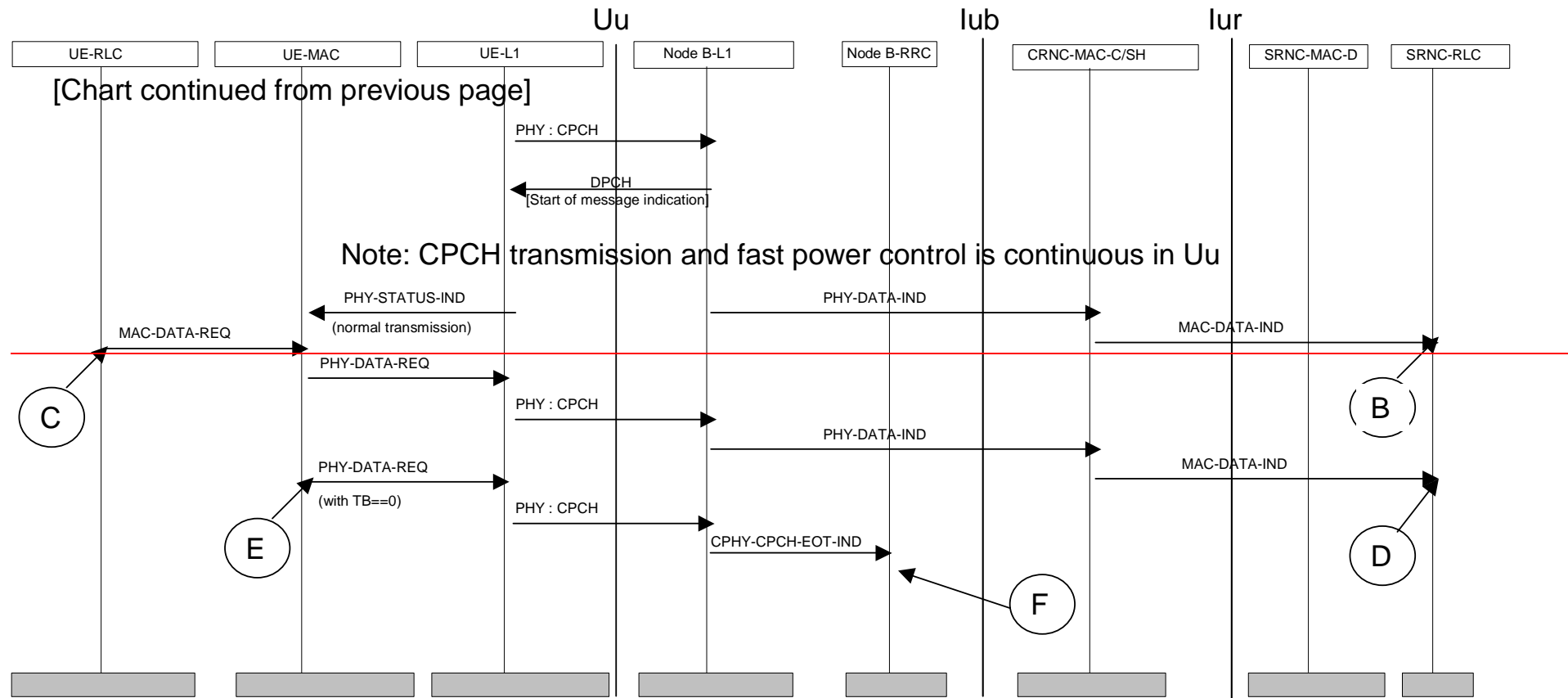


Figure 22: Example of data transmission on CPCH (page 2 of 2)

Figure 21 shows an example of data transmission on CPCH. It is assumed that RLC acknowledged or unacknowledged transmission modes are applied for all logical channels mapped to CPCH.

CPCH transmission is applied in the Connected mode RRC state CELL\_FACH with CPCH resources assigned to the UE. The UE needs to be configured for CPCH transmission via a respective RRC procedure (e.g. with RADIO BEARER SETUP or TRANSPORT CHANNEL RECONFIGURATION messages).

Upon reception of a data transmission request from RLC, MAC first requests CPCH channel status information from the physical layer. It is assumed that CPCH channel status information is broadcast on the CSICH physical channel using the same DL channelisation code as AP\_AICH. The status information provides an indication of the maximum available data rate on PCPCH resources when Channel Assignment (CA) is active. When Channel Assignment is not active, then UE Channel Selection is employed. In this case the status information provides indication of the availability of each defined PCPCH. In either case, the channel status information is converted into a set of transport formats that are allowed to be employed at that given time. Whether channel assignment is active or not shall be indicated via System Information message. Current assumption is that the conversion of CPCH status information into Transport Formats is a L1 internal function.

Based on the permitted transport formats and the data available for transmission, MAC selects a desired transport format for CPCH access request. The MAC CPCH transmission control procedure is started by performing the persistency check based on persistence value received from RRC. When persistence check is passed, the physical CPCH transmission procedure is initiated by sending of a PHY Access REQ primitive. The PCPCH transmission procedure starts with an access preamble power ramping cycle. MAC then waits for status indication from L1 via PHY Status IND primitive. When acquisition of the access preamble is indicated on AP\_AICH the CD preamble is sent on PCPCH. Reception of the CD preamble in Node B is indicated on CD\_ICH to the UE. If Channel Assignment is active, channel assignment information is simultaneously transmitted on CD/CA\_ICH. Layer 1 provides status indication to MAC indicating the CD or CD/CA information. The CA information defines in the UE on L1 the PCPCH to use for the power control preamble and the message part. Then MAC builds the CPCH transport block set to be transmitted via PHY Data REQ with the appropriate Transport Format that may differ from the requested transport format.

After the 0 or 8 slot period for the power control preamble, the first Transport Block Set (first TTI) of the message is transmitted.

While the first transport block is being sent, Node B layer 1 sends the start of message indicator whereby upon the reception of this start of message indicator UE can know if it uses correct CPCH channel or not. If UE does not receive the start of message indicator within certain period, it stops its message transmission immediately. Otherwise, UE continues the transmission.

Data transmission on CPCH is continued until all available data has been sent or until the maximum frame length [NF\_max] is reached. If the UE has no more data to send prior to NF\_max, the UE can notify the UTRAN that no more frames will be transmitted prior to the maximum frame length [NF\_max] on the CPCH by using End of Transmission indication. The acknowledgements from RLC entities in SRNC are routed by the NW MAC to the UE RLC entities using the FACH DL transport channel.

In figure 21, the events between points A and B define the CPCH transmission procedure for the first TTI. In figure 22, events from point C to D describe the CPCH transmission procedure for each subsequent TTI. In figure 22, the events from point E to F describe the stop procedure of CPCH transmission when the UE has no more data to send prior to the maximum frame length [NF\_max]. In this case a stop of CPCH transmission can take place for the release of CPCH transmission prior to NF\_max. The stop of CPCH transmission is indicated by the PHY DATA REQ primitive indicating the 'end of transmission' event by setting zero sized Transport Block as indicated by TFI.

On request from RRC at the network side, for example, for reacting on temporary overload conditions, an emergency stop of CPCH transmission can take place. The emergency stop is indicated by the PHY STATUS IND primitive.

Note also that in the case of transmit power restrictions that are also indicated via PHY STATUS IND primitive, restrictions on Transport Format selections may apply at any time during CPCH transmission.

~~~~ Next Modified Section ~~~~

6.7.4 CPCH Emergency Stop sequence Void

Figure 47 illustrates the CPCH emergency stop procedure. This procedure is invoked by a request from Node B RRC, when Node B detects emergency stop conditions such as temporary overload situation in the cell. CPCH emergency stop is initiated by CPHY-CPCH-Estop-REQ primitive issued from Node B RRC to Node B-L1. Upon the reception of this primitive, Node B-L1 sends CPCH emergency stop command to UE-L1.

Upon the reception of emergency stop command, UE-L1 sends CPHY-CPCH-Estop-IND primitive to UE-RRC indicating the reception of CPCH emergency stop command. Then, UE-RRC replies with CPHY-CPCH-Estop-Resp primitive to command UE-L1 to execute CPCH emergency stop. After UE-L1 stops on-going CPCH transmission, it sends PHY-Status-IND primitive to UE-MAC indicating the completion of CPCH Emergency stop. Meanwhile, when Node B-L1 detects CPCH link loss, it sends CPHY-CPCH-Estop-CNF primitive to Node B RRC. This completes CPCH emergency stop procedure.

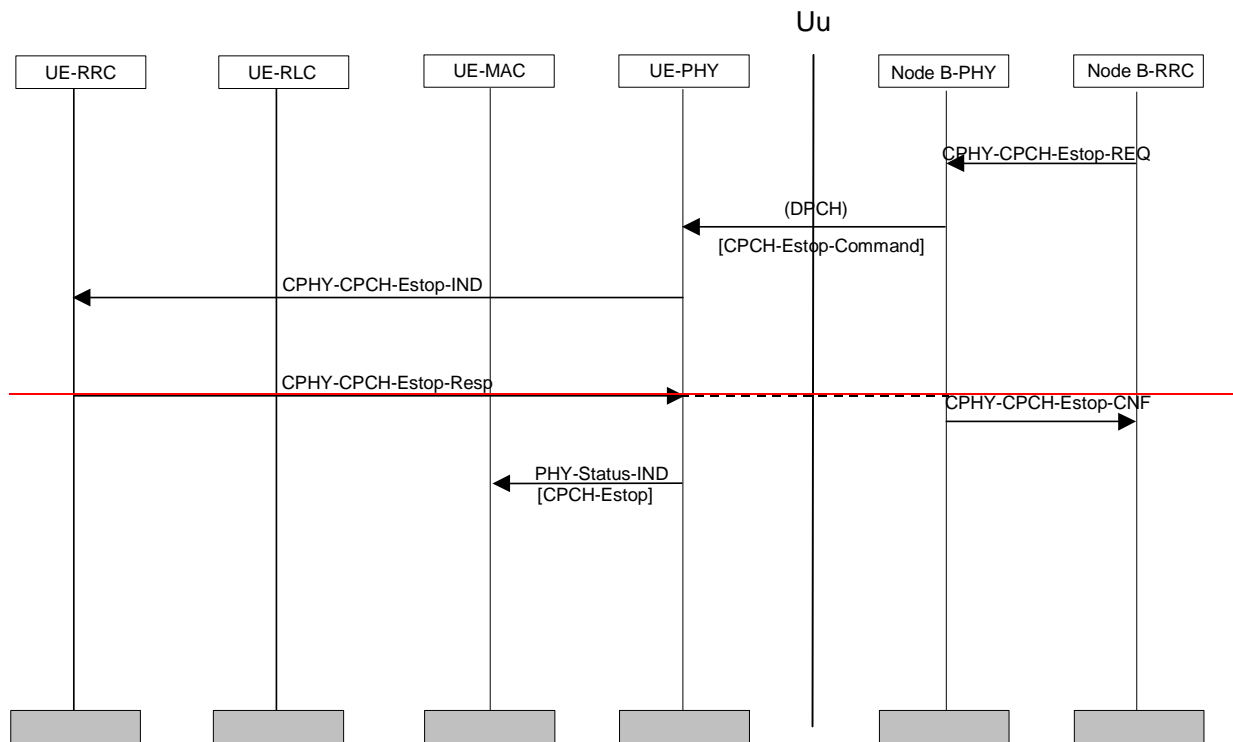


Figure 47: CPCH Emergency Stop Sequence

3GPP TSG RAN WG2 #47
Athens, Greece
09 - 13 May 2005

Tdoc #R2-051621

CR-Form-v7.1

CHANGE REQUEST

25.303 CR 0080 # rev - # Current version: 6.2.0

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

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

| | |
|---|-------------------------------------|
| Title: | # Feature Clean Up: Removal of CPCH |
| Source: | # RAN WG2 |
| Work item code: | # TEI5 |
| Date: | # 14 April 2005 |
| Category: | # C |
| <p>Use <u>one</u> of the following categories:</p> <p>F (correction)
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| Release: | # Rel-6 |
| <p>Use <u>one</u> of the following releases:</p> <p>Ph2 (GSM Phase 2)
 R96 (Release 1996)
 R97 (Release 1997)
 R98 (Release 1998)
 R99 (Release 1999)
 Rel-4 (Release 4)
 Rel-5 (Release 5)
 Rel-6 (Release 6)
 Rel-7 (Release 7)</p> | |

| | |
|--------------------------------------|---|
| Reason for change: | # Decision taken at RAN plenary to remove unnecessary features |
| Summary of change: | # - Remove from Section 3.2
- Remove from Section 4
- Remove from Section 5.1
- Remove from Section 5.2
- Remove from Section 5.3.1
- Remove from Section 6.2.1.1.5
- Remove Figure 9
- Remove from Section 6.3.3
- Remove Figure 21
- Remove Figure 22
- Remove from Section 6.7.4
- Remove Figure 47 |
| Consequences if not approved: | # RAN decision not carried out. |

| | | | | | | | | | | | | | |
|------------------------------|---|---------------------------|---|--|---|--|---------------------------|--|---|---------------------|--|---|--------------------|
| Clauses affected: | # 3.2, 4, 5.1, 5.2, 5.3.1, 6.2.1.1.5, 6.3.3, 6.7.4. | | | | | | | | | | | | |
| Other specs affected: | <table border="1"> <tr> <td>Y</td> <td>N</td> <td></td> </tr> <tr> <td>X</td> <td></td> <td>Other core specifications</td> </tr> <tr> <td></td> <td>X</td> <td>Test specifications</td> </tr> <tr> <td></td> <td>X</td> <td>O&M Specifications</td> </tr> </table> # 25.301, 25.302, 25.306, 25.321, 25.331 | Y | N | | X | | Other core specifications | | X | Test specifications | | X | O&M Specifications |
| Y | N | | | | | | | | | | | | |
| X | | Other core specifications | | | | | | | | | | | |
| | X | Test specifications | | | | | | | | | | | |
| | X | O&M Specifications | | | | | | | | | | | |

Other comments: ☹

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

## 3.2 Abbreviations

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|                 |                                  |
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| <del>CPCH</del> | <del>Common Packet CHannel</del> |
| DC-SAP          | Dedicated Control SAP            |
| DCH             | Dedicated transport CHannels     |
| RNTI            | Radio Network Temporary Identity |

## 4 General Description of Connected Mode

The connected mode is entered when the RRC connection is established. The UE is assigned a Radio Network Temporary Identity (RNTI) to be used as UE identity on common transport channels. Two types of RNTI exist. The Serving RNC allocates an s-RNTI for all UEs having an RRC connection. The combination of s-RNTI and an RNC-ID is unique within a PLMN. c-RNTI is allocated by each Controlling RNC through which UE is able to communicate on DCCH. c-RNTI is always allocated by UTRAN when a new UE context is created to an RNC, but the UE needs its c-RNTI only for communicating on common transport channels.

The UE leaves the connected mode and returns to idle mode when the RRC connection is released or at RRC connection failure.

Within connected mode the level of UE connection to UTRAN is determined by the quality of service requirements of the active radio bearers and the characteristics of the traffic on those bearers.

The UE-UTRAN interface is designed to support a large number of UEs using packet data services by providing flexible means to utilize statistical multiplexing. Due to limitations, such as air interface capacity, UE power consumption and network h/w availability, the dedicated resources cannot be allocated to all of the packet service users at all times.

Variable rate transmission provides the means that for services of variable rate the data rate is adapted according to the maximum allowable output power.

The UE state in the connected mode defines the level of activity associated to the UE. The key parameters of each state are the required activity and resources within the state and the required signalling prior to the data transmission. The state of the UE shall at least be dependent on the application requirement and the period of inactivity.

~~Common Packet Channel (CPCH) uplink resources are available to UEs with an access protocol similar to the RACH. The CPCH resources support uplink packet communication for numerous UEs with a set of shared, contention-based CPCH channels allocated to the cell.~~

The different levels of UE connection to UTRAN are listed below:

- No signalling connection exists  
The UE is in idle mode and has no relation to UTRAN, only to CN. For data transfer, a signalling connection has to be established.
- Signalling connection exists  
When at least one signalling connection exists, the UE is in connected mode and there is normally an RRC connection between UE and UTRAN. The UE position can be known on different levels:
  - UTRAN Registration Area (URA) level  
The UE position is known on URA level. The URA is a set of cells
  - Cell level  
The UE position is known on cell level. Different transport channel types can be used for data transfer:
  - Common transport channels (RACH / FACH, DSCH, ~~CPCH~~)

- Dedicated transport CHannels (DCH)

Assuming that there exists an RRC connection, there are two basic families of RRC connection mobility procedures, URA updating and handover. Different families of RRC connection mobility procedures are used in different levels of UE connection (cell level and URA level):

- URA updating is a family of procedures that updates the UTRAN registration area of a UE when an RRC connection exists and the position of the UE is known on URA level in the UTRAN;
- handover is a family of procedures that adds or removes one or several radio links between one UE and UTRAN when an RRC connection exists and the position of the UE is known on cell level in the UTRAN.

## 5 Radio Bearer Control - Overview of Procedures

### 5.1 Configurable parameters

The following layer 1, MAC and RLC parameters should be configurable by RRC. The list is not complete.

- Radio bearer parameters, e.g.:
  - RLC parameters per RLC link (radio bearer), which may include e.g. PDU size and timeout values. Used by RLC.
  - Multiplexing priority per DCCH/DTCH. Used by MAC in case of MAC multiplexing of logical channels.
- Transport channel parameters, e.g.:
  - Scheduling priority per transport channel. Used by MAC in case of layer 1 multiplexing of transport channels.
  - Transport format set (TFS) per transport channel. Used by MAC and L1.
  - Transport format combination set (TFCS) per UE. Used by MAC and L1.
  - Allowed subset of TFCS per UE. Used by MAC.
  - ~~— CPOCH access parameters per CPOCH channel. Used by MAC and L1.~~
- Physical channel parameters, which may include e.g. carrier frequency and codes. Used by L1.

### 5.2 Typical configuration cases

Table 1 gives a proposal which main combination cases of parameter configuration that shall be supported, in terms of which parameters that shall be able to configure simultaneously (by one procedure). Note that the "Transport channel type switching" is not a parameter as such, it only indicates that switching of transport channel type may take place for that combination case.

**Table 1: Typical configuration cases.**  
**An "X" indicates that the parameter can (but need not) be configured**

| Parameter                    |                                       | Layer  | A | B | C | D | E | F |
|------------------------------|---------------------------------------|--------|---|---|---|---|---|---|
| Radio bearer parameters      | RLC parameters                        | RLC    | X |   |   |   |   |   |
|                              | Logical channel multiplexing priority | MAC    | X |   |   |   |   |   |
| Transport channel parameters | Transport channel scheduling priority | MAC    | X |   |   |   |   |   |
|                              | TFS                                   | L1+MAC | X | X |   |   |   |   |
|                              | TFCS                                  | L1+MAC | X | X |   |   |   |   |
|                              | Subset of TFCS                        | MAC    |   |   |   |   | X | X |
|                              | Transport channel type switching      | MAC    | X | X | X |   |   |   |
| Physical channel parameters  |                                       | L1     | X | X | X | X |   |   |

Case A is typically when a radio bearer is established or released, or when the QoS of an existing radio bearer need to be changed.

Case B is when the traffic volume of a radio bearer has changed so the TFS used on the DCH need to be changed, which may in turn affect any assigned set of physical channels. Another example is to make the UE use a new transport channel and at the same time supplying the TFS for that channel.

Case C is when the traffic volume of one radio bearer has changed so that the used transport channel type is changed, e.g. from CELL\_FACH to CELL\_DCH ~~or when the CPCH Set assigned to a UE is switched~~. This case includes the assignment or release of a set of physical channels.

Case D is e.g. the change of used DL channelisation code, when a DCH is currently used. No transport channel type switching takes place.

Case E is a temporary restriction and/or a release of restriction for usage of the TFCS by the UE (total uplink rate).

Case F is used to dynamically control the allocation of resources on uplink DCHs in the CRNC, using broadcast information such as transmission probability and maximum bit rate.

## 5.3 RRC Elementary Procedures

### 5.3.1 Category 1: Radio Bearer Configuration

The first category of procedures includes Case A and are characterized by:

- are executed upon request by higher layers and the parameter configuration is based on QoS;
- affects L1, MAC and RLC.

There are three RRC procedures included in this category:

- **Radio Bearer Establishment:** this procedure establishes a new radio bearer. The establishment includes, based on QoS, assignment of RLC parameters, multiplexing priority for the DTCH, ~~CPCH Set assignment~~, 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.
- **Radio Bearer Release:** this procedure releases a radio bearer. The RLC entity for the radio 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.
- **Radio Bearer Reconfiguration:** this procedure reconfigures parameters for a radio bearer (e.g. the signalling link) to reflect a change in QoS. It may include change of RLC parameters, change of multiplexing priority for DTCH/DCCH, ~~CPCH Set assignment~~, 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.

~~~~ Next Modified Section ~~~~

6.2.1.1.5 ~~Radio Bearer Establishment with CPCH Channel Allocation~~Void

~~When the RNC determines the need to assign CPCH UL resources to a UE, the RNC sends an RB Setup message to the UE. Since the CPCH physical parameters are broadcast in the BCCH, the RB Setup message does not include a DPCH part. The Transport Channel information includes the CPCH set (CPCH Set ID#) to which the UE is to be assigned. MAC entities are configured: MAC D and MAC C/SH in the UE, MAC C/SH in the CRNC, and MAC D in the SRNC. Node B MAC controls access to the individual CPCH channels in the CPCH set. However, Node B MAC does not require configuration, since it was configured to control the CPCH set when the CPCH set was initially allocated to that cell. The Node B MAC can function independently of the number of UEs assigned to the CPCH set. Once the RB setup is complete, the UE may access the CPCH when the logical channel for this RB next presents data to send in the uplink direction.~~

~~The message flow diagram for RB establishment for CPCH is similar to the RB establishment without Dedicated Physical Channel (see subclause 6.2.1.1.4).~~

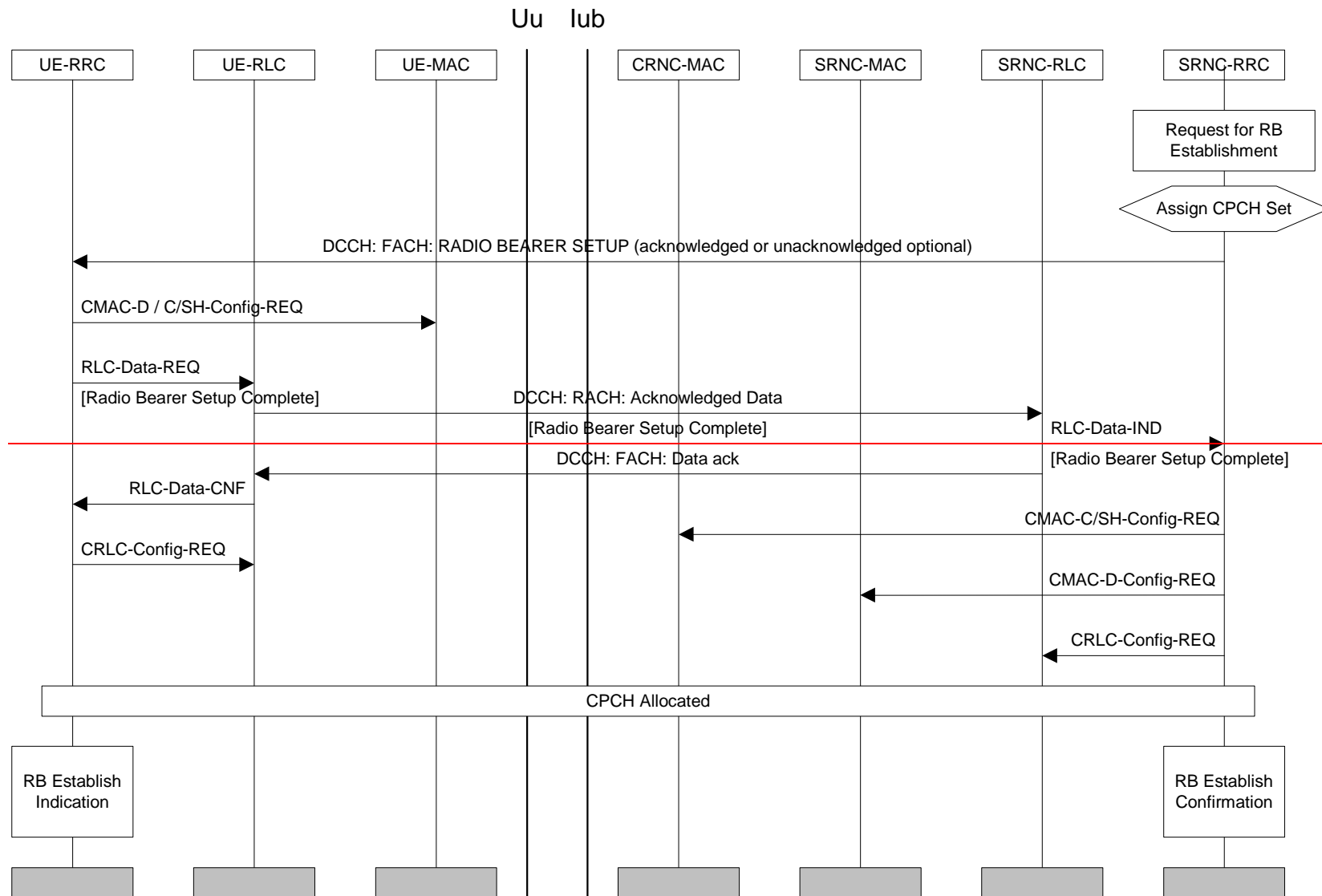


Figure 9: Radio Bearer Establishment with CPCH Channel Allocation

~~~~ Next Modified Section ~~~~

### 6.3.3 Data transmission on CPCHVoid

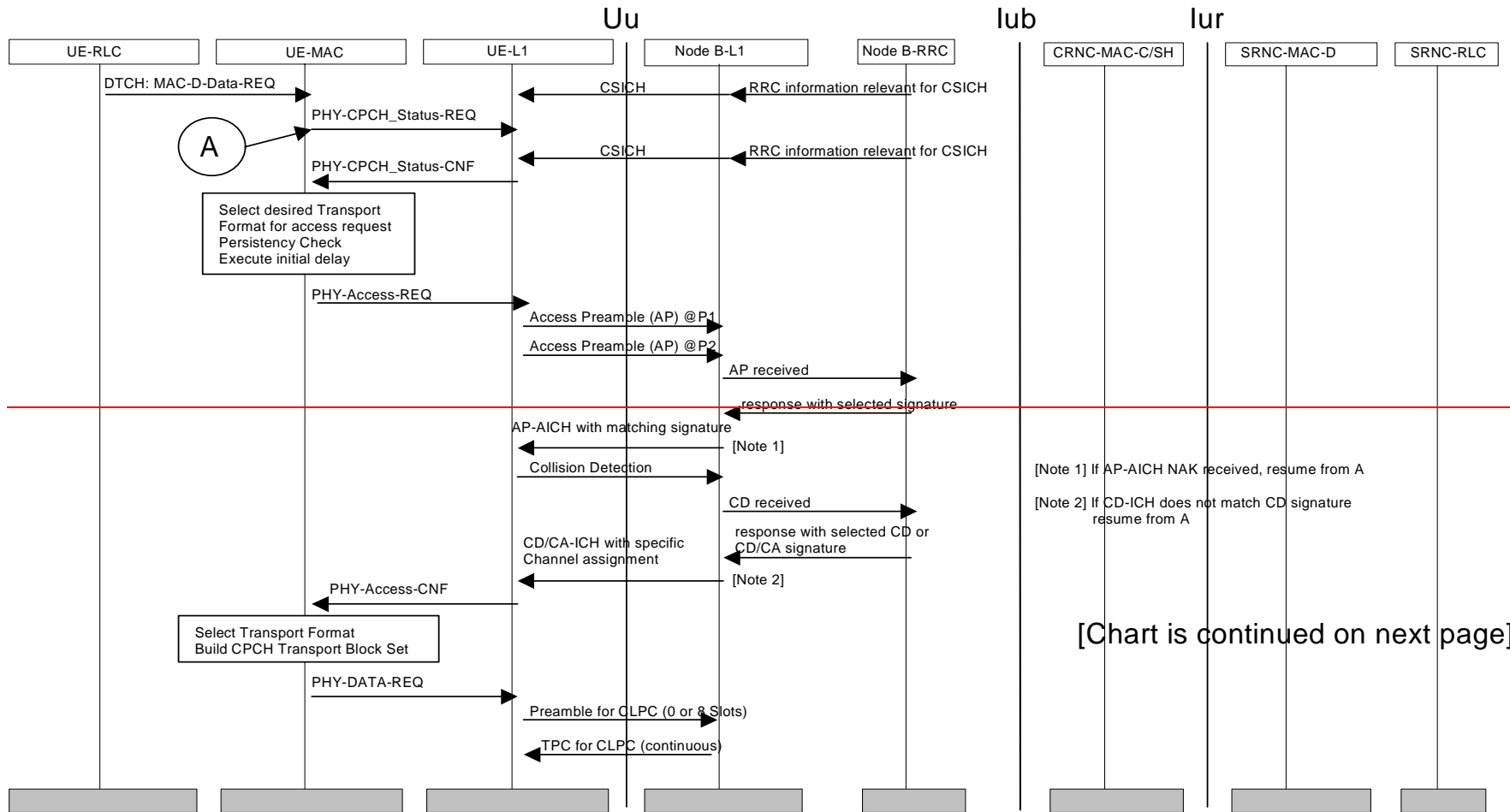


Figure 21: Example of data transmission on CPCH (page 1 of 2)

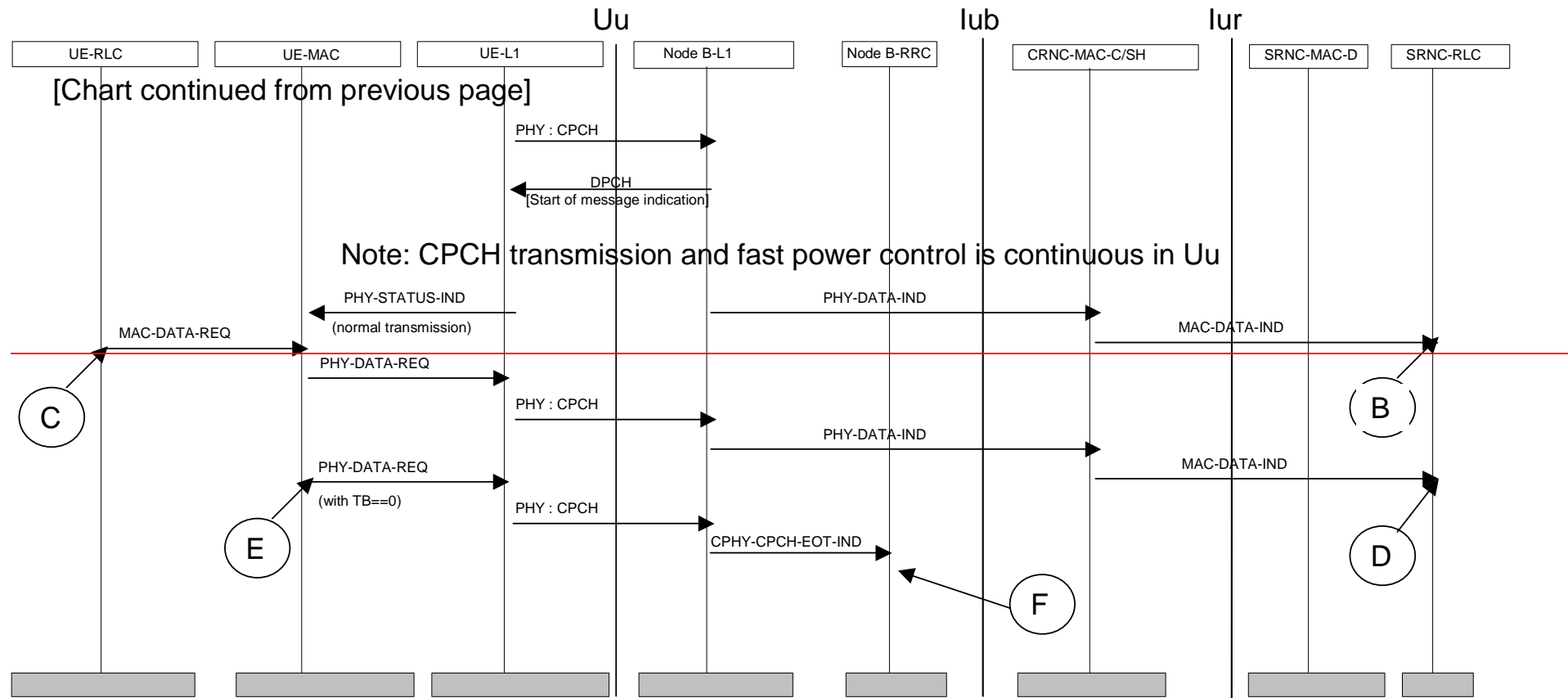


Figure 22: Example of data transmission on CPCH (page 2 of 2)

Figure 21 shows an example of data transmission on CPCH. It is assumed that RLC acknowledged or unacknowledged transmission modes are applied for all logical channels mapped to CPCH.

CPCH transmission is applied in the Connected mode RRC state CELL\_FACH with CPCH resources assigned to the UE. The UE needs to be configured for CPCH transmission via a respective RRC procedure (e.g. with RADIO BEARER SETUP or TRANSPORT CHANNEL RECONFIGURATION messages).

Upon reception of a data transmission request from RLC, MAC first requests CPCH channel status information from the physical layer. It is assumed that CPCH channel status information is broadcast on the CSICH physical channel using the same DL channelisation code as AP\_AICH. The status information provides an indication of the maximum available data rate on PCPCH resources when Channel Assignment (CA) is active. When Channel Assignment is not active, then UE Channel Selection is employed. In this case the status information provides indication of the availability of each defined PCPCH. In either case, the channel status information is converted into a set of transport formats that are allowed to be employed at that given time. Whether channel assignment is active or not shall be indicated via System Information message. Current assumption is that the conversion of CPCH status information into Transport Formats is a L1 internal function.

Based on the permitted transport formats and the data available for transmission, MAC selects a desired transport format for CPCH access request. The MAC CPCH transmission control procedure is started by performing the persistency check based on persistence value received from RRC. When persistence check is passed, the physical CPCH transmission procedure is initiated by sending of a PHY Access REQ primitive. The PCPCH transmission procedure starts with an access preamble power ramping cycle. MAC then waits for status indication from L1 via PHY Status IND primitive. When acquisition of the access preamble is indicated on AP\_AICH the CD preamble is sent on PCPCH. Reception of the CD preamble in Node B is indicated on CD\_ICH to the UE. If Channel Assignment is active, channel assignment information is simultaneously transmitted on CD/CA\_ICH. Layer 1 provides status indication to MAC indicating the CD or CD/CA information. The CA information defines in the UE on L1 the PCPCH to use for the power control preamble and the message part. Then MAC builds the CPCH transport block set to be transmitted via PHY Data REQ with the appropriate Transport Format that may differ from the requested transport format.

After the 0 or 8 slot period for the power control preamble, the first Transport Block Set (first TTI) of the message is transmitted.

While the first transport block is being sent, Node B layer 1 sends the start of message indicator whereby upon the reception of this start of message indicator UE can know if it uses correct CPCH channel or not. If UE does not receive the start of message indicator within certain period, it stops its message transmission immediately. Otherwise, UE continues the transmission.

Data transmission on CPCH is continued until all available data has been sent or until the maximum frame length [NF\_max] is reached. If the UE has no more data to send prior to NF\_max, the UE can notify the UTRAN that no more frames will be transmitted prior to the maximum frame length [NF\_max] on the CPCH by using End of Transmission indication. The acknowledgements from RLC entities in SRNC are routed by the NW MAC to the UE RLC entities using the FACH DL transport channel.

In figure 21, the events between points A and B define the CPCH transmission procedure for the first TTI. In figure 22, events from point C to D describe the CPCH transmission procedure for each subsequent TTI. In figure 22, the events from point E to F describe the stop procedure of CPCH transmission when the UE has no more data to send prior to the maximum frame length [NF\_max]. In this case a stop of CPCH transmission can take place for the release of CPCH transmission prior to NF\_max. The stop of CPCH transmission is indicated by the PHY DATA REQ primitive indicating the 'end of transmission' event by setting zero sized Transport Block as indicated by TFI.

On request from RRC at the network side, for example, for reacting on temporary overload conditions, an emergency stop of CPCH transmission can take place. The emergency stop is indicated by the PHY STATUS IND primitive.

Note also that in the case of transmit power restrictions that are also indicated via PHY STATUS IND primitive, restrictions on Transport Format selections may apply at any time during CPCH transmission.

~~~~ Next Modified Section ~~~~


6.7.4 CPCH Emergency Stop sequence Void

Figure 47 illustrates the CPCH emergency stop procedure. This procedure is invoked by a request from Node B RRC, when Node B detects emergency stop conditions such as temporary overload situation in the cell. CPCH emergency stop is initiated by CPHY-CPCH-Estop-REQ primitive issued from Node B RRC to Node B-L1. Upon the reception of this primitive, Node B-L1 sends CPCH emergency stop command to UE-L1.

Upon the reception of emergency stop command, UE-L1 sends CPHY-CPCH-Estop-IND primitive to UE-RRC indicating the reception of CPCH emergency stop command. Then, UE-RRC replies with CPHY-CPCH-Estop-Resp primitive to command UE-L1 to execute CPCH emergency stop. After UE-L1 stops on-going CPCH transmission, it sends PHY-Status-IND primitive to UE-MAC indicating the completion of CPCH Emergency stop. Meanwhile, when Node B-L1 detects CPCH link loss, it sends CPHY-CPCH-Estop-CNF primitive to Node B RRC. This completes CPCH emergency stop procedure.

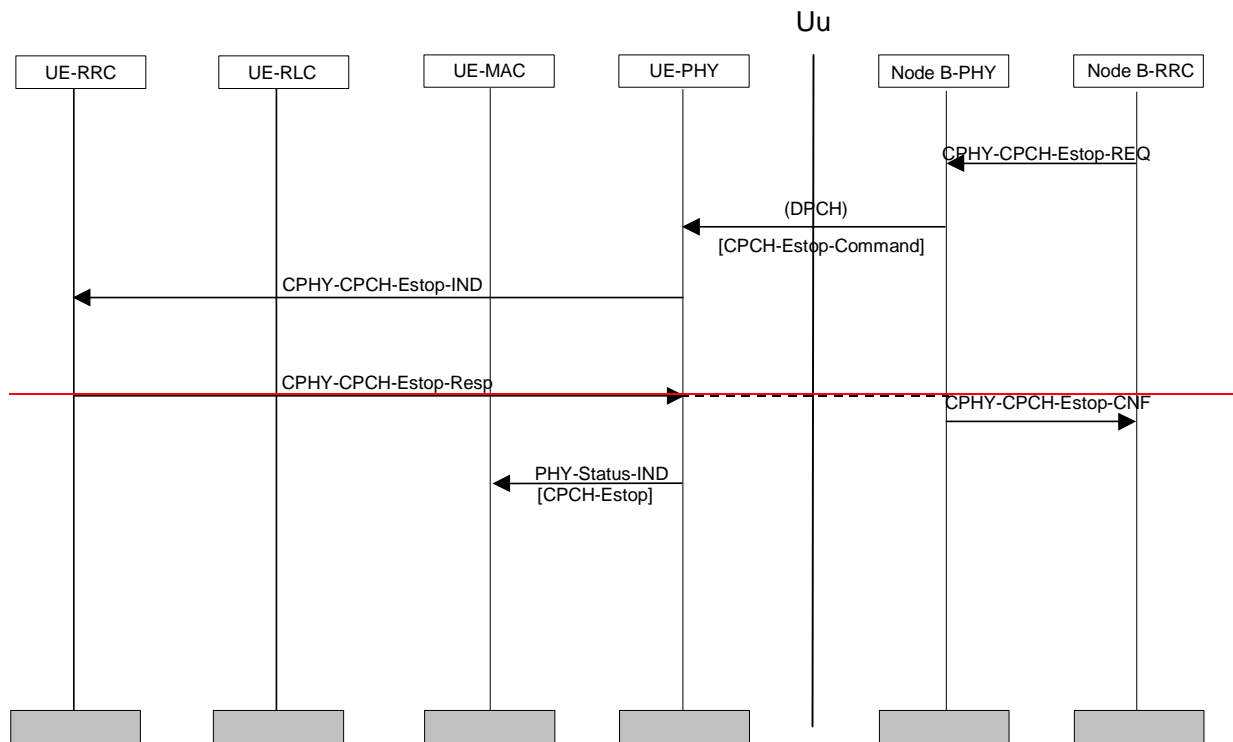


Figure 47: CPCH Emergency Stop Sequence

3GPP TSG RAN WG2 #47
Athens, Greece
09 - 13 May 2005

Tdoc #R2-051622

| |
|---|
| CR-Form-v7.1 |
| <h2 style="margin: 0;">CHANGE REQUEST</h2> |
| # 25.306 CR 0112 # rev - # Current version: 5.10.0 # |

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

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

| | | | |
|------------------------|---|-----------------|---|
| Title: | # Feature Clean Up: Removal of CPCH # | | |
| Source: | # RAN WG2 # | | |
| Work item code: | # TEI5 # | Date: | # 14 April 2005 # |
| Category: | # C # | Release: | # Rel-5 # |
| | Use <u>one</u> of the following categories:
F (correction)
A (corresponds to a correction in an earlier release)
B (addition of feature),
C (functional modification of feature)
D (editorial modification)
Detailed explanations of the above categories can be found in 3GPP TR 21.900 . | | Use <u>one</u> of the following releases:
Ph2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
Rel-4 (Release 4)
Rel-5 (Release 5)
Rel-6 (Release 6)
Rel-7 (Release 7) |

| | | | |
|--------------------------------------|--|--|--|
| Reason for change: | # Decision taken at RAN plenary to remove unnecessary features # | | |
| Summary of change: | # - Remove from Section 4.5.4
- Remove from Section 5.1
- Remove from Section 5.2.2
- Remove from Section 5.2.3 # | | |
| Consequences if not approved: | # RAN decision not carried out. # | | |

| | | | | | | | | | | | |
|------------------------------|--|---|---|---|--|--|---|--|---|---|---|
| Clauses affected: | # 4.5.4, 5.1, 5.2.2, 5.2.3 # | | | | | | | | | | |
| Other specs affected: | <table border="1" style="display: inline-table; vertical-align: middle;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;">X</td> <td style="text-align: center;"> </td> </tr> <tr> <td style="text-align: center;"> </td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;"> </td> <td style="text-align: center;">X</td> </tr> </table> Other core specifications | Y | N | X | | | X | | X | # | 25.301, 25.302, 25.303, 25.321, 25.331. |
| Y | N | | | | | | | | | | |
| X | | | | | | | | | | | |
| | X | | | | | | | | | | |
| | X | | | | | | | | | | |
| Other comments: | # # | | | | | | | | | | |

How to create CRs using this form:

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

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

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

~~~~ Next Modified Section ~~~~

### 4.5.4 FDD physical channel parameters in uplink

Maximum number of DPDCH bits per 10 ms

Defines the maximum number of the DPDCH bits the UE is capable to transmit per 10 ms.

If the reported capability is lower than 9600, the number of DPDCH channel bits indicates the capability of the UE when operating in non-compressed mode; if the reported capability is equal to or greater than 9600 it indicates the maximum capability of the UE considering both compressed and non compressed mode operation.

NOTE 1: This capability combines the 'Max number of DPDCH' and 'Minimum SF' capabilities into one capability. Note that no flexibility is lost due to this, as multiple DPDCH is only used for SF = 4, i.e. when the number of DPDCH bits exceed a certain value.

NOTE 2: Compressed mode by spreading factor reduction is not applicable when operating at spreading factor 4.

#### Support of PCPCH

Defines whether the UE supports PCPCH or not.

~~NOTE 3: When CPCH is supported, then simultaneous DPCCH & SCCPCH reception is needed.~~

~~~~ Next Modified Section ~~~~

5.1 Value ranges

Table 5.1: UE radio access capability parameter value ranges

| | | UE radio access capability parameter | Value range |
|---------------------------|--|---|---|
| PDCP parameters | | Support for RFC 2507 | Yes/No |
| | | Support for RFC 3095 | Yes/No |
| | | Support for RFC 3095 context relocation | Yes/No |
| | | Support for loss-less SRNS relocation | Yes/No |
| | | Support for loss-less DL RLC PDU size change | Yes/No |
| | | Maximum header compression context space | 1024, 2048, 4096, 8192, 16384, 32768, 65536, 131072 bytes |
| | | Maximum number of ROHC context sessions | 2, 4, 8, 12, 16, 24, 32, 48, 64, 128, 256, 512, 1024, 16384 |
| | Support for Reverse Decompression | Not supported, 1..65535 | |
| RLC and MAC-hs parameters | | Total RLC AM and MAC-hs buffer size | 2, 10, 50, 100, 150, 200, 300, 400, 500, 750, 1000 kBytes |
| | | Maximum number of AM entities | 3, 4, 5, 6, 8, 16, 30 |
| | | Maximum RLC AM window size | 2047, 4095 |
| PHY parameters | Transport channel parameters in downlink | Maximum sum of number of bits of all transport blocks being received at an arbitrary time instant | 640, 1280, 2560, 3840, 5120, 6400, 7680, 8960, 10240, 20480, 40960, 81920, 163840 |
| | | Maximum sum of number of bits of all convolutionally coded transport blocks being received at an arbitrary time instant | 640, 1280, 2560, 3840, 5120, 6400, 7680, 8960, 10240, 20480, 40960, 81920, 163840 |
| | | Maximum sum of number of bits of all turbo coded transport blocks being received at an arbitrary time instant | 640, 1280, 2560, 3840, 5120, 6400, 7680, 8960, 10240, 20480, 40960, 81920, 163840 |

| | | UE radio access capability parameter | Value range |
|---|---|--|---|
| | | Maximum number of simultaneous transport channels | 4, 8, 16, 32 |
| | | Maximum number of simultaneous CCTrCH | 1, 2, 3, 4, 5, 6, 7, 8 |
| | | Maximum total number of transport blocks received within TTIs that end within the same 10 ms interval | 4, 8, 16, 32, 48, 64, 96, 128, 256, 512 |
| | | Maximum number of TFC | 16, 32, 48, 64, 96, 128, 256, 512, 1024 |
| | | Maximum number of TF | 32, 64, 128, 256, 512, 1024 |
| | | Support for turbo decoding | Yes/No |
| | Transport channel parameters in uplink | Maximum sum of number of bits of all transport blocks being transmitted at an arbitrary time instant | 640, 1280, 2560, 3840, 5120, 6400, 7680, 8960, 10240, 20480, 40960, 81920, 163840 |
| | | Maximum sum of number of bits of all convolutionally coded transport blocks being transmitted at an arbitrary time instant | 640, 1280, 2560, 3840, 5120, 6400, 7680, 8960, 10240, 20480, 40960, 81920, 163840 |
| | | Maximum sum of number of bits of all turbo coded transport blocks being transmitted at an arbitrary time instant | 640, 1280, 2560, 3840, 5120, 6400, 7680, 8960, 10240, 20480, 40960, 81920, 163840 |
| | | Maximum number of simultaneous transport channels | 2, 4, 8, 16, 32 |
| | | Maximum number of simultaneous CCTrCH of DCH type (TDD only) | 1, 2, 3, 4, 5, 6, 7, 8 |
| | | Maximum total number of transport blocks transmitted within TTIs that start at the same time | 2, 4, 8, 16, 32, 48, 64, 96, 128, 256, 512 |
| | | Maximum number of TFC | 4, 8, 16, 32, 48, 64, 96, 128, 256, 512, 1024 |
| | | Maximum number of TF | 32, 64, 128, 256, 512, 1024 |
| Support for turbo encoding | | Yes/No | |
| FDD Physical channel parameters in downlink | | Maximum number of DPCH/PDSCH codes to be simultaneously received | 1, 2, 3, 4, 5, 6, 7, 8 |
| | Maximum number of physical channel bits received in any 10 ms interval (DPCH, PDSCH, S-CCPCH) | 600, 1200, 2400, 3600, 4800, 7200, 9600, 14400, 19200, 28800, 38400, 48000, 57600, 67200, 76800 | |
| | Support for SF 512 | Yes/No | |
| | Support of PDSCH | Yes/No | |
| | Support of HS-PDSCH | Yes/No | |
| | Simultaneous reception of SCCPCH and DPCH | Yes/No | |
| | Simultaneous reception of SCCPCH, DPCH and PDSCH | Yes/No | |
| | Simultaneous reception of SCCPCH, DPCH and HS-PDSCH | Yes/No | |
| | Maximum number of simultaneous S-CCPCH radio links | 1
NOTE: Only the value 1 is part of this release of the specification | |
| | Support of dedicated pilots for channel estimation | Yes | |
| | Support of dedicated pilots for channel estimation of HS-DSCH | Yes/No | |
| | FDD Physical channel parameters in uplink | Maximum number of DPDCH bits transmitted per 10 ms | 600, 1200, 2400, 4800, 9600, 19200, 28800, 38400, 48000, 57600 |
| | | Support of PCPCH | Yes/No |
| | TDD 3.84 Mcps physical channel parameters in downlink | Maximum number of timeslots per frame | 1..14 |
| | | Maximum number of physical channels per frame | 1, 2, 3..224 |
| | | Minimum SF | 16, 1 |
| | | Support of PDSCH | Yes/No |
| | | Support of HS-PDSCH | Yes/No |

| | | UE radio access capability parameter | Value range |
|-----------------------------------|---|---|--|
| | TDD 3.84 Mcps physical channel parameters in uplink | Maximum number of physical channels per timeslot | 1..16 |
| | | Maximum Number of timeslots per frame | 1..14 |
| | | Maximum number of physical channels per timeslot | 1, 2 |
| | | Minimum SF | 16, 8, 4, 2, 1 |
| | | Support of PUSCH | Yes/No |
| | TDD 1.28 Mcps physical channel parameters in downlink | Maximum number of timeslots per subframe | 1..6 |
| | | Maximum number of physical channels per subframe | 1, 2, 3, ..., 96 |
| | | Minimum SF | 16, 1 |
| | | Support of PDSCH | Yes/No |
| | | Support of HS-PDSCH | Yes/No |
| | | Maximum number of physical channels per timeslot | 1..16 |
| | | Support 8PSK | Yes/No |
| | TDD 1.28 Mcps physical channel parameters in uplink | Maximum number of timeslots per subframe | 1..6 |
| | | Maximum number of physical channels per timeslot | 1, 2 |
| | | Minimum SF | 16, 8, 4, 2, 1 |
| Support of 8PSK | | Yes/No | |
| Support of PUSCH | | Yes/No | |
| RF parameters | FDD RF parameters | UE power class | 3, 4
NOTE: Only power classes 3 and 4 are part of this release of the specification |
| | | Tx/Rx frequency separation | 190 Mhz
174.8 MHz to 205.2 MHz
134.8 MHz to 245.2 MHz |
| RF parameters | TDD 3.84 Mcps RF parameters | UE power class | 2, 3
NOTE: Only power classes 2 and 3 are part of this release of the specification |
| | | Radio frequency bands | a), b), c), a+b), a+c), b+c), a+b+c) |
| | TDD 1.28 Mcps RF parameters | UE power class | 2, 3 |
| | | Radio frequency bands | a), b), c), a+b), a+c), b+c), a+b+c) |
| Multi-mode related parameters | | Support of UTRA FDD | Yes/No |
| | | Support of UTRA TDD 3.84 Mcps | Yes/No |
| | | Support of UTRA TDD 1.28 Mcps | Yes/No |
| Multi-RAT related parameters | | Support of GSM | Yes/No (per GSM frequency band) |
| | | Support of multi-carrier | Yes/No |
| | | Support of UTRAN to GERAN Network Assisted Cell Change | Yes/No |
| | | | |
| Security parameters | | Support of ciphering algorithm UEA0 | Yes |
| | | Support of ciphering algorithm UEA1 | Yes |
| | | Support of integrity protection algorithm UIA1 | Yes |
| UE positioning related parameters | | Standalone location method(s) supported | Yes/No |
| | | Network assisted GPS support | Network based / UE based / Both/ None |
| | | GPS reference time capable | Yes/No |
| | | Support for IPDL | Yes/No |
| | | Support for OTDOA UE based method | Yes/No |
| | | Support for Rx-Tx time difference type 2 measurement | Yes/No |
| | | Support for UE Positioning assisted GPS measurement validity in CELL_PCH and URA_PCH RRC states | Yes |

| | UE radio access capability parameter | Value range |
|---|---|--|
| | Support for SFN-SFN observed time difference type 2 measurement | Yes/No |
| Measurement related capabilities | Need for downlink compressed mode | Yes/No (per frequency band, UTRA mode and RAT) |
| | Need for uplink compressed mode | Yes/No (per frequency band, UTRA mode and RAT) |
| General capabilities | Access Stratum release indicator | R99, REL-4, REL-5 |
| DL capabilities with simultaneous HS-DSCH | DL capability with simultaneous HS-DSCH configuration | 32 kbps, 64 kbps, 128 kbps, 384 kbps |

~~~~ Next Modified Section ~~~~

## 5.2.2 Combinations of UE Radio Access Parameters for DL

**Table 5.2.2.1: UE radio access capability parameter combinations, DL parameters**

| Reference combination of UE Radio Access capability parameters in DL                                                    | 12 kbps class          | 32 kbps class | 64 kbps class           | 128 kbps class          | 384 kbps class          | 768 kbps class          | 2048 kbps class                |
|-------------------------------------------------------------------------------------------------------------------------|------------------------|---------------|-------------------------|-------------------------|-------------------------|-------------------------|--------------------------------|
| <b>Transport channel parameters</b>                                                                                     |                        |               |                         |                         |                         |                         |                                |
| Maximum sum of number of bits of all transport blocks being received at an arbitrary time instant                       | 640 (FDD)<br>1280(TDD) | 1280          | 3840                    | 3840                    | 6400                    | 10240                   | 20480                          |
| Maximum sum of number of bits of all convolutionally coded transport blocks being received at an arbitrary time instant | 640                    | 640           | 640                     | 640                     | 640                     | 640                     | 640                            |
| Maximum sum of number of bits of all turbo coded transport blocks being received at an arbitrary time instant           | NA (FDD)<br>1280(TDD)  | 1280          | 3840                    | 3840                    | 6400                    | 10240                   | 20480(1)<br>10240(2)<br>NOTE 5 |
| Maximum number of simultaneous transport channels                                                                       | 4                      | 8<br>NOTE 4   | 8<br>NOTE 4             | 8<br>NOTE 4             | 8<br>NOTE 4             | 8<br>NOTE 4             | 16<br>NOTE 4                   |
| Maximum number of simultaneous CCTrCH (FDD)                                                                             | 1                      | 1<br>NOTE 3   | 2/1<br>NOTE 2<br>NOTE 3 | 2/1<br>NOTE 2<br>NOTE 3 | 2/1<br>NOTE 2<br>NOTE 3 | 2/1<br>NOTE 2<br>NOTE 3 | 2/1<br>NOTE 2<br>NOTE 3        |
| Maximum number of simultaneous CCTrCH (TDD)                                                                             | 1<br>NOTE 3            | 2<br>NOTE 3   | 3<br>NOTE 3             | 3<br>NOTE 3             | 3<br>NOTE 3             | 4<br>NOTE 3             | 4<br>NOTE 3                    |
| Maximum total number of transport blocks received within TTIs that end at the same time                                 | 4                      | 8             | 8                       | 16                      | 32                      | 64                      | 96                             |
| Maximum number of TFC                                                                                                   | 16                     | 32            | 48                      | 96                      | 128                     | 256                     | 1024                           |
| Maximum number of TF                                                                                                    | 32                     | 32            | 64                      | 64                      | 64                      | 128                     | 256                            |
| Support for turbo decoding                                                                                              | No (FDD)<br>Yes (TDD)  | Yes           | Yes                     | Yes                     | Yes                     | Yes                     | Yes                            |
| Support for loss-less DL RLC PDU size change                                                                            | No                     | No            | Yes/No                  | Yes/No                  | Yes/No                  | Yes/No                  | Yes/No                         |
| <b>Physical channel parameters (FDD)</b>                                                                                |                        |               |                         |                         |                         |                         |                                |
| Maximum number of DPCH/PDSCH codes to be simultaneously received                                                        | 1                      | 1             | 2/1<br>NOTE 2           | 2/1<br>NOTE 2           | 3                       | 3                       | 3                              |
| Maximum number of physical channel bits received in any 10 ms interval (DPCH, PDSCH, S-CCPCH).                          | 1200                   | 1200          | 3600/2400<br>NOTE2      | 7200/4800<br>NOTE2      | 19200                   | 28800                   | 57600                          |
| Support for SF 512 for DPCH<br>NOTE 6                                                                                   | No                     | No            | No                      | No                      | No                      | No                      | No                             |

| Reference combination of UE Radio Access capability parameters in DL | 12 kbps class           | 32 kbps class           | 64 kbps class           | 128 kbps class          | 384 kbps class          | 768 kbps class          | 2048 kbps class         |
|----------------------------------------------------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| Support of PDSCH                                                     | No                      | No                      | Yes/No<br>NOTE 1        | Yes/No<br>NOTE 1        | Yes/No<br>NOTE 1        | Yes/No<br>NOTE 1        | Yes/No<br>NOTE 1        |
| Support of HS-PDSCH                                                  | No                      | No                      | Yes/No<br>NOTE 1        | Yes/No<br>NOTE 1        | Yes/No<br>NOTE 1        | Yes/No<br>NOTE 1        | Yes/No<br>NOTE 1        |
| Maximum number of simultaneous S-CCPCH radio links                   | 1                       | 1                       | 1                       | 1                       | 1                       | 1                       | 1                       |
| Support of dedicated pilots for channel estimation                   | Yes<br>NOTE 1<br>NOTE 7 | Yes<br>NOTE 1<br>NOTE 7 | Yes<br>NOTE 1<br>NOTE 7 | Yes<br>NOTE 1<br>NOTE 7 | Yes<br>NOTE 1<br>NOTE 7 | Yes<br>NOTE 1<br>NOTE 7 | Yes<br>NOTE 1<br>NOTE 7 |
| Support of dedicated pilots for channel estimation of HS-DSCH        | Yes/No<br>NOTE 1        | Yes/No<br>NOTE 1        | Yes/No<br>NOTE 1        | Yes/No<br>NOTE 1        | Yes/No<br>NOTE 1        | Yes/No<br>NOTE 1        | Yes/No<br>NOTE 1        |
| <b>Physical channel parameters (TDD 3.84 Mcps)</b>                   |                         |                         |                         |                         |                         |                         |                         |
| Maximum number of timeslots per frame                                | 1                       | 1                       | 2                       | 4                       | 5                       | 10                      | 12                      |
| Maximum number of physical channels per frame                        | 5                       | 8                       | 9                       | 14                      | 28                      | 64                      | 136                     |
| Minimum SF                                                           | 16                      | 16                      | 16                      | 16                      | 1/16<br>NOTE 1          | 1/16<br>NOTE 1          | 1/16<br>NOTE 1          |
| Support of PDSCH                                                     | No                      | Yes/No<br>NOTE 1        | Yes                     | Yes                     | Yes                     | Yes                     | Yes                     |
| Support of HS-PDSCH                                                  | No                      | No                      | Yes/No<br>NOTE 1        | Yes/No<br>NOTE 1        | Yes/No<br>NOTE 1        | Yes/No<br>NOTE 1        | Yes/No<br>NOTE 1        |
| Maximum number of physical channels per timeslot                     | 5                       | 8                       | 9                       | 9                       | 9                       | 9                       | 13                      |
| <b>Physical channel parameters (TDD 1.28 Mcps)</b>                   |                         |                         |                         |                         |                         |                         |                         |
| Maximum number of timeslots per subframe                             | 1                       | 1                       | 2                       | 3                       | 4                       | 6                       | 6                       |
| Maximum number of physical channels per subframe                     | 5                       | 8                       | 12                      | 18                      | 43                      | 77                      | 77                      |
| Minimum SF                                                           | 16                      | 16                      | 16                      | 16                      | 1/16<br>NOTE 1          | 1/16<br>NOTE 1          | 1                       |
| Support of PDSCH                                                     | No                      | Yes/No<br>NOTE 1        | Yes                     | Yes                     | Yes                     | Yes                     | Yes                     |
| Support of HS-PDSCH                                                  | No                      | No                      | Yes/No<br>NOTE 1        | Yes/No<br>NOTE 1        | Yes/No<br>NOTE 1        | Yes/No<br>NOTE 1        | Yes/No<br>NOTE 1        |
| Maximum number of physical channels per timeslot                     | 5                       | 8                       | 11                      | 14                      | 14                      | 14                      | 14                      |
| Support of 8PSK                                                      | No                      | No                      | No                      | No                      | No                      | No                      | Yes                     |

NOTE 1: Options represent different combinations that should be supported with conformance tests.

NOTE 2: Options depend on the support of PDSCH. The highest value is required if PDSCH is supported.

NOTE 3: The given number does not contain the BCH CCTrCH of the current cell nor of the neighbour cells.

NOTE 4: The given number does not contain the BCH of the neighbour cell.

NOTE 5: (1) For FDD and 3.84 Mcps TDD (2) For 1.28 Mcps TDD.

~~NOTE 6: This UE capability does not relate to the support of CPCH in the uplink for which SF 512 is needed~~

NOTE 7: A UE conforming to this release of the specification shall set the support of channel estimation based on dedicated pilot bits to TRUE.

The reference combinations for HS-DSCH capabilities are shown in tables 5.2.2.2, 5.2.2.3 and 5.2.2.4. These tables are subject to further discussions in TSG-RAN WG1 and TSG-RAN WG2.



**Table 5.2.2.2: FDD UE radio access capability parameter combinations, DL HS-DSCH parameters**

| Reference combination | 1.2 Mbps class | 3.6 Mbps class | 7 Mbps class | 10 Mbps class |
|-----------------------|----------------|----------------|--------------|---------------|
| FDD HS-DSCH category  | Category 1     | Category 5     | Category 7   | Category 9    |

**Table 5.2.2.3: 1.28 Mcps TDD UE radio access capability parameter combinations, DL HS-DSCH parameters**

| Reference combination          | 1.4 Mbps class | 2.0 Mbps class | 2.8 Mbps class |
|--------------------------------|----------------|----------------|----------------|
| 1.28 Mcps TDD HS-DSCH Category | Category 1     | Category 7     | Category 13    |

**Table 5.2.2.4: 3.84 Mcps TDD UE radio access capability parameter combinations, DL HS-DSCH parameters**

| Reference combination          | 1.2 Mbps class | 2.4 Mbps class | 3.6 Mbps class | 7.3 Mbps class | 10.2 Mbps class |
|--------------------------------|----------------|----------------|----------------|----------------|-----------------|
| 3.84 Mcps TDD HS-DSCH category | Category 1     | Category 3     | Category 5     | Category 8     | Category 9      |

### 5.2.3 Combinations of UE Radio Access Parameters for UL

**Table 5.2.3.1: UE radio access capability parameter combinations, UL parameters**

| Reference combination of UE Radio Access capability parameters in UL                                                       | 12 kbps class    | 32 kbps class          | 64 kbps class    | 128 kbps class   | 384 kbps class   | 768 kbps class   |
|----------------------------------------------------------------------------------------------------------------------------|------------------|------------------------|------------------|------------------|------------------|------------------|
| <b>Transport channel parameters</b>                                                                                        |                  |                        |                  |                  |                  |                  |
| Maximum sum of number of bits of all transport blocks being transmitted at an arbitrary time instant                       | 640              | 640(FDD)<br>1280 (TDD) | 3840             | 3840             | 6400             | 10240            |
| Maximum sum of number of bits of all convolutionally coded transport blocks being transmitted at an arbitrary time instant | 640              | 640                    | 640              | 640              | 640              | 640              |
| Maximum sum of number of bits of all turbo coded transport blocks being transmitted at an arbitrary time instant           | NA               | NA(FDD)<br>1280 (TDD)  | 3840             | 3840             | 6400             | 10240            |
| Maximum number of simultaneous transport channels                                                                          | 4                | 4                      | 8                | 8                | 8                | 8                |
| Maximum number of simultaneous CCTrCH(TDD only)                                                                            | 1<br>NOTE 3      | 1<br>NOTE 3            | 2<br>NOTE 3      | 2<br>NOTE 3      | 2<br>NOTE 3      | 2<br>NOTE 3      |
| Maximum total number of transport blocks transmitted within TTIs that start at the same time                               | 4                | 4                      | 8                | 8                | 16               | 32               |
| Maximum number of TFC                                                                                                      | 16               | 16                     | 32               | 48               | 64               | 128              |
| Maximum number of TF                                                                                                       | 32               | 32                     | 32               | 32               | 32               | 64               |
| Support for turbo encoding                                                                                                 | No               | No (FDD)<br>Yes (TDD)  | Yes              | Yes              | Yes              | Yes              |
| <b>Physical channel parameters (FDD)</b>                                                                                   |                  |                        |                  |                  |                  |                  |
| Maximum number of DPDCH bits transmitted per 10 ms                                                                         | 600              | 1200                   | 2400             | 4800             | 9600             | 19200            |
| Simultaneous reception of SCCPCH and DPCH<br>NOTE 2                                                                        | No               | No                     | No               | Yes/No<br>NOTE 1 | Yes/No<br>NOTE 1 | Yes/No<br>NOTE 1 |
| Simultaneous reception of SCCPCH, DPCH and PDSCH<br>NOTE 2                                                                 | No               | No                     | No               | No               | No               | No               |
| Simultaneous reception of SCCPCH, DPCH and HS-PDSCH<br>NOTE 2                                                              | No               | No                     | No               | No               | No               | No               |
| Support of PCPCH<br>NOTE 4                                                                                                 | Yes/No<br>NOTE 4 | Yes/No<br>NOTE 4       | Yes/No<br>NOTE 4 | Yes/No<br>NOTE 4 | Yes/No<br>NOTE 4 | Yes/No<br>NOTE 4 |
| <b>Physical channel parameters (TDD 3.84 Mcps)</b>                                                                         |                  |                        |                  |                  |                  |                  |

| Reference combination of UE Radio Access capability parameters in UL | 12 kbps class | 32 kbps class    | 64 kbps class | 128 kbps class | 384 kbps class | 768 kbps class |
|----------------------------------------------------------------------|---------------|------------------|---------------|----------------|----------------|----------------|
| Maximum Number of timeslots per frame                                | 1             | 1                | 2             | 3              | 7              | 9              |
| Maximum number of physical channels per timeslot                     | 1             | 1                | 1             | 1              | 1              | 2              |
| Minimum SF                                                           | 8             | 4                | 2             | 2              | 2              | 2              |
| Support of PUSCH                                                     | No            | Yes/No<br>NOTE 1 | Yes           | Yes            | Yes            | Yes            |
| <b>Physical channel parameters (TDD 1.28 Mcps)</b>                   |               |                  |               |                |                |                |
| Maximum Number of timeslots per subframe                             | 1             | 1                | 2             | 3              | 5              | 5              |
| Maximum number of physical channels per timeslot                     | 1             | 1                | 1             | 1              | 1              | 2              |
| Minimum SF                                                           | 8             | 4                | 2             | 2              | 2              | 2              |
| Support of PUSCH                                                     | No            | Yes/No<br>NOTE 1 | Yes           | Yes            | Yes            | Yes            |
| Support of 8PSK                                                      | No            | No               | No            | No             | No             | No             |

NOTE 1: Options represent different combinations that should be supported with conformance tests.

NOTE 2: The downlink parameters 'Simultaneous reception of SCCPCH and DPCH' and 'Simultaneous reception of SCCPCH, DPCH and PDSCH' are included in the combinations for uplink as their requirements relate to the uplink data rate. Simultaneous reception of SCCPCH and DPCH is required for the DRAC procedure that is intended for controlling uplink transmissions. In this release of the specification, this is limited to 1 SCCPCH.

NOTE 3: This number does not contain the RACH CCTrCH.

~~NOTE 4: Support of PCPCH means that the UE supports PCPCH access for both the CA not active case and for the CA active case.~~

**3GPP TSG RAN WG2 #47**  
**Athens, Greece**  
**09 - 13 May 2005**

**Tdoc #R2-051623**

|                                                                          |
|--------------------------------------------------------------------------|
| CR-Form-v7.1                                                             |
| <h2 style="margin: 0;">CHANGE REQUEST</h2>                               |
| # <b>25.306 CR 0113</b> # rev <b>-</b> # Current version: <b>6.4.1</b> # |

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

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

|                        |                                                                                                                                                                                                                                                                                                                                                                 |                 |                                                                                                                                                                                                                                                                                                           |
|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Title:</b>          | # Feature Clean Up: Removal of CPCH                                                                                                                                                                                                                                                                                                                             |                 |                                                                                                                                                                                                                                                                                                           |
| <b>Source:</b>         | # RAN WG2                                                                                                                                                                                                                                                                                                                                                       |                 |                                                                                                                                                                                                                                                                                                           |
| <b>Work item code:</b> | # TEI5                                                                                                                                                                                                                                                                                                                                                          | <b>Date:</b>    | # 14 April 2005                                                                                                                                                                                                                                                                                           |
| <b>Category:</b>       | # <b>C</b>                                                                                                                                                                                                                                                                                                                                                      | <b>Release:</b> | # Rel-6                                                                                                                                                                                                                                                                                                   |
|                        | Use <u>one</u> of the following categories:<br><b>F</b> (correction)<br><b>A</b> (corresponds to a correction in an earlier release)<br><b>B</b> (addition of feature),<br><b>C</b> (functional modification of feature)<br><b>D</b> (editorial modification)<br>Detailed explanations of the above categories can be found in 3GPP <a href="#">TR 21.900</a> . |                 | Use <u>one</u> of the following releases:<br><b>Ph2</b> (GSM Phase 2)<br><b>R96</b> (Release 1996)<br><b>R97</b> (Release 1997)<br><b>R98</b> (Release 1998)<br><b>R99</b> (Release 1999)<br><b>Rel-4</b> (Release 4)<br><b>Rel-5</b> (Release 5)<br><b>Rel-6</b> (Release 6)<br><b>Rel-7</b> (Release 7) |

|                                      |                                                                                                                                                                |  |  |
|--------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| <b>Reason for change:</b>            | # Decision taken at RAN plenary to remove unnecessary features                                                                                                 |  |  |
| <b>Summary of change:</b>            | # - Remove from Section 4.5.4<br># - Remove from Section 4.12<br># - Remove from Section 5.1<br># - Remove from Section 5.2.2<br># - Remove from Section 5.2.3 |  |  |
| <b>Consequences if not approved:</b> | # RAN decision not carried out.                                                                                                                                |  |  |

|                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |   |   |   |  |  |   |  |   |   |                                         |
|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|---|--|--|---|--|---|---|-----------------------------------------|
| <b>Clauses affected:</b>     | # 4.5.4, 4.12, 5.1, 5.2.2, 5.2.3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |   |   |   |  |  |   |  |   |   |                                         |
| <b>Other specs affected:</b> | <table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;">X</td> <td style="text-align: center;"></td> </tr> <tr> <td style="text-align: center;"></td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;"></td> <td style="text-align: center;">X</td> </tr> </table> Other core specifications<br>Test specifications<br>O&M Specifications | Y | N | X |  |  | X |  | X | # | 25.301, 25.302, 25.303, 25.321, 25.331. |
| Y                            | N                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |   |   |   |  |  |   |  |   |   |                                         |
| X                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |   |   |   |  |  |   |  |   |   |                                         |
|                              | X                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |   |   |   |  |  |   |  |   |   |                                         |
|                              | X                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |   |   |   |  |  |   |  |   |   |                                         |
| <b>Other comments:</b>       | #                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |   |   |   |  |  |   |  |   |   |                                         |

**How to create CRs using this form:**

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

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

~~~~ Next Modified Section ~~~~

4.5.4 FDD physical channel parameters in uplink

Maximum number of DPDCH bits per 10 ms

Defines the maximum number of the DPDCH bits the UE is capable to transmit per 10 ms.

If the reported capability is lower than 9600, the number of DPDCH channel bits indicates the capability of the UE when operating in non-compressed mode; if the reported capability is equal to or greater than 9600 it indicates the maximum capability of the UE considering both compressed and non compressed mode operation.

NOTE 1: This capability combines the 'Max number of DPDCH' and 'Minimum SF' capabilities into one capability. Note that no flexibility is lost due to this, as multiple DPDCH is only used for SF = 4, i.e. when the number of DPDCH bits exceed a certain value.

NOTE 2: Compressed mode by spreading factor reduction is not applicable when operating at spreading factor 4.

~~Support of PCPCH~~

~~Defines whether the UE supports PCPCH or not.~~

~~NOTE 3: When CPCH is supported, then simultaneous DPCCH & SCCPCH reception is needed.~~

Support of E-DPDCH

Defines whether the UE supports E-DPDCH or not.

Maximum number of E-DCH codes transmitted

Defines the maximum number of E-DCH codes and spreading factors the UE is capable of transmitting. The UE can support 1, 2 or 4 E-DPDCHs using either SF=2 or/and SF=4.

Support of 2ms TTI for E-DCH

Defines whether the UE supports 2ms TTI or not.

~~~~ Next Modified Section ~~~~

## 5.1 Value ranges

**Table 5.1: UE radio access capability parameter value ranges**

|                           |                                                                                                                            | UE radio access capability parameter                                                                                    | Value range                                                                                          |
|---------------------------|----------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|
| PDCP parameters           |                                                                                                                            | Support for RFC 2507                                                                                                    | Yes/No                                                                                               |
|                           |                                                                                                                            | Support for RFC 3095                                                                                                    | Yes/No                                                                                               |
|                           |                                                                                                                            | Support for RFC 3095 context relocation                                                                                 | Yes/No                                                                                               |
|                           |                                                                                                                            | Support for loss-less SRNS relocation                                                                                   | Yes/No                                                                                               |
|                           |                                                                                                                            | Support for loss-less DL RLC PDU size change                                                                            | Yes/No                                                                                               |
|                           |                                                                                                                            | Maximum header compression context space                                                                                | 1024, 2048, 4096, 8192, 16384, 32768, 65536, 131072 bytes                                            |
|                           |                                                                                                                            | Maximum number of ROHC context sessions                                                                                 | 2, 4, 8, 12, 16, 24, 32, 48, 64, 128, 256, 512, 1024, 16384                                          |
|                           |                                                                                                                            | Support for Reverse Decompression                                                                                       | Not supported, 1..65535                                                                              |
| RLC and MAC-hs parameters |                                                                                                                            | Total RLC AM and MAC-hs buffer size                                                                                     | 2, 10, 50, 100, 150, 200, 300, 400, 500, 750, 1000 kBytes                                            |
|                           |                                                                                                                            | Maximum number of AM entities                                                                                           | 3, 4, 5, 6, 8, 16, 30                                                                                |
|                           |                                                                                                                            | Maximum RLC AM window size                                                                                              | 2047, 4095                                                                                           |
| PHY parameters            | Transport channel parameters in downlink                                                                                   | Maximum sum of number of bits of all transport blocks being received at an arbitrary time instant                       | 640, 1280, 2560, 3840, 5120, 6400, 7680, 8960, 10240, 20480, 40960, 81920, 163840                    |
|                           |                                                                                                                            | Maximum sum of number of bits of all convolutionally coded transport blocks being received at an arbitrary time instant | 640, 1280, 2560, 3840, 5120, 6400, 7680, 8960, 10240, 20480, 40960, 81920, 163840                    |
|                           |                                                                                                                            | Maximum sum of number of bits of all turbo coded transport blocks being received at an arbitrary time instant           | 640, 1280, 2560, 3840, 5120, 6400, 7680, 8960, 10240, 20480, 40960, 81920, 163840                    |
|                           |                                                                                                                            | Maximum number of simultaneous transport channels                                                                       | 4, 8, 16, 32                                                                                         |
|                           |                                                                                                                            | Maximum number of simultaneous CCTrCH                                                                                   | 1, 2, 3, 4, 5, 6, 7, 8                                                                               |
|                           |                                                                                                                            | Maximum total number of transport blocks received within TTIs that end within the same 10 ms interval                   | 4, 8, 16, 32, 48, 64, 96, 128, 256, 512                                                              |
|                           |                                                                                                                            | Maximum number of TFC                                                                                                   | 16, 32, 48, 64, 96, 128, 256, 512, 1024                                                              |
|                           |                                                                                                                            | Maximum number of TF                                                                                                    | 32, 64, 128, 256, 512, 1024                                                                          |
|                           |                                                                                                                            | Support for turbo decoding                                                                                              | Yes/No                                                                                               |
|                           |                                                                                                                            | Transport channel parameters in uplink                                                                                  | Maximum sum of number of bits of all transport blocks being transmitted at an arbitrary time instant |
|                           | Maximum sum of number of bits of all convolutionally coded transport blocks being transmitted at an arbitrary time instant |                                                                                                                         | 640, 1280, 2560, 3840, 5120, 6400, 7680, 8960, 10240, 20480, 40960, 81920, 163840                    |
|                           | Maximum sum of number of bits of all turbo coded transport blocks being transmitted at an arbitrary time instant           |                                                                                                                         | 640, 1280, 2560, 3840, 5120, 6400, 7680, 8960, 10240, 20480, 40960, 81920, 163840                    |
|                           | Maximum number of simultaneous transport channels                                                                          |                                                                                                                         | 2, 4, 8, 16, 32                                                                                      |
|                           | Maximum number of simultaneous CCTrCH of DCH type (TDD only)                                                               |                                                                                                                         | 1, 2, 3, 4, 5, 6, 7, 8                                                                               |
|                           | Maximum total number of transport blocks transmitted within TTIs that start at the same time                               |                                                                                                                         | 2, 4, 8, 16, 32, 48, 64, 96, 128, 256, 512                                                           |
|                           | Maximum number of TFC                                                                                                      |                                                                                                                         | 4, 8, 16, 32, 48, 64, 96, 128, 256, 512, 1024                                                        |
|                           | Maximum number of TF                                                                                                       |                                                                                                                         | 32, 64, 128, 256, 512, 1024                                                                          |
|                           | Support for turbo encoding                                                                                                 |                                                                                                                         | Yes/No                                                                                               |

|                                                       |                                                               | UE radio access capability parameter                                                          | Value range                                                                                     |
|-------------------------------------------------------|---------------------------------------------------------------|-----------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|
|                                                       | FDD Physical channel parameters in downlink                   | Maximum number of DPCH/PDSCH codes to be simultaneously received                              | 1, 2, 3, 4, 5, 6, 7, 8                                                                          |
|                                                       |                                                               | Maximum number of physical channel bits received in any 10 ms interval (DPCH, PDSCH, S-CCPCH) | 600, 1200, 2400, 3600, 4800, 7200, 9600, 14400, 19200, 28800, 38400, 48000, 57600, 67200, 76800 |
|                                                       |                                                               | Support for SF 512                                                                            | Yes/No                                                                                          |
|                                                       |                                                               | Support of PDSCH                                                                              | Yes/No                                                                                          |
|                                                       |                                                               | Support of HS-PDSCH                                                                           | Yes/No                                                                                          |
|                                                       |                                                               | Simultaneous reception of SCCPCH and DPCH                                                     | Yes/No                                                                                          |
|                                                       |                                                               | Simultaneous reception of SCCPCH, DPCH and PDSCH                                              | Yes/No                                                                                          |
|                                                       |                                                               | Simultaneous reception of SCCPCH, DPCH and HS-PDSCH                                           | Yes/No                                                                                          |
|                                                       |                                                               | Maximum number of simultaneous S-CCPCH radio links                                            | 1<br>NOTE: Only the value 1 is part of this release of the specification                        |
|                                                       |                                                               | Support of dedicated pilots for channel estimation                                            | Yes                                                                                             |
|                                                       | Support of dedicated pilots for channel estimation of HS-DSCH | Yes/No                                                                                        |                                                                                                 |
|                                                       | FDD Physical channel parameters in uplink                     | Maximum number of DPDCH bits transmitted per 10 ms                                            | 600, 1200, 2400, 4800, 9600, 19200, 28800, 38400, 48000, 57600                                  |
|                                                       |                                                               | <del>Support of PCPCH</del>                                                                   | <del>Yes/No</del>                                                                               |
|                                                       |                                                               | Support of E-DPDCH                                                                            | Yes/No                                                                                          |
| TDD 3.84 Mcps physical channel parameters in downlink | Maximum number of timeslots per frame                         | 1..14                                                                                         |                                                                                                 |
|                                                       | Maximum number of physical channels per frame                 | 1, 2, 3..224                                                                                  |                                                                                                 |
|                                                       | Minimum SF                                                    | 16, 1                                                                                         |                                                                                                 |
|                                                       | Support of PDSCH                                              | Yes/No                                                                                        |                                                                                                 |
|                                                       | Support of HS-PDSCH                                           | Yes/No                                                                                        |                                                                                                 |
|                                                       | Maximum number of physical channels per timeslot              | 1..16                                                                                         |                                                                                                 |
| TDD 3.84 Mcps physical channel parameters in uplink   | Maximum Number of timeslots per frame                         | 1..14                                                                                         |                                                                                                 |
|                                                       | Maximum number of physical channels per timeslot              | 1, 2                                                                                          |                                                                                                 |
|                                                       | Minimum SF                                                    | 16, 8, 4, 2, 1                                                                                |                                                                                                 |
|                                                       | Support of PUSCH                                              | Yes/No                                                                                        |                                                                                                 |
| TDD 1.28 Mcps physical channel parameters in downlink | Maximum number of timeslots per subframe                      | 1..6                                                                                          |                                                                                                 |
|                                                       | Maximum number of physical channels per subframe              | 1, 2, 3, ..., 96                                                                              |                                                                                                 |
|                                                       | Minimum SF                                                    | 16, 1                                                                                         |                                                                                                 |
|                                                       | Support of PDSCH                                              | Yes/No                                                                                        |                                                                                                 |
|                                                       | Support of HS-PDSCH                                           | Yes/No                                                                                        |                                                                                                 |
|                                                       | Maximum number of physical channels per timeslot              | 1..16                                                                                         |                                                                                                 |
| TDD 1.28 Mcps physical channel parameters in uplink   | Support 8PSK                                                  | Yes/No                                                                                        |                                                                                                 |
|                                                       | Maximum number of timeslots per subframe                      | 1..6                                                                                          |                                                                                                 |
|                                                       | Maximum number of physical channels per timeslot              | 1, 2                                                                                          |                                                                                                 |
|                                                       | Minimum SF                                                    | 16, 8, 4, 2, 1                                                                                |                                                                                                 |
|                                                       | Support of 8PSK                                               | Yes/No                                                                                        |                                                                                                 |
| RF parameters                                         | FDD RF parameters                                             | UE power class                                                                                | 3, 4<br>NOTE: Only power classes 3 and 4 are part of this release of the specification          |
|                                                       |                                                               | Tx/Rx frequency separation                                                                    | 190 Mhz<br>174.8 MHz to 205.2 MHz<br>134.8 MHz to 245.2 MHz                                     |

|                                           |                             | UE radio access capability parameter                                                            | Value range                                                                            |
|-------------------------------------------|-----------------------------|-------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| RF parameters                             | TDD 3.84 Mcps RF parameters | UE power class                                                                                  | 2, 3<br>NOTE: Only power classes 2 and 3 are part of this release of the specification |
|                                           |                             | Radio frequency bands                                                                           | a), b), c), a+b), a+c), b+c), a+b+c)                                                   |
|                                           | TDD 1.28 Mcps RF parameters | UE power class                                                                                  | 2, 3                                                                                   |
|                                           |                             | Radio frequency bands                                                                           | a), b), c), a+b), a+c), b+c), a+b+c)                                                   |
| Multi-mode related parameters             |                             | Support of UTRA FDD                                                                             | Yes/No                                                                                 |
|                                           |                             | Support of UTRA TDD 3.84 Mcps                                                                   | Yes/No                                                                                 |
|                                           |                             | Support of UTRA TDD 1.28 Mcps                                                                   | Yes/No                                                                                 |
| Multi-RAT related parameters              |                             | Support of GSM                                                                                  | Yes/No (per GSM frequency band)                                                        |
|                                           |                             | Support of multi-carrier                                                                        | Yes/No                                                                                 |
|                                           |                             | Support of UTRAN to GERAN Network Assisted Cell Change                                          | Yes/No                                                                                 |
| Security parameters                       |                             | Support of ciphering algorithm UEA0                                                             | Yes                                                                                    |
|                                           |                             | Support of ciphering algorithm UEA1                                                             | Yes                                                                                    |
|                                           |                             | Support of integrity protection algorithm UIA1                                                  | Yes                                                                                    |
| UE positioning related parameters         |                             | Standalone location method(s) supported                                                         | Yes/No                                                                                 |
|                                           |                             | Network assisted GPS support                                                                    | Network based / UE based / Both / None                                                 |
|                                           |                             | GPS reference time capable                                                                      | Yes/No                                                                                 |
|                                           |                             | Support for IPDL                                                                                | Yes/No                                                                                 |
|                                           |                             | Support for OTDOA UE based method                                                               | Yes/No                                                                                 |
|                                           |                             | Support for Rx-Tx time difference type 2 measurement                                            | Yes/No                                                                                 |
|                                           |                             | Support for UE Positioning assisted GPS measurement validity in CELL_PCH and URA_PCH RRC states | Yes                                                                                    |
| Measurement related capabilities          |                             | Need for downlink compressed mode                                                               | Yes/No (per frequency band, UTRA mode and RAT)                                         |
|                                           |                             | Need for uplink compressed mode                                                                 | Yes/No (per frequency band, UTRA mode and RAT)                                         |
| General capabilities                      |                             | Access Stratum release indicator                                                                | R99, REL-4, REL-5                                                                      |
| DL capabilities with simultaneous HS-DSCH |                             | DL capability with simultaneous HS-DSCH configuration                                           | 32 kbps, 64 kbps, 128 kbps, 384 kbps                                                   |
| UL capabilities with simultaneous E-DCH   |                             | UL capabilities with simultaneous E-DCH                                                         | 64 kbps                                                                                |

~~~~ Next Modified Section ~~~~

5.2.2 Combinations of UE Radio Access Parameters for DL

Table 5.2.2.1: UE radio access capability parameter combinations, DL parameters

| Reference combination of UE Radio Access capability parameters in DL | 12 kbps class | 32 kbps class | 64 kbps class | 128 kbps class | 384 kbps class | 768 kbps class | 2048 kbps class |
|---|------------------------|---------------|---------------|----------------|----------------|----------------|-----------------|
| Transport channel parameters | | | | | | | |
| Maximum sum of number of bits of all transport blocks being received at an arbitrary time instant | 640 (FDD)
1280(TDD) | 1280 | 3840 | 3840 | 6400 | 10240 | 20480 |
| Maximum sum of number of bits of all convolutionally coded transport blocks being received at an arbitrary time instant | 640 | 640 | 640 | 640 | 640 | 640 | 640 |

| Reference combination of UE Radio Access capability parameters in DL | 12 kbps class | 32 kbps class | 64 kbps class | 128 kbps class | 384 kbps class | 768 kbps class | 2048 kbps class |
|---|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|--------------------------------|
| Maximum sum of number of bits of all turbo coded transport blocks being received at an arbitrary time instant | NA (FDD)
1280(TDD) | 1280 | 3840 | 3840 | 6400 | 10240 | 20480(1)
10240(2)
NOTE 5 |
| Maximum number of simultaneous transport channels | 4 | 8
NOTE 4 | 8
NOTE 4 | 8
NOTE 4 | 8
NOTE 4 | 8
NOTE 4 | 16
NOTE 4 |
| Maximum number of simultaneous CCTrCH (FDD) | 1 | 1
NOTE 3 | 2/1
NOTE 2
NOTE 3 | 2/1
NOTE 2
NOTE 3 | 2/1
NOTE 2
NOTE 3 | 2/1
NOTE 2
NOTE 3 | 2/1
NOTE 2
NOTE 3 |
| Maximum number of simultaneous CCTrCH (TDD) | 1
NOTE 3 | 2
NOTE 3 | 3
NOTE 3 | 3
NOTE 3 | 3
NOTE 3 | 4
NOTE 3 | 4
NOTE 3 |
| Maximum total number of transport blocks received within TTIs that end at the same time | 4 | 8 | 8 | 16 | 32 | 64 | 96 |
| Maximum number of TFC | 16 | 32 | 48 | 96 | 128 | 256 | 1024 |
| Maximum number of TF | 32 | 32 | 64 | 64 | 64 | 128 | 256 |
| Support for turbo decoding | No (FDD)
Yes (TDD) | Yes | Yes | Yes | Yes | Yes | Yes |
| Support for loss-less DL RLC PDU size change | No | No | Yes/No | Yes/No | Yes/No | Yes/No | Yes/No |
| Physical channel parameters (FDD) | | | | | | | |
| Maximum number of DPCH/PDSCH codes to be simultaneously received | 1 | 1 | 2/1
NOTE 2 | 2/1
NOTE 2 | 3 | 3 | 3 |
| Maximum number of physical channel bits received in any 10 ms interval (DPCH, PDSCH, S-CCPCH). | 1200 | 1200 | 3600/2400
NOTE2 | 7200/4800
NOTE2 | 19200 | 28800 | 57600 |
| Support for SF 512 for DPCH
NOTE 6 | No | No | No | No | No | No | No |
| Support of PDSCH | No | No | Yes/No
NOTE 1 | Yes/No
NOTE 1 | Yes/No
NOTE 1 | Yes/No
NOTE 1 | Yes/No
NOTE 1 |
| Support of HS-PDSCH | No | No | Yes/No
NOTE 1 | Yes/No
NOTE 1 | Yes/No
NOTE 1 | Yes/No
NOTE 1 | Yes/No
NOTE 1 |
| Maximum number of simultaneous S-CCPCH radio links | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Support of dedicated pilots for channel estimation | Yes
NOTE 1
NOTE 7 | Yes
NOTE 1
NOTE 7 | Yes
NOTE 1
NOTE 7 | Yes
NOTE 1
NOTE 7 | Yes
NOTE 1
NOTE 7 | Yes
NOTE 1
NOTE 7 | Yes
NOTE 1
NOTE 7 |
| Support of dedicated pilots for channel estimation of HS-DSCH | Yes/No
NOTE 1 | Yes/No
NOTE 1 | Yes/No
NOTE 1 | Yes/No
NOTE 1 | Yes/No
NOTE 1 | Yes/No
NOTE 1 | Yes/No
NOTE 1 |
| Physical channel parameters (TDD 3.84 Mcps) | | | | | | | |
| Maximum number of timeslots per frame | 1 | 1 | 2 | 4 | 5 | 10 | 12 |
| Maximum number of physical channels per frame | 5 | 8 | 9 | 14 | 28 | 64 | 136 |
| Minimum SF | 16 | 16 | 16 | 16 | 1/16
NOTE 1 | 1/16
NOTE 1 | 1/16
NOTE 1 |
| Support of PDSCH | No | Yes/No
NOTE 1 | Yes | Yes | Yes | Yes | Yes |
| Support of HS-PDSCH | No | No | Yes/No
NOTE 1 | Yes/No
NOTE 1 | Yes/No
NOTE 1 | Yes/No
NOTE 1 | Yes/No
NOTE 1 |
| Maximum number of physical channels per timeslot | 5 | 8 | 9 | 9 | 9 | 9 | 13 |
| Physical channel parameters (TDD 1.28 Mcps) | | | | | | | |
| Maximum number of timeslots per subframe | 1 | 1 | 2 | 3 | 4 | 6 | 6 |
| Maximum number of physical channels per subframe | 5 | 8 | 12 | 18 | 43 | 77 | 77 |
| Minimum SF | 16 | 16 | 16 | 16 | 1/16 | 1/16 | 1 |

| Reference combination of UE Radio Access capability parameters in DL | 12 kbps class | 32 kbps class | 64 kbps class | 128 kbps class | 384 kbps class | 768 kbps class | 2048 kbps class |
|--|---------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Support of PDSCH | No | Yes/No
NOTE 1 | Yes | Yes | Yes | Yes | Yes |
| Support of HS-PDSCH | No | No | Yes/No
NOTE 1 | Yes/No
NOTE 1 | Yes/No
NOTE 1 | Yes/No
NOTE 1 | Yes/No
NOTE 1 |
| Maximum number of physical channels per timeslot | 5 | 8 | 11 | 14 | 14 | 14 | 14 |
| Support of 8PSK | No | No | No | No | No | No | Yes |

NOTE 1: Options represent different combinations that should be supported with conformance tests.

NOTE 2: Options depend on the support of PDSCH. The highest value is required if PDSCH is supported.

NOTE 3: The given number does not contain the BCH CCTrCH of the current cell nor of the neighbour cells.

NOTE 4: The given number does not contain the BCH of the neighbour cell.

NOTE 5: (1) For FDD and 3.84 Mcps TDD (2) For 1.28 Mcps TDD.

~~NOTE 6: This UE capability does not relate to the support of CPCH in the uplink for which SF-512 is needed~~

NOTE 7: A UE conforming to this release of the specification shall set the support of channel estimation based on dedicated pilot bits to TRUE.

The reference combinations for HS-DSCH capabilities are shown in tables 5.2.2.2, 5.2.2.3 and 5.2.2.4. These tables are subject to further discussions in TSG-RAN WG1 and TSG-RAN WG2.

~~~~ Next Modified Section ~~~~

## 5.2.3 Combinations of UE Radio Access Parameters for UL

**Table 5.2.3.1: UE radio access capability parameter combinations, UL parameters**

| Reference combination of UE Radio Access capability parameters in UL                                                       | 12 kbps class | 32 kbps class          | 64 kbps class | 128 kbps class | 384 kbps class | 768 kbps class |
|----------------------------------------------------------------------------------------------------------------------------|---------------|------------------------|---------------|----------------|----------------|----------------|
| <b>Transport channel parameters</b>                                                                                        |               |                        |               |                |                |                |
| Maximum sum of number of bits of all transport blocks being transmitted at an arbitrary time instant                       | 640           | 640(FDD)<br>1280 (TDD) | 3840          | 3840           | 6400           | 10240          |
| Maximum sum of number of bits of all convolutionally coded transport blocks being transmitted at an arbitrary time instant | 640           | 640                    | 640           | 640            | 640            | 640            |
| Maximum sum of number of bits of all turbo coded transport blocks being transmitted at an arbitrary time instant           | NA            | NA(FDD)<br>1280 (TDD)  | 3840          | 3840           | 6400           | 10240          |
| Maximum number of simultaneous transport channels                                                                          | 4             | 4                      | 8             | 8              | 8              | 8              |
| Maximum number of simultaneous CCTrCH(TDD only)                                                                            | 1<br>NOTE 3   | 1<br>NOTE 3            | 2<br>NOTE 3   | 2<br>NOTE 3    | 2<br>NOTE 3    | 2<br>NOTE 3    |
| Maximum total number of transport blocks transmitted within TTIs that start at the same time                               | 4             | 4                      | 8             | 8              | 16             | 32             |
| Maximum number of TFC                                                                                                      | 16            | 16                     | 32            | 48             | 64             | 128            |
| Maximum number of TF                                                                                                       | 32            | 32                     | 32            | 32             | 32             | 64             |
| Support for turbo encoding                                                                                                 | No            | No (FDD)<br>Yes (TDD)  | Yes           | Yes            | Yes            | Yes            |
| <b>Physical channel parameters (FDD)</b>                                                                                   |               |                        |               |                |                |                |

| Reference combination of UE Radio Access capability parameters in UL | 12 kbps class                | 32 kbps class                | 64 kbps class                | 128 kbps class               | 384 kbps class               | 768 kbps class               |
|----------------------------------------------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|
| Maximum number of DPDCH bits transmitted per 10 ms                   | 600                          | 1200                         | 2400                         | 4800                         | 9600                         | 19200                        |
| Simultaneous reception of SCCPCH and DPCH<br>NOTE 2                  | No                           | No                           | No                           | Yes/No<br>NOTE 1             | Yes/No<br>NOTE 1             | Yes/No<br>NOTE 1             |
| Simultaneous reception of SCCPCH, DPCH and PDSCH<br>NOTE 2           | No                           | No                           | No                           | No                           | No                           | No                           |
| Simultaneous reception of SCCPCH, DPCH and HS-PDSCH<br>NOTE 2        | No                           | No                           | No                           | No                           | No                           | No                           |
| <del>Support of PCPCH<br/>NOTE 4</del>                               | <del>Yes/No<br/>NOTE 4</del> | <del>Yes/No<br/>NOTE 4</del> | <del>Yes/No<br/>NOTE 4</del> | <del>Yes/No<br/>NOTE 4</del> | <del>Yes/No<br/>NOTE 4</del> | <del>Yes/No<br/>NOTE 4</del> |
| Support of E-DPDCH                                                   | No                           | No                           | Yes/No                       | Yes/No                       | Yes/No                       | Yes/No                       |
| <b>Physical channel parameters (TDD 3.84 Mcps)</b>                   |                              |                              |                              |                              |                              |                              |
| Maximum Number of timeslots per frame                                | 1                            | 1                            | 2                            | 3                            | 7                            | 9                            |
| Maximum number of physical channels per timeslot                     | 1                            | 1                            | 1                            | 1                            | 1                            | 2                            |
| Minimum SF                                                           | 8                            | 4                            | 2                            | 2                            | 2                            | 2                            |
| Support of PUSCH                                                     | No                           | Yes/No<br>NOTE 1             | Yes                          | Yes                          | Yes                          | Yes                          |
| <b>Physical channel parameters (TDD 1.28 Mcps)</b>                   |                              |                              |                              |                              |                              |                              |
| Maximum Number of timeslots per subframe                             | 1                            | 1                            | 2                            | 3                            | 5                            | 5                            |
| Maximum number of physical channels per timeslot                     | 1                            | 1                            | 1                            | 1                            | 1                            | 2                            |
| Minimum SF                                                           | 8                            | 4                            | 2                            | 2                            | 2                            | 2                            |
| Support of PUSCH                                                     | No                           | Yes/No<br>NOTE 1             | Yes                          | Yes                          | Yes                          | Yes                          |
| Support of 8PSK                                                      | No                           | No                           | No                           | No                           | No                           | No                           |

NOTE 1: Options represent different combinations that should be supported with conformance tests.

NOTE 2: The downlink parameters 'Simultaneous reception of SCCPCH and DPCH' and 'Simultaneous reception of SCCPCH, DPCH and PDSCH' are included in the combinations for uplink as their requirements relate to the uplink data rate. Simultaneous reception of SCCPCH and DPCH is required for the DRAC procedure that is intended for controlling uplink transmissions. In this release of the specification, this is limited to 1 SCCPCH.

NOTE 3: This number does not contain the RACH CCTrCH.

~~NOTE 4: Support of PCPCH means that the UE supports PCPCH access for both the CA not active case and for the CA active case.~~

**3GPP TSG RAN WG2 #47**  
**Athens, Greece**  
**09 - 13 May 2005**

**Tdoc #R2-051624**

CR-Form-v7.1

## CHANGE REQUEST

# **25.321 CR 0213** # rev **-** # Current version: **5.10.0** #

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

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

|                        |                                                                                                                                                                                                                                                                                                                                                                 |                 |                                                                                                                                                                                                                                                                                                           |
|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Title:</b>          | # Feature Clean Up: Removal of CPCH                                                                                                                                                                                                                                                                                                                             |                 |                                                                                                                                                                                                                                                                                                           |
| <b>Source:</b>         | # RAN WG2                                                                                                                                                                                                                                                                                                                                                       |                 |                                                                                                                                                                                                                                                                                                           |
| <b>Work item code:</b> | # TEI5                                                                                                                                                                                                                                                                                                                                                          | <b>Date:</b>    | # 14 April 2005                                                                                                                                                                                                                                                                                           |
| <b>Category:</b>       | # <b>C</b>                                                                                                                                                                                                                                                                                                                                                      | <b>Release:</b> | # Rel-5                                                                                                                                                                                                                                                                                                   |
|                        | Use <u>one</u> of the following categories:<br><b>F</b> (correction)<br><b>A</b> (corresponds to a correction in an earlier release)<br><b>B</b> (addition of feature),<br><b>C</b> (functional modification of feature)<br><b>D</b> (editorial modification)<br>Detailed explanations of the above categories can be found in 3GPP <a href="#">TR 21.900</a> . |                 | Use <u>one</u> of the following releases:<br><b>Ph2</b> (GSM Phase 2)<br><b>R96</b> (Release 1996)<br><b>R97</b> (Release 1997)<br><b>R98</b> (Release 1998)<br><b>R99</b> (Release 1999)<br><b>Rel-4</b> (Release 4)<br><b>Rel-5</b> (Release 5)<br><b>Rel-6</b> (Release 6)<br><b>Rel-7</b> (Release 7) |

|                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|--------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Reason for change:</b>            | # Decision taken at RAN plenary to remove unnecessary features                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Summary of change:</b>            | # - Remove from section 3.2<br>- Remove from section 4.2.1<br>- Remove from section 4.2.3.1<br>- Correct Figure 4.2.3.1.1<br>- Correct Figure 4.2.4.1<br>- Correct Figure 4.2.4.1.1<br>- Remove from section 4.3.1<br>- Remove from section 6.1<br>- Remove from section 6.2.1<br>- Remove from section 6.2.2<br>- Remove from section 8.2.1<br>- Remove from section 8.2.2<br>- Remove from section 8.3.1<br>- Remove from section 8.3.2<br>- Remove from section 9.2.1.1<br>- Correct Figure 9.2.1.1.1<br>- Remove from section 11.3<br>- Remove from section 11.4 |
| <b>Consequences if not approved:</b> | # RAN decision not carried out.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

**Clauses affected:** # 3.2, 4.2.1, 4.2.3.1, 4.3.1, 6.1, 6.2.1, 6.2.2, 8.2.1, 8.2.2, 8.3.1, 8.3.2, 9.2.1.1, 11.3,

|                              |   |       |   |                           |                                           |                     |
|------------------------------|---|-------|---|---------------------------|-------------------------------------------|---------------------|
|                              |   | 11.4. |   |                           |                                           |                     |
| <b>Other specs affected:</b> | ⌘ | Y     | N | Other core specifications | ⌘ 25.301, 25.302, 25.303, 25.306, 25.331. |                     |
|                              |   | X     |   |                           |                                           | Test specifications |
|                              |   |       | X |                           |                                           | O&M Specifications  |
| <b>Other comments:</b>       | ⌘ |       |   |                           |                                           |                     |

**How to create CRs using this form:**

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Below is a brief summary:

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

~~~~ Next Modified Section ~~~~

3.2 Abbreviations

For the purposes of the present document, the following abbreviations apply:

| | |
|-----------------|--|
| ASC | Access Service Class |
| BCCH | Broadcast Control Channel |
| BCH | Broadcast Channel |
| C- | Control- |
| CCCH | Common Control Channel |
| CPCH | Common Packet Channel (UL) |
| DCCH | Dedicated Control Channel |
| DCH | Dedicated Channel |
| DL | Downlink |
| DSCH | Downlink Shared Channel |
| DTCH | Dedicated Traffic Channel |
| FACH | Forward Link Access Channel |
| FDD | Frequency Division Duplex |
| HARQ | Hybrid Automatic Repeat Request |
| HCSN | HS-SCCH Cyclic Sequence Number |
| HS-DSCH | High Speed Downlink Shared Channel |
| L1 | Layer 1 (physical layer) |
| L2 | Layer 2 (data link layer) |
| L3 | Layer 3 (network layer) |
| MAC | Medium Access Control |
| PCCH | Paging Control Channel |
| PCH | Paging Channel |
| PDU | Protocol Data Unit |
| PHY | Physical layer |
| PhyCH | Physical Channels |
| RACH | Random Access Channel |
| RLC | Radio Link Control |
| RNC | Radio Network Controller |
| RNS | Radio Network Subsystem |
| RNTI | Radio Network Temporary Identity |
| RRC | Radio Resource Control |
| SAP | Service Access Point |
| SDU | Service Data Unit |
| SHCCH | Shared Channel Control Channel |
| SRNC | Serving Radio Network Controller |
| SRNS | Serving Radio Network Subsystem |
| TDD | Time Division Duplex |
| TFCI | Transport Format Combination Indicator |
| TFI | Transport Format Indicator |
| TSN | Transmission Sequence Number |
| U- | User- |
| UE | User Equipment |
| UL | Uplink |
| UMTS | Universal Mobile Telecommunications System |
| USCH | Uplink Shared Channel |
| UTRA | UMTS Terrestrial Radio Access |
| UTRAN | UMTS Terrestrial Radio Access Network |

~~~~ Next Modified Section ~~~~

## 4.2.1 MAC Entities

The diagrams that describe the MAC architecture are constructed from MAC entities.

The entities are assigned the following names.

- MAC-b is the MAC entity that handles the following transport channels:
  - broadcast channel (BCH)
- MAC-c/sh, is the MAC entity that handles the following transport channels:
  - paging channel (PCH)
  - forward access channel (FACH)
  - random access channel (RACH)
  - ~~common packet channel (UL-CPCH). The CPCH exists only in FDD mode.~~
  - downlink shared channel (DSCH)
  - uplink shared channel (USCH). The USCH exists only in TDD mode.
- MAC-d is the MAC entity that handles the following transport channels:
  - dedicated transport channel (DCH)
- MAC-hs is the MAC entity that handles the following transport channels:
  - high speed downlink shared channel (HS-DSCH)

The exact functions completed by the entities are different in the UE from those completed in the UTRAN.

NOTE: When a UE is allocated resources for exclusive use by the bearers that it supports the MAC-d entities dynamically share the resources between the bearers and are responsible for selecting the TFI/ TFCI that is to be used in each transmission time interval.

~~~~ Next Modified Section ~~~~

4.2.3 Traffic Related Architecture - UE Side

Figure 4.2.3.1 illustrates the connectivity of MAC entities.

The MAC-c/sh controls access to all common transport channels, except the HS-DSCH transport channel.

The MAC-d controls access to all dedicated transport channels, to MAC-c/sh and MAC-hs.

The MAC-hs controls access to the HS-DSCH transport channel.

In the downlink, if logical channels of dedicated type are mapped to common transport channels then MAC-d receives the data from MAC-c/sh or MAC-hs via the illustrated connection between the functional entities.

In the uplink, if logical channels of dedicated type are mapped to common transport channels then MAC-d submits the data to MAC-c/sh via the illustrated connection between the functional entities.

The mapping of logical channels on transport channels depends on the multiplexing that is configured by RRC.

The MAC Control SAP is used to transfer Control information to each MAC entity.

The associated signalling shown in the figure illustrates the exchange of information between layer 1 and layer 2 provided by primitives shown in [3].

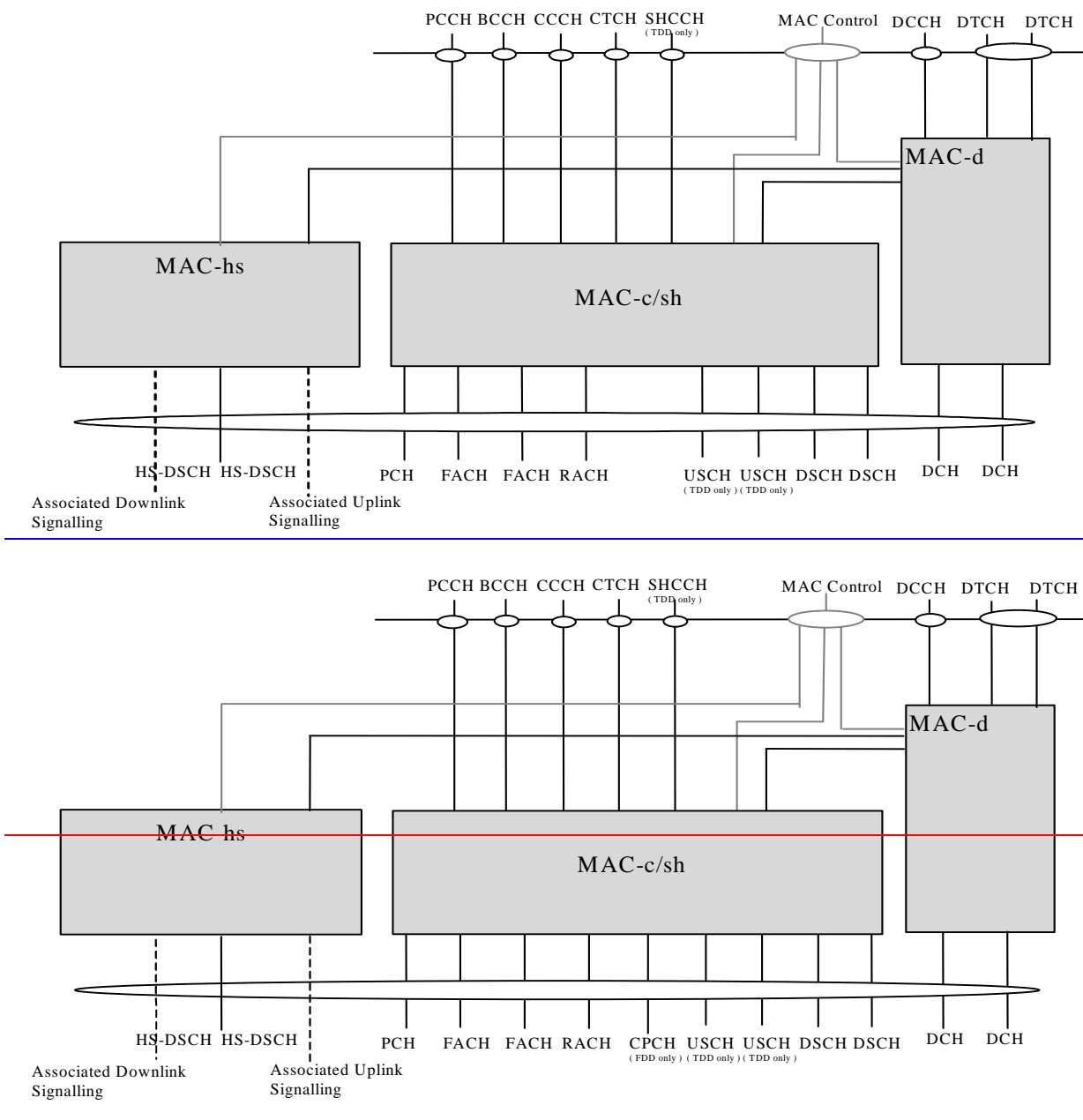


Figure 4.2.3.1: UE side MAC architecture

4.2.3.1 MAC-c/sh entity – UE Side

Figure 4.2.3.1.1 shows the UE side MAC-c/sh entity.

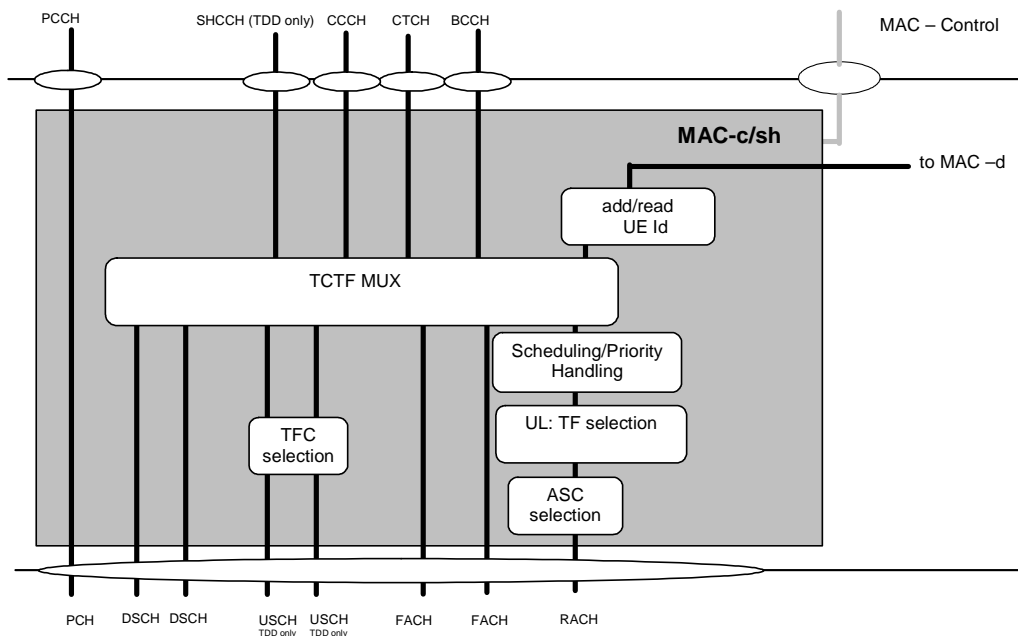
The following functionality is covered:

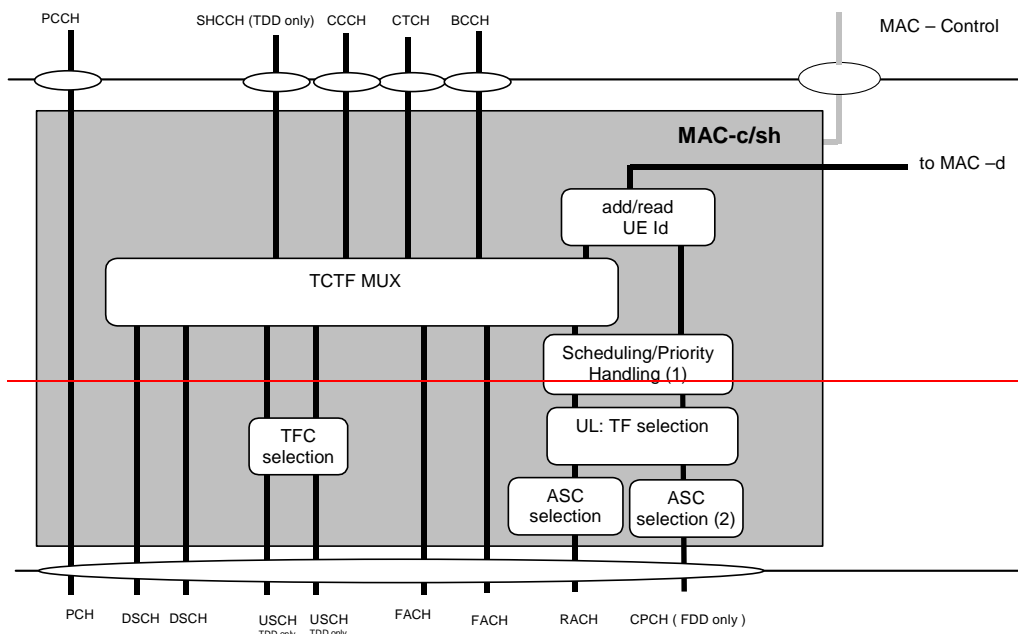
- TCTF MUX:
 - this function represents the handling (insertion for uplink channels and detection and deletion for downlink channels) of the TCTF field in the MAC header, and the respective mapping between logical and transport channels.
 - The TCTF field indicates the common logical channel type, or if a dedicated logical channel is used;
- add/read UE Id:
 - the UE Id is added for ~~CPCH and~~ RACH transmissions
 - the UE Id, when present, identifies data to this UE.

- UL: TF selection:
 - in the uplink, the possibility of transport format selection exists.
~~In case of CPCH transmission, a TF is selected based on TF availability determined from status information on the CSICH;~~
- ASC selection:
 - For RACH, MAC indicates the ASC associated with the PDU to the physical layer. ~~For CPCH, MAC may indicate the ASC associated with the PDU to the Physical Layer.~~ This is to ensure that RACH and CPCH messages associated with a given Access Service Class (ASC) are sent on the appropriate signature(s) and time slot(s). MAC also applies the appropriate back-off parameter(s) associated with the given ASC. When sending an RRC CONNECTION REQUEST message, RRC will determine the ASC; in all other cases MAC selects the ASC;
- scheduling /priority handling
 - this functionality is used to transmit the information received from MAC-d on RACH and CPCH based on logical channel priorities. This function is related to TF selection.
- TFC selection
 - transport format and transport format combination selection according to the transport format combination set (or transport format combination subset) configured by RRC is performed,

The RLC provides RLC-PDUs to the MAC, which fit into the available transport blocks on the transport channels.

There is one MAC-c/sh entity in each UE.





Note 1: Scheduling /Priority handling is applicable for CPCH.
 Note 2: In case of CPCH, ASC selection may be applicable for AP preamble.

Figure 4.2.3.1.1: UE side MAC architecture / MAC-c/sh details

~~~~ Next Modified Section ~~~~

## 4.2.4 Traffic Related Architecture - UTRAN Side

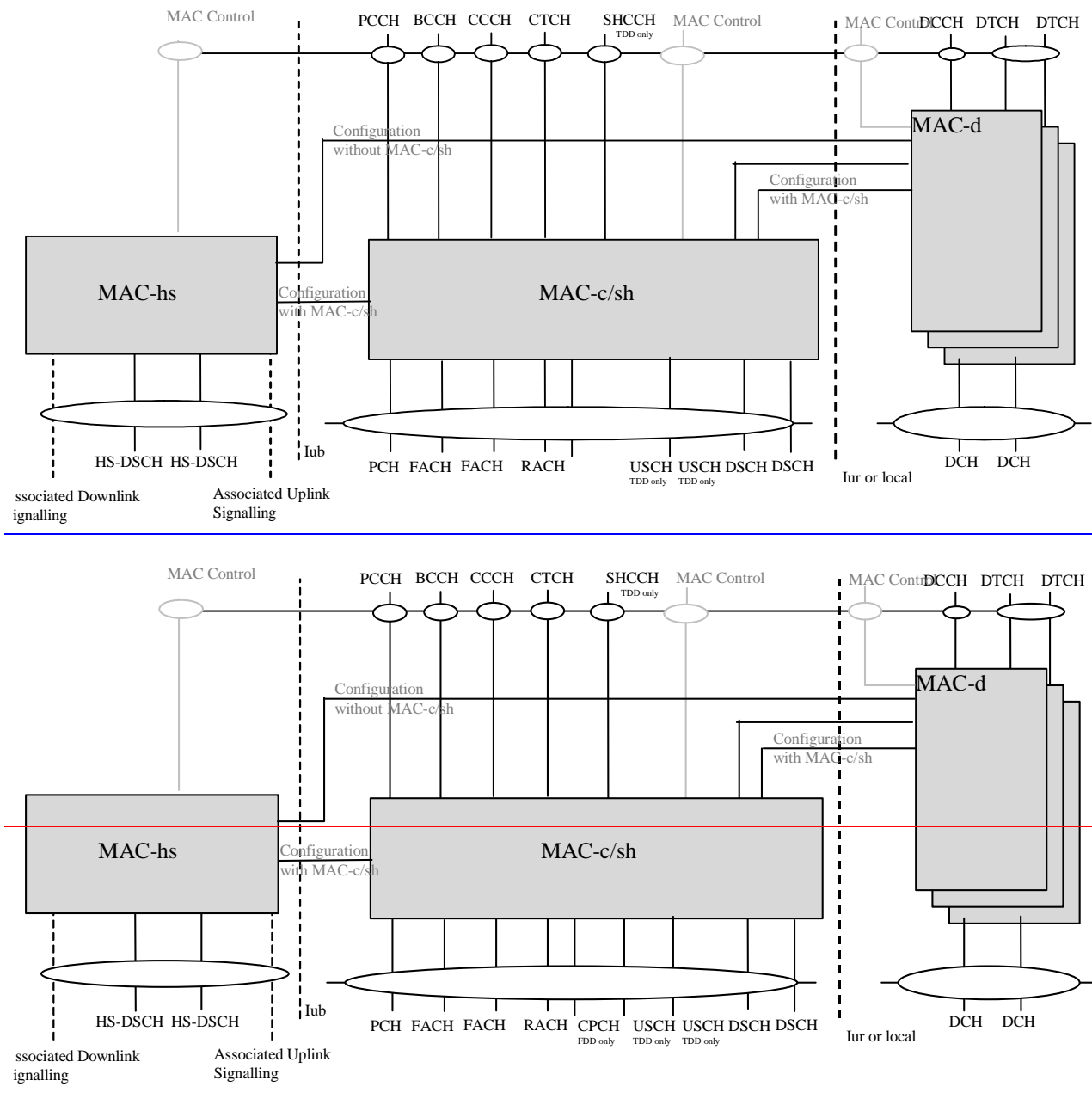
Figure 4.2.4.1 illustrates the connectivity between the MAC entities from the UTRAN side.

It is similar to the UE case with the exception that there will be one MAC-d for each UE and each UE (MAC-d) that is associated with a particular cell may be associated with that cell's MAC-c/sh.

MAC-c/sh is located in the controlling RNC while MAC-d is located in the serving RNC. MAC-hs is located in the Node B. The MAC-d PDUs to be transmitted are transferred from MAC-c/sh to the MAC-hs via the Iub interface in case of configuration with MAC-c/sh, or from the MAC-d via Iur/Iub in case of configuration without MAC-c/sh.

The MAC Control SAP is used to transfer Control information to each MAC entity belonging to one UE.

The associated signalling shown in the figure illustrates the exchange of information between layer 1 and layer 2 provided by primitives shown in [3].



**Figure 4.2.4.1: UTRAN side MAC architecture**

#### 4.2.4.1 MAC-c/sh entity – UTRAN Side

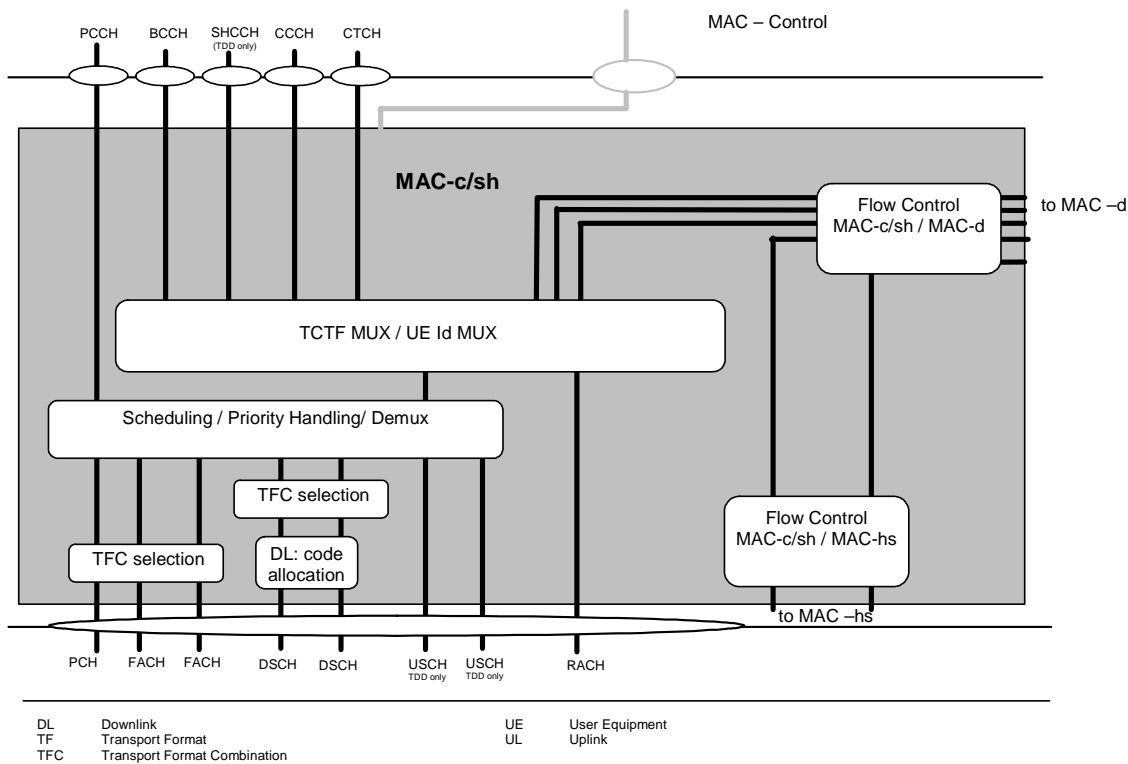
Figure 4.2.4.1.1 shows the UTRAN side MAC-c/sh entity. The following functionality is covered:

- Scheduling – Priority Handling;
  - this function manages FACH and DSCH resources between the UEs and between data flows according to their priority.
- TCTF MUX
  - this function represents the handling (insertion for downlink channels and detection and deletion for uplink channels) of the TCTF field in the MAC header, and the respective mapping between logical and transport channels. The TCTF field indicates the common logical channel type, or if a dedicated logical channel is used;
- UE Id Mux;
  - for dedicated type logical channels, the UE Id field in the MAC header is used to distinguish between UEs;

- TFC selection:
  - in the downlink, transport format combination selection is done for FACH and PCH and DSCHs;
- Demultiplex;
  - for TDD operation the demultiplex function is used to separate USCH data from different UEs, i.e. to be transferred to different MAC-d entities;
- DL code allocation;
  - this function is used to indicate the code used on the DSCH;
- Flow control;
  - a flow control function exists toward MAC-d to limit buffering between MAC-d and MAC-c/sh entities. a flow control function also exists towards MAC-hs in case of configuration with MAC-c/sh.

The RLC provides RLC-PDUs to the MAC, which fit into the available transport blocks on the transport channels.

There is one MAC-c/sh entity in the UTRAN for each cell;



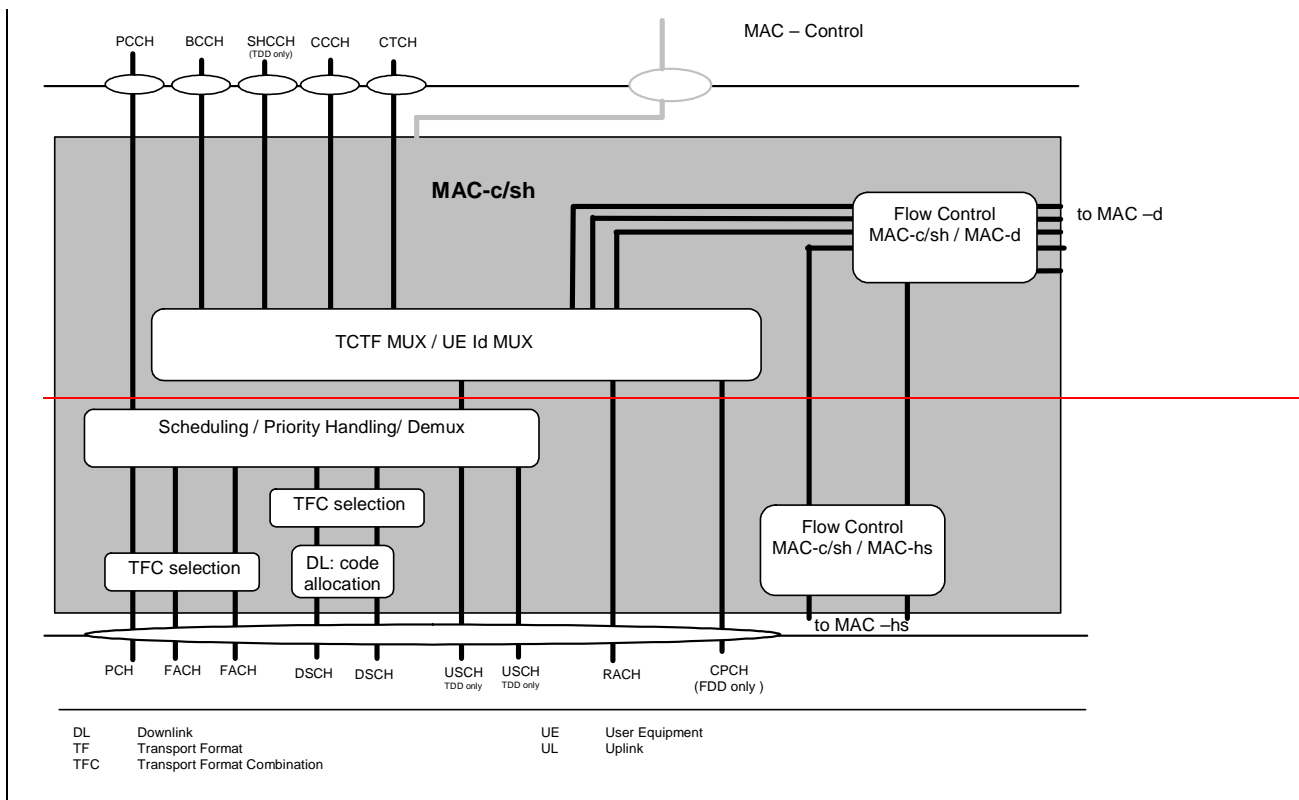


Figure 4.2.4.1.1: UTRAN side MAC architecture / MAC-c/sh details

~~~~ Next Modified Section ~~~~

4.3.1 Transport channels

Common transport channel types are:

- Random Access Channel(s) (RACH);
- Forward Access Channel(s) (FACH);
- Downlink Shared Channel(s) (DSCH);
- High Speed Downlink Shared Channel(s) (HS-DSCH);
- ~~Common Packet Channel(s) (CPCH) for UL FDD operation only;~~
- Uplink Shared Channel(s) (USCH), for TDD operation only;
- Broadcast Channel (BCH);
- Paging Channel (PCH).

Dedicated transport channel types are:

- Dedicated Channel (DCH).

~~~~ Next Modified Section ~~~~

## 6.1 Description of the MAC functions

The functions of MAC include:

- mapping between logical channels and transport channels;
- selection of appropriate Transport Format for each Transport Channel depending on instantaneous source rate;
- priority handling between data flows of one UE;
- priority handling between UEs by means of dynamic scheduling;
- identification of UEs on common transport channels;
- multiplexing/demultiplexing of upper layer PDUs into/from transport blocks delivered to/from the physical layer on common transport channels;
- multiplexing/demultiplexing of upper layer PDUs into/from transport block sets delivered to/from the physical layer on dedicated transport channels;
- traffic volume measurement;
- Transport Channel type switching;
- ciphering for transparent mode RLC;
- Access Service Class selection for RACH ~~and CPCH~~ transmission;
- control of HS-DSCH transmission and reception including support of HARQ;
- HS-DSCH Provided Bit Rate measurement.

## 6.2 Relation between MAC Functions and Transport Channels

### 6.2.1 Relation between MAC Functions and Transport Channels in UTRAN

**Table 6.2.1.1: UTRAN MAC functions corresponding to the transport channel**

| Associated MAC Functions | Logical Ch      | Transport Ch    | TF Selection | Priority handling between UEs | Priority handling (one UE) | Scheduling | Identification of UEs | Mux/Demux on common transport channels | Mux/Demux on dedicated transport channels | HARQ support |
|--------------------------|-----------------|-----------------|--------------|-------------------------------|----------------------------|------------|-----------------------|----------------------------------------|-------------------------------------------|--------------|
| Uplink (Rx)              | CCCH            | RACH            |              |                               |                            |            |                       | X                                      |                                           |              |
|                          | DCCH            | RACH            |              |                               |                            |            | X                     | X                                      |                                           |              |
|                          | <del>DCCH</del> | <del>CPCH</del> |              |                               |                            |            | <del>X</del>          | <del>X</del>                           |                                           |              |
|                          | DCCH            | DCH             |              |                               |                            |            |                       |                                        | X                                         |              |
|                          | DTCH            | RACH            |              |                               |                            |            | X                     | X                                      |                                           |              |
|                          | <del>DTCH</del> | <del>CPCH</del> |              |                               |                            |            | <del>X</del>          | <del>X</del>                           |                                           |              |
|                          | DTCH            | DCH             |              |                               |                            |            |                       |                                        | X                                         |              |
|                          | SHCCH           | RACH            |              |                               |                            |            | X                     | X                                      |                                           |              |
|                          | SHCCH           | USCH            |              |                               |                            |            |                       | X                                      |                                           |              |
|                          | DTCH            | USCH            |              |                               |                            |            |                       | X                                      |                                           |              |
|                          | DCCH            | USCH            |              |                               |                            |            |                       | X                                      |                                           |              |
| Downlink (Tx)            | BCCH            | BCH             |              |                               |                            | X          |                       |                                        |                                           |              |
|                          | BCCH            | FACH            | X            |                               |                            | X          |                       | X                                      |                                           |              |
|                          | PCCH            | PCH             | X            |                               |                            | X          |                       |                                        |                                           |              |
|                          | CCCH            | FACH            | X            | X                             |                            | X          |                       | X                                      |                                           |              |
|                          | CTCH            | FACH            | X            |                               |                            | X          |                       | X                                      |                                           |              |
|                          | DCCH            | FACH            | X            | X                             |                            | X          | X                     | X                                      |                                           |              |
|                          | DCCH            | DSCH            | X            | X                             |                            |            | X                     | X                                      |                                           |              |
|                          | DCCH            | DCH             | X            |                               | X                          |            |                       |                                        | X                                         |              |
|                          | DCCH            | HS-DSCH         | X (1)        | X                             | X                          | X          | X                     | X                                      |                                           | X            |
|                          | DTCH            | FACH            | X            | X                             |                            | X          | X                     | X                                      |                                           |              |
|                          | DTCH            | DSCH            | X            | X                             |                            |            | X                     | X                                      |                                           |              |
|                          | DTCH            | DCH             | X            |                               | X                          |            |                       |                                        | X                                         |              |
|                          | DTCH            | HS-DSCH         | X (1)        | X                             | X                          | X          | X                     | X                                      |                                           | X            |
| SHCCH                    | FACH            | X               | X            |                               | X                          |            | X                     |                                        |                                           |              |
| SHCCH                    | DSCH            | X               | X            |                               |                            |            | X                     |                                        |                                           |              |

NOTE 1: In case of HS-DSCH the TF selection is replaced by TFRC selection.

## 6.2.2 Relation of MAC Functions and Transport Channels in UE

**Table 6.2.2.1: UE MAC functions corresponding to the transport channel**

| Associated MAC Functions | Logical Ch      | Transport Ch    | TF Selection | Priority handling (one UE) | Identification | Mux/Demux on common transport channels | Mux/Demux on dedicated transport channels | HARQ support |
|--------------------------|-----------------|-----------------|--------------|----------------------------|----------------|----------------------------------------|-------------------------------------------|--------------|
| Uplink (Tx)              | CCCH            | RACH            |              |                            |                | X                                      |                                           |              |
|                          | DCCH            | RACH            | X            | X                          | X              | X                                      |                                           |              |
|                          | <del>DCCH</del> | <del>CPCH</del> | <del>X</del> | <del>X</del>               | <del>X</del>   | <del>X</del>                           |                                           |              |
|                          | DCCH            | DCH             | X            | X                          |                |                                        | X                                         |              |
|                          | DTCH            | RACH            | X            | X                          | X              | X                                      |                                           |              |
|                          | <del>DTCH</del> | <del>CPCH</del> | <del>X</del> | <del>X</del>               | <del>X</del>   | <del>X</del>                           |                                           |              |
|                          | DTCH            | DCH             | X            | X                          |                |                                        | X                                         |              |
|                          | SHCCH           | RACH            |              |                            |                | X                                      |                                           |              |
|                          | SHCCH           | USCH            | X            | X                          |                | X                                      |                                           |              |
|                          | DCCH            | USCH            | X            | X                          |                | X                                      |                                           |              |
|                          | DTCH            | USCH            | X            | X                          |                | X                                      |                                           |              |
| Downlink (Rx)            | BCCH            | BCH             |              |                            |                |                                        |                                           |              |
|                          | BCCH            | FACH            |              |                            |                | X                                      |                                           |              |
|                          | PCCH            | PCH             |              |                            |                |                                        |                                           |              |
|                          | CCCH            | FACH            |              |                            |                | X                                      |                                           |              |
|                          | CTCH            | FACH            |              |                            |                | X                                      |                                           |              |
|                          | DCCH            | FACH            |              |                            | X              | X                                      |                                           |              |
|                          | DCCH            | DSCH            |              |                            |                | X                                      |                                           |              |
|                          | DCCH            | DCH             |              |                            |                |                                        | X                                         |              |
|                          | DCCH            | HS-DSCH         |              |                            | X              | X                                      |                                           | X            |
|                          | DTCH            | FACH            |              |                            | X              | X                                      |                                           |              |
|                          | DTCH            | DSCH            |              |                            |                | X                                      |                                           |              |
|                          | DTCH            | DCH             |              |                            |                |                                        | X                                         |              |
|                          | DTCH            | HS-DSCH         |              |                            | X              | X                                      |                                           | X            |
|                          | SHCCH           | FACH            |              |                            |                | X                                      |                                           |              |
| SHCCH                    | DSCH            |                 |              |                            | X              |                                        |                                           |              |

~~~~ Next Modified Section ~~~~

8.2.1 Primitives

The primitives between MAC layer and RLC layer are shown in table 8.2.1.1.

Table 8.2.1.1: Primitives between MAC layer and RLC layer

| Generic Name | Parameter | | | |
|-------------------|---|--|---------------------|---------|
| | Request | Indication | Response | Confirm |
| MAC-DATA | Data, BO, UE-ID type indicator, RLC Entity Info | Data, No_TB, TD (note), Error indication | | |
| MAC-STATUS | | No_PDU, PDU_Size, TX status, Status_Report_REQ | BO, RLC Entity Info | |
| NOTE: TDD only. | | | | |

MAC-DATA-Req/Ind:

- MAC-DATA-Req primitive is used to request that an upper layer PDU be sent using the procedures for the information transfer service;

- MAC-DATA-Ind primitive indicates the arrival of upper layer PDUs received within one transmission time interval by means of the information transfer service.

MAC-STATUS-Ind/Resp:

- MAC-STATUS-Ind primitive indicates to RLC for each logical channel the rate at which it may transfer data to MAC. Parameters are the number of PDUs that can be transferred in each transmission time interval and the PDU size; it is possible that MAC would use this primitive to indicate that it expects the current buffer occupancy of the addressed logical channel in order to provide for optimised TFC selection on transport channels with long transmission time interval. At the UE, MAC-STATUS-Ind primitive is also used to indicate from MAC to RLC that MAC has requested data transmission by PHY (i.e. PHY-DATA-REQ has been submitted, see Fig. 11.2.2.1), or that transmission of an RLC PDU on RACH ~~or CPCH~~ has failed due to exceeded preamble ramping cycle counter.
- MAC-STATUS-Resp primitive enables RLC to acknowledge a MAC-STATUS-Ind. It is possible that RLC would use this primitive to indicate that it has nothing to send or that it is in a suspended state or to indicate the current buffer occupancy to MAC.

8.2.2 Parameters

a) Data:

- it contains the RLC layer messages (RLC-PDU) to be transmitted, or the RLC layer messages that have been received by the MAC sub-layer.

b) Number of transmitted transport blocks (No_TB) :

- indicates the number of transport blocks transmitted by the peer entity within the transmission time interval, based on the TFI value.

c) Buffer Occupancy (BO):

- the parameter Buffer Occupancy (BO) indicates for each logical channel the amount of data in number of bytes that is available for transmission and retransmission in RLC layer. When MAC is connected to an AM RLC entity, control PDUs to be transmitted and RLC PDUs outside the RLC Tx window shall also be included in the BO. RLC PDUs that have been transmitted but not negatively acknowledged by the peer entity shall not be included in the BO.

d) RX Timing Deviation (TD), TDD only:

- it contains the RX Timing Deviation as measured by the physical layer for the physical resources carrying the data of the Message Unit. This parameter is optional and only for Indication. It is needed for the transfer of the RX Timing Deviation measurement of RACH transmissions carrying CCCH data to RRC.

e) Number of PDU (No_PDU):

- specifies the number of PDUs that the RLC is permitted to transfer to MAC within a transmission time interval.

f) PDU Size (PDU_Size):

- specifies the size of PDU that can be transferred to MAC within a transmission time interval.

g) UE-ID Type Indicator:

- indicates the UE-ID type to be included in MAC for a DCCH and DTCH when they are mapped onto a common transport channel (i.e. FACH, RACH, DSCH in FDD ~~or CPCH~~). On the UE side UE-ID Type Indicator shall always be set to C-RNTI.

h) TX status:

- when set to value "transmission unsuccessful" this parameter indicates to RLC that transmission of an RLC PDU failed in the previous Transmission Time Interval, when set to value "transmission successful" this parameter indicates to RLC that the requested RLC PDU(s) has been submitted for transmission by the physical layer.

- i) RLC Entity Info
 - indicates to MAC the configuration parameters that are critical to TFC selection depending on its mode and the amount of data that could be transmitted at the next TTI. This primitive is meant to insure that MAC can perform TFC selection (see subclause 11.4).
- j) Error indication
 - When a MAC SDU is delivered to upper layer, an error indication is given for the SDU to upper layer if an error indication for the SDU has been received from lower layer.
- k) Status_Report_REQ
 - indicates to all AM RLC entities mapped on HS-DSCH to generate a status report when the MAC-hs resets.

8.3 Primitives between MAC and RRC

8.3.1 Primitives

The primitives between MAC and RRC are shown in table 8.3.1.1.

Table 8.3.1.1: Primitives between MAC sub-layer and RRC

| Generic Name | Parameter | | | |
|-------------------------|---|--------------------|----------|---------|
| | Request | Indication | Response | Confirm |
| CMAC-CONFIG | UE information elements,
RB information elements,
TrCH information elements,
RACH transmission control elements,
Ciphering elements,
CPCH transmission control elements | | | |
| CMAC-MEASUREMENT | Measurement information elements | Measurement result | | |
| CMAC-STATUS | | Status info | | |

CMAC-CONFIG-Req:

- CMAC-CONFIG-Req is used to request for setup, release and configuration of a logical channel, e.g. RNTI allocation, switching the connection between logical channels and transport channels, TFCS update or scheduling priority of logical channel.

CMAC-MEASUREMENT-Req/Ind:

- CMAC-MEASUREMENT-Req is used by RRC to request MAC to perform measurements, e.g. traffic volume measurements;
- CMAC-MEASUREMENT-Ind is used to notify RRC of the measurement result.

CMAC-STATUS-Ind:

- CMAC-STATUS-Ind primitive notifies RRC of status information.

8.3.2 Parameters

See [7] for a detailed description of the UE, RB and TrCH information elements.

- a) UE information elements
 - S-RNTI
 - SRNC identity
 - C-RNTI
 - Activation time

- b) RB information elements
RB multiplexing info (Transport channel identity, Logical channel identity, MAC logical channel priority)
- c) TrCH information elements
Transport Format Combination Set
MAC-hs reset indicator
Re-ordering release timer (T1)
- d) Measurement information elements
Reporting Quantity identifiers
Time interval to take an average or a variance (applicable when Average or Variance is Reporting Quantity)
- e) Measurement result
Reporting Quantity
- f) Status info
when set to value ""transmission unsuccessful"" this parameter indicates to RRC that transmission of a TM RLC PDU failed (due to e.g. Maximum number of preamble ramping cycles reached for RACH in FDD), when set to value "transmission successful" this parameter indicates to RRC that the requested TM RLC PDU(s) has been submitted for transmission by the physical layer.
- g) RACH transmission control elements
Set of ASC parameters (identifier for PRACH partitions, persistence values)
Maximum number of preamble ramping cycles (FDD) or synchronisation attempts (1.28 Mcps TDD) M_{\max}
Minimum and maximum number of time units between two preamble ramping cycles, N_{BO1min} and N_{BO1max} (FDD only)
ASC for RRC CONNECTION REQUEST message
- h) Cipherring elements
Cipherring mode
Cipherring key
Cipherring sequence number
- ~~i) CPCH transmission control elements
CPCH persistency value, P for each Transport Format
Maximum number of preamble ramping cycles $N_{\text{access_fails}}$
 NF_{max} (Maximum number of frames for CPCH transmission for each Transport Format)
 N_{EOT} (Number of EOT for release of CPCH transmission)
Backoff control timer parameters
Transport Format Set
Initial Priority Delays
Channel Assignment Active indication~~

~~~~ Next Modified Section ~~~~

### 9.2.1.1 MAC header for DTCH and DCCH (not mapped on HS-DSCH)

- a) DTCH or DCCH mapped to DCH, no multiplexing of dedicated channels on MAC:
  - no MAC header is required.
- b) DTCH or DCCH mapped to DCH, with multiplexing of dedicated channels on MAC:
  - C/T field is included in MAC header.
- c) DTCH or DCCH mapped to RACH/FACH:
  - TCTF field, C/T field, UE-Id type field and UE-Id are included in the MAC header. For FACH, the UE-Id type field used is the C-RNTI or U-RNTI. For RACH, the UE-Id type field used is the C-RNTI.

- d) DTCH or DCCH mapped to DSCH or USCH:
  - the TCTF field is included in the MAC header for TDD only. The UE-Id type and UE-Id are included in the MAC header for FDD only. The UE-Id type field used is the DSCH-RNTI. The C/T field is included if multiplexing on MAC is applied.
- e) DTCH or DCCH mapped to DSCH or USCH where DTCH or DCCH are the only logical channels:
  - the UE-Id type and UE-Id are included in the MAC header for FDD only. The UE-Id type field used is the DSCH-RNTI. The C/T field is included in the MAC header if multiplexing on MAC is applied.
- f) ~~DTCH or DCCH mapped to CPCH:~~
  - ~~— UE-Id type field and UE-Id are included in the MAC header. The C/T field is included in the MAC header if multiplexing on MAC is applied. The UE-Id type field used is the C-RNTI.~~

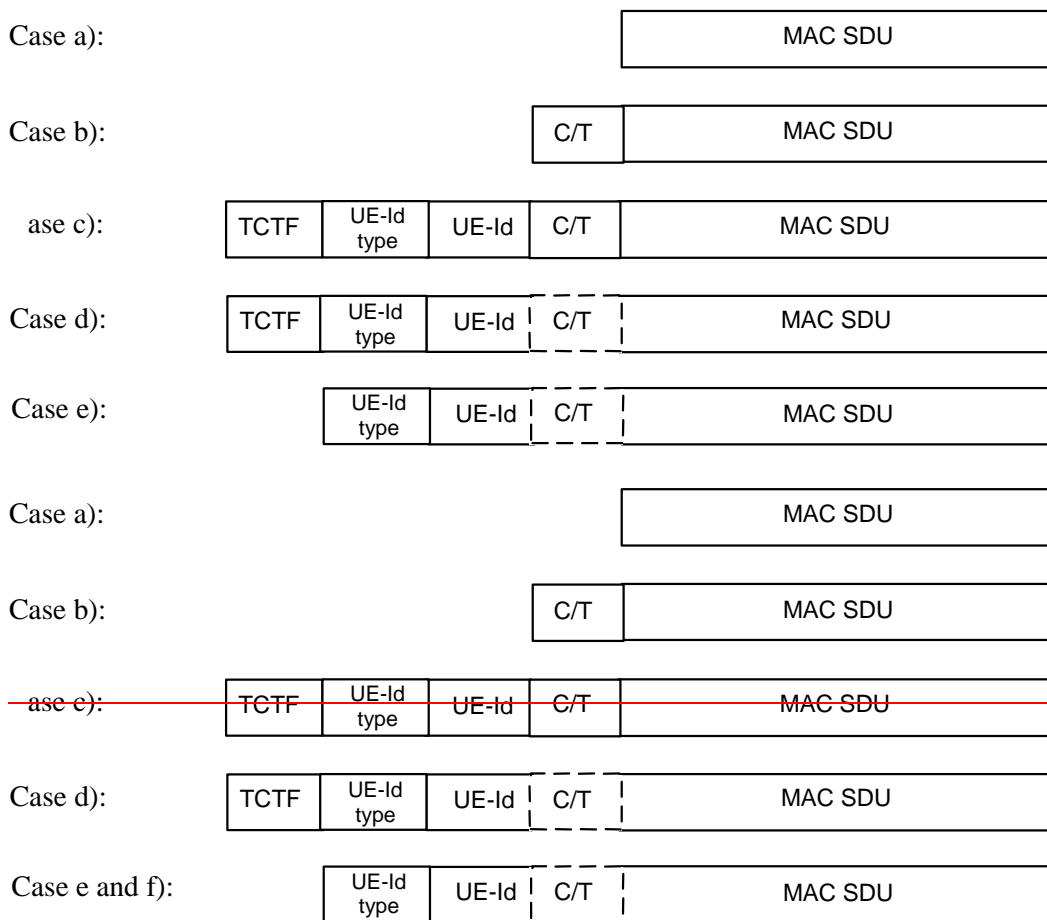


Figure 9.2.1.1.1: MAC PDU formats for DTCH and DCCH

~~~~ Next Modified Section ~~~~

11.3 ~~Control of CPCH transmissions for FDD~~ Void

~~The MAC layer controls the timing of CPCH transmissions on transmission time interval level (i.e. on 10, 20, 40 or 80 ms level); the timing on access slot level is controlled by L1. MAC controls the timing of each initial preamble ramping cycle as well as successive preamble ramping cycles. Note that retransmissions in case of erroneously received CPCH message part are under control of higher layers. The CPCH transmissions are performed by the UE as illustrated in figures 11.3.1 and 11.3.2. Figure 11.3.1 procedure is used for access to CPCH channel. Figure 11.3.2 procedure is used for CPCH Message transmission on the CPCH channel obtained using the access procedure.~~

~~NOTE:—In Cell FACH state, the UE should co-ordinate the UL transmission schedule with the measurement schedule in FACH measurement occasions so as to minimise any delays associated with inter-frequency measurements.~~

~~MAC receives the following CPCH transmission control parameters from RRC with the CMAC Config REQ primitive:~~

- ~~—persistence values, P (transmission probability for each Transport Format (TF));~~
- ~~—N_access_fails, maximum number of preamble ramping cycles;~~
- ~~—NF_max, maximum number of frames for CPCH transmission for each TF;~~
- ~~—N_EOT (Number of EOT for release of CPCH transmission);~~
- ~~—Backoff control timer parameters;~~
- ~~—Transport Format Set;~~
- ~~—Initial Priority Delays;~~
- ~~—Channel Assignment Active indication.~~

~~The MAC procedure for CPCH access shall be invoked when the UE has data to transmit. The steps for this procedure are listed here:~~

- ~~1. the UE shall get all UL transmit parameters (CPCH Set Info, P values, Initial Priority Delays, N_access_fails, NF_max, N_EOT etc) from RRC;~~
- ~~2. the UE shall reset counter M, EOT counter and Frame Count Transmitted (FCT) upon entry to the initial access procedure;~~
- ~~3. if counter M is equal to N_access_fails, the UE shall indicate an access failure error to higher layer and the CPCH access procedure ends. Access failure is reported to RLC with MAC STATUS Ind primitive individually for each logical channel of which data was included in the transport block set that could not be transmitted. If counter M is less than N_access_fails, the UE shall send a PHY CPCH_Status REQ to Layer 1 to obtain CPCH TF subset status. If Layer 1 returns an error message, the UE shall increment counter M and the procedure shall continue from step 3. If Layer 1 returns a PHY CPCH_Status CNF message, which includes a TF subset indicating the currently available TFs of the requested TF subset, the procedure shall continue from step 4;~~
- ~~4. the UE shall initialise the Busy Table with the CPCH TF subset status from Layer 1. Those TFs in the TF subset of the Layer 1 PHY CPCH_Status CNF response will be marked available. All other TFs will be marked busy;~~
- ~~5. if all TFs are not marked busy, the procedure shall proceed from step 6. If all TFs are marked busy, the UE shall reset and start timer Tboe1, wait until timer expiry, and increment counter M. The procedure shall continue from step 3;~~
- ~~6. the UE shall update all UL transmit parameters from RRC;~~
- ~~7. UE shall select a TF from the set of available TFs listed in the Busy Table. UE shall use the CPCH channel capacity (transport block set size, NF_max, and TTI interval), and Busy Table information to select one CPCH TF for L1 to access. The UE may select a TF, which uses a lower data rate and a lower UL Tx power than the maximum UL Tx power allowed. UE shall implement a test based on the Persistence value (P) to determine whether to attempt access to the selected CPCH TF. If access is allowed, the procedure shall continue from step 9. If the P test does not allow access, the procedure shall continue from step 8;~~
- ~~8. the selected CPCH TF shall be marked busy in the Busy Table. If all TFs are marked busy, the UE shall reset and start timer Tboe1, wait until timer expiry, increment counter M, and continue from step 3. If all TFs are not marked busy, the UE shall resume the procedure from step 6;~~
- ~~9. the UE may implement an initial delay based on ASC of the data to be transmitted, then shall send a PHY Access REQ with the selected TF to L1 for CPCH access. After the UE has sent the access request to L1, L1 shall return a PHY Access CNF including one of five access indications to MAC as shown in figure 11.3.1. If the L1 access indication is that access is granted, then UE shall continue from step 14. For the cases of the other Layer 1 responses, the procedure shall continue from step 10, 11, or 12 respectively.~~

- 10. if L1 access indication is no AP AICH received or no CD AICH received, the UE shall reset and start timer T_{BOC3}, wait until timer expiry, and increment counter M. The UE shall proceed from step 3;
- 11. if L1 access indication is AP AICH_nak received, the UE shall reset and start timer T_{BOC2}, wait until timer expiry. If Channel Assignment (CA) is active, the UE shall proceed from step 13. If Channel Assignment (CA) is not active, the procedure shall continue from step 8;
- 12. if L1 access indication is CD AICH signature mismatch, the UE shall reset and start timer T_{BOC4}, wait until timer expiry, and increment counter M. The procedure shall continue from step 3;
- 13. the UE shall increment counter M. The procedure shall continue from step 3.
- 14. the UE shall build a transport block set for the next TTI;
- 15. if the sum of the Frame Count Transmitted counter plus N_{TTI} (the number of frames in the next TTI) is greater than NF_{max}, the UE shall exit this procedure and start the MAC procedure for CPCH transmission of the first TTI. This shall release the CPCH channel in use and the UE will contend again for a new CPCH channel to continue transmission. If the sum of the Frame Count Transmitted counter plus N_{TTI} is less than or equal to NF_{max}, the UE shall send a PHY Data REQ with the transport block set to L1 to continue transmission on the CPCH channel which has previously been accessed;
- 16. if the L1 returns PHY Status IND indicating normal transmission, the procedure shall continue from step 17. If L1 returns PHY Status IND indicating abnormal situation the UE shall execute an abnormal situation handling procedure and the CPCH message transmission procedure ends. Reasons for abnormal situation may include the following:
 - emergency stop was received;
 - start of Message Indicator was not received;
 - L1 hardware failure has occurred;
 - out of synch has occurred;
- 17. the UE shall increment the Frame Count Transmitted (FCT) counter by N_{TTI} just transmitted and indicate TX Status "transmission successful" to RLC individually for each logical channel of which data was included in the transport block set. If the UE has more data to transmit, the procedure shall continue from step 14;
- 18. the UE shall build the next TTI with zero sized transport block set. If the sum of the Frame Count Transmitted counter plus N_{TTI} is less than or equal to NF_{max} and if the sum of the EOT counter plus N_{TTI} is less than or equal to N_{EOT}, the procedure shall continue from step 19. Otherwise, the procedure ends;
- 19. UE shall send a PHY Data REQ with zero sized transport block set to L1 to stop transmission on the CPCH channel which has previously been accessed, both the EOT and the FCT counters shall be incremented by N_{TTI} and the procedure shall continue from step 18.

Table 11.3: CPCH Backoff Delay Timer Values

| Timer | Based on parameter | Fixed/random |
|----------------------------------|--------------------|--------------|
| T _{BOC1} (all Busy) | NF_bo_all_busy | Random |
| T _{BOC2} (channel Busy) | NS_bo_busy | Fixed |
| T _{BOC3} (no AICH) | NF_bo_no_aich | Fixed |
| T _{BOC4} (mismatch) | NF_bo_mismatch | Random |

For T_{BOC4}, UE shall randomly select a timer value at each execution of the timer. A uniform random draw shall be made to select an integer number of frames within the range [0, NF_bo_mismatch]. For T_{BOC1}, UE would randomly select a timer value at each execution of the timer. A uniform random draw shall be made to select an integer number of frames within the range [0, NF_bo_all_busy].

NOTE:—Backoff parameter range and units are specified in [7], RRC Protocol Specification.

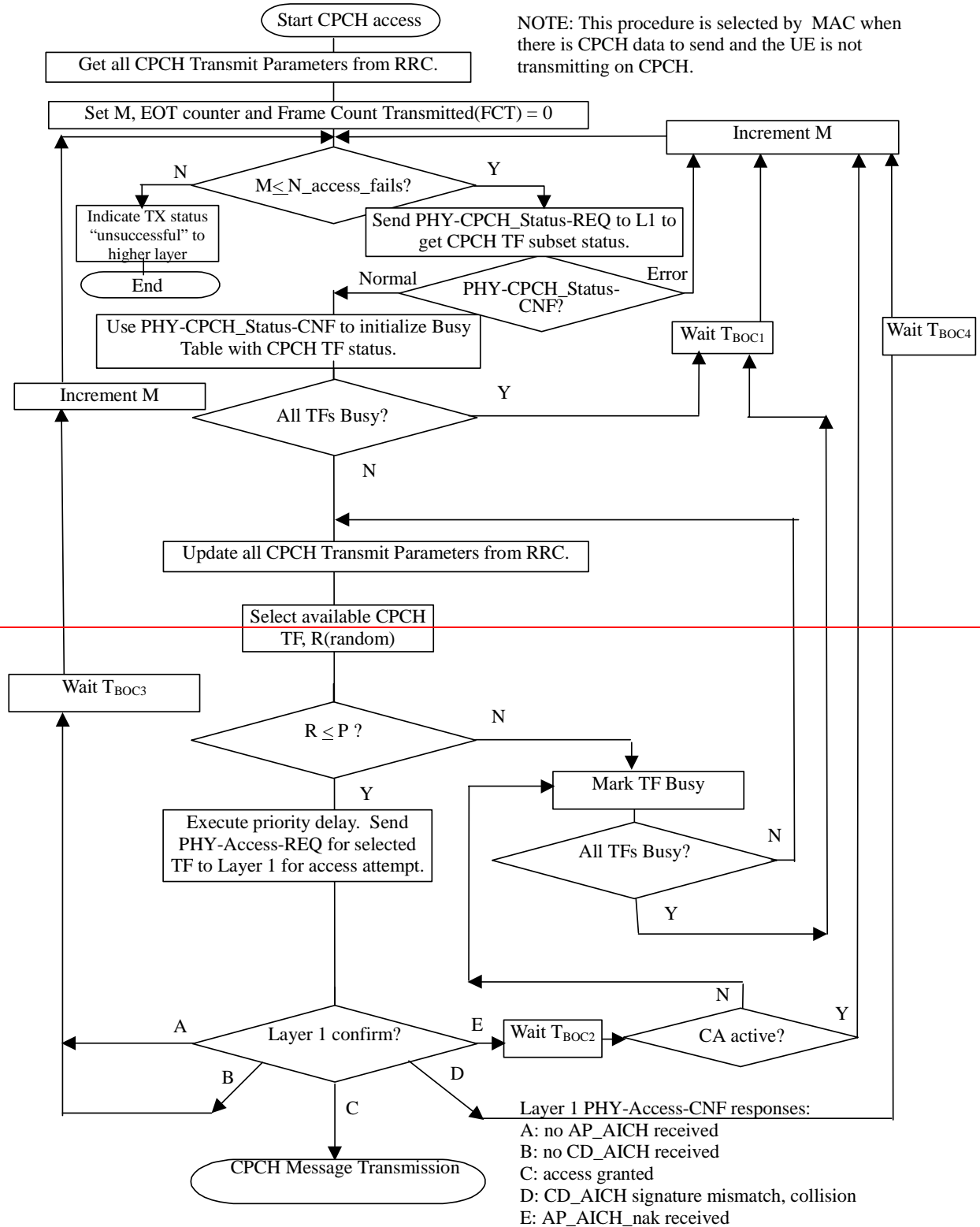


Figure 11.3.1: CPCH transmission control procedure for access (informative)

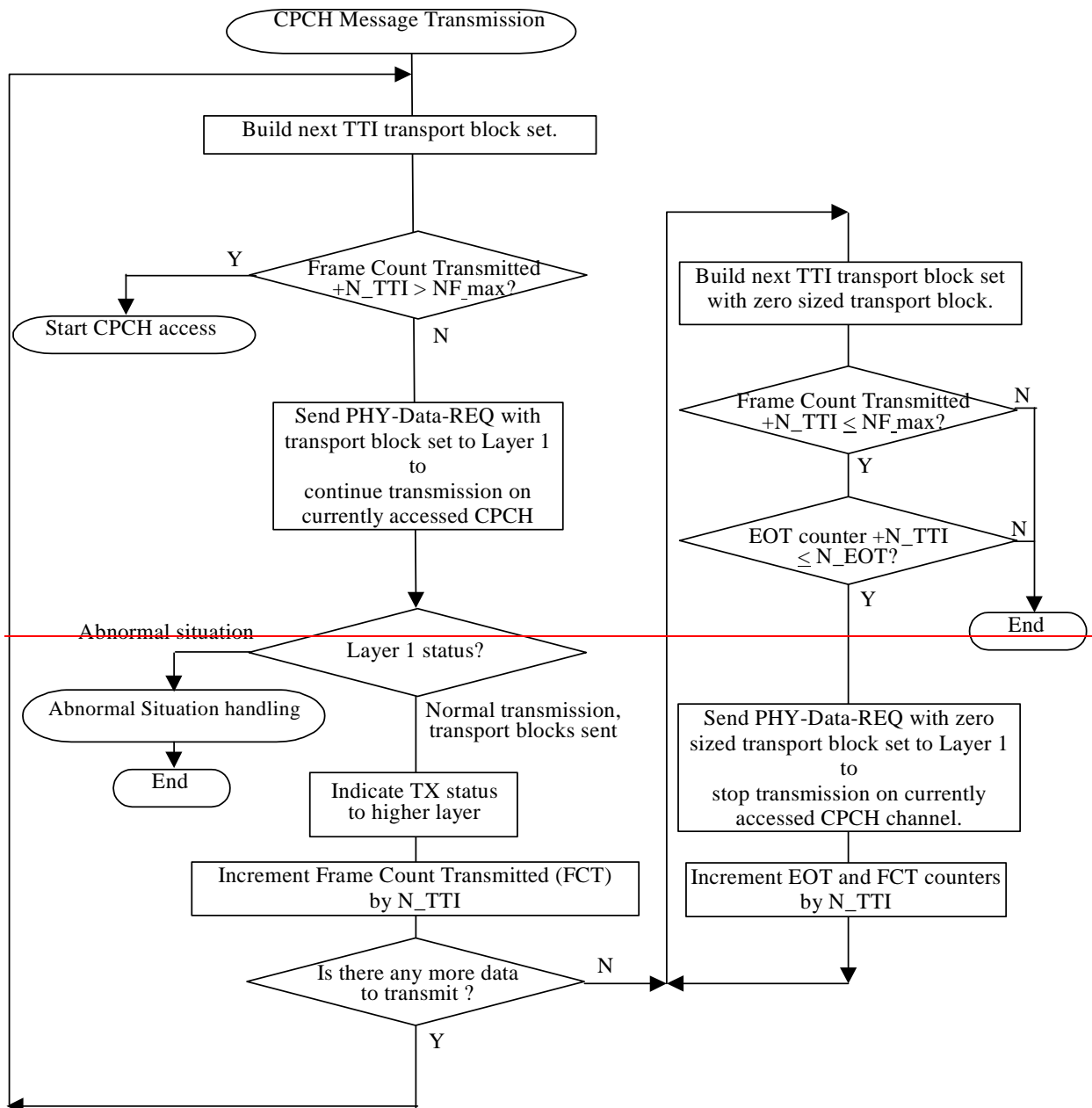


Figure 11.3.2: CPCH transmission control procedure for CPCH Message Transmission (informative)

11.4 Transport format combination selection in UE

RRC can control the scheduling of uplink data by giving each logical channel a priority between 1 and 8, where 1 is the highest priority and 8 the lowest. TFC selection in the UE shall be done in accordance with the priorities indicated by RRC. Logical channels have absolute priority, i.e. the UE shall maximise the transmission of higher priority data.

If the uplink TFCS or TFC Subset configured by UTRAN follows the guidelines described in [7] the UE shall perform the TFC selection according to the rules specified below. If these guidelines are not followed then the UE behaviour is not specified.

A given TFC can be in any of the following states:

- Supported state;
- Excess-power state;
- Blocked state.

TDD mode UEs in CELL_FACH state using the USCH transport channel and UEs in CELL_DCH state shall continuously monitor the state of each TFC based on its required transmit power versus the maximum UE transmit power (see [7]). The state transition criteria and the associated requirements are described in [12, 14]. The UE shall consider that the Blocking criterion is never met for TFCs included in the minimum set of TFCs (see [7]).

The following diagram illustrates the state transitions for the state of a given TFC:

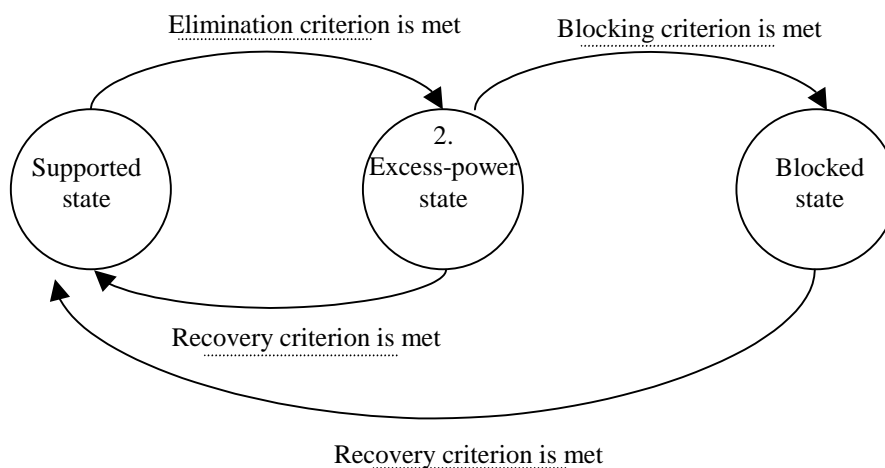


Figure 11.4.1: State transitions for the state of a given TFC

FDD Mode UEs in CELL_FACH state may estimate the channel path loss and set to excess power state all the TFCs requiring more power than the Maximum UE transmitter power (see [7]). All other TFCs shall be set to Supported state.

Every time the set of supported TFCs changes, the available bitrate shall be indicated to upper layers for each logical channel in order to facilitate the adaptation of codec data rates when codecs supporting variable-rate operation are used. The details of the computation of the available bitrate and the interaction with the application layer are not further specified.

Before selecting a TFC, i.e. at every boundary of the shortest TTI, or prior to each transmission on PRACH the set of valid TFCs shall be established. All TFCs in the set of valid TFCs shall:

1. belong to the TFCS.
 - 1a. not be restricted by higher layer signalling (e.g. TFC Control, see [7]).
2. not be in the Blocked state.
3. be compatible with the RLC configuration.
4. not require RLC to produce padding PDUs (see [6] for definition).
5. not carry more bits than can be transmitted in a TTI (e.g. when compressed mode by higher layer scheduling is used and the presence of compressed frames reduces the number of bits that can be transmitted in a TTI using the Minimum SF configured).

The UE may remove from the set of valid TFCs, TFCs in Excess-power state in order to maintain the quality of service for sensitive applications (e.g. speech). However, this shall not apply to TFCs included in the minimum set of TFCs (see [7]). Additionally, if compressed frames are present within the longest configured TTI to which the next transmission belongs, the UE may remove TFCs from the set of valid TFCs in order to account for the higher power requirements.

The chosen TFC shall be selected from within the set of valid TFCs and shall satisfy the following criteria in the order in which they are listed below:

1. No other TFC shall allow the transmission of more highest priority data than the chosen TFC.

2. No other TFC shall allow the transmission of more data from the next lower priority logical channels. Apply this criterion recursively for the remaining priority levels.
3. No other TFC shall have a lower bit rate than the chosen TFC.

In FDD mode the above rules for TFC selection in the UE shall apply to DCH, and the same rules shall apply for TF selection on RACH~~and CPCH~~.

In 3.84 Mcps TDD mode the above rules for TFC selection in the UE shall apply to DCH and USCH.

3GPP TSG RAN WG2 #47
Athens, Greece
09 - 13 May 2005

Tdoc #R2-051625

CR-Form-v7.1

CHANGE REQUEST

25.321 CR 0214 # rev - # Current version: 6.4.0

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

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

| | |
|---|-------------------------------------|
| Title: | # Feature Clean Up: Removal of CPCH |
| Source: | # RAN WG2 |
| Work item code: | # TEI5 |
| Date: | # 14 April 2005 |
| Category: | # C |
| <p>Use <u>one</u> of the following categories:</p> <p>F (correction)
 A (corresponds to a correction in an earlier release)
 B (addition of feature),
 C (functional modification of feature)
 D (editorial modification)</p> <p>Detailed explanations of the above categories can be found in 3GPP TR 21.900.</p> | |
| Release: | # Rel-6 |
| <p>Use <u>one</u> of the following releases:</p> <p>Ph2 (GSM Phase 2)
 R96 (Release 1996)
 R97 (Release 1997)
 R98 (Release 1998)
 R99 (Release 1999)
 Rel-4 (Release 4)
 Rel-5 (Release 5)
 Rel-6 (Release 6)
 Rel-7 (Release 7)</p> | |

| | |
|--------------------------------------|--|
| Reason for change: | # Decision taken at RAN plenary to remove unnecessary features |
| Summary of change: | # - Remove from section 3.2
- Remove from section 4.2.1
- Remove from section 4.2.3.1
- Correct Figure 4.2.3.1.1
- Correct Figure 4.2.4.1
- Correct Figure 4.2.4.1.1
- Remove from section 4.3.1
- Remove from section 6.1
- Remove from section 6.2.1
- Remove from section 6.2.2
- Remove from section 8.2.1
- Remove from section 8.2.2
- Remove from section 8.3.1
- Remove from section 8.3.2
- Remove from section 9.2.1.1
- Correct Figure 9.2.1.1.1
- Remove from section 11.3
- Remove from section 11.4 |
| Consequences if not approved: | # RAN decision not carried out. |

Clauses affected: # 3.2, 4.2.1, 4.2.3.1, 4.3.1, 6.1, 6.2.1, 6.2.2, 8.2.1, 8.2.2, 8.3.1, 8.3.2, 9.2.1.1, 11.3,

| | | | | | | | | | | | | |
|------------------------------|---|--|---|---|---|--|--|---|--|---|---------------------------|---|
| | | 11.4. | | | | | | | | | | |
| Other specs affected: | ⌘ | <table border="1"> <tr> <td style="text-align: center;">Y</td> <td style="text-align: center;">N</td> </tr> <tr> <td style="text-align: center;">X</td> <td></td> </tr> <tr> <td></td> <td style="text-align: center;">X</td> </tr> <tr> <td></td> <td style="text-align: center;">X</td> </tr> </table> | Y | N | X | | | X | | X | Other core specifications | ⌘ 25.301, 25.302, 25.303, 25.306, 25.331. |
| | Y | N | | | | | | | | | | |
| | X | | | | | | | | | | | |
| | X | | | | | | | | | | | |
| | X | | | | | | | | | | | |
| | | Test specifications | | | | | | | | | | |
| | | O&M Specifications | | | | | | | | | | |
| Other comments: | ⌘ | | | | | | | | | | | |

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Below is a brief summary:

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

~~~~ Next Modified Section ~~~~

## 3.2 Abbreviations

For the purposes of the present document, the following abbreviations apply:

|                 |                                             |
|-----------------|---------------------------------------------|
| ASC             | Access Service Class                        |
| BCCH            | Broadcast Control Channel                   |
| BCH             | Broadcast Channel                           |
| C-              | Control-                                    |
| CCCH            | Common Control Channel                      |
| <del>CPCH</del> | <del>Common Packet Channel (UL)</del>       |
| DCCH            | Dedicated Control Channel                   |
| DCH             | Dedicated Channel                           |
| DL              | Downlink                                    |
| DSCH            | Downlink Shared Channel                     |
| DTCH            | Dedicated Traffic Channel                   |
| E-AGCH          | E-DCH Absolute Grant Channel                |
| E-DCH           | Enhanced Dedicated Transport Channel        |
| E-DPCCH         | E-DCH Dedicated Physical Control Channel    |
| E-RGCH          | E-DCH Relative Grant Channel                |
| FACH            | Forward Link Access Channel                 |
| FDD             | Frequency Division Duplex                   |
| HARQ            | Hybrid Automatic Repeat Request             |
| HCSN            | HS-SCCH Cyclic Sequence Number              |
| HS-DSCH         | High Speed Downlink Shared Channel          |
| L1              | Layer 1 (physical layer)                    |
| L2              | Layer 2 (data link layer)                   |
| L3              | Layer 3 (network layer)                     |
| MAC             | Medium Access Control                       |
| MBMS            | Multimedia Broadcast Multicast Service      |
| MCCH            | MBMS point-to-multipoint Control Channel    |
| MTCH            | MBMS point-to-multipoint Traffic Channel    |
| MSCH            | MBMS point-to-multipoint Scheduling Channel |
| PCCH            | Paging Control Channel                      |
| PCH             | Paging Channel                              |
| PDU             | Protocol Data Unit                          |
| PHY             | Physical layer                              |
| PhyCH           | Physical Channels                           |
| RACH            | Random Access Channel                       |
| RLC             | Radio Link Control                          |
| RLS             | Radio Link Set                              |
| RNC             | Radio Network Controller                    |
| RNS             | Radio Network Subsystem                     |
| RNTI            | Radio Network Temporary Identity            |
| RRC             | Radio Resource Control                      |
| RSN             | Retransmission Sequence Number              |
| SAP             | Service Access Point                        |
| SDU             | Service Data Unit                           |
| SHCCH           | Shared Channel Control Channel              |
| SRNC            | Serving Radio Network Controller            |
| SRNS            | Serving Radio Network Subsystem             |
| TDD             | Time Division Duplex                        |
| TFCI            | Transport Format Combination Indicator      |
| TFI             | Transport Format Indicator                  |
| TSN             | Transmission Sequence Number                |
| U-              | User-                                       |
| UE              | User Equipment                              |
| UL              | Uplink                                      |

|       |                                            |
|-------|--------------------------------------------|
| UMTS  | Universal Mobile Telecommunications System |
| USCH  | Uplink Shared Channel                      |
| UTRA  | UMTS Terrestrial Radio Access              |
| UTRAN | UMTS Terrestrial Radio Access Network      |

~~~~ Next Modified Section ~~~~

4.2.1 MAC Entities

The diagrams that describe the MAC architecture are constructed from MAC entities.

The entities are assigned the following names.

- MAC-b is the MAC entity that handles the following transport channels:
 - broadcast channel (BCH)
- MAC-c/sh/m, is the MAC entity that handles the following transport channels:
 - paging channel (PCH)
 - forward access channel (FACH)
 - random access channel (RACH)
 - ~~common packet channel (UL-CPCH). The CPCH exists only in FDD mode.~~
 - downlink shared channel (DSCH)
 - uplink shared channel (USCH). The USCH exists only in TDD mode.
- MAC-d is the MAC entity that handles the following transport channels:
 - dedicated transport channel (DCH)
- MAC-hs is the MAC entity that handles the following transport channels:
 - high speed downlink shared channel (HS-DSCH)
- MAC-m is the MAC entity that handles the following transport channels:
 - forward access channel (FACH).
- MAC-e/es are the MAC entities that handle the following transport channels:
 - enhanced dedicated transport channel (E-DCH).

The exact functions completed by the entities are different in the UE from those completed in the UTRAN.

NOTE: When a UE is allocated resources for exclusive use by the bearers that it supports the MAC-d entities dynamically share the resources between the bearers and are responsible for selecting the TFI/ TFCI that is to be used in each transmission time interval.

~~~~ Next Modified Section ~~~~

### 4.2.3 Traffic Related Architecture - UE Side

Figure 4.2.3.1 illustrates the connectivity of MAC entities.

The MAC-c/sh/m controls access to all common transport channels, except the HS-DSCH transport channel.

The MAC-d controls access to all dedicated transport channels, to MAC-c/sh/m and MAC-hs.

The MAC-hs controls access to the HS-DSCH transport channel.

The MAC-e/es controls access to the E-DCH transport channel.

In case of selective combining of MTCH channels from multiple cells, the MAC-m controls access to the FACH transport channels used to carry MTCH and MSCH.

In the downlink, if logical channels of dedicated type are mapped to common transport channels then MAC-d receives the data from MAC-c/sh/m or MAC-hs via the illustrated connection between the functional entities.

In the uplink, if logical channels of dedicated type are mapped to common transport channels then MAC-d submits the data to MAC-c/sh/m via the illustrated connection between the functional entities.

The mapping of logical channels on transport channels depends on the multiplexing that is configured by RRC.

The MAC Control SAP is used to transfer Control information to each MAC entity.

The associated signalling shown in the figure illustrates the exchange of information between layer 1 and layer 2 provided by primitives shown in [3].

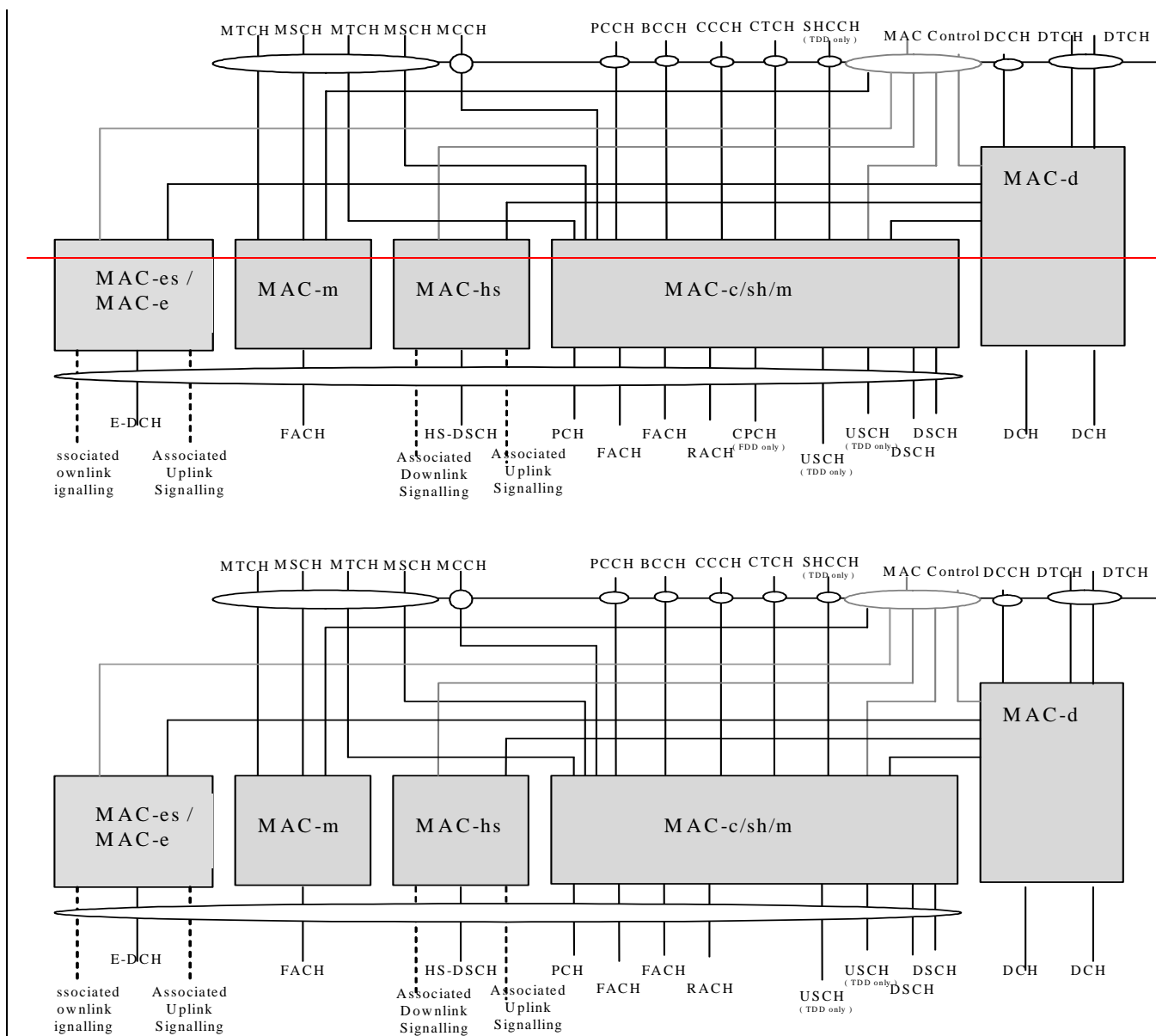


Figure 4.2.3.1: UE side MAC architecture

### 4.2.3.1 MAC-c/sh/m entity – UE Side

Figure 4.2.3.1.1 shows the UE side MAC-c/sh/m entity.

The following functionality is covered:

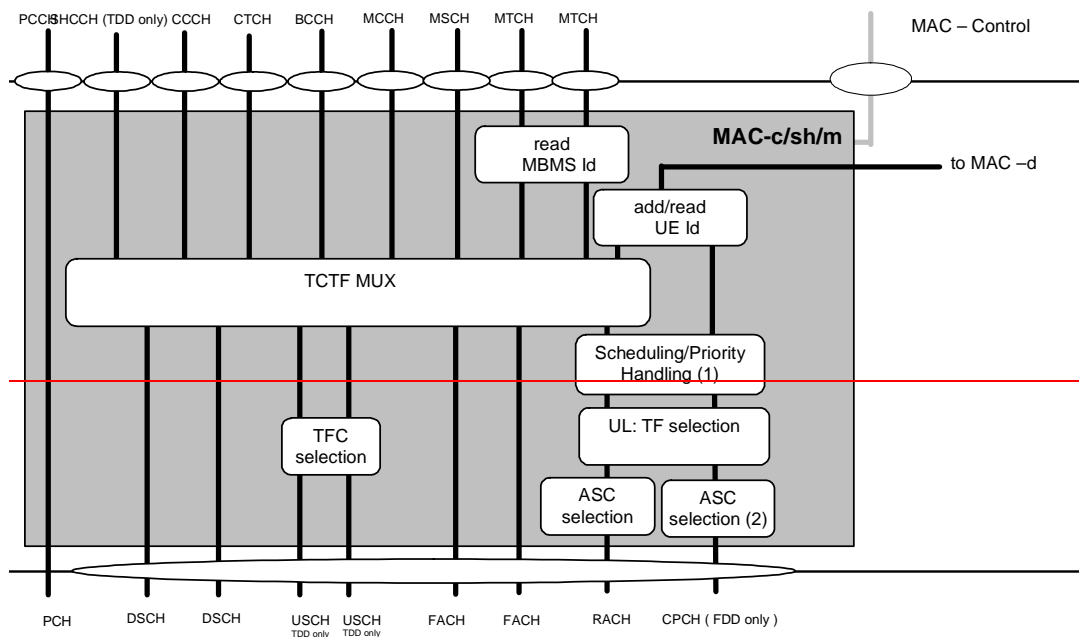
- TCTF MUX:
  - this function represents the handling (insertion for uplink channels and detection and deletion for downlink channels) of the TCTF field in the MAC header, and the respective mapping between logical and transport channels.  
The TCTF field indicates the common logical channel type, or if a dedicated logical channel is used;
- add/read UE Id:
  - the UE Id is added for ~~CPCH~~ and RACH transmissions;
  - the UE Id, when present, identifies data to this UE.



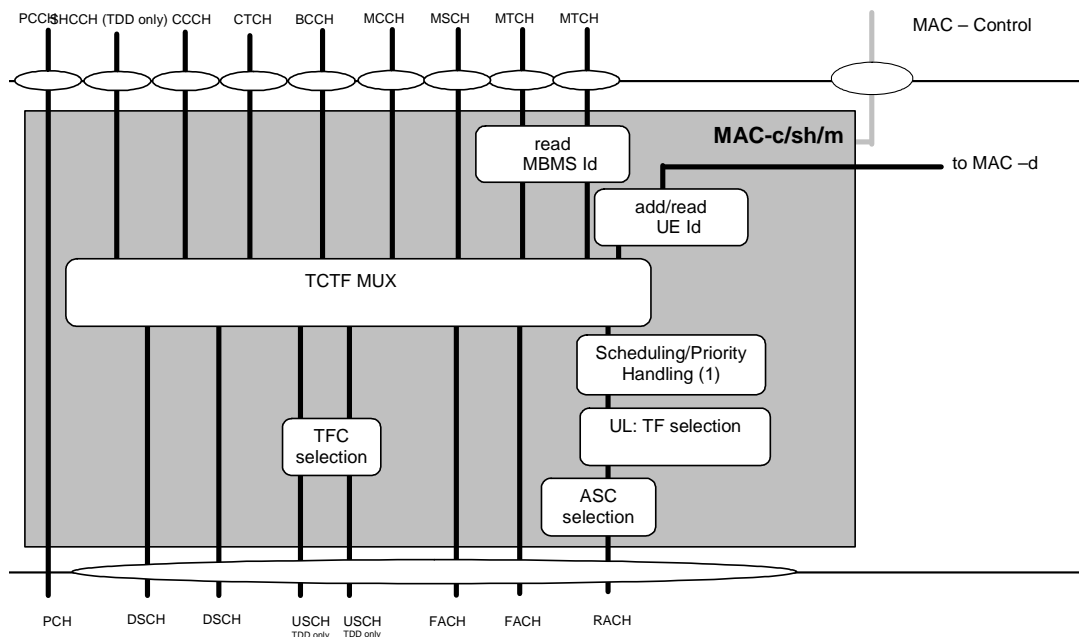
- read MBMS Id:
  - the MBMS Id is read in case of MTCH reception;
  - the MBMS Id identifies received data to an MBMS service.
- UL: TF selection:
  - in the uplink, the possibility of transport format selection exists.  
~~In case of CPCH transmission, a TF is selected based on TF availability determined from status information on the CSICH;~~
- ASC selection:
  - For RACH, MAC indicates the ASC associated with the PDU to the physical layer. ~~For CPCH, MAC may indicate the ASC associated with the PDU to the Physical Layer.~~ This is to ensure that RACH ~~and CPCH~~ messages associated with a given Access Service Class (ASC) are sent on the appropriate signature(s) and time slot(s). MAC also applies the appropriate back-off parameter(s) associated with the given ASC. When sending an RRC CONNECTION REQUEST message, RRC will determine the ASC; in all other cases MAC selects the ASC;
- scheduling /priority handling
  - this functionality is used to transmit the information received from MAC-d on RACH ~~and CPCH~~ based on logical channel priorities. This function is related to TF selection.
- TFC selection
  - transport format and transport format combination selection according to the transport format combination set (or transport format combination subset) configured by RRC is performed,

The RLC provides RLC-PDUs to the MAC, which fit into the available transport blocks on the transport channels.

There is one MAC-c/sh/m entity in each UE.



Note 1: Scheduling /Priority handling is applicable for CPCH.  
 Note 2: In case of CPCH, ASC selection may be applicable for AP preamble.



Note 1: Scheduling /Priority handling is applicable for CPCH.  
 Note 2: In case of CPCH, ASC selection may be applicable for AP preamble.

**Figure 4.2.3.1.1: UE side MAC architecture / MAC-c/sh/m details**

~~~~ Next Modified Section ~~~~

4.2.4.1 MAC-c/sh/m entity – UTRAN Side

Figure 4.2.4.1.1 shows the UTRAN side MAC-c/sh/m entity. The following functionality is covered:

- Scheduling – Buffering – Priority Handling;
 - this function manages FACH and DSCH resources between the UEs and between data flows according to their priority and delay requirements set by higher layers.
- TCTF MUX
 - this function represents the handling (insertion for downlink channels and detection and deletion for uplink channels) of the TCTF field in the MAC header, and the respective mapping between logical and transport channels.
The TCTF field indicates the common logical channel type, or if a dedicated logical channel is used;
- UE Id Mux;
 - for dedicated type logical channels, the UE Id field in the MAC header is used to distinguish between UEs;
- MBMS Id Mux;
 - for MTCH channels, the MBMS Id field in the MAC header is used to distinguish between MBMS services;
- TFC selection:
 - in the downlink, transport format combination selection is done for FACH and PCH and DSCHs;
- Demultiplex;
 - for TDD operation the demultiplex function is used to separate USCH data from different UEs, i.e. to be transferred to different MAC-d entities;
- DL code allocation;
 - this function is used to indicate the code used on the DSCH;
- Flow control;
 - a flow control function exists toward MAC-d to limit buffering between MAC-d and MAC-c/sh/m entities. a flow control function also exists towards MAC-hs in case of configuration with MAC-c/sh/m.

The RLC provides RLC-PDUs to the MAC, which fit into the available transport blocks on the transport channels.

There is one MAC-c/sh/m entity in the UTRAN for each cell;

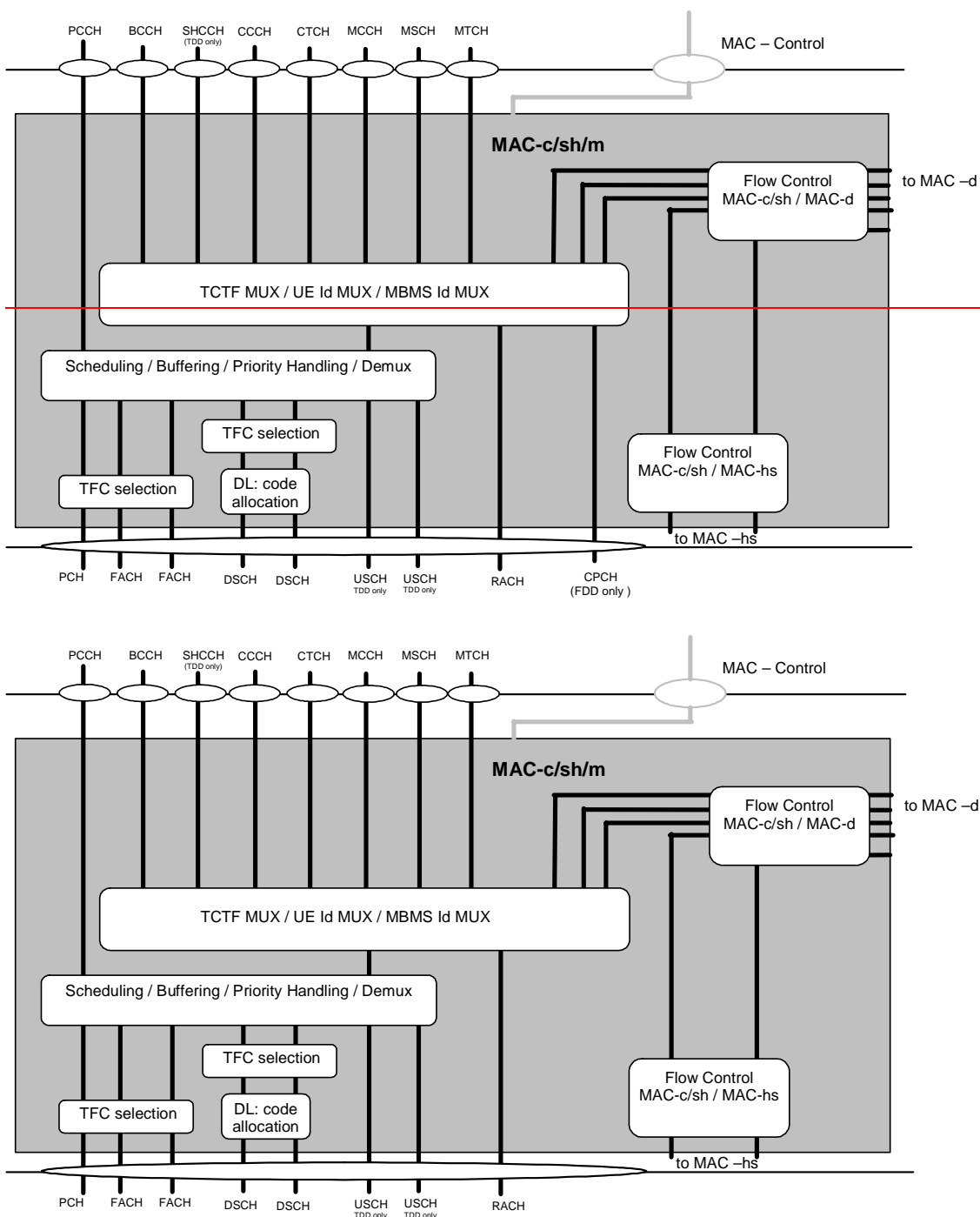


Figure 4.2.4.1.1: UTRAN side MAC architecture / MAC-c/sh/m details

~~~~ Next Modified Section ~~~~

### 4.3.1 Transport channels

Common transport channel types are:

- Random Access Channel(s) (RACH);
- Forward Access Channel(s) (FACH);

- Downlink Shared Channel(s) (DSCH);
- High Speed Downlink Shared Channel(s) (HS-DSCH);
- ~~Common Packet Channel(s) (CPCH) for UL FDD operation only;~~
- Uplink Shared Channel(s) (USCH), for TDD operation only;
- Broadcast Channel (BCH);
- Paging Channel (PCH).

Dedicated transport channel types are:

- Dedicated Channel (DCH);
- Enhanced Dedicated Channel (E-DCH) for UL FDD operation only.

~~~~ Next Modified Section ~~~~

6.1 Description of the MAC functions

The functions of MAC include:

- mapping between logical channels and transport channels;
- selection of appropriate Transport Format for each Transport Channel depending on instantaneous source rate;
- priority handling between data flows of one UE;
- priority handling between UEs by means of dynamic scheduling;
- identification of UEs on common transport channels;
- identification of MBMS services on common transport channels;
- multiplexing/demultiplexing of upper layer PDUs into/from transport blocks delivered to/from the physical layer on common transport channels;
- multiplexing/demultiplexing of upper layer PDUs into/from transport block sets delivered to/from the physical layer on dedicated transport channels;
- traffic volume measurement;
- Transport Channel type switching;
- ciphering for transparent mode RLC;
- Access Service Class selection for RACH ~~and CPCH~~ transmission;
- control of HS-DSCH transmission and reception including support of HARQ;
- HS-DSCH Provided Bit Rate measurement;
- control of E-DCH transmission and reception including support of HARQ.

6.2 Relation between MAC Functions and Transport Channels

6.2.1 Relation between MAC Functions and Transport Channels in UTRAN

Table 6.2.1.1: UTRAN MAC functions corresponding to the transport channel

| Associated MAC Functions | Logical Ch | Transport Ch | TF Selection | Priority handling between UEs | Priority handling (one UE) | Scheduling | Identification of UEs or MBMS services | Mux/ Demux on common transport channels | Mux/ Demux on dedicated transport channels | HARQ support |
|--------------------------|-----------------|-----------------|--------------|-------------------------------|----------------------------|------------|--|---|--|--------------|
| Uplink (Rx) | CCCH | RACH | | | | | | X | | |
| | DCCH | RACH | | | | | X | X | | |
| | DCCH | CPCH | | | | | X | X | | |
| | DCCH | DCH | | | | | | | X | |
| | DTCH | RACH | | | | | X | X | | |
| | DTCH | CPCH | | | | | X | X | | |
| | DTCH | DCH | | | | | | | X | |
| | SHCCH | RACH | | | | | X | X | | |
| | SHCCH | USCH | | | | | | X | | |
| | DTCH | USCH | | | | | | X | | |
| | DCCH | USCH | | | | | | X | | |
| | DTCH | E-DCH | | | | X | | | X | X |
| DCCH | E-DCH | | | | X | | | X | X | |
| Downlink (Tx) | BCCH | BCH | | | | X | | | | |
| | BCCH | FACH | X | | | X | | X | | |
| | PCCH | PCH | X | | | X | | | | |
| | CCCH | FACH | X | X | | X | | X | | |
| | CTCH | FACH | X | | | X | | X | | |
| | MCCH | FACH | X | | | X | | X | | |
| | MSCH | FACH | X | | | X | | X | | |
| | MTCH | FACH | X | | | X | X | X | | |
| | CTCH | FACH | X | | | X | | X | | |
| | DCCH | FACH | X | X | | X | X | X | | |
| | DCCH | DSCH | X | X | | | X | X | | |
| | DCCH | DCH | X | | X | | | | X | |
| | DCCH | HS-DSCH | X (1) | X | X | X | X | X | | X |
| | DTCH | FACH | X | X | | X | X | X | | |
| | DTCH | DSCH | X | X | | | X | X | | |
| | DTCH | DCH | X | | X | | | | X | |
| DTCH | HS-DSCH | X (1) | X | X | X | X | X | | X | |
| SHCCH | FACH | X | | X | | X | X | | | |
| SHCCH | DSCH | X | | X | | | X | | | |

NOTE 1: In case of HS-DSCH the TF selection is replaced by TFRC selection.

6.2.2 Relation of MAC Functions and Transport Channels in UE

Table 6.2.2.1: UE MAC functions corresponding to the transport channel

| Associated MAC Functions | Logical Ch | Transport Ch | TF Selection | Priority handling (one UE) | Identification | Mux/Demux on common transport channels | Mux/Demux on dedicated transport channels | HARQ support |
|--------------------------|-----------------|-----------------|--------------|----------------------------|----------------|--|---|--------------|
| Uplink (Tx) | CCCH | RACH | | | | X | | |
| | DCCH | RACH | X | X | X | X | | |
| | DCCH | CPCH | X | X | X | X | | |
| | DCCH | DCH | X | X | | | X | |
| | DTCH | RACH | X | X | X | X | | |
| | DTCH | CPCH | X | X | X | X | | |
| | DTCH | DCH | X | X | | | X | |
| | SHCCH | RACH | | | | X | | |
| | SHCCH | USCH | X | X | | X | | |
| | DCCH | USCH | X | X | | X | | |
| | DTCH | USCH | X | X | | X | | |
| | DCCH | E-DCH | X | X | | | X | X |
| DTCH | E-DCH | X | X | | | X | X | |
| Downlink (Rx) | BCCH | BCH | | | | | | |
| | BCCH | FACH | | | | X | | |
| | PCCH | PCH | | | | | | |
| | CCCH | FACH | | | | X | | |
| | CTCH | FACH | | | | X | | |
| | MCCH | FACH | | | | X | | |
| | MSCH | FACH | | | | X | | |
| | MTCH | FACH | | | X | X | | |
| | DCCH | FACH | | | X | X | | |
| | DCCH | DSCH | | | | X | | |
| | DCCH | DCH | | | | | X | |
| | DCCH | HS-DSCH | | | X | X | | X |
| | DTCH | FACH | | | X | X | | |
| | DTCH | DSCH | | | | X | | |
| | DTCH | DCH | | | | | X | |
| DTCH | HS-DSCH | | | X | X | | X | |
| SHCCH | FACH | | | | X | | | |
| SHCCH | DSCH | | | | X | | | |

~~~ Next Modified Section ~~~

## 8.2.1 Primitives

The primitives between MAC layer and RLC layer are shown in table 8.2.1.1.

**Table 8.2.1.1: Primitives between MAC layer and RLC layer**

| Generic Name | Parameter                                       |                                                |                     |         |
|--------------|-------------------------------------------------|------------------------------------------------|---------------------|---------|
|              | Request                                         | Indication                                     | Response            | Confirm |
| MAC-DATA     | Data, BO, UE-ID type indicator, RLC Entity Info | Data, No_TB, TD (note), Error indication       |                     |         |
| MAC-STATUS   |                                                 | No_PDU, PDU_Size, TX status, Status_Report_REQ | BO, RLC Entity Info |         |

NOTE: TDD only.

**MAC-DATA-Req/Ind:**

- MAC-DATA-Req primitive is used to request that an upper layer PDU be sent using the procedures for the information transfer service;
- MAC-DATA-Ind primitive indicates the arrival of upper layer PDUs received within one transmission time interval by means of the information transfer service.

**MAC-STATUS-Ind/Resp:**

- MAC-STATUS-Ind primitive indicates to RLC for each logical channel the rate at which it may transfer data to MAC. Parameters are the number of PDUs that can be transferred in each transmission time interval and the PDU size; it is possible that MAC would use this primitive to indicate that it expects the current buffer occupancy of the addressed logical channel in order to provide for optimised TFC selection on transport channels with long transmission time interval. At the UE, MAC-STATUS-Ind primitive is also used to indicate from MAC to RLC that MAC has requested data transmission by PHY (i.e. PHY-DATA-REQ has been submitted, see Fig. 11.2.2.1), or that transmission of an RLC PDU on RACH ~~or CPCH~~ has failed due to exceeded preamble ramping cycle counter.
- MAC-STATUS-Resp primitive enables RLC to acknowledge a MAC-STATUS-Ind. It is possible that RLC would use this primitive to indicate that it has nothing to send or that it is in a suspended state or to indicate the current buffer occupancy to MAC.

## 8.2.2 Parameters

## a) Data:

- it contains the RLC layer messages (RLC-PDU) to be transmitted, or the RLC layer messages that have been received by the MAC sub-layer.

## b) Number of transmitted transport blocks (No\_TB) :

- indicates the number of transport blocks transmitted by the peer entity within the transmission time interval, based on the TFI value.

## c) Buffer Occupancy (BO):

- the parameter Buffer Occupancy (BO) indicates for each logical channel the amount of data in number of bytes that is available for transmission and retransmission in RLC layer. When MAC is connected to an AM RLC entity, control PDUs to be transmitted and RLC PDUs outside the RLC Tx window shall also be included in the BO. RLC PDUs that have been transmitted but not negatively acknowledged by the peer entity shall not be included in the BO.

## d) RX Timing Deviation (TD), TDD only:

- it contains the RX Timing Deviation as measured by the physical layer for the physical resources carrying the data of the Message Unit. This parameter is optional and only for Indication. It is needed for the transfer of the RX Timing Deviation measurement of RACH transmissions carrying CCCH data to RRC.

## e) Number of PDU (No\_PDU):

- specifies the number of PDUs that the RLC is permitted to transfer to MAC within a transmission time interval.

## f) PDU Size (PDU\_Size):

- specifies the size of PDU that can be transferred to MAC within a transmission time interval.

## g) UE-ID Type Indicator:

- indicates the UE-ID type to be included in MAC for a DCCH and DTCH when they are mapped onto a common transport channel (i.e. FACH, RACH, DSCH in FDD ~~or CPCH~~). On the UE side UE-ID Type Indicator shall always be set to C-RNTI.

## h) TX status:



- when set to value "transmission unsuccessful" this parameter indicates to RLC that transmission of an RLC PDU failed in the previous Transmission Time Interval, when set to value "transmission successful" this parameter indicates to RLC that the requested RLC PDU(s) has been submitted for transmission by the physical layer.
- i) RLC Entity Info
  - indicates to MAC the configuration parameters that are critical to TFC selection depending on its mode and the amount of data that could be transmitted at the next TTI. This primitive is meant to insure that MAC can perform TFC selection (see subclause 11.4).
- j) Error indication
  - When a MAC SDU is delivered to upper layer, an error indication is given for the SDU to upper layer if an error indication for the SDU has been received from lower layer.
- k) Status\_Report\_REQ
  - indicates to all AM RLC entities mapped on HS-DSCH to generate a status report when the MAC-hs resets.

## 8.3 Primitives between MAC and RRC

### 8.3.1 Primitives

The primitives between MAC and RRC are shown in table 8.3.1.1.

**Table 8.3.1.1: Primitives between MAC sub-layer and RRC**

| Generic Name            | Parameter                                                                                                                                                                                                      |                    |          |         |
|-------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|----------|---------|
|                         | Request                                                                                                                                                                                                        | Indication         | Response | Confirm |
| <b>CMAC-CONFIG</b>      | UE information elements, RB information elements, TrCH information elements, RACH transmission control elements, Ciphering elements, <del>CPCH transmission control elements</del> , MBMS information elements |                    |          |         |
| <b>CMAC-MEASUREMENT</b> | Measurement information elements                                                                                                                                                                               | Measurement result |          |         |
| <b>CMAC-STATUS</b>      |                                                                                                                                                                                                                | Status info        |          |         |

#### CMAC-CONFIG-Req:

- CMAC-CONFIG-Req is used to request for setup, release and configuration of a logical channel, e.g. RNTI allocation, switching the connection between logical channels and transport channels, TFCS update or scheduling priority of logical channel.

#### CMAC-MEASUREMENT-Req/Ind:

- CMAC-MEASUREMENT-Req is used by RRC to request MAC to perform measurements, e.g. traffic volume measurements;
- CMAC-MEASUREMENT-Ind is used to notify RRC of the measurement result.

#### CMAC-STATUS-Ind:

- CMAC-STATUS-Ind primitive notifies RRC of status information.

### 8.3.2 Parameters

See [7] for a detailed description of the UE, RB and TrCH information elements.

- a) UE information elements
  - S-RNTI
  - SRNC identity
  - C-RNTI
  - Activation time
- b) RB information elements
  - RB multiplexing info (Transport channel identity, Logical channel identity, MAC logical channel priority)
  - DDI mapping table for E-DCH transmission
- c) TrCH information elements
  - Transport Format Combination Set
  - MAC-hs reset indicator
  - Re-ordering release timer (T1)
  - HARQ Profile parameters (power offset, maximum number of re-transmissions)
  - E-DCH TTI duration
  - Allowed combinations for multiplexing of MAC-d flows into MAC-e PDUs
- d) Measurement information elements
  - Reporting Quantity identifiers
  - Time interval to take an average or a variance (applicable when Average or Variance is Reporting Quantity)
- e) Measurement result
  - Reporting Quantity
- f) Status info
  - when set to value "transmission unsuccessful" this parameter indicates to RRC that transmission of a TM RLC PDU failed (due to e.g. Maximum number of preamble ramping cycles reached for RACH in FDD), when set to value "transmission successful" this parameter indicates to RRC that the requested TM RLC PDU(s) has been submitted for transmission by the physical layer.
- g) RACH transmission control elements
  - Set of ASC parameters (identifier for PRACH partitions, persistence values)
  - Maximum number of preamble ramping cycles (FDD) or synchronisation attempts (1.28 Mcps TDD)  $M_{\max}$
  - Minimum and maximum number of time units between two preamble ramping cycles,  $N_{\text{BO1min}}$  and  $N_{\text{BO1max}}$  (FDD only)
  - ASC for RRC CONNECTION REQUEST message
- h) Cipherring elements
  - Cipherring mode
  - Cipherring key
  - Cipherring sequence number
- ~~i) CPCH transmission control elements~~
  - ~~CPCH persistency value, P for each Transport Format~~
  - ~~Maximum number of preamble ramping cycles  $N_{\text{access\_fails}}$~~
  - ~~$N_{\text{F\_max}}$  (Maximum number of frames for CPCH transmission for each Transport Format)~~
  - ~~$N_{\text{EOT}}$  (Number of EOT for release of CPCH transmission)~~
  - ~~Backoff control timer parameters~~
  - ~~Transport Format Set~~
  - ~~Initial Priority Delays~~
  - ~~Channel Assignment Active indication~~
- j) MBMS information elements
  - MBMS Id
- k) E-DCH configuration elements
  - HARQ Round Trip Time

~~~~ Next Modified Section ~~~~

9.2.1.1 MAC header for DTCH and DCCH (not mapped on HS-DSCH or E-DCH)

- a) DTCH or DCCH mapped to DCH, no multiplexing of dedicated channels on MAC:
 - no MAC header is required.
- b) DTCH or DCCH mapped to DCH, with multiplexing of dedicated channels on MAC:
 - C/T field is included in MAC header.
- c) DTCH or DCCH mapped to RACH/FACH:
 - TCTF field, C/T field, UE-Id type field and UE-Id are included in the MAC header. For FACH, the UE-Id type field used is the C-RNTI or U-RNTI. For RACH, the UE-Id type field used is the C-RNTI.
- d) DTCH or DCCH mapped to DSCH or USCH:
 - the TCTF field is included in the MAC header for TDD only. The UE-Id type and UE-Id are included in the MAC header for FDD only. The UE-Id type field used is the DSCH-RNTI. The C/T field is included if multiplexing on MAC is applied.
- e) DTCH or DCCH mapped to DSCH or USCH where DTCH or DCCH are the only logical channels:
 - the UE-Id type and UE-Id are included in the MAC header for FDD only. The UE-Id type field used is the DSCH-RNTI. The C/T field is included in the MAC header if multiplexing on MAC is applied.
- f) ~~DTCH or DCCH mapped to CPCH:~~

~~— UE-Id type field and UE-Id are included in the MAC header. The C/T field is included in the MAC header if multiplexing on MAC is applied. The UE-Id type field used is the C-RNTI.~~

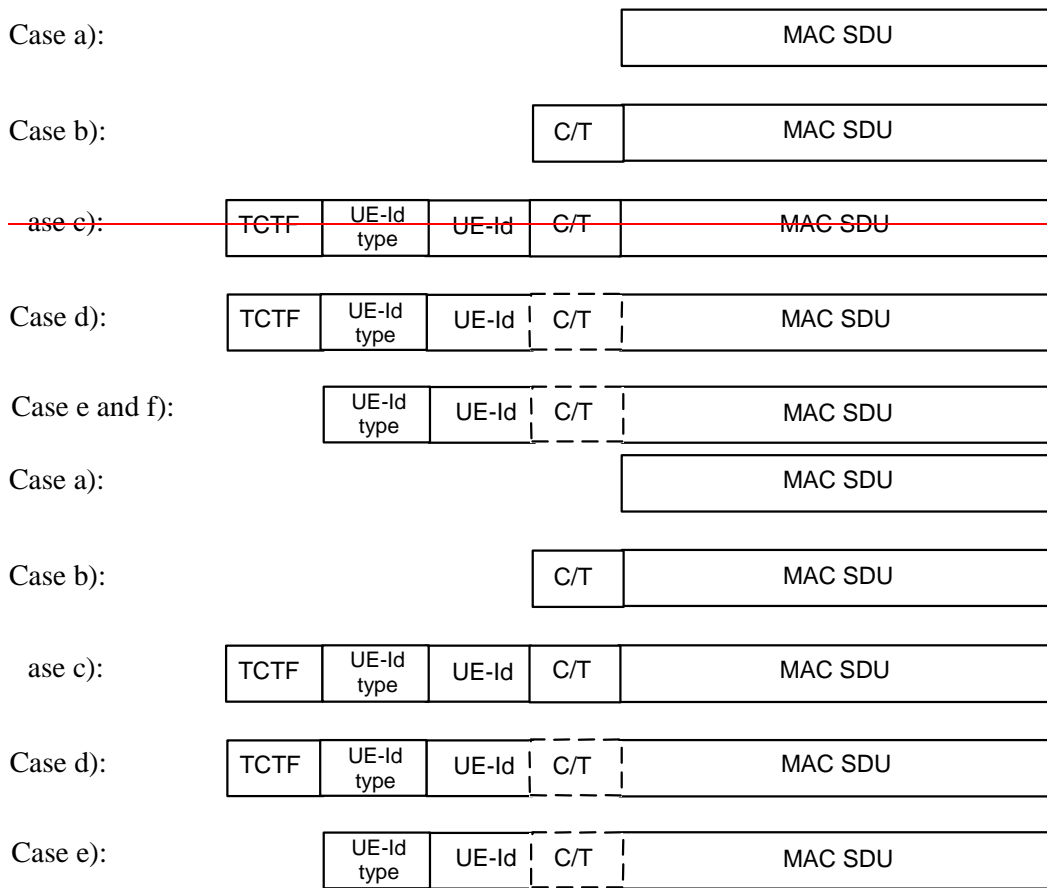


Figure 9.2.1.1.1: MAC PDU formats for DTCH and DCCH

~~~~ Next Modified Section ~~~~

### 11.3 ~~Control of CPCH transmissions for FDD~~Void

The MAC layer controls the timing of CPCH transmissions on transmission time interval level (i.e. on 10, 20, 40 or 80 ms level); the timing on access slot level is controlled by L1. MAC controls the timing of each initial preamble ramping cycle as well as successive preamble ramping cycles. Note that retransmissions in case of erroneously received CPCH message part are under control of higher layers. The CPCH transmissions are performed by the UE as illustrated in figures 11.3.1 and 11.3.2. Figure 11.3.1 procedure is used for access to CPCH channel. Figure 11.3.2 procedure is used for CPCH Message transmission on the CPCH channel obtained using the access procedure.

**NOTE:**— In Cell FACH state, the UE should co-ordinate the UL transmission schedule with the measurement schedule in FACH measurement occasions so as to minimise any delays associated with inter frequency measurements.

MAC receives the following CPCH transmission control parameters from RRC with the CMAC Config REQ primitive:

- persistence values,  $P$  (transmission probability for each Transport Format (TF));
- $N_{\text{access\_fails}}$ , maximum number of preamble ramping cycles;
- $NF_{\text{max}}$ , maximum number of frames for CPCH transmission for each TF;
- $N_{\text{EOT}}$  (Number of EOT for release of CPCH transmission);
- Backoff control timer parameters;
- Transport Format Set;
- Initial Priority Delays;
- Channel Assignment Active indication.

The MAC procedure for CPCH access shall be invoked when the UE has data to transmit. The steps for this procedure are listed here:

1. the UE shall get all UL transmit parameters (CPCH Set Info,  $P$  values, Initial Priority Delays,  $N_{\text{access\_fails}}$ ,  $NF_{\text{max}}$ ,  $N_{\text{EOT}}$  etc) from RRC;
2. the UE shall reset counter  $M$ , EOT counter and Frame Count Transmitted (FCT) upon entry to the initial access procedure;
3. if counter  $M$  is equal to  $N_{\text{access\_fails}}$ , the UE shall indicate an access failure error to higher layer and the CPCH access procedure ends. Access failure is reported to RLC with MAC STATUS Ind primitive individually for each logical channel of which data was included in the transport block set that could not be transmitted. If counter  $M$  is less than  $N_{\text{access\_fails}}$ , the UE shall send a PHY CPCH Status REQ to Layer 1 to obtain CPCH TF subset status. If Layer 1 returns an error message, the UE shall increment counter  $M$  and the procedure shall continue from step 3. If Layer 1 returns a PHY CPCH Status CNF message, which includes a TF subset indicating the currently available TFs of the requested TF subset, the procedure shall continue from step 4;
4. the UE shall initialise the Busy Table with the CPCH TF subset status from Layer 1. Those TFs in the TF subset of the Layer 1 PHY CPCH Status CNF response will be marked available. All other TFs will be marked busy;
5. if all TFs are not marked busy, the procedure shall proceed from step 6. If all TFs are marked busy, the UE shall reset and start timer  $T_{\text{boe1}}$ , wait until timer expiry, and increment counter  $M$ . The procedure shall continue from step 3;
6. the UE shall update all UL transmit parameters from RRC;
7. UE shall select a TF from the set of available TFs listed in the Busy Table. UE shall use the CPCH channel capacity (transport block set size,  $NF_{\text{max}}$ , and TTI interval), and Busy Table information to select one CPCH TF for L1 to access. The UE may select a TF, which uses a lower data rate and a lower UL Tx power than the maximum UL Tx power allowed. UE shall implement a test based on the Persistence value ( $P$ ) to determine

- whether to attempt access to the selected CPCH TF. If access is allowed, the procedure shall continue from step 9. If the P test does not allow access, the procedure shall continue from step 8;
- ~~8. the selected CPCH TF shall be marked busy in the Busy Table. If all TFs are marked busy, the UE shall reset and start timer Tboe1, wait until timer expiry, increment counter M, and continue from step 3. If all TFs are not marked busy, the UE shall resume the procedure from step 6;~~
  - ~~9. the UE may implement an initial delay based on ASC of the data to be transmitted, then shall send a PHY Access REQ with the selected TF to L1 for CPCH access. After the UE has sent the access request to L1, L1 shall return a PHY Access CNF including one of five access indications to MAC as shown in figure 11.3.1. If the L1 access indication is that access is granted, then UE shall continue from step 14. For the cases of the other Layer 1 responses, the procedure shall continue from step 10, 11, or 12 respectively.~~
  - ~~10. if L1 access indication is no AP AICH received or no CD AICH received, the UE shall reset and start timer Tboe3, wait until timer expiry, and increment counter M. The UE shall proceed from step 3;~~
  - ~~11. if L1 access indication is AP AICH\_nak received, the UE shall reset and start timer Tboe2, wait until timer expiry. If Channel Assignment (CA) is active, the UE shall proceed from step 13. If Channel Assignment (CA) is not active, the procedure shall continue from step 8;~~
  - ~~12. if L1 access indication is CD AICH signature mismatch, the UE shall reset and start timer Tboe4, wait until timer expiry, and increment counter M. The procedure shall continue from step 3;~~
  - ~~13. the UE shall increment counter M. The procedure shall continue from step 3.~~
  - ~~14. the UE shall build a transport block set for the next TTI;~~
  - ~~15. if the sum of the Frame Count Transmitted counter plus N\_TTI (the number of frames in the next TTI) is greater than NF\_max, the UE shall exit this procedure and start the MAC procedure for CPCH transmission of the first TTI. This shall release the CPCH channel in use and the UE will contend again for a new CPCH channel to continue transmission. If the sum of the Frame Count Transmitted counter plus N\_TTI is less than or equal to NF\_max, the UE shall send a PHY Data REQ with the transport block set to L1 to continue transmission on the CPCH channel which has previously been accessed;~~
  - ~~16. if the L1 returns PHY Status IND indicating normal transmission, the procedure shall continue from step 17. If L1 returns PHY Status IND indicating abnormal situation the UE shall execute an abnormal situation handling procedure and the CPCH message transmission procedure ends. Reasons for abnormal situation may include the following:
    - ~~— emergency stop was received;~~
    - ~~— start of Message Indicator was not received;~~
    - ~~— L1 hardware failure has occurred;~~
    - ~~— out of synch has occurred;~~~~
  - ~~17. the UE shall increment the Frame Count Transmitted (FCT) counter by N\_TTI just transmitted and indicate TX Status "transmission successful" to RLC individually for each logical channel of which data was included in the transport block set. If the UE has more data to transmit, the procedure shall continue from step 14;~~
  - ~~18. the UE shall build the next TTI with zero sized transport block set. If the sum of the Frame Count Transmitted counter plus N\_TTI is less than or equal to NF\_max and if the sum of the EOT counter plus N\_TTI is less than or equal to N\_EOT, the procedure shall continue from step 19. Otherwise, the procedure ends;~~
  - ~~19. UE shall send a PHY Data REQ with zero sized transport block set to L1 to stop transmission on the CPCH channel which has previously been accessed, both the EOT and the FCT counters shall be incremented by N\_TTI and the procedure shall continue from step 18.~~

**Table 11.3: CPCH Backoff Delay Timer Values**

| <b>Timer</b>                           | <b>Based on parameter</b> | <b>Fixed/random</b> |
|----------------------------------------|---------------------------|---------------------|
| <b>T<sub>BOC1</sub> (all Busy)</b>     | <b>NF_bo_all_busy</b>     | <b>Random</b>       |
| <b>T<sub>BOC2</sub> (channel Busy)</b> | <b>NS_bo_busy</b>         | <b>Fixed</b>        |
| <b>T<sub>BOC3</sub> (no AICH)</b>      | <b>NF_bo_no_aich</b>      | <b>Fixed</b>        |
| <b>T<sub>BOC4</sub> (mismatch)</b>     | <b>NF_bo_mismatch</b>     | <b>Random</b>       |

For T<sub>BOC1</sub>, UE shall randomly select a timer value at each execution of the timer. A uniform random draw shall be made to select an integer number of frames within the range [0, NF\_bo\_mismatch]. For T<sub>BOC1</sub>, UE would randomly select a timer value at each execution of the timer. A uniform random draw shall be made to select an integer number of frames within the range [0, NF\_bo\_all busy].

NOTE:—Backoff parameter range and units are specified in [7], RRC Protocol Specification.

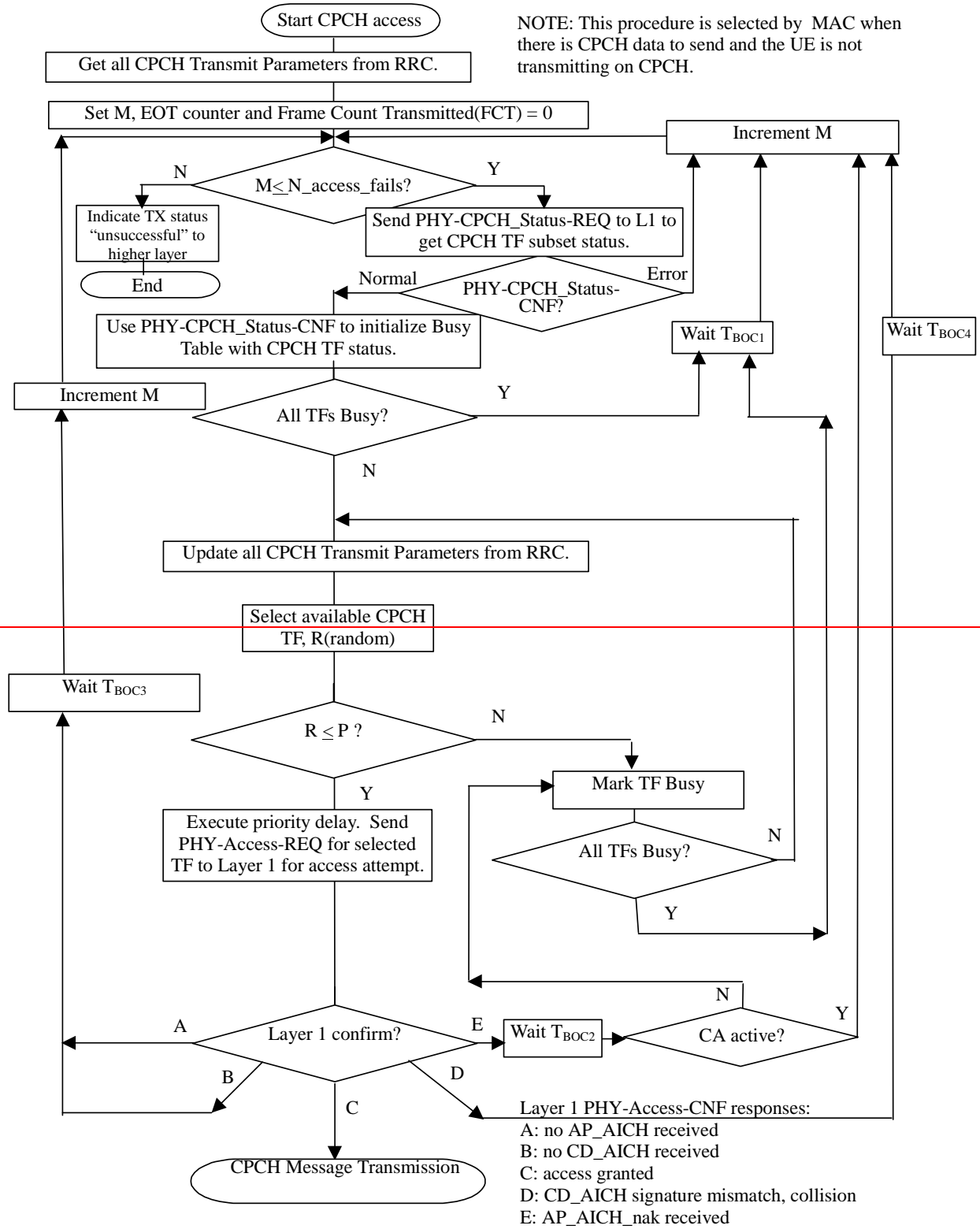
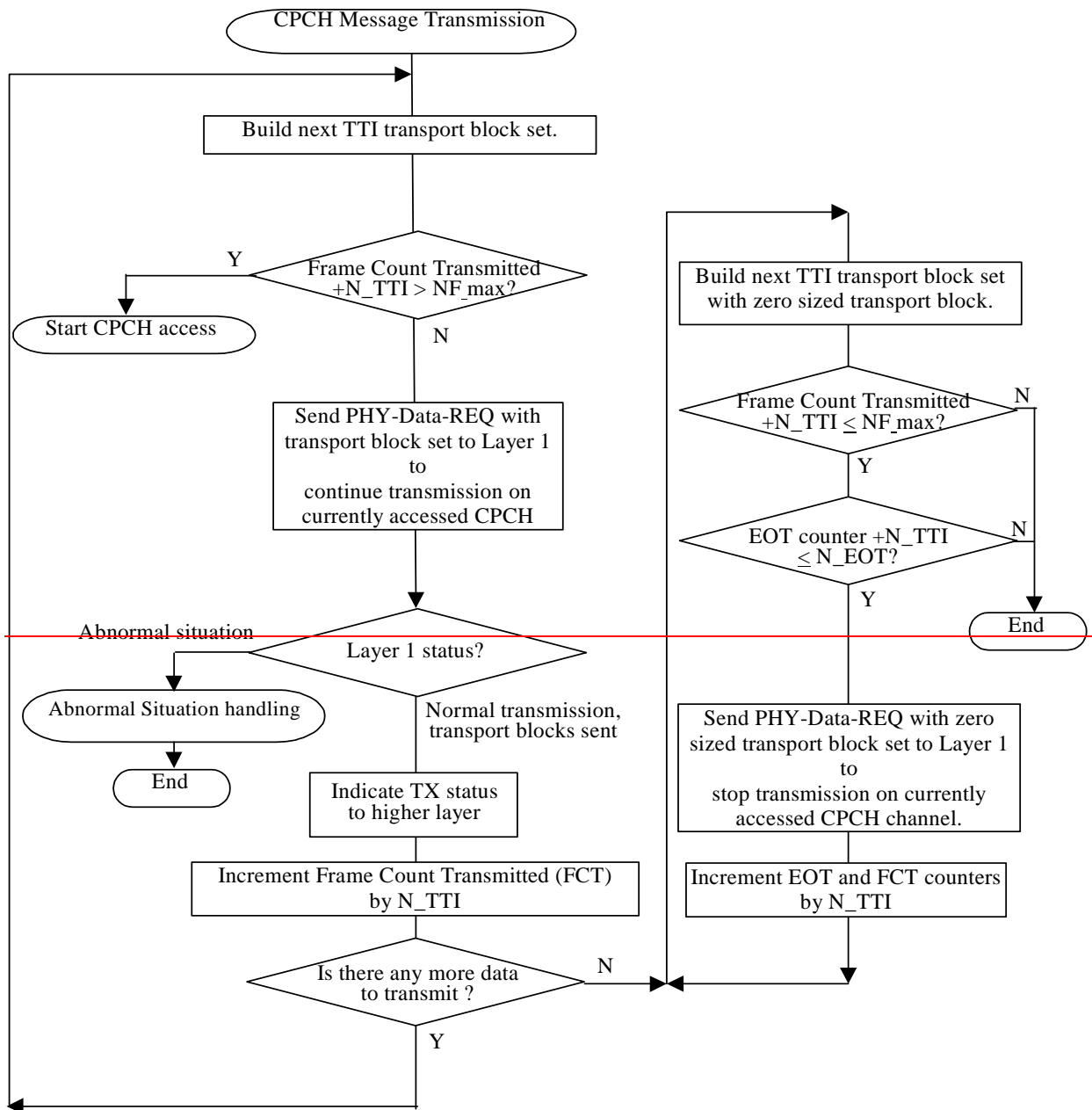


Figure 11.3.1: CPCH transmission control procedure for access (informative)



**Figure 11.3.2: CPCH transmission control procedure for CPCH Message Transmission (informative)**

## 11.4 Transport format combination selection in UE (non E-DCH)

RRC can control the scheduling of uplink data by giving each logical channel a priority between 1 and 8, where 1 is the highest priority and 8 the lowest. TFC selection in the UE shall be done in accordance with the priorities indicated by RRC. Logical channels have absolute priority, i.e. the UE shall maximise the transmission of higher priority data.

If the uplink TFCS or TFC Subset configured by UTRAN follows the guidelines described in [7] the UE shall perform the TFC selection according to the rules specified below. If these guidelines are not followed then the UE behaviour is not specified.

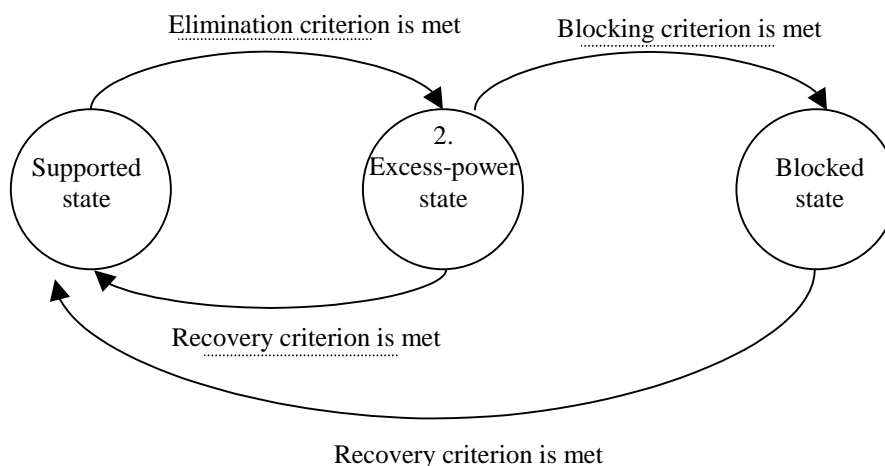
A given TFC can be in any of the following states:



- Supported state;
- Excess-power state;
- Blocked state.

TDD mode UEs in CELL\_FACH state using the USCH transport channel and UEs in CELL\_DCH state shall continuously monitor the state of each TFC based on its required transmit power versus the maximum UE transmit power (see [7]). The state transition criteria and the associated requirements are described in [12, 14]. The UE shall consider that the Blocking criterion is never met for TFCs included in the minimum set of TFCs (see [7]).

The following diagram illustrates the state transitions for the state of a given TFC:



**Figure 11.4.1: State transitions for the state of a given TFC**

FDD Mode UEs in CELL\_FACH state may estimate the channel path loss and set to excess power state all the TFCs requiring more power than the Maximum UE transmitter power (see [7]). All other TFCs shall be set to Supported state.

Every time the set of supported TFCs changes, the available bitrate shall be indicated to upper layers for each logical channel in order to facilitate the adaptation of codec data rates when codecs supporting variable-rate operation are used. The details of the computation of the available bitrate and the interaction with the application layer are not further specified.

Before selecting a TFC, i.e. at every boundary of the shortest TTI, or prior to each transmission on PRACH the set of valid TFCs shall be established. All TFCs in the set of valid TFCs shall:

1. belong to the TFCS.
  - 1a. not be restricted by higher layer signalling (e.g. TFC Control, see [7]).
2. not be in the Blocked state.
3. be compatible with the RLC configuration.
4. not require RLC to produce padding PDUs (see [6] for definition).
5. not carry more bits than can be transmitted in a TTI (e.g. when compressed mode by higher layer scheduling is used and the presence of compressed frames reduces the number of bits that can be transmitted in a TTI using the Minimum SF configured).

The UE may remove from the set of valid TFCs, TFCs in Excess-power state in order to maintain the quality of service for sensitive applications (e.g. speech). However, this shall not apply to TFCs included in the minimum set of TFCs (see [7]). Additionally, if compressed frames are present within the longest configured TTI to which the next transmission belongs, the UE may remove TFCs from the set of valid TFCs in order to account for the higher power requirements.

The chosen TFC shall be selected from within the set of valid TFCs and shall satisfy the following criteria in the order in which they are listed below:

1. No other TFC shall allow the transmission of more highest priority data than the chosen TFC.

2. No other TFC shall allow the transmission of more data from the next lower priority logical channels. Apply this criterion recursively for the remaining priority levels.
3. No other TFC shall have a lower bit rate than the chosen TFC.

In FDD mode the above rules for TFC selection in the UE shall apply to DCH, and the same rules shall apply for TF selection on RACH ~~and CPCH~~.

In 3.84 Mcps TDD mode the above rules for TFC selection in the UE shall apply to DCH and USCH.

## CHANGE REQUEST

# 25.331 CR 2588 # rev - # Current version: 5.12.1 #

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

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

|                        |                                                                                                                                                                                                                                                                                                                                                                               |                 |                                                                                                                                                                                                                                                       |
|------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Title:</b>          | # Feature Clean Up: Removal of CPCH                                                                                                                                                                                                                                                                                                                                           |                 |                                                                                                                                                                                                                                                       |
| <b>Source:</b>         | # RAN WG2                                                                                                                                                                                                                                                                                                                                                                     |                 |                                                                                                                                                                                                                                                       |
| <b>Work item code:</b> | # TEI5                                                                                                                                                                                                                                                                                                                                                                        | <b>Date:</b>    | # 04 May 2005                                                                                                                                                                                                                                         |
| <b>Category:</b>       | # <b>C</b><br>Use <u>one</u> of the following categories:<br><b>F</b> (correction)<br><b>A</b> (corresponds to a correction in an earlier release)<br><b>B</b> (addition of feature),<br><b>C</b> (functional modification of feature)<br><b>D</b> (editorial modification)<br>Detailed explanations of the above categories can be found in 3GPP <a href="#">TR 21.900</a> . | <b>Release:</b> | # Rel-5<br>Use <u>one</u> of the following releases:<br>Ph2 (GSM Phase 2)<br>R96 (Release 1996)<br>R97 (Release 1997)<br>R98 (Release 1998)<br>R99 (Release 1999)<br>Rel-4 (Release 4)<br>Rel-5 (Release 5)<br>Rel-6 (Release 6)<br>Rel-7 (Release 7) |

|                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Reason for change:</b> | # Decision taken at RAN plenary to remove unnecessary features                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Summary of change:</b> | # <ul style="list-style-type: none"><li>- Remove from Section 3.2</li><li>- Remove from Section 8.1.1.1.2</li><li>- Remove from Section 8.1.1.6.8</li><li>- Remove from Section 8.1.1.6.9</li><li>- Remove from Section 8.2.2.2</li><li>- Remove from Section 8.5.7</li><li>- Remove from Section 8.6.3.9</li><li>- Remove from Section 8.6.4.8</li><li>- Remove from Section 8.6.6.19</li><li>- Remove from Section 8.6.6.20</li><li>- Remove from Section 10.2.8</li><li>- Remove from Section 10.2.16a</li><li>- Remove from Section 10.2.22</li><li>- Remove from Section 10.2.27</li><li>- Remove from Section 10.2.30</li><li>- Remove from Section 10.2.33</li><li>- Remove from Section 10.2.40</li><li>- Remove from Section 10.2.48.8.11</li><li>- Remove from Section 10.2.48.8.12</li><li>- Remove from Section 10.2.50</li><li>- Remove from Section 10.3.3.7</li><li>- Remove from Section 10.3.3.25</li><li>- Remove from Section 10.3.4.21</li></ul> |

- Remove from Section 10.3.5.3
- Remove from Section 10.3.5.8
- Remove from Section 10.3.5.18
- Remove from Section 10.3.6.12
- Remove from Section 10.3.6.13
- Remove from Section 10.3.6.14
- Remove from Section 10.3.6.15
- Remove from Section 10.3.7.69
- Remove from Section 10.3.7.70
- Remove from Section 10.3.7.72
- Remove from Section 10.3.8.21
- Remove from Section 10.3.8.22
- Remove from Section 10.3.10
- Remove from Section 11.2
- Remove from Section 11.5
- Remove from Section 13.4.32
- Remove from Section 13.5.2
- Remove from Section 14.9.1
- Remove from Section 14.12.4.2
- Remove from Section 14.14
- Remove from Section B 3.2.5

**Consequences if not approved:** ⌘ RAN decision not carried out.

**Clauses affected:** ⌘ 3.2, 8.1.1.1.2, 8.1.1.6.8, 8.1.1.6.9, 8.2.2.2, 8.5.7, 8.6.3.9, 8.6.4.8, 8.6.6.19, 8.6.6.20, 10.2.8, 10.2.16a, 10.2.22, 10.2.27, 10.2.30, 10.2.33, 10.2.40, 10.2.48.8.11, 10.2.48.8.12, 10.2.50, 10.3.3.7, 10.3.3.25, 10.3.4.21, 10.3.5.3, 10.3.5.8, 10.3.5.18, 10.3.6.12, 10.3.6.13, 10.3.6.14, 10.3.7.69, 10.3.7.70, 10.3.7.72, 10.3.8.21, 10.3.8.22, 10.3.10, 11.2, 11.5, 13.4.32, 13.5.2, 14.9.1, 14.12.4.2, 14.14, B 3.2.5.

|                              | Y | N |                           |                                           |
|------------------------------|---|---|---------------------------|-------------------------------------------|
| <b>Other specs affected:</b> | X |   | Other core specifications | ⌘ 25.301, 25.302, 25.303, 25.306, 25.321. |
|                              |   | X | Test specifications       |                                           |
|                              |   | X | O&M Specifications        |                                           |

**Other comments:** ⌘

### How to create CRs using this form:

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

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

~~~~ Next Modified Section ~~~~

3.2 Abbreviations

For the purposes of the present document, the following abbreviations apply:

| | |
|-----------------|--|
| ACK | Acknowledgement |
| AICH | Acquisition Indicator CHannel |
| AM | Acknowledged Mode |
| AS | Access Stratum |
| ASC | Access Service Class |
| ASN.1 | Abstract Syntax Notation.1 |
| BCCH | Broadcast Control Channel |
| BCFE | Broadcast Control Functional Entity |
| BER | Bit Error Rate |
| BLER | BLock Error Rate |
| BSS | Base Station Sub-system |
| CCCH | Common Control Channel |
| CCPCH | Common Control Physical CHannel |
| CH | Conditional on history |
| CM | Connection Management |
| CN | Core Network |
| CPCH | Common Packet CHannel |
| C-RNTI | Cell RNTI |
| CTCH | Common Traffic CHannel |
| CTFC | Calculated Transport Format Combination |
| CV | Conditional on value |
| DCA | Dynamic Channel Allocation |
| DCCH | Dedicated Control Channel |
| DCFE | Dedicated Control Functional Entity |
| DCH | Dedicated Channel |
| DC-SAP | Dedicated Control SAP |
| DGPS | Differential Global Positioning System |
| DL | Downlink |
| DRAC | Dynamic Resource Allocation Control |
| DSCH | Downlink Shared Channel |
| DTCH | Dedicated Traffic Channel |
| FACH | Forward Access Channel |
| FDD | Frequency Division Duplex |
| GC-SAP | General Control SAP |
| GERAN | GSM/EDGE Radio Access Network |
| GRA | GERAN Registration Area |
| G-RNTI | GERAN Radio Network Temporary Identity |
| HCS | Hierarchical Cell Structure |
| HFN | Hyper Frame Number |
| H-RNTI | HS-DSCH RNTI |
| HS-DSCH | High Speed Downlink Shared Channel |
| ID | Identifier |
| IDNNS | Intra Domain NAS Node Selector |
| IE | Information element |
| IETF | Internet Engineering Task Force |
| IMEI | International Mobile Equipment Identity |
| IMSI | International Mobile Subscriber Identity |
| IP | Internet Protocol |
| ISCP | Interference on Signal Code Power |
| L1 | Layer 1 |
| L2 | Layer 2 |
| L3 | Layer 3 |
| LAI | Location Area Identity |
| MAC | Media Access Control |
| MCC | Mobile Country Code |

| | |
|--------|---|
| MD | Mandatory default |
| MM | Mobility Management |
| MNC | Mobile Network Code |
| MP | Mandatory present |
| NACC | Network Assisted Cell Change |
| NAS | Non Access Stratum |
| Nt-SAP | Notification SAP |
| NW | Network |
| OP | Optional |
| PCCH | Paging Control Channel |
| PCH | Paging Channel |
| PDCP | Packet Data Convergence Protocol |
| PDSCH | Physical Downlink Shared Channel |
| PDU | Protocol Data Unit |
| PLMN | Public Land Mobile Network |
| PNFE | Paging and Notification Control Functional Entity |
| PRACH | Physical Random Access Channel |
| PSI | Packet System Information |
| P-TMSI | Packet Temporary Mobile Subscriber Identity |
| PUSCH | Physical Uplink Shared Channel |
| QoS | Quality of Service |
| RAB | Radio access bearer |
| RACH | Random Access Channel |
| RAI | Routing Area Identity |
| RAT | Radio Access Technology |
| RB | Radio Bearer |
| RFE | Routing Functional Entity |
| RL | Radio Link |
| RLC | Radio Link Control |
| RNC | Radio Network Controller |
| RNTI | Radio Network Temporary Identifier |
| RRC | Radio Resource Control |
| RSCP | Received Signal Code Power |
| RSSI | Received Signal Strength Indicator |
| SAP | Service Access Point |
| SCFE | Shared Control Function Entity |
| SCTD | Space Code Transmit Diversity |
| SF | Spreading Factor |
| SHCCH | Shared Control Channel |
| SI | System Information |
| SIR | Signal to Interference Ratio |
| S-RNTI | SRNC - RNTI |
| SSDT | Site Selection Diversity Transmission |
| TDD | Time Division Duplex |
| TF | Transport Format |
| TFCS | Transport Format Combination Set |
| TFS | Transport Format Set |
| TM | Transparent Mode |
| TME | Transfer Mode Entity |
| TMSI | Temporary Mobile Subscriber Identity |
| Tr | Transparent |
| Tx | Transmission |
| UE | User Equipment |
| UL | Uplink |
| UM | Unacknowledged Mode |
| URA | UTRAN Registration Area |
| U-RNTI | UTRAN-RNTI |
| USCH | Uplink Shared Channel |
| UTRAN | Universal Terrestrial Radio Access Network |

~~~~ Next Modified Section ~~~~

### 8.1.1.1.2 System information blocks

Table 8.1.1 specifies all system information blocks and their characteristics.

The *area scope column* in table 8.1.1 specifies the area where a system information block's value tag is valid. If the area scope is *cell*, the UE shall consider the system information block to be valid only in the cell in which it was read. If system information blocks have been previously stored for this cell, the UE shall check whether the value tag for the system information block in the entered cell is different compared to the stored value tag. If the area scope is *PLMN* or *Equivalent PLMN*, the UE shall check the value tag for the system information block when a new cell is selected. If the value tag for the system information block in the new cell is different compared to the value tag for the system information block stored in the UE, the UE shall re-read the system information block. If the area scope is *PLMN*, the UE shall consider the system information block to be valid only within the PLMN in which it was read. If the area scope is *Equivalent PLMN*, the UE shall consider the system information block to be valid within the PLMN in which it was received and all PLMNs which are indicated by higher layers to be equivalent.

For System information block types 15.2, 15.3 and 16, which may have multiple occurrences, each occurrence has its own independent value tag. The UE shall re-read a particular occurrence if the value tag of this occurrence has changed compared to that stored in the UE.

The *UE mode/state column when block is valid* in Table 8.1.1 specifies in which UE mode or UE state the IEs in a system information block shall be regarded as valid by the UE. In other words, the indicated system information block becomes invalid upon change to a mode/state that is not included in this column. System Information Block Type 16 remains also valid upon transition to or from GSM/GPRS. In some cases, the states are inserted in brackets to indicate that the validity is dependent on the broadcast of the associated System Information Blocks by the network as explained in the relevant procedure subclause.

The *UE mode/state column when block is read* in Table 8.1.1 specifies in which UE mode or UE state the IEs in a system information block may be read by the UE. The UE shall have the necessary information prior to execution of any procedure requiring information to be obtained from the appropriate system information block. The requirements on the UE in terms of when to read the system information may therefore be derived from the procedure specifications that specify which IEs are required in the different UE modes/states in conjunction with the different performance requirements that are specified.

System Information Block type 10 shall only be read by the UE while in CELL\_DCH.

The UE shall:

- 1> if System Information Block type 11 is referenced in the master information block or in the scheduling blocks:
- 2> if System Information Block type 12 is not referenced in the master information block or in the scheduling blocks, or broadcast of System Information Block type 12 is not indicated in System Information Block type 11:
  - 3> have read and acted upon System Information Block type 11 in a cell when the UE transmits an RRC message on RACH.
- 2> else:
  - 3> have read and acted upon System Information Block type 11 in a cell before the UE transmits the RRC CONNECTION REQUEST message.
  - 3> have read and acted upon both System Information Block type 11 and System Information Block type 12 in a cell when:
    - 4> the UE transmits an RRC message on RACH in RRC connected mode; or
    - 4> the UE receives a message commanding to enter Cell\_DCH state.

NOTE 1: There are a number of system information blocks that include the same IEs while the UE mode/state in which the information is valid differs. This approach is intended to allow the use of different IE values in different UE mode/states.

NOTE 2: System Information Block Type 16 is also obtained by a UE while in GSM/GPRS. The details of this are not within the scope of this specification.

The *Scheduling information column* in table 8.1.1 specifies the position and repetition period for the System Information Block.

The *modification of system information column* in table 8.1.1 specifies the update mechanisms applicable for a certain system information block. For system information blocks with a value tag, the UE shall update the information

according to subclause 8.1.1.7.1 or 8.1.1.7.2. For system information blocks with an expiration timer, the UE shall, when the timer expires, perform an update of the information according to subclause 8.1.1.7.4.

**Table 8.1.1: Specification of system information block characteristics**

| System information block        | Area scope | UE mode/state when block is valid                              | UE mode/state when block is read                               | Scheduling information                                                     | Modification of system information | Additional comment                                                                                                                                                 |
|---------------------------------|------------|----------------------------------------------------------------|----------------------------------------------------------------|----------------------------------------------------------------------------|------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Master information block        | Cell       | Idle mode, CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH (TDD only)   | Idle mode, CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH (TDD only)   | SIB_POS = 0<br>SIB_REP = 8 (FDD)<br>SIB_REP = 8, 16, 32 (TDD)<br>SIB_OFF=2 | Value tag                          |                                                                                                                                                                    |
| Scheduling block 1              | Cell       | Idle mode, CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH (TDD only)   | Idle mode, CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH (TDD only)   | Specified by the IE "Scheduling information" in MIB                        | Value tag                          |                                                                                                                                                                    |
| Scheduling block 2              | Cell       | Idle mode, CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH (TDD only)   | Idle mode, CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH (TDD only)   | Specified by the IE "Scheduling information" in MIB                        | Value tag                          |                                                                                                                                                                    |
| System information block type 1 | PLMN       | Idle mode, CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH              | Idle, CELL_FACH, CELL_PCH, URA_PCH                             | Specified by the IE "Scheduling information"                               | Value tag                          |                                                                                                                                                                    |
| System information block type 2 | Cell       | URA_PCH                                                        | URA_PCH                                                        | Specified by the IE "Scheduling information"                               | Value tag                          |                                                                                                                                                                    |
| System information block type 3 | Cell       | Idle mode, (CELL_FACH, CELL_PCH, URA_PCH)                      | Idle mode, (CELL_FACH, CELL_PCH, URA_PCH)                      | Specified by the IE "Scheduling information"                               | Value tag                          |                                                                                                                                                                    |
| System information block type 4 | Cell       | CELL_FACH, CELL_PCH, URA_PCH                                   | CELL_FACH, CELL_PCH, URA_PCH                                   | Specified by the IE "Scheduling information"                               | Value tag                          | If System information block type 4 is not broadcast in a cell, the connected mode UE shall apply information in System information block type 3 in connected mode. |
| System information block type 5 | Cell       | Idle mode, (CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH (TDD only)) | Idle mode, (CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH (TDD only)) | Specified by the IE "Scheduling information"                               | Value tag                          |                                                                                                                                                                    |



| System information block                   | Area scope      | UE mode/state when block is valid                            | UE mode/state when block is read                             | Scheduling information                                  | Modification of system information                          | Additional comment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|--------------------------------------------|-----------------|--------------------------------------------------------------|--------------------------------------------------------------|---------------------------------------------------------|-------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| System information block type 6            | Cell            | CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH (TDD only)            | CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH (TDD only)            | Specified by the IE "Scheduling information"            | Value tag                                                   | <p>If system information block type 6 is not broadcast in a cell, the connected mode UE shall read System information block type 5.</p> <p>If some of the optional IEs are not included in System information block type 6, the UE shall read the corresponding IEs in System information block type 5</p> <p>In TDD mode system information block 6 shall only be read in CELL_DCH if required for open loop power control as specified in subclause 8.5.7 and/or if shared transport channels are assigned to the UE. If in these cases system information block type 6 is not broadcast the UE shall read system information block type 5.</p> |
| System information block type 7            | Cell            | Idle mode, CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH (TDD only) | Idle mode, CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH (TDD only) | Specified by the IE "Scheduling information"            | Expiration timer = MAX(32 , SIB_REP * ExpirationTimeFactor) | In TDD mode system information block type 7 shall only be read in CELL_DCH if shared transport channels are assigned to the UE.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <del>System information block type 8</del> | <del>Cell</del> | <del>CELL_FACH, CELL_PCH, URA_PCH</del>                      | <del>CELL_FACH, CELL_PCH, URA_PCH</del>                      | <del>Specified by the IE "Scheduling information"</del> | <del>Value tag</del>                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <del>System information block type 9</del> | <del>Cell</del> | <del>CELL_FACH, CELL_PCH, URA_PCH</del>                      | <del>CELL_FACH, CELL_PCH, URA_PCH</del>                      | <del>Specified by the IE "Scheduling information"</del> | <del>Expiration timer = SIB_REP</del>                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| System information block type 10           | Cell            | CELL_DCH                                                     | CELL_DCH                                                     | Specified by the IE "Scheduling information"            | Expiration timer = SIB_REP                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| System information block type 11           | Cell            | Idle mode (CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH)           | Idle mode (CELL_FACH, CELL_PCH, URA_PCH)                     | Specified by the IE "Scheduling information"            | Value tag                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

| System information block           | Area scope | UE mode/state when block is valid                 | UE mode/state when block is read                  | Scheduling information                       | Modification of system information                         | Additional comment                                                                                                                                                                                                                                                                                   |
|------------------------------------|------------|---------------------------------------------------|---------------------------------------------------|----------------------------------------------|------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| System information block type 12   | Cell       | CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH            | Idle mode, CELL_FACH, CELL_PCH, URA_PCH           | Specified by the IE "Scheduling information" | Value tag                                                  | If system information block type 12 is not broadcast in a cell, the connected mode UE shall read System information block type 11.<br>If some of the optional IEs are not included in System information block type 12, the UE shall read the corresponding IEs in System information block type 11. |
| System information block type 13   | Cell       | Idle Mode, CELL_FACH, CELL_PCH, URA_PCH           | Idle Mode, CELL_FACH, CELL_PCH, URA_PCH           | Specified by the IE "Scheduling information" | Value tag                                                  |                                                                                                                                                                                                                                                                                                      |
| System information block type 13.1 | Cell       | Idle Mode, CELL_FACH, CELL_PCH, URA_PCH           | Idle Mode, CELL_FACH, CELL_PCH, URA_PCH           | Specified by the IE "Scheduling information" | Value tag                                                  |                                                                                                                                                                                                                                                                                                      |
| System information block type 13.2 | Cell       | Idle Mode, CELL_FACH, CELL_PCH, URA_PCH           | Idle Mode, CELL_FACH, CELL_PCH, URA_PCH           | Specified by the IE "Scheduling information" | Value tag                                                  |                                                                                                                                                                                                                                                                                                      |
| System information block type 13.3 | Cell       | Idle Mode, CELL_FACH, CELL_PCH, URA_PCH           | Idle Mode, CELL_FACH, CELL_PCH, URA_PCH           | Specified by the IE "Scheduling information" | Value tag                                                  |                                                                                                                                                                                                                                                                                                      |
| System information block type 13.4 | Cell       | Idle Mode, CELL_FACH, CELL_PCH, URA_PCH           | Idle Mode, CELL_FACH, CELL_PCH, URA_PCH           | Specified by the IE "Scheduling information" | Value tag                                                  |                                                                                                                                                                                                                                                                                                      |
| System information block type 14   | Cell       | Idle Mode, CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH | Idle Mode, CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH | Specified by the IE "Scheduling information" | Expiration timer = MAX(32, SIB_REP * ExpirationTimeFactor) | This system information block is used in 3.84 Mcps TDD mode only. System information block type 14 shall only be read in CELL_DCH if required for open loop power control as specified in subclause 8.5.7.                                                                                           |
| System information block type 15   | Cell       | Idle Mode, CELL_FACH, CELL_PCH, URA_PCH           | Idle Mode, CELL_FACH, CELL_PCH, URA_PCH           | Specified by the IE "Scheduling information" | Value tag                                                  |                                                                                                                                                                                                                                                                                                      |
| System information block type 15.1 | Cell       | Idle Mode, CELL_FACH, CELL_PCH, URA_PCH           | Idle Mode, CELL_FACH, CELL_PCH, URA_PCH           | Specified by the IE "Scheduling information" | Value tag                                                  |                                                                                                                                                                                                                                                                                                      |
| System information block type 15.2 | Cell       | Idle Mode, CELL_FACH, CELL_PCH, URA_PCH           | Idle Mode, CELL_FACH, CELL_PCH, URA_PCH           | Specified by the IE "Scheduling information" | Value tag                                                  | For this system information block there may be multiple occurrences                                                                                                                                                                                                                                  |
| System information block type 15.3 | PLMN       | Idle Mode, CELL_FACH, CELL_PCH, URA_PCH           | Idle Mode, CELL_FACH, CELL_PCH, URA_PCH           | Specified by the IE "Scheduling information" | Value tag                                                  | For this system information block there may be multiple occurrences                                                                                                                                                                                                                                  |

| System information block           | Area scope      | UE mode/state when block is valid                 | UE mode/state when block is read        | Scheduling information                       | Modification of system information | Additional comment                                                                                                                                               |
|------------------------------------|-----------------|---------------------------------------------------|-----------------------------------------|----------------------------------------------|------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| System information block type 15.4 | Cell            | Idle Mode, CELL_FACH, CELL_PCH, URA_PCH           | Idle Mode, CELL_FACH, CELL_PCH, URA_PCH | Specified by the IE "Scheduling information" | Value tag                          |                                                                                                                                                                  |
| System information block type 15.5 | Cell            | Idle Mode, CELL_FACH, CELL_PCH, URA_PCH           | Idle Mode, CELL_FACH, CELL_PCH, URA_PCH | Specified by the IE "Scheduling information" | Value tag                          |                                                                                                                                                                  |
| System information block type 16   | Equivalent PLMN | Idle Mode, CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH | Idle Mode, CELL_FACH, CELL_PCH, URA_PCH | Specified by the IE "Scheduling information" | Value tag                          | For this system information block there may be multiple occurrences. This system information block is also valid while in GSM/GPRS.                              |
| System information block type 17   | Cell            | CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH            | CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH  | Specified by the IE "Scheduling information" | Expiration timer = SIB_REP         | This system information block is used in TDD mode only. System information block type 17 shall only be read if shared transport channels are assigned to the UE. |
| System Information Block type 18   | Cell            | Idle mode, CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH | Idle mode, CELL_FACH, CELL_PCH, URA_PCH | Specified by the IE "Scheduling information" | Value tag                          |                                                                                                                                                                  |

The UE shall acquire all system information blocks except system information block type 10 on BCH. System Information Block type 10 shall be acquired on the FACH and only by UEs with support for simultaneous reception of one SCCPCH and one DPCH. If System Information Block type 10 is not broadcast in a cell, the DRAC procedures do not apply in this cell. System Information Block type 10 is used in FDD mode only.

~~~~ Next Modified Section ~~~~

8.1.1.6.8 ~~System Information Block type 8~~ [Void](#)

~~This system information block type is used only in FDD.
 If in connected mode, the UE should store all relevant IEs included in this system information block.
 If in idle mode, the UE shall not use the values of the IEs in this system information block.~~

8.1.1.6.9 ~~System Information Block type 9~~ [Void](#)

~~This system information block type is used only in FDD.
 If in connected mode, the UE should store all relevant IEs included in the system information block. The UE shall:
 1> start a timer set to the value given by the repetition period (SIB_REP) for that system information block.
 If in idle mode, the UE shall not use the values of the IEs in this system information block.~~

~~~~ Next Modified Section ~~~~

8.2.2.2 Initiation

- To initiate any one of the reconfiguration procedures, UTRAN should:
- 1> configure new radio links in any new physical channel configuration;
  - 1> start transmission and reception on the new radio links;

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

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

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

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

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

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

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

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

~~~~ Next Modified Section ~~~~

8.5.7 Open loop power control

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

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

1> measure the value for the CPICH_RSCP;

1> calculate the power for the first preamble as:

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

Where,

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

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

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

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

- 2> continuously recalculate the Preamble_Initial_Power when any of the broadcast parameters used in the above formula changes; and

2> resubmit to the physical layer the new calculated Preamble_Initial_Power.

For 3.84 Mcps TDD the UE shall:

1> if in the IE "Uplink DPCH Power Control info" the "CHOICE UL OL PC info" has the value "Broadcast UL OL PC info":

2> prior to DPCH transmission the UE shall:

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

4> if the UE has stored valid versions of the IEs "Primary CCPCH Tx power" and "DPCH Constant value":

5> use the stored content of the IEs.

4> otherwise:

5> read and store the IE "Primary CCPCH Tx power" and "DPCH Constant value" in System Information Block type 6 (or System Information Block type 5, if System Information Block type 6 is not being broadcast).

3> if the UE has a valid version of the IE "UL interference" for each active UL timeslot stored:

4> use the stored content of the IE "UL interference" for each active UL timeslot.

3> otherwise:

4> read and store the IE "UL Timeslot Interference" for each active UL timeslot in System Information Block type 14;

4> if the UE fails to read the IE "UL Timeslot Interference" for each active UL time slot in System Information Block type 14 due to bad radio conditions, the UE shall use the last stored IE "UL Timeslot interference" for each active UL timeslot.

1> otherwise:

2> acquire Reference Power, Constant Values and I_{BTS} for all active UL timeslots from the IE "Uplink DPCH Power Control info".

1> for PUSCH, PRACH and HS-SICH power control:

2> prior to PUSCH or PRACH transmission the UE shall:

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

4> if the UE has stored valid versions of the IEs "Primary CCPCH Tx power" and "PUSCH Constant value" for PUSCH transmissions or "PRACH Constant value" for PRACH transmissions:

5> use the stored content of the IEs.

4> otherwise:

5> read and store the IE "Primary CCPCH Tx power" and "PUSCH Constant value" for PUSCH transmissions or "PRACH Constant value" for PRACH transmissions in System Information Block type 6 (or System Information Block type 5, if System Information Block type 6 is not being broadcast).

3> if the UE has a valid version of the IE "UL interference" for each active UL timeslot stored:

4> use the stored content of the IE "UL interference" for each active UL timeslot.

3> otherwise:

4> read and store the IE "UL Timeslot Interference" for each active UL timeslot in System Information Block type 14;

- 4> if the UE fails to read the IE "UL Timeslot Interference" for each active UL time slot in System Information Block type 14 due to bad radio conditions, the UE shall use the last stored IE "UL Timeslot interference" for each active UL timeslot.

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

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

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

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

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

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

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

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

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

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

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

- HS-SICH Constant value: HS-SICH Constant value shall have the value of the IE "HS-SICH Constant value".
- Values received by dedicated signalling shall take precedence over broadcast values.
- If IPDLs are applied, the UE may increase UL Tx power by the value given in the IE "Max power increase". This power increase is only allowed in the slots between an idle slot and the next beacon slot.
- Ack-Nack Power Offset: Difference in the desired RX power between HS-SICH transmissions conveying an acknowledgement and transmissions conveying a negative acknowledgement signalled to the UE in IE "HS-SCCH Info".

For 1.28 Mcps TDD the UE shall:

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

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

3> use the stored content of the IE.

2> otherwise:

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

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

$$P_{UpPCH} = L_{PCCPCH} + PRX_{UpPCHdes} + (i-1) * P_{Wramp}$$

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

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

$$P_{PRACH} = L_{PCCPCH} + PRX_{PRACHdes} + (i_{UpPCH}-1) * P_{Wramp}$$

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

$$P_{USCH} = PRX_{PUSCHdes} + L_{PCCPCH}$$

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

$$P_{HS-SICH} = PRX_{HS-SICH} + L_{PCCPCH}$$

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

$$P_{DPCH} = PRX_{DPCHdes} + L_{PCCPCH}$$

Where:

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

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

~~~~ Next Modified Section ~~~~

### 8.6.3.9 New C-RNTI

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

- 1> store the value in the variable C\_RNTI, replacing any old stored value;
- 1> use that C-RNTI when using common transport channels of type RACH and; FACH ~~and CPCH~~ in the current cell.

~~~~ Next Modified Section ~~~~

8.6.4.8 RB mapping info

If the IE "RB mapping info" is included, the UE shall:

- 1> for each multiplexing option of the RB:
 - 2> if a multiplexing option that maps a logical channel corresponding to a TM-RLC entity onto RACH, ~~CPCH~~, FACH, USCH or DSCH or HS-DSCH is included:
 - 3> set the variable INVALID_CONFIGURATION to TRUE.
 - 2> if the multiplexing option realises the radio bearer on the uplink (resp. on the downlink) using two logical channels with different values of the IE "Uplink transport channel type" (resp. of the IE "Downlink transport channel type"):
 - 3> set the variable INVALID_CONFIGURATION to TRUE.
 - 2> if that RB is using TM and the IE "Segmentation indication" is set to TRUE and, based on the multiplexing configuration resulting from this message, the logical channel corresponding to it is mapped onto the same transport channel as another logical channel:
 - 3> set the variable INVALID_CONFIGURATION to TRUE.
 - 2> if the transport channel considered in that multiplexing option is different from RACH and if that RB is using AM and the set of RLC sizes applicable to the uplink logical channel transferring data PDUs has more than one element not equal to zero:

- 3> set the variable INVALID_CONFIGURATION to TRUE.
- 2> if that RB is using UM or TM and the multiplexing option realises it using two logical channels:
 - 3> set the variable INVALID_CONFIGURATION to TRUE.
 - 2> for each logical channel in that multiplexing option:
 - 3> if the value of the IE "RLC size list" is set to "Explicit list":
 - 4> if a "Transport format set" for the transport channel this logical channel is mapped on in this multiplexing option is included in the same message, and the value (index) of any IE "RLC size index" in the IE "Explicit list" does not correspond to an "RLC size" in the IE transport format set of that transport channel given in the message; or
 - 4> if the transport channel this logical channel is mapped on in this multiplexing option is different from RACH, and if a "Transport format set" for that transport channel is not included in the same message, and the value (index) of any IE "RLC size index" in the IE "Explicit list" does not correspond to an "RLC size" in the stored transport format set of that transport channel; or
 - 4> if a "Transport format set" for the transport channel this logical channel is mapped on in this multiplexing option is included in the same message, and the value of any IE "Logical channel list" in the transport format set is not set to "Configured"; or
 - 4> if a "Transport format set" for the transport channel this logical channel is mapped on in this multiplexing option is not included in the same message, and the value of any IE "Logical channel list" in the stored transport format set of that transport channel is not set to "Configured":
 - 5> set the variable INVALID_CONFIGURATION to TRUE.
 - 3> if the value of the IE "RLC size list" is set to "All":
 - 4> if the transport channel this logical channel is mapped on is RACH; or
 - 4> if a "Transport format set" for the transport channel this logical channel is mapped on in this multiplexing option is included in the same message, and the value of any IE "Logical channel list" in the transport format set is not set to "Configured"; or
 - 4> if a "Transport format set" for the transport channel this logical channel is mapped on in this multiplexing option is not included in the same message, and the value of any IE "Logical channel list" in the stored transport format set of that transport channel is not set to "Configured":
 - 5> set the variable INVALID_CONFIGURATION to TRUE.
 - 3> if the value of the IE "RLC size list" is set to "Configured":
 - 4> if the transport channel this logical channel is mapped on is RACH; or
 - 4> if a "Transport format set" for the transport channel this logical channel is mapped on in this multiplexing option is included in the same message, and for none of the RLC sizes defined for that transport channel in the "Transport format set", the "Logical Channel List" is set to "All" or given as an "Explicit List" which contains this logical channel; or
 - 4> if a "Transport format set" for the transport channel this logical channel is mapped on in this multiplexing option is not included in the same message, and for none of the RLC sizes defined in the transport format set stored for that transport channel, the "Logical Channel List" is set to "All" or given as an "Explicit List" which contains this logical channel:
 - 5> set the variable INVALID_CONFIGURATION to TRUE.
 - 1> if, as a result of the message this IE is included in, several radio bearers can be mapped onto the same transport channel, and the IE "Logical Channel Identity" was not included in the RB mapping info of any of those radio bearers for a multiplexing option on that transport channel or the same "Logical Channel Identity" was used more than once in the RB mapping info of those radio bearers for the multiplexing options on that transport channel:

- 2> set the variable INVALID_CONFIGURATION to TRUE.
- 1> if the "RB mapping info" is considered as valid according to the rules above:
 - 2> delete all previously stored multiplexing options for that radio bearer;
 - 2> store each new multiplexing option for that radio bearer;
 - 2> perform the actions as specified in subclause 8.5.21;
 - 2> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25.
- 1> if the IE "Uplink transport channel type" is set to the value "RACH":
 - 2> in FDD:
 - 3> refer the IE "RLC size index" to the RACH Transport Format Set of the first PRACH received in the IE "PRACH system information list" received in System Information Block 5 or System Information Block 6.
 - 2> in TDD:
 - 3> use the first Transport Format of the PRACH of the IE "PRACH system information list" at the position equal to the value in the IE "RLC size index".

In case IE "RLC info" includes IE "Downlink RLC mode" ("DL RLC logical channel info" is mandatory present) but IE "Number of downlink RLC logical channels" is absent in the corresponding IE "RB mapping info", the parameter values are exactly the same as for the corresponding UL logical channels. In case two multiplexing options are specified for the UL, the first options shall be used as default for the DL. As regards the IE "Channel type", the following rule should be applied to derive the DL channel type from the UL channel included in the IE:

| Channel used in UL | DL channel type implied by
"same as" |
|--------------------|---|
| DCH | DCH |
| RACH | FACH |
| CPCH | FACH |
| USCH | DSCH |

If ciphering is applied, UTRAN should not map Transparent Mode RBs of different CN domains on the same transport channel and it should not map transparent mode SRBs and RBs onto the same transport channel. In such cases the UE behaviour is not specified.

In FDD, the UTRAN should not map signalling radio bearers on the HS-DSCH. In such case the UE behaviour is unspecified in this version of the specification.

~~~~ Next Modified Section ~~~~

### 8.6.6.19 CPCH SET Info (FDD only) Void

~~If the UE has the capability to use CPCH, the UE shall use the following general procedures:~~

- ~~1> if an IE "CPCH SET Info" is included in a dedicated message:
 
  - 2> read the "CPCH set ID" included in the IE;
  - 2> store the IE using the "CPCH set ID" as an address tag;
  - 2> release any active dedicated physical channels in the uplink;
  - 2> let the PCPCHs listed in the CPCH set be the default in the uplink for CPCH.~~
- ~~1> if an IE "CPCH SET Info" is included in a System Information message:
 
  - 2> read the "CPCH set ID" included in the IE;
  - 2> store the IE using the "CPCH set ID" as an address tag.~~

### 8.6.6.20 ~~CPCCH set ID (FDD only)~~Void

If the UE has the capability to use CPCCH, the UE shall use the following general procedures. The UE shall:

- ~~1> if an IE "CPCCH set ID" is included in a dedicated message and not as part of IE "CPCCH SET Info":
 
  - ~~2> use the IE as an address tag to retrieve the corresponding stored "CPCCH SET Info";~~
  - ~~2> release any active dedicated physical channels in the uplink;~~
  - ~~2> let the PCPCHs listed in the CPCCH set be the default in the uplink for CPCCH.~~~~
- ~~1> if an IE "CPCCH set ID" is included in a dedicated message and not as part of IE "CPCCH SET Info", and if there is no corresponding stored "CPCCH SET Info":
 
  - ~~2> release any active dedicated physical channels in the uplink;~~
  - ~~2> let the last assigned PRACH be the default in the uplink for RACH;~~
  - ~~2> obtain current System Information on SCCPCH to obtain and store the "CPCCH SET info" IE(s);~~
  - ~~2> upon receipt of a "CPCCH SET Info" which corresponds to the "CPCCH set ID" IE:
 
    - ~~3> let the PCPCHs listed in that CPCCH set be the default in the uplink for CPCCH.~~~~~~
- ~~1> if an IE "CPCCH set ID" is not included in a dedicated message and the UE prior to the receipt of this message had configured the PCPCH as the default in the uplink:
 
  - ~~2> stop using the PCPCH;~~
  - ~~2> let the last assigned PRACH be the default in the uplink for RACH.~~~~

~~~~ Next Modified Section ~~~~

10.2.8 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: UM

Logical channel: CCCH or DCCH

Direction: UTRAN→UE

| Information Element/Group name | Need | Multi | Type and reference | Semantics description | Version |
|--------------------------------|---------|-------|---|---|---------|
| Message Type | MP | | Message Type | | |
| UE Information Elements | | | | | |
| U-RNTI | CV-CCCH | | U-RNTI
10.3.3.47 | | |
| RRC transaction identifier | MP | | RRC transaction identifier
10.3.3.36 | | |
| Integrity check info | CH | | Integrity check info
10.3.3.16 | | |
| Integrity protection mode info | OP | | Integrity protection mode info
10.3.3.19 | The UTRAN should not include this IE unless it is performing an SRNS relocation or a cell reselection from GERAN <i>lu mode</i> | |
| Ciphering mode info | OP | | Ciphering | The UTRAN | |

| Information Element/Group name | Need | Multi | Type and reference | Semantics description | Version |
|---|------|--------------|---|---|---------|
| | | | mode info
10.3.3.5 | should not include this IE unless it is performing either an SRNS relocation or a cell reselection from GERAN <i>lu mode</i> , and a change in ciphering algorithm. | |
| Activation time | MD | | Activation time
10.3.3.1 | Default value is "now" | |
| New U-RNTI | OP | | U-RNTI
10.3.3.47 | | |
| New C-RNTI | OP | | C-RNTI
10.3.3.8 | | |
| New DSCH-RNTI | OP | | DSCH-RNTI
10.3.3.9a | | |
| New H-RNTI | OP | | H-RNTI
10.3.3.14a | | REL-5 |
| RRC State Indicator | MP | | RRC State Indicator
10.3.3.35a | | |
| UTRAN DRX cycle length coefficient | OP | | UTRAN DRX cycle length coefficient
10.3.3.49 | | |
| RLC re-establish indicator (RB2, RB3 and RB4) | MP | | RLC re-establish indicator
10.3.3.35 | Should not be set to TRUE if IE "Downlink counter synchronisation info" is included in message. | |
| RLC re-establish indicator (RB5 and upwards) | MP | | RLC re-establish indicator
10.3.3.35 | Should not be set to TRUE if IE "Downlink counter synchronisation info" is included in message. | |
| CN Information Elements | | | | | |
| CN Information info | OP | | CN Information info
10.3.1.3 | | |
| UTRAN Information Elements | | | | | |
| URA identity | OP | | URA identity
10.3.2.6 | | |
| RB information elements | | | | | |
| RB information to release list | OP | 1 to <maxRB> | | | |
| >RB information to release | MP | | RB information to release
10.3.4.19 | | |
| RB information to reconfigure list | OP | 1 to <maxRB> | | | |
| >RB information to reconfigure | MP | | RB information to reconfigure
10.3.4.18 | | |
| RB information to be affected list | OP | 1 to <maxRB> | | | |
| >RB information to be affected | MP | | RB information to be | | |

| Information Element/Group name | Need | Multi | Type and reference | Semantics description | Version |
|--|------|----------------------|--|---|---------|
| | | | affected 10.3.4.17 | | |
| Downlink counter synchronisation info | OP | | | | |
| >RB with PDCP information list | OP | 1 to <maxRBall RABs> | | | |
| >>RB with PDCP information | MP | | RB with PDCP information 10.3.4.22 | This IE is needed for each RB having PDCP in the case of lossless SRNS relocation | |
| | OP | | | | REL-5 |
| >>PDCP context relocation info | OP | | PDCP context relocation info 10.3.4.1a | This IE is needed for each RB having PDCP and performing PDCP context relocation | REL-5 |
| TrCH Information Elements | | | | | |
| Uplink transport channels | | | | | |
| UL Transport channel information common for all transport channels | OP | | UL Transport channel information common for all transport channels 10.3.5.24 | | |
| Deleted TrCH information list | OP | 1 to <maxTrCH > | | | |
| >Deleted UL TrCH information | MP | | Deleted UL TrCH information 10.3.5.5 | | |
| Added or Reconfigured TrCH information list | OP | 1 to <maxTrCH > | | | |
| >Added or Reconfigured UL TrCH information | MP | | Added or Reconfigured UL TrCH information 10.3.5.2 | | |
| CHOICE <i>mode</i> | MP | | | | |
| >FDD | | | | | |
| >>CPCH set ID | OP | | CPCH set ID 10.3.5.3 | | |
| >>Added or Reconfigured TrCH information for DRAC list | OP | 1 to <maxTrCH > | | | |
| >>>DRAC static information | MP | | DRAC static information 10.3.5.7 | | |
| >TDD | | | | (no data) | |
| Downlink transport channels | | | | | |
| DL Transport channel information common for all transport channels | OP | | DL Transport channel information common for all transport channels 10.3.5.6 | | |
| Deleted TrCH information list | OP | 1 to <maxTrCH > | | | |

| Information Element/Group name | Need | Multi | Type and reference | Semantics description | Version |
|---|------|-----------------|---|--|---------|
| >Deleted DL TrCH information | MP | | Deleted DL TrCH information 10.3.5.4 | | |
| Added or Reconfigured TrCH information list | OP | 1 to <maxTrCH > | | | |
| >Added or Reconfigured DL TrCH information | MP | | Added or Reconfigured DL TrCH information 10.3.5.1 | | |
| PhyCH information elements | | | | | |
| Frequency info | OP | | Frequency info 10.3.6.36 | | |
| Uplink radio resources | | | | | |
| Maximum allowed UL TX power | MD | | Maximum allowed UL TX power 10.3.6.39 | Default value is the existing maximum UL TX power | |
| <i>CHOICE channel requirement</i> | | | | | |
| >Uplink DPCH info | | | Uplink DPCH info 10.3.6.88. | | |
| >CPCH SET Info | | | CPCH SET Info 10.3.6.13 | | |
| Downlink radio resources | | | | | |
| <i>CHOICE mode</i> | | | | | |
| >FDD | | | | | |
| >>Downlink PDSCH information | OP | | Downlink PDSCH information 10.3.6.30 | | |
| >TDD | | | | (no data) | |
| Downlink HS-PDSCH Information | OP | | Downlink HS_PDSCH Information 10.3.6.23a | | REL-5 |
| Downlink information common for all radio links | OP | | Downlink information common for all radio links 10.3.6.24 | | |
| Downlink information per radio link list | OP | 1 to <maxRL> | | Send downlink information for each radio link to be set-up | |
| >Downlink information for each radio link | MP | | Downlink information for each radio link 10.3.6.27 | | |

| Condition | Explanation |
|-----------|--|
| CCCH | This IE is mandatory present when CCCH is used and ciphering is not required and not needed otherwise. |

~~~~ Next Modified Section ~~~~

## 10.2.16a HANDOVER TO UTRAN COMMAND

This message is sent to the UE via other system to make a handover to UTRAN.

RLC-SAP: N/A (Sent through a different RAT)

Logical channel: N/A (Sent through a different RAT)

Direction: UTRAN → UE

| Information Element/Group name                                       | Need | Multi               | Type and reference                                                              | Semantics description                        |
|----------------------------------------------------------------------|------|---------------------|---------------------------------------------------------------------------------|----------------------------------------------|
| New U-RNTI                                                           | MP   |                     | U-RNTI Short<br>10.3.3.48                                                       |                                              |
| Ciphering algorithm                                                  | OP   |                     | Ciphering algorithm<br>10.3.3.4                                                 |                                              |
| <b>CHOICE <i>specification mode</i></b>                              | MP   |                     |                                                                                 |                                              |
| >Complete specification                                              |      |                     |                                                                                 |                                              |
| <b>RB information elements</b>                                       |      |                     |                                                                                 |                                              |
| >>Signalling RB information to setup list                            | MP   | 1 to <maxSRBs etup> |                                                                                 | For each signalling radio bearer established |
| >>>Signalling RB information to setup                                | MP   |                     | Signalling RB information to setup<br>10.3.4.24                                 |                                              |
| >>RAB information to setup list                                      | OP   | 1 to <maxRABs etup> |                                                                                 | For each RAB established                     |
| >>>RAB information for setup                                         | MP   |                     | RAB information for setup<br>10.3.4.10                                          |                                              |
| <b>Uplink transport channels</b>                                     |      |                     |                                                                                 |                                              |
| >>UL Transport channel information common for all transport channels | MP   |                     | UL Transport channel information common for all transport channels<br>10.3.5.24 |                                              |
| >>Added or Reconfigured TrCH information                             | MP   | 1 to <maxTrCH >     |                                                                                 |                                              |
| >>>Added or Reconfigured UL TrCH information                         | MP   |                     | Added or Reconfigured UL TrCH information<br>10.3.5.2                           |                                              |
| <b>Downlink transport channels</b>                                   |      |                     |                                                                                 |                                              |
| >>DL Transport channel information common for all transport channels | MP   |                     | DL Transport channel information common for all transport channels<br>10.3.5.6  |                                              |
| >>Added or Reconfigured TrCH information                             | MP   | 1 to <maxTrCH >     |                                                                                 |                                              |



| Information Element/Group name                    | Need | Multi        | Type and reference                                             | Semantics description                                                               |
|---------------------------------------------------|------|--------------|----------------------------------------------------------------|-------------------------------------------------------------------------------------|
| >>>Added or Reconfigured DL TrCH information      | MP   |              | Added or Reconfigured DL TrCH information 10.3.5.1             |                                                                                     |
| <b>Uplink radio resources</b>                     |      |              |                                                                |                                                                                     |
| >>Uplink DPCH info                                | MP   |              | Uplink DPCH info 10.3.6.88                                     |                                                                                     |
| >>CHOICE mode                                     | MP   |              |                                                                |                                                                                     |
| >>>FDD                                            |      |              |                                                                |                                                                                     |
| >>>>CPCH SET Info                                 | OP   |              | CPCH SET Info 10.3.6.13                                        |                                                                                     |
| <b>Downlink radio resources</b>                   |      |              |                                                                |                                                                                     |
| >>>>Downlink PDSCH information                    | OP   |              | Downlink PDSCH information 10.3.6.30                           |                                                                                     |
| >>>TDD                                            |      |              |                                                                | (no data)                                                                           |
| >>Downlink information common for all radio links | MP   |              | Downlink information common for all radio links 10.3.6.24      |                                                                                     |
| >>Downlink information per radio link             | MP   | 1 to <maxRL> |                                                                |                                                                                     |
| >>>Downlink information for each radio link       | MP   |              | Downlink information for each radio link 10.3.6.27             |                                                                                     |
| >Preconfiguration                                 |      |              |                                                                |                                                                                     |
| >>CHOICE Preconfiguration mode                    | MP   |              |                                                                |                                                                                     |
| >>>Predefined configuration                       | MP   |              | Predefined configuration identity 10.3.4.5                     |                                                                                     |
| >>>Default configuration                          |      |              |                                                                |                                                                                     |
| >>>>Default configuration mode                    | MP   |              | Enumerated (FDD, TDD)                                          | Indicates whether the FDD or TDD version of the default configuration shall be used |
| >>>>Default configuration identity                | MP   |              | Default configuration identity 10.3.4.0                        |                                                                                     |
| >>RAB info                                        | OP   |              | RAB info Post 10.3.4.9                                         | One RAB is established                                                              |
| >>Uplink DPCH info                                | MP   |              | Uplink DPCH info Post 10.3.6.89                                |                                                                                     |
| <b>Downlink radio resources</b>                   |      |              |                                                                |                                                                                     |
| >>Downlink information common for all radio links | MP   |              | Downlink information common for all radio links Post 10.3.6.25 |                                                                                     |
| >>Downlink information per radio link             | MP   | 1 to <maxRL> |                                                                | Send downlink information for each radio link to be set-up. In TDD MaxRL is 1.      |

| Information Element/Group name              | Need | Multi | Type and reference                                            | Semantics description |
|---------------------------------------------|------|-------|---------------------------------------------------------------|-----------------------|
| >>>Downlink information for each radio link | MP   |       | Downlink information for each radio link<br>Post<br>10.3.6.28 |                       |
| >>CHOICE <i>mode</i>                        | MP   |       |                                                               |                       |
| >>>FDD                                      |      |       |                                                               | (no data)             |
| >>>TDD                                      |      |       |                                                               |                       |
| >>>>Primary CCPCH Tx Power                  | MP   |       | Primary CCPCH Tx Power<br>10.3.6.59                           |                       |
| Frequency info                              | MP   |       | Frequency info<br>10.3.6.36                                   |                       |
| Maximum allowed UL TX power                 | MP   |       | Maximum allowed UL TX power<br>10.3.6.39                      |                       |

~~~~ Next Modified Section ~~~~

10.2.22 PHYSICAL CHANNEL RECONFIGURATION

This message is used by UTRAN to assign, replace or release a set of physical channels used by a UE.

RLC-SAP: AM or UM

Logical channel: DCCH

Direction: UTRAN → UE

| Information Element/Group name | Need | Multi | Type and reference | Semantics description | Version |
|--------------------------------|------|-------|---|---|---------|
| Message Type | MP | | Message Type | | |
| UE Information Elements | | | | | |
| RRC transaction identifier | MP | | RRC transaction identifier
10.3.3.36 | | |
| Integrity check info | CH | | Integrity check info
10.3.3.16 | | |
| Integrity protection mode info | OP | | Integrity protection mode info
10.3.3.19 | The UTRAN should not include this IE unless it is performing an SRNS relocation | |
| Ciphering mode info | OP | | Ciphering mode info
10.3.3.5 | The UTRAN should not include this IE unless it is performing an SRNS relocation and a change in ciphering algorithm | |
| Activation time | MD | | Activation time
10.3.3.1 | Default value is "now" | |
| New U-RNTI | OP | | U-RNTI
10.3.3.47 | | |

| Information Element/Group name | Need | Multi | Type and reference | Semantics description | Version |
|--|------|----------------------|---|---|---------|
| New C-RNTI | OP | | C-RNTI
10.3.3.8 | | |
| New DSCH-RNTI | OP | | DSCH-RNTI
10.3.3.9a | | |
| New H-RNTI | OP | | H-RNTI
10.3.3.14a | | REL-5 |
| RRC State Indicator | MP | | RRC State Indicator
10.3.3.35a | | |
| UTRAN DRX cycle length coefficient | OP | | UTRAN DRX cycle length coefficient
10.3.3.49 | | |
| CN Information Elements | | | | | |
| CN Information info | OP | | CN Information info
10.3.1.3 | | |
| UTRAN mobility information elements | | | | | |
| URA identity | OP | | URA identity
10.3.2.6 | | |
| RB information elements | | | | | |
| Downlink counter synchronisation info | OP | | | | |
| >RB with PDCP information list | OP | 1 to <maxRBall RABs> | | | |
| >>RB with PDCP information | MP | | RB with PDCP information
10.3.4.22 | This IE is needed for each RB having PDCP in the case of lossless SRNS relocation | |
| | OP | | | | REL-5 |
| >>PDCP context relocation info | OP | | PDCP context relocation info
10.3.4.1a | This IE is needed for each RB having PDCP and performing PDCP context relocation | REL-5 |
| PhyCH information elements | | | | | |
| Frequency info | OP | | Frequency info
10.3.6.36 | | |
| Uplink radio resources | | | | | |
| Maximum allowed UL TX power | MD | | Maximum allowed UL TX power
10.3.6.39 | Default value is the existing value of the maximum allowed UL TX power | |
| CHOICE channel requirement | | | | | |
| >Uplink DPCH info | OP | | Uplink DPCH info
10.3.6.88 | | |
| >CPCH SET Info | | | CPCH SET Info
10.3.6.13 | | |
| >CPCH set ID | | | CPCH set ID
10.3.5.3 | | |
| Downlink radio resources | | | | | |
| CHOICE mode | MP | | | | |
| >FDD | | | | | |
| >>Downlink PDSCH information | OP | | Downlink PDSCH information
10.3.6.30 | | |

| Information Element/Group name | Need | Multi | Type and reference | Semantics description | Version |
|---|------|--------------|---|---|---------|
| >TDD | | | | (no data) | |
| Downlink HS-PDSCH Information | OP | | Downlink HS_PDSCH Information 10.3.6.23a | | REL-5 |
| Downlink information common for all radio links | OP | | Downlink information common for all radio links 10.3.6.24 | | |
| Downlink information per radio link list | OP | 1 to <maxRL> | | Send downlink information for each radio link | |
| >Downlink information for each radio link | MP | | Downlink information for each radio link 10.3.6.27 | | |

~~~~ Next Modified Section ~~~~

## 10.2.27 RADIO 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. This message is also used to perform a handover from GERAN *Iu mode* to UTRAN.

RLC-SAP: AM or UM or sent through GERAN *Iu mode*

Logical channel: DCCH or sent through GERAN *Iu mode*

Direction: UTRAN → UE

| Information Element/Group name | Need | Multi | Type and reference                       | Semantics description                                                                                                                          | Version |
|--------------------------------|------|-------|------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| Message Type                   | MP   |       | Message Type                             |                                                                                                                                                |         |
| <b>UE Information elements</b> |      |       |                                          |                                                                                                                                                |         |
| RRC transaction identifier     | MP   |       | RRC transaction identifier 10.3.3.36     |                                                                                                                                                |         |
| Integrity check info           | CH   |       | Integrity check info 10.3.3.16           |                                                                                                                                                |         |
| Integrity protection mode info | OP   |       | Integrity protection mode info 10.3.3.19 | The UTRAN should not include this IE unless it is performing an SRNS relocation or a handover from GERAN <i>Iu mode</i>                        |         |
| Ciphering mode info            | OP   |       | Ciphering mode info 10.3.3.5             | The UTRAN should not include this IE unless it is performing either an SRNS relocation or a handover from GERAN <i>Iu mode</i> and a change in |         |

| Information Element/Group name              | Need | Multi                | Type and reference                           | Semantics description                                                            | Version |
|---------------------------------------------|------|----------------------|----------------------------------------------|----------------------------------------------------------------------------------|---------|
|                                             |      |                      |                                              | ciphering algorithm                                                              |         |
| Activation time                             | MD   |                      | Activation time 10.3.3.1                     | Default value is "now"                                                           |         |
| New U-RNTI                                  | OP   |                      | U-RNTI 10.3.3.47                             |                                                                                  |         |
| New C-RNTI                                  | OP   |                      | C-RNTI 10.3.3.8                              |                                                                                  |         |
| New DSCH-RNTI                               | OP   |                      | DSCH-RNTI 10.3.3.9a                          |                                                                                  |         |
| New H-RNTI                                  | OP   |                      | H-RNTI 10.3.3.14a                            |                                                                                  | REL-5   |
| RRC State Indicator                         | MP   |                      | RRC State Indicator 10.3.3.35a               |                                                                                  |         |
| UTRAN DRX cycle length coefficient          | OP   |                      | UTRAN DRX cycle length coefficient 10.3.3.49 |                                                                                  |         |
| <b>CN information elements</b>              |      |                      |                                              |                                                                                  |         |
| CN Information info                         | OP   |                      | CN Information info 10.3.1.3                 |                                                                                  |         |
| <b>UTRAN mobility information elements</b>  |      |                      |                                              |                                                                                  |         |
| URA identity                                | OP   |                      | URA identity 10.3.2.6                        |                                                                                  |         |
| CHOICE specification mode                   | MP   |                      |                                              |                                                                                  | REL-5   |
| >Complete specification                     |      |                      |                                              |                                                                                  |         |
| <b>RB information elements</b>              |      |                      |                                              |                                                                                  |         |
| >>RAB information to reconfigure list       | OP   | 1 to <maxRABse tup > |                                              |                                                                                  |         |
| >>>RAB information to reconfigure           | MP   |                      | RAB information to reconfigure 10.3.4.11     |                                                                                  |         |
| >>RB information to reconfigure list        | MP   | 1 to <maxRB>         |                                              | Although this IE is not always required, need is MP to align with ASN.1          |         |
|                                             | OP   |                      |                                              |                                                                                  | REL-4   |
| >>>RB information to reconfigure            | MP   |                      | RB information to reconfigure 10.3.4.18      |                                                                                  |         |
| >>RB information to be affected list        | OP   | 1 to <maxRB>         |                                              |                                                                                  |         |
| >>>RB information to be affected            | MP   |                      | RB information to be affected 10.3.4.17      |                                                                                  |         |
| >>RB with PDCP context relocation info list | OP   | 1 to <maxRBall RABs> |                                              | This IE is needed for each RB having PDCP and performing PDCP context relocation | REL-5   |
| >>>PDCP context relocation info             | MP   |                      | PDCP context relocation info                 |                                                                                  | REL-5   |

| Information Element/Group name                                       | Need | Multi           | Type and reference                                                              | Semantics description | Version |
|----------------------------------------------------------------------|------|-----------------|---------------------------------------------------------------------------------|-----------------------|---------|
|                                                                      |      |                 | 10.3.4.1a                                                                       |                       |         |
| <b>TrCH Information Elements</b>                                     |      |                 |                                                                                 |                       |         |
| <b>Uplink transport channels</b>                                     |      |                 |                                                                                 |                       |         |
| >>UL Transport channel information common for all transport channels | OP   |                 | UL Transport channel information common for all transport channels<br>10.3.5.24 |                       |         |
| >>>Deleted TrCH information list                                     | OP   | 1 to <maxTrCH > |                                                                                 |                       |         |
| >>>>Deleted UL TrCH information                                      | MP   |                 | Deleted UL TrCH information<br>10.3.5.5                                         |                       |         |
| >>>Added or Reconfigured TrCH information list                       | OP   | 1 to <maxTrCH > |                                                                                 |                       |         |
| >>>>Added or Reconfigured UL TrCH information                        | MP   |                 | Added or Reconfigured UL TrCH information<br>10.3.5.2                           |                       |         |
| >>>CHOICE mode                                                       | OP   |                 |                                                                                 |                       |         |
| >>>>FDD                                                              |      |                 |                                                                                 |                       |         |
| >>>>>CPCH set ID                                                     | OP   |                 | CPCH set ID<br>10.3.5.3                                                         |                       |         |
| >>>>>Added or Reconfigured TrCH information for DRAC list            | OP   | 1 to <maxTrCH > |                                                                                 |                       |         |
| >>>>>>DRAC static information                                        | MP   |                 | DRAC static information<br>10.3.5.7                                             |                       |         |
| >>>>TDD                                                              |      |                 |                                                                                 | (no data)             |         |
| <b>Downlink transport channels</b>                                   |      |                 |                                                                                 |                       |         |
| >>DL Transport channel information common for all transport channels | OP   |                 | DL Transport channel information common for all transport channels<br>10.3.5.6  |                       |         |
| >>>Deleted TrCH information list                                     | OP   | 1 to <maxTrCH > |                                                                                 |                       |         |
| >>>>Deleted DL TrCH information                                      | MP   |                 | Deleted DL TrCH information<br>10.3.5.4                                         |                       |         |
| >>>>Added or Reconfigured TrCH information list                      | OP   | 1 to <maxTrCH > |                                                                                 |                       |         |
| >>>>>Added or Reconfigured DL TrCH information                       | MP   |                 | Added or Reconfigured DL TrCH information<br>10.3.5.1                           |                       |         |

| Information Element/Group name                  | Need | Multi        | Type and reference                                        | Semantics description                                                               | Version |
|-------------------------------------------------|------|--------------|-----------------------------------------------------------|-------------------------------------------------------------------------------------|---------|
| >Preconfiguration                               |      |              |                                                           |                                                                                     | REL-5   |
| >>CHOICE <i>Preconfiguration mode</i>           | MP   |              |                                                           | This value only applies in case the message is sent through GERAN <i>lu mode</i>    |         |
| >>>Predefined configuration identity            | MP   |              | Predefined configuration identity 10.3.4.5                |                                                                                     |         |
| >>>Default configuration                        |      |              |                                                           |                                                                                     |         |
| >>>>Default configuration mode                  | MP   |              | Enumerated (FDD, TDD)                                     | Indicates whether the FDD or TDD version of the default configuration shall be used |         |
| >>>>Default configuration identity              | MP   |              | Default configuration identity 10.3.4.0                   |                                                                                     |         |
| <b>PhyCH information elements</b>               |      |              |                                                           |                                                                                     |         |
| Frequency info                                  | OP   |              | Frequency info 10.3.6.36                                  |                                                                                     |         |
| <b>Uplink radio resources</b>                   |      |              |                                                           |                                                                                     |         |
| Maximum allowed UL TX power                     | MD   |              | Maximum allowed UL TX power 10.3.6.39                     | Default value is the existing maximum UL TX power                                   |         |
| CHOICE <i>channel requirement</i>               | OP   |              |                                                           |                                                                                     |         |
| >Uplink DPCH info                               |      |              | Uplink DPCH info 10.3.6.88                                |                                                                                     |         |
| >CPCH SET Info                                  |      |              | CPCH SET Info 10.3.6.13                                   |                                                                                     |         |
| <b>Downlink radio resources</b>                 |      |              |                                                           |                                                                                     |         |
| CHOICE <i>mode</i>                              | MP   |              |                                                           |                                                                                     |         |
| >FDD                                            |      |              |                                                           |                                                                                     |         |
| >>Downlink PDSCH information                    | OP   |              | Downlink PDSCH information 10.3.6.30                      |                                                                                     |         |
| >TDD                                            |      |              |                                                           | (no data)                                                                           |         |
| Downlink HS-PDSCH Information                   | OP   |              | Downlink HS-PDSCH Information 10.3.6.23a                  |                                                                                     | REL-5   |
| Downlink information common for all radio links | OP   |              | Downlink information common for all radio links 10.3.6.24 |                                                                                     |         |
| Downlink information per radio link list        | MP   | 1 to <maxRL> |                                                           | Although this IE is not always required, need is MP to align with ASN.1             |         |
|                                                 | OP   |              |                                                           |                                                                                     | REL-4   |
| >Downlink information for each radio link       | MP   |              | Downlink information for each radio link 10.3.6.27        |                                                                                     |         |

~~~~ Next Modified Section ~~~~

10.2.30 RADIO BEARER RELEASE

This message is used by UTRAN to release a radio bearer. It can also include modifications to the configurations of transport channels and/or physical channels. It can simultaneously indicate release of a signalling connection when UE is connected to more than one CN domain.

RLC-SAP: AM or UM

Logical channel: DCCH

Direction: UTRAN → UE

| Information Element/Group name | Need | Multi | Type and reference | Semantics description | Version |
|--|------|-------|--|--|---------|
| Message Type | MP | | Message Type | | |
| UE Information Elements | | | | | |
| RRC transaction identifier | MP | | RRC transaction identifier 10.3.3.36 | | |
| Integrity check info | CH | | Integrity check info 10.3.3.16 | | |
| Integrity protection mode info | OP | | Integrity protection mode info 10.3.3.19 | The UTRAN should not include this IE unless it is performing an SRNS relocation. | |
| Ciphering mode info | OP | | Ciphering mode info 10.3.3.5 | The UTRAN should not include this IE unless it is performing an SRNS relocation and a change in ciphering algorithm. | |
| Activation time | MD | | Activation time 10.3.3.1 | Default value is "now" | |
| New U-RNTI | OP | | U-RNTI 10.3.3.47 | | |
| New C-RNTI | OP | | C-RNTI 10.3.3.8 | | |
| New DSCH-RNTI | OP | | DSCH-RNTI 10.3.3.9a | | |
| New H-RNTI | OP | | H-RNTI 10.3.3.14a | | REL-5 |
| RRC State Indicator | MP | | RRC State Indicator 10.3.3.35a | | |
| UTRAN DRX cycle length coefficient | OP | | UTRAN DRX cycle length coefficient 10.3.3.49 | | |
| CN Information Elements | | | | | |
| CN Information info | OP | | CN Information info 10.3.1.3 | | |
| Signalling Connection release indication | OP | | CN domain identity 10.3.1.1 | | |
| UTRAN mobility information elements | | | | | |
| URA identity | OP | | URA identity 10.3.2.6 | | |
| RB Information Elements | | | | | |

| Information Element/Group name | Need | Multi | Type and reference | Semantics description | Version |
|--|------|----------------------|--|---|---------|
| RAB information to reconfigure list | OP | 1 to <maxRABsetup > | | | |
| >RAB information to reconfigure | MP | | RAB information to reconfigure 10.3.4.11 | | |
| RB information to release list | MP | 1 to <maxRB> | | | |
| >RB information to release | MP | | RB information to release 10.3.4.19 | | |
| RB information to be affected list | OP | 1 to <maxRB> | | | |
| >RB information to be affected | MP | | RB information to be affected 10.3.4.17 | | |
| Downlink counter synchronisation info | OP | | | | |
| >RB with PDCP information list | OP | 1 to <maxRBall RABs> | | | |
| >>RB with PDCP information | MP | | RB with PDCP information 10.3.4.22 | This IE is needed for each RB having PDCP in the case of lossless SRNS relocation | |
| | OP | | | | REL-5 |
| >RB with PDCP context relocation info list | OP | 1 to <maxRBall RABs> | | | REL-5 |
| >>PDCP context relocation info | MP | | PDCP context relocation info 10.3.4.1a | This IE is needed for each RB having PDCP and performing PDCP context relocation | REL-5 |
| TrCH Information Elements | | | | | |
| Uplink transport channels | | | | | |
| UL Transport channel information common for all transport channels | OP | | UL Transport channel information common for all transport channels 10.3.5.24 | | |
| Deleted TrCH information list | OP | 1 to <maxTrCH > | | | |
| >Deleted UL TrCH information | MP | | Deleted UL TrCH information 10.3.5.5 | | |
| Added or Reconfigured TrCH information list | OP | 1 to <maxTrCH > | | | |
| >Added or Reconfigured UL TrCH information | MP | | Added or Reconfigured UL TrCH information 10.3.5.2 | | |
| CHOICE mode | OP | | | | |
| >FDD | | | | | |

| Information Element/Group name | Need | Multi | Type and reference | Semantics description | Version |
|--|------|-----------------|--|---|---------|
| >>CPCH set ID | OP | | CPCH set ID
10.3.5.3 | | |
| >>Added or Reconfigured TrCH information for DRAC list | OP | 1 to <maxTrCH > | | | |
| >>>DRAC static information | MP | | DRAC static information
10.3.5.7 | | |
| >TDD | | | | (no data) | |
| Downlink transport channels | | | | | |
| DL Transport channel information common for all transport channels | OP | | DL Transport channel information common for all transport channels
10.3.5.6 | | |
| Deleted TrCH information list | OP | 1 to <maxTrCH > | | | |
| >Deleted DL TrCH information | MP | | Deleted DL TrCH information
10.3.5.4 | | |
| Added or Reconfigured TrCH information list | OP | 1 to <maxTrCH > | | | |
| >Added or Reconfigured DL TrCH information | MP | | Added or Reconfigured DL TrCH information
10.3.5.1 | | |
| PhyCH information elements | | | | | |
| Frequency info | OP | | Frequency info
10.3.6.36 | | |
| Uplink radio resources | | | | | |
| Maximum allowed UL TX power | MD | | Maximum allowed UL TX power
10.3.6.39 | Default value is the existing maximum UL TX power | |
| <i>CHOICE channel requirement</i> | | | | | |
| >Uplink DPCH info | | | Uplink DPCH info
10.3.6.88 | | |
| >CPCH SET Info | | | CPCH SET Info
10.3.6.13 | | |
| Downlink radio resources | | | | | |
| CHOICE mode | MP | | | | |
| >FDD | | | | | |
| >>Downlink PDSCH information | OP | | Downlink PDSCH information
10.3.6.30 | | |
| >TDD | | | | (no data) | |
| Downlink HS-PDSCH Information | OP | | Downlink HS-PDSCH Information
10.3.6.23a | | REL-5 |
| Downlink information common for all radio links | OP | | Downlink information common for all radio links
10.3.6.24 | | |

| Information Element/Group name | Need | Multi | Type and reference | Semantics description | Version |
|---|------|--------------|--|--|---------|
| Downlink information per radio link list | OP | 1 to <maxRL> | | Send downlink information for each radio link to be set-up | |
| >Downlink information for each radio link | MP | | Downlink information for each radio link 10.3.6.27 | | |

~~~~ Next Modified Section ~~~~

### 10.2.33 RADIO BEARER SETUP

This message is sent by UTRAN to the UE to establish new radio bearer(s). It can also include modifications to the configurations of transport channels and/or physical channels.

RLC-SAP: AM or UM

Logical channel: DCCH

Direction: UTRAN → UE

| Information Element/Group name     | Need | Multi | Type and reference                           | Semantics description                                                                                               | Version |
|------------------------------------|------|-------|----------------------------------------------|---------------------------------------------------------------------------------------------------------------------|---------|
| Message Type                       | MP   |       | Message Type                                 |                                                                                                                     |         |
| <b>UE Information Elements</b>     |      |       |                                              |                                                                                                                     |         |
| RRC transaction identifier         | MP   |       | RRC transaction identifier 10.3.3.36         |                                                                                                                     |         |
| Integrity check info               | CH   |       | Integrity check info 10.3.3.16               |                                                                                                                     |         |
| Integrity protection mode info     | OP   |       | Integrity protection mode info 10.3.3.19     | The UTRAN should not include this IE unless it is performing an SRNS relocation                                     |         |
| Ciphering mode info                | OP   |       | Ciphering mode info 10.3.3.5                 | The UTRAN should not include this IE unless it is performing an SRNS relocation and a change in ciphering algorithm |         |
| Activation time                    | MD   |       | Activation time 10.3.3.1                     | Default value is "now"                                                                                              |         |
| New U-RNTI                         | OP   |       | U-RNTI 10.3.3.47                             |                                                                                                                     |         |
| New C-RNTI                         | OP   |       | C-RNTI 10.3.3.8                              |                                                                                                                     |         |
| New DSCH-RNTI                      | OP   |       | DSCH-RNTI 10.3.3.9a                          |                                                                                                                     |         |
| New H-RNTI                         | OP   |       | H-RNTI 10.3.3.14a                            |                                                                                                                     | REL-5   |
| RRC State Indicator                | MP   |       | RRC State Indicator 10.3.3.35a               |                                                                                                                     |         |
| UTRAN DRX cycle length coefficient | OP   |       | UTRAN DRX cycle length coefficient 10.3.3.49 |                                                                                                                     |         |
| <b>CN Information Elements</b>     |      |       |                                              |                                                                                                                     |         |

| Information Element/Group name                                     | Need | Multi                | Type and reference                                                           | Semantics description                                                             | Version |
|--------------------------------------------------------------------|------|----------------------|------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---------|
| CN Information info                                                | OP   |                      | CN Information info 10.3.1.3                                                 |                                                                                   |         |
| <b>UTRAN mobility information elements</b>                         |      |                      |                                                                              |                                                                                   |         |
| URA identity                                                       | OP   |                      | URA identity 10.3.2.6                                                        |                                                                                   |         |
| <b>RB Information Elements</b>                                     |      |                      |                                                                              |                                                                                   |         |
| Signalling RB information to setup list                            | OP   | 1 to <maxSRBs etup>  |                                                                              | For each signalling radio bearer established                                      |         |
| >Signalling RB information to setup                                | MP   |                      | Signalling RB information to setup 10.3.4.24                                 |                                                                                   |         |
| RAB information to setup list                                      | OP   | 1 to <maxRABs etup>  |                                                                              | For each RAB established                                                          |         |
| >RAB information for setup                                         | MP   |                      | RAB information for setup 10.3.4.10                                          |                                                                                   |         |
| RB information to be affected list                                 | OP   | 1 to <maxRB>         |                                                                              |                                                                                   |         |
| >RB information to be affected                                     | MP   |                      | RB information to be affected 10.3.4.17                                      |                                                                                   |         |
| Downlink counter synchronisation info                              | OP   |                      |                                                                              |                                                                                   |         |
| >RB with PDCP information list                                     | OP   | 1 to <maxRBall RABs> |                                                                              |                                                                                   |         |
| >>RB with PDCP information                                         | MP   |                      | RB with PDCP information 10.3.4.22                                           | This IE is needed for each RB having PDCP in the case of lossless SRNS relocation |         |
| >>PDCP context relocation info                                     | OP   |                      | PDCP context relocation info 10.3.4.1a                                       | This IE is needed for each RB having PDCP and performing PDCP context relocation  | REL-5   |
| <b>TrCH Information Elements</b>                                   |      |                      |                                                                              |                                                                                   |         |
| <b>Uplink transport channels</b>                                   |      |                      |                                                                              |                                                                                   |         |
| UL Transport channel information common for all transport channels | OP   |                      | UL Transport channel information common for all transport channels 10.3.5.24 |                                                                                   |         |
| Deleted TrCH information list                                      | OP   | 1 to <maxTrCH >      |                                                                              |                                                                                   |         |
| >Deleted UL TrCH information                                       | MP   |                      | Deleted UL TrCH information 10.3.5.5                                         |                                                                                   |         |
| Added or Reconfigured TrCH information list                        | OP   | 1 to <maxTrCH        |                                                                              |                                                                                   |         |

| Information Element/Group name                                     | Need | Multi           | Type and reference                                                          | Semantics description                             | Version |
|--------------------------------------------------------------------|------|-----------------|-----------------------------------------------------------------------------|---------------------------------------------------|---------|
| >Added or Reconfigured UL TrCH information                         | MP   | >               | Added or Reconfigured UL TrCH information 10.3.5.2                          |                                                   |         |
| CHOICE <i>mode</i>                                                 | OP   |                 |                                                                             |                                                   |         |
| >FDD                                                               |      |                 |                                                                             |                                                   |         |
| >>CPCH-set ID                                                      | OP   |                 | CPCH-set ID 10.3.5.3                                                        |                                                   |         |
| >>Added or Reconfigured TrCH information for DRAC list             | OP   | 1 to <maxTrCH > |                                                                             |                                                   |         |
| >>>DRAC static information                                         | MP   |                 | DRAC static information 10.3.5.7                                            |                                                   |         |
| >TDD                                                               |      |                 |                                                                             | (no data)                                         |         |
| <b>Downlink transport channels</b>                                 |      |                 |                                                                             |                                                   |         |
| DL Transport channel information common for all transport channels | OP   |                 | DL Transport channel information common for all transport channels 10.3.5.6 |                                                   |         |
| Deleted TrCH information list                                      | OP   | 1 to <maxTrCH > |                                                                             |                                                   |         |
| >Deleted DL TrCH information                                       | MP   |                 | Deleted DL TrCH information 10.3.5.4                                        |                                                   |         |
| Added or Reconfigured TrCH information list                        | OP   | 1 to <maxTrCH > |                                                                             |                                                   |         |
| >Added or Reconfigured DL TrCH information                         | MP   |                 | Added or Reconfigured DL TrCH information 10.3.5.1                          |                                                   |         |
| <b>PhyCH information elements</b>                                  |      |                 |                                                                             |                                                   |         |
| Frequency info                                                     | OP   |                 | Frequency info 10.3.6.36                                                    |                                                   |         |
| <b>Uplink radio resources</b>                                      |      |                 |                                                                             |                                                   |         |
| Maximum allowed UL TX power                                        | MD   |                 | Maximum allowed UL TX power 10.3.6.39                                       | Default value is the existing maximum UL TX power |         |
| CHOICE <i>channel requirement</i>                                  | OP   |                 |                                                                             |                                                   |         |
| >Uplink DPCH info                                                  |      |                 | Uplink DPCH info 10.3.6.88                                                  |                                                   |         |
| >CPCH SET Info                                                     |      |                 | CPCH SET Info 10.3.6.13                                                     |                                                   |         |
| <b>Downlink radio resources</b>                                    |      |                 |                                                                             |                                                   |         |
| CHOICE <i>mode</i>                                                 | MP   |                 |                                                                             |                                                   |         |
| >FDD                                                               |      |                 |                                                                             |                                                   |         |
| >>Downlink PDSCH information                                       | OP   |                 | Downlink PDSCH information 10.3.6.30                                        |                                                   |         |
| >TDD                                                               |      |                 |                                                                             | (no data)                                         |         |
| Downlink HS-PDSCH                                                  | OP   |                 | Downlink                                                                    |                                                   | REL-5   |

| Information Element/Group name                  | Need | Multi        | Type and reference                                        | Semantics description                         | Version |
|-------------------------------------------------|------|--------------|-----------------------------------------------------------|-----------------------------------------------|---------|
| Information                                     |      |              | HS-PDSCH Information 10.3.6.23a                           |                                               |         |
| Downlink information common for all radio links | OP   |              | Downlink information common for all radio links 10.3.6.24 |                                               |         |
| Downlink information per radio link list        | OP   | 1 to <maxRL> |                                                           | Send downlink information for each radio link |         |
| >Downlink information for each radio link       | MP   |              | Downlink information for each radio link 10.3.6.27        |                                               |         |

~~~~ Next Modified Section ~~~~

10.2.40 RRC CONNECTION SETUP

This message is used by the network to accept the establishment of an RRC connection for a UE, including assignment of signalling link information, transport channel information and optionally physical channel information.

RLC-SAP: UM

Logical channel: CCCH

Direction: UTRAN → UE

| Information Element/Group name | Need | Multi | Type and reference | Semantics description | Version |
|------------------------------------|------|-------|--|--|---------|
| Message Type | MP | | Message Type | | |
| UE Information Elements | | | | | |
| Initial UE identity | MP | | Initial UE identity 10.3.3.15 | | |
| RRC transaction identifier | MP | | RRC transaction identifier 10.3.3.36 | | |
| Activation time | MD | | Activation time 10.3.3.1 | Default value is "now" | |
| New U-RNTI | MP | | U-RNTI 10.3.3.47 | | |
| New C-RNTI | OP | | C-RNTI 10.3.3.8 | | |
| RRC State Indicator | MP | | RRC State Indicator 10.3.3.35a | | |
| UTRAN DRX cycle length coefficient | MP | | UTRAN DRX cycle length coefficient 10.3.3.49 | | |
| Capability update requirement | MD | | Capability update requirement 10.3.3.2 | Default value is defined in subclause 10.3.3.2 | |
| CHOICE <i>specification mode</i> | MP | | | | REL-5 |

| Information Element/Group name | Need | Multi | Type and reference | Semantics description | Version |
|--|------|-----------------|--|--|---------|
| >Complete specification | | | | | |
| RB Information Elements | | | | | |
| >>Signalling RB information to setup list | MP | 3 to 4 | | | |
| >>>Signalling RB information to setup | MP | | Signalling RB information to setup 10.3.4.24 | | |
| TrCH Information Elements | | | | | |
| Uplink transport channels | | | | | |
| >>UL Transport channel information common for all transport channels | OP | | UL Transport channel information common for all transport channels 10.3.5.24 | | |
| >>Added or Reconfigured TrCH information list | MP | 1 to <maxTrCH > | | Although this IE is not required when the IE "RRC state indicator" is set to "CELL_FACH", need is MP to align with ASN.1 | |
| | OP | | | | REL-4 |
| >>>Added or Reconfigured UL TrCH information | MP | | Added or Reconfigured UL TrCH information 10.3.5.2 | | |
| Downlink transport channels | | | | | |
| >>DL Transport channel information common for all transport channels | OP | | DL Transport channel information common for all transport channels 10.3.5.6 | | |
| >>Added or Reconfigured TrCH information list | MP | 1 to <maxTrCH > | | Although this IE is not required when the IE "RRC state indicator" is set to "CELL_FACH", need is MP to align with ASN.1 | |
| | OP | | | | REL-4 |
| >>>Added or Reconfigured DL TrCH information | MP | | Added or Reconfigured DL TrCH information 10.3.5.1 | | |

| Information Element/Group name | Need | Multi | Type and reference | Semantics description | Version |
|---|------|--------------|---|---|---------|
| >Preconfiguration | | | | | REL-5 |
| >>CHOICE <i>Preconfiguration mode</i> | MP | | | | REL-5 |
| >>>Predefined configuration identity | MP | | Predefined configuration identity 10.3.4.5 | | REL-5 |
| >>>Default configuration | | | | | REL-5 |
| >>>>Default configuration mode | MP | | Enumerated (FDD, TDD) | Indicates whether the FDD or TDD version of the default configuration shall be used | REL-5 |
| >>>>Default configuration identity | MP | | Default configuration identity 10.3.4.0 | | REL-5 |
| PhyCH information elements | | | | | |
| Frequency info | OP | | Frequency info 10.3.6.36 | | |
| Uplink radio resources | | | | | |
| Maximum allowed UL TX power | MD | | Maximum allowed UL TX power 10.3.6.39 | Default value is the existing maximum UL TX power | |
| CHOICE <i>channel requirement</i> | OP | | | | |
| >Uplink DPCH info | | | Uplink DPCH info 10.3.6.88 | | |
| >CPCH-SET Info | | | CPCH-SET Info 10.3.6.13 | | |
| Downlink radio resources | | | | | |
| Downlink information common for all radio links | OP | | Downlink information common for all radio links 10.3.6.24 | | |
| Downlink information per radio link list | OP | 1 to <MaxRL> | | Send downlink information for each radio link to be set-up | |
| >Downlink information for each radio link | MP | | Downlink information for each radio link 10.3.6.27 | | |

~~~~ Next Modified Section ~~~~

10.2.48.8.11 **System Information Block type 8** Void

~~NOTE: Only for FDD.~~

~~The system information block type 8 contains static CPCH information to be used in the cell.~~



| Information Element/Group name    | Need | Multi                     | Type and reference              | Semantics description |
|-----------------------------------|------|---------------------------|---------------------------------|-----------------------|
| <b>UE information</b>             |      |                           |                                 |                       |
| CPCH parameters                   | MP   |                           | CPCH parameters<br>10.3.3.7     |                       |
| <b>PhyCH information elements</b> |      |                           |                                 |                       |
| CPCH set info list                | MP   | 1 to<br><maxCPC<br>Hsets> |                                 |                       |
| >CPCH set info                    | MP   |                           | CPCH set info<br>10.3.6.13      |                       |
| CSICH Power offset                | MP   |                           | CSICH Power offset<br>10.3.6.15 |                       |

10.2.48.8.12 System Information Block type 9 Void

NOTE: Only for FDD.

The system information block type 9 contains CPCH information to be used in the cell.

| Information Element/Group name    | Need | Multi                     | Type and reference                   | Semantics description |
|-----------------------------------|------|---------------------------|--------------------------------------|-----------------------|
| <b>PhyCH information elements</b> |      |                           |                                      |                       |
| CPCH set persistence levels list  | MP   | 1 to<br><maxCPC<br>Hsets> |                                      |                       |
| >CPCH set persistence levels      | MP   |                           | CPCH persistence levels<br>10.3.6.12 |                       |

~~~~ Next Modified Section ~~~~

10.2.50 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: AM or UM

Logical channel: DCCH

Direction: UTRAN → UE

| Information Element/Group name | Need | Multi | Type and reference | Semantics description | Version |
|--------------------------------|------|-------|---|---|---------|
| Message Type | MP | | Message Type | | |
| UE Information Elements | | | | | |
| RRC transaction identifier | MP | | RRC transaction identifier
10.3.3.36 | | |
| Integrity check info | CH | | Integrity check info
10.3.3.16 | | |
| Integrity protection mode info | OP | | Integrity protection mode info
10.3.3.19 | The UTRAN should not include this IE unless it is performing an | |

| Information Element/Group name | Need | Multi | Type and reference | Semantics description | Version |
|--|------|----------------------|--|---|---------|
| | | | | SRNS relocation | |
| Ciphering mode info | OP | | Ciphering mode info 10.3.3.5 | The UTRAN should not include this IE unless it is performing an SRNS relocation and a change in ciphering algorithm | |
| Activation time | MD | | Activation time 10.3.3.1 | Default value is "now" | |
| New U-RNTI | OP | | U-RNTI 10.3.3.47 | | |
| New C-RNTI | OP | | C-RNTI 10.3.3.8 | | |
| New DSCH-RNTI | OP | | DSCH-RNTI 10.3.3.9a | | |
| New H-RNTI | OP | | H-RNTI 10.3.3.14a | | REL-5 |
| RRC State Indicator | MP | | RRC State Indicator 10.3.3.35a | | |
| UTRAN DRX cycle length coefficient | OP | | UTRAN DRX cycle length coefficient 10.3.3.49 | | |
| CN Information Elements | | | | | |
| CN Information info | OP | | CN Information info 10.3.1.3 | | |
| UTRAN mobility information elements | | | | | |
| URA identity | OP | | URA identity 10.3.2.6 | | |
| RB information elements | | | | | |
| Downlink counter synchronisation info | OP | | | | |
| >RB with PDCP information list | OP | 1 to <maxRBall RABs> | | | |
| >>RB with PDCP information | MP | | RB with PDCP information 10.3.4.22 | This IE is needed for each RB having PDCP in the case of lossless SRNS relocation | |
| | OP | | | | REL-5 |
| >>>PDCP context relocation info | OP | | PDCP context relocation info 10.3.4.1a | This IE is needed for each RB having PDCP and performing PDCP context relocation | REL-5 |
| TrCH Information Elements | | | | | |
| Uplink transport channels | | | | | |
| UL Transport channel information common for all transport channels | OP | | UL Transport channel information common for all transport channels 10.3.5.24 | | |
| Added or Reconfigured TrCH information list | OP | 1 to <maxTrCH > | | | |
| >Added or Reconfigured UL | MP | | Added or | | |

| Information Element/Group name | Need | Multi | Type and reference | Semantics description | Version |
|--|------|-----------------|--|---|---------|
| TrCH information | | | Reconfigured UL TrCH information
10.3.5.2 | | |
| CHOICE <i>mode</i> | OP | | | | |
| >FDD | | | | | |
| >>CPCH set ID | OP | | CPCH set ID
10.3.5.3 | | |
| >>Added or Reconfigured TrCH information for DRAC list | OP | 1 to <maxTrCH > | | | |
| >>>DRAC static information | MP | | DRAC static information
10.3.5.7 | | |
| >TDD | | | | (no data) | |
| Downlink transport channels | | | | | |
| DL Transport channel information common for all transport channels | OP | | DL Transport channel information common for all transport channels
10.3.5.6 | | |
| Added or Reconfigured TrCH information list | OP | 1 to <maxTrCH > | | | |
| >Added or Reconfigured DL TrCH information | MP | | Added or Reconfigured DL TrCH information
10.3.5.1 | | |
| PhyCH information elements | | | | | |
| Frequency info | OP | | Frequency info
10.3.6.36 | | |
| Uplink radio resources | | | | | |
| Maximum allowed UL TX power | MD | | Maximum allowed UL TX power
10.3.6.39 | Default value is the existing maximum UL TX power | |
| CHOICE <i>channel requirement</i> | OP | | | | |
| >Uplink DPCH info | | | Uplink DPCH info
10.3.6.88 | | |
| >CPCH SET Info | | | CPCH SET Info
10.3.6.13 | | |
| Downlink radio resources | | | | | |
| CHOICE <i>mode</i> | MP | | | | |
| >FDD | | | | | |
| >>Downlink PDSCH information | OP | | Downlink PDSCH information
10.3.6.30 | | |
| >TDD | | | | (no data) | |
| Downlink HS-PDSCH Information | OP | | Downlink HS-PDSCH Information
10.3.6.23a | | REL-5 |
| Downlink information common for all radio links | OP | | Downlink information common for all radio links
10.3.6.24 | | |
| Downlink information per radio | OP | 1 to | | Send downlink | |

| Information Element/Group name | Need | Multi | Type and reference | Semantics description | Version |
|---|------|---------|---|---------------------------------|---------|
| link list | | <maxRL> | | information for each radio link | |
| >Downlink information for each radio link | MP | | Downlink information for each radio link
10.3.6.27 | | |

~~~~ Next Modified Section ~~~~

### 10.3.3.7 ~~CPCCH~~ Parameters Void

~~NOTE: Only for FDD.~~

~~These parameters are used by any UE using any CPCCH set allocated to the cell that is broadcasting this system information.~~

| Information Element/Group name        | Need               | Multi                  | Type and reference                               | Semantics description                                                                                                                                                      |
|---------------------------------------|--------------------|------------------------|--------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <del>Initial Priority Delay</del>     | <del>OP</del>      | <del>1 to maxASC</del> |                                                  | <del>Initial delays for ASC priority.</del>                                                                                                                                |
| <del>&gt;NS_IP</del>                  | <del>MP</del>      |                        | <del>Integer (0...28)</del>                      | <del>Number of slots for initial fixed delay for each ASC priority level</del>                                                                                             |
| <del>Backoff control parameters</del> | <del>MP</del>      |                        |                                                  |                                                                                                                                                                            |
| <del>&gt;N_ap_retrans_max</del>       | <del>MP</del>      |                        | <del>Integer (1...64)</del>                      | <del>Max number of AP transmissions without AP-AICH response, a PHY parameter.</del>                                                                                       |
| <del>&gt;N_access_fails</del>         | <del>MP</del>      |                        | <del>Integer (1...64)</del>                      | <del>Max number of preamble ramping cycles when NAK response received, a MAC parameter.</del>                                                                              |
| <del>&gt;NF_bo_no_aich</del>          | <del>MP</del>      |                        | <del>Integer (0...31)</del>                      | <del>Number of frames for UE backoff after N<sub>ap_retrans_max</sub> unsuccessful AP access attempts, a MAC parameter.</del>                                              |
| <del>&gt;NS_bo_busy</del>             | <del>MP</del>      |                        | <del>Integer (0...63)</del>                      | <del>Number of slots for UE fixed backoff after access attempt to busy CPCCH, a MAC parameter.</del>                                                                       |
| <del>&gt;NF_bo_all_busy</del>         | <del>MP</del>      |                        | <del>Integer (0...31)</del>                      | <del>Max number of frames for UE backoff after access attempt to last busy CPCCH, a MAC parameter. UE randomly selects backoff value from range (0..NF_bo_all_busy)</del>  |
| <del>&gt;NF_bo_mismatch</del>         | <del>MP</del>      |                        | <del>Integer (0...127)</del>                     | <del>Max number of frames for the UE backoff after received mismatch on CD/CA-ICH, a MAC parameter. UE randomly selects backoff value from range (0..NF_bo_mismatch)</del> |
| <del>&gt;T_CPCCH</del>                | <del>MP</del>      |                        | <del>Enumerated (0, 1)</del>                     | <del>CPCCH channel timing used to determine Tau, a PHY parameter</del>                                                                                                     |
| <del>Power Control Algorithm</del>    | <del>MP</del>      |                        | <del>Enumerated (algorithm 1, algorithm 2)</del> | <del>Specifies algorithm to be used by UE to interpret TPC commands</del>                                                                                                  |
| <del>TPC stop size</del>              | <del>CV_algo</del> |                        | <del>Integer (1, 2)</del>                        | <del>In dB</del>                                                                                                                                                           |
| <del>DL-DPCCH BER</del>               | <del>MP</del>      |                        | <del>Integer (0..63)</del>                       | <del>The BER quality value shall be set in the range 0 ≤ DPCCH BER ≤ 1</del>                                                                                               |

| Information Element/Group name | Need | Multi | Type and reference | Semantics description                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|--------------------------------|------|-------|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                |      |       |                    | in the unit BER_dB where:<br>$BER\_dB\_0: DPCCH\ BER = 0$<br>$BER\_dB\_1: \infty <$<br>$Log_{10}(DPCCH\ BER) < -4.03$<br>$BER\_dB\_2: -4.03 \leq$<br>$Log_{10}(DPCCH\ BER) < -3.965$<br>$BER\_dB\_3: -3.965 \leq$<br>$Log_{10}(DPCCH\ BER) < -3.9$<br>...<br>$BER\_dB\_61: -0.195 \leq$<br>$Log_{10}(DPCCH\ BER) < -0.13$<br>$BER\_dB\_62: -0.13 \leq$<br>$Log_{10}(DPCCH\ BER) < -0.065$<br>$BER\_dB\_63: -0.065 \leq$<br>$Log_{10}(DPCCH\ BER) \leq 0$ |

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

~~~~ Next Modified Section ~~~~

10.3.3.25 Physical channel capability

| Information Element/Group name | Need | Multi | Type and Reference | Semantics description | Version |
|---|-----------------------------------|-------|--|---|---------|
| Downlink physical channel capability information elements | | | | | |
| FDD downlink physical channel capability | CH- <i>fdd_req_su</i>
<i>p</i> | | | | |
| >Max no DPCH/PDSCH codes | MP | | Integer (1..8) | Maximum number of DPCH/PDSCH codes to be simultaneously received | |
| >Max no physical channel bits received | MP | | Integer (1200, 2400, 3600, 4800, 7200, 9600, 14400, 19200, 28800, 38400, 48000, 57600, 67200, 76800) | Maximum number of physical channel bits received in any 10 ms interval (DPCH, PDSCH, S-CCPCH) | |
| >Support for SF 512 | MP | | Boolean | TRUE means supported | |
| >Support of PDSCH | MP | | Boolean | TRUE means supported | |
| >CHOICE <i>Support of HS-PDSCH</i> | CV- <i>not_iRAT_HoInfo</i> | | | | REL-5 |

| Information Element/Group name | Need | Multi | Type and Reference | Semantics description | Version |
|--|--------------------------------------|-------|--------------------|---|-----------------------|
| >>Supported | | | | | REL-5 |
| >>>HS-DSCH physical layer category | MP | | Integer (1..64) | | REL-5 |
| >>>Support of dedicated pilots for channel estimation of HS-DSCH | MP | | Boolean | TRUE means supported | REL-5 |
| >>>Simultaneous reception of SCCPCH, DPCH and HS-PDSCH | MP | | Boolean | TRUE means supported. This IE shall only be set to TRUE in the case the IE "Simultaneous reception of SCCPCH and DPCH" is set to TRUE | REL-5 |
| >>Unsupported | | | | (no data) | REL-5 |
| >Simultaneous reception of SCCPCH and DPCH | MP | | Boolean | TRUE means supported | |
| >Simultaneous reception of SCCPCH, DPCH and PDSCH | CV-
if_sim_rec
_pdsch
_sup | | Boolean | TRUE means supported | |
| >Max no of S-CCPCH RL | CV-
if_sim_rec | | Integer(1) | Maximum number of simultaneous S-CCPCH radio links | |
| >Support of dedicated pilots for channel estimation | MD | | Enumerated (true) | Presence of this element means supported and absence not supported. This IE shall be set to TRUE in this version of the protocol. | |
| 3.84 Mcps TDD downlink physical channel capability | CH-
3.84_Mcps
_tdd_req_s
up | | | | Name changed in REL-4 |
| >Maximum number of timeslots per frame | MP | | Integer (1..14) | | |
| >Maximum number of physical channels per frame | MP | | Integer (5..224) | | |
| >Minimum SF | MP | | Integer (1, 16) | | |
| >Support of PDSCH | MP | | Boolean | TRUE means supported | |
| >CHOICE <i>Support of HS-PDSCH</i> | CV-
not_iRAT_
HoInfo | | | | REL-5 |
| >>Supported | | | | | REL-5 |
| >>>HS-DSCH physical layer category | MP | | Integer (1..64) | | REL-5 |
| >>Unsupported | | | | (no data) | REL-5 |
| >Maximum number of physical channels per timeslot | MP | | Integer (5..16) | | |
| 1.28 Mcps TDD downlink physical channel capability | CH-
1.28_Mcps
_tdd_req_s
up | | | | REL-4 |
| >Maximum number of timeslots per subframe | MP | | Integer (1..6) | | REL-4 |
| >Maximum number of physical | MP | | Integer | | REL-4 |

| Information Element/Group name | Need | Multi | Type and Reference | Semantics description | Version |
|--|--------------------------------------|-------|--|-----------------------|-----------------------|
| channels per subframe | | | (1..96) | | |
| >Minimum SF | MP | | Integer (1, 16) | | REL-4 |
| >Support of PDSCH | MP | | Boolean | TRUE means supported | REL-4 |
| >CHOICE <i>Support of HS-PDSCH</i> | CV-
<i>not_iRAT_HoInfo</i> | | | | REL-5 |
| >>Supported | | | | | REL-5 |
| >>>HS-DSCH physical layer category | MP | | Integer (1..64) | | REL-5 |
| >>Unsupported | | | | (no data) | REL-5 |
| >Maximum number of physical channels per timeslot | MP | | Integer (1..16) | | REL-4 |
| >Support of 8PSK | MP | | Boolean | TRUE means supported | REL-4 |
| Uplink physical channel capability information elements | | | | | |
| FDD uplink physical channel capability | CH-
<i>fdd_req_su_p</i> | | | | |
| >Maximum number of DPDCH bits transmitted per 10 ms | MP | | Integer (600, 1200, 2400, 4800, 9600, 19200, 28800, 38400, 48000, 57600) | | |
| >Support of PCPCH | MP | | Boolean | TRUE means supported | |
| 3.84 Mcps TDD uplink physical channel capability | CH-
<i>3.84_Mcps_tdd_req_s_up</i> | | | | Name changed in REL-4 |
| >Maximum Number of timeslots per frame | MP | | Integer (1..14) | | |
| >Maximum number of physical channels per timeslot | MP | | Integer (1, 2) | | |
| >Minimum SF | MP | | Integer (1, 2, 4, 8) | | |
| >Support of PUSCH | MP | | Boolean | TRUE means supported | |
| 1.28 Mcps TDD uplink physical channel capability | CH-
<i>1.28_Mcps_tdd_req_s_up</i> | | | | REL-4 |
| >Maximum Number of timeslots per subframe | MP | | Integer (1..6) | | REL-4 |
| >Maximum number of physical channels per timeslot | MP | | Integer (1, 2) | | REL-4 |
| >Minimum SF | MP | | Integer (1, 2, 4, 8, 16) | | REL-4 |
| >Support of PUSCH | MP | | Boolean | TRUE means supported | REL-4 |
| >Support of 8PSK | MP | | Boolean | TRUE means supported | REL-4 |

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

~~~~ Next Modified Section ~~~~

### 10.3.4.21 RB mapping info

A multiplexing option for each possible transport channel or MAC-d flow this RB can be multiplexed on.

| Information Element/Group name           | Need                     | Multi                   | Type and reference            | Semantics description                                                                                                                                                                                                                                                                                       | Version |
|------------------------------------------|--------------------------|-------------------------|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| Information for each multiplexing option | MP                       | 1 to <maxRBM uxOptions> |                               |                                                                                                                                                                                                                                                                                                             |         |
| >RLC logical channel mapping indicator   | CV-UL-RLCLogicalChannels |                         | Boolean                       | TRUE indicates that the first logical channel shall be used for data PDUs and the second logical channel shall be used for control PDUs. FALSE indicates that control and data PDUs can be sent on either of the two logical channels. This parameter is not used in this release and shall be set to TRUE. |         |
| >Number of uplink RLC logical channels   | CV-UL-RLC info           | 1 to MaxLoCHperRLC      |                               | 1 or 2 logical channels per RLC entity or radio bearer RLC [16]                                                                                                                                                                                                                                             |         |
| >>Uplink transport channel type          | MP                       |                         | Enumerated(DCH,RACH,CPCH,USC) | CPCH is FDD only<br>USCH is TDD                                                                                                                                                                                                                                                                             |         |



| Information Element/Group name            | Need                | Multi              | Type and reference                            | Semantics description                                                                                                                                                                                               | Version |
|-------------------------------------------|---------------------|--------------------|-----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| >>ULTransport channel identity            | CV-UL-DCH/USCH<br>H |                    | H)<br>Transport channel identity<br>10.3.5.18 | only<br>This is the ID of a DCH or USCH (TDD only) that this RB could be mapped onto.                                                                                                                               |         |
| >>Logical channel identity                | OP                  |                    | Integer(1..15)                                | This parameter is used to distinguish logical channels multiplexed by MAC on a transport channel.                                                                                                                   |         |
| >>CHOICE RLC size list                    | MP                  |                    |                                               | The RLC sizes that are allowed for this logical channel.                                                                                                                                                            |         |
| >>>All                                    |                     |                    | Null                                          | All RLC sizes listed in the <i>Transport Format Set</i> . 10.3.5.23                                                                                                                                                 |         |
| >>>Configured                             |                     |                    | Null                                          | The RLC sizes configured for this logical channel in the <i>Transport Format Set</i> . 10.3.5.23 if present in this message or in the previously stored configuration otherwise                                     |         |
| >>>Explicit List                          |                     | 1 to <maxTF>       |                                               | Lists the RLC sizes that are valid for the logical channel.                                                                                                                                                         |         |
| >>>>RLC size index                        | MP                  |                    | Integer(1..maxTF)                             | The integer number is a reference to the RLC size which arrived at that position in the <i>Transport Format Set</i> 10.3.5.23                                                                                       |         |
| >>MAC logical channel priority            | MP                  |                    | Integer(1..8)                                 | This is priority between a user's different RBs (or logical channels). [15]                                                                                                                                         |         |
| >Downlink RLC logical channel info        | CV-DL-RLC info      |                    |                                               |                                                                                                                                                                                                                     |         |
| >>Number of downlink RLC logical channels | MD                  | 1 to MaxLoCHperRLC |                                               | 1 or 2 logical channels per RLC entity or radio bearer RLC [16]<br>Default value is that parameter values for DL are exactly the same as for corresponding UL logical channel. In case two multiplexing options are |         |

| Information Element/Group name                                                                                                          | Need          | Multi | Type and reference                                            | Semantics description                                                                                                                           | Version |
|-----------------------------------------------------------------------------------------------------------------------------------------|---------------|-------|---------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|---------|
|                                                                                                                                         |               |       |                                                               | specified for the UL, the first options shall be used as default for the DL. As regards to the IE "Channel type", rule is specified in 8.6.4.8. |         |
| >>>Downlink transport channel type                                                                                                      | MP            |       | Enumerated(DCH,FACH, DSCH,DCH+ DSCH , HS-DSCH, DCH + HS-DSCH) | Note 1                                                                                                                                          | REL-5   |
| >>>DL DCH Transport channel identity                                                                                                    | CV-DL-DCH     |       | Transport channel identity 10.3.5.18                          |                                                                                                                                                 |         |
| >>>DL DSCH Transport channel identity                                                                                                   | CV-DL-DSCH    |       | Transport channel identity 10.3.5.18                          |                                                                                                                                                 |         |
| >>>DL HS-DSCH MAC-d flow identity                                                                                                       | CV-DL-HS-DSCH |       | MAC-d flow identity 10.3.5.7c                                 |                                                                                                                                                 | REL-5   |
| >>>Logical channel identity                                                                                                             | OP            |       | Integer(1..15 )                                               | 16 is reserved                                                                                                                                  |         |
| Note 1: The IE "Downlink transport channel type" values "HS-DSCH" and "DCH + HS-DSCH" are not used in the RRC CONNECTION SETUP message. |               |       |                                                               |                                                                                                                                                 |         |

| Condition             | Explanation                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| UL-RLC info           | If "CHOICE Uplink RLC mode" in the IE "RLC info" that applies for that RB (i.e. either the one stored or received in the same message for the RB for which the "RB mapping info" was received, or the one stored or received in the same message for the RB pointed at in the IE "Same as RB" in the IE "RB information to setup" stored or received in the same message) is present this IE is mandatory present. Otherwise the IE is not needed.   |
| DL-RLC info           | If "CHOICE Downlink RLC mode" in the IE "RLC info" that applies for that RB (i.e. either the one stored or received in the same message for the RB for which the "RB mapping info" was received, or the one stored or received in the same message for the RB pointed at in the IE "Same as RB" in the IE "RB information to setup" stored or received in the same message) is present this IE is mandatory present. Otherwise the IE is not needed. |
| UL-RLCLogicalChannels | If "Number of uplink RLC logical channels" in IE "RB mapping info" is 2, then this IE is mandatory present. Otherwise this IE is not needed.                                                                                                                                                                                                                                                                                                         |
| UL-DCH/USCH           | If IE "Uplink transport channel type" is equal to "DCH" or "USCH" (TDD only) this IE is mandatory present. Otherwise the IE is not needed.                                                                                                                                                                                                                                                                                                           |
| DL-DCH                | If IE "Downlink transport channel type" is equal to "DCH", "DCH+DSCH" or "DCH + HS-DSCH" this IE is mandatory present. Otherwise the IE is not needed.                                                                                                                                                                                                                                                                                               |
| DL-DSCH               | If IE "Downlink transport channel type" is equal to "DSCH" or "DCH+DSCH" this IE is mandatory present. Otherwise the IE is not needed.                                                                                                                                                                                                                                                                                                               |
| DL-HS-DSCH            | If IE "Downlink transport channel type" is equal to "HSDSCH" or "DCH + HS-DSCH" this IE is mandatory present. Otherwise the IE is not needed.                                                                                                                                                                                                                                                                                                        |

~~~~ Next Modified Section ~~~~

10.3.5.3 ~~CPC~~CH set ID Void

~~NOTE: Only for FDD.~~

~~This information element indicates that this transport channel may use any of the Physical CPC~~CH channels defined in the CPCCH set info, which contains the same CPCCH set ID. The CPCCH set ID associates the transport channel with a set of PCPCH channels defined in a CPCCH set info IE and a set of CPCCH persistency values. The CPCCH set info IE(s) and the CPCCH persistency values IE(s) each include the CPCCH set ID and are part of the SYSTEM INFORMATION message.

| Information Element/Group name | Need | Multi | Type and reference | Semantics description |
|--------------------------------|------|-------|--|--|
| CPC CH set ID | MP | | Integer(1..maxCPC CHsets
) | Identifier for CPC CH set info and CPCCH persistency value messages |

~~~~ Next Modified Section ~~~~

### 10.3.5.8 Power Offset Information

| Information Element/Group name  | Need | Multi | Type and reference | Semantics description                                                                                                                                                                                   |
|---------------------------------|------|-------|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CHOICE <i>Gain Factors</i>      | MP   |       |                    |                                                                                                                                                                                                         |
| >Signalled Gain Factors         |      |       |                    |                                                                                                                                                                                                         |
| >>CHOICE <i>mode</i>            |      |       |                    |                                                                                                                                                                                                         |
| >>>FDD                          |      |       |                    |                                                                                                                                                                                                         |
| >>>>Gain Factor $\beta_c$       | MP   |       | Integer (0.. 15)   | For UL DPCCH or control part of PRACH <del>or PCPCH</del>                                                                                                                                               |
| >>>TDD                          |      |       |                    | (no data)                                                                                                                                                                                               |
| >>Gain Factor $\beta_d$         | MP   |       | Integer (0..15)    | For UL DPDCH or data part of PRACH <del>or PCPCH in FDD</del> and all uplink channels in TDD                                                                                                            |
| >>Reference TFC ID              | OP   |       | Integer (0..3)     | If this TFC is a reference TFC, indicates the reference ID.                                                                                                                                             |
| >Computed Gain Factors          |      |       |                    |                                                                                                                                                                                                         |
| >>Reference TFC ID              | MP   |       | Integer (0.. 3)    | Indicates the reference TFC Id of the TFC to be used to calculate the gain factors for this TFC. In case of using computed gain factors, at least one signalled gain factor is necessary for reference. |
| CHOICE <i>mode</i>              | MP   |       |                    |                                                                                                                                                                                                         |
| >FDD                            |      |       |                    |                                                                                                                                                                                                         |
| >>Power offset P <sub>p-m</sub> | OP   |       | Integer(-5..10)    | In dB. Power offset between the last transmitted preamble and the control part of the message (added to the preamble power to receive the power of the message control part )<br>Needed only for PRACH  |
| >TDD                            |      |       |                    | (no data)                                                                                                                                                                                               |

| <b>CHOICE Gain Factors</b>    | <b>Condition under which the way to signal the Gain Factors is chosen</b>                                                                             |
|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Signalled Gain Factors</i> | The values for gain factors $\beta_c$ (only in FDD mode) and $\beta_d$ are signalled directly for a TFC.                                              |
| <i>Computed Gain Factors</i>  | The gain factors $\beta_c$ (only in FDD mode) and $\beta_d$ are computed for a TFC, based on the signalled settings for the associated reference TFC. |

~~~~ Next Modified Section ~~~~

10.3.5.18 Transport channel identity

This information element is used to distinguish transport channels. Transport channels of different type (RACH, CPCH, USCH, FACH/PCH, DSCH or DCH) have separate series of identities. This also holds for uplink and downlink transport channel identities (i.e. for DCH). Depending on in which context a transport channel identity n that is sent, it will have different meaning

| Information Element/Group name | Need | Multi | Type and reference | Semantics description |
|---------------------------------------|-------------|--------------|---------------------------|------------------------------|
| Transport channel identity | MP | | Integer(1..32) | |

~~~~ Next Modified Section ~~~~

### 10.3.6.12 CPCH persistence levels [Void](#)

**NOTE:**—Only for FDD.

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

| <b>Information Element/Group name</b> | <b>Need</b> | <b>Multi</b>      | <b>Type and reference</b>              | <b>Semantics description</b>            |
|---------------------------------------|-------------|-------------------|----------------------------------------|-----------------------------------------|
| CPCH set ID                           | MP          |                   | Integer (1.. <maxCPCHs etc>)           | Identifier for CPCH set info.           |
| Dynamic persistence level             | MP          | 1 to <maxTF-CPCH> |                                        |                                         |
| >Dynamic persistence level            | MP          |                   | Dynamic persistence level<br>10.3.6.35 | Persistence level for transport format. |

### 10.3.6.13 CPCH set info [Void](#)

**NOTE:**—Only for FDD.

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

| <b>Information Element/Group name</b> | <b>Need</b> | <b>Multi</b> | <b>Type and reference</b>         | <b>Semantics description</b>                                           |
|---------------------------------------|-------------|--------------|-----------------------------------|------------------------------------------------------------------------|
| CPCH set ID                           | MP          |              | CPCH set ID<br>10.3.5.3           | Indicates the ID number for a particular CPCH set allocated to a cell. |
| TFS                                   | MP          |              | Transport Format Set<br>10.3.5.23 | Transport Format Set Information allocated to this CPCH set.           |
| TFCS                                  | MP          |              | Transport Format Combination Set  | Transport Format Set Information allocated to this CPCH set            |

| Information Element/Group name      | Need                    | Multi                              | Type and reference                       | Semantics description                                                                                                                                                                   |
|-------------------------------------|-------------------------|------------------------------------|------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                     |                         |                                    | 10.3.5.20                                |                                                                                                                                                                                         |
| AP_preamble_scrambling_code         | MP                      |                                    | Integer (0..79)                          | Preamble scrambling code for AP in UL                                                                                                                                                   |
| AP-AICH_channelisation_code         | MP                      |                                    | Integer(0..255)                          | Channelisation code for AP-AICH in DL                                                                                                                                                   |
| CD_preamble_scrambling_code         | MP                      |                                    | Integer (0..79)                          | Preamble scrambling code for CD in UL                                                                                                                                                   |
| CD/CA-ICH_channelisation_code       | MP                      |                                    | Integer (0..255)                         | Channelisation code for CD/CA-ICH in DL                                                                                                                                                 |
| Available CD access slot subchannel | CV-<br>CDSigPres<br>ent | 1 to<br><maxPCP<br>CH-<br>CDsubCh> |                                          | Lists the set of subchannels to be used for CD access preambles.<br>NOTE: If not present, all subchannels are to be used without access delays.                                         |
| >CD_access_slot_subchannel          | MP                      |                                    | Integer (0..14)                          |                                                                                                                                                                                         |
| Available CD signatures             | OP                      | 1 to<br><maxPCP<br>CH-<br>CDsig>   |                                          | Signatures for CD preamble in UL.<br>NOTE: If not present, all signatures are available for use.                                                                                        |
| >CD_signatures                      | MP                      |                                    | Integer (0..15)                          |                                                                                                                                                                                         |
| DeltaPp-m                           | MP                      |                                    | Integer (-10..10)                        | In dB. Power offset between the transmitted CD preamble and UL-DPCCH of the power control preamble or message part (added to the preamble power to calculate the power of the UL-DPCCH) |
| UL-DPCCH Slot Format                | MP                      |                                    | Enumerated (0,1,2)                       | Slot format for UL-DPCCH in power control preamble and in message part                                                                                                                  |
| N_start_message                     | MP                      |                                    | Integer (1..8)                           | Number of Frames for start of message indication                                                                                                                                        |
| N_EOT                               | MP                      |                                    | Integer(0..7)                            | Actual number of appended EOT indicators is T_EOT = N_TTI * ceil(N_EOT/N_TTI), where N_TTI is the number of frames per TTI and "ceil" refers to rounding up to nearest integer.         |
| Channel Assignment Active           | OP                      |                                    | Boolean                                  | When present, indicates that Node B send a CA message and VCAM mapping rule (14.11) shall be used.                                                                                      |
| CPCH status indication mode         | MP                      |                                    | CPCH status indication mode<br>10.3.6.14 |                                                                                                                                                                                         |
| PCPCH-Channel-Info.                 | MP                      | 1 to<br><maxPCP<br>CHs>            |                                          |                                                                                                                                                                                         |
| >UL_scrambling_code                 | MP                      |                                    | Integer (0..79)                          | For PCPCH message part                                                                                                                                                                  |
| >DL_channelisation_code             | MP                      |                                    | Integer (0..511)                         | For DL-DPCCH for PCPCH message part                                                                                                                                                     |
| >DL_scrambling_code                 | MD                      |                                    | Secondary Scrambling Code<br>10.3.6.74   | Default is the same scrambling code as for the primary CPICH.                                                                                                                           |
| >PCP_length                         | MP                      |                                    | Enumerated (0..8)                        | Indicates length of power control preamble, 0 slots (no                                                                                                                                 |

| Information Element/Group name          | Need    | Multi                   | Type and reference                | Semantics description                                                                                                                                                                         |
|-----------------------------------------|---------|-------------------------|-----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| >UCSM Info                              | CV-NCAA |                         |                                   | preamble used) or 8 slots                                                                                                                                                                     |
| >>Minimum Spreading Factor              | MP      |                         | Integer (4,8,16,32,64,128,256)    | The UE may use this PCPCH at any Spreading Factor equal to or greater than the indicated minimum Spreading Factor. The Spreading Factor for initial access is the minimum Spreading Factor.   |
| >>NF_max                                | MP      |                         | Integer (1..64)                   | Maximum number of frames for PCPCH message part                                                                                                                                               |
| >>Channel request parameters for UCSM   | MP      |                         |                                   | Required in UE channel selection mode.                                                                                                                                                        |
| >>>Available AP signature               | MP      | 1 to <maxPCPCH-APsig>   |                                   | AP preamble signature codes for selection of this PCPCH channel.                                                                                                                              |
| >>>>AP signature                        | MP      |                         | Integer (0..15)                   |                                                                                                                                                                                               |
| >>>>Available AP access slot subchannel | OP      | 1 to <maxPCPCH-APsubCh> |                                   | Lists the set of subchannels to be used for AP access preambles in combination with the above AP signature(s).<br>NOTE: If not present, all subchannels are to be used without access delays. |
| >>>>AP access slot subchannel           | MP      |                         | Integer (0..14)                   |                                                                                                                                                                                               |
| VCAM info                               | CV-CAA  |                         |                                   |                                                                                                                                                                                               |
| >Available Minimum Spreading Factor     | MP      | 1 to <maxPCPCH-SF>      |                                   |                                                                                                                                                                                               |
| >>Minimum Spreading Factor              | MP      |                         | Enumerated (4,8,16,32,64,128,256) |                                                                                                                                                                                               |
| >>NF_max                                | MP      |                         | Integer (1..64)                   | Maximum number of frames for PCPCH message part                                                                                                                                               |
| >>Maximum available number of PCPCH     | MP      |                         | Integer (1..64)                   | Maximum available number of PCPCH for the indicated Spreading Factor.                                                                                                                         |
| >>Available AP signatures               | MP      | 1 to <maxPCPCH-APsig>   |                                   | Signatures for AP preamble in UL.                                                                                                                                                             |
| >>>>AP signature                        |         |                         | Integer (0..15)                   |                                                                                                                                                                                               |
| >>>>Available AP sub-channel            | OP      | 1 to <maxPCPCH-APsubCh> |                                   | AP sub-channels for the given AP signature in UL.<br>NOTE: If not present, all subchannels are to be used without access delays.                                                              |
| >>>>AP sub-channel                      | MP      |                         | Integer (0..14)                   |                                                                                                                                                                                               |

| Condition    | Explanation                                                                                             |
|--------------|---------------------------------------------------------------------------------------------------------|
| CDSigPresent | This IE is optional if IE "Available CD signatures" is present and not needed otherwise.                |
| NCAA         | This IE is mandatory present if IE "Channel Assignment Active" is not present and not needed otherwise. |
| CAA          | This IE is mandatory present if IE "Channel Assignment Active" is present and not needed otherwise.     |

### 10.3.6.14 ~~CPCH Status Indication mode~~Void

~~NOTE: Only for FDD.~~

| <del>Information Element/Group name</del> | <del>Need</del> | <del>Multi</del> | <del>Type and reference</del>                | <del>Semantics description</del>                                                                       |
|-------------------------------------------|-----------------|------------------|----------------------------------------------|--------------------------------------------------------------------------------------------------------|
| <del>CPCH Status Indication mode</del>    | <del>MP</del>   |                  | <del>Enumerated (PA mode, PAMASF mode)</del> | <del>Defines the status information type broadcast on the CPCH Status Indication Channel (CSICH)</del> |

~~CPCH Status Indication mode defines the structure of the CSICH information that is broadcast by Node B on the CSICH channel. CSICH mode can take 2 values: PCPCH Availability (PA) mode and PCPCH Availability with Minimum Available Spreading Factor (PAMASF) mode. PAMASF mode is used when Channel Assignment is active. PA mode is used when Channel Assignment is not active (UE Channel Selection is active). [26] defines the structure of the CSICH information for both CSICH modes.~~

### 10.3.6.15 ~~CSICH Power offset~~Void

~~NOTE: Only for FDD.~~

~~This is the power per transmitted CSICH Indicator minus power of the Primary CPICH.~~

| <del>Information Element/Group name</del> | <del>Need</del> | <del>Multi</del> | <del>Type and reference</del> | <del>Semantics description</del>             |
|-------------------------------------------|-----------------|------------------|-------------------------------|----------------------------------------------|
| <del>CSICH Power offset</del>             | <del>MP</del>   |                  | <del>Integer(-10..+5)</del>   | <del>Offset in dB, granularity of 1 dB</del> |

~~~~ Next Modified Section ~~~~

10.3.7.69 Traffic volume measurement event results

Contains the event result for a traffic volume measurement.

| Information Element/Group name | Need | Multi | Type and reference | Semantics description |
|---|----------------|-------|---|---|
| Uplink transport channel type causing the event | MP | | Enumerated(DCH,RACH or CPCH,USCH) | USCH is TDD only. CPCH is FDD only. RACH or CPCH is the currently configured default in the uplink. |
| UL Transport Channel identity | CV-UL-DCH/USCH | | Transport channel identity 10.3.5.18 | |
| Traffic volume event identity | MP | | Traffic volume event identity 10.3.7.66 | |

| Condition | Explanation |
|-------------|--|
| UL-DCH/USCH | If IE "Uplink transport channel type" is equal to "DCH" or "USCH" (TDD only) this IE is mandatory present. Otherwise the IE is not needed. |

10.3.7.70 Traffic volume measurement object

Contains the measurement object information for a traffic volume measurement.

| Information Element/Group name | Need | Multi | Type and reference | Semantics description |
|------------------------------------|----------------|-----------------|--|---|
| Traffic volume measurement objects | MP | 1 to <maxTrCH > | | |
| >Uplink transport channel type | MP | | Enumerated(DCH,RACH, CPCH , USCH) | USCH is TDD only. CPCH is FDD only. RACH or CPCH is the currently configured default in the uplink. |
| >UL Target Transport Channel ID | CV-UL-DCH/USCH | | Transport channel identity 10.3.5.18 | |

| Condition | Explanation |
|-------------|--|
| UL-DCH/USCH | If IE "Uplink transport channel type" is equal to "DCH" or "USCH" (TDD only) this IE is mandatory present. Otherwise the IE is not needed. |

~~~~ Next Modified Section ~~~~



### 10.3.7.72 Traffic volume measurement reporting criteria

Contains the measurement reporting criteria information for a traffic volume measurement.

Event 4a: Transport Channel Traffic Volume [15] exceeds an absolute threshold.

Event 4b: Transport Channel Traffic Volume [15] becomes smaller than an absolute threshold.

| Information Element/Group name             | Need           | Multi                   | Type and reference                                                                                               | Semantics description                                                                                                                                                                                         |
|--------------------------------------------|----------------|-------------------------|------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Parameters sent for each transport channel | OP             | 1 to <maxTrCH >         |                                                                                                                  | This IE is always required, need is OP to align with ASN.1                                                                                                                                                    |
| >Uplink transport channel type             | OP             |                         | Enumerated(DCH,RACH,CPCH,USCH)                                                                                   | USCH is TDD only. CPCH is FDD only. RACH or CPCH is the currently configured default in the uplink.                                                                                                           |
| >UL Transport Channel ID                   | CV-UL-DCH/USCH |                         | Transport channel identity 10.3.5.18                                                                             |                                                                                                                                                                                                               |
| >Parameters required for each Event        | OP             | 1 to <maxMeas parEvent> |                                                                                                                  |                                                                                                                                                                                                               |
| >>Traffic volume event identity            | MP             |                         | Traffic volume event identity 10.3.7.66                                                                          |                                                                                                                                                                                                               |
| >>Reporting Threshold                      | MP             |                         | Enumerated(8,16,32,64,128,256,512,1024,2K,3K,4K,6K,8K,12K,16K,24K,32K,48K,64K,96K,128K,192K,256K,384K,512K,768K) | Threshold in bytes<br>And N Kbytes = N*1024 bytes                                                                                                                                                             |
| >>Time to trigger                          | OP             |                         | Time to trigger 10.3.7.64                                                                                        | Indicates the period of time during which the event condition has to be satisfied, before sending a Measurement Report. Time in ms                                                                            |
| >>Pending time after trigger               | OP             |                         | Integer(250, 500, 1000, 2000, 4000, 8000, 16000)                                                                 | Indicates the period of time during which it is forbidden to send any new measurement reports with the same Traffic volume event identity even if the triggering condition is fulfilled. Time in milliseconds |
| >>Tx interruption after trigger            | OP             |                         | Integer (250, 500, 1000, 2000, 4000, 8000, 16000)                                                                | Time in milliseconds. Indicates how long the UE shall block DTCH transmissions on the RACH after a measurement report is triggered.                                                                           |

| Condition   | Explanation                                                                                                                       |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------|
| UL-DCH/USCH | If IE "Uplink transport channel type" is equal to "DCH" or "USCH" (TDD only) this IE is optional. Otherwise the IE is not needed. |

~~~~ Next Modified Section ~~~~

10.3.8.21 SIB type

The SIB type identifies a specific system information block.

| Information Element/Group name | Need | Multi | Type and reference | Semantics description |
|--------------------------------|------|-------|-----------------------|-----------------------|
| SIB type | MP | | Enumerated, see below | |

The list of values to encode is:

- Master information block,
- System Information Type 1,
- System Information Type 2,
- System Information Type 3,
- System Information Type 4,
- System Information Type 5,
- System Information Type 6,
- System Information Type 7,
- ~~System Information Type 8,~~
- ~~System Information Type 9,~~
- System Information Type 10,
- System Information Type 11,
- System Information Type 12,
- System Information Type 13,
- System Information Type 13.1,
- System Information Type 13.2,
- System Information Type 13.3,
- System Information Type 13.4,
- System Information Type 14,
- System Information Type 15,
- System Information Type 15.1,
- System Information Type 15.2,
- System Information Type 15.3,
- System Information Type 15.4,
- System Information Type 15.5,
- System Information Type 16,
- System Information Type 17,
- System Information Type 18,
- Scheduling Block 1,
- Scheduling Block 2.

In addition, two spare values are needed.

10.3.8.22 SIB type SIBs only

The SIB type identifies a specific system information block.

| Information Element/Group name | Need | Multi | Type and reference | Semantics description |
|--------------------------------|------|-------|-----------------------|-----------------------|
| SIB type SIBs only | MP | | Enumerated, see below | |

The list of values to encode is:

System Information Type 1,

System Information Type 2,

System Information Type 3,

System Information Type 4,

System Information Type 5,

System Information Type 6,

System Information Type 7,

~~System Information Type 8,~~

~~System Information Type 9,~~

System Information Type 10,

System Information Type 11,

System Information Type 12,

System Information Type 13,

System Information Type 13.1,

System Information Type 13.2,

System Information Type 13.3,

System Information Type 13.4,

System Information Type 14,

System Information Type 15,

System Information Type 15.1,

System Information Type 15.2,

System Information Type 15.3,

System Information Type 15.4,

System Information Type 15.5,

System Information Type 16,

System Information Type 17,

System Information Type 18.

In addition, five spare values are needed.

~~~~ Next Modified Section ~~~~

### 10.3.10 Multiplicity values and type constraint values

The following table includes constants that are either used as multi bounds (name starting with "max") or as high or low value in a type specification (name starting with "lo" or "hi"). Constants are specified only for values appearing more than once in the RRC specification. In case a constant is related to one or more other constants, an expression is included in the "value" column instead of the actual value.

| Constant                          | Explanation                                                                          | Value                                           | Version |
|-----------------------------------|--------------------------------------------------------------------------------------|-------------------------------------------------|---------|
| <b>CN information</b>             |                                                                                      |                                                 |         |
| maxCNdomains                      | Maximum number of CN domains                                                         | 4                                               |         |
| <b>UTRAN mobility information</b> |                                                                                      |                                                 |         |
| maxRAT                            | Maximum number of Radio Access Technologies                                          | maxOtherRAT + 1                                 |         |
| maxOtherRAT                       | Maximum number of other Radio Access Technologies                                    | 15                                              |         |
| maxURA                            | Maximum number of URAs in a cell                                                     | 8                                               |         |
| maxInterSysMessages               | Maximum number of Inter System Messages                                              | 4                                               |         |
| maxRABsetup                       | Maximum number of RABs to be established                                             | 16                                              |         |
| <b>UE information</b>             |                                                                                      |                                                 |         |
| maxtransactions                   | Maximum number of parallel RRC transactions in downlink                              | 25                                              |         |
| maxPDCPalgoType                   | Maximum number of PDCP algorithm types                                               | 8                                               |         |
| maxDRACclasses                    | Maximum number of UE classes which would require different DRAC parameters           | 8                                               |         |
| maxFreqBandsFDD                   | Maximum number of frequency bands supported by the UE as defined in [21]             | 8                                               |         |
| maxFreqBandsTDD                   | Maximum number of frequency bands supported by the UE as defined in [22]             | 4                                               |         |
| maxFreqBandsGSM                   | Maximum number of frequency bands supported by the UE as defined in [45]             | 16                                              |         |
| maxPage1                          | Number of UEs paged in the Paging Type 1 message                                     | 8                                               |         |
| maxSystemCapability               | Maximum number of system specific capabilities that can be requested in one message. | 16                                              |         |
| MaxURNTIgroup                     | Maximum number of U-RNTI groups in one message                                       | 8                                               | REL-5   |
| <b>RB information</b>             |                                                                                      |                                                 |         |
| maxPredefConfig                   | Maximum number of predefined configurations                                          | 16                                              |         |
| maxRB                             | Maximum number of RBs                                                                | 32                                              |         |
| maxSRBsetup                       | Maximum number of signalling RBs to be established                                   | 8                                               |         |
| maxRBperRAB                       | Maximum number of RBs per RAB                                                        | 8                                               |         |
| maxRBallRABs                      | Maximum number of non signalling RBs                                                 | 27                                              |         |
| maxRBMuxOptions                   | Maximum number of RB multiplexing options                                            | 8                                               |         |
| maxLoCHperRLC                     | Maximum number of logical channels per RLC entity                                    | 2                                               |         |
| MaxROHC-PacketSizes               | Maximum number of packet sizes that are allowed to be produced by ROHC.              | 16                                              |         |
| MaxROHC-Profiles                  | Maximum number of profiles supported by ROHC on a given RB.                          | 8                                               |         |
| maxRFC 3095-CID                   | Maximum number of available CID values per radio bearer                              | 16384                                           | REL-5   |
| <b>TrCH information</b>           |                                                                                      |                                                 |         |
| MaxHProcesses                     | Maximum number of H-ARQ processes                                                    | 8                                               | REL-5   |
| MaxHSDSCH_TB_index                | Maximum number of TB set size configurations for the HS-DSCH.                        | 64 (FDD and 1.28 Mcps TDD); 512 (3.84 Mcps TDD) | REL-5   |
| maxMACdPDUSizes                   | Maximum number of MAC-d PDU sizes per queue permitted for MAC-hs                     | 8                                               | REL-5   |
| maxTrCH                           | Maximum number of transport channels used in one direction (UL or DL)                | 32                                              |         |

| Constant                       | Explanation                                                                                                              | Value                                   | Version |
|--------------------------------|--------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|---------|
| maxTrCHpreconf                 | Maximum number of preconfigured Transport channels, per direction                                                        | 16                                      |         |
| maxCCTrCH                      | Maximum number of CCTrCHs                                                                                                | 8                                       |         |
| maxQueueID                     | Maximum number of Mac-hs queues                                                                                          | 8                                       | REL-5   |
| MaxTF                          | Maximum number of different transport formats that can be included in the Transport format set for one transport channel | 32                                      |         |
| <del>maxTF-CPCH</del>          | <del>Maximum number of TFs in a CPCH set</del>                                                                           | <del>16</del>                           |         |
| maxTFC                         | Maximum number of Transport Format Combinations                                                                          | 1024                                    |         |
| maxTFCsub                      | Maximum number of Transport Format Combinations Subset                                                                   | 1024                                    |         |
| maxTFCI-1-Combs                | Maximum number of TFCI (field 1) combinations                                                                            | 512                                     |         |
| maxTFCI-2-Combs                | Maximum number of TFCI (field 2) combinations                                                                            | 512                                     |         |
| <del>maxCPCHsets</del>         | <del>Maximum number of CPCH sets per cell</del>                                                                          | <del>16</del>                           |         |
| maxSIBperMsg                   | Maximum number of complete system information blocks per SYSTEM INFORMATION message                                      | 16                                      |         |
| maxSIB                         | Maximum number of references to other system information blocks.                                                         | 32                                      |         |
| maxSIB-FACH                    | Maximum number of references to system information blocks on the FACH                                                    | 8                                       |         |
| <b>PhyCH information</b>       |                                                                                                                          |                                         |         |
| maxHS-SCCHs                    | Maximum number of HSSCCH codes that can be assigned to a UE                                                              | 4                                       | REL-5   |
| <del>maxPCPCH-APsubCH</del>    | <del>Maximum number of available sub-channels for AP signature on PCPCH</del>                                            | <del>12</del>                           |         |
| <del>maxPCPCH-CDsubCH</del>    | <del>Maximum number of available sub-channels for CD signature on PCPCH</del>                                            | <del>12</del>                           |         |
| <del>maxPCPCH-APsig</del>      | <del>Maximum number of available signatures for AP on PCPCH</del>                                                        | <del>16</del>                           |         |
| <del>maxPCPCH-CDsig</del>      | <del>Maximum number of available signatures for CD on PCPCH</del>                                                        | <del>16</del>                           |         |
| maxAC                          | Maximum number of access classes                                                                                         | 16                                      |         |
| maxASC                         | Maximum number of access service classes                                                                                 | 8                                       |         |
| maxASCmap                      | Maximum number of access class to access service classes mappings                                                        | 7                                       |         |
| maxASCpersist                  | Maximum number of access service classes for which persistence scaling factors are specified                             | 6                                       |         |
| maxPRACH                       | Maximum number of PRACHs in a cell                                                                                       | 16                                      |         |
| MaxPRACH_FPACH                 | Maximum number of PRACH / FPACH pairs in a cell (1.28 Mcps TDD)                                                          | 8                                       | REL-4   |
| maxFACHPCH                     | Maximum number of FACHs and PCHs mapped onto one secondary CCPCHs                                                        | 8                                       |         |
| maxRL                          | Maximum number of radio links                                                                                            | 8                                       |         |
| maxSCCPCH                      | Maximum number of secondary CCPCHs per cell                                                                              | 16                                      |         |
| maxDPDCH-UL                    | Maximum number of DPDCHs per cell                                                                                        | 6                                       |         |
| maxDPCH-DLchan                 | Maximum number of channelisation codes used for DL DPCH                                                                  | 8                                       |         |
| maxPUSCH                       | Maximum number of PUSCHs                                                                                                 | (8)                                     |         |
| maxPDSCH                       | Maximum number of PDSCHs                                                                                                 | 8                                       |         |
| maxPDSCHcodes                  | Maximum number of codes for PDSCH                                                                                        | 16                                      |         |
| maxPDSCH-TFCIgroups            | Maximum number of TFCI groups for PDSCH                                                                                  | 256                                     |         |
| maxPDSCHcodeGroups             | Maximum number of code groups for PDSCH                                                                                  | 256                                     |         |
| <del>maxPCPCHs</del>           | <del>Maximum number of PCPCH channels in a CPCH Set</del>                                                                | <del>64</del>                           |         |
| <del>maxPCPCH-SF</del>         | <del>Maximum number of available SFs on PCPCH</del>                                                                      | <del>7</del>                            |         |
| maxTS                          | Maximum number of timeslots used in one direction (UL or DL)                                                             | 14 (3.84 Mcps TDD)<br>6 (1.28 Mcps TDD) | REL-4   |
| hiPUSCHidentities              | Maximum number of PUSCH Identities                                                                                       | 64                                      |         |
| hiPDSCHidentities              | Maximum number of PDSCH Identities                                                                                       | 64                                      |         |
| <b>Measurement information</b> |                                                                                                                          |                                         |         |

| Constant                     | Explanation                                                                                                                                               | Value | Version |
|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|-------|---------|
| maxTGPS                      | Maximum number of transmission gap pattern sequences                                                                                                      | 6     |         |
| maxAdditionalMeas            | Maximum number of additional measurements for a given measurement identity                                                                                | 4     |         |
| maxMeasEvent                 | Maximum number of events that can be listed in measurement reporting criteria                                                                             | 8     |         |
| maxMeasParEvent              | Maximum number of measurement parameters (e.g. thresholds) per event                                                                                      | 2     |         |
| maxMeasIntervals             | Maximum number of intervals that define the mapping function between the measurements for the cell quality Q of a cell and the representing quality value | 1     |         |
| maxCellMeas                  | Maximum number of cells to measure                                                                                                                        | 32    |         |
| maxReportedGSMCells          | Maximum number of GSM cells to be reported                                                                                                                | 8     |         |
| maxFreq                      | Maximum number of frequencies to measure                                                                                                                  | 8     |         |
| maxSat                       | Maximum number of satellites to measure                                                                                                                   | 16    |         |
| maxSatAlmanacStorage         | Maximum number of satellites for which to store GPS Almanac information                                                                                   | 32    |         |
| HiRM                         | Maximum number that could be set as rate matching attribute for a transport channel                                                                       | 256   |         |
| <b>Frequency information</b> |                                                                                                                                                           |       |         |
| MaxFDDFreqList               | Maximum number of FDD carrier frequencies to be stored in USIM                                                                                            | 4     |         |
| MaxTDDFreqList               | Maximum number of TDD carrier frequencies to be stored in USIM                                                                                            | 4     |         |
| MaxFDDFreqCellList           | Maximum number of neighbouring FDD cells to be stored in USIM                                                                                             | 32    |         |
| MaxTDDFreqCellList           | Maximum number of neighbouring TDD cells to be stored in USIM                                                                                             | 32    |         |
| MaxGSMCellList               | Maximum number of GSM cells to be stored in USIM                                                                                                          | 32    |         |
| <b>Other information</b>     |                                                                                                                                                           |       |         |
| MaxGERANSI                   | Maximum number of GERAN SI blocks that can be provided as part of NACC information                                                                        | 8     | REL-5   |
| maxNumGSMFreqRanges          | Maximum number of GSM Frequency Ranges to store                                                                                                           | 32    |         |
| MaxNumFDDFreqs               | Maximum number of FDD centre frequencies to store                                                                                                         | 8     |         |
| MaxNumTDDFreqs               | Maximum number of TDD centre frequencies to store                                                                                                         | 8     |         |
| maxNumCDMA200Freqs           | Maximum number of CDMA2000 centre frequencies to store                                                                                                    | 8     |         |

~~~~ Next Modified Section ~~~~

11.2 PDU definitions

~~~~ Next Modified Section ~~~~

```

-- *****
--
-- CELL UPDATE CONFIRM
--
-- *****

CellUpdateConfirm ::= CHOICE {
    r3
        SEQUENCE {
            cellUpdateConfirm-r3
            v3a0NonCriticalExtensions
            cellUpdateConfirm-v3a0ext
            laterNonCriticalExtensions
            cellUpdateConfirm-r3-add-ext
            v4b0NonCriticalExtensions
            cellUpdateConfirm-v4b0ext
            CellUpdateConfirm-r3-IEs,
            SEQUENCE {
                CellUpdateConfirm-v3a0ext,
            SEQUENCE {
                -- Container for additional R99 extensions
                BIT STRING OPTIONAL,
            SEQUENCE {
                CellUpdateConfirm-v4b0ext-IEs,

```

```

        v590NonCriticalExtensstions      SEQUENCE {
            cellUpdateConfirm-v590ext      CellUpdateConfirm-v590ext-IEs,
            nonCriticalExtensions           SEQUENCE {} OPTIONAL
        } OPTIONAL
    } OPTIONAL
} OPTIONAL
},
later-than-r3      SEQUENCE {
    rrc-TransactionIdentifier      RRC-TransactionIdentifier,
    criticalExtensions             CHOICE {
        r4      SEQUENCE {
            cellUpdateConfirm-r4      CellUpdateConfirm-r4-IEs,
            v4d0NonCriticalExtensions SEQUENCE {
                -- Container for adding non critical extensions after freezing REL-5
                cellUpdateConfirm-r4-add-ext      BIT STRING      OPTIONAL,
                v590NonCriticalExtensstions      SEQUENCE {
                    cellUpdateConfirm-v590ext      CellUpdateConfirm-v590ext-IEs,
                    nonCriticalExtensions           SEQUENCE {}      OPTIONAL
                } OPTIONAL
            } OPTIONAL
        },
        criticalExtensions             CHOICE {
            r5      SEQUENCE {
                cellUpdateConfirm-r5      CellUpdateConfirm-r5-IEs,
                -- Container for adding non critical extensions after freezing REL-6
                cellUpdateConfirm-r5-add-ext      BIT STRING      OPTIONAL,
                nonCriticalExtensions           SEQUENCE {}      OPTIONAL
            },
            criticalExtensions             SEQUENCE {}
        }
    }
}
}
}
}
}

```

```

CellUpdateConfirm-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
    rrc-TransactionIdentifier      RRC-TransactionIdentifier,
    integrityProtectionModeInfo    IntegrityProtectionModeInfo      OPTIONAL,
    cipheringModeInfo              CipheringModeInfo                  OPTIONAL,
    activationTime                  ActivationTime                      OPTIONAL,
    new-U-RNTI                      U-RNTI                          OPTIONAL,
    new-C-RNTI                      C-RNTI                          OPTIONAL,
    rrc-StateIndicator              RRC-StateIndicator,
    utran-DRX-CycleLengthCoeff      UTRAN-DRX-CycleLengthCoefficient  OPTIONAL,
    rlc-Re-establishIndicatorRb2-3or4  BOOLEAN,
    rlc-Re-establishIndicatorRb5orAbove  BOOLEAN,
    -- CN information elements
    cn-InformationInfo              CN-InformationInfo                  OPTIONAL,
    -- UTRAN mobility IEs
    ura-Identity                    URA-Identity                      OPTIONAL,
    -- Radio bearer IEs
    rb-InformationReleaseList        RB-InformationReleaseList          OPTIONAL,
    rb-InformationReconfigList       RB-InformationReconfigList         OPTIONAL,
    rb-InformationAffectedList       RB-InformationAffectedList         OPTIONAL,
    dl-CounterSynchronisationInfo    DL-CounterSynchronisationInfo     OPTIONAL,
    -- Transport channel IEs
    ul-CommonTransChInfo            UL-CommonTransChInfo              OPTIONAL,
    ul-deletedTransChInfoList        UL-DeletedTransChInfoList         OPTIONAL,
    ul-AddReconfTransChInfoList      UL-AddReconfTransChInfoList       OPTIONAL,
    modeSpecificTransChInfo          CHOICE {
        fdd      SEQUENCE {
            -- dummy is not used in this version of the specification, it should
            -- not be sent and if received it should be ignored.
            epeh-SetIDDummy          CPCH-SetID                      OPTIONAL,
            addReconfTransChDRAC-Info  DRAC-StaticInformationList  OPTIONAL
        },
        tdd      NULL
    },
    dl-CommonTransChInfo            DL-CommonTransChInfo              OPTIONAL,
    dl-DeletedTransChInfoList        DL-DeletedTransChInfoList         OPTIONAL,
    dl-AddReconfTransChInfoList      DL-AddReconfTransChInfoList       OPTIONAL,
    -- Physical channel IEs
    frequencyInfo                   FrequencyInfo                      OPTIONAL,
    maxAllowedUL-TX-Power            MaxAllowedUL-TX-Power             OPTIONAL,
    ul-ChannelRequirement            UL-ChannelRequirement            OPTIONAL,
    modeSpecificPhysChInfo           CHOICE {
        fdd      SEQUENCE {

```

```

        dl-PDSCH-Information          DL-PDSCH-Information          OPTIONAL
    },
    tdd                               NULL
},
dl-CommonInformation                DL-CommonInformation          OPTIONAL,
dl-InformationPerRL-List             DL-InformationPerRL-List      OPTIONAL
}

CellUpdateConfirm-v3a0ext ::= SEQUENCE {
    new-DSCH-RNTI                    DSCH-RNTI                    OPTIONAL
}

CellUpdateConfirm-v4b0ext-IEs ::= SEQUENCE {
    -- Physical channel IEs
    -- ssdt-UL extends SSDT-Information, which is included in
    -- DL-CommonInformation. FDD only.
    ssdt-UL-r4                        SSDT-UL                        OPTIONAL,
    -- The order of the RLs in IE cell-id-PerRL-List is the same as
    -- in IE DL-InformationPerRL-List included in this message
    cell-id-PerRL-List                CellIdentity-PerRL-List      OPTIONAL
}

CellUpdateConfirm-v590ext-IEs ::= SEQUENCE {
    -- Physical channel IEs
    dl-TPC-PowerOffsetPerRL-List      DL-TPC-PowerOffsetPerRL-List  OPTIONAL
}

CellUpdateConfirm-r4-IEs ::= SEQUENCE {
    -- User equipment IEs
    integrityProtectionModeInfo       IntegrityProtectionModeInfo    OPTIONAL,
    cipheringModeInfo                 CipheringModeInfo              OPTIONAL,
    activationTime                     ActivationTime                   OPTIONAL,
    new-U-RNTI                         U-RNTI                        OPTIONAL,
    new-C-RNTI                         C-RNTI                        OPTIONAL,
    new-DSCH-RNTI                      DSCH-RNTI                     OPTIONAL,
    rrc-StateIndicator                 RRC-StateIndicator,          OPTIONAL,
    utran-DRX-CycleLengthCoeff         UTRAN-DRX-CycleLengthCoefficient  OPTIONAL,
    rlc-Re-establishIndicatorRb2-3or4   BOOLEAN,
    rlc-Re-establishIndicatorRb5orAbove BOOLEAN,
    -- CN information elements
    cn-InformationInfo                 CN-InformationInfo            OPTIONAL,
    -- UTRAN mobility IEs
    ura-Identity                       URA-Identity                  OPTIONAL,
    -- Radio bearer IEs
    rb-InformationReleaseList           RB-InformationReleaseList      OPTIONAL,
    rb-InformationReconfigList          RB-InformationReconfigList-r4  OPTIONAL,
    rb-InformationAffectedList          RB-InformationAffectedList     OPTIONAL,
    dl-CounterSynchronisationInfo       DL-CounterSynchronisationInfo  OPTIONAL,
    -- Transport channel IEs
    ul-CommonTransChInfo               UL-CommonTransChInfo-r4       OPTIONAL,
    ul-deletedTransChInfoList           UL-DeletedTransChInfoList     OPTIONAL,
    ul-AddReconfTransChInfoList         UL-AddReconfTransChInfoList   OPTIONAL,
    modeSpecificTransChInfo             CHOICE {
        fdd                            SEQUENCE {
            -- dummy is not used in this version of the specification, it should
            -- not be sent and if received it should be ignored.
            epch-SetIDdummy      CPCH-SetID                    OPTIONAL,
            addReconfTransChDRAC-Info    DRAC-StaticInformationList    OPTIONAL
        },
        tdd                               NULL
    },
    dl-CommonTransChInfo               DL-CommonTransChInfo-r4       OPTIONAL,
    dl-DeletedTransChInfoList           DL-DeletedTransChInfoList     OPTIONAL,
    dl-AddReconfTransChInfoList-r4      DL-AddReconfTransChInfoList-r4  OPTIONAL,
    -- Physical channel IEs
    frequencyInfo                       FrequencyInfo                   OPTIONAL,
    maxAllowedUL-TX-Power                MaxAllowedUL-TX-Power         OPTIONAL,
    ul-ChannelRequirement                UL-ChannelRequirement-r4      OPTIONAL,
    modeSpecificPhysChInfo              CHOICE {
        fdd                            SEQUENCE {
            dl-PDSCH-Information         DL-PDSCH-Information          OPTIONAL
        },
        tdd                               NULL
    },
    dl-CommonInformation                DL-CommonInformation-r4       OPTIONAL,
    dl-InformationPerRL-List            DL-InformationPerRL-List-r4   OPTIONAL
}

```



```

CellUpdateConfirm-r5-IEs ::= SEQUENCE {
  -- User equipment IES
  integrityProtectionModeInfo    IntegrityProtectionModeInfo    OPTIONAL,
  cipheringModeInfo              CipheringModeInfo                OPTIONAL,
  activationTime                  ActivationTime                    OPTIONAL,
  new-U-RNTI                      U-RNTI                          OPTIONAL,
  new-C-RNTI                      C-RNTI                          OPTIONAL,
  new-DSCH-RNTI                  DSCH-RNTI                       OPTIONAL,
  new-H-RNTI                      H-RNTI                          OPTIONAL,
  rrc-StateIndicator              RRC-StateIndicator,
  utran-DRX-CycleLengthCoeff      UTRAN-DRX-CycleLengthCoefficient  OPTIONAL,
  rlc-Re-establishIndicatorRb2-3or4  BOOLEAN,
  rlc-Re-establishIndicatorRb5orAbove  BOOLEAN,
  -- CN information elements
  cn-InformationInfo              CN-InformationInfo              OPTIONAL,
  -- UTRAN mobility IES
  ura-Identity                    URA-Identity                    OPTIONAL,
  -- Radio bearer IES
  rb-InformationReleaseList        RB-InformationReleaseList        OPTIONAL,
  rb-InformationReconfigList       RB-InformationReconfigList-r5     OPTIONAL,
  rb-InformationAffectedList       RB-InformationAffectedList-r5     OPTIONAL,
  dl-CounterSynchronisationInfo    DL-CounterSynchronisationInfo-r5  OPTIONAL,
  -- Transport channel IES
  ul-CommonTransChInfo            UL-CommonTransChInfo-r4          OPTIONAL,
  ul-deletedTransChInfoList        UL-DeletedTransChInfoList         OPTIONAL,
  ul-AddReconfTransChInfoList      UL-AddReconfTransChInfoList       OPTIONAL,
  modeSpecificTransChInfo          CHOICE {
    fdd                             SEQUENCE {
      -- dummy is not used in this version of the specification, it should
      -- not be sent and if received it should be ignored.
      epeh-SetIDdummy                CPCH-SetID                        OPTIONAL,
      addReconfTransChDRAC-Info       DRAC-StaticInformationList        OPTIONAL
    },
    tdd                             NULL
  },
  dl-CommonTransChInfo            DL-CommonTransChInfo-r4          OPTIONAL,
  dl-DeletedTransChInfoList        DL-DeletedTransChInfoList-r5     OPTIONAL,
  dl-AddReconfTransChInfoList      DL-AddReconfTransChInfoList-r5   OPTIONAL,
  -- Physical channel IES
  frequencyInfo                   FrequencyInfo                     OPTIONAL,
  maxAllowedUL-TX-Power            MaxAllowedUL-TX-Power            OPTIONAL,
  ul-ChannelRequirement            UL-ChannelRequirement-r5         OPTIONAL,
  modeSpecificPhysChInfo           CHOICE {
    fdd                             SEQUENCE {
      dl-PDSCH-Information            DL-PDSCH-Information             OPTIONAL
    },
    tdd                             NULL
  },
  dl-HSPDSCH-Information           DL-HSPDSCH-Information           OPTIONAL,
  dl-CommonInformation             DL-CommonInformation-r5          OPTIONAL,
  dl-InformationPerRL-List         DL-InformationPerRL-List-r5      OPTIONAL
}

```

~~~~ Next Modified Section ~~~~

```

HandoverToUTRANCommand-r3-IEs ::= SEQUENCE {
  -- User equipment IES
  new-U-RNTI                      U-RNTI-Short,
  -- dummy is not used in this version of specification, it should
  -- not be sent and if received it should be ignored.
  dummy                            ActivationTime                    OPTIONAL,
  cipheringAlgorithm               CipheringAlgorithm                OPTIONAL,
  -- Radio bearer IES
  -- Specification mode information
  specificationMode                CHOICE {
    complete                        SEQUENCE {
      srb-InformationSetupList       SRB-InformationSetupList,
      rab-InformationSetupList        RAB-InformationSetupList         OPTIONAL,
      ul-CommonTransChInfo           UL-CommonTransChInfo,
      ul-AddReconfTransChInfoList     UL-AddReconfTransChInfoList,
      dl-CommonTransChInfo           DL-CommonTransChInfo,
      dl-AddReconfTransChInfoList     DL-AddReconfTransChInfoList,
      ul-DPCH-Info                    UL-DPCH-Info,
      modeSpecificInfo                CHOICE {
        fdd                          SEQUENCE {
          dl-PDSCH-Information        DL-PDSCH-Information             OPTIONAL,
          -- dummy is not used in this version of the specification, it should

```

```

-- not be sent and if received it should be ignored.
epch-SetInfodummy CPCH-SetInfo OPTIONAL
},
tdd NULL
},
dl-CommonInformation DL-CommonInformation,
dl-InformationPerRL-List DL-InformationPerRL-List,
frequencyInfo FrequencyInfo
},
preconfiguration SEQUENCE {
-- All IEs that include an FDD/TDD choice are split in two IEs for this message,
-- one for the FDD only elements and one for the TDD only elements, so that one
-- FDD/TDD choice in this level is sufficient.
preConfigMode CHOICE {
predefinedConfigIdentity PredefinedConfigIdentity,
defaultConfig SEQUENCE {
defaultConfigMode DefaultConfigMode,
defaultConfigIdentity DefaultConfigIdentity
}
},
rab-Info RAB-Info-Post OPTIONAL,
modeSpecificInfo CHOICE {
fdd SEQUENCE {
ul-DPCH-Info UL-DPCH-InfoPostFDD,
dl-CommonInformationPost DL-CommonInformationPost,
dl-InformationPerRL-List DL-InformationPerRL-ListPostFDD,
frequencyInfo FrequencyInfoFDD
},
tdd SEQUENCE {
ul-DPCH-Info UL-DPCH-InfoPostTDD,
dl-CommonInformationPost DL-CommonInformationPost,
dl-InformationPerRL DL-InformationPerRL-PostTDD,
frequencyInfo FrequencyInfoTDD,
primaryCCPCH-TX-Power PrimaryCCPCH-TX-Power
}
}
},
}
-- Physical channel IEs
maxAllowedUL-TX-Power MaxAllowedUL-TX-Power
}

HandoverToUTRANCommand-r4-IEs ::= SEQUENCE {
-- User equipment IEs
new-U-RNTI U-RNTI-Short,
cipheringAlgorithm CipheringAlgorithm OPTIONAL,
-- Radio bearer IEs
-- Specification mode information
specificationMode CHOICE {
complete SEQUENCE {
srb-InformationSetupList SRB-InformationSetupList,
rab-InformationSetupList RAB-InformationSetupList-r4 OPTIONAL,
ul-CommonTransChInfo UL-CommonTransChInfo-r4,
ul-AddReconfTransChInfoList UL-AddReconfTransChInfoList,
dl-CommonTransChInfo DL-CommonTransChInfo-r4,
dl-AddReconfTransChInfoList DL-AddReconfTransChInfoList-r4,
ul-DPCH-Info UL-DPCH-Info-r4,
modeSpecificInfo CHOICE {
fdd SEQUENCE {
dl-PDSCH-Information DL-PDSCH-Information OPTIONAL,
-- dummy is not used in this version of the specification, it should
-- not be sent and if received it should be ignored.
epch-SetInfodummy CPCH-SetInfo OPTIONAL
},
tdd NULL
},
dl-CommonInformation DL-CommonInformation-r4,
dl-InformationPerRL-List DL-InformationPerRL-List-r4,
frequencyInfo FrequencyInfo
},
preconfiguration SEQUENCE {
-- All IEs that include an FDD/TDD choice are split in two IEs for this message,
-- one for the FDD only elements and one for the TDD only elements, so that one
-- FDD/TDD choice in this level is sufficient.
preConfigMode CHOICE {
predefinedConfigIdentity PredefinedConfigIdentity,
defaultConfig SEQUENCE {

```

```

        defaultConfigMode          DefaultConfigMode,
        defaultConfigIdentity      DefaultConfigIdentity-r4
    },
    },
    rab-Info                       RAB-Info-Post          OPTIONAL,
    modeSpecificInfo               CHOICE {
        fdd                        SEQUENCE {
            ul-DPCH-Info           UL-DPCH-InfoPostFDD,
            dl-CommonInformationPost DL-CommonInformationPost,
            dl-InformationPerRL-List DL-InformationPerRL-ListPostFDD,
            frequencyInfo          FrequencyInfoFDD
        },
        tdd                        CHOICE {
            tdd384                 SEQUENCE {
                ul-DPCH-Info       UL-DPCH-InfoPostTDD,
                dl-InformationPerRL DL-InformationPerRL-PostTDD,
                frequencyInfo      FrequencyInfoTDD,
                primaryCCPCH-TX-Power PrimaryCCPCH-TX-Power
            },
            tdd128                 SEQUENCE {
                ul-DPCH-Info       UL-DPCH-InfoPostTDD-LCR-r4,
                dl-InformationPerRL DL-InformationPerRL-PostTDD-LCR-r4,
                frequencyInfo      FrequencyInfoTDD,
                primaryCCPCH-TX-Power PrimaryCCPCH-TX-Power
            }
        }
    }
}

-- Physical channel IEs
maxAllowedUL-TX-Power          MaxAllowedUL-TX-Power
}

HandoverToUTRANCommand-r5-IEs ::= SEQUENCE {
-- User equipment IEs
    new-U-RNTI                  U-RNTI-Short,
    cipheringAlgorithm          CipheringAlgorithm          OPTIONAL,
-- Radio bearer IEs
-- Specification mode information
    specificationMode           CHOICE {
        complete                 SEQUENCE {
            srb-InformationSetupList SRB-InformationSetupList-r5,
            rab-InformationSetupList RAB-InformationSetupList-r5          OPTIONAL,
            ul-CommonTransChInfo     UL-CommonTransChInfo-r4,
            ul-AddReconfTransChInfoList UL-AddReconfTransChInfoList,
            dl-CommonTransChInfo     DL-CommonTransChInfo-r4,
            dl-AddReconfTransChInfoList DL-AddReconfTransChInfoList-r5,
            ul-DPCH-Info             UL-DPCH-Info-r5,
            modeSpecificInfo         CHOICE {
                fdd                SEQUENCE {
                    dl-PDSCH-Information DL-PDSCH-Information OPTIONAL,
                    -- dummy is not used in this version of the specification, it should
                    -- not be sent and if received it should be ignored.
                    cpch-SetInfoDummy CPCH-SetInfo          OPTIONAL
                },
                tdd                NULL
            },
            dl-CommonInformation     DL-CommonInformation-r4,
            dl-InformationPerRL-List DL-InformationPerRL-List-r5,
            frequencyInfo            FrequencyInfo
        },
        preconfiguration          SEQUENCE {
-- All IEs that include an FDD/TDD choice are split in two IEs for this message,
-- one for the FDD only elements and one for the TDD only elements, so that one
-- FDD/TDD choice in this level is sufficient.
            preConfigMode           CHOICE {
                predefinedConfigIdentity PredefinedConfigIdentity,
                defaultConfig          SEQUENCE {
                    defaultConfigMode   DefaultConfigMode,
                    defaultConfigIdentity DefaultConfigIdentity-r5
                }
            },
            rab-Info                 RAB-Info-Post          OPTIONAL,
            modeSpecificInfo         CHOICE {
                fdd                  SEQUENCE {
                    ul-DPCH-Info       UL-DPCH-InfoPostFDD,
                    dl-CommonInformationPost DL-CommonInformationPost,
                    dl-InformationPerRL-List DL-InformationPerRL-ListPostFDD,

```

```

        frequencyInfo          FrequencyInfoFDD
    },
    tdd
        tdd384
            ul-DPCH-Info
            dl-InformationPerRL
            frequencyInfo
            primaryCCPCH-TX-Power
        },
        tdd128
            ul-DPCH-Info
            dl-InformationPerRL
            frequencyInfo
            primaryCCPCH-TX-Power
    }
}
},
-- Physical channel IEs
    maxAllowedUL-TX-Power          MaxAllowedUL-TX-Power
}

```

~~~~ Next Modified Section ~~~~

```

PhysicalChannelReconfiguration-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
    rrc-TransactionIdentifier          RRC-TransactionIdentifier,
    integrityProtectionModeInfo        IntegrityProtectionModeInfo          OPTIONAL,
    cipheringModeInfo                  CipheringModeInfo                    OPTIONAL,
    activationTime                      ActivationTime                          OPTIONAL,
    new-U-RNTI                          U-RNTI                                OPTIONAL,
    new-C-RNTI                          C-RNTI                                OPTIONAL,
    rrc-StateIndicator                  RRC-StateIndicator,
    utran-DRX-CycleLengthCoeff          UTRAN-DRX-CycleLengthCoefficient      OPTIONAL,
    -- Core network IEs
    cn-InformationInfo                  CN-InformationInfo                    OPTIONAL,
    -- UTRAN mobility IEs
    ura-Identity                        URA-Identity                          OPTIONAL,
    -- Radio bearer IEs
    dl-CounterSynchronisationInfo       DL-CounterSynchronisationInfo         OPTIONAL,
    -- Physical channel IEs
    frequencyInfo                       FrequencyInfo                          OPTIONAL,
    maxAllowedUL-TX-Power                MaxAllowedUL-TX-Power                 OPTIONAL,
    TABULAR: UL ChannelRequirementWithCPCH SetID contains the choice
    between UL DPCH info, CPCH SET info and CPCH set ID-
    -- Note: the reference to CPCH in the element name below is incorrect. The name is not
    -- changed to keep it aligned with R99.
    ul-ChannelRequirement                UL-ChannelRequirementWithCPCH-SetID   OPTIONAL,
    modeSpecificInfo                     CHOICE {
        fdd
            dl-PDSCH-Information          DL-PDSCH-Information                  OPTIONAL
        },
        tdd
            NULL
    },
    dl-CommonInformation                 DL-CommonInformation                  OPTIONAL,
    dl-InformationPerRL-List              DL-InformationPerRL-List              OPTIONAL
}

PhysicalChannelReconfiguration-v3a0ext ::= SEQUENCE {
    new-DSCH-RNTI                        DSCH-RNTI                            OPTIONAL
}

PhysicalChannelReconfiguration-v4b0ext-IEs ::= SEQUENCE {
    -- Physical channel IEs
    -- ssdt-UL extends SSdT-Information, which is included in
    -- DL-CommonInformation. FDD only.
    ssdt-UL-r4                            SSdT-UL                                OPTIONAL,
    -- The order of the RLs in IE cell-id-PerRL-List is the same as
    -- in IE DL-InformationPerRL-List included in this message
    cell-id-PerRL-List                    CellIdentity-PerRL-List                OPTIONAL
}

PhysicalChannelReconfiguration-v590ext-IEs ::= SEQUENCE {
    -- Physical channel IEs
    dl-TPC-PowerOffsetPerRL-List          DL-TPC-PowerOffsetPerRL-List          OPTIONAL
}

```

```

PhysicalChannelReconfiguration-r4-IEs ::= SEQUENCE {
  -- User equipment IEs
  integrityProtectionModeInfo    IntegrityProtectionModeInfo    OPTIONAL,
  cipheringModeInfo              CipheringModeInfo                OPTIONAL,
  activationTime                  ActivationTime                    OPTIONAL,
  new-U-RNTI                      U-RNTI                          OPTIONAL,
  new-C-RNTI                      C-RNTI                          OPTIONAL,
  new-DSCH-RNTI                  DSCH-RNTI                       OPTIONAL,
  rrc-StateIndicator              RRC-StateIndicator,
  utran-DRX-CycleLengthCoeff      UTRAN-DRX-CycleLengthCoefficient OPTIONAL,
  -- Core network IEs
  cn-InformationInfo              CN-InformationInfo              OPTIONAL,
  -- UTRAN mobility IEs
  ura-Identity                    URA-Identity                    OPTIONAL,
  -- Radio bearer IEs
  dl-CounterSynchronisationInfo  DL-CounterSynchronisationInfo  OPTIONAL,
  -- Physical channel IEs
  frequencyInfo                   FrequencyInfo                    OPTIONAL,
  maxAllowedUL-TX-Power           MaxAllowedUL-TX-Power          OPTIONAL,
  -- TABULAR: UL-ChannelRequirementWithCPCH-SetID-r4 contains the choice
  -- between UL-DPCH info, CPCH-SET info and CPCH-set ID-
  -- Note: the reference to CPCH in the element name below is incorrect. The name is not
  -- changed to keep it aligned with R99.
  ul-ChannelRequirement           UL-ChannelRequirementWithCPCH-SetID-r4 OPTIONAL,
  modeSpecificInfo                CHOICE {
    fdd                            SEQUENCE {
      dl-PDSCH-Information         DL-PDSCH-Information          OPTIONAL
    },
    tdd                            NULL
  },
  dl-CommonInformation            DL-CommonInformation-r4        OPTIONAL,
  dl-InformationPerRL-List        DL-InformationPerRL-List-r4    OPTIONAL
}

```

```

PhysicalChannelReconfiguration-r5-IEs ::= SEQUENCE {
  -- User equipment IEs
  integrityProtectionModeInfo    IntegrityProtectionModeInfo    OPTIONAL,
  cipheringModeInfo              CipheringModeInfo                OPTIONAL,
  activationTime                  ActivationTime                    OPTIONAL,
  new-U-RNTI                      U-RNTI                          OPTIONAL,
  new-C-RNTI                      C-RNTI                          OPTIONAL,
  new-DSCH-RNTI                  DSCH-RNTI                       OPTIONAL,
  new-H-RNTI                      H-RNTI                          OPTIONAL,
  rrc-StateIndicator              RRC-StateIndicator,
  utran-DRX-CycleLengthCoeff      UTRAN-DRX-CycleLengthCoefficient OPTIONAL,
  -- Core network IEs
  cn-InformationInfo              CN-InformationInfo              OPTIONAL,
  -- UTRAN mobility IEs
  ura-Identity                    URA-Identity                    OPTIONAL,
  -- Radio bearer IEs
  dl-CounterSynchronisationInfo  DL-CounterSynchronisationInfo-r5 OPTIONAL,
  -- Physical channel IEs
  frequencyInfo                   FrequencyInfo                    OPTIONAL,
  maxAllowedUL-TX-Power           MaxAllowedUL-TX-Power          OPTIONAL,
  -- TABULAR: UL-ChannelRequirementWithCPCH-SetID-r5 contains the choice
  -- between UL-DPCH info, CPCH-SET info and CPCH-set ID-
  -- Note: the reference to CPCH in the element name below is incorrect. The name is not
  -- changed to keep it aligned with R99.
  ul-ChannelRequirement           UL-ChannelRequirementWithCPCH-SetID-r5 OPTIONAL,
  modeSpecificInfo                CHOICE {
    fdd                            SEQUENCE {
      dl-PDSCH-Information         DL-PDSCH-Information          OPTIONAL
    },
    tdd                            NULL
  },
  dl-HSPDSCH-Information          DL-HSPDSCH-Information          OPTIONAL,
  dl-CommonInformation            DL-CommonInformation-r5        OPTIONAL,
  dl-InformationPerRL-List        DL-InformationPerRL-List-r5    OPTIONAL
}

```

~~~~ Next Modified Section ~~~~

```

RadioBearerReconfiguration-r3-IEs ::= SEQUENCE {
  -- User equipment IEs
  rrc-TransactionIdentifier        RRC-TransactionIdentifier,
  integrityProtectionModeInfo      IntegrityProtectionModeInfo    OPTIONAL,

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    cipheringModeInfo          CipheringModeInfo          OPTIONAL,
    activationTime              ActivationTime          OPTIONAL,
    new-U-RNTI                  U-RNTI              OPTIONAL,
    new-C-RNTI                  C-RNTI              OPTIONAL,
    rrc-StateIndicator          RRC-StateIndicator,
    utran-DRX-CycleLengthCoeff  UTRAN-DRX-CycleLengthCoefficient  OPTIONAL,
-- Core network IEs
    cn-InformationInfo          CN-InformationInfo  OPTIONAL,
-- UTRAN mobility IEs
    ura-Identity                URA-Identity        OPTIONAL,
-- Radio bearer IEs
    rab-InformationReconfigList RAB-InformationReconfigList  OPTIONAL,
-- NOTE: IE rb-InformationReconfigList should be optional in later versions
-- of this message
    rb-InformationReconfigList  RB-InformationReconfigList,
    rb-InformationAffectedList  RB-InformationAffectedList  OPTIONAL,
-- Transport channel IEs
    ul-CommonTransChInfo       UL-CommonTransChInfo  OPTIONAL,
    ul-deletedTransChInfoList   UL-DeletedTransChInfoList  OPTIONAL,
    ul-AddReconfTransChInfoList UL-AddReconfTransChInfoList  OPTIONAL,
    modeSpecificTransChInfo     CHOICE {
        fdd                    SEQUENCE {
            -- dummy is not used in this version of the specification, it should
            -- not be sent and if received it should be ignored.
            epch-SetIDdummy          CPCH-SetID          OPTIONAL,
            addReconfTransChDRAC-Info    DRAC-StaticInformationList  OPTIONAL
        },
        tdd                      NULL
    }
    dl-CommonTransChInfo        DL-CommonTransChInfo  OPTIONAL,
    dl-DeletedTransChInfoList    DL-DeletedTransChInfoList  OPTIONAL,
    dl-AddReconfTransChInfoList   DL-AddReconfTransChInfo2List  OPTIONAL,
-- Physical channel IEs
    frequencyInfo               FrequencyInfo          OPTIONAL,
    maxAllowedUL-TX-Power        MaxAllowedUL-TX-Power  OPTIONAL,
    ul-ChannelRequirement        UL-ChannelRequirement  OPTIONAL,
    modeSpecificPhysChInfo       CHOICE {
        fdd                    SEQUENCE {
            dl-PDSCH-Information    DL-PDSCH-Information  OPTIONAL
        },
        tdd                      NULL
    },
    dl-CommonInformation         DL-CommonInformation  OPTIONAL,
-- NOTE: IE dl-InformationPerRL-List should be optional in later versions
-- of this message
    dl-InformationPerRL-List     DL-InformationPerRL-List
}

RadioBearerReconfiguration-v3a0ext ::= SEQUENCE {
    new-DSCH-RNTI                DSCH-RNTI              OPTIONAL
}

RadioBearerReconfiguration-v4b0ext-IEs ::= SEQUENCE {
-- Physical channel IEs
-- ssdt-UL extends SSdT-Information, which is included in
-- DL-CommonInformation. FDD only.
    ssdt-UL-r4                   SSdT-UL                  OPTIONAL,
-- The order of the RLs in IE cell-id-PerRL-List is the same as
-- in IE DL-InformationPerRL-List included in this message
    cell-id-PerRL-List           CellIdentity-PerRL-List  OPTIONAL
}

RadioBearerReconfiguration-v590ext-IEs ::= SEQUENCE {
-- Physical channel IEs
    dl-TPC-PowerOffsetPerRL-List DL-TPC-PowerOffsetPerRL-List  OPTIONAL
}

RadioBearerReconfiguration-r4-IEs ::= SEQUENCE {
-- User equipment IEs
    integrityProtectionModeInfo  IntegrityProtectionModeInfo  OPTIONAL,
    cipheringModeInfo            CipheringModeInfo             OPTIONAL,
    activationTime                ActivationTime                 OPTIONAL,
    new-U-RNTI                    U-RNTI                       OPTIONAL,
    new-C-RNTI                    C-RNTI                       OPTIONAL,
    new-DSCH-RNTI                 DSCH-RNTI                    OPTIONAL,
    rrc-StateIndicator            RRC-StateIndicator           OPTIONAL,
    utran-DRX-CycleLengthCoeff    UTRAN-DRX-CycleLengthCoefficient  OPTIONAL,
-- Core network IEs

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    cn-InformationInfo          CN-InformationInfo          OPTIONAL,
-- UTRAN mobility IEs
    ura-Identity                URA-Identity                OPTIONAL,
-- Radio bearer IEs
    rab-InformationReconfigList RAB-InformationReconfigList  OPTIONAL,
    rb-InformationReconfigList  RB-InformationReconfigList-r4  OPTIONAL,
    rb-InformationAffectedList  RB-InformationAffectedList     OPTIONAL,
-- Transport channel IEs
    ul-CommonTransChInfo       UL-CommonTransChInfo-r4       OPTIONAL,
    ul-deletedTransChInfoList   UL-DeletedTransChInfoList     OPTIONAL,
    ul-AddReconfTransChInfoList UL-AddReconfTransChInfoList   OPTIONAL,
    modeSpecificTransChInfo     CHOICE {
        fdd                      SEQUENCE {
            -- dummy is not used in this version of the specification, it should
            -- not be sent and if received it should be ignored.
            epch-SetIDdummy          CPCH-SetID          OPTIONAL,
            addReconfTransChDRAC-Info  DRAC-StaticInformationList  OPTIONAL
        },
        tdd                      NULL
    }
    dl-CommonTransChInfo       DL-CommonTransChInfo-r4       OPTIONAL,
    dl-DeletedTransChInfoList   DL-DeletedTransChInfoList     OPTIONAL,
    dl-AddReconfTransChInfoList DL-AddReconfTransChInfoList-r4  OPTIONAL,
-- Physical channel IEs
    frequencyInfo              FrequencyInfo                  OPTIONAL,
    maxAllowedUL-TX-Power       MaxAllowedUL-TX-Power         OPTIONAL,
    ul-ChannelRequirement       UL-ChannelRequirement-r4      OPTIONAL,
    modeSpecificPhysChInfo     CHOICE {
        fdd                      SEQUENCE {
            dl-PDSCH-Information    DL-PDSCH-Information         OPTIONAL
        },
        tdd                      NULL
    },
    dl-CommonInformation        DL-CommonInformation-r4       OPTIONAL,
    dl-InformationPerRL-List     DL-InformationPerRL-List-r4   OPTIONAL
}

RadioBearerReconfiguration-r5-IEs ::= SEQUENCE {
-- User equipment IEs
    integrityProtectionModeInfo IntegrityProtectionModeInfo    OPTIONAL,
    cipheringModeInfo          CipheringModeInfo              OPTIONAL,
    activationTime              ActivationTime                  OPTIONAL,
    new-U-RNTI                  U-RNTI                        OPTIONAL,
    new-C-RNTI                  C-RNTI                        OPTIONAL,
    new-DSCH-RNTI              DSCH-RNTI                     OPTIONAL,
    new-H-RNTI                  H-RNTI                        OPTIONAL,
    rrc-StateIndicator          RRC-StateIndicator,
    utran-DRX-CycleLengthCoeff UTRAN-DRX-CycleLengthCoefficient  OPTIONAL,
-- Core network IEs
    cn-InformationInfo          CN-InformationInfo          OPTIONAL,
-- UTRAN mobility IEs
    ura-Identity                URA-Identity                OPTIONAL,
-- Specification mode information
    specificationMode           CHOICE {
        complete                 SEQUENCE {
            -- Radio bearer IEs
            rab-InformationReconfigList  RAB-InformationReconfigList  OPTIONAL,
            rb-InformationReconfigList    RB-InformationReconfigList-r5  OPTIONAL,
            rb-InformationAffectedList    RB-InformationAffectedList-r5  OPTIONAL,
            rb-PDCPContextRelocationList RB-PDCPContextRelocationList  OPTIONAL,
            -- Transport channel IEs
            ul-CommonTransChInfo         UL-CommonTransChInfo-r4       OPTIONAL,
            ul-deletedTransChInfoList     UL-DeletedTransChInfoList     OPTIONAL,
            ul-AddReconfTransChInfoList   UL-AddReconfTransChInfoList   OPTIONAL,
            modeSpecificTransChInfo       CHOICE {
                fdd                      SEQUENCE {
                    -- dummy is not used in this version of the specification, it should
                    -- not be sent and if received it should be ignored.
                    epch-SetIDdummy          CPCH-SetID          OPTIONAL,
                    addReconfTransChDRAC-Info  DRAC-StaticInformationList  OPTIONAL
                },
                tdd                      NULL
            }
        },
        dl-CommonTransChInfo         DL-CommonTransChInfo-r4       OPTIONAL,
        dl-DeletedTransChInfoList     DL-DeletedTransChInfoList-r5  OPTIONAL,
        dl-AddReconfTransChInfoList   DL-AddReconfTransChInfoList-r5  OPTIONAL
    },
    preconfiguration            SEQUENCE {

```

```

-- All IEs that include an FDD/TDD choice are split in two IEs for this message,
-- one for the FDD only elements and one for the TDD only elements, so that one
-- FDD/TDD choice in this level is sufficient.
    preConfigMode CHOICE {
        predefinedConfigIdentity PredefinedConfigIdentity,
        defaultConfig SEQUENCE {
            defaultConfigMode DefaultConfigMode,
            defaultConfigIdentity DefaultConfigIdentity-r5
        }
    }
},

```

|                                 |
|---------------------------------|
| ~~~~ Next Modified Section ~~~~ |
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RadioBearerRelease-r3-IEs ::= SEQUENCE {
-- User equipment IEs
    rrc-TransactionIdentifier RRC-TransactionIdentifier,
    integrityProtectionModeInfo IntegrityProtectionModeInfo OPTIONAL,
    cipheringModeInfo CipheringModeInfo OPTIONAL,
    activationTime ActivationTime OPTIONAL,
    new-U-RNTI U-RNTI OPTIONAL,
    new-C-RNTI C-RNTI OPTIONAL,
    rrc-StateIndicator RRC-StateIndicator,
    utran-DRX-CycleLengthCoeff UTRAN-DRX-CycleLengthCoefficient OPTIONAL,
-- Core network IEs
    cn-InformationInfo CN-InformationInfo OPTIONAL,
    signallingConnectionRelIndication CN-DomainIdentity OPTIONAL,
-- UTRAN mobility IEs
    ura-Identity URA-Identity OPTIONAL,
-- Radio bearer IEs
    rab-InformationReconfigList RAB-InformationReconfigList OPTIONAL,
    rb-InformationReleaseList RB-InformationReleaseList,
    rb-InformationAffectedList RB-InformationAffectedList OPTIONAL,
    dl-CounterSynchronisationInfo DL-CounterSynchronisationInfo OPTIONAL,
-- Transport channel IEs
    ul-CommonTransChInfo UL-CommonTransChInfo OPTIONAL,
    ul-deletedTransChInfoList UL-DeletedTransChInfoList OPTIONAL,
    ul-AddReconfTransChInfoList UL-AddReconfTransChInfoList OPTIONAL,
    modeSpecificTransChInfo CHOICE {
        fdd SEQUENCE {
            -- dummy is not used in this version of the specification, it should
            -- not be sent and if received it should be ignored.
            epch-SetID dummy CPCH-SetID OPTIONAL,
            addReconfTransChDRAC-Info DRAC-StaticInformationList OPTIONAL
        },
        tdd NULL
    }
    dl-CommonTransChInfo DL-CommonTransChInfo OPTIONAL,
    dl-DeletedTransChInfoList DL-DeletedTransChInfoList OPTIONAL,
    dl-AddReconfTransChInfoList DL-AddReconfTransChInfo2List OPTIONAL,
-- Physical channel IEs
    frequencyInfo FrequencyInfo OPTIONAL,
    maxAllowedUL-TX-Power MaxAllowedUL-TX-Power OPTIONAL,
    ul-ChannelRequirement UL-ChannelRequirement OPTIONAL,
    modeSpecificPhysChInfo CHOICE {
        fdd SEQUENCE {
            dl-PDSCH-Information DL-PDSCH-Information OPTIONAL
        },
        tdd NULL
    },
    dl-CommonInformation DL-CommonInformation OPTIONAL,
    dl-InformationPerRL-List DL-InformationPerRL-List OPTIONAL
}

RadioBearerRelease-v3a0ext ::= SEQUENCE {
    new-DSCH-RNTI DSCH-RNTI OPTIONAL
}

RadioBearerRelease-v4b0ext-IEs ::= SEQUENCE {
-- Physical channel IEs
-- IE ssdt-UL extends SSDT-Information, which is included in
-- DL-CommonInformation. FDD only.
    ssdt-UL-r4 SSdT-UL OPTIONAL,
-- The order of the RLs in IE cell-id-PerRL-List is the same as
-- in IE DL-InformationPerRL-List included in this message

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    cell-id-PerRL-List          CellIdentity-PerRL-List          OPTIONAL
}

RadioBearerRelease-v590ext-IEs ::= SEQUENCE {
  -- Physical channel IEs
  dl-TPC-PowerOffsetPerRL-List  DL-TPC-PowerOffsetPerRL-List  OPTIONAL
}

RadioBearerRelease-r4-IEs ::= SEQUENCE {
  -- User equipment IEs
  integrityProtectionModeInfo    IntegrityProtectionModeInfo    OPTIONAL,
  cipheringModeInfo              CipheringModeInfo              OPTIONAL,
  activationTime                  ActivationTime                  OPTIONAL,
  new-U-RNTI                      U-RNTI                        OPTIONAL,
  new-C-RNTI                      C-RNTI                        OPTIONAL,
  new-DSCH-RNTI                  DSCH-RNTI                    OPTIONAL,
  rrc-StateIndicator              RRC-StateIndicator,          OPTIONAL,
  utran-DRX-CycleLengthCoeff     UTRAN-DRX-CycleLengthCoefficient  OPTIONAL,
  -- Core network IEs
  cn-InformationInfo              CN-InformationInfo            OPTIONAL,
  signallingConnectionRelIndication  CN-DomainIdentity            OPTIONAL,
  -- UTRAN mobility IEs
  ura-Identity                    URA-Identity                  OPTIONAL,
  -- Radio bearer IEs
  rab-InformationReconfigList     RAB-InformationReconfigList   OPTIONAL,
  rb-InformationReleaseList       RB-InformationReleaseList,    OPTIONAL,
  rb-InformationAffectedList      RB-InformationAffectedList    OPTIONAL,
  dl-CounterSynchronisationInfo   DL-CounterSynchronisationInfo  OPTIONAL,
  -- Transport channel IEs
  ul-CommonTransChInfo           UL-CommonTransChInfo-r4      OPTIONAL,
  ul-deletedTransChInfoList      UL-DeletedTransChInfoList    OPTIONAL,
  ul-AddReconfTransChInfoList    UL-AddReconfTransChInfoList  OPTIONAL,
  modeSpecificTransChInfo        CHOICE {
    fdd                            SEQUENCE {
      -- dummy is not used in this version of the specification, it should
      -- not be sent and if received it should be ignored.
      epch-SetIDdummy          CPCH-SetID                    OPTIONAL,
      addReconfTransChDRAC-Info    DRAC-StaticInformationList    OPTIONAL
    },
    tdd                            NULL
  }
  dl-CommonTransChInfo           DL-CommonTransChInfo-r4      OPTIONAL,
  dl-DeletedTransChInfoList      DL-DeletedTransChInfoList    OPTIONAL,
  dl-AddReconfTransChInfoList-r4  DL-AddReconfTransChInfoList-r4  OPTIONAL,
  -- Physical channel IEs
  frequencyInfo                  FrequencyInfo                  OPTIONAL,
  maxAllowedUL-TX-Power           MaxAllowedUL-TX-Power        OPTIONAL,
  ul-ChannelRequirement           UL-ChannelRequirement-r4     OPTIONAL,
  modeSpecificPhysChInfo         CHOICE {
    fdd                            SEQUENCE {
      dl-PDSCH-Information         DL-PDSCH-Information         OPTIONAL
    },
    tdd                            NULL
  },
  dl-CommonInformation           DL-CommonInformation-r4      OPTIONAL,
  dl-InformationPerRL-List       DL-InformationPerRL-List-r4  OPTIONAL
}

RadioBearerRelease-r5-IEs ::= SEQUENCE {
  -- User equipment IEs
  integrityProtectionModeInfo    IntegrityProtectionModeInfo    OPTIONAL,
  cipheringModeInfo              CipheringModeInfo              OPTIONAL,
  activationTime                  ActivationTime                  OPTIONAL,
  new-U-RNTI                      U-RNTI                        OPTIONAL,
  new-C-RNTI                      C-RNTI                        OPTIONAL,
  new-DSCH-RNTI                  DSCH-RNTI                    OPTIONAL,
  new-H-RNTI                      H-RNTI                        OPTIONAL,
  rrc-StateIndicator              RRC-StateIndicator,          OPTIONAL,
  utran-DRX-CycleLengthCoeff     UTRAN-DRX-CycleLengthCoefficient  OPTIONAL,
  -- Core network IEs
  cn-InformationInfo              CN-InformationInfo            OPTIONAL,
  signallingConnectionRelIndication  CN-DomainIdentity            OPTIONAL,
  -- UTRAN mobility IEs
  ura-Identity                    URA-Identity                  OPTIONAL,
  -- Radio bearer IEs
  rab-InformationReconfigList     RAB-InformationReconfigList   OPTIONAL,
  rb-InformationReleaseList       RB-InformationReleaseList,    OPTIONAL,
  rb-InformationAffectedList      RB-InformationAffectedList-r5  OPTIONAL,

```

```

    dl-CounterSynchronisationInfo DL-CounterSynchronisationInfo-r5 OPTIONAL,
-- Transport channel IEs
    ul-CommonTransChInfo          UL-CommonTransChInfo-r4          OPTIONAL,
    ul-deletedTransChInfoList      UL-DeletedTransChInfoList      OPTIONAL,
    ul-AddReconfTransChInfoList    UL-AddReconfTransChInfoList    OPTIONAL,
    modeSpecificTransChInfo        CHOICE {
        fdd                        SEQUENCE {
            -- dummy is not used in this version of the specification, it should
            -- not be sent and if received it should be ignored.
            epch-SetIDdummy CPCH-SetID OPTIONAL,
            addReconfTransChDRAC-Info DRAC-StaticInformationList OPTIONAL
        },
        tdd                        NULL
    }
}
dl-CommonTransChInfo              DL-CommonTransChInfo-r4          OPTIONAL,
dl-DeletedTransChInfoList         DL-DeletedTransChInfoList-r5     OPTIONAL,
dl-AddReconfTransChInfoList       DL-AddReconfTransChInfoList-r5   OPTIONAL,

```

~~~~ Next Modified Section ~~~~

```

-- Transport channel IEs
    ul-CommonTransChInfo          UL-CommonTransChInfo          OPTIONAL,
    ul-deletedTransChInfoList      UL-DeletedTransChInfoList      OPTIONAL,
    ul-AddReconfTransChInfoList    UL-AddReconfTransChInfoList    OPTIONAL,
    modeSpecificTransChInfo        CHOICE {
        fdd                        SEQUENCE {
            -- dummy is not used in this version of the specification, it should
            -- not be sent and if received it should be ignored.
            epch-SetIDdummy CPCH-SetID OPTIONAL,
            addReconfTransChDRAC-Info DRAC-StaticInformationList OPTIONAL
        },
        tdd                        NULL
    }
}
dl-CommonTransChInfo              DL-CommonTransChInfo          OPTIONAL,
dl-DeletedTransChInfoList         DL-DeletedTransChInfoList      OPTIONAL,
dl-AddReconfTransChInfoList       DL-AddReconfTransChInfoList    OPTIONAL,
-- Physical channel IEs
    frequencyInfo                 FrequencyInfo                 OPTIONAL,
    maxAllowedUL-TX-Power         MaxAllowedUL-TX-Power         OPTIONAL,
    ul-ChannelRequirement         UL-ChannelRequirement         OPTIONAL,
    modeSpecificPhysChInfo        CHOICE {
        fdd                        SEQUENCE {
            dl-PDSCH-Information    DL-PDSCH-Information          OPTIONAL
        },
        tdd                        NULL
    },
    dl-CommonInformation          DL-CommonInformation          OPTIONAL,
    dl-InformationPerRL-List       DL-InformationPerRL-List       OPTIONAL
}

RadioBearerSetup-v3a0ext ::= SEQUENCE {
    new-DSCH-RNTI                 DSCH-RNTI                     OPTIONAL
}

RadioBearerSetup-v4b0ext-IEs ::= SEQUENCE {
    -- Physical channel IEs
    -- ssdt-UL extends SSdT-Information, which is included in
    -- DL-CommonInformation. FDD only.
    ssdt-UL-r4                    SSdT-UL                          OPTIONAL,
    -- The order of the RLs in IE cell-id-PerRL-List is the same as
    -- in IE DL-InformationPerRL-List included in this message
    cell-id-PerRL-List            CellIdentity-PerRL-List          OPTIONAL
}

RadioBearerSetup-v590ext-IEs ::= SEQUENCE {
    -- Physical channel IEs
    dl-TPC-PowerOffsetPerRL-List  DL-TPC-PowerOffsetPerRL-List  OPTIONAL
}

RadioBearerSetup-r4-IEs ::= SEQUENCE {
    -- User equipment IEs
    integrityProtectionModeInfo    IntegrityProtectionModeInfo    OPTIONAL,
    cipheringModeInfo              CipheringModeInfo              OPTIONAL,
    activationTime                 ActivationTime                 OPTIONAL,
    new-U-RNTI                     U-RNTI                       OPTIONAL,
    new-C-RNTI                     C-RNTI                       OPTIONAL,
    new-DSCH-RNTI                 DSCH-RNTI                   OPTIONAL,

```

```

    rrc-StateIndicator          RRC-StateIndicator,
    utran-DRX-CycleLengthCoeff  UTRAN-DRX-CycleLengthCoefficient  OPTIONAL,
-- UTRAN mobility IEs
    ura-Identity                URA-Identity                OPTIONAL,
-- Core network IEs
    cn-InformationInfo          CN-InformationInfo          OPTIONAL,
-- Radio bearer IEs
    srb-InformationSetupList    SRB-InformationSetupList    OPTIONAL,
    rab-InformationSetupList    RAB-InformationSetupList-r4  OPTIONAL,
    rb-InformationAffectedList  RB-InformationAffectedList  OPTIONAL,
    dl-CounterSynchronisationInfo  DL-CounterSynchronisationInfo  OPTIONAL,
-- Transport channel IEs
    ul-CommonTransChInfo       UL-CommonTransChInfo-r4      OPTIONAL,
    ul-deletedTransChInfoList   UL-DeletedTransChInfoList    OPTIONAL,
    ul-AddReconfTransChInfoList UL-AddReconfTransChInfoList  OPTIONAL,
    modeSpecificTransChInfo     CHOICE {
        fdd                     SEQUENCE {
            -- dummy is not used in this version of the specification, it should
            -- not be sent and if received it should be ignored.
            epeh-SetIDdummy          CPCH-SetID          OPTIONAL,
            addReconfTransChDRAC-Info  DRAC-StaticInformationList  OPTIONAL
        },
        tdd                     NULL
    }
    dl-CommonTransChInfo       DL-CommonTransChInfo-r4      OPTIONAL,
    dl-DeletedTransChInfoList   DL-DeletedTransChInfoList    OPTIONAL,
    dl-AddReconfTransChInfoList DL-AddReconfTransChInfoList-r4  OPTIONAL,
-- Physical channel IEs
    frequencyInfo              FrequencyInfo                OPTIONAL,
    maxAllowedUL-TX-Power      MaxAllowedUL-TX-Power      OPTIONAL,
    ul-ChannelRequirement      UL-ChannelRequirement-r4    OPTIONAL,
    modeSpecificPhysChInfo     CHOICE {
        fdd                     SEQUENCE {
            dl-PDSCH-Information  DL-PDSCH-Information      OPTIONAL
        },
        tdd                     NULL
    },
    dl-CommonInformation       DL-CommonInformation-r4      OPTIONAL,
    dl-InformationPerRL-List    DL-InformationPerRL-List-r4  OPTIONAL
}

RadioBearerSetup-r5-IEs ::= SEQUENCE {
-- User equipment IEs
    integrityProtectionModeInfo  IntegrityProtectionModeInfo  OPTIONAL,
    cipheringModeInfo            CipheringModeInfo             OPTIONAL,
    activationTime                ActivationTime                 OPTIONAL,
    new-U-RNTI                    U-RNTI                       OPTIONAL,
    new-C-RNTI                    C-RNTI                       OPTIONAL,
    new-DSCH-RNTI                 DSCH-RNTI                    OPTIONAL,
    new-H-RNTI                    H-RNTI                       OPTIONAL,
    rrc-StateIndicator            RRC-StateIndicator,
    utran-DRX-CycleLengthCoeff    UTRAN-DRX-CycleLengthCoefficient  OPTIONAL,
-- UTRAN mobility IEs
    ura-Identity                URA-Identity                OPTIONAL,
-- Core network IEs
    cn-InformationInfo          CN-InformationInfo          OPTIONAL,
-- Radio bearer IEs
    srb-InformationSetupList    SRB-InformationSetupList-r5  OPTIONAL,
    rab-InformationSetupList    RAB-InformationSetupList-r5  OPTIONAL,
    rb-InformationAffectedList  RB-InformationAffectedList-r5  OPTIONAL,
    dl-CounterSynchronisationInfo  DL-CounterSynchronisationInfo-r5  OPTIONAL,
-- Transport channel IEs
    ul-CommonTransChInfo       UL-CommonTransChInfo-r4      OPTIONAL,
    ul-deletedTransChInfoList   UL-DeletedTransChInfoList    OPTIONAL,
    ul-AddReconfTransChInfoList UL-AddReconfTransChInfoList  OPTIONAL,
    modeSpecificTransChInfo     CHOICE {
        fdd                     SEQUENCE {
            -- dummy is not used in this version of the specification, it should
            -- not be sent and if received it should be ignored.
            epeh-SetIDdummy          CPCH-SetID          OPTIONAL,
            addReconfTransChDRAC-Info  DRAC-StaticInformationList  OPTIONAL
        },
        tdd                     NULL
    }
    dl-CommonTransChInfo       DL-CommonTransChInfo-r4      OPTIONAL,
    dl-DeletedTransChInfoList   DL-DeletedTransChInfoList-r5  OPTIONAL,
    dl-AddReconfTransChInfoList DL-AddReconfTransChInfoList-r5  OPTIONAL
}

```

| |
|---------------------------------|
| ~~~~ Next Modified Section ~~~~ |
|---------------------------------|

```

TransportChannelReconfiguration-r3-IEs ::= SEQUENCE {
  -- User equipment IES
  rrc-TransactionIdentifier      RRC-TransactionIdentifier,
  integrityProtectionModeInfo    IntegrityProtectionModeInfo    OPTIONAL,
  cipheringModeInfo             CipheringModeInfo                OPTIONAL,
  activationTime                 ActivationTime                    OPTIONAL,
  new-U-RNTI                     U-RNTI                          OPTIONAL,
  new-C-RNTI                     C-RNTI                          OPTIONAL,
  rrc-StateIndicator             RRC-StateIndicator,
  utran-DRX-CycleLengthCoeff     UTRAN-DRX-CycleLengthCoefficient  OPTIONAL,
  -- Core network IES
  cn-InformationInfo             CN-InformationInfo                OPTIONAL,
  -- UTRAN mobility IES
  ura-Identity                   URA-Identity                      OPTIONAL,
  -- Radio bearer IES
  dl-CounterSynchronisationInfo  DL-CounterSynchronisationInfo    OPTIONAL,
  -- Transport channel IES
  ul-CommonTransChInfo           UL-CommonTransChInfo              OPTIONAL,
  ul-AddReconfTransChInfoList    UL-AddReconfTransChInfoList       OPTIONAL,
  modeSpecificTransChInfo        CHOICE {
    fdd                           SEQUENCE {
      -- dummy is not used in this version of the specification, it should
      -- not be sent and if received it should be ignored.
      epeh-SetIDdummy          CPCH-SetID                        OPTIONAL,
      addReconfTransChDRAC-Info    DRAC-StaticInformationList      OPTIONAL
    },
    tdd                           NULL
  }
  dl-CommonTransChInfo           DL-CommonTransChInfo              OPTIONAL,
  dl-AddReconfTransChInfoList    DL-AddReconfTransChInfoList       OPTIONAL,
  -- Physical channel IES
  frequencyInfo                  FrequencyInfo                       OPTIONAL,
  maxAllowedUL-TX-Power          MaxAllowedUL-TX-Power              OPTIONAL,
  ul-ChannelRequirement          UL-ChannelRequirement              OPTIONAL,
  modeSpecificPhysChInfo         CHOICE {
    fdd                           SEQUENCE {
      dl-PDSCH-Information         DL-PDSCH-Information              OPTIONAL
    },
    tdd                           NULL
  },
  dl-CommonInformation           DL-CommonInformation              OPTIONAL,
  dl-InformationPerRL-List       DL-InformationPerRL-List          OPTIONAL
}

TransportChannelReconfiguration-v3a0ext ::= SEQUENCE {
  new-DSCH-RNTI                  DSCH-RNTI                          OPTIONAL
}

TransportChannelReconfiguration-v4b0ext-IEs ::= SEQUENCE {
  -- Physical channel IES
  -- ssdt-UL extends SSDT-Information, which is included in
  -- DL-CommonInformation. FDD only.
  ssdt-UL-r4                     SSDT-UL                              OPTIONAL,
  -- The order of the RLs in IE cell-id-PerRL-List is the same as
  -- in IE DL-InformationPerRL-List included in this message
  cell-id-PerRL-List             CellIdentity-PerRL-List            OPTIONAL
}

TransportChannelReconfiguration-v590ext-IEs ::= SEQUENCE {
  -- Physical channel IES
  dl-TPC-PowerOffsetPerRL-List    DL-TPC-PowerOffsetPerRL-List       OPTIONAL
}

TransportChannelReconfiguration-r4-IEs ::= SEQUENCE {
  -- User equipment IES
  integrityProtectionModeInfo    IntegrityProtectionModeInfo    OPTIONAL,
  cipheringModeInfo             CipheringModeInfo                OPTIONAL,
  activationTime                 ActivationTime                    OPTIONAL,
  new-U-RNTI                     U-RNTI                          OPTIONAL,
  new-C-RNTI                     C-RNTI                          OPTIONAL,
  new-DSCH-RNTI                 DSCH-RNTI                        OPTIONAL,
  rrc-StateIndicator             RRC-StateIndicator,
  utran-DRX-CycleLengthCoeff     UTRAN-DRX-CycleLengthCoefficient  OPTIONAL,
  -- Core network IES
  cn-InformationInfo             CN-InformationInfo                OPTIONAL,
  -- UTRAN mobility IES

```

```

ura-Identity                URA-Identity                OPTIONAL,
-- Radio bearer IEs
  dl-CounterSynchronisationInfo  DL-CounterSynchronisationInfo  OPTIONAL,
-- Transport channel IEs
  ul-CommonTransChInfo          UL-CommonTransChInfo-r4        OPTIONAL,
  ul-AddReconfTransChInfoList   UL-AddReconfTransChInfoList   OPTIONAL,
  modeSpecificTransChInfo       CHOICE {
    fdd                          SEQUENCE {
      -- dummy is not used in this version of the specification, it should
      -- not be sent and if received it should be ignored.
      epeh-SetIDDummy          CPCH-SetID                    OPTIONAL,
      addReconfTransChDRAC-Info  DRAC-StaticInformationList    OPTIONAL
    },
    tdd                          NULL
  }
  dl-CommonTransChInfo          DL-CommonTransChInfo-r4        OPTIONAL,
  dl-AddReconfTransChInfoList   DL-AddReconfTransChInfoList-r4 OPTIONAL,
-- Physical channel IEs
  frequencyInfo                 FrequencyInfo                    OPTIONAL,
  maxAllowedUL-TX-Power         MaxAllowedUL-TX-Power          OPTIONAL,
  ul-ChannelRequirement         UL-ChannelRequirement-r4       OPTIONAL,
  modeSpecificPhysChInfo        CHOICE {
    fdd                          SEQUENCE {
      dl-PDSCH-Information       DL-PDSCH-Information          OPTIONAL
    },
    tdd                          NULL
  },
  dl-CommonInformation          DL-CommonInformation-r4        OPTIONAL,
  dl-InformationPerRL-List      DL-InformationPerRL-List-r4    OPTIONAL
}

```

```

TransportChannelReconfiguration-r5-IEs ::= SEQUENCE {
-- User equipment IEs
  integrityProtectionModeInfo   IntegrityProtectionModeInfo    OPTIONAL,
  cipheringModeInfo            CipheringModeInfo              OPTIONAL,
  activationTime                ActivationTime                  OPTIONAL,
  new-U-RNTI                    U-RNTI                        OPTIONAL,
  new-C-RNTI                    C-RNTI                        OPTIONAL,
  new-DSCH-RNTI                DSCH-RNTI                     OPTIONAL,
  new-H-RNTI                    H-RNTI                        OPTIONAL,
  rrc-StateIndicator           RRC-StateIndicator,
  utran-DRX-CycleLengthCoeff    UTRAN-DRX-CycleLengthCoefficient OPTIONAL,
-- Core network IEs
  cn-InformationInfo           CN-InformationInfo            OPTIONAL,
-- UTRAN mobility IEs
  ura-Identity                 URA-Identity                 OPTIONAL,
-- Radio bearer IEs
  dl-CounterSynchronisationInfo DL-CounterSynchronisationInfo-r5 OPTIONAL,
-- Transport channel IEs
  ul-CommonTransChInfo          UL-CommonTransChInfo-r4        OPTIONAL,
  ul-AddReconfTransChInfoList   UL-AddReconfTransChInfoList   OPTIONAL,
  modeSpecificTransChInfo       CHOICE {
    fdd                          SEQUENCE {
      -- dummy is not used in this version of the specification, it should
      -- not be sent and if received it should be ignored.
      epeh-SetIDDummy          CPCH-SetID                    OPTIONAL,
      addReconfTransChDRAC-Info  DRAC-StaticInformationList    OPTIONAL
    },
    tdd                          NULL
  }
  dl-CommonTransChInfo          DL-CommonTransChInfo-r4        OPTIONAL,
  dl-AddReconfTransChInfoList   DL-AddReconfTransChInfoList-r5 OPTIONAL,
}

```

~~~~ Next Modified Section ~~~~

## 11.3 Information element definitions

~~~~ Next Modified Section ~~~~

```

UL-PhysChCapabilityFDD ::= SEQUENCE {
  maxNoDPDCH-BitsTransmitted    MaxNoDPDCH-BitsTransmitted,
  -- dummy is not used in this version of the specification and
  -- it should be ignored by the receiver.
}

```

```

supportOfPCPCHdummy                BOOLEAN
}

```

~~~~ Next Modified Section ~~~~

```

UL-TransportChannelType ::=          CHOICE {
  dch                                TransportChannelIdentity,
  rach                               NULL,
  epchdummy                       NULL,
  usch                               TransportChannelIdentity
}

```

~~~~ Next Modified Section ~~~~

```

UL-ChannelRequirement ::=          CHOICE {
  ul-DPCH-Info                       UL-DPCH-Info,
  epch-SetInfodummy                CPCH-SetInfo
}

```

```

UL-ChannelRequirement-r4 ::=       CHOICE {
  ul-DPCH-Info                       UL-DPCH-Info-r4,
  epch-SetInfodummy                CPCH-SetInfo
}

```

```

UL-ChannelRequirement-r5 ::=       CHOICE {
  ul-DPCH-Info                       UL-DPCH-Info-r5,
  epch-SetInfodummy                CPCH-SetInfo
}

```

~~-- Note: the reference to CPCH in the element name below is incorrect. The name is not changed to keep it aligned with R99.~~

```

UL-ChannelRequirementWithCPCH-SetID ::= CHOICE {
  ul-DPCH-Info                       UL-DPCH-Info,
  epch-SetInfodummy1                CPCH-SetInfo,
  epch-SetIDdummy2                  CPCH-SetID
}

```

~~-- Note: the reference to CPCH in the element name below is incorrect. The name is not changed to keep it aligned with R99.~~

```

UL-ChannelRequirementWithCPCH-SetID-r4 ::= CHOICE {
  ul-DPCH-Info                       UL-DPCH-Info-r4,
  epch-SetInfodummy1                CPCH-SetInfo,
  epch-SetIDdummy2                  CPCH-SetID
}

```

~~-- Note: the reference to CPCH in the element name below is incorrect. The name is not changed to keep it aligned with R99.~~

```

UL-ChannelRequirementWithCPCH-SetID-r5 ::= CHOICE {
  ul-DPCH-Info                       UL-DPCH-Info-r5,
  epch-SetInfodummy1                CPCH-SetInfo,
  epch-SetIDdummy2                  CPCH-SetID
}

```

~~~~ Next Modified Section ~~~~

```

UL-TrCH-Identity ::=              CHOICE{
  dch                                TransportChannelIdentity,
  Default transport channel in the UL is either RACH or CPCH, but not both.
}

```

-- Note: the reference to CPCH in the element name below is incorrect. The name is not changed  
-- to keep it aligned with R99.

```
rachorcpcch          NULL,
usch                 TransportChannelIdentity
}
```

~~~~ Next Modified Section ~~~~

```
SysInfoType8 ::=          SEQUENCE {
-- User equipment IEs
  -- dummy1, dummy2, dummy3 are not used in this version of the specification and
  -- they should be ignored by the receiver.
  cpch-Parametersdummy1          CPCH-Parameters,
-- Physical channel IEs
  cpch-SetInfoListdummy2          CPCH-SetInfoList,
  csich-PowerOffsetdummy3          CSICH-PowerOffset,
-- Extension mechanism for non- release99 information
  nonCriticalExtensions  SEQUENCE {}          OPTIONAL
}
```

```
SysInfoType9 ::=          SEQUENCE {
-- Physical channel IEs
  -- dummy is not used in this version of the specification and
  -- it should be ignored by the receiver.
  cpch-PersistenceLevelsListdummy CPCH-PersistenceLevelsList,
-- Extension mechanism for non- release99 information
  nonCriticalExtensions  SEQUENCE {}          OPTIONAL
}
```

~~~~ Next Modified Section ~~~~

```
SRNC-RelocationInfo-r3-IEs ::=          SEQUENCE {
-- Non-RRC IEs
  stateOfRRC              StateOfRRC,
  stateOfRRC-Procedure    StateOfRRC-Procedure,
-- Ciphering related information IEs
-- If the extension v380 is included use the extension for the ciphering status per CN domain
  cipheringStatus          CipheringStatus,
  calculationTimeForCiphering CalculationTimeForCiphering          OPTIONAL,
-- The order of occurrence in the IE cipheringInfoPerRB-List is the
-- same as the RBs in SRB-InformationSetupList in RAB-InformationSetupList.
-- The signalling RBs are supposed to be listed
-- first. Only UM and AM RBs that are ciphered are listed here
  cipheringInfoPerRB-List  CipheringInfoPerRB-List          OPTIONAL,
  count-C-List             COUNT-C-List          OPTIONAL,
  integrityProtectionStatus IntegrityProtectionStatus,
  -- In the IE srb-SpecificIntegrityProtInfo, the first information listed corresponds to
  -- signalling radio bearer RB0 and after the order of occurrence is the same as the SRBs in
  -- SRB-InformationSetupList
  -- The target RNC may ignore the IE srb-SpecificIntegrityProtInfo if the
  -- IE integrityProtectionStatus has the value "not started".
  srb-SpecificIntegrityProtInfo SRB-SpecificIntegrityProtInfoList,
  implementationSpecificParams ImplementationSpecificParams          OPTIONAL,
-- User equipment IEs
  u-RNTI                   U-RNTI,
  c-RNTI                   C-RNTI          OPTIONAL,
  ue-RadioAccessCapability UE-RadioAccessCapability,          OPTIONAL,
  ue-Positioning-LastKnownPos UE-Positioning-LastKnownPos          OPTIONAL,
-- Other IEs
  ue-RATSpecificCapability InterRAT-UE-RadioAccessCapabilityList  OPTIONAL,
-- UTRAN mobility IEs
  ura-Identity              URA-Identity          OPTIONAL,
-- Core network IEs
  cn-CommonGSM-MAP-NAS-SysInfo NAS-SystemInformationGSM-MAP,
  cn-DomainInformationList  CN-DomainInformationList          OPTIONAL,
-- Measurement IEs
  ongoingMeasRepList        OngoingMeasRepList          OPTIONAL,
-- Radio bearer IEs
  predefinedConfigStatusList PredefinedConfigStatusList,
  srb-InformationList        SRB-InformationSetupList,
  rab-InformationList        RAB-InformationSetupList          OPTIONAL,
-- Transport channel IEs
  ul-CommonTransChInfo      UL-CommonTransChInfo          OPTIONAL,
  ul-TransChInfoList        UL-AddReconfTransChInfoList          OPTIONAL,
```

```

modeSpecificInfo          CHOICE {
  fdd                      SEQUENCE {
    -- dummy is not used in this version of the specification, it should
    -- not be sent and if received it should be ignored.
    ePch-SetIDdummy          CPCH-SetID          OPTIONAL,
    transChDRAC-Info        DRAC-StaticInformationList  OPTIONAL
  },
  tdd                      NULL
},
dl-CommonTransChInfo      DL-CommonTransChInfo          OPTIONAL,
dl-TransChInfoList        DL-AddReconfTransChInfoList  OPTIONAL,
-- Measurement report
measurementReport          MeasurementReport          OPTIONAL
}

```

~~~~ Next Modified Section ~~~~

```

SRNC-RelocationInfo-r4-IEs ::= SEQUENCE {
  -- Non-RRC IEs
  -- IE rb-IdentityForHOMessage includes the identity of the RB used by the source SRNC
  -- to send the message contained in the IE "TargetRNC-ToSourceRNC-Container".
  -- Only included if type is "UE involved"
  rb-IdentityForHOMessage  RB-Identity          OPTIONAL,
  stateOfRRC               StateOfRRC,
  stateOfRRC-Procedure     StateOfRRC-Procedure,
  -- Ciphering related information IEs
  cipheringStatusList      CipheringStatusList-r4,
  latestConfiguredCN-Domain CN-DomainIdentity,
  calculationTimeForCiphering CalculationTimeForCiphering  OPTIONAL,
  count-C-List              COUNT-C-List          OPTIONAL,
  cipheringInfoPerRB-List  CipheringInfoPerRB-List-r4  OPTIONAL,
  -- Integrity protection related information IEs
  integrityProtectionStatus IntegrityProtectionStatus,
  -- The target RNC may ignore the IE srb-SpecificIntegrityProtInfo if the
  -- IE integrityProtectionStatus has the value "not started".
  srb-SpecificIntegrityProtInfo SRB-SpecificIntegrityProtInfoList,
  implementationSpecificParams ImplementationSpecificParams  OPTIONAL,
  -- User equipment IEs
  u-RNTI                    U-RNTI,
  c-RNTI                    C-RNTI          OPTIONAL,
  ue-RadioAccessCapability  UE-RadioAccessCapability-r4,
  ue-RadioAccessCapability-ext UE-RadioAccessCapabBandFDDList  OPTIONAL,
  ue-Positioning-LastKnownPos UE-Positioning-LastKnownPos  OPTIONAL,
  uESpecificBehaviourInformationIdle UESpecificBehaviourInformationIdle  OPTIONAL,
  uESpecificBehaviourInformationInterRAT UESpecificBehaviourInformationInterRAT
OPTIONAL,
  -- Other IEs
  ue-RATSpecificCapability  InterRAT-UE-RadioAccessCapabilityList  OPTIONAL,
  -- UTRAN mobility IEs
  ura-Identity              URA-Identity          OPTIONAL,
  -- Core network IEs
  cn-CommonGSM-MAP-NAS-SysInfo NAS-SystemInformationGSM-MAP,
  cn-DomainInformationList  CN-DomainInformationListFull  OPTIONAL,
  -- Measurement IEs
  ongoingMeasRepList        OngoingMeasRepList-r4          OPTIONAL,
  -- Radio bearer IEs
  predefinedConfigStatusList PredefinedConfigStatusList,
  srb-InformationList        SRB-InformationSetupList,
  rab-InformationList        RAB-InformationSetupList-r4  OPTIONAL,
  -- Transport channel IEs
  ul-CommonTransChInfo      UL-CommonTransChInfo-r4          OPTIONAL,
  ul-TransChInfoList        UL-AddReconfTransChInfoList  OPTIONAL,
  modeSpecificInfo          CHOICE {
    fdd                      SEQUENCE {
      -- dummy is not used in this version of the specification, it should
      -- not be sent and if received it should be ignored.
      ePch-SetIDdummy          CPCH-SetID          OPTIONAL,
      transChDRAC-Info        DRAC-StaticInformationList  OPTIONAL
    },
    tdd                      NULL
  }
  dl-CommonTransChInfo-r4    DL-CommonTransChInfo-r4          OPTIONAL,
  dl-TransChInfoList-r4      DL-AddReconfTransChInfoList-r4  OPTIONAL,
  -- Measurement report
  measurementReport          MeasurementReport          OPTIONAL,
  failureCause                FailureCauseWithProtErr  OPTIONAL
}

```



```

}
SRNC-RelocationInfo-r5-IEs ::= SEQUENCE {
  -- Non-RRC IEs
  -- IE rb-IdentityForHOMessage includes the identity of the RB used by the source SRNC
  -- to send the message contained in the IE "TargetRNC-ToSourceRNC-Container".
  -- Only included if type is "UE involved"
  rb-IdentityForHOMessage      RB-Identity                OPTIONAL,
  stateOfRRC                  StateOfRRC,
  stateOfRRC-Procedure         StateOfRRC-Procedure,
  -- Ciphering related information IEs
  cipheringStatusList         CipheringStatusList-r4,
  latestConfiguredCN-Domain   CN-DomainIdentity,
  calculationTimeForCiphering CalculationTimeForCiphering  OPTIONAL,
  count-C-List                COUNT-C-List          OPTIONAL,
  cipheringInfoPerRB-List     CipheringInfoPerRB-List-r4  OPTIONAL,
  -- Integrity protection related information IEs
  integrityProtectionStatus   IntegrityProtectionStatus,
  srb-SpecificIntegrityProtInfo SRB-SpecificIntegrityProtInfoList  OPTIONAL,
  implementationSpecificParams ImplementationSpecificParams  OPTIONAL,
  -- User equipment IEs
  u-RNTI                      U-RNTI,
  c-RNTI                      C-RNTI                OPTIONAL,
  ue-RadioAccessCapability    UE-RadioAccessCapability-r5,
  ue-RadioAccessCapability-ext UE-RadioAccessCapabBandFDDList  OPTIONAL,
  ue-Positioning-LastKnownPos UE-Positioning-LastKnownPos  OPTIONAL,
  uESpecificBehaviourInformationlidle
                              UESpecificBehaviourInformationlidle  OPTIONAL,
  uESpecificBehaviourInformationlinterRAT
                              UESpecificBehaviourInformationlinterRAT  OPTIONAL,
  -- Other IEs
  ue-RATSpecificCapability    InterRAT-UE-RadioAccessCapabilityList-r5  OPTIONAL,
  -- UTRAN mobility IEs
  ura-Identity                URA-Identity          OPTIONAL,
  -- Core network IEs
  cn-CommonGSM-MAP-NAS-SysInfo NAS-SystemInformationGSM-MAP,
  cn-DomainInformationList    CN-DomainInformationListFull  OPTIONAL,
  -- Measurement IEs
  ongoingMeasRepList          OngoingMeasRepList-r5     OPTIONAL,
  -- Radio bearer IEs
  predefinedConfigStatusList  PredefinedConfigStatusList,
  srb-InformationList         SRB-InformationSetupList-r5,
  rab-InformationList         RAB-InformationSetupList-r5  OPTIONAL,
  -- Transport channel IEs
  ul-CommonTransChInfo       UL-CommonTransChInfo-r4    OPTIONAL,
  ul-TransChInfoList         UL-AddReconfTransChInfoList  OPTIONAL,
  modeSpecificInfo           CHOICE {
    fdd                       SEQUENCE {
      -- dummy is not used in this version of the specification, it should
      -- not be sent and if received it should be ignored.
      epch-SetIDdummy    CPCH-SetID                OPTIONAL,
      transChDRAC-Info       DRAC-StaticInformationList  OPTIONAL
    },
    tdd                       NULL
  }
  dl-CommonTransChInfo       DL-CommonTransChInfo-r4    OPTIONAL,
  dl-TransChInfoList         DL-AddReconfTransChInfoList-r5  OPTIONAL,
  -- PhyCH IEs
  tpc-CombinationInfoList     TPC-CombinationInfoList    OPTIONAL,
  -- Measurement report
  measurementReport           MeasurementReport            OPTIONAL,
  -- Other IEs
  failureCause                FailureCauseWithProtErr        OPTIONAL
}

```

~~~~ Next Modified Section ~~~~

### 13.4.32 VALUE\_TAG

This variable contains information about the value tag for the last received system information block of a given type, for all system information blocks using value tags. The UE shall maintain one instance of this variable for the current selected cell. The UE may store several instances of this variable, one for each cell, to be used if the UE returns to these cells.

All IEs in this variable shall be cleared when switched off. All IEs in this variable except for the IE "SIB 16 value tag list" shall be cleared at selection of a new PLMN. The IE "SIB 16 value tag list" is cleared at selection of a new PLMN which is not indicated by higher layers to be equivalent to the previously selected PLMN.

| Information Element/Group name         | Need    | Multi         | Type and reference                               | Semantics description                                                               |
|----------------------------------------|---------|---------------|--------------------------------------------------|-------------------------------------------------------------------------------------|
| MIB value tag                          | OP      |               | MIB value tag 10.3.8.9                           | Value tag for the master information block                                          |
| SB 1 value tag                         | OP      |               | Cell value tag 10.3.8.4                          | Value tag for the scheduling block type 1                                           |
| SB 2 value tag                         | OP      |               | Cell value tag 10.3.8.4                          | Value tag for the scheduling block type 2                                           |
| SIB 1 value tag                        | CV-GSM  |               | PLMN value tag 10.3.8.10                         | Value tag for the system information block type 1                                   |
| SIB 2 value tag                        | OP      |               | Cell value tag 10.3.8.4                          | Value tag for the system information block type 2                                   |
| SIB 3 value tag                        | OP      |               | Cell value tag 10.3.8.4                          | Value tag for the system information block type 3                                   |
| SIB 4 value tag                        | OP      |               | Cell value tag 10.3.8.4                          | Value tag for the system information block type 4                                   |
| SIB 5 value tag                        | OP      |               | Cell value tag 10.3.8.4                          | Value tag for the system information block type 5                                   |
| SIB 6 value tag                        | OP      |               | Cell value tag 10.3.8.4                          | Value tag for the system information block type 6                                   |
| CHOICE mode                            | MP      |               |                                                  |                                                                                     |
| >FDD                                   |         |               |                                                  |                                                                                     |
| >>SIB 8 value tag                      | OP      |               | Cell value tag 10.3.8.4                          | Value tag for the system information block type 8                                   |
| >TDD                                   |         |               |                                                  | (no data)                                                                           |
| SIB 11 value tag                       | OP      |               | Cell value tag 10.3.8.4                          | Value tag for the system information block type 11                                  |
| SIB 12 value tag                       | OP      |               | Cell value tag 10.3.8.4                          | Value tag for the system information block type 12                                  |
| SIB 13 value tag                       | CV-ANSI |               | Cell value tag 10.3.8.4                          | Value tag for the system information block type 13                                  |
| SIB 13.1 value tag                     | CV-ANSI |               | Cell value tag 10.3.8.4                          | Value tag for the system information block type 13.1                                |
| SIB 13.2 value tag                     | CV-ANSI |               | Cell value tag 10.3.8.4                          | Value tag for the system information block type 13.2                                |
| SIB 13.3 value tag                     | CV-ANSI |               | Cell value tag 10.3.8.4                          | Value tag for the system information block type 13.3                                |
| SIB 13.4 value tag                     | CV-ANSI |               | Cell value tag 10.3.8.4                          | Value tag for the system information block type 13.4                                |
| SIB 15 value tag                       | OP      |               | Cell value tag 10.3.8.4                          | Value tag for the system information block type 15                                  |
| SIB 15.1 value tag                     | OP      |               | Cell value tag 10.3.8.4                          | Value tag for the system information block type 15.1                                |
| SIB 15.2 value tag list                | OP      | 1 to <maxSat> |                                                  | List of value tags for all stored occurrences of system information block type 15.2 |
| >SIB 15.2 value tag                    | MP      |               | Cell value tag 10.3.8.4                          |                                                                                     |
| >SIB occurrence identity and value tag | MP      |               | SIB occurrence identity and value tag 10.3.8.20b |                                                                                     |
| SIB 15.3 value tag list                | OP      | 1 to <maxSat> |                                                  | List of value tags for all stored occurrences of system information block type 15.3 |
| >SIB 15.3 value tag                    | MP      |               | PLMN value tag 10.3.8.10                         | Value tag for the system information block type 15.3                                |
| >SIB occurrence identity and value tag | MP      |               | SIB occurrence identity and value tag 10.3.8.20b |                                                                                     |
| SIB 15.4 value tag                     | OP      |               | Cell value                                       | Value tag for the system                                                            |

| Information Element/Group name                   | Need | Multi                   | Type and reference                                        | Semantics description                                                                 |
|--------------------------------------------------|------|-------------------------|-----------------------------------------------------------|---------------------------------------------------------------------------------------|
| SIB 15.5 value tag                               | OP   |                         | tag 10.3.8.4<br>Cell value tag 10.3.8.4                   | information block type 15.4<br>Value tag for the system information block type 15.5   |
| SIB 16 value tag list                            | OP   | 1 to <maxPred efConfig> |                                                           | List of value tags for all stored occurrences of the system information block type 16 |
| >Predefined configuration identity and value tag | MP   |                         | Predefined configuration identity and value tag 10.3.8.11 |                                                                                       |
| SIB 18 value tag                                 | OP   |                         | Cell value tag 10.3.8.4                                   | Value tag for the system information block type 18                                    |

| Condition   | Explanation                                                                                                            |
|-------------|------------------------------------------------------------------------------------------------------------------------|
| <i>GSM</i>  | This information is optional when the PLMN Type in the variable SELECTED_PLMN is "GSM-MAP" and never stored otherwise. |
| <i>ANSI</i> | This information is optional when the PLMN Type in the variable SELECTED_PLMN is "ANSI-41" and never stored otherwise. |

~~~~ Next Modified Section ~~~~

13.5.2 RRC procedure performance values

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

| Procedure title: | UTRAN -> UE | UE -> UTRAN | N1 | N2 | Notes |
|---|--------------------|-------------|----|----|--|
| RRC Connection Management Procedures | | | | | |
| Broadcast of system information | SYSTEM INFORMATION | | | | N2 is not applicable for any system information messages, because there is no response message from the UE. |
| Master Information Block | SYSTEM INFORMATION | | 5 | NA | No system information data shall be lost due to processing of a MIB received with no detectable errors. This means that the UE shall buffer all system information data received after the MIB until the data can be processed according to the information in the MIB, unless the MIB was received erroneously. |
| System Information Block type 1 | SYSTEM INFORMATION | | 10 | NA | |
| System Information Block type 2 | SYSTEM INFORMATION | | 10 | NA | |
| System Information Block type 3 | SYSTEM INFORMATION | | 10 | NA | |
| System Information Block type 4 | SYSTEM INFORMATION | | 10 | NA | |
| System Information Block type 5 | SYSTEM INFORMATION | | 10 | NA | |
| System Information Block type 6 | SYSTEM INFORMATION | | 10 | NA | |
| System Information Block type 7 | SYSTEM INFORMATION | | 5 | NA | |

| Procedure title: | UTRAN -> UE | UE -> UTRAN | N1 | N2 | Notes |
|---|-------------------------------|---------------------------------|---------------|---------------|---|
| System Information Block type 8 | SYSTEM INFORMATION | | 10 | NA | |
| System Information Block type 9 | SYSTEM INFORMATION | | 5 | NA | |
| System Information Block type 10 | SYSTEM INFORMATION | | 5 | NA | |
| System Information Block type 11 | SYSTEM INFORMATION | | 10 | NA | |
| System Information Block type 12 | SYSTEM INFORMATION | | 10 | NA | |
| System Information Block type 13 | SYSTEM INFORMATION | | 10 | NA | |
| System Information Block type 14 | SYSTEM INFORMATION | | 10 | NA | |
| System Information Block type 15 | SYSTEM INFORMATION | | 10 | NA | |
| System Information Block type 16 | SYSTEM INFORMATION | | 10 | NA | |
| System Information Block type 18 | SYSTEM INFORMATION | | 10 | NA | |
| RRC connection establishment
<i>Target state CELL_DCH</i> | RRC CONNECTION SETUP | RRC CONNECTION SETUP COMPLETE | 10 | NA | N1 measures time to the start of tx / rx on DPCH. N2 cannot be specified, because RRC CONNECTION SETUP COMPLETE message is transmitted only after physical layer synchronisation, which also depends on the Node B.

The performance of the physical layer synchronisation procedure is specified in [19] and [20] |
| RRC connection establishment
<i>Target state CELL_FACH</i> | RRC CONNECTION SETUP | RRC CONNECTION SETUP COMPLETE | 10 | 11 | N1 and N2 applicable as defined (N2 can be tested from the initiation of the power ramp on RACH). |
| RRC connection release
<i>From CELL_DCH state</i> | RRC CONNECTION RELEASE | RRC CONNECTION RELEASE COMPLETE | 5 | 8 | N1 sets the requirement for the time from the completion of the last repetition of the RRC CONNECTION RELEASE COMPLETE message to the release of the physical channel.

N2 sets the requirement from the end of successful reception of the RRC CONNECTION RELEASE message to the start of the first transmission of the RRC CONNECTION RELEASE COMPLETE message. |
| RRC connection release
<i>From CELL_FACH state</i> | RRC CONNECTION RELEASE | RRC CONNECTION RELEASE COMPLETE | NA | 11 | N1 represents UE internal configuration that cannot be externally observed. |
| Paging | PAGING TYPE 1 | CELL UPDATE | 10 | 11+ T | T is the repetition period of SIB7 (applicable for FDD) and SIB14 (applicable for TDD) |
| UE capability enquiry | UE CAPABILITY ENQUIRY | UE CAPABILITY INFORMATION | NA | 8 | N1 is not applicable because the UE configuration does not change. |
| Security mode control | SECURITY MODE COMMAND | SECURITY MODE COMPLETE | 5 | 8 | |

| Procedure title: | UTRAN -> UE | UE -> UTRAN | N1 | N2 | Notes |
|--|-----------------------------------|--|-----------|-----------|--|
| Signalling connection release procedure | SIGNALLING CONNECTION RELEASE | | 5 | NA | N2 is not applicable because there is no response message. |
| Counter check | COUNTER CHECK | COUNTER CHECK RESPONSE | NA | 8 | N1 is not applicable because the UE configuration does not change. |
| Radio Bearer control procedures | | | | | |
| Radio bearer establishment
<i>Target state CELL_DCH</i> | RADIO BEARER SETUP | RADIO BEARER SETUP COMPLETE / FAILURE | 10 | NA | N2 cannot be specified, because the RADIO BEARER SETUP COMPLETE / FAILURE message is transmitted only after physical layer synchronisation, which depends also on Node B. |
| Radio bearer establishment
<i>From state CELL_FACH to state CELL_FACH</i> | RADIO BEARER SETUP | RADIO BEARER SETUP COMPLETE / FAILURE | 10 | 11 | |
| Radio bearer establishment
<i>From CELL_DCH to CELL_FACH</i> | RADIO BEARER SETUP | RADIO BEARER SETUP COMPLETE | NA | NA | N1 and N2 cannot be specified, because UE need to read SIBs on BCH before sending RADIO BEARER SETUP COMPLETE |
| Radio bearer reconfiguration
<i>Target state CELL_DCH</i> | RADIO BEARER RECONFIGURATION | RADIO BEARER RECONFIGURATION COMPLETE / FAILURE | 10 | NA | N2 cannot be specified, because the RADIO BEARER RECONFIGURATION COMPLETE / FAILURE message is transmitted only after physical layer synchronisation, which depends also on Node B. |
| Radio bearer reconfiguration
<i>From state CELL_FACH to state CELL_FACH</i> | RADIO BEARER RECONFIGURATION | RADIO BEARER RECONFIGURATION COMPLETE / FAILURE | 10 | 11 | |
| Radio bearer reconfiguration
<i>From state CELL_DCH to state CELL_FACH</i> | RADIO BEARER RECONFIGURATION | RADIO BEARER RECONFIGURATION COMPLETE | NA | NA | N1 and N2 cannot be specified, because UE need to read SIBs on BCH before sending RADIO BEARER RECONFIGURATION COMPLETE |
| Radio bearer release
<i>Target state CELL_DCH</i> | RADIO BEARER RELEASE | RADIO BEARER RELEASE COMPLETE / FAILURE | 10 | 11 | |
| Radio bearer release
<i>From state CELL_FACH to state CELL_FACH</i> | RADIO BEARER RELEASE | RADIO BEARER RELEASE COMPLETE / FAILURE | 10 | 11 | |
| Radio bearer release
<i>From state CELL_DCH to state CELL_FACH</i> | RADIO BEARER RELEASE | RADIO BEARER RELEASE COMPLETE | NA | NA | N1 and N2 cannot be specified, because UE need to read SIBs on BCH before sending RADIO BEARER RECONFIGURATION COMPLETE |
| Transport channel reconfiguration
<i>Target state CELL_DCH</i> | TRANSPORT CHANNEL RECONFIGURATION | TRANSPORT CHANNEL RECONFIGURATION COMPLETE / FAILURE | 10 | NA | N2 cannot be specified, because the TRANSPORT CHANNEL RECONFIGURATION COMPLETE / FAILURE message is transmitted only after physical layer synchronisation, which depends also on Node B. |

| Procedure title: | UTRAN -> UE | UE -> UTRAN | N1 | N2 | Notes |
|---|--------------------------------------|--|-----------|-----------|---|
| Transport channel reconfiguration
<i>From state CELL_FACH to state CELL_FACH</i> | TRANSPORT CHANNEL RECONFIGURATION | TRANSPORT CHANNEL RECONFIGURATION COMPLETE / FAILURE | 10 | 11 | |
| Transport channel reconfiguration
<i>From state CELL_DCH to state CELL_FACH</i> | TRANSPORT CHANNEL RECONFIGURATION | TRANSPORT CHANNEL RECONFIGURATION COMPLETE | NA | NA | N1 and N2 cannot be specified, because UE need to read SIBs on BCH before sending TRANSPORT CHANNEL RECONFIGURATION COMPLETE |
| Transport format combination control
<i>AM or UM RLC mode</i> | TRANSPORT FORMAT COMBINATION CONTROL | TRANSPORT FORMAT COMBINATION CONTROL FAILURE | 5 | 8 | |
| Transport format combination control
<i>Transparent mode</i> | TRANSPORT FORMAT COMBINATION CONTROL | | 5 | NA | N2 is not applicable because no response message is defined. |
| Physical channel reconfiguration
<i>Target state CELL_DCH</i> | PHYSICAL CHANNEL RECONFIGURATION | PHYSICAL CHANNEL RECONFIGURATION COMPLETE / FAILURE | 8 | NA | N2 cannot be specified, because the PHYSICAL CHANNEL RECONFIGURATION COMPLETE / FAILURE message is transmitted only after physical layer synchronisation, which depends also on Node B. |
| Physical channel reconfiguration
<i>From state CELL_FACH to state CELL_FACH</i> | PHYSICAL CHANNEL RECONFIGURATION | PHYSICAL CHANNEL RECONFIGURATION COMPLETE / FAILURE | 8 | 9 | |
| Physical channel reconfiguration
<i>From state CELL_DCH to state CELL_FACH</i> | PHYSICAL CHANNEL RECONFIGURATION | PHYSICAL CHANNEL RECONFIGURATION COMPLETE | NA | NA | N1 and N2 cannot be specified, because UE need to read SIBs on BCH before sending PHYSICAL CHANNEL RECONFIGURATION COMPLETE |
| Physical Shared Channel Allocation [TDD only] | PHYSICAL SHARED CHANNEL ALLOCATION | | 5 | NA | N2 is not applicable because no response message is defined. |
| Uplink Physical Channel Control [TDD only] | UPLINK PHYSICAL CHANNEL CONTROL | | 8 | NA | Requirements for outer loop and timing advance adjustments are defined in [22] and [20]. N2 is not applicable because there is no response message. |
| RRC connection mobility procedures | | | | | |
| Cell update | CELL UPDATE CONFIRM | UTRAN MOBILITY INFORMATION CONFIRM | 5 | 8 | |
| | | PHYSICAL CHANNEL RECONFIGURATION COMPLETE
<i>Target state CELL_FACH</i> | 8 | 9 | |

| Procedure title: | UTRAN -> UE | UE -> UTRAN | N1 | N2 | Notes |
|----------------------------|----------------------------|--|----|----|---|
| | | PHYSICAL CHANNEL RECONFIGURATION COMPLETE
<i>Target state</i>
CELL_DCH | 8 | NA | N2 cannot be specified, because the PHYSICAL CHANNEL RECONFIGURATION COMPLETE / FAILURE message is transmitted only after physical layer synchronisation, which depends also on Node B. |
| | | TRANSPORT CHANNEL RECONFIGURATION COMPLETE
<i>Target state</i>
CELL_FACH | 10 | 11 | |
| | | TRANSPORT CHANNEL RECONFIGURATION COMPLETE
<i>Target state</i>
CELL_DCH | 10 | NA | N2 cannot be specified, because the PHYSICAL CHANNEL RECONFIGURATION COMPLETE / FAILURE message is transmitted only after physical layer synchronisation, which depends also on Node B. |
| | | RADIO BEARER RECONFIGURATION COMPLETE
<i>Target state</i>
CELL_FACH | 10 | 11 | |
| | | RADIO BEARER RECONFIGURATION COMPLETE
<i>Target state</i>
CELL_DCH | 10 | NA | N2 cannot be specified, because the PHYSICAL CHANNEL RECONFIGURATION COMPLETE / FAILURE message is transmitted only after physical layer synchronisation, which depends also on Node B. |
| | | RADIO BEARER RELEASE COMPLETE
<i>Target state</i>
CELL_DCH | 10 | 11 | |
| URA update | URA UPDATE CONFIRM | UTRAN MOBILITY INFORMATION CONFIRM | 5 | 8 | |
| UTRAN mobility information | UTRAN MOBILITY INFORMATION | UTRAN MOBILITY INFORMATION CONFIRM / FAILURE | 5 | 8 | |
| Active set update | ACTIVE SET UPDATE | ACTIVE SET UPDATE COMPLETE / FAILURE | NA | 8 | The requirements on UE combining and power control performance for both UL and DL are specified by RAN WG4 in [21] and [19].

Also in case of branch addition the COMPLETE / FAILURE message is transmitted without waiting for the new branch to stabilise, therefore N2 is specified. |

| Procedure title: | UTRAN -> UE | UE -> UTRAN | N1 | N2 | Notes |
|-------------------------------|--|-----------------------------|----|----|--|
| Inter-RAT handover to UTRAN | HANDOVER TO UTRAN COMMAND (other system) | HANDOVER TO UTRAN COMPLETE | NA | NA | The performance of this procedure is specified in 05.10. |
| Inter-RAT handover from UTRAN | HANDOVER FROM UTRAN COMMAND | HANDOVER FROM UTRAN FAILURE | NA | NA | The performance of this procedure is specified in [19] and [20]. |
| Measurement procedures | | | | | |
| Measurement control | MEASUREMENT CONTROL | MEASUREMENT CONTROL FAILURE | 5 | 8 | Response to measurement inquiry depends on physical layer measurement. Response time is defined in [19] and [20]. N1 and N2 only define the processing of the message. |

~~~~ Next Modified Section ~~~~

### 14.9.1 Generalities

This function is implemented in the UE in order to set the SIR target value on each CCTrCH used for the downlink power control. This SIR value shall be adjusted according to an autonomous function in the UE in order to achieve the same measured quality as the quality target set by UTRAN. The quality target is set as the transport channel BLER value for each transport channel as signalled by UTRAN. ~~For CPCH the quality target is set as the BER of the DL DPCCH as signalled by UTRAN.~~

When transport channel BLER is used the UE shall run a quality target control loop such that the quality requirement is met for each transport channel, which has been assigned a BLER target.

~~When DL DPCCH BER is used the UE shall run a quality target control loop such that the quality requirement is met for each CPCH transport channel, which has been assigned a DL DPCCH BER target.~~

The UE shall set the SIR target when the physical channel has been set up or reconfigured. It shall not increase the SIR target value before the power control has converged on the current value. The UE may estimate whether the power control has converged on the current value, by comparing the averaged measured SIR to the SIR target value.

~~~~ Next Modified Section ~~~~

14.12.4.2 SRNS RELOCATION INFO

This RRC message is sent between network nodes when preparing for an SRNS relocation or a handover/cell reselection from GERAN *Iu mode*.

With the presence or absence of the IE "RB identity for Hard Handover message" the source RNC indicates to the target SRNC whether the source RNC expects to receive the choice "DL DCCH message" in the IE "RRC information, target RNC to source RNC" in case the SRNS relocation is of type "UE involved". Furthermore the target RNC uses this information for the calculation of the MAC-I.

Direction: source RNC/RAT→target RNC

| Information Element/Group Name | Need | Multi | Type and reference | Semantics description | Version |
|-----------------------------------|------|-------|---------------------------------|---|---------|
| Non RRC IEs | | | | | |
| >RB identity for Handover message | OP | | RB identity 10.3.4.16 | Gives the id of the radio bearer on which the source RNC will transmit the RRC message in the case the relocation is of type "UE involved". In handover from GERAN <i>Iu mode</i> this IE is always set to 2. | |
| >State of RRC | MP | | RRC state indicator, 10.3.3.35a | | |
| >State of RRC procedure | MP | | Enumerated (await no | | |

| Information Element/Group Name | Need | Multi | Type and reference | Semantics description | Version |
|---|----------------------|----------------------|--|--|---------|
| | | | RRC message, await RB Release Complete, await RB Setup Complete, await RB Reconfiguration Complete, await Transport CH Reconfiguration Complete, await Physical CH Reconfiguration Complete, await Active Set Update Complete, await Handover Complete, send Cell Update Confirm, send URA Update Confirm, , others) | | |
| Ciphering related information | | | | | |
| >Ciphering status for each CN domain | MP | <1 to maxCNDo mains> | | | |
| >>CN domain identity | MP | | CN domain identity 10.3.1.1 | | |
| >>Ciphering status | MP | | Enumerated(Not started, Started) | | |
| >>START | MP | | START 10.3.3.38 | START value to be used in this CN domain. | |
| >Latest configured CN domain | MP | | CN domain identity 10.3.1.1 | Value contained in the variable of the same name. In case this variable is empty, the source RNC can set any CN domain identity. In that case, the Ciphering status and the Integrity protection status should be Not started and the target RNC should not initialise the variable Latest configured CN domain. | |
| >Calculation time for ciphering related information | CV- <i>Ciphering</i> | | | Time when the ciphering information of the message were calculated, relative to a cell of the target RNC. In handover and cell reselection from GERAN <i>lu mode</i> this field is not present. | |

| Information Element/Group Name | Need | Multi | Type and reference | Semantics description | Version |
|--|---------|----------------------|-----------------------------------|---|---------|
| >>Cell Identity | MP | | Cell Identity 10.3.2.2 | Identity of one of the cells under the target RNC and included in the active set of the current call | |
| >>SFN | MP | | Integer(0..4095) | | |
| >COUNT-C list | OP | 1 to <maxCNdo mains> | | COUNT-C values for radio bearers using transparent mode RLC | |
| >>CN domain identity | MP | | CN domain identity 10.3.1.1 | | |
| >>COUNT-C | MP | | Bit string(32) | | |
| >Cipherng info per radio bearer | OP | 1 to <maxRB> | | For signalling radio bearers this IE is mandatory. | |
| >>RB identity | MP | | RB identity 10.3.4.16 | | |
| >>Downlink HFN | MP | | Bit string(20..25) | This IE is either RLC AM HFN (20 bits) or RLC UM HFN (25 bits) | |
| >>Downlink SN | CV-SRB1 | | Bit String(7) | VT(US) of RLC UM | |
| >>Uplink HFN | MP | | Bit string(20..25) | This IE is either RLC AM HFN (20 bits) or RLC UM HFN (25 bits) | |
| Integrity protection related information | | | | | |
| >Integrity protection status | MP | | Enumerated(Not started, Started) | | |
| >Signalling radio bearer specific integrity protection information | CV-IP | 4 to <maxSRBs etup> | | | |
| >>Uplink RRC HFN | MP | | Bit string (28) | For each SRB, in the case activation times for the next IP configuration to be applied on this SRB have already been reached this IE corresponds to the last value used. Else this value corresponds to the value the source would have initialized the HFN to at the activation time. Increment of HFN due to RRC SN roll over is taken care of by target based on value sent by the source. | |
| >>Downlink RRC HFN | MP | | Bit string (28) | For each SRB, in the case activation times for the next IP configuration to be applied on this SRB have already been reached this IE corresponds to the last value used. Else this value corresponds to the value the source would have initialized the HFN to at the activation time. Increment of HFN due to RRC SN roll over is taken care of by target based on value sent by the source. In particular, for SRB2, this IE should not take into account the RRC message that will trigger the relocation. NOTE: In order to have the possibility of sending downlink messages after the | |

| Information Element/Group Name | Need | Multi | Type and reference | Semantics description | Version |
|--|------|-------|--|--|---------|
| | | | | construction of the IE "SRNS RELOCATION INFO", the source may choose a value ahead of the last value used. | |
| >>Uplink RRC Message sequence number | MP | | Integer (0..15) | For each SRB, this IE corresponds to the last value received or in the case activation time was not reached for a configuration the value equals (activation time - 1). | |
| >>>Downlink RRC Message sequence number | MP | | Integer (0..15) | For each SRB, this IE corresponds to the last value used or in the case activation time was not reached for a configuration the value equals (activation time -1). In particular, for SRB2, this IE should not take into account the RRC message that will trigger the relocation.
NOTE: In order to have the possibility of sending downlink messages after the construction of the IE "SRNS RELOCATION INFO", the source may choose a value ahead of the last value used. | |
| >Implementation specific parameters | OP | | Bit string (1..512) | | |
| RRC IEs | | | | | |
| UE Information elements | | | | | |
| >U-RNTI | MP | | U-RNTI 10.3.3.47 | G-RNTI is placed in this field when performing handover or cell reselection from GERAN <i>lu mode</i> . | |
| >C-RNTI | OP | | C-RNTI 10.3.3.8 | | |
| >UE radio access Capability | MP | | UE radio access capability 10.3.3.42 | | |
| >UE radio access capability extension | OP | | UE radio access capability extension 10.3.3.42a | | |
| >Last known UE position | OP | | | | |
| >>SFN | MP | | Integer (0..4095) | Time when position was estimated | |
| >>>Cell ID | MP | | Cell identity; 10.3.2.2 | Indicates the cell, the SFN is valid for. | |
| >>>CHOICE <i>Position estimate</i> | MP | | | | |
| >>>>Ellipsoid Point | | | Ellipsoid Point; 10.3.8.4a | | |
| >>>>Ellipsoid point with uncertainty circle | | | Ellipsoid point with uncertainty circle 10.3.8.4d | | |
| >>>>Ellipsoid point with uncertainty ellipse | | | Ellipsoid point with uncertainty ellipse 10.3.8.4e | | |

| Information Element/Group Name | Need | Multi | Type and reference | Semantics description | Version |
|--|------|----------------------------|--|--|---------|
| >>>Ellipsoid point with altitude | | | Ellipsoid point with altitude
10.3.8.4b | | |
| >>>Ellipsoid point with altitude and uncertainty ellipsoid | | | Ellipsoid point with altitude and uncertainty ellipsoid
10.3.8.4c | | |
| >UE Specific Behaviour Information 1 idle | OP | | UE Specific Behaviour Information idle 1
10.3.3.51 | This IE should be included if received via the "INTER RAT HANDOVER INFO", the "RRC CONNECTION REQUEST", the IE "SRNS RELOCATION INFO" or the "Inter RAT Handover Info with Inter RAT Capabilities" | |
| >UE Specific Behaviour Information 1 interRAT | OP | | UE Specific Behaviour Information 1 interRAT
10.3.3.52 | This IE should be included if received via the "INTER RAT HANDOVER INFO", the "RRC CONNECTION REQUEST", the IE "SRNS RELOCATION INFO" or the "Inter RAT Handover Info with Inter RAT Capabilities" | |
| Other Information elements | | | | | |
| >UE system specific capability | OP | 1 to <maxSystemCapability> | | | |
| >>Inter-RAT UE radio access capability | MP | | Inter-RAT UE radio access capability
10.3.8.7 | | |
| UTRAN Mobility Information elements | | | | | |
| >URA Identifier | OP | | URA identity
10.3.2.6 | | |
| CN Information Elements | | | | | |
| >CN common GSM-MAP NAS system information | MP | | NAS system information (GSM-MAP)
10.3.1.9 | | |
| >CN domain related information | OP | 1 to <MaxCNDomains> | | CN related information to be provided for each CN domain | |
| >>CN domain identity | MP | | | | |
| >>CN domain specific GSM-MAP NAS system info | MP | | NAS system information (GSM-MAP)
10.3.1.9 | | |
| >>CN domain specific DRX cycle length coefficient | MP | | CN domain specific DRX cycle length coefficient,
10.3.3.6 | | |
| Measurement Related Information elements | | | | | |
| >For each ongoing measurement reporting | OP | 1 to <MaxNoOfMeas> | | | |
| >>Measurement Identity | MP | | Measurement identity
10.3.7.48 | | |

| Information Element/Group Name | Need | Multi | Type and reference | Semantics description | Version |
|--|----------|-------|---|-----------------------|---------|
| >>Measurement Command | MP | | Measurement command
10.3.7.46 | | |
| >>>Measurement Type | CV-Setup | | Measurement type
10.3.7.50 | | |
| >>>Measurement Reporting Mode | OP | | Measurement reporting mode
10.3.7.49 | | |
| >>>>Additional Measurements list | OP | | Additional measurements list
10.3.7.1 | | |
| >>>>CHOICE <i>Measurement</i> | OP | | | | |
| >>>>>Intra-frequency | | | | | |
| >>>>>>Intra-frequency cell info | OP | | Intra-frequency cell info list
10.3.7.33 | | |
| >>>>>>>Intra-frequency measurement quantity | OP | | Intra-frequency measurement quantity
10.3.7.38 | | |
| >>>>>>>>Intra-frequency reporting quantity | OP | | Intra-frequency reporting quantity
10.3.7.41 | | |
| >>>>>>>>>Reporting cell status | OP | | Reporting cell status
10.3.7.61 | | |
| >>>>>>>>>>Measurement validity | OP | | Measurement validity
10.3.7.51 | | |
| >>>>>>>>>>>CHOICE <i>report criteria</i> | OP | | | | |
| >>>>>>>>>>>>>Intra-frequency measurement reporting criteria | | | Intra-frequency measurement reporting criteria
10.3.7.39 | | |
| >>>>>>>>>>>>>>>Periodical reporting | | | Periodical reporting criteria
10.3.7.53 | | |
| >>>>>>>>>>>>>>>>>No reporting | | | NULL | | |
| >>>>>>>>>>>>>>>>>>Inter-frequency | | | | | |
| >>>>>>>>>>>>>>>>>>>>Inter-frequency cell info | OP | | Inter-frequency cell info list
10.3.7.13 | | |
| >>>>>>>>>>>>>>>>>>>>>>>Inter-frequency measurement quantity | OP | | Inter-frequency measurement quantity
10.3.7.18 | | |
| >>>>>>>>>>>>>>>>>>>>>>>>>>Inter-frequency reporting quantity | OP | | Inter-frequency reporting quantity
10.3.7.21 | | |
| >>>>>>>>>>>>>>>>>>>>>>>>>>>>>Reporting cell status | OP | | Reporting cell status | | |

| Information Element/Group Name | Need | Multi | Type and reference | Semantics description | Version |
|---|------|-------|---|-----------------------|---------|
| | | | 10.3.7.61 | | |
| >>>>Measurement validity | OP | | Measurement validity
10.3.7.51 | | |
| >>>>Inter-frequency set update | OP | | Inter-frequency set update
10.3.7.22 | | |
| >>>>CHOICE <i>report criteria</i> | OP | | | | |
| >>>>>Intra-frequency measurement reporting criteria | | | Intra-frequency measurement reporting criteria
10.3.7.39 | | |
| >>>>>Inter-frequency measurement reporting criteria | | | Inter-frequency measurement reporting criteria
10.3.7.19 | | |
| >>>>>Periodical reporting | | | Periodical reporting criteria
10.3.7.53 | | |
| >>>>>No reporting | | | NULL | | |
| >>>Inter-RAT | | | | | |
| >>>>Inter-RAT cell info | OP | | Inter-RAT cell info list
10.3.7.23 | | |
| >>>>Inter-RAT measurement quantity | OP | | Inter-RAT measurement quantity
10.3.7.29 | | |
| >>>>Inter-RAT reporting quantity | OP | | Inter-RAT reporting quantity
10.3.7.32 | | |
| >>>>Reporting cell status | OP | | Reporting cell status
10.3.7.61 | | |
| >>>>Measurement validity | OP | | Measurement validity
10.3.7.51 | | |
| >>>>CHOICE <i>report criteria</i> | OP | | | | |
| >>>>>Inter-RAT measurement reporting criteria | | | Inter-RAT measurement reporting criteria
10.3.7.30 | | |
| >>>>>Periodical reporting | | | Periodical reporting criteria
10.3.7.53 | | |
| >>>>>No reporting | | | NULL | | |
| >>>Traffic Volume | | | | | |
| >>>>Traffic volume measurement Object | OP | | Traffic volume measurement object
10.3.7.70 | | |
| >>>>Traffic volume measurement quantity | OP | | Traffic volume measurement quantity | | |

| Information Element/Group Name | Need | Multi | Type and reference | Semantics description | Version |
|--|------|-------|---|-----------------------|---------|
| | | | 10.3.7.71 | | |
| >>>>Traffic volume reporting quantity | OP | | Traffic volume reporting quantity 10.3.7.74 | | |
| >>>>Measurement validity | OP | | Measurement validity 10.3.7.51 | | |
| >>>>CHOICE <i>report criteria</i> | OP | | | | |
| >>>>>Traffic volume measurement reporting criteria | | | Traffic volume measurement reporting criteria 10.3.7.72 | | |
| >>>>>Periodical reporting | | | Periodical reporting criteria 10.3.7.53 | | |
| >>>>>No reporting | | | NULL | | |
| >>>>Quality | | | | | |
| >>>>>Quality measurement quantity | OP | | Quality measurement quantity 10.3.7.59 | | |
| >>>>>CHOICE <i>report criteria</i> | OP | | | | |
| >>>>>>Quality measurement reporting criteria | | | Quality measurement reporting criteria 10.3.7.58 | | |
| >>>>>>Periodical reporting | | | Periodical reporting criteria 10.3.7.53 | | |
| >>>>>>No reporting | | | NULL | | |
| >>>>>UE internal | | | | | |
| >>>>>>UE internal measurement quantity | OP | | UE internal measurement quantity 10.3.7.79 | | |
| >>>>>>UE internal reporting quantity | OP | | UE internal reporting quantity 10.3.7.82 | | |
| >>>>>>CHOICE <i>report criteria</i> | OP | | | | |
| >>>>>>>UE internal measurement reporting criteria | | | UE internal measurement reporting criteria 10.3.7.80 | | |
| >>>>>>>Periodical reporting | | | Periodical reporting criteria 10.3.7.53 | | |
| >>>>>>>No reporting | | | NULL | | |
| >>>>>>UE positioning | | | | | |
| >>>>>>>LCS reporting quantity | OP | | LCS reporting quantity 10.3.7.111 | | |
| >>>>>>>CHOICE <i>report criteria</i> | OP | | | | |
| >>>>>>>>LCS reporting criteria | | | LCS reporting | | |

| Information Element/Group Name | Need | Multi | Type and reference | Semantics description | Version |
|---|------|---------------------|--|----------------------------------|---------|
| | | | criteria 10.3.7.110 | | |
| >>>>Periodical reporting | | | Periodical reporting criteria 10.3.7.53 | | |
| >>>>No reporting | | | | | |
| Radio Bearer Information Elements | | | | | |
| >Predefined configuration status information | OP | | Predefined configuration status information 10.3.4.5a | | |
| >Signalling RB information list | MP | 1 to <maxSRBs etup> | | For each signalling radio bearer | |
| >>Signalling RB information | MP | | Signalling RB information to setup 10.3.4.24 | | |
| >RAB information list | OP | 1 to <maxRABs etup> | | Information for each RAB | |
| >>RAB information | MP | | RAB information to setup 10.3.4.10 | | |
| Transport Channel Information Elements | | | | | |
| Uplink transport channels | | | | | |
| >UL Transport channel information common for all transport channels | OP | | UL Transport channel information common for all transport channels 10.3.5.24 | | |
| >UL transport channel information list | OP | 1 to <MaxTrCH > | | | |
| >>UL transport channel information | MP | | Added or reconfigured UL TrCH information 10.3.5.2 | | |
| >CHOICE <i>mode</i> | OP | | | | |
| >>FDD | | | | | |
| >>>CPCH set ID | OP | | CPCH set ID 10.3.5.5 | | |
| >>>Transport channel information for DRAC list | OP | 1 to <MaxTrCH > | | | |
| >>>>DRAC static information | MP | | DRAC static information 10.3.5.7 | | |
| >>TDD | | | | (no data) | |
| Downlink transport channels | | | | | |
| >DL Transport channel information common for all transport channels | OP | | DL Transport channel information common for all transport channels | | |

| Information Element/Group Name | Need | Multi | Type and reference | Semantics description | Version |
|--|------|-----------------|--|-----------------------|---------|
| >DL transport channel information list | OP | 1 to <MaxTrCH > | 10.3.5.6 | | |
| >>DL transport channel information | MP | | Added or reconfigured DL TrCH information 10.3.5.1 | | |

| Information Element/Group Name | Need | Multi | Type and reference | Semantics description | Version |
|--|-----------|-----------------|---|---|---------|
| PhyCH information elements | | | | | |
| >TPC Combination Info list | OP | 1 to <maxRL> | | | |
| >>Primary CPICH info | MP | | Primary CPICH info
10.3.6.60 | | |
| >>TPC combination index | MP | | TPC combination index
10.3.6.85 | | |
| >Transmission gap pattern sequence | OP | 1 to <maxTGP S> | | | REL-5 |
| >>TGPSI | MP | | TGPSI
10.3.6.82 | | |
| >> Current TGPS Status Flag | MP | | Enumerated(active, inactive) | This flag indicates the current status of the Transmission Gap Pattern Sequence, whether it is active or inactive | |
| >>TGCFN | CV-Active | | Integer (0..255) | Connection Frame Number of the latest past frame of the first pattern within the Transmission Gap Pattern Sequence. | |
| >>Transmission gap pattern sequence configuration parameters | OP | | | | |
| >>>TGMP | MP | | Enumerated(TDD measurement, FDD measurement, GSM carrier RSSI measurement, GSM Initial BSIC identification, GSM BSIC re-confirmation, Multi-carrier measurement) | Transmission Gap pattern sequence Measurement Purpose. | |
| >>>TGPRC | MP | | Integer (1..511, Infinity) | The number of remaining transmission gap patterns within the Transmission Gap Pattern Sequence. | |
| >>>TGSN | MP | | Integer (0..14) | Transmission Gap Starting Slot Number

The slot number of the first transmission gap slot within the TGCFN. | |
| >>>TGL1 | MP | | Integer(1..14) | The length of the first Transmission Gap within the | |

| Information Element/Group Name | Need | Multi | Type and reference | Semantics description | Version |
|--------------------------------------|------|-------|--|---|---------|
| | | | | transmission gap pattern expressed in number of slots | |
| >>>TGL2 | MD | | Integer (1..14) | The length of the second Transmission Gap within the transmission gap pattern. If omitted, then TGL2=TGL1.

The value of TGL2 shall be ignored if TGD is set to "undefined" | |
| >>>TGD | MP | | Integer(15..269, undefined) | Transmission gap distance indicates the number of slots between starting slots of two consecutive transmission gaps within a transmission gap pattern. If there is only one transmission gap in the transmission gap pattern, this parameter shall be set to undefined. | |
| >>>TGPL1 | MP | | Integer (1..144) | The duration of transmission gap pattern 1. | |
| >>>RPP | MP | | Enumerated (mode 0, mode 1). | Recovery Period Power control mode during the frame after the transmission gap within the compressed frame. Indicates whether normal PC mode or compressed PC mode is applied | |
| >>>ITP | MP | | Enumerated (mode 0, mode 1). | Initial Transmit Power is the uplink power control method to be used to compute the initial transmit power after the compressed mode gap. | |
| >>>CHOICE <i>UL/DL mode</i> | MP | | | | |
| >>>>DL only | | | | Compressed mode used in DL only | |
| >>>>>Downlink compressed mode method | MP | | Enumerated (puncturing, SF/2, higher layer scheduling) | Method for generating downlink compressed mode gap | |
| >>>>>UL only | | | | Compressed mode used in UL only | |
| >>>>>Uplink compressed mode method | MP | | Enumerated (SF/2, higher layer scheduling) | Method for generating uplink compressed mode gap | |
| >>>>>UL and DL | | | | Compressed mode used in UL and DL | |

| Information Element/Group Name | Need | Multi | Type and reference | Semantics description | Version |
|-------------------------------------|--------------------|-------|--|---|---------|
| >>>>Downlink compressed mode method | MP | | Enumerated (puncturing, SF/2, higher layer scheduling) | Method for generating downlink compressed mode gap | |
| >>>>Uplink compressed mode method | MP | | Enumerated (SF/2, higher layer scheduling) | Method for generating uplink compressed mode gap | |
| >>>Downlink frame type | MP | | Enumerated (A, B) | | |
| >>>DeltaSIR1 | MP | | Real(0..3 by step of 0.1) | Delta in DL SIR target value to be set in the UE during the frame containing the start of the first transmission gap in the transmission gap pattern (without including the effect of the bit-rate increase) | |
| >>>DeltaSIRafter1 | MP | | Real(0..3 by step of 0.1) | Delta in DL SIR target value to be set in the UE one frame after the frame containing the start of the first transmission gap in the transmission gap pattern. | |
| >>>DeltaSIR2 | OP | | Real(0..3 by step of 0.1) | Delta in DL SIR target value to be set in the UE during the frame containing the start of the second transmission gap in the transmission gap pattern (without including the effect of the bit-rate increase)

When omitted, DeltaSIR2 = DeltaSIR1. | |
| >>>DeltaSIRafter2 | OP | | Real(0..3 by step of 0.1) | Delta in DL SIR target value to be set in the UE one frame after the frame containing the start of the second transmission gap in the transmission gap pattern.

When omitted, DeltaSIRafter2 = DeltaSIRafter1. | |
| >>>N Identify abort | CV-Initial BSIC | | Integer(1..12 8) | Indicates the maximum number of repeats of patterns that the UE shall use to attempt to decode the unknown BSIC of the GSM cell in the initial BSIC identification procedure | |
| >>>T Reconfirm abort | CV-Re-confirm BSIC | | Real(0.5..10.0 by step of 0.5) | Indicates the maximum time allowed for the re-confirmation of the BSIC of one GSM cell in the BSIC re-confirmation procedure. The time is given in | |

| Information Element/Group Name | Need | Multi | Type and reference | Semantics description | Version |
|-----------------------------------|------------|--------------|--|--|---------|
| | | | | steps of 0.5 seconds. | |
| >Scrambling Code Change List | CH-SF/2 | 1 to <maxRL> | | | REL-5 |
| >>Primary CPICH info | MP | | Primary CPICH info
10.3.6.60 | | |
| >>Scrambling code change | MP | | Enumerated (code change, no code change) | Indicates whether the alternative scrambling code is used for compressed mode method 'SF/2'. | |
| Other Information elements | | | | | |
| >Measurement report | OP | | MEASUREMENT REPORT
10.2.1.9 | | |
| >Failure cause | OP | | Failure cause
10.3.3.13 | Diagnostics information related to an earlier SRNC Relocation request (see NOTE 2 in 14.12.0a) | |
| >Protocol error information | CV-ProtErr | | Protocol error information
10.3.8.12 | | |

| Multi Bound | Explanation |
|-------------|---|
| MaxNoOfMeas | Maximum number of active measurements, upper limit 16 |

| Condition | Explanation |
|-----------------|--|
| Setup | The IE is mandatory present when the IE Measurement command has the value "Setup", otherwise the IE is not needed. |
| Ciphering | The IE is mandatory present when the IE Ciphering Status has the value "started" and the ciphering counters need not be reinitialised, otherwise the IE is not needed. |
| IP | The IE is mandatory present when the IE Integrity protection status has the value "started" and the integrity protection counters need not be reinitialised, otherwise the IE is not needed. |
| ProtErr | This IE is mandatory present if the IE "Protocol error indicator" is included and has the value "TRUE". Otherwise it is not needed. |
| SRB1 | The IE is mandatory present for RB1. Otherwise it is not needed. |
| Active | This IE is mandatory present when the value of the IE "Current TGPS Status Flag" is "Active" and not needed otherwise. |
| Initial BSIC | This IE is mandatory present when the value of the IE "TGMP" is set to "GSM Initial BSIC identification" and not needed otherwise. |
| Re-confirm BSIC | This IE is mandatory present when the value of the IE "TGMP" is set to "GSM BSIC re-confirmation" and not needed otherwise. |
| SF/2 | The IE is mandatory present if the IE "Transmission Gap Pattern Sequence" is included and has the value "SF/2" as the compressed mode method, and already sent the UE the IE "Scrambling Code Change" for each RL in the active set. Otherwise the IE is not needed. |

~~~~ Next Modified Section ~~~~

## 14.14 ~~Versatile Channel Assignment Mode (VCAM) mapping rule (FDD only)~~ Void

~~When Versatile Channel Assignment Method (VCAM) is used in the CPCH procedure, the following mapping rules shall be used to specify one PCPCH.~~

~~If the number of PCPCHs is less than or equal to 16, there is a one-to-one mapping between the CA index and the PCPCH index. Thus a suitable AP signature (and/or AP sub-channel) number is transmitted for the required spreading factor based on the broadcast system information, and the assigned PCPCH index (having the requested spreading factor) corresponds to the received CA index.~~

~~When the number of PCPCHs is greater than 16, a combination of an AP signature (and/or AP sub-channel) number and a CA signature number specifies one PCPCH as follows:~~

~~In VCAM mapping rule, a combination of an AP signature (and/or AP sub-channel) number and a CA signature number specifies one PCPCH. In a CPCH set, there are  $K$  available PCPCHs which are numbered  $k=0,1,\dots,K-1$ , and there are  $R$  available Minimum Spreading Factor  $A_r, r=0,1,\dots,R-1$ , that a UE can request and use. The maximum available number of PCPCHs and the number of available AP signatures (and/or AP sub-channels) for  $A_r$  are denoted as  $P_{0,r}$  and  $S_r$ , respectively, for  $r=0,1,\dots,R-1$ . Let  $P_r$  be equal to 16 if  $P_{0,r}$  is less than 16 and to  $P_{0,r}$  otherwise.  $T_r$  represents the number of CA signatures for  $A_r$ , which are needed for specifying PCPCH. The default value of  $T_r$  is 16.~~

~~$S_r$  always satisfies  $S_r \geq \min\{s \in N, s \times T_r \geq P_r\}$ , where  $N$  is the set of positive integers.~~

~~The list of available AP signatures (and/or AP sub-channels) for each  $A_r$  is renumbered from signature index 0 to signature index  $S_r-1$ , starting with the lowest AP signature (and/or AP sub-channel) number, and continuing in sequence, in the order of increasing signature numbers.~~

Then for given AP signature (and/or AP sub channel) number and CA signature number, the number  $k$  that signifies the assigned PCPCH is obtained as:

$$k = \{ \{ (i + n) \bmod S_r \} + j \times S_r \} \bmod P_r,$$

where  $i$  ( $i=0,1,\dots,S_r-1$ ) is the AP signature (and/or AP sub channel) index for  $A_r$ ,  $j$  ( $j=0,1,\dots,\min(P_r,T_r)-1$ ) is the CA signature number for  $A_r$  and  $n$  is a nonnegative integer which satisfies

$$n \times M_r \times S_r \leq i + j \times S_r < (n+1) \times M_r \times S_r \text{ where } M_r = \min\{m: m \in N, (m \times S_r) \bmod P_r = 0\}.$$

An example of the above mapping rule is shown in [38].

~~~~ Next Modified Section ~~~~

B.3.2.5 Radio Resource Allocation Tasks (CELL_FACH)

In the CELL_FACH state 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 transport channel parameters (e.g. transport format sets) in advance, to be used when a DCH is used. Upon assignment of the physical channel for DCH, the UE moves to CELL_DCH state and uses the pre-assigned TFS for the DCH.

If no UE dedicated physical channel or transport channel configuration has been assigned, the UE uses the common physical channel and transport channel configuration according to the system information.

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).

~~In FDD mode, the UTRAN can assign CPCH resources to the UE in CELL_FACH state. When CPCH resources are assigned, the UE will continue to monitor FACHs. When CPCH resources are assigned, the UE will use CPCH for all uplink traffic in accordance with RB mapping.~~

~~In FDD mode, UTRAN may configure the UE to provide CPCH measurement reports of traffic volume on each CPCH channel used. With these measures, 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.~~

In the TDD mode, the UTRAN can assign USCH / DSCH resources to the UE in CELL_FACH state. When USCH / DSCH resources are assigned, the UE will continue to monitor FACHs, depending on the UE capability. The UE may use the USCH / DSCH to transmit signalling messages or user data in the uplink and / or the downlink using USCH and / or DSCH when resources are allocated to cell and UE is assigned use of those USCH / DSCH.

For the uplink data transmission on USCH the UE reports to the network the traffic volume (current size of RLC data buffers), The UTRAN can use these measurement reports to re-evaluate the current allocation of the USCH / DSCH resources.

CHANGE REQUEST

⌘ **25.331 CR 2589** ⌘ rev **-** ⌘ Current version: **6.5.0** ⌘

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

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

| | | | |
|--|-------------------------------------|---|---------------|
| Title: | ⌘ Feature Clean Up: Removal of CPCH | | |
| Source: | ⌘ RAN WG2 | | |
| Work item code: | ⌘ TEI5 | Date: | ⌘ 04 May 2005 |
| Category: | ⌘ C | Release: | ⌘ Rel-6 |
| Use <u>one</u> of the following categories: | | Use <u>one</u> of the following releases: | |
| F (correction) | | Ph2 (GSM Phase 2) | |
| A (corresponds to a correction in an earlier release) | | R96 (Release 1996) | |
| B (addition of feature), | | R97 (Release 1997) | |
| C (functional modification of feature) | | R98 (Release 1998) | |
| D (editorial modification) | | R99 (Release 1999) | |
| Detailed explanations of the above categories can be found in 3GPP TR 21.900 . | | Rel-4 (Release 4) | |
| | | Rel-5 (Release 5) | |
| | | Rel-6 (Release 6) | |
| | | Rel-7 (Release 7) | |

| | |
|---------------------------|--|
| Reason for change: | ⌘ Decision taken at RAN plenary to remove unnecessary features |
| Summary of change: | ⌘ <ul style="list-style-type: none">- Remove from Section 3.2- Remove from Section 8.1.1.1.2- Remove from Section 8.1.1.6.8- Remove from Section 8.1.1.6.9- Remove from Section 8.2.2.2- Remove from Section 8.5.7- Remove from Section 8.6.3.9- Remove from Section 8.6.4.8- Remove from Section 8.6.6.19- Remove from Section 8.6.6.20- Remove from Section 10.2.8- Remove from Section 10.2.16a- Remove from Section 10.2.22- Remove from Section 10.2.27- Remove from Section 10.2.30- Remove from Section 10.2.33- Remove from Section 10.2.40- Remove from Section 10.2.48.8.11- Remove from Section 10.2.48.8.12- Remove from Section 10.2.50- Remove from Section 10.3.3.7- Remove from Section 10.3.3.25- Remove from Section 10.3.4.21 |

- Remove from Section 10.3.5.3
- Remove from Section 10.3.5.8
- Remove from Section 10.3.5.18
- Remove from Section 10.3.6.12
- Remove from Section 10.3.6.13
- Remove from Section 10.3.6.14
- Remove from Section 10.3.6.15
- Remove from Section 10.3.7.69
- Remove from Section 10.3.7.70
- Remove from Section 10.3.7.72
- Remove from Section 10.3.8.21
- Remove from Section 10.3.8.22
- Remove from Section 10.3.10
- Remove from Section 11.2
- Remove from Section 11.5
- Remove from Section 13.4.32
- Remove from Section 13.5.2
- Remove from Section 14.9.1
- Remove from Section 14.12.4.2
- Remove from Section 14.14
- Remove from Section B 3.2.5

Consequences if not approved: ☞ RAN decision not carried out.

Clauses affected: ☞ 3.2, 8.1.1.1.2, 8.1.1.6.8, 8.1.1.6.9, 8.2.2.2, 8.5.7, 8.6.3.9, 8.6.4.8, 8.6.6.19, 8.6.6.20, 10.2.8, 10.2.16a, 10.2.22, 10.2.27, 10.2.30, 10.2.33, 10.2.40, 10.2.48.8.11, 10.2.48.8.12, 10.2.50, 10.3.3.7, 10.3.3.25, 10.3.4.21, 10.3.5.3, 10.3.5.8, 10.3.5.18, 10.3.6.12, 10.3.6.13, 10.3.6.14, 10.3.7.69, 10.3.7.70, 10.3.7.72, 10.3.8.21, 10.3.8.22, 10.3.10, 11.2, 11.5, 13.4.32, 13.5.2, 14.9.1, 14.12.4.2, 14.14, B 3.2.5.

| Other specs affected: | ☞ | <table border="1" style="display: inline-table; vertical-align: middle;"><tr><th>Y</th><th>N</th></tr><tr><td>X</td><td></td></tr><tr><td></td><td>X</td></tr><tr><td></td><td>X</td></tr></table> | Y | N | X | | | X | | X | Other core specifications ☞ 25.301, 25.302, 25.303, 25.306, 25.321. |
|---|---|--|--------------------|---|---------------------|--|--|---|--|---|---|
| | | Y | N | | | | | | | | |
| | | X | | | | | | | | | |
| | X | | | | | | | | | | |
| | X | | | | | | | | | | |
| <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td></td><td>X</td></tr><tr><td></td><td>X</td></tr></table> | | X | | X | Test specifications | | | | | | |
| | X | | | | | | | | | | |
| | X | | | | | | | | | | |
| <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td></td><td>X</td></tr></table> | | X | O&M Specifications | | | | | | | | |
| | X | | | | | | | | | | |

Other comments: ☞

How to create CRs using this form:

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

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

~~~~ Next Modified Section ~~~~

## 3.2 Abbreviations

For the purposes of the present document, the following abbreviations apply:

|                 |                                              |
|-----------------|----------------------------------------------|
| ACK             | Acknowledgement                              |
| AICH            | Acquisition Indicator CHannel                |
| AM              | Acknowledged Mode                            |
| AS              | Access Stratum                               |
| ASC             | Access Service Class                         |
| ASN.1           | Abstract Syntax Notation.1                   |
| BCCH            | Broadcast Control Channel                    |
| BCFE            | Broadcast Control Functional Entity          |
| BER             | Bit Error Rate                               |
| BLER            | Block Error Rate                             |
| BSS             | Base Station Sub-system                      |
| CCCH            | Common Control Channel                       |
| CCPCH           | Common Control Physical CHannel              |
| CH              | Conditional on history                       |
| CM              | Connection Management                        |
| CN              | Core Network                                 |
| <del>CPCH</del> | <del>Common Packet CHannel</del>             |
| C-RNTI          | Cell RNTI                                    |
| CTCH            | Common Traffic CHannel                       |
| CTFC            | Calculated Transport Format Combination      |
| CV              | Conditional on value                         |
| DCA             | Dynamic Channel Allocation                   |
| DCCH            | Dedicated Control Channel                    |
| DCFE            | Dedicated Control Functional Entity          |
| DCH             | Dedicated Channel                            |
| DC-SAP          | Dedicated Control SAP                        |
| DDI             | Data Description Indicator                   |
| DGPS            | Differential Global Positioning System       |
| DL              | Downlink                                     |
| DRAC            | Dynamic Resource Allocation Control          |
| DSCH            | Downlink Shared Channel                      |
| DTCH            | Dedicated Traffic Channel                    |
| E-AGCH          | E-DCH Absolute Grant Channel                 |
| E-DCH           | Enhanced uplink DCH                          |
| E-DPCCH         | E-DCH Dedicated Physical Control Channel     |
| E-DPDCH         | E-DCH Dedicated Physical Data Channel        |
| E-HICH          | E-DCH HARQ Acknowledgement Indicator Channel |
| E-RGCH          | E-DCH Relative Grant Channel                 |
| E-RNTI          | E-DCH RNTI                                   |
| FACH            | Forward Access Channel                       |
| FDD             | Frequency Division Duplex                    |
| F-DPCH          | Fractional DPCH                              |
| GC-SAP          | General Control SAP                          |
| GERAN           | GSM/EDGE Radio Access Network                |
| GRA             | GERAN Registration Area                      |
| G-RNTI          | GERAN Radio Network Temporary Identity       |
| HCS             | Hierarchical Cell Structure                  |
| HFN             | Hyper Frame Number                           |
| H-RNTI          | HS-DSCH RNTI                                 |
| HS-DSCH         | High Speed Downlink Shared Channel           |
| ID              | Identifier                                   |
| IDNNS           | Intra Domain NAS Node Selector               |
| IE              | Information element                          |
| IETF            | Internet Engineering Task Force              |
| IMEI            | International Mobile Equipment Identity      |
| IMSI            | International Mobile Subscriber Identity     |
| IP              | Internet Protocol                            |

|        |                                                   |
|--------|---------------------------------------------------|
| ISCP   | Interference on Signal Code Power                 |
| L1     | Layer 1                                           |
| L2     | Layer 2                                           |
| L3     | Layer 3                                           |
| LAI    | Location Area Identity                            |
| MAC    | Media Access Control                              |
| MBMS   | Multimedia Broadcast Multicast Service            |
| MCC    | Mobile Country Code                               |
| MCCH   | MBMS point-to-multipoint Control Channel          |
| MD     | Mandatory default                                 |
| MICH   | MBMS notification Indicator Channel               |
| MM     | Mobility Management                               |
| MNC    | Mobile Network Code                               |
| MP     | Mandatory present                                 |
| MTCH   | MBMS point-to-multipoint Traffic Channel          |
| MSCH   | MBMS point-to-multipoint Scheduling Channel       |
| NACC   | Network Assisted Cell Change                      |
| NAS    | Non Access Stratum                                |
| Nt-SAP | Notification SAP                                  |
| NW     | Network                                           |
| OP     | Optional                                          |
| PCCH   | Paging Control Channel                            |
| PCH    | Paging Channel                                    |
| PDCP   | Packet Data Convergence Protocol                  |
| PDSCH  | Physical Downlink Shared Channel                  |
| PDU    | Protocol Data Unit                                |
| PLMN   | Public Land Mobile Network                        |
| PNFE   | Paging and Notification Control Functional Entity |
| PRACH  | Physical Random Access CHannel                    |
| PSI    | Packet System Information                         |
| p-t-m  | Point-to-Multipoint                               |
| P-TMSI | Packet Temporary Mobile Subscriber Identity       |
| p-t-p  | Point-to-Point                                    |
| PUSCH  | Physical Uplink Shared Channel                    |
| QoS    | Quality of Service                                |
| RAB    | Radio access bearer                               |
| RACH   | Random Access CHannel                             |
| RAI    | Routing Area Identity                             |
| RAT    | Radio Access Technology                           |
| RB     | Radio Bearer                                      |
| RFE    | Routing Functional Entity                         |
| RL     | Radio Link                                        |
| RLC    | Radio Link Control                                |
| RNC    | Radio Network Controller                          |
| RNTI   | Radio Network Temporary Identifier                |
| RRC    | Radio Resource Control                            |
| RSCP   | Received Signal Code Power                        |
| RSSI   | Received Signal Strength Indicator                |
| SAP    | Service Access Point                              |
| SCFE   | Shared Control Function Entity                    |
| SCTD   | Space Code Transmit Diversity                     |
| SF     | Spreading Factor                                  |
| SHCCH  | Shared Control Channel                            |
| SI     | System Information                                |
| SIR    | Signal to Interference Ratio                      |
| S-RNTI | SRNC - RNTI                                       |
| SSDT   | Site Selection Diversity Transmission             |
| TDD    | Time Division Duplex                              |
| TF     | Transport Format                                  |
| TFCS   | Transport Format Combination Set                  |

|        |                                            |
|--------|--------------------------------------------|
| TFS    | Transport Format Set                       |
| TM     | Transparent Mode                           |
| TME    | Transfer Mode Entity                       |
| TMSI   | Temporary Mobile Subscriber Identity       |
| Tr     | Transparent                                |
| Tx     | Transmission                               |
| UE     | User Equipment                             |
| UL     | Uplink                                     |
| UM     | Unacknowledged Mode                        |
| URA    | UTRAN Registration Area                    |
| U-RNTI | UTRAN-RNTI                                 |
| USCH   | Uplink Shared Channel                      |
| UTRAN  | Universal Terrestrial Radio Access Network |

~~~~ Next Modified Section ~~~~

8.1.1.1.2 System information blocks

Table 8.1.1 specifies all system information blocks and their characteristics.

The *area scope column* in table 8.1.1 specifies the area where a system information block's value tag is valid. If the area scope is *cell*, the UE shall consider the system information block to be valid only in the cell in which it was read. If system information blocks have been previously stored for this cell, the UE shall check whether the value tag for the system information block in the entered cell is different compared to the stored value tag. If the area scope is *PLMN* or *Equivalent PLMN*, the UE shall check the value tag for the system information block when a new cell is selected. If the value tag for the system information block in the new cell is different compared to the value tag for the system information block stored in the UE, the UE shall re-read the system information block. If the area scope is *PLMN*, the UE shall consider the system information block to be valid only within the PLMN in which it was read. If the area scope is *Equivalent PLMN*, the UE shall consider the system information block to be valid within the PLMN in which it was received and all PLMNs which are indicated by higher layers to be equivalent.

For System information block types 15.2, 15.3 and 16, which may have multiple occurrences, each occurrence has its own independent value tag. The UE shall re-read a particular occurrence if the value tag of this occurrence has changed compared to that stored in the UE.

The *UE mode/state column when block is valid* in Table 8.1.1 specifies in which UE mode or UE state the IEs in a system information block shall be regarded as valid by the UE. In other words, the indicated system information block becomes invalid upon change to a mode/state that is not included in this column. System Information Block Type 16 remains also valid upon transition to or from GSM/GPRS. In some cases, the states are inserted in brackets to indicate that the validity is dependent on the broadcast of the associated System Information Blocks by the network as explained in the relevant procedure subclause.

The *UE mode/state column when block is read* in Table 8.1.1 specifies in which UE mode or UE state the IEs in a system information block may be read by the UE. The UE shall have the necessary information prior to execution of any procedure requiring information to be obtained from the appropriate system information block. The requirements on the UE in terms of when to read the system information may therefore be derived from the procedure specifications that specify which IEs are required in the different UE modes/states in conjunction with the different performance requirements that are specified.

System Information Block type 10 shall only be read by the UE while in CELL_DCH.

The UE shall:

- 1> if System Information Block type 11 is referenced in the master information block or in the scheduling blocks:
- 2> if System Information Block type 12 is not referenced in the master information block or in the scheduling blocks, or broadcast of System Information Block type 12 is not indicated in System Information Block type 11:

3> have read and acted upon System Information Block type 11 in a cell when the UE transmits an RRC message on RACH.

2> else:

3> have read and acted upon System Information Block type 11 in a cell before the UE transmits the RRC CONNECTION REQUEST message.

3> have read and acted upon both System Information Block type 11 and System Information Block type 12 in a cell when:

4> the UE transmits an RRC message on RACH in RRC connected mode; or

4> the UE receives a message commanding to enter Cell_DCH state.

NOTE 1: There are a number of system information blocks that include the same IEs while the UE mode/state in which the information is valid differs. This approach is intended to allow the use of different IE values in different UE mode/states.

NOTE 2: System Information Block Type 16 is also obtained by a UE while in GSM/GPRS. The details of this are not within the scope of this specification.

The *Scheduling information* column in table 8.1.1 specifies the position and repetition period for the System Information Block.

The *modification of system information* column in table 8.1.1 specifies the update mechanisms applicable for a certain system information block. For system information blocks with a value tag, the UE shall update the information according to subclause 8.1.1.7.1 or 8.1.1.7.2. For system information blocks with an expiration timer, the UE shall, when the timer expires, perform an update of the information according to subclause 8.1.1.7.4.

Table 8.1.1: Specification of system information block characteristics

| System information block | Area scope | UE mode/state when block is valid | UE mode/state when block is read | Scheduling information | Modification of system information | Additional comment |
|---------------------------------|------------|--|--|--|------------------------------------|--------------------|
| Master information block | Cell | Idle mode, CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH (TDD only) | Idle mode, CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH (TDD only) | SIB_POS = 0
SIB_REP = 8 (FDD)
SIB_REP = 8, 16, 32 (TDD)
SIB_OFF=2 | Value tag | |
| Scheduling block 1 | Cell | Idle mode, CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH (TDD only) | Idle mode, CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH (TDD only) | Specified by the IE "Scheduling information" in MIB | Value tag | |
| Scheduling block 2 | Cell | Idle mode, CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH (TDD only) | Idle mode, CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH (TDD only) | Specified by the IE "Scheduling information" in MIB | Value tag | |
| System information block type 1 | PLMN | Idle mode, CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH | Idle, CELL_FACH, CELL_PCH, URA_PCH | Specified by the IE "Scheduling information" | Value tag | |
| System information block type 2 | Cell | URA_PCH | URA_PCH | Specified by the IE "Scheduling information" | Value tag | |
| System information block type 3 | Cell | Idle mode, (CELL_FACH, CELL_PCH, URA_PCH) | Idle mode, (CELL_FACH, CELL_PCH, URA_PCH) | Specified by the IE "Scheduling information" | Value tag | |

| System information block | Area scope | UE mode/state when block is valid | UE mode/state when block is read | Scheduling information | Modification of system information | Additional comment |
|--|------------|--|--|--|---|---|
| System information block type 4 | Cell | CELL_FACH, CELL_PCH, URA_PCH | CELL_FACH, CELL_PCH, URA_PCH | Specified by the IE "Scheduling information" | Value tag | If System information block type 4 is not broadcast in a cell, the connected mode UE shall apply information in System information block type 3 in connected mode. |
| System information block type 5 and 5bis | Cell | Idle mode, (CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH (TDD only)) | Idle mode, (CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH (TDD only)) | Specified by the IE "Scheduling information" | Value tag | System information block type 5bis is sent instead of system information block type 5 in networks that use Band IV. |
| System information block type 6 | Cell | CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH (TDD only) | CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH (TDD only) | Specified by the IE "Scheduling information" | Value tag | <p>If system information block type 6 is not broadcast in a cell, the connected mode UE shall read System information block type 5.</p> <p>If some of the optional IEs are not included in System information block type 6, the UE shall read the corresponding IEs in System information block type 5</p> <p>In TDD mode system information block 6 shall only be read in CELL_DCH if required for open loop power control as specified in subclause 8.5.7 and/or if shared transport channels are assigned to the UE. If in these cases system information block type 6 is not broadcast the UE shall read system information block type 5.</p> |
| System information block type 7 | Cell | Idle mode, CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH (TDD only) | Idle mode, CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH (TDD only) | Specified by the IE "Scheduling information" | Expiration timer = MAX(32 , SIB_REP * ExpirationTimeFactor) | In TDD mode system information block type 7 shall only be read in CELL_DCH if shared transport channels are assigned to the UE. |
| System information block type 8 | Cell | CELL_FACH, CELL_PCH, URA_PCH | CELL_FACH, CELL_PCH, URA_PCH | Specified by the IE "Scheduling information" | Value tag | |
| System information block type 9 | Cell | CELL_FACH, CELL_PCH, URA_PCH | CELL_FACH, CELL_PCH, URA_PCH | Specified by the IE "Scheduling information" | Expiration timer = SIB_REP | |
| System information block type 10 | Cell | CELL_DCH | CELL_DCH | Specified by the IE "Scheduling information" | Expiration timer = SIB_REP | |

| System information block | Area scope | UE mode/state when block is valid | UE mode/state when block is read | Scheduling information | Modification of system information | Additional comment |
|------------------------------------|------------|--|---|--|--|--|
| System information block type 11 | Cell | Idle mode (CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH) | Idle mode (CELL_FACH, CELL_PCH, URA_PCH) | Specified by the IE "Scheduling information" | Value tag | |
| System information block type 12 | Cell | CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH | Idle mode, CELL_FACH, CELL_PCH, URA_PCH | Specified by the IE "Scheduling information" | Value tag | If system information block type 12 is not broadcast in a cell, the connected mode UE shall read System information block type 11.
If some of the optional IEs are not included in System information block type 12, the UE shall read the corresponding IEs in System information block type 11. |
| System information block type 13 | Cell | Idle Mode, CELL_FACH, CELL_PCH, URA_PCH | Idle Mode, CELL_FACH, CELL_PCH, URA_PCH | Specified by the IE "Scheduling information" | Value tag | |
| System information block type 13.1 | Cell | Idle Mode, CELL_FACH, CELL_PCH, URA_PCH | Idle Mode, CELL_FACH, CELL_PCH, URA_PCH | Specified by the IE "Scheduling information" | Value tag | |
| System information block type 13.2 | Cell | Idle Mode, CELL_FACH, CELL_PCH, URA_PCH | Idle Mode, CELL_FACH, CELL_PCH, URA_PCH | Specified by the IE "Scheduling information" | Value tag | |
| System information block type 13.3 | Cell | Idle Mode, CELL_FACH, CELL_PCH, URA_PCH | Idle Mode, CELL_FACH, CELL_PCH, URA_PCH | Specified by the IE "Scheduling information" | Value tag | |
| System information block type 13.4 | Cell | Idle Mode, CELL_FACH, CELL_PCH, URA_PCH | Idle Mode, CELL_FACH, CELL_PCH, URA_PCH | Specified by the IE "Scheduling information" | Value tag | |
| System information block type 14 | Cell | Idle Mode, CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH | Idle Mode, CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH | Specified by the IE "Scheduling information" | Expiration timer = MAX(32, SIB_REP * ExpirationTimeFactor) | This system information block is used in 3.84 Mcps TDD mode only. System information block type 14 shall only be read in CELL_DCH if required for open loop power control as specified in subclause 8.5.7. |
| System information block type 15 | Cell | Idle Mode, CELL_FACH, CELL_PCH, URA_PCH | Idle Mode, CELL_FACH, CELL_PCH, URA_PCH | Specified by the IE "Scheduling information" | Value tag | |
| System information block type 15.1 | Cell | Idle Mode, CELL_FACH, CELL_PCH, URA_PCH | Idle Mode, CELL_FACH, CELL_PCH, URA_PCH | Specified by the IE "Scheduling information" | Value tag | |
| System information block type 15.2 | Cell | Idle Mode, CELL_FACH, CELL_PCH, URA_PCH | Idle Mode, CELL_FACH, CELL_PCH, URA_PCH | Specified by the IE "Scheduling information" | Value tag | For this system information block there may be multiple occurrences |

| System information block | Area scope | UE mode/state when block is valid | UE mode/state when block is read | Scheduling information | Modification of system information | Additional comment |
|------------------------------------|-----------------|---|---|--|------------------------------------|--|
| System information block type 15.3 | PLMN | Idle Mode, CELL_FACH, CELL_PCH, URA_PCH | Idle Mode, CELL_FACH, CELL_PCH, URA_PCH | Specified by the IE "Scheduling information" | Value tag | For this system information block there may be multiple occurrences |
| System information block type 15.4 | Cell | Idle Mode, CELL_FACH, CELL_PCH, URA_PCH | Idle Mode, CELL_FACH, CELL_PCH, URA_PCH | Specified by the IE "Scheduling information" | Value tag | |
| System information block type 15.5 | Cell | Idle Mode, CELL_FACH, CELL_PCH, URA_PCH | Idle Mode, CELL_FACH, CELL_PCH, URA_PCH | Specified by the IE "Scheduling information" | Value tag | |
| System information block type 16 | Equivalent PLMN | Idle Mode, CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH | Idle Mode, CELL_FACH, CELL_PCH, URA_PCH | Specified by the IE "Scheduling information" | Value tag | For this system information block there may be multiple occurrences. This system information block is also valid while in GSM/GPRS. |
| System information block type 17 | Cell | CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH | CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH | Specified by the IE "Scheduling information" | Expiration timer = SIB_REP | This system information block is used in TDD mode only. System information block type 17 shall only be read if shared transport channels are assigned to the UE. |
| System Information Block type 18 | Cell | Idle mode, CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH | Idle mode, CELL_FACH, CELL_PCH, URA_PCH | Specified by the IE "Scheduling information" | Value tag | |

The UE shall acquire all system information blocks except system information block type 10 on BCH. System Information Block type 10 shall be acquired on the FACH and only by UEs with support for simultaneous reception of one SCCPCH and one DPCH. If System Information Block type 10 is not broadcast in a cell, the DRAC procedures do not apply in this cell. System Information Block type 10 is used in FDD mode only.

~~~~ Next Modified Section ~~~~

#### ~~8.1.1.6.8 — System Information Block type 8~~

~~This system information block type is used only in FDD.~~

~~If in connected mode, the UE should store all relevant IEs included in this system information block.~~

~~If in idle mode, the UE shall not use the values of the IEs in this system information block.~~

#### ~~8.1.1.6.9 — System Information Block type 9~~

~~This system information block type is used only in FDD.~~

~~If in connected mode, the UE should store all relevant IEs included in the system information block.~~

~~The UE shall:~~

- ~~1) start a timer set to the value given by the repetition period (SIB\_REP) for that system information block.~~

~~If in idle mode, the UE shall not use the values of the IEs in this system information block.~~



### 8.2.2.2 Initiation

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

- 1> configure new radio links in any new physical channel configuration;
- 1> start transmission and reception on the new radio links;
- 1> for a radio bearer establishment procedure:
  - 2> transmit a RADIO BEARER SETUP message on the downlink DCCH using AM or UM RLC;
  - 2> if signalling radio bearer RB4 is setup with this procedure and signalling radio bearers RB1-RB3 were already established prior to the procedure:
    - 3> if the variable "LATEST\_CONFIGURED\_CN\_DOMAIN" has been initialised:
      - 4> connect any radio bearers setup by the same message as signalling radio bearer RB4 to the CN domain indicated in the variable "LATEST\_CONFIGURED\_CN DOMAIN".
- 1> for a radio bearer reconfiguration procedure:
  - 2> transmit a RADIO BEARER RECONFIGURATION message on the downlink DCCH using AM or UM RLC.
- 1> for a radio bearer release procedure:
  - 2> transmit a RADIO BEARER RELEASE message on the downlink DCCH using AM or UM RLC.
- 1> for a transport channel reconfiguration procedure:
  - 2> transmit a TRANSPORT CHANNEL RECONFIGURATION message on the downlink DCCH using AM or UM RLC.
- 1> for a physical channel reconfiguration procedure:
  - 2> transmit a PHYSICAL CHANNEL RECONFIGURATION message on the downlink DCCH using AM or UM RLC.
- 1> if the reconfiguration procedure is simultaneous with SRNS relocation procedure:
  - 2> if the transmitted message is a RADIO BEARER RECONFIGURATION:
    - 3> include the IE "New U-RNTI".
  - 2> else:
    - 3> include the IE "Downlink counter synchronisation info".
  - 2> if ciphering and/or integrity protection are activated:
    - 3> include new ciphering and/or integrity protection configuration information to be used after reconfiguration.
  - 2> use the downlink DCCH using AM RLC.

- 1> if transport channels are added, reconfigured or deleted in uplink and/or downlink:
  - 2> set TFCS according to the new transport channel(s).
- 1> if transport channels are added or deleted in uplink and/or downlink, and RB Mapping Info applicable to the new configuration has not been previously provided to the UE, the UTRAN should:
  - 2> send the RB Mapping Info for the new configuration.

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

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

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

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

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

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

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

~~~~ Next Modified Section ~~~~

8.5.7 Open loop power control

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

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

2> otherwise:

3> read and store the IE "UL interference" in System Information Block type 7;

3> if the UE fails to read the IE "UL interference" in System Information Block type 7 due to bad radio conditions, the UE shall use the last stored IE "UL interference".

1> measure the value for the CPICH_RSCP;

1> calculate the power for the first preamble as:

Preamble_Initial_Power = Primary CPICH TX power – CPICH_RSCP + UL interference + Constant Value

Where,

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

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

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

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

2> continuously recalculate the Preamble_Initial_Power when any of the broadcast parameters used in the above formula changes; and

2> resubmit to the physical layer the new calculated Preamble_Initial_Power.

For 3.84 Mcps TDD the UE shall:

1> if in the IE "Uplink DPCH Power Control info" the "CHOICE UL OL PC info" has the value "Broadcast UL OL PC info":

2> prior to DPCH transmission the UE shall:

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

4> if the UE has stored valid versions of the IEs "Primary CCPCH Tx power" and "DPCH Constant value":

5> use the stored content of the IEs.

4> otherwise:

5> read and store the IE "Primary CCPCH Tx power" and "DPCH Constant value" in System Information Block type 6 (or System Information Block type 5, if System Information Block type 6 is not being broadcast).

3> if the UE has a valid version of the IE "UL interference" for each active UL timeslot stored:

4> use the stored content of the IE "UL interference" for each active UL timeslot.

3> otherwise:

4> read and store the IE "UL Timeslot Interference" for each active UL timeslot in System Information Block type 14;

4> if the UE fails to read the IE "UL Timeslot Interference" for each active UL time slot in System Information Block type 14 due to bad radio conditions, the UE shall use the last stored IE "UL Timeslot interference" for each active UL timeslot.

1> otherwise:

2> acquire Reference Power, Constant Values and I_{BTS} for all active UL timeslots from the IE "Uplink DPCH Power Control info".

1> for PUSCH, PRACH and HS-SICH power control:

2> prior to PUSCH or PRACH transmission the UE shall:

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

4> if the UE has stored valid versions of the IEs "Primary CCPCH Tx power" and "PUSCH Constant value" for PUSCH transmissions or "PRACH Constant value" for PRACH transmissions:

5> use the stored content of the IEs.

4> otherwise:

5> read and store the IE "Primary CCPCH Tx power" and "PUSCH Constant value" for PUSCH transmissions or "PRACH Constant value" for PRACH transmissions in System Information Block type 6 (or System Information Block type 5, if System Information Block type 6 is not being broadcast).

3> if the UE has a valid version of the IE "UL interference" for each active UL timeslot stored:

4> use the stored content of the IE "UL interference" for each active UL timeslot.

3> otherwise:

4> read and store the IE "UL Timeslot Interference" for each active UL timeslot in System Information Block type 14;

4> if the UE fails to read the IE "UL Timeslot Interference" for each active UL time slot in System Information Block type 14 due to bad radio conditions, the UE shall use the last stored IE "UL Timeslot interference" for each active UL timeslot.

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

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

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

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

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

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

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

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

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

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

- $P_{\text{PRACH}}, P_{\text{DPCH}}, P_{\text{PUSCH}}$ and $P_{\text{HS-SICH}}$: Transmitter power level in dBm;
- Pathloss values:
 - L_{PCCPCH} : Measurement representing path loss in dB based on beacon channels (the reference transmit power is signalled as the value of the IE "Primary CCPCH Tx Power" on BCH in System Information Block type 6 (or System Information Block type 5,

according to subclause 8.1.1.6.5), or individually signalled in the IE "Uplink DPCH Power Control info").

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

For 1.28 Mcps TDD the UE shall:

- 1> acquire valid versions of the necessary System Information IEs as follows:
 - 2> if the UE has stored a valid version of the IE "Primary CCPCH Tx Power":
 - 3> use the stored content of the IE.
 - 2> otherwise:
 - 3> read and store the IE "Primary CCPCH Tx Power" from System Information Block type 6 (or System Information Block type 5, if System Information Block type 6 is not being broadcast).
- 1> calculate the UL transmit power according to the following formula for each UpPCH code transmission:

$$P_{UpPCH} = L_{PCCPCH} + PRX_{UpPCHdes} + (i-1) * P_{wr_{ramp}}$$

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

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

$$P_{PRACH} = L_{PCCPCH} + PRX_{PRACHdes} + (i_{UpPCH}-1) * P_{wr_{ramp}}$$

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

$$P_{USCH} = PRX_{PUSCHdes} + L_{PCCPCH}$$

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

$$P_{HS-SICH} = PRX_{HS-SICH} + L_{PCCPCH}$$

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

$$P_{DPCH} = PRX_{DPCHdes} + L_{PCCPCH}$$

Where:

- P_{UpPCH} , P_{PRACH} , P_{DPCH} , $P_{HS-SICH}$ & P_{USCH} : Transmitter power level in dBm.
- L_{PCCPCH} : Measurement representing path loss in dB (reference transmit power "Primary CCPCH Tx Power" is broadcast on BCH in System Information Block type 5 and System Information Block type 6, or individually signalled to each UE in the IE "Uplink DPCH Power Control info").
- i is the number of transmission attempts on UpPCH, $i=1 \dots \text{Max SYNC_UL Transmissions}$.
- i_{UpPCH} is the final value of i.
- $PRX_{PRACHdes}$: Desired PRACH RX power at the cell's receiver in dBm signalled to the UE by the network in the FPACH response to the UE's successful SYNC_UL transmission.
- $PRX_{UpPCHdes}$: Desired UpPCH RX power at the cell's receiver in dBm. The value is broadcast in " $PRX_{UpPCHdes}$ " in IE "SYNC_UL info" on BCH and shall be read on System Information Block type 5 and System Information Block type 6. It can also be signalled directly to the UE in IE "Uplink Timing Advance Control" contained in a protocol message triggering a hard handover or a transition from cell FACH to cell DCH state.
- $PRX_{PUSCHdes}$: Desired PUSCH RX power at the cell's receiver in dBm signalled to the UE in IE "PUSCH Power Control Info".
- $PRX_{DPCHdes}$: Desired DPCH RX power at the cell's receiver in dBm signalled to the UE in IE "Uplink DPCH Info" and IE "Uplink DPCH Power Control Info".
- $P_{wr_{ramp}}$: The UE shall increase its transmission power by the value of the IE "Power Ramp step" by every UpPCH transmission. Its value is signalled in the IE "SYNC_UL info" in System Information Block type 5 and System Information Block type 6 or is signalled to the UE in the IE "Uplink Timing Advance Control" contained in a protocol message triggering a hard handover or a transition from cell FACH state to cell DCH state.
- $PRX_{HS-SICH}$: Desired HS-SICH RX power at the cell's receiver in dBm signalled to the UE in IE "Downlink HS-PDSCH Information".

- Ack-Nack Power Offset: Difference in the desired RX power between HS-SICH transmissions conveying an acknowledgement and transmissions conveying a negative acknowledgement signalled to the UE in IE "HS-SCCH Info".

~~~~ Next Modified Section ~~~~

### 8.6.3.9 New C-RNTI

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

- 1> store the value in the variable C\_RNTI, replacing any old stored value;
- 1> use that C-RNTI when using common transport channels of type RACH, and FACH ~~and CPCH~~ in the current cell.

~~~~ Next Modified Section ~~~~

8.6.4.8 RB mapping info

If the IE "RB mapping info" is included, the UE shall:

- 1> for each multiplexing option of the RB:
 - 2> if a multiplexing option that maps a logical channel corresponding to a TM-RLC entity onto RACH, ~~CPCH~~, FACH, USCH, DSCH, HS-DSCH or E-DCH is included:
 - 3> set the variable INVALID_CONFIGURATION to TRUE.
 - 2> if the multiplexing option realises the radio bearer on the uplink (resp. on the downlink) using two logical channels with different values of the IE "Uplink transport channel type" (resp. of the IE "Downlink transport channel type"):
 - 3> set the variable INVALID_CONFIGURATION to TRUE.
 - 2> if that RB is using TM and the IE "Segmentation indication" is set to TRUE and, based on the multiplexing configuration resulting from this message, the logical channel corresponding to it is mapped onto the same transport channel as another logical channel:
 - 3> set the variable INVALID_CONFIGURATION to TRUE.
 - 2> if the transport channel considered in that multiplexing option is different from RACH and if that RB is using AM and the set of RLC sizes applicable to the uplink logical channel transferring data PDUs has more than one element not equal to zero:
 - 3> set the variable INVALID_CONFIGURATION to TRUE.
 - 2> if that RB is using UM or TM and the multiplexing option realises it using two logical channels:
 - 3> set the variable INVALID_CONFIGURATION to TRUE.
- 2> for each logical channel in that multiplexing option:
 - 3> if the value of the IE "RLC size list" is set to "Explicit list":
 - 4> if a "Transport format set" for the transport channel this logical channel is mapped on in this multiplexing option is included in the same message, and the value (index) of any IE "RLC size index" in the IE "Explicit list" does not correspond to an "RLC size" in the IE transport format set of that transport channel given in the message; or

- 4> if the transport channel this logical channel is mapped on in this multiplexing option is different from RACH, and if a "Transport format set" for that transport channel is not included in the same message, and the value (index) of any IE "RLC size index" in the IE "Explicit list" does not correspond to an "RLC size" in the stored transport format set of that transport channel; or
- 4> if a "Transport format set" for the transport channel this logical channel is mapped on in this multiplexing option is included in the same message, and the value of any IE "Logical channel list" in the transport format set is not set to "Configured"; or
- 4> if a "Transport format set" for the transport channel this logical channel is mapped on in this multiplexing option is not included in the same message, and the value of any IE "Logical channel list" in the stored transport format set of that transport channel is not set to "Configured":
 - 5> set the variable INVALID_CONFIGURATION to TRUE.
- 3> if the value of the IE "RLC size list" is set to "All":
 - 4> if the transport channel this logical channel is mapped on is RACH; or
 - 4> if a "Transport format set" for the transport channel this logical channel is mapped on in this multiplexing option is included in the same message, and the value of any IE "Logical channel list" in the transport format set is not set to "Configured"; or
 - 4> if a "Transport format set" for the transport channel this logical channel is mapped on in this multiplexing option is not included in the same message, and the value of any IE "Logical channel list" in the stored transport format set of that transport channel is not set to "Configured":
 - 5> set the variable INVALID_CONFIGURATION to TRUE.
- 3> if the value of the IE "RLC size list" is set to "Configured":
 - 4> if the transport channel this logical channel is mapped on is RACH; or
 - 4> if a "Transport format set" for the transport channel this logical channel is mapped on in this multiplexing option is included in the same message, and for none of the RLC sizes defined for that transport channel in the "Transport format set", the "Logical Channel List" is set to "All" or given as an "Explicit List" which contains this logical channel; or
 - 4> if a "Transport format set" for the transport channel this logical channel is mapped on in this multiplexing option is not included in the same message, and for none of the RLC sizes defined in the transport format set stored for that transport channel, the "Logical Channel List" is set to "All" or given as an "Explicit List" which contains this logical channel:
 - 5> set the variable INVALID_CONFIGURATION to TRUE.
- 1> if, as a result of the message this IE is included in, several radio bearers can be mapped onto the same transport channel, and the IE "Logical Channel Identity" was not included in the RB mapping info of any of those radio bearers for a multiplexing option on that transport channel or the same "Logical Channel Identity" was used more than once in the RB mapping info of those radio bearers for the multiplexing options on that transport channel:
 - 2> set the variable INVALID_CONFIGURATION to TRUE.
- 1> if the "RB mapping info" is considered as valid according to the rules above:
 - 2> delete all previously stored multiplexing options for that radio bearer;
 - 2> store each new multiplexing option for that radio bearer;

- 2> perform the actions as specified in subclause 8.5.21;
- 2> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25;
- 2> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.
- 1> if the IE "Uplink transport channel type" is set to the value "RACH":
 - 2> in FDD:
 - 3> refer the IE "RLC size index" to the RACH Transport Format Set of the first PRACH received in the IE "PRACH system information list" received in System Information Block 5, System Information Block 5bis or System Information Block 6.
 - 2> in TDD:
 - 3> use the first Transport Format of the PRACH of the IE "PRACH system information list" at the position equal to the value in the IE "RLC size index".

In case IE "RLC info" includes IE "Downlink RLC mode" ("DL RLC logical channel info" is mandatory present) but IE "Number of downlink RLC logical channels" is absent in the corresponding IE "RB mapping info", the parameter values are exactly the same as for the corresponding UL logical channels. In case two multiplexing options are specified for the UL, the first options shall be used as default for the DL. As regards the IE "Channel type", the following rule should be applied to derive the DL channel type from the UL channel included in the IE:

| Channel used in UL | DL channel type implied by
"same as" |
|--------------------|---|
| DCH | DCH |
| RACH | FACH |
| CPCH | FACH |
| USCH | DSCH |

If ciphering is applied, UTRAN should not map Transparent Mode RBs of different CN domains on the same transport channel and it should not map transparent mode SRBs and RBs onto the same transport channel. In such cases the UE behaviour is not specified.

~~~~ Next Modified Section ~~~~

#### 8.6.6.19 ~~CPCH SET Info (FDD only)~~ Void

~~If the UE has the capability to use CPCH, the UE shall use the following general procedures:~~

- ~~1> if an IE "CPCH SET Info" is included in a dedicated message:
 
  - 2> read the "CPCH set ID" included in the IE;
  - 2> store the IE using the "CPCH set ID" as an address tag;
  - 2> release any active dedicated physical channels in the uplink;
  - 2> let the PCPCHs listed in the CPCH set be the default in the uplink for CPCH.~~
- ~~1> if an IE "CPCH SET Info" is included in a System Information message:
 
  - 2> read the "CPCH set ID" included in the IE;
  - 2> store the IE using the "CPCH set ID" as an address tag.~~

#### 8.6.6.20 ~~CPCH set ID (FDD only)~~ Void

~~If the UE has the capability to use CPCH, the UE shall use the following general procedures. The UE shall:~~

- 1> ~~if an IE "CPCH set ID" is included in a dedicated message and not as part of IE "CPCH SET Info":~~
  - 2> ~~use the IE as an address tag to retrieve the corresponding stored "CPCH SET Info";~~
  - 2> ~~release any active dedicated physical channels in the uplink;~~
  - 2> ~~let the PCPCHs listed in the CPCH set be the default in the uplink for CPCH.~~
- 1> ~~if an IE "CPCH set ID" is included in a dedicated message and not as part of IE "CPCH SET Info", and if there is no corresponding stored "CPCH SET Info":~~
  - 2> ~~release any active dedicated physical channels in the uplink;~~
  - 2> ~~let the last assigned PRACH be the default in the uplink for RACH;~~
  - 2> ~~obtain current System Information on SCCPCH to obtain and store the "CPCH SET info" IE(s);~~
  - 2> ~~upon receipt of a "CPCH SET Info" which corresponds to the "CPCH set ID" IE:~~
    - 3> ~~let the PCPCHs listed in that CPCH set be the default in the uplink for CPCH.~~
- 1> ~~if an IE "CPCH set ID" is not included in a dedicated message and the UE prior to the receipt of this message had configured the PCPCH as the default in the uplink:~~
  - 2> ~~stop using the PCPCH;~~
  - 2> ~~let the last assigned PRACH be the default in the uplink for RACH.~~

~~~~ Next Modified Section ~~~~

10.2.8 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: UM

Logical channel: CCCH or DCCH

Direction: UTRAN→UE

| Information Element/Group name | Need | Multi | Type and reference | Semantics description | Version |
|--------------------------------|---------|-------|---|---|---------|
| Message Type | MP | | Message Type | | |
| UE Information Elements | | | | | |
| U-RNTI | CV-CCCH | | U-RNTI
10.3.3.47 | | |
| RRC transaction identifier | MP | | RRC transaction identifier
10.3.3.36 | | |
| Integrity check info | CH | | Integrity check info
10.3.3.16 | | |
| Integrity protection mode info | OP | | Integrity protection mode info
10.3.3.19 | The UTRAN should not include this IE unless it is performing an SRNS relocation or a cell | |

| Information Element/Group name | Need | Multi | Type and reference | Semantics description | Version |
|---|------|--------------|--|---|---------|
| | | | | reselection from GERAN <i>lu mode</i> | |
| Ciphering mode info | OP | | Ciphering mode info 10.3.3.5 | The UTRAN should not include this IE unless it is performing either an SRNS relocation or a cell reselection from GERAN <i>lu mode</i> , and a change in ciphering algorithm. | |
| Activation time | MD | | Activation time 10.3.3.1 | Default value is "now" | |
| New U-RNTI | OP | | U-RNTI 10.3.3.47 | | |
| New C-RNTI | OP | | C-RNTI 10.3.3.8 | | |
| New DSCH-RNTI | OP | | DSCH-RNTI 10.3.3.9a | | |
| New H-RNTI | OP | | H-RNTI 10.3.3.14a | | REL-5 |
| New E-RNTI | OP | | E-RNTI 10.3.3.10a | | REL-6 |
| RRC State Indicator | MP | | RRC State Indicator 10.3.3.35a | | |
| UTRAN DRX cycle length coefficient | OP | | UTRAN DRX cycle length coefficient 10.3.3.49 | | |
| RLC re-establish indicator (RB2, RB3 and RB4) | MP | | RLC re-establish indicator 10.3.3.35 | Should not be set to TRUE if IE "Downlink counter synchronisation info" is included in message. | |
| RLC re-establish indicator (RB5 and upwards) | MP | | RLC re-establish indicator 10.3.3.35 | Should not be set to TRUE if IE "Downlink counter synchronisation info" is included in message. | |
| CN Information Elements | | | | | |
| CN Information info | OP | | CN Information info 10.3.1.3 | | |
| UTRAN Information Elements | | | | | |
| URA identity | OP | | URA identity 10.3.2.6 | | |
| RB information elements | | | | | |
| RB information to release list | OP | 1 to <maxRB> | | | |
| >RB information to release | MP | | RB information to release 10.3.4.19 | | |
| RB information to reconfigure list | OP | 1 to <maxRB> | | | |
| >RB information to reconfigure | MP | | RB information to reconfigure | | |

| Information Element/Group name | Need | Multi | Type and reference | Semantics description | Version |
|--|------|----------------------|---|---|---------|
| | | | 10.3.4.18 | | |
| RB information to be affected list | OP | 1 to <maxRB> | | | |
| >RB information to be affected | MP | | RB information to be affected
10.3.4.17 | | |
| Downlink counter synchronisation info | OP | | | | |
| >RB with PDCP information list | OP | 1 to <maxRBall RABs> | | | |
| >>RB with PDCP information | MP | | RB with PDCP information
10.3.4.22 | This IE is needed for each RB having PDCP in the case of lossless SRNS relocation | |
| | OP | | | | REL-5 |
| >>PDCP context relocation info | OP | | PDCP context relocation info
10.3.4.1a | This IE is needed for each RB having PDCP and performing PDCP context relocation | REL-5 |
| TrCH Information Elements | | | | | |
| Uplink transport channels | | | | | |
| UL Transport channel information common for all transport channels | OP | | UL Transport channel information common for all transport channels
10.3.5.24 | | |
| Deleted TrCH information list | OP | 1 to <maxTrCH > | | | |
| >Deleted UL TrCH information | MP | | Deleted UL TrCH information
10.3.5.5 | | |
| Added or Reconfigured TrCH information list | OP | 1 to <maxTrCH > | | | |
| >Added or Reconfigured UL TrCH information | MP | | Added or Reconfigured UL TrCH information
10.3.5.2 | | |
| CHOICE <i>mode</i> | MP | | | | |
| >FDD | | | | | |
| >>CPCH set ID | OP | | CPCH set ID
10.3.5.3 | | |
| >>Added or Reconfigured TrCH information for DRAC list | OP | 1 to <maxTrCH > | | | |
| >>>DRAC static information | MP | | DRAC static information
10.3.5.7 | | |
| >TDD | | | | (no data) | |
| Downlink transport channels | | | | | |
| DL Transport channel information common for all transport channels | OP | | DL Transport channel information | | |

| Information Element/Group name | Need | Multi | Type and reference | Semantics description | Version |
|---|------|-----------------|--|--|---------|
| | | | common for all transport channels
10.3.5.6 | | |
| Deleted TrCH information list | OP | 1 to <maxTrCH > | | | |
| >Deleted DL TrCH information | MP | | Deleted DL TrCH information
10.3.5.4 | | |
| Added or Reconfigured TrCH information list | OP | 1 to <maxTrCH > | | | |
| >Added or Reconfigured DL TrCH information | MP | | Added or Reconfigured DL TrCH information
10.3.5.1 | | |
| PhyCH information elements | | | | | |
| Frequency info | OP | | Frequency info
10.3.6.36 | | |
| Uplink radio resources | | | | | |
| Maximum allowed UL TX power | MD | | Maximum allowed UL TX power
10.3.6.39 | Default value is the existing maximum UL TX power | |
| CHOICE <i>channel requirement</i> | OP | | | | |
| >Uplink DPCH info | | | Uplink DPCH info
10.3.6.88. | | |
| >CPCH SET Info | | | CPCH SET Info
10.3.6.13 | | |
| E-DCH Info | OP | | E-DCH Info
10.3.6.97 | | REL-6 |
| Downlink radio resources | | | | | |
| CHOICE <i>mode</i> | MP | | | | |
| >FDD | | | | | |
| >>Downlink PDSCH information | OP | | Downlink PDSCH information
10.3.6.30 | | |
| >TDD | | | | (no data) | |
| Downlink HS-PDSCH Information | OP | | Downlink HS_PDSCH Information
10.3.6.23a | | REL-5 |
| Downlink information common for all radio links | OP | | Downlink information common for all radio links
10.3.6.24 | | |
| Downlink information per radio link list | OP | 1 to <maxRL> | | Send downlink information for each radio link to be set-up | |
| >Downlink information for each radio link | MP | | Downlink information for each radio link
10.3.6.27 | | |
| MBMS PL Service Restriction | OP | | Enumerated | Absence means | REL-6 |

| Information Element/Group name | Need | Multi | Type and reference | Semantics description | Version |
|--------------------------------|------|-------|--------------------|--|---------|
| Information | | | (TRUE) | that on the MBMS Preferred Layer (PL) no restrictions apply concerning the use of non-MBMS services i.e. the PL is not congested | |

| Condition | Explanation |
|-----------|--|
| CCCH | This IE is mandatory present when CCCH is used and ciphering is not required and not needed otherwise. |

~~~~ Next Modified Section ~~~~

## 10.2.16a HANDOVER TO UTRAN COMMAND

This message is sent to the UE via other system to make a handover to UTRAN.

RLC-SAP: N/A (Sent through a different RAT)

Logical channel: N/A (Sent through a different RAT)

Direction: UTRAN → UE

| Information Element/Group name                                       | Need | Multi                     | Type and reference                                                              | Semantics description                        |
|----------------------------------------------------------------------|------|---------------------------|---------------------------------------------------------------------------------|----------------------------------------------|
| New U-RNTI                                                           | MP   |                           | U-RNTI Short<br>10.3.3.48                                                       |                                              |
| Ciphering algorithm                                                  | OP   |                           | Ciphering algorithm<br>10.3.3.4                                                 |                                              |
| CHOICE <i>specification mode</i>                                     | MP   |                           |                                                                                 |                                              |
| >Complete specification                                              |      |                           |                                                                                 |                                              |
| <b>RB information elements</b>                                       |      |                           |                                                                                 |                                              |
| >>Signalling RB information to setup list                            | MP   | 1 to<br><maxSRBs<br>etup> |                                                                                 | For each signalling radio bearer established |
| >>>Signalling RB information to setup                                | MP   |                           | Signalling RB information to setup<br>10.3.4.24                                 |                                              |
| >>RAB information to setup list                                      | OP   | 1 to<br><maxRABs<br>etup> |                                                                                 | For each RAB established                     |
| >>>RAB information for setup                                         | MP   |                           | RAB information for setup<br>10.3.4.10                                          |                                              |
| <b>Uplink transport channels</b>                                     |      |                           |                                                                                 |                                              |
| >>UL Transport channel information common for all transport channels | MP   |                           | UL Transport channel information common for all transport channels<br>10.3.5.24 |                                              |
| >>Added or Reconfigured TrCH                                         | MP   | 1 to                      |                                                                                 |                                              |

| Information Element/Group name                                       | Need | Multi           | Type and reference                                                          | Semantics description                                                               |
|----------------------------------------------------------------------|------|-----------------|-----------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| information                                                          |      | <maxTrCH >      |                                                                             |                                                                                     |
| >>>Added or Reconfigured UL TrCH information                         | MP   |                 | Added or Reconfigured UL TrCH information 10.3.5.2                          |                                                                                     |
| <b>Downlink transport channels</b>                                   |      |                 |                                                                             |                                                                                     |
| >>DL Transport channel information common for all transport channels | MP   |                 | DL Transport channel information common for all transport channels 10.3.5.6 |                                                                                     |
| >>Added or Reconfigured TrCH information                             | MP   | 1 to <maxTrCH > |                                                                             |                                                                                     |
| >>>Added or Reconfigured DL TrCH information                         | MP   |                 | Added or Reconfigured DL TrCH information 10.3.5.1                          |                                                                                     |
| <b>Uplink radio resources</b>                                        |      |                 |                                                                             |                                                                                     |
| >>Uplink DPCH info                                                   | MP   |                 | Uplink DPCH info 10.3.6.88                                                  |                                                                                     |
| >>CHOICE <i>mode</i>                                                 | MP   |                 |                                                                             |                                                                                     |
| >>>FDD                                                               |      |                 |                                                                             |                                                                                     |
| >>>>CPCH SET Info                                                    | OP   |                 | CPCH SET Info 10.3.6.13                                                     |                                                                                     |
| <b>Downlink radio resources</b>                                      |      |                 |                                                                             |                                                                                     |
| >>>>Downlink PDSCH information                                       | OP   |                 | Downlink PDSCH information 10.3.6.30                                        |                                                                                     |
| >>>TDD                                                               |      |                 |                                                                             | (no data)                                                                           |
| >>Downlink information common for all radio links                    | MP   |                 | Downlink information common for all radio links 10.3.6.24                   |                                                                                     |
| >>Downlink information per radio link                                | MP   | 1 to <maxRL>    |                                                                             |                                                                                     |
| >>>Downlink information for each radio link                          | MP   |                 | Downlink information for each radio link 10.3.6.27                          |                                                                                     |
| >Preconfiguration                                                    |      |                 |                                                                             |                                                                                     |
| >>CHOICE <i>Preconfiguration mode</i>                                | MP   |                 |                                                                             |                                                                                     |
| >>>Predefined configuration                                          | MP   |                 | Predefined configuration identity 10.3.4.5                                  |                                                                                     |
| >>>Default configuration                                             |      |                 |                                                                             |                                                                                     |
| >>>>Default configuration mode                                       | MP   |                 | Enumerated (FDD, TDD)                                                       | Indicates whether the FDD or TDD version of the default configuration shall be used |
| >>>>Default configuration identity                                   | MP   |                 | Default configuration identity                                              |                                                                                     |

| Information Element/Group name                    | Need | Multi           | Type and reference                                                            | Semantics description                                                          |
|---------------------------------------------------|------|-----------------|-------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
|                                                   |      |                 | 10.3.4.0                                                                      |                                                                                |
| >>RAB info                                        | OP   |                 | RAB info<br>Post<br>10.3.4.9                                                  | One RAB is established                                                         |
| >>Uplink DPCH info                                | MP   |                 | Uplink<br>DPCH info<br>Post<br>10.3.6.89                                      |                                                                                |
| <b>Downlink radio resources</b>                   |      |                 |                                                                               |                                                                                |
| >>Downlink information common for all radio links | MP   |                 | Downlink<br>information<br>common for<br>all radio links<br>Post<br>10.3.6.25 |                                                                                |
| >>Downlink information per radio link             | MP   | 1 to<br><maxRL> |                                                                               | Send downlink information for each radio link to be set-up. In TDD MaxRL is 1. |
| >>>Downlink information for each radio link       | MP   |                 | Downlink<br>information<br>for each<br>radio link<br>Post<br>10.3.6.28        |                                                                                |
| >>CHOICE mode                                     | MP   |                 |                                                                               |                                                                                |
| >>>FDD                                            |      |                 |                                                                               | (no data)                                                                      |
| >>>TDD                                            |      |                 |                                                                               |                                                                                |
| >>>>Primary CCPCH Tx Power                        | MP   |                 | Primary<br>CCPCH Tx<br>Power<br>10.3.6.59                                     |                                                                                |
| Frequency info                                    | MP   |                 | Frequency<br>info<br>10.3.6.36                                                |                                                                                |
| Maximum allowed UL TX power                       | MP   |                 | Maximum<br>allowed UL<br>TX power<br>10.3.6.39                                |                                                                                |

~~~~ Next Modified Section ~~~~

10.2.22 PHYSICAL CHANNEL RECONFIGURATION

This message is used by UTRAN to assign, replace or release a set of physical channels used by a UE.

RLC-SAP: AM or UM

Logical channel: DCCH

Direction: UTRAN → UE

| Information Element/Group name | Need | Multi | Type and reference | Semantics description | Version |
|--------------------------------|------|-------|---|-----------------------|---------|
| Message Type | MP | | Message
Type | | |
| UE Information Elements | | | | | |
| RRC transaction identifier | MP | | RRC
transaction
identifier
10.3.3.36 | | |
| Integrity check info | CH | | Integrity
check info | | |

| Information Element/Group name | Need | Multi | Type and reference | Semantics description | Version |
|--|------|----------------------|--|---|---------|
| | | | 10.3.3.16 | | |
| Integrity protection mode info | OP | | Integrity protection mode info 10.3.3.19 | The UTRAN should not include this IE unless it is performing an SRNS relocation | |
| Ciphering mode info | OP | | Ciphering mode info 10.3.3.5 | The UTRAN should not include this IE unless it is performing an SRNS relocation and a change in ciphering algorithm | |
| Activation time | MD | | Activation time 10.3.3.1 | Default value is "now" | |
| New U-RNTI | OP | | U-RNTI 10.3.3.47 | | |
| New C-RNTI | OP | | C-RNTI 10.3.3.8 | | |
| New DSCH-RNTI | OP | | DSCH-RNTI 10.3.3.9a | | |
| New H-RNTI | OP | | H-RNTI 10.3.3.14a | | REL-5 |
| New E-RNTI | OP | | E-RNTI 10.3.3.10a | | REL-6 |
| RRC State Indicator | MP | | RRC State Indicator 10.3.3.35a | | |
| UTRAN DRX cycle length coefficient | OP | | UTRAN DRX cycle length coefficient 10.3.3.49 | | |
| CN Information Elements | | | | | |
| CN Information info | OP | | CN Information info 10.3.1.3 | | |
| UTRAN mobility information elements | | | | | |
| URA identity | OP | | URA identity 10.3.2.6 | | |
| RB information elements | | | | | |
| Downlink counter synchronisation info | OP | | | | |
| >RB with PDCP information list | OP | 1 to <maxRBall RABs> | | | |
| >>RB with PDCP information | MP | | RB with PDCP information 10.3.4.22 | This IE is needed for each RB having PDCP in the case of lossless SRNS relocation | |
| | OP | | | | REL-5 |
| >>PDCP context relocation info | OP | | PDCP context relocation info 10.3.4.1a | This IE is needed for each RB having PDCP and performing PDCP context relocation | REL-5 |
| PhyCH information elements | | | | | |
| Frequency info | OP | | Frequency info 10.3.6.36 | | |
| Uplink radio resources | | | | | |

| Information Element/Group name | Need | Multi | Type and reference | Semantics description | Version |
|---|------|--------------|--|--|---------|
| Maximum allowed UL TX power | MD | | Maximum allowed UL TX power
10.3.6.39 | Default value is the existing value of the maximum allowed UL TX power | |
| CHOICE <i>channel requirement</i> | OP | | | | |
| >Uplink DPCH info | | | Uplink DPCH info
10.3.6.88 | | |
| >CPCH SET Info | | | CPCH SET Info
10.3.6.13 | | |
| >CPCH setID | | | CPCH setID
10.3.5.3 | | |
| E-DCH Info | OP | | E-DCH Info
10.3.6.97 | | REL-6 |
| Downlink radio resources | | | | | |
| CHOICE <i>mode</i> | MP | | | | |
| >FDD | | | | | |
| >>Downlink PDSCH information | OP | | Downlink PDSCH information
10.3.6.30 | | |
| >TDD | | | | (no data) | |
| Downlink HS-PDSCH Information | OP | | Downlink HS_PDSCH Information
10.3.6.23a | | REL-5 |
| Downlink information common for all radio links | OP | | Downlink information common for all radio links
10.3.6.24 | | |
| Downlink information per radio link list | OP | 1 to <maxRL> | | Send downlink information for each radio link | |
| >Downlink information for each radio link | MP | | Downlink information for each radio link
10.3.6.27 | | |
| MBMS PL Service Restriction Information | OP | | Enumerated (TRUE) | Absence means that on the MBMS Preferred Layer (PL) no restrictions apply concerning the use of non-MBMS services i.e. the PL is not congested | REL-6 |

~~~~ Next Modified Section ~~~~

## 10.2.27 RADIO 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. This message is also used to perform a handover from GERAN *Iu mode* to UTRAN.

RLC-SAP: AM or UM or sent through GERAN *Iu mode*

Logical channel: DCCH or sent through GERAN *Iu mode*

Direction: UTRAN → UE

| Information Element/Group name             | Need | Multi | Type and reference                              | Semantics description                                                                                                                                              | Version |
|--------------------------------------------|------|-------|-------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| Message Type                               | MP   |       | Message Type                                    |                                                                                                                                                                    |         |
| <b>UE Information elements</b>             |      |       |                                                 |                                                                                                                                                                    |         |
| RRC transaction identifier                 | MP   |       | RRC transaction identifier<br>10.3.3.36         |                                                                                                                                                                    |         |
| Integrity check info                       | CH   |       | Integrity check info<br>10.3.3.16               |                                                                                                                                                                    |         |
| Integrity protection mode info             | OP   |       | Integrity protection mode info<br>10.3.3.19     | The UTRAN should not include this IE unless it is performing an SRNS relocation or a handover from GERAN <i>Iu mode</i>                                            |         |
| Ciphering mode info                        | OP   |       | Ciphering mode info<br>10.3.3.5                 | The UTRAN should not include this IE unless it is performing either an SRNS relocation or a handover from GERAN <i>Iu mode</i> and a change in ciphering algorithm |         |
| Activation time                            | MD   |       | Activation time 10.3.3.1                        | Default value is "now"                                                                                                                                             |         |
| New U-RNTI                                 | OP   |       | U-RNTI<br>10.3.3.47                             |                                                                                                                                                                    |         |
| New C-RNTI                                 | OP   |       | C-RNTI<br>10.3.3.8                              |                                                                                                                                                                    |         |
| New DSCH-RNTI                              | OP   |       | DSCH-RNTI<br>10.3.3.9a                          |                                                                                                                                                                    |         |
| New H-RNTI                                 | OP   |       | H-RNTI<br>10.3.3.14a                            |                                                                                                                                                                    | REL-5   |
| New E-RNTI                                 | OP   |       | E-RNTI<br>10.3.3.10a                            |                                                                                                                                                                    | REL-6   |
| RRC State Indicator                        | MP   |       | RRC State Indicator<br>10.3.3.35a               |                                                                                                                                                                    |         |
| UTRAN DRX cycle length coefficient         | OP   |       | UTRAN DRX cycle length coefficient<br>10.3.3.49 |                                                                                                                                                                    |         |
| <b>CN information elements</b>             |      |       |                                                 |                                                                                                                                                                    |         |
| CN Information info                        | OP   |       | CN Information info 10.3.1.3                    |                                                                                                                                                                    |         |
| <b>UTRAN mobility information elements</b> |      |       |                                                 |                                                                                                                                                                    |         |
| URA identity                               | OP   |       | URA identity<br>10.3.2.6                        |                                                                                                                                                                    |         |

| Information Element/Group name                                       | Need | Multi                | Type and reference                                                           | Semantics description                                                            | Version |
|----------------------------------------------------------------------|------|----------------------|------------------------------------------------------------------------------|----------------------------------------------------------------------------------|---------|
| CHOICE specification mode                                            | MP   |                      |                                                                              |                                                                                  | REL-5   |
| >Complete specification                                              |      |                      |                                                                              |                                                                                  |         |
| <b>RB information elements</b>                                       |      |                      |                                                                              |                                                                                  |         |
| >>RB information to reconfigure list                                 | OP   | 1 to <maxRBsetup >   |                                                                              |                                                                                  |         |
| >>>RB information to reconfigure                                     | MP   |                      | RAB information to reconfigure 10.3.4.11                                     |                                                                                  |         |
| >>RB information to reconfigure list                                 | MP   | 1to <maxRB>          |                                                                              | Although this IE is not always required, need is MP to align with ASN.1          |         |
| >>>RB information to reconfigure                                     | OP   |                      |                                                                              |                                                                                  | REL-4   |
| >>>RB information to reconfigure                                     | MP   |                      | RB information to reconfigure 10.3.4.18                                      |                                                                                  |         |
| >>RB information to be affected list                                 | OP   | 1 to <maxRB>         |                                                                              |                                                                                  |         |
| >>>RB information to be affected                                     | MP   |                      | RB information to be affected 10.3.4.17                                      |                                                                                  |         |
| >>RB with PDCP context relocation info list                          | OP   | 1 to <maxRBall RABs> |                                                                              | This IE is needed for each RB having PDCP and performing PDCP context relocation | REL-5   |
| >>>PDCP context relocation info                                      | MP   |                      | PDCP context relocation info 10.3.4.1a                                       |                                                                                  | REL-5   |
| <b>TrCH Information Elements</b>                                     |      |                      |                                                                              |                                                                                  |         |
| <b>Uplink transport channels</b>                                     |      |                      |                                                                              |                                                                                  |         |
| >>UL Transport channel information common for all transport channels | OP   |                      | UL Transport channel information common for all transport channels 10.3.5.24 |                                                                                  |         |
| >>Deleted TrCH information list                                      | OP   | 1 to <maxTrCH >      |                                                                              |                                                                                  |         |
| >>>Deleted UL TrCH information                                       | MP   |                      | Deleted UL TrCH information 10.3.5.5                                         |                                                                                  |         |
| >>Added or Reconfigured TrCH information list                        | OP   | 1 to <maxTrCH >      |                                                                              |                                                                                  |         |
| >>>Added or Reconfigured UL TrCH information                         | MP   |                      | Added or Reconfigured UL TrCH information 10.3.5.2                           |                                                                                  |         |
| >>CHOICE mode                                                        | OP   |                      |                                                                              |                                                                                  |         |

| Information Element/Group name                                       | Need | Multi           | Type and reference                                                             | Semantics description                                                               | Version |
|----------------------------------------------------------------------|------|-----------------|--------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------|
| >>>FDD                                                               |      |                 |                                                                                |                                                                                     |         |
| >>>>CPCH set ID                                                      | OP   |                 | CPCH set ID<br>10.3.5.3                                                        |                                                                                     |         |
| >>>>Added or Reconfigured TrCH information for DRAC list             | OP   | 1 to <maxTrCH > |                                                                                |                                                                                     |         |
| >>>>>DRAC static information                                         | MP   |                 | DRAC static information<br>10.3.5.7                                            |                                                                                     |         |
| >>>TDD                                                               |      |                 |                                                                                | (no data)                                                                           |         |
| <b>Downlink transport channels</b>                                   |      |                 |                                                                                |                                                                                     |         |
| >>DL Transport channel information common for all transport channels | OP   |                 | DL Transport channel information common for all transport channels<br>10.3.5.6 |                                                                                     |         |
| >>Deleted TrCH information list                                      | OP   | 1 to <maxTrCH > |                                                                                |                                                                                     |         |
| >>>Deleted DL TrCH information                                       | MP   |                 | Deleted DL TrCH information<br>10.3.5.4                                        |                                                                                     |         |
| >>Added or Reconfigured TrCH information list                        | OP   | 1 to <maxTrCH > |                                                                                |                                                                                     |         |
| >>>Added or Reconfigured DL TrCH information                         | MP   |                 | Added or Reconfigured DL TrCH information<br>10.3.5.1                          |                                                                                     |         |
| >Preconfiguration                                                    |      |                 |                                                                                |                                                                                     | REL-5   |
| >>CHOICE <i>Preconfiguration mode</i>                                | MP   |                 |                                                                                | This value only applies in case the message is sent through GERAN <i>lu mode</i>    |         |
| >>>Predefined configuration identity                                 | MP   |                 | Predefined configuration identity<br>10.3.4.5                                  |                                                                                     |         |
| >>>>Default configuration                                            |      |                 |                                                                                |                                                                                     |         |
| >>>>>Default configuration mode                                      | MP   |                 | Enumerated (FDD, TDD)                                                          | Indicates whether the FDD or TDD version of the default configuration shall be used |         |
| >>>>>Default configuration identity                                  | MP   |                 | Default configuration identity<br>10.3.4.0                                     |                                                                                     |         |
| <b>PhyCH information elements</b>                                    |      |                 |                                                                                |                                                                                     |         |
| Frequency info                                                       | OP   |                 | Frequency info<br>10.3.6.36                                                    |                                                                                     |         |
| <b>Uplink radio resources</b>                                        |      |                 |                                                                                |                                                                                     |         |
| Maximum allowed UL TX power                                          | MD   |                 | Maximum allowed UL TX power<br>10.3.6.39                                       | Default value is the existing maximum UL TX power                                   |         |
| CHOICE <i>channel requirement</i>                                    | OP   |                 |                                                                                |                                                                                     |         |

| Information Element/Group name                  | Need | Multi        | Type and reference                                           | Semantics description                                                                                                                          | Version |
|-------------------------------------------------|------|--------------|--------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| >Uplink DPCH info                               |      |              | Uplink DPCH info<br>10.3.6.88                                |                                                                                                                                                |         |
| >CPCH SET Info                                  |      |              | CPCH SET Info<br>10.3.6.13                                   |                                                                                                                                                |         |
| E-DCH Info                                      | OP   |              | E-DCH Info<br>10.3.6.97                                      |                                                                                                                                                | REL-6   |
| <b>Downlink radio resources</b>                 |      |              |                                                              |                                                                                                                                                |         |
| CHOICE <i>mode</i>                              | MP   |              |                                                              |                                                                                                                                                |         |
| >FDD                                            |      |              |                                                              |                                                                                                                                                |         |
| >>Downlink PDSCH information                    | OP   |              | Downlink PDSCH information<br>10.3.6.30                      |                                                                                                                                                |         |
| >TDD                                            |      |              |                                                              | (no data)                                                                                                                                      |         |
| Downlink HS-PDSCH Information                   | OP   |              | Downlink HS-PDSCH Information<br>10.3.6.23a                  |                                                                                                                                                | REL-5   |
| Downlink information common for all radio links | OP   |              | Downlink information common for all radio links<br>10.3.6.24 |                                                                                                                                                |         |
| Downlink information per radio link list        | MP   | 1 to <maxRL> |                                                              | Although this IE is not always required, need is MP to align with ASN.1                                                                        |         |
|                                                 | OP   |              |                                                              |                                                                                                                                                | REL-4   |
| >Downlink information for each radio link       | MP   |              | Downlink information for each radio link<br>10.3.6.27        |                                                                                                                                                |         |
| MBMS PL Service Restriction Information         | OP   |              | Enumerated (TRUE)                                            | Absence means that on the MBMS Preferred Layer (PL) no restrictions apply concerning the use of non-MBMS services i.e. the PL is not congested | REL-6   |

~~~~ Next Modified Section ~~~~

10.2.30 RADIO BEARER RELEASE

This message is used by UTRAN to release a radio bearer. It can also include modifications to the configurations of transport channels and/or physical channels. It can simultaneously indicate release of a signalling connection when UE is connected to more than one CN domain.

RLC-SAP: AM or UM

Logical channel: DCCH

Direction: UTRAN → UE

| Information Element/Group name | Need | Multi | Type and reference | Semantics description | Vers |
|--|------|---------------------|---|--|------|
| Message Type | MP | | Message Type | | |
| UE Information Elements | | | | | |
| RRC transaction identifier | MP | | RRC transaction identifier
10.3.3.36 | | |
| Integrity check info | CH | | Integrity check info
10.3.3.16 | | |
| Integrity protection mode info | OP | | Integrity protection mode info
10.3.3.19 | The UTRAN should not include this IE unless it is performing an SRNS relocation. | |
| Ciphering mode info | OP | | Ciphering mode info
10.3.3.5 | The UTRAN should not include this IE unless it is performing an SRNS relocation and a change in ciphering algorithm. | |
| Activation time | MD | | Activation time
10.3.3.1 | Default value is "now" | |
| New U-RNTI | OP | | U-RNTI
10.3.3.47 | | |
| New C-RNTI | OP | | C-RNTI
10.3.3.8 | | |
| New DSCH-RNTI | OP | | DSCH-RNTI
10.3.3.9a | | |
| New H-RNTI | OP | | H-RNTI
10.3.3.14a | | REL |
| New E-RNTI | OP | | E-RNTI
10.3.3.10a | | REL |
| RRC State Indicator | MP | | RRC State Indicator
10.3.3.35a | | |
| UTRAN DRX cycle length coefficient | OP | | UTRAN DRX cycle length coefficient
10.3.3.49 | | |
| CN Information Elements | | | | | |
| CN Information info | OP | | CN Information info
10.3.1.3 | | |
| Signalling Connection release indication | OP | | CN domain identity
10.3.1.1 | | |
| UTRAN mobility information elements | | | | | |
| URA identity | OP | | URA identity
10.3.2.6 | | |
| RB Information Elements | | | | | |
| RAB information to reconfigure list | OP | 1 to <maxRABsetup > | | | |
| >RAB information to reconfigure | MP | | RAB information to reconfigure
10.3.4.11 | | |
| RB information to release list | MP | 1 to <maxRB> | | | |
| >RB information to release | MP | | RB information to release | | |

| Information Element/Group name | Need | Multi | Type and reference | Semantics description | Vers |
|--|------|----------------------|---|---|------|
| | | | 10.3.4.19 | | |
| RB information to be affected list | OP | 1 to <maxRB> | | | |
| >RB information to be affected | MP | | RB information to be affected
10.3.4.17 | | |
| Downlink counter synchronisation info | OP | | | | |
| >RB with PDCP information list | OP | 1 to <maxRBall RABs> | | | |
| >>RB with PDCP information | MP | | RB with PDCP information
10.3.4.22 | This IE is needed for each RB having PDCP in the case of lossless SRNS relocation | |
| | OP | | | | REL- |
| >RB with PDCP context relocation info list | OP | 1 to <maxRBall RABs> | | | REL- |
| >>PDCP context relocation info | MP | | PDCP context relocation info
10.3.4.1a | This IE is needed for each RB having PDCP and performing PDCP context relocation | REL- |
| TrCH Information Elements | | | | | |
| Uplink transport channels | | | | | |
| UL Transport channel information common for all transport channels | OP | | UL Transport channel information common for all transport channels
10.3.5.24 | | |
| Deleted TrCH information list | OP | 1 to <maxTrCH > | | | |
| >Deleted UL TrCH information | MP | | Deleted UL TrCH information
10.3.5.5 | | |
| Added or Reconfigured TrCH information list | OP | 1 to <maxTrCH > | | | |
| >Added or Reconfigured UL TrCH information | MP | | Added or Reconfigured UL TrCH information
10.3.5.2 | | |
| CHOICE <i>mode</i> | OP | | | | |
| >FDD | | | | | |
| >>CPCH set ID | OP | | CPCH set ID
10.3.5.3 | | |
| >>Added or Reconfigured TrCH information for DRAC list | OP | 1 to <maxTrCH > | | | |
| >>>DRAC static information | MP | | DRAC static information
10.3.5.7 | | |
| >TDD | | | | (no data) | |
| Downlink transport channels | | | | | |
| DL Transport channel information common for all | OP | | DL Transport channel | | |

| Information Element/Group name | Need | Multi | Type and reference | Semantics description | Vers |
|---|------|-----------------|--|--|------|
| transport channels | | | information common for all transport channels
10.3.5.6 | | |
| Deleted TrCH information list | OP | 1 to <maxTrCH > | | | |
| >Deleted DL TrCH information | MP | | Deleted DL TrCH information
10.3.5.4 | | |
| Added or Reconfigured TrCH information list | OP | 1 to <maxTrCH > | | | |
| >Added or Reconfigured DL TrCH information | MP | | Added or Reconfigured DL TrCH information
10.3.5.1 | | |
| PhyCH information elements | | | | | |
| Frequency info | OP | | Frequency info
10.3.6.36 | | |
| Uplink radio resources | | | | | |
| Maximum allowed UL TX power | MD | | Maximum allowed UL TX power
10.3.6.39 | Default value is the existing maximum UL TX power | |
| CHOICE <i>channel requirement</i> | OP | | | | |
| >Uplink DPCH info | | | Uplink DPCH info
10.3.6.88 | | |
| >>CPCH SET Info | | | CPCH SET Info
10.3.6.13 | | |
| E-DCH Info | OP | | E-DCH Info
10.3.6.97 | | REL |
| Downlink radio resources | | | | | |
| CHOICE <i>mode</i> | MP | | | | |
| >FDD | | | | | |
| >>Downlink PDSCH information | OP | | Downlink PDSCH information
10.3.6.30 | | |
| >TDD | | | | (no data) | |
| Downlink HS-PDSCH Information | OP | | Downlink HS-PDSCH Information
10.3.6.23a | | REL- |
| Downlink information common for all radio links | OP | | Downlink information common for all radio links
10.3.6.24 | | |
| Downlink information per radio link list | OP | 1 to <maxRL> | | Send downlink information for each radio link to be set-up | |
| >Downlink information for each radio link | MP | | Downlink information for each radio link
10.3.6.27 | | |
| MBMS PL Service Restriction Information | OP | | Enumerated (TRUE) | Absence means that on the MBMS Preferred Layer (PL) | REL |

| Information Element/Group name | Need | Multi | Type and reference | Semantics description | Vers |
|---|------|--------------|-------------------------------------|--|------|
| | | | | no restrictions apply concerning the use of non-MBMS services i.e. the PL is not congested | |
| MBMS RB list released to change transfer mode | OP | 1 to <maxRB> | | | REL |
| >RB information to release | MP | | RB information to release 10.3.4.19 | | REL |

~~~~ Next Modified Section ~~~~

### 10.2.33 RADIO BEARER SETUP

This message is sent by UTRAN to the UE to establish new radio bearer(s). It can also include modifications to the configurations of transport channels and/or physical channels.

RLC-SAP: AM or UM

Logical channel: DCCH

Direction: UTRAN → UE

| Information Element/Group name | Need | Multi | Type and reference                       | Semantics description                                                                                               | Version |
|--------------------------------|------|-------|------------------------------------------|---------------------------------------------------------------------------------------------------------------------|---------|
| Message Type                   | MP   |       | Message Type                             |                                                                                                                     |         |
| <b>UE Information Elements</b> |      |       |                                          |                                                                                                                     |         |
| RRC transaction identifier     | MP   |       | RRC transaction identifier 10.3.3.36     |                                                                                                                     |         |
| Integrity check info           | CH   |       | Integrity check info 10.3.3.16           |                                                                                                                     |         |
| Integrity protection mode info | OP   |       | Integrity protection mode info 10.3.3.19 | The UTRAN should not include this IE unless it is performing an SRNS relocation                                     |         |
| Ciphering mode info            | OP   |       | Ciphering mode info 10.3.3.5             | The UTRAN should not include this IE unless it is performing an SRNS relocation and a change in ciphering algorithm |         |
| Activation time                | MD   |       | Activation time 10.3.3.1                 | Default value is "now"                                                                                              |         |
| New U-RNTI                     | OP   |       | U-RNTI 10.3.3.47                         |                                                                                                                     |         |
| New C-RNTI                     | OP   |       | C-RNTI 10.3.3.8                          |                                                                                                                     |         |
| New DSCH-RNTI                  | OP   |       | DSCH-RNTI 10.3.3.9a                      |                                                                                                                     |         |
| New H-RNTI                     | OP   |       | H-RNTI 10.3.3.14a                        |                                                                                                                     | REL-5   |
| New E-RNTI                     | OP   |       | E-RNTI 10.3.3.10a                        |                                                                                                                     | REL-6   |
| RRC State Indicator            | MP   |       | RRC State                                |                                                                                                                     |         |

| Information Element/Group name                                     | Need | Multi                | Type and reference                                                              | Semantics description                                                             | Version |
|--------------------------------------------------------------------|------|----------------------|---------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---------|
|                                                                    |      |                      | Indicator<br>10.3.3.35a                                                         |                                                                                   |         |
| UTRAN DRX cycle length coefficient                                 | OP   |                      | UTRAN DRX cycle length coefficient<br>10.3.3.49                                 |                                                                                   |         |
| <b>CN Information Elements</b>                                     |      |                      |                                                                                 |                                                                                   |         |
| CN Information info                                                | OP   |                      | CN Information info 10.3.1.3                                                    |                                                                                   |         |
| <b>UTRAN mobility information elements</b>                         |      |                      |                                                                                 |                                                                                   |         |
| URA identity                                                       | OP   |                      | URA identity<br>10.3.2.6                                                        |                                                                                   |         |
| <b>RB Information Elements</b>                                     |      |                      |                                                                                 |                                                                                   |         |
| Signalling RB information to setup list                            | OP   | 1 to <maxSRBs etup>  |                                                                                 | For each signalling radio bearer established                                      |         |
| >Signalling RB information to setup                                | MP   |                      | Signalling RB information to setup<br>10.3.4.24                                 |                                                                                   |         |
| RAB information to setup list                                      | OP   | 1 to <maxRABs etup>  |                                                                                 | For each RAB established                                                          |         |
| >RAB information for setup                                         | MP   |                      | RAB information for setup<br>10.3.4.10                                          |                                                                                   |         |
| RB information to be affected list                                 | OP   | 1 to <maxRB>         |                                                                                 |                                                                                   |         |
| >RB information to be affected                                     | MP   |                      | RB information to be affected<br>10.3.4.17                                      |                                                                                   |         |
| Downlink counter synchronisation info                              | OP   |                      |                                                                                 |                                                                                   |         |
| >RB with PDCP information list                                     | OP   | 1 to <maxRBall RABs> |                                                                                 |                                                                                   |         |
| >>RB with PDCP information                                         | MP   |                      | RB with PDCP information<br>10.3.4.22                                           | This IE is needed for each RB having PDCP in the case of lossless SRNS relocation |         |
|                                                                    | OP   |                      |                                                                                 |                                                                                   | REL-5   |
| >>PDCP context relocation info                                     | OP   |                      | PDCP context relocation info<br>10.3.4.1a                                       | This IE is needed for each RB having PDCP and performing PDCP context relocation  | REL-5   |
| <b>TrCH Information Elements</b>                                   |      |                      |                                                                                 |                                                                                   |         |
| <b>Uplink transport channels</b>                                   |      |                      |                                                                                 |                                                                                   |         |
| UL Transport channel information common for all transport channels | OP   |                      | UL Transport channel information common for all transport channels<br>10.3.5.24 |                                                                                   |         |
| Deleted TrCH information list                                      | OP   | 1 to                 |                                                                                 |                                                                                   |         |

| Information Element/Group name                                     | Need | Multi           | Type and reference                                                             | Semantics description                             | Version |
|--------------------------------------------------------------------|------|-----------------|--------------------------------------------------------------------------------|---------------------------------------------------|---------|
|                                                                    |      | <maxTrCH >      |                                                                                |                                                   |         |
| >Deleted UL TrCH information                                       | MP   |                 | Deleted UL TrCH information<br>10.3.5.5                                        |                                                   |         |
| Added or Reconfigured TrCH information list                        | OP   | 1 to <maxTrCH > |                                                                                |                                                   |         |
| >Added or Reconfigured UL TrCH information                         | MP   |                 | Added or Reconfigured UL TrCH information<br>10.3.5.2                          |                                                   |         |
| CHOICE <i>mode</i>                                                 | OP   |                 |                                                                                |                                                   |         |
| >FDD                                                               |      |                 |                                                                                |                                                   |         |
| >>CPCH <del>set ID</del>                                           | OP   |                 | CPCH <del>set ID</del><br>10.3.5.3                                             |                                                   |         |
| >>Added or Reconfigured TrCH information for DRAC list             | OP   | 1 to <maxTrCH > |                                                                                |                                                   |         |
| >>>DRAC static information                                         | MP   |                 | DRAC static information<br>10.3.5.7                                            |                                                   |         |
| >TDD                                                               |      |                 |                                                                                | (no data)                                         |         |
| <b>Downlink transport channels</b>                                 |      |                 |                                                                                |                                                   |         |
| DL Transport channel information common for all transport channels | OP   |                 | DL Transport channel information common for all transport channels<br>10.3.5.6 |                                                   |         |
| Deleted TrCH information list                                      | OP   | 1 to <maxTrCH > |                                                                                |                                                   |         |
| >Deleted DL TrCH information                                       | MP   |                 | Deleted DL TrCH information<br>10.3.5.4                                        |                                                   |         |
| Added or Reconfigured TrCH information list                        | OP   | 1 to <maxTrCH > |                                                                                |                                                   |         |
| >Added or Reconfigured DL TrCH information                         | MP   |                 | Added or Reconfigured DL TrCH information<br>10.3.5.1                          |                                                   |         |
| <b>PhyCH information elements</b>                                  |      |                 |                                                                                |                                                   |         |
| Frequency info                                                     | OP   |                 | Frequency info<br>10.3.6.36                                                    |                                                   |         |
| <b>Uplink radio resources</b>                                      |      |                 |                                                                                |                                                   |         |
| Maximum allowed UL TX power                                        | MD   |                 | Maximum allowed UL TX power<br>10.3.6.39                                       | Default value is the existing maximum UL TX power |         |
| CHOICE <i>channel requirement</i>                                  | OP   |                 |                                                                                |                                                   |         |
| >Uplink DPCH info                                                  |      |                 | Uplink DPCH info<br>10.3.6.88                                                  |                                                   |         |
| >CPCH SET Info                                                     |      |                 | CPCH SET Info<br>10.3.6.13                                                     |                                                   |         |

| Information Element/Group name                  | Need | Multi        | Type and reference                                           | Semantics description                                                                                                                          | Version |
|-------------------------------------------------|------|--------------|--------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| E-DCH Info                                      | OP   |              | E-DCH Info<br>10.3.6.97                                      |                                                                                                                                                | REL-6   |
| <b>Downlink radio resources</b>                 |      |              |                                                              |                                                                                                                                                |         |
| CHOICE <i>mode</i>                              | MP   |              |                                                              |                                                                                                                                                |         |
| >FDD                                            |      |              |                                                              |                                                                                                                                                |         |
| >>Downlink PDSCH information                    | OP   |              | Downlink PDSCH information<br>10.3.6.30                      |                                                                                                                                                |         |
| >TDD                                            |      |              |                                                              | (no data)                                                                                                                                      |         |
| Downlink HS-PDSCH Information                   | OP   |              | Downlink HS-PDSCH Information<br>10.3.6.23a                  |                                                                                                                                                | REL-5   |
| Downlink information common for all radio links | OP   |              | Downlink information common for all radio links<br>10.3.6.24 |                                                                                                                                                |         |
| Downlink information per radio link list        | OP   | 1 to <maxRL> |                                                              | Send downlink information for each radio link                                                                                                  |         |
| >Downlink information for each radio link       | MP   |              | Downlink information for each radio link<br>10.3.6.27        |                                                                                                                                                |         |
| MBMS PL Service Restriction Information         | OP   |              | Enumerated (TRUE)                                            | Absence means that on the MBMS Preferred Layer (PL) no restrictions apply concerning the use of non-MBMS services i.e. the PL is not congested | REL-6   |

~~~~ Next Modified Section ~~~~

10.2.40 RRC CONNECTION SETUP

This message is used by the network to accept the establishment of an RRC connection for a UE, including assignment of signalling link information, transport channel information and optionally physical channel information.

RLC-SAP: UM

Logical channel: CCCH

Direction: UTRAN → UE

| Information Element/Group name | Need | Multi | Type and reference | Semantics description | Version |
|--------------------------------|------|-------|----------------------------------|-----------------------|---------|
| Message Type | MP | | Message Type | | |
| UE Information Elements | | | | | |
| Initial UE identity | MP | | Initial UE identity
10.3.3.15 | | |
| RRC transaction identifier | MP | | RRC | | |

| Information Element/Group name | Need | Multi | Type and reference | Semantics description | Version |
|--|------|-----------------|---|--|---------|
| | | | transaction identifier
10.3.3.36 | | |
| Activation time | MD | | Activation time 10.3.3.1 | Default value is "now" | |
| New U-RNTI | MP | | U-RNTI
10.3.3.47 | | |
| New C-RNTI | OP | | C-RNTI
10.3.3.8 | | |
| RRC State Indicator | MP | | RRC State Indicator
10.3.3.35a | | |
| UTRAN DRX cycle length coefficient | MP | | UTRAN DRX cycle length coefficient
10.3.3.49 | | |
| Capability update requirement | MD | | Capability update requirement
10.3.3.2 | Default value is defined in subclause 10.3.3.2 | |
| CHOICE <i>specification mode</i> | MP | | | | REL-5 |
| >Complete specification | | | | | |
| RB Information Elements | | | | | |
| >>Signalling RB information to setup list | MP | 3 to 4 | | | |
| >>>Signalling RB information to setup | MP | | Signalling RB information to setup
10.3.4.24 | | |
| TrCH Information Elements | | | | | |
| Uplink transport channels | | | | | |
| >>UL Transport channel information common for all transport channels | OP | | UL Transport channel information common for all transport channels
10.3.5.24 | | |
| >>Added or Reconfigured TrCH information list | MP | 1 to <maxTrCH > | | Although this IE is not required when the IE "RRC state indicator" is set to "CELL_FACH", need is MP to align with ASN.1 | |
| | OP | | | | REL-4 |
| >>>Added or Reconfigured UL TrCH information | MP | | Added or Reconfigured UL TrCH information
10.3.5.2 | | |
| Downlink transport channels | | | | | |
| >>DL Transport channel information common for all transport channels | OP | | DL Transport channel information common for all transport channels
10.3.5.6 | | |

| Information Element/Group name | Need | Multi | Type and reference | Semantics description | Version |
|---|------|-----------------|---|--|---------|
| >>Added or Reconfigured TrCH information list | MP | 1 to <maxTrCH > | | Although this IE is not required when the IE "RRC state indicator" is set to "CELL_FACH", need is MP to align with ASN.1 | |
| | OP | | | | REL-4 |
| >>>Added or Reconfigured DL TrCH information | MP | | Added or Reconfigured DL TrCH information 10.3.5.1 | | |
| >Preconfiguration | | | | | REL-5 |
| >>CHOICE <i>Preconfiguration mode</i> | MP | | | | REL-5 |
| >>>Predefined configuration identity | MP | | Predefined configuration identity 10.3.4.5 | | REL-5 |
| >>>Default configuration | | | | | REL-5 |
| >>>>Default configuration mode | MP | | Enumerated (FDD, TDD) | Indicates whether the FDD or TDD version of the default configuration shall be used | REL-5 |
| >>>>Default configuration identity | MP | | Default configuration identity 10.3.4.0 | | REL-5 |
| PhyCH information elements | | | | | |
| Frequency info | OP | | Frequency info 10.3.6.36 | | |
| Uplink radio resources | | | | | |
| Maximum allowed UL TX power | MD | | Maximum allowed UL TX power 10.3.6.39 | Default value is the existing maximum UL TX power | |
| CHOICE <i>channel requirement</i> | OP | | | | |
| >Uplink DPCH info | | | Uplink DPCH info 10.3.6.88 | | |
| >CPCH SET Info | | | CPCH SET Info 10.3.6.13 | | |
| Downlink radio resources | | | | | |
| Downlink information common for all radio links | OP | | Downlink information common for all radio links 10.3.6.24 | | |
| Downlink information per radio link list | OP | 1 to <MaxRL> | | Send downlink information for each radio link to be set-up | |
| >Downlink information for each radio link | MP | | Downlink information for each radio link 10.3.6.27 | | |

~~~~ Next Modified Section ~~~~

#### 10.2.48.8.11 System Information Block type 8 [Void](#)

NOTE:—Only for FDD.

The system information block type 8 contains static CPCH information to be used in the cell.

| Information Element/Group name    | Need | Multi                     | Type and reference              | Semantics description |
|-----------------------------------|------|---------------------------|---------------------------------|-----------------------|
| <b>UE information</b>             |      |                           |                                 |                       |
| CPCH parameters                   | MP   |                           | CPCH parameters<br>10.3.3.7     |                       |
| <b>PhyCH information elements</b> |      |                           |                                 |                       |
| CPCH set info list                | MP   | 1 to<br><maxCPC<br>Hsets> |                                 |                       |
| >CPCH set info                    | MP   |                           | CPCH set info<br>10.3.6.13      |                       |
| CSICH Power offset                | MP   |                           | CSICH Power offset<br>10.3.6.15 |                       |

#### 10.2.48.8.12 System Information Block type 9 [Void](#)

NOTE:—Only for FDD.

The system information block type 9 contains CPCH information to be used in the cell.

| Information Element/Group name    | Need | Multi                     | Type and reference                   | Semantics description |
|-----------------------------------|------|---------------------------|--------------------------------------|-----------------------|
| <b>PhyCH information elements</b> |      |                           |                                      |                       |
| CPCH set persistence levels list  | MP   | 1 to<br><maxCPC<br>Hsets> |                                      |                       |
| >CPCH set persistence levels      | MP   |                           | CPCH persistence levels<br>10.3.6.12 |                       |

~~~~ Next Modified Section ~~~~

10.2.50 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: AM or UM

Logical channel: DCCH

Direction: UTRAN → UE

| Information Element/Group name | Need | Multi | Type and reference | Semantics description | Version |
|--------------------------------|------|-------|--------------------|-----------------------|---------|
| Message Type | MP | | Message Type | | |
| UE Information Elements | | | | | |
| RRC transaction identifier | MP | | RRC | | |

| Information Element/Group name | Need | Multi | Type and reference | Semantics description | Version |
|--|------|----------------------|---|---|---------|
| | | | transaction identifier
10.3.3.36 | | |
| Integrity check info | CH | | Integrity check info
10.3.3.16 | | |
| Integrity protection mode info | OP | | Integrity protection mode info
10.3.3.19 | The UTRAN should not include this IE unless it is performing an SRNS relocation | |
| Ciphering mode info | OP | | Ciphering mode info
10.3.3.5 | The UTRAN should not include this IE unless it is performing an SRNS relocation and a change in ciphering algorithm | |
| Activation time | MD | | Activation time
10.3.3.1 | Default value is "now" | |
| New U-RNTI | OP | | U-RNTI
10.3.3.47 | | |
| New C-RNTI | OP | | C-RNTI
10.3.3.8 | | |
| New DSCH-RNTI | OP | | DSCH-RNTI
10.3.3.9a | | |
| New H-RNTI | OP | | H-RNTI
10.3.3.14a | | REL-5 |
| New E-RNTI | OP | | E-RNTI
10.3.3.10a | | REL-6 |
| RRC State Indicator | MP | | RRC State Indicator
10.3.3.35a | | |
| UTRAN DRX cycle length coefficient | OP | | UTRAN DRX cycle length coefficient
10.3.3.49 | | |
| CN Information Elements | | | | | |
| CN Information info | OP | | CN Information info
10.3.1.3 | | |
| UTRAN mobility information elements | | | | | |
| URA identity | OP | | URA identity
10.3.2.6 | | |
| RB information elements | | | | | |
| Downlink counter synchronisation info | OP | | | | |
| >RB with PDCP information list | OP | 1 to <maxRBall RABs> | | | |
| >>RB with PDCP information | MP | | RB with PDCP information
10.3.4.22 | This IE is needed for each RB having PDCP in the case of lossless SRNS relocation | |
| | OP | | | | REL-5 |
| >>PDCP context relocation info | OP | | PDCP context relocation info
10.3.4.1a | This IE is needed for each RB having PDCP and performing PDCP context relocation | REL-5 |

| Information Element/Group name | Need | Multi | Type and reference | Semantics description | Version |
|--|------|-----------------|--|---|---------|
| TrCH Information Elements | | | | | |
| Uplink transport channels | | | | | |
| UL Transport channel information common for all transport channels | OP | | UL Transport channel information common for all transport channels 10.3.5.24 | | |
| Added or Reconfigured TrCH information list | OP | 1 to <maxTrCH > | | | |
| >Added or Reconfigured UL TrCH information | MP | | Added or Reconfigured UL TrCH information 10.3.5.2 | | |
| CHOICE <i>mode</i> | OP | | | | |
| >FDD | | | | | |
| >>CPCH set ID | OP | | CPCH set ID 10.3.5.3 | | |
| >>Added or Reconfigured TrCH information for DRAC list | OP | 1 to <maxTrCH > | | | |
| >>>DRAC static information | MP | | DRAC static information 10.3.5.7 | | |
| >TDD | | | | (no data) | |
| Downlink transport channels | | | | | |
| DL Transport channel information common for all transport channels | OP | | DL Transport channel information common for all transport channels 10.3.5.6 | | |
| Added or Reconfigured TrCH information list | OP | 1 to <maxTrCH > | | | |
| >Added or Reconfigured DL TrCH information | MP | | Added or Reconfigured DL TrCH information 10.3.5.1 | | |
| PhyCH information elements | | | | | |
| Frequency info | OP | | Frequency info 10.3.6.36 | | |
| Uplink radio resources | | | | | |
| Maximum allowed UL TX power | MD | | Maximum allowed UL TX power 10.3.6.39 | Default value is the existing maximum UL TX power | |
| CHOICE <i>channel requirement</i> | OP | | | | |
| >Uplink DPCH info | | | Uplink DPCH info 10.3.6.88 | | |
| >CPCH SET Info | | | CPCH SET Info 10.3.6.13 | | |
| E-DCH Info | OP | | E-DCH Info 10.3.6.97 | | REL-6 |
| Downlink radio resources | | | | | |
| CHOICE <i>mode</i> | MP | | | | |

| Information Element/Group name | Need | Multi | Type and reference | Semantics description | Version |
|---|------|--------------|---|--|---------|
| >FDD | | | | | |
| >>Downlink PDSCH information | OP | | Downlink PDSCH information 10.3.6.30 | | |
| >TDD | | | | (no data) | |
| Downlink HS-PDSCH Information | OP | | Downlink HS-PDSCH Information 10.3.6.23a | | REL-5 |
| Downlink information common for all radio links | OP | | Downlink information common for all radio links 10.3.6.24 | | |
| Downlink information per radio link list | OP | 1 to <maxRL> | | Send downlink information for each radio link | |
| >Downlink information for each radio link | MP | | Downlink information for each radio link 10.3.6.27 | | |
| MBMS PL Service Restriction Information | OP | | Enumerated (TRUE) | Absence means that on the MBMS Preferred Layer (PL) no restrictions apply concerning the use of non-MBMS services i.e. the PL is not congested | REL-6 |

~~~~ Next Modified Section ~~~~

### 10.3.3.7 CPCH Parameters Void

NOTE: — Only for FDD.

These parameters are used by any UE using any CPCH set allocated to the cell that is broadcasting this system information.

| Information Element/Group name | Need | Multi       | Type and reference | Semantics description                                                                    |
|--------------------------------|------|-------------|--------------------|------------------------------------------------------------------------------------------|
| Initial Priority Delay         | OP   | 1 to maxASC |                    | Initial delays for ASC priority.                                                         |
| >NS_IP                         | MP   |             | Integer (0...28)   | Number of slots for initial fixed delay for each ASC priority level                      |
| Backoff control parameters     | MP   |             |                    |                                                                                          |
| >N_ap_retrans_max              | MP   |             | Integer (1...64)   | Max number of AP transmissions without AP-AICH response, a PHY parameter.                |
| >N_access_fails                | MP   |             | Integer (1...64)   | Max number of preamble ramping cycles when NAK response received, a MAC parameter.       |
| >NF_bo_no_aich                 | MP   |             | Integer (0...31)   | Number of frames for UE backoff after N <sub>ap_retrans_max</sub> unsuccessful AP access |

| Information Element/Group name | Need    | Multi | Type and reference                    | Semantics description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|--------------------------------|---------|-------|---------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| >NS_bo_busy                    | MP      |       | Integer (0..63)                       | attempts, a MAC parameter. Number of slots for UE fixed backoff after access attempt to busy CPCH, a MAC parameter.                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| >NF_bo_all_busy                | MP      |       | Integer (0..31)                       | Max number of frames for UE backoff after access attempt to last busy CPCH, a MAC parameter. UE randomly selects backoff value from range (0..NF_bo_all_busy)                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| >NF_bo_mismatch                | MP      |       | Integer (0..127)                      | Max number of frames for the UE backoff after received mismatch on CD/CA-ICH, a MAC parameter. UE randomly selects backoff value from range (0..NF_bo_mismatch)                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| >T_CPCH                        | MP      |       | Enumerated (0, 1)                     | CPCH channel timing used to determine Tau, a PHY parameter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Power Control Algorithm        | MP      |       | Enumerated (algorithm 1, algorithm 2) | Specifies algorithm to be used by UE to interpret TPC commands                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| TPC step size                  | CV algo |       | Integer (1, 2)                        | In dB                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| DL-DPCCH BER                   | MP      |       | Integer (0..63)                       | The BER quality value shall be set in the range $0 \leq \text{DPCCH BER} \leq 1$ in the unit BER_dB where:<br><br>BER_dB_0: DPCCH BER = 0<br><br>BER_dB_1: $-\infty < \text{Log}_{10}(\text{DPCCH BER}) < -4.03$<br><br>BER_dB_2: $-4.03 \leq \text{Log}_{10}(\text{DPCCH BER}) < -3.965$<br><br>BER_dB_3: $-3.965 \leq \text{Log}_{10}(\text{DPCCH BER}) < -3.9$<br>...<br>BER_dB_61: $-0.195 \leq \text{Log}_{10}(\text{DPCCH BER}) < -0.13$<br><br>BER_dB_62: $-0.13 \leq \text{Log}_{10}(\text{DPCCH BER}) < -0.065$<br><br>BER_dB_63: $-0.065 \leq \text{Log}_{10}(\text{DPCCH BER}) \leq 0$ |

| Condition | Explanation                                                                                                      |
|-----------|------------------------------------------------------------------------------------------------------------------|
| algo      | The IE is mandatory present if "Power Control Algorithm" is set to "algorithm 1", otherwise the IE is not needed |

~~~~ Next Modified Section ~~~~

10.3.3.25 Physical channel capability

| Information Element/Group name | Need | Multi | Type and Reference | Semantics description | Version |
|--------------------------------|------|-------|--------------------|-----------------------|---------|
| Downlink physical channel | | | | | |

| Information Element/Group name | Need | Multi | Type and Reference | Semantics description | Version |
|--|------------------------------------|-------|--|---|---------|
| capability information elements | | | | | |
| FDD downlink physical channel capability | CH-
<i>fdd_req_susp</i> | | | | |
| >Max no DPCH/PDSCH codes | MP | | Integer (1..8) | Maximum number of DPCH/PDSCH codes to be simultaneously received | |
| >Max no physical channel bits received | MP | | Integer (1200, 2400, 3600, 4800, 7200, 9600, 14400, 19200, 28800, 38400, 48000, 57600, 67200, 76800) | Maximum number of physical channel bits received in any 10 ms interval (DPCH, PDSCH, S-CCPCH) | |
| >Support for SF 512 | MP | | Boolean | TRUE means supported | |
| >Support of PDSCH | MP | | Boolean | TRUE means supported | |
| >CHOICE <i>Support of HS-PDSCH</i> | CV-
<i>not_iRAT_HoInfo</i> | | | | REL-5 |
| >>Supported | | | | | REL-5 |
| >>>HS-DSCH physical layer category | MP | | Integer (1..64) | | REL-5 |
| >>>Support of dedicated pilots for channel estimation of HS-DSCH | MP | | Boolean | TRUE means supported | REL-5 |
| >>>Simultaneous reception of SCCPCH, DPCH and HS-PDSCH | MP | | Boolean | TRUE means supported. This IE shall only be set to TRUE in the case the IE "Simultaneous reception of SCCPCH and DPCH" is set to TRUE | REL-5 |
| >>Unsupported | | | | (no data) | REL-5 |
| >Simultaneous reception of SCCPCH and DPCH | MP | | Boolean | TRUE means supported | |
| >Simultaneous reception of SCCPCH, DPCH and PDSCH | CV-
<i>if_sim_rec_pdsch_sup</i> | | Boolean | TRUE means supported | |
| >Max no of S-CCPCH RL | CV-
<i>if_sim_rec</i> | | Integer(1) | Maximum number of simultaneous S-CCPCH radio links | |
| >Support of dedicated pilots for channel estimation | MD | | Enumerated (true) | Presence of this element means supported and absence not supported. This IE shall be set to TRUE in this version of the protocol. | |

| Information Element/Group name | Need | Multi | Type and Reference | Semantics description | Version |
|--|--------------------------------------|-------|---|-------------------------|-----------------------------|
| 3.84 Mcps TDD downlink physical channel capability | CH-
3.84_Mcps
_tdd_req_s
up | | | | Name
changed
in REL-4 |
| >Maximum number of timeslots per frame | MP | | Integer
(1..14) | | |
| >Maximum number of physical channels per frame | MP | | Integer
(5..224) | | |
| >Minimum SF | MP | | Integer (1,
16) | | |
| >Support of PDSCH | MP | | Boolean | TRUE means
supported | |
| >CHOICE <i>Support of HS-PDSCH</i> | CV-
not_iRAT_
HoInfo | | | | REL-5 |
| >>Supported | | | | | REL-5 |
| >>>HS-DSCH physical layer category | MP | | Integer
(1..64) | | REL-5 |
| >>Unsupported | | | | (no data) | REL-5 |
| >Maximum number of physical channels per timeslot | MP | | Integer
(5..16) | | |
| 1.28 Mcps TDD downlink physical channel capability | CH-
1.28_Mcps
_tdd_req_s
up | | | | REL-4 |
| >Maximum number of timeslots per subframe | MP | | Integer (1..6) | | REL-4 |
| >Maximum number of physical channels per subframe | MP | | Integer
(1..96) | | REL-4 |
| >Minimum SF | MP | | Integer (1,
16) | | REL-4 |
| >Support of PDSCH | MP | | Boolean | TRUE means
supported | REL-4 |
| >CHOICE <i>Support of HS-PDSCH</i> | CV-
not_iRAT_
HoInfo | | | | REL-5 |
| >>Supported | | | | | REL-5 |
| >>>HS-DSCH physical layer category | MP | | Integer
(1..64) | | REL-5 |
| >>Unsupported | | | | (no data) | REL-5 |
| >Maximum number of physical channels per timeslot | MP | | Integer
(1..16) | | REL-4 |
| >Support of 8PSK | MP | | Boolean | TRUE means
supported | REL-4 |
| Uplink physical channel capability information elements | | | | | |
| FDD uplink physical channel capability | CH-
fdd_req_su
p | | | | |
| >Maximum number of DPDCH bits transmitted per 10 ms | MP | | Integer (600,
1200, 2400,
4800, 9600,
19200,
28800,
38400,
48000,
57600) | | |
| >Support of PCPCH | MP | | Boolean | TRUE means
supported | |
| 3.84 Mcps TDD uplink physical channel capability | CH-
3.84_Mcps
_tdd_req_s | | | | Name
changed
in REL-4 |

| Information Element/Group name | Need | Multi | Type and Reference | Semantics description | Version |
|---|--|-------|--------------------------|-----------------------|---------|
| | <i>up</i> | | | | |
| >Maximum Number of timeslots per frame | MP | | Integer (1..14) | | |
| >Maximum number of physical channels per timeslot | MP | | Integer (1, 2) | | |
| >Minimum SF | MP | | Integer (1, 2, 4, 8) | | |
| >Support of PUSCH | MP | | Boolean | TRUE means supported | |
| 1.28 Mcps TDD uplink physical channel capability | CH-
<i>1.28_Mcps_tdd_req_s</i>
<i>up</i> | | | | REL-4 |
| >Maximum Number of timeslots per subframe | MP | | Integer (1..6) | | REL-4 |
| >Maximum number of physical channels per timeslot | MP | | Integer (1, 2) | | REL-4 |
| >Minimum SF | MP | | Integer (1, 2, 4, 8, 16) | | REL-4 |
| >Support of PUSCH | MP | | Boolean | TRUE means supported | REL-4 |
| >Support of 8PSK | MP | | Boolean | TRUE means supported | REL-4 |

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

~~~~ Next Modified Section ~~~~

### 10.3.4.21 RB mapping info

A multiplexing option for each possible transport channel MAC-d flow or E-DCH MAC-d flow this RB can be multiplexed on.

| Information Element/Group name           | Need                     | Multi                  | Type and reference                    | Semantics description                                                                                                                                                                                                                                                                                             | Version |
|------------------------------------------|--------------------------|------------------------|---------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| Information for each multiplexing option | MP                       | 1 to <maxRBmuxOptions> |                                       |                                                                                                                                                                                                                                                                                                                   |         |
| >RLC logical channel mapping indicator   | CV-UL-RLCLogicalChannels |                        | Boolean                               | TRUE indicates that the first logical channel shall be used for data PDUs and the second logical channel shall be used for control PDUs.<br>FALSE indicates that control and data PDUs can be sent on either of the two logical channels.<br>This parameter is not used in this release and shall be set to TRUE. |         |
| >Number of uplink RLC logical channels   | CV-UL-RLC info           | 1 to MaxLoCHperRLC     |                                       | 1 or 2 logical channels per RLC entity or radio bearer RLC [16]                                                                                                                                                                                                                                                   |         |
| >>Uplink transport channel type          | MP                       |                        | Enumerated(DCH,RACH,CPCH,USCH, E-DCH) | CPCH is FDD only<br>USCH is TDD only                                                                                                                                                                                                                                                                              |         |
| >>CHOICE Uplink transport channel type   |                          |                        |                                       | Note 2                                                                                                                                                                                                                                                                                                            | REL-6   |
| >>>DCH, RACH, CPCH, USCH                 |                          |                        |                                       |                                                                                                                                                                                                                                                                                                                   | REL-6   |
| >>>>ULtransport channel identity         | CV-UL-DCH/USCH           |                        | Transport channel identity 10.3.5.18  | This is the ID of a DCH or USCH (TDD only) that this RB could be mapped onto.                                                                                                                                                                                                                                     |         |
| >>>>Logical channel identity             | OP                       |                        | Integer(1..15)                        | This parameter is used to distinguish logical channels multiplexed by MAC on a transport channel.                                                                                                                                                                                                                 |         |
| >>>>CHOICE RLC size list                 | MP                       |                        |                                       | The RLC sizes that are allowed for this logical channel.                                                                                                                                                                                                                                                          |         |
| >>>>>All                                 |                          |                        | Null                                  | All RLC sizes listed in the Transport Format Set. 10.3.5.23                                                                                                                                                                                                                                                       |         |
| >>>>>Configured                          |                          |                        | Null                                  | The RLC sizes configured for this logical channel in                                                                                                                                                                                                                                                              |         |



| Information Element/Group name            | Need           | Multi                            | Type and reference                  | Semantics description                                                                                                                                                                   | Version |
|-------------------------------------------|----------------|----------------------------------|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
|                                           |                |                                  |                                     | the <i>Transport Format Set</i> . 10.3.5.23 if present in this message or in the previously stored configuration otherwise                                                              |         |
| >>>>Explicit List                         |                | 1 to <maxTF>                     |                                     | Lists the RLC sizes that are valid for the logical channel.                                                                                                                             |         |
| >>>>>RLC size index                       | MP             |                                  | Integer(1..maxTF)                   | The integer number is a reference to the <i>RLC size</i> which arrived at that position in the <i>Transport Format Set</i> 10.3.5.23                                                    |         |
| >>>E-DCH                                  |                |                                  |                                     |                                                                                                                                                                                         | REL-6   |
| >>>>E-DCH MAC-d flow identity             | MP             |                                  | E-DCH MAC-d flow identity 10.3.5.7e |                                                                                                                                                                                         | REL-6   |
| >>>>DDI                                   | MP             |                                  | Integer (0..62)                     | If more than 1 UL RLC PDU size is configured for this RB, the different sizes will use subsequent DDI values starting from this DDI value. Value "0x3F" is reserved                     | REL-6   |
| >>>>RLC PDU size list                     | MP             | 1 to <maxRLC PDUsizePerLogChan > |                                     |                                                                                                                                                                                         | REL-6   |
| >>>>>RLC PDU size                         | MP             |                                  | Integer(16..5000 by step of 8)      | Unit is bits                                                                                                                                                                            | REL-6   |
| >>MAC logical channel priority            | MP             |                                  | Integer(1..8)                       | This is priority between a user's different RBs (or logical channels). [15]                                                                                                             |         |
| >Downlink RLC logical channel info        | CV-DL-RLC info |                                  |                                     |                                                                                                                                                                                         |         |
| >>Number of downlink RLC logical channels | MD             | 1 to MaxLoCHperRLC               |                                     | 1 or 2 logical channels per RLC entity or radio bearer RLC [16] Default value is that parameter values for DL are exactly the same as for corresponding UL logical channel. In case two |         |

| Information Element/Group name                                                                                                          | Need          | Multi | Type and reference                                               | Semantics description                                                                                                                                                    | Version |
|-----------------------------------------------------------------------------------------------------------------------------------------|---------------|-------|------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
|                                                                                                                                         |               |       |                                                                  | multiplexing options are specified for the UL, the first options shall be used as default for the DL. As regards to the IE "Channel type", rule is specified in 8.6.4.8. |         |
| >>>Downlink transport channel type                                                                                                      | MP            |       | Enumerated(DCH,FACH, DSCH,DCH+ DSCH<br>, HS-DSCH, DCH + HS-DSCH) | Note 1                                                                                                                                                                   | REL-5   |
| >>>DL DCH Transport channel identity                                                                                                    | CV-DL-DCH     |       | Transport channel identity 10.3.5.18                             |                                                                                                                                                                          |         |
| >>>DL DSCH Transport channel identity                                                                                                   | CV-DL-DSCH    |       | Transport channel identity 10.3.5.18                             |                                                                                                                                                                          |         |
| >>>DL HS-DSCH MAC-d flow identity                                                                                                       | CV-DL-HS-DSCH |       | MAC-d flow identity 10.3.5.7c                                    |                                                                                                                                                                          | REL-5   |
| >>>Logical channel identity                                                                                                             | OP            |       | Integer(1..15)                                                   | 16 is reserved                                                                                                                                                           |         |
| Note 1: The IE "Downlink transport channel type" values "HS-DSCH" and "DCH + HS-DSCH" are not used in the RRC CONNECTION SETUP message. |               |       |                                                                  |                                                                                                                                                                          |         |
| Note 2: The IE "Uplink transport channel type" value E-DCH is not used in the RRC CONNECTION SETUP message.                             |               |       |                                                                  |                                                                                                                                                                          |         |

| Condition                    | Explanation                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>UL-RLC info</i>           | If "CHOICE <i>Uplink RLC mode</i> " in the IE "RLC info" that applies for that RB (i.e. either the one stored or received in the same message for the RB for which the "RB mapping info" was received, or the one stored or received in the same message for the RB pointed at in the IE "Same as RB" in the IE "RB information to setup" stored or received in the same message) is present this IE is mandatory present. Otherwise the IE is not needed.   |
| <i>DL-RLC info</i>           | If "CHOICE <i>Downlink RLC mode</i> " in the IE "RLC info" that applies for that RB (i.e. either the one stored or received in the same message for the RB for which the "RB mapping info" was received, or the one stored or received in the same message for the RB pointed at in the IE "Same as RB" in the IE "RB information to setup" stored or received in the same message) is present this IE is mandatory present. Otherwise the IE is not needed. |
| <i>UL-RLCLogicalChannels</i> | If "Number of uplink RLC logical channels" in IE "RB mapping info" is 2, then this IE is mandatory present. Otherwise this IE is not needed.                                                                                                                                                                                                                                                                                                                 |
| <i>UL-DCH/USCH</i>           | If IE "Uplink transport channel type" is equal to "DCH" or "USCH" (TDD only) this IE is mandatory present. Otherwise the IE is not needed.                                                                                                                                                                                                                                                                                                                   |
| <i>DL-DCH</i>                | If IE "Downlink transport channel type" is equal to "DCH", "DCH+DSCH" or "DCH + HS-DSCH" this IE is mandatory present. Otherwise the IE is not needed.                                                                                                                                                                                                                                                                                                       |

|            |                                                                                                                                               |
|------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| DL-DSCH    | If IE "Downlink transport channel type" is equal to "DSCH" or "DCH+DSCH" this IE is mandatory present. Otherwise the IE is not needed.        |
| DL-HS-DSCH | If IE "Downlink transport channel type" is equal to "HSDSCH" or "DCH + HS-DSCH" this IE is mandatory present. Otherwise the IE is not needed. |

~~~~ Next Modified Section ~~~~

10.3.5.3 CPGH set ID Void

NOTE:— Only for FDD.

This information element indicates that this transport channel may use any of the Physical CPCH channels defined in the CPCH set info, which contains the same CPCH set ID. The CPCH set ID associates the transport channel with a set of PCPCH channels defined in a CPCH set info IE and a set of CPCH persistency values. The CPCH set info IE(s) and the CPCH persistency values IE(s) each include the CPCH set ID and are part of the SYSTEM INFORMATION message.

| Information Element/Group name | Need | Multi | Type and reference | Semantics description |
|--------------------------------|------|-------|----------------------------------|--|
| CPCH set ID | MP | | Integer(1...m
axCPCHsets
) | Identifier for CPCH set info and CPCH persistency value messages |

~~~~ Next Modified Section ~~~~

### 10.3.5.8 Power Offset Information

| Information Element/Group name | Need | Multi | Type and reference | Semantics description                                                                                                                                                                                   |
|--------------------------------|------|-------|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CHOICE <i>Gain Factors</i>     | MP   |       |                    |                                                                                                                                                                                                         |
| >Signalled Gain Factors        |      |       |                    |                                                                                                                                                                                                         |
| >>CHOICE <i>mode</i>           |      |       |                    |                                                                                                                                                                                                         |
| >>>FDD                         |      |       |                    |                                                                                                                                                                                                         |
| >>>>Gain Factor $\beta_c$      | MP   |       | Integer (0.. 15)   | For UL DPCH or control part of PRACH <del>or PCPCH</del>                                                                                                                                                |
| >>>TDD                         |      |       |                    | (no data)                                                                                                                                                                                               |
| >>Gain Factor $\beta_d$        | MP   |       | Integer (0..15)    | For UL DPCH or data part of PRACH <del>or PCPCH in FDD</del> and all uplink channels in TDD                                                                                                             |
| >>Reference TFC ID             | OP   |       | Integer (0..3)     | If this TFC is a reference TFC, indicates the reference ID.                                                                                                                                             |
| >Computed Gain Factors         |      |       |                    |                                                                                                                                                                                                         |
| >>Reference TFC ID             | MP   |       | Integer (0.. 3)    | Indicates the reference TFC Id of the TFC to be used to calculate the gain factors for this TFC. In case of using computed gain factors, at least one signalled gain factor is necessary for reference. |
| CHOICE <i>mode</i>             | MP   |       |                    |                                                                                                                                                                                                         |
| >FDD                           |      |       |                    |                                                                                                                                                                                                         |
| >>Power offset P p-m           | OP   |       | Integer(-5..10)    | In dB. Power offset between the last transmitted preamble and the control part of the message (added to the preamble power to receive the power of the message control part )<br>Needed only for PRACH  |

| Information Element/Group name | Need | Multi | Type and reference | Semantics description |
|--------------------------------|------|-------|--------------------|-----------------------|
| >TDD                           |      |       |                    | (no data)             |

| CHOICE Gain Factors    | Condition under which the way to signal the Gain Factors is chosen                                                                                    |
|------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| Signalled Gain Factors | The values for gain factors $\beta_c$ (only in FDD mode) and $\beta_d$ are signalled directly for a TFC.                                              |
| Computed Gain Factors  | The gain factors $\beta_c$ (only in FDD mode) and $\beta_d$ are computed for a TFC, based on the signalled settings for the associated reference TFC. |

~~~~ Next Modified Section ~~~~

10.3.5.18 Transport channel identity

This information element is used to distinguish transport channels. Transport channels of different type (RACH, ~~CPCH~~, USCH, FACH/PCH, DSCH or DCH) have separate series of identities. This also holds for uplink and downlink transport channel identities (i.e. for DCH). Depending on in which context a transport channel identity n that is sent, it will have different meaning

| Information Element/Group name | Need | Multi | Type and reference | Semantics description |
|--------------------------------|------|-------|--------------------|-----------------------|
| Transport channel identity | MP | | Integer(1..32) | |

~~~~ Next Modified Section ~~~~

### 10.3.6.12 ~~CPCH persistence levels~~ Void

~~NOTE: — Only for FDD.~~

~~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           | Need          | Multi                              | Type and reference                             | Semantics description                              |
|------------------------------------------|---------------|------------------------------------|------------------------------------------------|----------------------------------------------------|
| <del>CPCH set ID</del>                   | <del>MP</del> |                                    | <del>Integer (1.. &lt;maxCPCHs ets&gt;)</del>  | <del>Identifier for CPCH set info.</del>           |
| <del>Dynamic persistence level</del>     | <del>MP</del> | <del>1 to &lt;maxTF-CPCH&gt;</del> |                                                |                                                    |
| <del>&gt;Dynamic persistence level</del> | <del>MP</del> |                                    | <del>Dynamic persistence level 10.3.6.35</del> | <del>Persistence level for transport format.</del> |

### 10.3.6.13 ~~CPCH set info~~ Void

~~NOTE: — Only for FDD.~~

~~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 | Need          | Multi | Type and reference              | Semantics description                                                             |
|--------------------------------|---------------|-------|---------------------------------|-----------------------------------------------------------------------------------|
| <del>CPCH set ID</del>         | <del>MP</del> |       | <del>CPCH set ID 10.3.5.3</del> | <del>Indicates the ID number for a particular CPCH set allocated to a cell.</del> |
| <del>TFS</del>                 | <del>MP</del> |       | <del>Transport</del>            | <del>Transport Format Set</del>                                                   |

| Information Element/Group name      | Need                | Multi                   | Type and reference                         | Semantics description                                                                                                                                                                         |
|-------------------------------------|---------------------|-------------------------|--------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                     |                     |                         | Format Set 10.3.5.23                       | Information allocated to this CPCH set.                                                                                                                                                       |
| TFCS                                | MP                  |                         | Transport Format Combination Set 10.3.5.20 | Transport Format Set Information allocated to this CPCH set                                                                                                                                   |
| AP_preamble_scrambling_code         | MP                  |                         | Integer (0..79)                            | Preamble scrambling code for AP in UL                                                                                                                                                         |
| AP_AICH_channelisation_code         | MP                  |                         | Integer(0..255)                            | Channelisation code for AP-AICH in DL                                                                                                                                                         |
| CD_preamble_scrambling_code         | MP                  |                         | Integer (0..79)                            | Preamble scrambling code for CD in UL                                                                                                                                                         |
| CD/CA-ICH_channelisation_code       | MP                  |                         | Integer (0..255)                           | Channelisation code for CD/CA-ICH in DL                                                                                                                                                       |
| Available CD access slot subchannel | CV-<br>CDSigPresent | 1 to <maxPCPCH-CDsubCh> |                                            | Lists the set of subchannels to be used for CD access preambles.<br>NOTE: — If not present, all subchannels are to be used without access delays.                                             |
| >CD access slot subchannel          | MP                  |                         | Integer (0..11)                            |                                                                                                                                                                                               |
| Available CD signatures             | OP                  | 1 to <maxPCPCH-CDsig>   |                                            | Signatures for CD preamble in UL.<br>NOTE: — If not present, all signatures are available for use.                                                                                            |
| >CD signatures                      | MP                  |                         | Integer (0..15)                            |                                                                                                                                                                                               |
| DeltaPp-m                           | MP                  |                         | Integer (-10..10)                          | In dB. Power offset between the transmitted CD preamble and UL-DPCCH of the power control preamble or message part (added to the preamble power to calculate the power of the UL-DPCCH.)      |
| UL-DPCCH Slot Format                | MP                  |                         | Enumerated (0,1,2)                         | Slot format for UL-DPCCH in power control preamble and in message part                                                                                                                        |
| N_start_message                     | MP                  |                         | Integer (1..8)                             | Number of Frames for start of message indication                                                                                                                                              |
| N_EOT                               | MP                  |                         | Integer(0...7)                             | Actual number of appended EOT indicators is $T\_EOT = N\_TTI * \text{ceil}(N\_EOT/N\_TTI)$ , where N_TTI is the number of frames per TTI and "ceil" refers to rounding up to nearest integer. |
| Channel Assignment Active           | OP                  |                         | Boolean                                    | When present, indicates that Node B send a CA message and VCAM mapping rule (14.11) shall be used.                                                                                            |
| CPCH status indication mode         | MP                  |                         | CPCH status indication mode 10.3.6.14      |                                                                                                                                                                                               |
| PCPCH-Channel-Info.                 | MP                  | 1 to <maxPCPCHs>        |                                            |                                                                                                                                                                                               |
| >UL scrambling code                 | MP                  |                         | Integer (0..79)                            | For PCPCH message part                                                                                                                                                                        |
| >DL channelisation code             | MP                  |                         | Integer                                    | For DL-DPCCH for PCPCH                                                                                                                                                                        |

| Information Element/Group name         | Need    | Multi                      | Type and reference                     | Semantics description                                                                                                                                                                         |
|----------------------------------------|---------|----------------------------|----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                        |         |                            | (0..511)                               | message part                                                                                                                                                                                  |
| >DL-scrambling-code                    | MD      |                            | Secondary Scrambling Code<br>10.3.6.74 | Default is the same scrambling code as for the primary CPICH.                                                                                                                                 |
| >PCP-length                            | MP      |                            | Enumerated<br>(0..8)                   | Indicates length of power control preamble, 0 slots (no preamble used) or 8 slots                                                                                                             |
| >UCSM-Info                             | CV-NCAA |                            |                                        |                                                                                                                                                                                               |
| >>Minimum Spreading Factor             | MP      |                            | Integer<br>(4,8,16,32,64,128,256)      | The UE may use this PCPCH at any Spreading Factor equal to or greater than the indicated minimum Spreading Factor. The Spreading Factor for initial access is the minimum Spreading Factor.   |
| >>NF-max                               | MP      |                            | Integer<br>(1..64)                     | Maximum number of frames for PCPCH message part                                                                                                                                               |
| >>Channel request parameters for UCSM  | MP      |                            |                                        | Required in UE channel selection mode.                                                                                                                                                        |
| >>>Available AP signature              | MP      | 1 to<br><maxPCPCH-APsig>   |                                        | AP preamble signature codes for selection of this PCPCH channel.                                                                                                                              |
| >>>AP signature                        | MP      |                            | Integer<br>(0..15)                     |                                                                                                                                                                                               |
| >>>Available AP access slot subchannel | OP      | 1 to<br><maxPCPCH-APsubCh> |                                        | Lists the set of subchannels to be used for AP access preambles in combination with the above AP signature(s).<br>NOTE: If not present, all subchannels are to be used without access delays. |
| >>>>AP access slot subchannel          | MP      |                            | Integer<br>(0..11)                     |                                                                                                                                                                                               |
| VCAM-info                              | CV-GAA  |                            |                                        |                                                                                                                                                                                               |
| >Available Minimum Spreading Factor    | MP      | 1 to<br><maxPCPCH-SF>      |                                        |                                                                                                                                                                                               |
| >>Minimum Spreading Factor             | MP      |                            | Enumerated<br>(4,8,16,32,64,128,256)   |                                                                                                                                                                                               |
| >>NF-max                               | MP      |                            | Integer<br>(1..64)                     | Maximum number of frames for PCPCH message part                                                                                                                                               |
| >>Maximum available number of PCPCH    | MP      |                            | Integer<br>(1..64)                     | Maximum available number of PCPCH for the indicated Spreading Factor.                                                                                                                         |
| >>Available AP signatures              | MP      | 1 to<br><maxPCPCH-APsig>   |                                        | Signatures for AP preamble in UL.                                                                                                                                                             |
| >>>AP signature                        |         |                            | Integer<br>(0..15)                     |                                                                                                                                                                                               |
| >>>Available AP sub-channel            | OP      | 1 to<br><maxPCPCH-APsubCh> |                                        | AP sub-channels for the given AP signature in UL.<br>NOTE: If not present, all subchannels are to be used without access delays.                                                              |
| >>>>AP sub-channel                     | MP      |                            | Integer<br>(0..11)                     |                                                                                                                                                                                               |

| Condition               | Explanation                                                                                                        |
|-------------------------|--------------------------------------------------------------------------------------------------------------------|
| <del>CDSigPresent</del> | <del>This IE is optional if IE "Available CD signatures" is present and not needed otherwise.</del>                |
| <del>NCAA</del>         | <del>This IE is mandatory present if IE "Channel Assignment Active" is not present and not needed otherwise.</del> |
| <del>CAA</del>          | <del>This IE is mandatory present if IE "Channel Assignment Active" is present and not needed otherwise.</del>     |

### 10.3.6.14 ~~CPCH Status Indication mode~~Void

~~NOTE: — Only for FDD.~~

| Information Element/Group name         | Need          | Multi | Type and reference                          | Semantics description                                                                                  |
|----------------------------------------|---------------|-------|---------------------------------------------|--------------------------------------------------------------------------------------------------------|
| <del>CPCH Status Indication mode</del> | <del>MP</del> |       | <del>Enumerated (PA mode, PAMSE mode)</del> | <del>Defines the status information type broadcast on the CPCH Status Indication Channel (CSICH)</del> |

~~CPCH Status Indication mode defines the structure of the CSICH information that is broadcast by Node B on the CSICH channel. CSICH mode can take 2 values: PCPCH Availability (PA) mode and PCPCH Availability with Minimum Available Spreading Factor (PAMASF) mode. PAMASF mode is used when Channel Assignment is active. PA mode is used when Channel Assignment is not active (UE Channel Selection is active). [26] defines the structure of the CSICH information for both CSICH modes.~~

### 10.3.6.15 ~~CSICH Power offset~~Void

~~NOTE: — Only for FDD.~~

~~This is the power per transmitted CSICH Indicator minus power of the Primary CPICH.~~

| Information Element/Group name | Need          | Multi | Type and reference          | Semantics description                        |
|--------------------------------|---------------|-------|-----------------------------|----------------------------------------------|
| <del>CSICH Power offset</del>  | <del>MP</del> |       | <del>Integer(-10..+5)</del> | <del>Offset in dB, granularity of 1 dB</del> |

~~~~ Next Modified Section ~~~~

10.3.7.69 Traffic volume measurement event results

Contains the event result for a traffic volume measurement.

| Information Element/Group name | Need | Multi | Type and reference | Semantics description |
|---|----------------|-------|---|---|
| Uplink transport channel type causing the event | MP | | Enumerated(DCH,RACH,CPCH,USCH) | USCH is TDD only. CPCH is FDD only. RACH or CPCH is the currently configured default in the uplink. |
| UL Transport Channel identity | CV-UL-DCH/USCH | | Transport channel identity 10.3.5.18 | |
| Traffic volume event identity | MP | | Traffic volume event identity 10.3.7.66 | |

| Condition | Explanation |
|--------------------|--|
| <i>UL-DCH/USCH</i> | If IE "Uplink transport channel type" is equal to "DCH" or "USCH" (TDD only) this IE is mandatory present. Otherwise the IE is not needed. |

10.3.7.70 Traffic volume measurement object

Contains the measurement object information for a traffic volume measurement.

| Information Element/Group name | Need | Multi | Type and reference | Semantics description |
|------------------------------------|----------------|-----------------|---|--|
| Traffic volume measurement objects | MP | 1 to <maxTrCH > | | |
| >Uplink transport channel type | MP | | Enumerated(DCH,RACH e
rCPCH ,USCH) | USCH is TDD only.
CPCH is FDD only.
RACH e rCPCH is the currently configured default in the uplink. |
| >UL Target Transport Channel ID | CV-UL-DCH/USCH | | Transport channel identity 10.3.5.18 | |

| Condition | Explanation |
|--------------------|--|
| <i>UL-DCH/USCH</i> | If IE "Uplink transport channel type" is equal to "DCH" or "USCH" (TDD only) this IE is mandatory present. Otherwise the IE is not needed. |

~~~~ Next Modified Section ~~~~



### 10.3.7.72 Traffic volume measurement reporting criteria

Contains the measurement reporting criteria information for a traffic volume measurement.

Event 4a: Transport Channel Traffic Volume [15] exceeds an absolute threshold.

Event 4b: Transport Channel Traffic Volume [15] becomes smaller than an absolute threshold.

| Information Element/Group name             | Need           | Multi                   | Type and reference                                                                                               | Semantics description                                                                                                                                                                                         |
|--------------------------------------------|----------------|-------------------------|------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Parameters sent for each transport channel | OP             | 1 to <maxTrCH >         |                                                                                                                  | This IE is always required, need is OP to align with ASN.1                                                                                                                                                    |
| >Uplink transport channel type             | OP             |                         | Enumerated(DCH,RACH, <del>CPCH</del> ,USCH)                                                                      | USCH is TDD only. <del>CPCH is FDD only.</del> RACH or CPCH is the currently configured default in the uplink.                                                                                                |
| >UL Transport Channel ID                   | CV-UL-DCH/USCH |                         | Transport channel identity 10.3.5.18                                                                             |                                                                                                                                                                                                               |
| >Parameters required for each Event        | OP             | 1 to <maxMeas parEvent> |                                                                                                                  |                                                                                                                                                                                                               |
| >>Traffic volume event identity            | MP             |                         | Traffic volume event identity 10.3.7.66                                                                          |                                                                                                                                                                                                               |
| >>Reporting Threshold                      | MP             |                         | Enumerated(8,16,32,64,128,256,512,1024,2K,3K,4K,6K,8K,12K,16K,24K,32K,48K,64K,96K,128K,192K,256K,384K,512K,768K) | Threshold in bytes<br>And N Kbytes = N*1024 bytes                                                                                                                                                             |
| >>Time to trigger                          | OP             |                         | Time to trigger 10.3.7.64                                                                                        | Indicates the period of time during which the event condition has to be satisfied, before sending a Measurement Report.<br>Time in ms                                                                         |
| >>Pending time after trigger               | OP             |                         | Integer(250, 500, 1000, 2000, 4000, 8000, 16000)                                                                 | Indicates the period of time during which it is forbidden to send any new measurement reports with the same Traffic volume event identity even if the triggering condition is fulfilled. Time in milliseconds |
| >>Tx interruption after trigger            | OP             |                         | Integer (250, 500, 1000, 2000, 4000, 8000, 16000)                                                                | Time in milliseconds. Indicates how long the UE shall block DTCH transmissions on the RACH after a measurement report is triggered.                                                                           |

| Condition   | Explanation                                                                                                                       |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------|
| UL-DCH/USCH | If IE "Uplink transport channel type" is equal to "DCH" or "USCH" (TDD only) this IE is optional. Otherwise the IE is not needed. |

~~~~ Next Modified Section ~~~~

10.3.8.21 SIB type

The SIB type identifies a specific system information block.

| Information Element/Group name | Need | Multi | Type and reference | Semantics description |
|--------------------------------|------|-------|-----------------------|-----------------------|
| SIB type | MP | | Enumerated, see below | |

The list of values to encode is:

Master information block,

System Information Type 1,

System Information Type 2,

System Information Type 3,

System Information Type 4,

System Information Type 5,

System Information Type 6,

System Information Type 7,

~~System Information Type 8,~~

~~System Information Type 9,~~

System Information Type 10,

System Information Type 11,

System Information Type 12,

System Information Type 13,

System Information Type 13.1,

System Information Type 13.2,

System Information Type 13.3,

System Information Type 13.4,

System Information Type 14,

System Information Type 15,

System Information Type 15.1,

System Information Type 15.2,

System Information Type 15.3,

System Information Type 15.4,

System Information Type 15.5,

System Information Type 16,

System Information Type 17,

System Information Type 18,

Scheduling Block 1,

Scheduling Block 2,

System Information Type 5bis.

In addition, one spare value is needed.

10.3.8.22 SIB type SIBs only

The SIB type identifies a specific system information block.

| Information Element/Group name | Need | Multi | Type and reference | Semantics description |
|--------------------------------|------|-------|-----------------------|-----------------------|
| SIB type SIBs only | MP | | Enumerated, see below | |

The list of values to encode is:

System Information Type 1,

System Information Type 2,

System Information Type 3,

System Information Type 4,

System Information Type 5,

System Information Type 6,

System Information Type 7,

~~System Information Type 8,~~

~~System Information Type 9,~~

System Information Type 10,

System Information Type 11,

System Information Type 12,

System Information Type 13,

System Information Type 13.1,

System Information Type 13.2,

System Information Type 13.3,

System Information Type 13.4,

System Information Type 14,

System Information Type 15,

System Information Type 15.1,

System Information Type 15.2,

System Information Type 15.3,

System Information Type 15.4,

System Information Type 15.5,

System Information Type 16,

System Information Type 17,

System Information Type 18,

System Information Type 5bis.

In addition, four spare values are needed.

~~~~ Next Modified Section ~~~~

### 10.3.10 Multiplicity values and type constraint values

The following table includes constants that are either used as multi bounds (name starting with "max") or as high or low value in a type specification (name starting with "lo" or "hi"). Constants are specified only for values appearing more than once in the RRC specification. In case a constant is related to one or more other constants, an expression is included in the "value" column instead of the actual value.

| Constant                          | Explanation                                                                          | Value           | Version |
|-----------------------------------|--------------------------------------------------------------------------------------|-----------------|---------|
| <b>CN information</b>             |                                                                                      |                 |         |
| maxCNdomains                      | Maximum number of CN domains                                                         | 4               |         |
| <b>UTRAN mobility information</b> |                                                                                      |                 |         |
| maxRAT                            | Maximum number of Radio Access Technologies                                          | maxOtherRAT + 1 |         |
| maxOtherRAT                       | Maximum number of other Radio Access Technologies                                    | 15              |         |
| maxURA                            | Maximum number of URAs in a cell                                                     | 8               |         |
| maxInterSysMessages               | Maximum number of Inter System Messages                                              | 4               |         |
| maxRABsetup                       | Maximum number of RABs to be established                                             | 16              |         |
| <b>UE information</b>             |                                                                                      |                 |         |
| maxtransactions                   | Maximum number of parallel RRC transactions in downlink                              | 25              |         |
| maxPDCPalgoType                   | Maximum number of PDCP algorithm types                                               | 8               |         |
| maxDRACclasses                    | Maximum number of UE classes which would require different DRAC parameters           | 8               |         |
| maxFreqBandsFDD                   | Maximum number of frequency bands supported by the UE as defined in [21]             | 8               |         |
| maxFreqBandsTDD                   | Maximum number of frequency bands supported by the UE as defined in [22]             | 4               |         |
| maxFreqBandsGSM                   | Maximum number of frequency bands supported by the UE as defined in [45]             | 16              |         |
| maxPage1                          | Number of UEs paged in the Paging Type 1 message                                     | 8               |         |
| maxSystemCapability               | Maximum number of system specific capabilities that can be requested in one message. | 16              |         |
| MaxURNTIgroup                     | Maximum number of U-RNTI groups in one message                                       | 8               | REL-5   |
| <b>RB information</b>             |                                                                                      |                 |         |
| maxPredefConfig                   | Maximum number of predefined configurations                                          | 16              |         |
| maxRB                             | Maximum number of RBs                                                                | 32              |         |
| maxSRBsetup                       | Maximum number of signalling RBs to be established                                   | 8               |         |
| maxRBperRAB                       | Maximum number of RBs per RAB                                                        | 8               |         |
| maxRBallRABs                      | Maximum number of non signalling RBs                                                 | 27              |         |
| maxRBperTrCh                      | Maximum number of RB per TrCh                                                        | 16              | REL-6   |
| maxRBMuxOptions                   | Maximum number of RB multiplexing options                                            | 8               |         |
| maxLoCHperRLC                     | Maximum number of logical channels per RLC entity                                    | 2               |         |
| maxRLCPDUsizePerLogChan           | Maximum number of RLC PDU sizes per logical channel                                  | FFS             | REL-6   |
| MaxROHC-PacketSizes               | Maximum number of packet sizes that are allowed to be produced by ROHC.              | 16              |         |
| MaxROHC-Profiles                  | Maximum number of profiles supported by ROHC on a given RB.                          | 8               |         |

| Constant                    | Explanation                                                                                                              | Value                                           | Version |
|-----------------------------|--------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|---------|
| maxRFC 3095-CID             | Maximum number of available CID values per radio bearer                                                                  | 16384                                           | REL-5   |
| <b>TrCH information</b>     |                                                                                                                          |                                                 |         |
| maxE-DCHMACdFlow            | Maximum number of E-DCH MAC-d flows                                                                                      | FFS                                             | REL-6   |
| maxHarqRTT                  | Maximum number of E-DCH HARQ processes                                                                                   | FFS                                             | REL-6   |
| MaxHProcesses               | Maximum number of H-ARQ processes                                                                                        | 8                                               | REL-5   |
| MaxHSDSCH_TB_index          | Maximum number of TB set size configurations for the HS-DSCH.                                                            | 64 (FDD and 1.28 MCPS TDD); 512 (3.84 Mcps TDD) | REL-5   |
| maxMACdPDUSizes             | Maximum number of MAC-d PDU sizes per queue permitted for MAC-hs                                                         | 8                                               | REL-5   |
| maxTrCH                     | Maximum number of transport channels used in one direction (UL or DL)                                                    | 32                                              |         |
| maxTrCHpreconf              | Maximum number of preconfigured Transport channels, per direction                                                        | 16                                              |         |
| maxCCTrCH                   | Maximum number of CCTrCHs                                                                                                | 8                                               |         |
| maxQueueID                  | Maximum number of Mac-hs queues                                                                                          | 8                                               | REL-5   |
| MaxTF                       | Maximum number of different transport formats that can be included in the Transport format set for one transport channel | 32                                              |         |
| <del>maxTF-CPCH</del>       | <del>Maximum number of TFs in a CPCH set</del>                                                                           | <del>16</del>                                   |         |
| maxTFC                      | Maximum number of Transport Format Combinations                                                                          | 1024                                            |         |
| maxTFCsub                   | Maximum number of Transport Format Combinations Subset                                                                   | 1024                                            |         |
| maxTFCI-1-Combs             | Maximum number of TFCI (field 1) combinations                                                                            | 512                                             |         |
| maxTFCI-2-Combs             | Maximum number of TFCI (field 2) combinations                                                                            | 512                                             |         |
| <del>maxCPCHsets</del>      | <del>Maximum number of CPCH sets per cell</del>                                                                          | <del>16</del>                                   |         |
| maxSIBperMsg                | Maximum number of complete system information blocks per SYSTEM INFORMATION message                                      | 16                                              |         |
| maxSIB                      | Maximum number of references to other system information blocks.                                                         | 32                                              |         |
| maxSIB-FACH                 | Maximum number of references to system information blocks on the FACH                                                    | 8                                               |         |
| <b>PhyCH information</b>    |                                                                                                                          |                                                 |         |
| maxHSSCCHs                  | Maximum number of HSSCCH codes that can be assigned to a UE                                                              | 4                                               | REL-5   |
| <del>maxPCPCH-APsubCH</del> | <del>Maximum number of available sub-channels for AP signature on PCPCH</del>                                            | <del>12</del>                                   |         |
| <del>maxPCPCH-CDsubCH</del> | <del>Maximum number of available sub-channels for CD signature on PCPCH</del>                                            | <del>12</del>                                   |         |
| <del>maxPCPCH-APsig</del>   | <del>Maximum number of available signatures for AP on PCPCH</del>                                                        | <del>16</del>                                   |         |
| <del>maxPCPCH-CDsig</del>   | <del>Maximum number of available signatures for CD on PCPCH</del>                                                        | <del>16</del>                                   |         |
| maxAC                       | Maximum number of access classes                                                                                         | 16                                              |         |
| maxASC                      | Maximum number of access service classes                                                                                 | 8                                               |         |
| maxASCmap                   | Maximum number of access class to access service classes mappings                                                        | 7                                               |         |
| maxASCpersist               | Maximum number of access service classes for which persistence scaling factors are specified                             | 6                                               |         |
| maxPRACH                    | Maximum number of PRACHs in a cell                                                                                       | 16                                              |         |
| MaxPRACH_FPACH              | Maximum number of PRACH / FPACH pairs in a cell (1.28 Mcps TDD)                                                          | 8                                               | REL-4   |
| maxFACHPCH                  | Maximum number of FACHs and PCHs mapped onto one secondary CCPCHs                                                        | 8                                               |         |
| maxTrChperSCCPCH            | Maximum number of TrCh per S-CCPCH                                                                                       | 8                                               | REL-6   |
| maxRL                       | Maximum number of radio links                                                                                            | 8                                               |         |
| maxSCCPCH                   | Maximum number of secondary CCPCHs per cell                                                                              | 16                                              |         |
| maxDPDCH-UL                 | Maximum number of DPDCHs per cell                                                                                        | 6                                               |         |
| maxDPCH-DLchan              | Maximum number of channelisation codes used for DL DPCH                                                                  | 8                                               |         |

| Constant                       | Explanation                                                                                                                                               | Value                                   | Version |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|---------|
| maxPUSCH                       | Maximum number of PUSCHs                                                                                                                                  | (8)                                     |         |
| maxPDSCH                       | Maximum number of PDSCHs                                                                                                                                  | 8                                       |         |
| maxPDSCHcodes                  | Maximum number of codes for PDSCH                                                                                                                         | 16                                      |         |
| maxPDSCH-TFCIgroups            | Maximum number of TFCI groups for PDSCH                                                                                                                   | 256                                     |         |
| maxPDSCHcodeGroups             | Maximum number of code groups for PDSCH                                                                                                                   | 256                                     |         |
| maxPCPCHs                      | Maximum number of PCPCH channels in a CPCH Set                                                                                                            | 64                                      |         |
| maxPCPCH-SF                    | Maximum number of available SFs on PCPCH                                                                                                                  | 7                                       |         |
| maxTS                          | Maximum number of timeslots used in one direction (UL or DL)                                                                                              | 14 (3.84 Mcps TDD)<br>6 (1.28 Mcps TDD) | REL-4   |
| hiPUSCHidentities              | Maximum number of PUSCH Identities                                                                                                                        | 64                                      |         |
| hiPDSCHidentities              | Maximum number of PDSCH Identities                                                                                                                        | 64                                      |         |
| <b>Measurement information</b> |                                                                                                                                                           |                                         |         |
| maxTGPS                        | Maximum number of transmission gap pattern sequences                                                                                                      | 6                                       |         |
| maxAdditionalMeas              | Maximum number of additional measurements for a given measurement identity                                                                                | 4                                       |         |
| maxMeasEvent                   | Maximum number of events that can be listed in measurement reporting criteria                                                                             | 8                                       |         |
| maxMeasParEvent                | Maximum number of measurement parameters (e.g. thresholds) per event                                                                                      | 2                                       |         |
| maxMeasIntervals               | Maximum number of intervals that define the mapping function between the measurements for the cell quality Q of a cell and the representing quality value | 1                                       |         |
| maxCellMeas                    | Maximum number of cells to measure                                                                                                                        | 32                                      |         |
| maxReportedGSMCells            | Maximum number of GSM cells to be reported                                                                                                                | 8                                       |         |
| maxFreq                        | Maximum number of frequencies to measure                                                                                                                  | 8                                       |         |
| maxSat                         | Maximum number of satellites to measure                                                                                                                   | 16                                      |         |
| maxSatAlmanacStorage           | Maximum number of satellites for which to store GPS Almanac information                                                                                   | 32                                      |         |
| HiRM                           | Maximum number that could be set as rate matching attribute for a transport channel                                                                       | 256                                     |         |
| <b>Frequency information</b>   |                                                                                                                                                           |                                         |         |
| MaxFDDFreqList                 | Maximum number of FDD carrier frequencies to be stored in USIM                                                                                            | 4                                       |         |
| MaxTDDFreqList                 | Maximum number of TDD carrier frequencies to be stored in USIM                                                                                            | 4                                       |         |
| MaxFDDFreqCellList             | Maximum number of neighbouring FDD cells to be stored in USIM                                                                                             | 32                                      |         |
| MaxTDDFreqCellList             | Maximum number of neighbouring TDD cells to be stored in USIM                                                                                             | 32                                      |         |
| MaxGSMCellList                 | Maximum number of GSM cells to be stored in USIM                                                                                                          | 32                                      |         |
| <b>Other information</b>       |                                                                                                                                                           |                                         |         |
| MaxGERANSI                     | Maximum number of GERAN SI blocks that can be provided as part of NACC information                                                                        | 8                                       | REL-5   |
| maxNumGSMFreqRanges            | Maximum number of GSM Frequency Ranges to store                                                                                                           | 32                                      |         |
| MaxNumFDDFreqs                 | Maximum number of FDD centre frequencies to store                                                                                                         | 8                                       |         |
| MaxNumTDDFreqs                 | Maximum number of TDD centre frequencies to store                                                                                                         | 8                                       |         |
| maxNumCDMA200Freqs             | Maximum number of CDMA2000 centre frequencies to store                                                                                                    | 8                                       |         |
| maxGSMTargetCells              | Maximum number of GSM target cells                                                                                                                        | 32                                      | REL-6   |
| <b>MBMS information</b>        |                                                                                                                                                           |                                         |         |
| maxMBMS-CommonCCTrCh           | Maximum number of CCTrCh configurations included in the MBMS COMMON P-T-M RB INFORMATION message                                                          | 32                                      | REL-6   |

| Constant            | Explanation                                                                                             | Value | Version |
|---------------------|---------------------------------------------------------------------------------------------------------|-------|---------|
| maxMBMS-CommonPhyCh | Maximum number of PhyCh configurations included in the MBMS COMMON P-T-M RB INFORMATION message         | 32    | REL-6   |
| maxMBMS-CommonRB    | Maximum number of RB configurations included in the MBMS COMMON P-T-M RB INFORMATION message            | 32    | REL-6   |
| maxMBMS-CommonTrCh  | Maximum number of TrCh configurations included in the MBMS COMMON P-T-M RB INFORMATION message          | 32    | REL-6   |
| maxMBMS-Freq        | Maximum number of MBMS preferred frequencies                                                            | 4     | REL-6   |
| maxMBMS-L1CP        | Maximum number of periods in which layer 1 combining applies                                            | 4     | REL-6   |
| maxMBMSservCount    | Maximum number of MBMS services in a Access Info message                                                | 4     | REL-6   |
| maxMBMSservDedic    | Maximum number of MBMS services in a dedicated notification/ Paging type 2 message                      | 4     | REL-6   |
| maxMBMSservModif    | Maximum number of MBMS services in a MBMS MODIFIED SERVICES INFORMATION message                         | 4     | REL-6   |
| maxMBMSservSched    | Maximum number of MBMS services in a MBMS SCHEDULING INFORMATION message                                | 16    | REL-6   |
| maxMBMSservUnmodif  | Maximum number of MBMS services in a MBMS UNMODIFIED SERVICES INFORMATION message                       | 32    | REL-6   |
| maxMBMSTransmis     | Maximum number of transmissions for which scheduling information is provided within a scheduling period | 4     | REL-6   |

~~~~ Next Modified Section ~~~~

```

CellUpdateConfirm-r3-IEs ::= SEQUENCE {
  -- User equipment IEs
  rrc-TransactionIdentifier      RRC-TransactionIdentifier,
  integrityProtectionModeInfo    IntegrityProtectionModeInfo    OPTIONAL,
  cipheringModeInfo             CipheringModeInfo             OPTIONAL,
  activationTime                 ActivationTime                 OPTIONAL,
  new-U-RNTI                    U-RNTI                    OPTIONAL,
  new-C-RNTI                    C-RNTI                    OPTIONAL,
  rrc-StateIndicator            RRC-StateIndicator,
  utran-DRX-CycleLengthCoeff    UTRAN-DRX-CycleLengthCoefficient  OPTIONAL,
  rlc-Re-establishIndicatorRb2-3or4  BOOLEAN,
  rlc-Re-establishIndicatorRb5orAbove  BOOLEAN,
  -- CN information elements
  cn-InformationInfo            CN-InformationInfo            OPTIONAL,
  -- UTRAN mobility IEs
  ura-Identity                  URA-Identity                  OPTIONAL,
  -- Radio bearer IEs
  rb-InformationReleaseList      RB-InformationReleaseList      OPTIONAL,
  rb-InformationReconfigList     RB-InformationReconfigList     OPTIONAL,
  rb-InformationAffectedList     RB-InformationAffectedList     OPTIONAL,
  dl-CounterSynchronisationInfo  DL-CounterSynchronisationInfo  OPTIONAL,
  -- Transport channel IEs
  ul-CommonTransChInfo          UL-CommonTransChInfo          OPTIONAL,
  ul-deletedTransChInfoList     UL-DeletedTransChInfoList     OPTIONAL,
  ul-AddReconfTransChInfoList   UL-AddReconfTransChInfoList   OPTIONAL,
  modeSpecificTransChInfo       CHOICE {
    fdd                               SEQUENCE {
      -- dummy is not used in this version of the specification, it should
      -- not be sent and if received it should be ignored.
      cpch-SetIDdummy          CPCH-SetID          OPTIONAL,
      addReconfTransChDRAC-Info     DRAC-StaticInformationList  OPTIONAL
    }
  },
}

```

```

        tdd                                NULL
    },
    dl-CommonTransChInfo                   DL-CommonTransChInfo           OPTIONAL,
    dl-DeletedTransChInfoList               DL-DeletedTransChInfoList       OPTIONAL,
    dl-AddReconfTransChInfoList             DL-AddReconfTransChInfoList     OPTIONAL,
-- Physical channel IEs
    frequencyInfo                           FrequencyInfo                     OPTIONAL,
    maxAllowedUL-TX-Power                   MaxAllowedUL-TX-Power           OPTIONAL,
    ul-ChannelRequirement                   UL-ChannelRequirement           OPTIONAL,
    modeSpecificPhysChInfo                  CHOICE {
        fdd                                  SEQUENCE {
            dl-PDSCH-Information             DL-PDSCH-Information           OPTIONAL
        },
        tdd                                  NULL
    },
    dl-CommonInformation                     DL-CommonInformation            OPTIONAL,
    dl-InformationPerRL-List                 DL-InformationPerRL-List        OPTIONAL
}

CellUpdateConfirm-v3a0ext ::= SEQUENCE {
    new-DSCH-RNTI                            DSCH-RNTI                        OPTIONAL
}

CellUpdateConfirm-v4b0ext-IEs ::= SEQUENCE {
-- Physical channel IEs
-- ssdt-UL extends SSDT-Information, which is included in
-- DL-CommonInformation. FDD only.
    ssdt-UL-r4                               SSDT-UL
OPTIONAL,
-- The order of the RLS in IE cell-id-PerRL-List is the same as
-- in IE DL-InformationPerRL-List included in this message
    cell-id-PerRL-List                       CellIdentity-PerRL-List
OPTIONAL
}

CellUpdateConfirm-v590ext-IEs ::= SEQUENCE {
-- Physical channel IEs
    dl-TPC-PowerOffsetPerRL-List             DL-TPC-PowerOffsetPerRL-List    OPTIONAL
}

CellUpdateConfirm-r4-IEs ::= SEQUENCE {
-- User equipment IEs
    integrityProtectionModeInfo              IntegrityProtectionModeInfo      OPTIONAL,
    cipheringModeInfo                        CipheringModeInfo                 OPTIONAL,
    activationTime                            ActivationTime                     OPTIONAL,
    new-U-RNTI                                U-RNTI                           OPTIONAL,
    new-C-RNTI                                C-RNTI                           OPTIONAL,
    new-DSCH-RNTI                             DSCH-RNTI                         OPTIONAL,
    rrc-StateIndicator                       RRC-StateIndicator,
    utran-DRX-CycleLengthCoeff               UTRAN-DRX-CycleLengthCoefficient OPTIONAL,
    rlc-Re-establishIndicatorRb2-3or4        BOOLEAN,
    rlc-Re-establishIndicatorRb5orAbove      BOOLEAN,
-- CN information elements
    cn-InformationInfo                       CN-InformationInfo               OPTIONAL,
-- UTRAN mobility IEs
    ura-Identity                             URA-Identity                     OPTIONAL,
-- Radio bearer IEs
    rb-InformationReleaseList                RB-InformationReleaseList         OPTIONAL,
    rb-InformationReconfigList               RB-InformationReconfigList-r4     OPTIONAL,
    rb-InformationAffectedList               RB-InformationAffectedList        OPTIONAL,
    dl-CounterSynchronisationInfo           DL-CounterSynchronisationInfo     OPTIONAL,
-- Transport channel IEs
    ul-CommonTransChInfo-r4                 UL-CommonTransChInfo-r4          OPTIONAL,
    ul-deletedTransChInfoList               UL-DeletedTransChInfoList        OPTIONAL,
    ul-AddReconfTransChInfoList             UL-AddReconfTransChInfoList      OPTIONAL,
    modeSpecificTransChInfo                  CHOICE {
        fdd                                  SEQUENCE {
            -- dummy is not used in this version of the specification, it should
            -- not be sent and if received it should be ignored.
            epch-SetIDdummy              CPCH-SetID                       OPTIONAL,
            addReconfTransChDRAC-Info         DRAC-StaticInformationList       OPTIONAL
        },
        tdd                                  NULL
    },
    dl-CommonTransChInfo-r4                 DL-CommonTransChInfo-r4          OPTIONAL,
    dl-DeletedTransChInfoList               DL-DeletedTransChInfoList        OPTIONAL
}

```



```

    dl-AddReconfTransChInfoList      DL-AddReconfTransChInfoList-r4      OPTIONAL,
-- Physical channel IEs
    frequencyInfo                    FrequencyInfo                        OPTIONAL,
    maxAllowedUL-TX-Power             MaxAllowedUL-TX-Power              OPTIONAL,
    ul-ChannelRequirement             UL-ChannelRequirement-r4          OPTIONAL,
    modeSpecificPhysChInfo           CHOICE {
        fdd                          SEQUENCE {
            dl-PDSCH-Information      DL-PDSCH-Information              OPTIONAL
        },
        tdd                          NULL
    },
    dl-CommonInformation              DL-CommonInformation-r4            OPTIONAL,
    dl-InformationPerRL-List          DL-InformationPerRL-List-r4       OPTIONAL
}

CellUpdateConfirm-r5-IEs ::= SEQUENCE {
-- User equipment IEs
    integrityProtectionModeInfo      IntegrityProtectionModeInfo        OPTIONAL,
    cipheringModeInfo                CipheringModeInfo                  OPTIONAL,
    activationTime                    ActivationTime                       OPTIONAL,
    new-U-RNTI                        U-RNTI                             OPTIONAL,
    new-C-RNTI                        C-RNTI                             OPTIONAL,
    new-DSCH-RNTI                    DSCH-RNTI                          OPTIONAL,
    new-H-RNTI                        H-RNTI                             OPTIONAL,
    rrc-StateIndicator               RRC-StateIndicator,
    utran-DRX-CycleLengthCoeff        UTRAN-DRX-CycleLengthCoefficient  OPTIONAL,
    rlc-Re-establishIndicatorRb2-3or4  BOOLEAN,
    rlc-Re-establishIndicatorRb5orAbove  BOOLEAN,
-- CN information elements
    cn-InformationInfo                CN-InformationInfo                 OPTIONAL,
-- UTRAN mobility IEs
    ura-Identity                      URA-Identity                       OPTIONAL,
-- Radio bearer IEs
    rb-InformationReleaseList         RB-InformationReleaseList          OPTIONAL,
    rb-InformationReconfigList        RB-InformationReconfigList-r5      OPTIONAL,
    rb-InformationAffectedList        RB-InformationAffectedList-r5      OPTIONAL,
    dl-CounterSynchronisationInfo     DL-CounterSynchronisationInfo-r5   OPTIONAL,
-- Transport channel IEs
    ul-CommonTransChInfo             UL-CommonTransChInfo-r4           OPTIONAL,
    ul-deletedTransChInfoList         UL-DeletedTransChInfoList         OPTIONAL,
    ul-AddReconfTransChInfoList       UL-AddReconfTransChInfoList       OPTIONAL,
    modeSpecificTransChInfo           CHOICE {
        fdd                          SEQUENCE {
            -- dummy is not used in this version of the specification, it should
            -- not be sent and if received it should be ignored.
            cpch-SetIDdummy        CPCH-SetID                        OPTIONAL,
            addReconfTransChDRAC-Info  DRAC-StaticInformationList        OPTIONAL
        },
        tdd                          NULL
    },
    dl-CommonTransChInfo              DL-CommonTransChInfo-r4           OPTIONAL,
    dl-DeletedTransChInfoList         DL-DeletedTransChInfoList-r5      OPTIONAL,
    dl-AddReconfTransChInfoList       DL-AddReconfTransChInfoList-r5    OPTIONAL,
-- Physical channel IEs
    frequencyInfo                    FrequencyInfo                        OPTIONAL,
    maxAllowedUL-TX-Power             MaxAllowedUL-TX-Power              OPTIONAL,
    ul-ChannelRequirement             UL-ChannelRequirement-r5          OPTIONAL,
    modeSpecificPhysChInfo           CHOICE {
        fdd                          SEQUENCE {
            dl-PDSCH-Information      DL-PDSCH-Information              OPTIONAL
        },
        tdd                          NULL
    },
    dl-HSPDSCH-Information            DL-HSPDSCH-Information            OPTIONAL,
    dl-CommonInformation              DL-CommonInformation-r5            OPTIONAL,
    dl-InformationPerRL-List          DL-InformationPerRL-List-r5       OPTIONAL
}

CellUpdateConfirm-r6-IEs ::= SEQUENCE {
-- User equipment IEs
    integrityProtectionModeInfo      IntegrityProtectionModeInfo        OPTIONAL,
    cipheringModeInfo                CipheringModeInfo                  OPTIONAL,
    activationTime                    ActivationTime                       OPTIONAL,
    new-U-RNTI                        U-RNTI                             OPTIONAL,
    new-C-RNTI                        C-RNTI                             OPTIONAL,
    new-DSCH-RNTI                    DSCH-RNTI                          OPTIONAL,

```

```

new-H-RNTI                H-RNTI                OPTIONAL,
new-E-RNTI                E-RNTI                OPTIONAL,
rrc-StateIndicator        RRC-StateIndicator,
utran-DRX-CycleLengthCoeff  UTRAN-DRX-CycleLengthCoefficient  OPTIONAL,
rlc-Re-establishIndicatorRb2-3or4  BOOLEAN,
rlc-Re-establishIndicatorRb5orAbove  BOOLEAN,
-- CN information elements
  cn-InformationInfo        CN-InformationInfo        OPTIONAL,
-- UTRAN mobility IEs
  ura-Identity              URA-Identity              OPTIONAL,
-- Radio bearer IEs
  rb-InformationReleaseList  RB-InformationReleaseList  OPTIONAL,
  rb-InformationReconfigList  RB-InformationReconfigList-r6  OPTIONAL,
  rb-InformationAffectedList  RB-InformationAffectedList-r6  OPTIONAL,
  dl-CounterSynchronisationInfo  DL-CounterSynchronisationInfo-r5  OPTIONAL,
-- Transport channel IEs
  ul-CommonTransChInfo      UL-CommonTransChInfo-r4        OPTIONAL,
  ul-deletedTransChInfoList  UL-DeletedTransChInfoList-r6  OPTIONAL,
  ul-AddReconfTransChInfoList  UL-AddReconfTransChInfoList-r6  OPTIONAL,
  modeSpecificTransChInfo    CHOICE {
    fdd                      SEQUENCE {
      cpch-SetID          CPCH-SetID          OPTIONAL,
      addReconfTransChDRAC-Info  DRAC-StaticInformationList  OPTIONAL
    },
    tdd                      NULL
  },
  dl-CommonTransChInfo      DL-CommonTransChInfo-r4        OPTIONAL,
  dl-DeletedTransChInfoList  DL-DeletedTransChInfoList-r5  OPTIONAL,
  dl-AddReconfTransChInfoList  DL-AddReconfTransChInfoList-r5  OPTIONAL,
-- Physical channel IEs
  frequencyInfo              FrequencyInfo              OPTIONAL,
  maxAllowedUL-TX-Power      MaxAllowedUL-TX-Power      OPTIONAL,
  ul-ChannelRequirement      UL-ChannelRequirement-r6    OPTIONAL,
  ul-EDCH-Information        UL-EDCH-Information-r6    OPTIONAL,
  modeSpecificPhysChInfo    CHOICE {
    fdd                      SEQUENCE {
      dl-PDSCH-Information      DL-PDSCH-Information      OPTIONAL
    },
    tdd                      NULL
  },
  dl-HSPDSCH-Information      DL-HSPDSCH-Information      OPTIONAL,
  dl-CommonInformation        DL-CommonInformation-r6    OPTIONAL,
  dl-InformationPerRL-List    DL-InformationPerRL-List-r6  OPTIONAL,
-- MBMS IEs
  mbms-PL-ServiceRestrictInfo  MBMS-PL-ServiceRestrictInfo-r6
}

```

~~~~ Next Modified Section ~~~~

```

HandoverToUTRANCommand-r3-IEs ::= SEQUENCE {
  -- User equipment IEs
  new-U-RNTI                U-RNTI-Short,
  -- dummy is not used in this version of specification, it should
  -- not be sent and if received it should be ignored.
  dummy                      ActivationTime              OPTIONAL,
  cipheringAlgorithm         CipheringAlgorithm        OPTIONAL,
-- Radio bearer IEs
-- Specification mode information
  specificationMode          CHOICE {
    complete                  SEQUENCE {
      srb-InformationSetupList  SRB-InformationSetupList,
      rab-InformationSetupList  RAB-InformationSetupList
    },
    OPTIONAL,
    ul-CommonTransChInfo      UL-CommonTransChInfo,
    ul-AddReconfTransChInfoList  UL-AddReconfTransChInfoList,
    dl-CommonTransChInfo      DL-CommonTransChInfo,
    dl-AddReconfTransChInfoList  DL-AddReconfTransChInfoList,
    ul-DPCH-Info              UL-DPCH-Info,
    modeSpecificInfo          CHOICE {
      fdd                      SEQUENCE {
        dl-PDSCH-Information      DL-PDSCH-Information  OPTIONAL,
        cpch-SetInfoDummy          CPCH-SetInfo          OPTIONAL
      }
    }
  },
}

```

```

        tdd                                NULL
    },
    dl-CommonInformation                    DL-CommonInformation,
    dl-InformationPerRL-List                DL-InformationPerRL-List,
    frequencyInfo                           FrequencyInfo
},
preconfiguration                           SEQUENCE {
-- All IEs that include an FDD/TDD choice are split in two IEs for this message,
-- one for the FDD only elements and one for the TDD only elements, so that one
-- FDD/TDD choice in this level is sufficient.
    preConfigMode                           CHOICE {
        predefinedConfigIdentity            PredefinedConfigIdentity,
        defaultConfig                       SEQUENCE {
            defaultConfigMode               DefaultConfigMode,
            defaultConfigIdentity           DefaultConfigIdentity
        }
    },
    rab-Info                                 RAB-Info-Post            OPTIONAL,
    modeSpecificInfo                         CHOICE {
        fdd                                  SEQUENCE {
            ul-DPCH-Info                     UL-DPCH-InfoPostFDD,
            dl-CommonInformationPost          DL-CommonInformationPost,
            dl-InformationPerRL-List          DL-InformationPerRL-
ListPostFDD,
            frequencyInfo                     FrequencyInfoFDD
        },
        tdd                                  SEQUENCE {
            ul-DPCH-Info                     UL-DPCH-InfoPostTDD,
            dl-CommonInformationPost          DL-CommonInformationPost,
            dl-InformationPerRL-List          DL-InformationPerRL-PostTDD,
            frequencyInfo                     FrequencyInfoTDD,
            primaryCCPCH-TX-Power            PrimaryCCPCH-TX-Power
        }
    }
},
},
-- Physical channel IEs
    maxAllowedUL-TX-Power                    MaxAllowedUL-TX-Power
}

HandoverToUTRANCommand-r4-IEs ::= SEQUENCE {
-- User equipment IEs
    new-U-RNTI                               U-RNTI-Short,
    cipheringAlgorithm                        CipheringAlgorithm            OPTIONAL,
-- Radio bearer IEs
-- Specification mode information
    specificationMode                         CHOICE {
        complete                              SEQUENCE {
            srb-InformationSetupList          SRB-InformationSetupList,
            rab-InformationSetupList          RAB-InformationSetupList-r4
OPTIONAL,
            ul-CommonTransChInfo             UL-CommonTransChInfo-r4,
            ul-AddReconfTransChInfoList      UL-AddReconfTransChInfoList,
            dl-CommonTransChInfo             DL-CommonTransChInfo-r4,
            dl-AddReconfTransChInfoList      DL-AddReconfTransChInfoList-r4,
            ul-DPCH-Info                      UL-DPCH-Info-r4,
            modeSpecificInfo                  CHOICE {
                fdd                           SEQUENCE {
                    dl-PDSCH-Information      DL-PDSCH-Information OPTIONAL,
                    -- dummy is not used in this version of the specification, it
                    -- should not be sent and if received it should be ignored.
epch-SetInfodummy                    CPCH-SetInfo            OPTIONAL
                },
                tdd                           NULL
            },
            dl-CommonInformation              DL-CommonInformation-r4,
            dl-InformationPerRL-List          DL-InformationPerRL-List-r4,
            frequencyInfo                     FrequencyInfo
        },
        preconfiguration                       SEQUENCE {
-- All IEs that include an FDD/TDD choice are split in two IEs for this message,
-- one for the FDD only elements and one for the TDD only elements, so that one
-- FDD/TDD choice in this level is sufficient.
            preConfigMode                       CHOICE {
                predefinedConfigIdentity        PredefinedConfigIdentity,
                defaultConfig                     SEQUENCE {

```

```

        defaultConfigMode                DefaultConfigMode,
        defaultConfigIdentity            DefaultConfigIdentity-r4
    },
    },
    rab-Info                             RAB-Info-Post        OPTIONAL,
    modeSpecificInfo                     CHOICE {
        fdd                               SEQUENCE {
            ul-DPCH-Info                  UL-DPCH-InfoPostFDD,
            dl-CommonInformationPost       DL-CommonInformationPost,
            dl-InformationPerRL-List       DL-InformationPerRL-
ListPostFDD,
            frequencyInfo                  FrequencyInfoFDD
        },
        tdd                               CHOICE {
            tdd384                         SEQUENCE {
                ul-DPCH-Info              UL-DPCH-InfoPostTDD,
                dl-InformationPerRL       DL-InformationPerRL-
PostTDD,
                frequencyInfo             FrequencyInfoTDD,
                primaryCCPCH-TX-Power     PrimaryCCPCH-TX-Power
            },
            tdd128                         SEQUENCE {
                ul-DPCH-Info              UL-DPCH-InfoPostTDD-LCR-
r4,
                dl-InformationPerRL       DL-InformationPerRL-
PostTDD-LCR-r4,
                frequencyInfo             FrequencyInfoTDD,
                primaryCCPCH-TX-Power     PrimaryCCPCH-TX-Power
            }
        }
    }
},
-- Physical channel IEs
maxAllowedUL-TX-Power                    MaxAllowedUL-TX-Power
}

HandoverToUTRANCommand-r5-IEs ::= SEQUENCE {
-- User equipment IEs
new-U-RNTI                               U-RNTI-Short,
cipheringAlgorithm                       CipheringAlgorithm                OPTIONAL,
-- Radio bearer IEs
-- Specification mode information
specificationMode                       CHOICE {
    complete                              SEQUENCE {
OPTIONAL,
        srb-InformationSetupList         SRB-InformationSetupList-r5,
        rab-InformationSetupList         RAB-InformationSetupList-r5
    },
    ul-CommonTransChInfo                 UL-CommonTransChInfo-r4,
    ul-AddReconfTransChInfoList          UL-AddReconfTransChInfoList,
    dl-CommonTransChInfo                 DL-CommonTransChInfo-r4,
    dl-AddReconfTransChInfoList          DL-AddReconfTransChInfoList-r5,
    ul-DPCH-Info                         UL-DPCH-Info-r5,
    modeSpecificInfo                     CHOICE {
        fdd                              SEQUENCE {
            dl-PDSCH-Information          DL-PDSCH-Information OPTIONAL,
            -- dummy is not used in this version of the specification, it
            -- should not be sent and if received it should be ignored.
            epech-SetInfodummy        CPCH-SetInfo                OPTIONAL
        },
        tdd                              NULL
    },
    dl-CommonInformation                 DL-CommonInformation-r4,
    dl-InformationPerRL-List             DL-InformationPerRL-List-r5,
    frequencyInfo                        FrequencyInfo
    },
    preconfiguration                     SEQUENCE {
-- All IEs that include an FDD/TDD choice are split in two IEs for this message,
-- one for the FDD only elements and one for the TDD only elements, so that one
-- FDD/TDD choice in this level is sufficient.
        preConfigMode                    CHOICE {
            predefinedConfigIdentity      PredefinedConfigIdentity,
            defaultConfig                 SEQUENCE {
                defaultConfigMode         DefaultConfigMode,
                defaultConfigIdentity     DefaultConfigIdentity-r5
            }
        }
    }
}

```

```

    },
    rab-Info RAB-Info-Post OPTIONAL,
    modeSpecificInfo CHOICE {
        fdd SEQUENCE {
            ul-DPCH-Info UL-DPCH-InfoPostFDD,
            dl-CommonInformationPost DL-CommonInformationPost,
            dl-InformationPerRL-List DL-InformationPerRL-
ListPostFDD,
            frequencyInfo FrequencyInfoFDD
        },
        tdd CHOICE {
            tdd384 SEQUENCE {
                ul-DPCH-Info UL-DPCH-InfoPostTDD,
                dl-InformationPerRL DL-InformationPerRL-
PostTDD,
                frequencyInfo FrequencyInfoTDD,
                primaryCCPCH-TX-Power PrimaryCCPCH-TX-Power
            },
            tdd128 SEQUENCE {
                ul-DPCH-Info UL-DPCH-InfoPostTDD-LCR-
r4,
                dl-InformationPerRL DL-InformationPerRL-
PostTDD-LCR-r4,
                frequencyInfo FrequencyInfoTDD,
                primaryCCPCH-TX-Power PrimaryCCPCH-TX-Power
            }
        }
    }
},
-- Physical channel IES
maxAllowedUL-TX-Power MaxAllowedUL-TX-Power
}

HandoverToUTRANCommand-r6-IES ::= SEQUENCE {
-- User equipment IES
new-U-RNTI U-RNTI-Short,
cipheringAlgorithm CipheringAlgorithm OPTIONAL,
-- Radio bearer IES
-- Specification mode information
specificationMode CHOICE {
complete SEQUENCE {
OPTIONAL,
srb-InformationSetupList SRB-InformationSetupList-r6,
rab-InformationSetupList RAB-InformationSetupList-r6
ul-CommonTransChInfo UL-CommonTransChInfo-r4,
ul-AddReconfTransChInfoList UL-AddReconfTransChInfoList-r6,
dl-CommonTransChInfo DL-CommonTransChInfo-r4,
dl-AddReconfTransChInfoList DL-AddReconfTransChInfoList-r5,
ul-DPCH-Info UL-DPCH-Info-r6,
modeSpecificInfo CHOICE {
fdd SEQUENCE {
OPTIONAL,
dl-PDSCH-Information DL-PDSCH-Information
cpch-SetInfo CPCH-SetInfo OPTIONAL
},
tdd NULL
},
dl-CommonInformation DL-CommonInformation-r4,
dl-InformationPerRL-List DL-InformationPerRL-List-r6,
frequencyInfo FrequencyInfo
}
-- For the 'preconfiguration' specificationMode the r5 message is used.
},
-- Physical channel IES
maxAllowedUL-TX-Power MaxAllowedUL-TX-Power
}

```

~~~~ Next Modified Section ~~~~

```

PhysicalChannelReconfiguration-r3-IES ::= SEQUENCE {
-- User equipment IES
rrc-TransactionIdentifier RRC-TransactionIdentifier,
integrityProtectionModeInfo IntegrityProtectionModeInfo OPTIONAL,

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        cipheringModeInfo          CipheringModeInfo          OPTIONAL,
        activationTime             ActivationTime          OPTIONAL,
        new-U-RNTI                 U-RNTI                OPTIONAL,
        new-C-RNTI                 C-RNTI                OPTIONAL,
        rrc-StateIndicator         RRC-StateIndicator,  OPTIONAL,
        utran-DRX-CycleLengthCoeff UTRAN-DRX-CycleLengthCoefficient
-- Core network IES
        cn-InformationInfo         CN-InformationInfo   OPTIONAL,
-- UTRAN mobility IES
        ura-Identity               URA-Identity         OPTIONAL,
-- Radio bearer IES
        dl-CounterSynchronisationInfo DL-CounterSynchronisationInfo
-- Physical channel IES
        frequencyInfo             FrequencyInfo          OPTIONAL,
        maxAllowedUL-TX-Power      MaxAllowedUL-TX-Power OPTIONAL,
        -- TABULAR: UL-ChannelRequirementWithCPCH-SetID contains the choice
        -- between UL DPCH info, CPCH SET info and CPCH set ID.
        -- Note: the reference to CPCH in the element name below is incorrect. The
        -- name is not changed to keep it aligned with R99.
        ul-ChannelRequirement      UL-ChannelRequirementWithCPCH-SetID
OPTIONAL,
        modeSpecificInfo          CHOICE {
                fdd                SEQUENCE {
                        dl-PDSCH-Information DL-PDSCH-Information OPTIONAL,
                },
                tdd                NULL
        },
        dl-CommonInformation       DL-CommonInformation OPTIONAL,
        dl-InformationPerRL-List   DL-InformationPerRL-List OPTIONAL
}

PhysicalChannelReconfiguration-v3a0ext ::= SEQUENCE {
        new-DSCH-RNTI              DSCH-RNTI              OPTIONAL
}

PhysicalChannelReconfiguration-v4b0ext-IEs ::= SEQUENCE {
-- Physical channel IES
-- ssdt-UL extends SSDT-Information, which is included in
-- DL-CommonInformation. FDD only.
        ssdt-UL-r4                SSDT-UL
OPTIONAL,
-- The order of the RLS in IE cell-id-PerRL-List is the same as
-- in IE DL-InformationPerRL-List included in this message
        cell-id-PerRL-List        CellIdentity-PerRL-List
OPTIONAL
}

PhysicalChannelReconfiguration-v590ext-IEs ::= SEQUENCE {
-- Physical channel IES
        dl-TPC-PowerOffsetPerRL-List DL-TPC-PowerOffsetPerRL-List OPTIONAL
}

PhysicalChannelReconfiguration-r4-IEs ::= SEQUENCE {
-- User equipment IES
        integrityProtectionModeInfo IntegrityProtectionModeInfo OPTIONAL,
        cipheringModeInfo          CipheringModeInfo          OPTIONAL,
        activationTime             ActivationTime          OPTIONAL,
        new-U-RNTI                 U-RNTI                OPTIONAL,
        new-C-RNTI                 C-RNTI                OPTIONAL,
        new-DSCH-RNTI              DSCH-RNTI              OPTIONAL,
        rrc-StateIndicator         RRC-StateIndicator,  OPTIONAL,
        utran-DRX-CycleLengthCoeff UTRAN-DRX-CycleLengthCoefficient
-- Core network IES
        cn-InformationInfo         CN-InformationInfo   OPTIONAL,
-- UTRAN mobility IES
        ura-Identity               URA-Identity         OPTIONAL,
-- Radio bearer IES
        dl-CounterSynchronisationInfo DL-CounterSynchronisationInfo
-- Physical channel IES
        frequencyInfo             FrequencyInfo          OPTIONAL,
        maxAllowedUL-TX-Power      MaxAllowedUL-TX-Power OPTIONAL,
        -- TABULAR: UL-ChannelRequirementWithCPCH-SetID-r4 contains the choice
        -- between UL DPCH info, CPCH SET info and CPCH set ID.
        -- Note: the reference to CPCH in the element name below is incorrect. The
        -- name is not changed to keep it aligned with R99.
        ul-ChannelRequirement      UL-ChannelRequirementWithCPCH-SetID-r4
OPTIONAL,

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modeSpecificInfo          CHOICE {
  fdd                     SEQUENCE {
    dl-PDSCH-Information  DL-PDSCH-Information  OPTIONAL
  },
  tdd                     NULL
},
dl-CommonInformation      DL-CommonInformation-r4      OPTIONAL,
dl-InformationPerRL-List  DL-InformationPerRL-List-r4    OPTIONAL
}

PhysicalChannelReconfiguration-r5-IEs ::= SEQUENCE {
-- User equipment IEs
  integrityProtectionModeInfo  IntegrityProtectionModeInfo  OPTIONAL,
  cipheringModeInfo            CipheringModeInfo            OPTIONAL,
  activationTime                ActivationTime                OPTIONAL,
  new-U-RNTI                   U-RNTI                      OPTIONAL,
  new-C-RNTI                   C-RNTI                      OPTIONAL,
  new-DSCH-RNTI                DSCH-RNTI                  OPTIONAL,
  new-H-RNTI                   H-RNTI                      OPTIONAL,
  rrc-StateIndicator           RRC-StateIndicator,
  utran-DRX-CycleLengthCoeff   UTRAN-DRX-CycleLengthCoefficient  OPTIONAL,
-- Core network IEs
  cn-InformationInfo           CN-InformationInfo          OPTIONAL,
-- UTRAN mobility IEs
  ura-Identity                 URA-Identity               OPTIONAL,
-- Radio bearer IEs
  dl-CounterSynchronisationInfo DL-CounterSynchronisationInfo-r5  OPTIONAL,
-- Physical channel IEs
  frequencyInfo                FrequencyInfo                OPTIONAL,
  maxAllowedUL-TX-Power        MaxAllowedUL-TX-Power      OPTIONAL,
  ul-ChannelRequirementWithCPCH-SetID-r5
  between UL DPCH info, CPCH SET info and CPCH set ID.
  -- Note: the reference to CPCH in the element name below is incorrect. The
  name is not changed to keep it aligned with R99.
  ul-ChannelRequirement        UL-ChannelRequirementWithCPCH-SetID-r5
OPTIONAL,
modeSpecificInfo          CHOICE {
  fdd                     SEQUENCE {
    dl-PDSCH-Information  DL-PDSCH-Information  OPTIONAL
  },
  tdd                     NULL
},
dl-HSPDSCH-Information      DL-HSPDSCH-Information     OPTIONAL,
dl-CommonInformation        DL-CommonInformation-r5   OPTIONAL,
dl-InformationPerRL-List    DL-InformationPerRL-List-r5  OPTIONAL
}

PhysicalChannelReconfiguration-r6-IEs ::= SEQUENCE {
-- User equipment IEs
  integrityProtectionModeInfo  IntegrityProtectionModeInfo  OPTIONAL,
  cipheringModeInfo            CipheringModeInfo            OPTIONAL,
  activationTime                ActivationTime                OPTIONAL,
  new-U-RNTI                   U-RNTI                      OPTIONAL,
  new-C-RNTI                   C-RNTI                      OPTIONAL,
  new-DSCH-RNTI                DSCH-RNTI                  OPTIONAL,
  new-H-RNTI                   H-RNTI                      OPTIONAL,
  new-E-RNTI                   E-RNTI                      OPTIONAL,
  rrc-StateIndicator           RRC-StateIndicator,
  utran-DRX-CycleLengthCoeff   UTRAN-DRX-CycleLengthCoefficient  OPTIONAL,
-- Core network IEs
  cn-InformationInfo           CN-InformationInfo          OPTIONAL,
  plmn-Identity                PLMN-Identity               OPTIONAL,
-- UTRAN mobility IEs
  ura-Identity                 URA-Identity               OPTIONAL,
-- Radio bearer IEs
  dl-CounterSynchronisationInfo DL-CounterSynchronisationInfo-r5  OPTIONAL,
-- Physical channel IEs
  frequencyInfo                FrequencyInfo                OPTIONAL,
  maxAllowedUL-TX-Power        MaxAllowedUL-TX-Power      OPTIONAL,
  ul-ChannelRequirementWithCPCH-SetID-r6
  between UL DPCH info, CPCH SET info and CPCH set ID.
  ul-ChannelRequirement      UL-ChannelRequirementWithCPCH-SetID-r6
OPTIONAL,
  ul-EDCH-Information          UL-EDCH-Information-r6     OPTIONAL,
modeSpecificInfo          CHOICE {
  fdd                     SEQUENCE {
    dl-PDSCH-Information  DL-PDSCH-Information  OPTIONAL
  }
}

```

```

    },
    tdd
        NULL
    },
    dl-HSPDSCH-Information
        DL-HSPDSCH-Information
        OPTIONAL,
    dl-CommonInformation
        DL-CommonInformation-r6
        OPTIONAL,
    dl-InformationPerRL-List
        DL-InformationPerRL-List-r6
        OPTIONAL,
-- MBMS IES
    mbms-PL-ServiceRestrictInfo
        MBMS-PL-ServiceRestrictInfo-r6
}

```

~~~~ Next Modified Section ~~~~

```

RadioBearerReconfiguration-r3-IEs ::= SEQUENCE {
-- User equipment IES
    rrc-TransactionIdentifier
        RRC-TransactionIdentifier,
    integrityProtectionModeInfo
        IntegrityProtectionModeInfo
        OPTIONAL,
    cipheringModeInfo
        CipheringModeInfo
        OPTIONAL,
    activationTime
        ActivationTime
        OPTIONAL,
    new-U-RNTI
        U-RNTI
        OPTIONAL,
    new-C-RNTI
        C-RNTI
        OPTIONAL,
    rrc-StateIndicator
        RRC-StateIndicator,
    utran-DRX-CycleLengthCoeff
        UTRAN-DRX-CycleLengthCoefficient
        OPTIONAL,
-- Core network IES
    cn-InformationInfo
        CN-InformationInfo
        OPTIONAL,
-- UTRAN mobility IES
    ura-Identity
        URA-Identity
        OPTIONAL,
-- Radio bearer IES
    rab-InformationReconfigList
        RAB-InformationReconfigList
        OPTIONAL,
-- NOTE: IE rb-InformationReconfigList should be optional in later versions
-- of this message
    rb-InformationReconfigList
        RB-InformationReconfigList,
    rb-InformationAffectedList
        RB-InformationAffectedList
        OPTIONAL,
-- Transport channel IES
    ul-CommonTransChInfo
        UL-CommonTransChInfo
        OPTIONAL,
    ul-deletedTransChInfoList
        UL-DeletedTransChInfoList
        OPTIONAL,
    ul-AddReconfTransChInfoList
        UL-AddReconfTransChInfoList
        OPTIONAL,
    modeSpecificTransChInfo
        CHOICE {
            fdd
                SEQUENCE {
                    -- dummy is not used in this version of the specification, it should
                    -- not be sent and if received it should be ignored.
                    epch-SetIDdummy
                        CPCH-SetID
                        OPTIONAL,
                    addReconfTransChDRAC-Info
                        DRAC-StaticInformationList
                        OPTIONAL
                },
            tdd
                NULL
        }
    },
    dl-CommonTransChInfo
        DL-CommonTransChInfo
        OPTIONAL,
    dl-DeletedTransChInfoList
        DL-DeletedTransChInfoList
        OPTIONAL,
    dl-AddReconfTransChInfoList
        DL-AddReconfTransChInfo2List
        OPTIONAL,
-- Physical channel IES
    frequencyInfo
        FrequencyInfo
        OPTIONAL,
    maxAllowedUL-TX-Power
        MaxAllowedUL-TX-Power
        OPTIONAL,
    ul-ChannelRequirement
        UL-ChannelRequirement
        OPTIONAL,
    modeSpecificPhysChInfo
        CHOICE {
            fdd
                SEQUENCE {
                    dl-PDSCH-Information
                        DL-PDSCH-Information
                        OPTIONAL
                },
            tdd
                NULL
        }
    },
    dl-CommonInformation
        DL-CommonInformation
        OPTIONAL,
-- NOTE: IE dl-InformationPerRL-List should be optional in later versions
-- of this message
    dl-InformationPerRL-List
        DL-InformationPerRL-List
}

```

```

RadioBearerReconfiguration-v3a0ext ::= SEQUENCE {
    new-DSCH-RNTI
        DSCH-RNTI
        OPTIONAL
}

```

```

RadioBearerReconfiguration-v4b0ext-IEs ::= SEQUENCE {
-- Physical channel IES
-- ssdt-UL extends SSdT-Information, which is included in
-- DL-CommonInformation. FDD only.
    ssdt-UL-r4
        SSdT-UL
        OPTIONAL,
-- The order of the RLs in IE cell-id-PerRL-List is the same as

```



```

-- in IE DL-InformationPerRL-List included in this message
cell-id-PerRL-List          CellIdentity-PerRL-List
OPTIONAL
}

RadioBearerReconfiguration-v590ext-IEs ::= SEQUENCE {
-- Physical channel IEs
  dl-TPC-PowerOffsetPerRL-List  DL-TPC-PowerOffsetPerRL-List  OPTIONAL
}

RadioBearerReconfiguration-r4-IEs ::= SEQUENCE {
-- User equipment IEs
  integrityProtectionModeInfo  IntegrityProtectionModeInfo  OPTIONAL,
  cipheringModeInfo            CipheringModeInfo            OPTIONAL,
  activationTime                ActivationTime                OPTIONAL,
  new-U-RNTI                   U-RNTI                      OPTIONAL,
  new-C-RNTI                   C-RNTI                      OPTIONAL,
  new-DSCH-RNTI                DSCH-RNTI                  OPTIONAL,
  rrc-StateIndicator           RRC-StateIndicator,
  utran-DRX-CycleLengthCoeff  UTRAN-DRX-CycleLengthCoefficient  OPTIONAL,
-- Core network IEs
  cn-InformationInfo           CN-InformationInfo          OPTIONAL,
-- UTRAN mobility IEs
  ura-Identity                 URA-Identity               OPTIONAL,
-- Radio bearer IEs
  rab-InformationReconfigList  RAB-InformationReconfigList  OPTIONAL,
  rb-InformationReconfigList  RB-InformationReconfigList-r4  OPTIONAL,
  rb-InformationAffectedList  RB-InformationAffectedList  OPTIONAL,
-- Transport channel IEs
  ul-CommonTransChInfo        UL-CommonTransChInfo-r4     OPTIONAL,
  ul-deletedTransChInfoList   UL-DeletedTransChInfoList  OPTIONAL,
  ul-AddReconfTransChInfoList UL-AddReconfTransChInfoList  OPTIONAL,
  modeSpecificTransChInfo     CHOICE {
    fdd                          SEQUENCE {
      -- dummy is not used in this version of the specification, it should
      -- not be sent and if received it should be ignored.
      cpch-SetIDdummy      CPCH-SetID                OPTIONAL,
      addReconfTransChDRAC-Info  DRAC-StaticInformationList  OPTIONAL
    },
    tdd                          NULL
  }
  dl-CommonTransChInfo        DL-CommonTransChInfo-r4     OPTIONAL,
  dl-DeletedTransChInfoList   DL-DeletedTransChInfoList  OPTIONAL,
  dl-AddReconfTransChInfoList DL-AddReconfTransChInfoList-r4  OPTIONAL,
-- Physical channel IEs
  frequencyInfo               FrequencyInfo                OPTIONAL,
  maxAllowedUL-TX-Power       MaxAllowedUL-TX-Power      OPTIONAL,
  ul-ChannelRequirement       UL-ChannelRequirement-r4   OPTIONAL,
  modeSpecificPhysChInfo     CHOICE {
    fdd                          SEQUENCE {
      dl-PDSCH-Information      DL-PDSCH-Information      OPTIONAL
    },
    tdd                          NULL
  },
  dl-CommonInformation        DL-CommonInformation-r4     OPTIONAL,
  dl-InformationPerRL-List    DL-InformationPerRL-List-r4  OPTIONAL
}

RadioBearerReconfiguration-r5-IEs ::= SEQUENCE {
-- User equipment IEs
  integrityProtectionModeInfo  IntegrityProtectionModeInfo  OPTIONAL,
  cipheringModeInfo            CipheringModeInfo            OPTIONAL,
  activationTime                ActivationTime                OPTIONAL,
  new-U-RNTI                   U-RNTI                      OPTIONAL,
  new-C-RNTI                   C-RNTI                      OPTIONAL,
  new-DSCH-RNTI                DSCH-RNTI                  OPTIONAL,
  new-H-RNTI                   H-RNTI                      OPTIONAL,
  rrc-StateIndicator           RRC-StateIndicator,
  utran-DRX-CycleLengthCoeff  UTRAN-DRX-CycleLengthCoefficient  OPTIONAL,
-- Core network IEs
  cn-InformationInfo           CN-InformationInfo          OPTIONAL,
-- UTRAN mobility IEs
  ura-Identity                 URA-Identity               OPTIONAL,
-- Specification mode information
  spe_cificationMode          CHOICE {
    complete                      SEQUENCE {

```

```

-- Radio bearer IEs
OPTIONAL, rab-InformationReconfigList RAB-InformationReconfigList
OPTIONAL, rb-InformationReconfigList RB-InformationReconfigList-r5
OPTIONAL, rb-InformationAffectedList RB-InformationAffectedList-r5
OPTIONAL, rb-PDCPContextRelocationList RB-PDCPContextRelocationList
OPTIONAL,
-- Transport channel IEs
OPTIONAL, ul-CommonTransChInfo UL-CommonTransChInfo-r4
OPTIONAL, ul-deletedTransChInfoList UL-DeletedTransChInfoList
OPTIONAL, ul-AddReconfTransChInfoList UL-AddReconfTransChInfoList
OPTIONAL, modeSpecificTransChInfo CHOICE {
    fdd SEQUENCE {
        -- dummy is not used in this version of the specification, it
        -- should not be sent and if received it should be ignored.
        cpch-SetIDdummy CPCH-SetID OPTIONAL,
        addReconfTransChDRAC-Info DRAC-StaticInformationList
    }
    tdd NULL
}
OPTIONAL, dl-CommonTransChInfo DL-CommonTransChInfo-r4
OPTIONAL, dl-DeletedTransChInfoList DL-DeletedTransChInfoList-r5
OPTIONAL, dl-AddReconfTransChInfoList DL-AddReconfTransChInfoList-r5
OPTIONAL,
},
preconfiguration SEQUENCE {
-- All IEs that include an FDD/TDD choice are split in two IEs for this
message, -- one for the FDD only elements and one for the TDD only elements, so
that one -- FDD/TDD choice in this level is sufficient.
preConfigMode CHOICE {
    predefinedConfigIdentity PredefinedConfigIdentity,
    defaultConfig SEQUENCE {
        defaultConfigMode DefaultConfigMode,
        defaultConfigIdentity DefaultConfigIdentity-r5
    }
}
},
-- Physical channel IEs
frequencyInfo FrequencyInfo OPTIONAL,
maxAllowedUL-TX-Power MaxAllowedUL-TX-Power OPTIONAL,
ul-ChannelRequirement UL-ChannelRequirement-r5 OPTIONAL,
modeSpecificPhysChInfo CHOICE {
    fdd SEQUENCE {
        dl-PDSCH-Information DL-PDSCH-Information OPTIONAL
    },
    tdd NULL
},
dl-HSPDSCH-Information DL-HSPDSCH-Information OPTIONAL,
dl-CommonInformation DL-CommonInformation-r5 OPTIONAL,
dl-InformationPerRL-List DL-InformationPerRL-List-r5 OPTIONAL
}

RadioBearerReconfiguration-r6-IEs ::= SEQUENCE {
-- User equipment IEs
integrityProtectionModeInfo IntegrityProtectionModeInfo OPTIONAL,
cipheringModeInfo CipheringModeInfo OPTIONAL,
activationTime ActivationTime OPTIONAL,
new-U-RNTI U-RNTI OPTIONAL,
new-C-RNTI C-RNTI OPTIONAL,
new-DSCH-RNTI DSCH-RNTI OPTIONAL,
new-H-RNTI H-RNTI OPTIONAL,
new-E-RNTI E-RNTI OPTIONAL,
rrc-StateIndicator RRC-StateIndicator,
utran-DRX-CycleLengthCoeff UTRAN-DRX-CycleLengthCoefficient OPTIONAL,

```

```

-- Core network IES
  cn-InformationInfo          CN-InformationInfo          OPTIONAL,
  plmn-Identity              PLMN-Identity              OPTIONAL,
-- UTRAN mobility IES
  ura-Identity              URA-Identity              OPTIONAL,
-- Specification mode information
  specificationMode          CHOICE {
    complete                 SEQUENCE {
      -- Radio bearer IES
OPTIONAL,   rab-InformationReconfigList    RAB-InformationReconfigList
OPTIONAL,   rb-InformationReconfigList      RB-InformationReconfigList-r6
OPTIONAL,   rb-InformationAffectedList    RB-InformationAffectedList-r6
OPTIONAL,   rb-PDCPContextRelocationList  RB-PDCPContextRelocationList
      -- Transport channel IES
OPTIONAL,   ul-CommonTransChInfo        UL-CommonTransChInfo-r4
OPTIONAL,   ul-deletedTransChInfoList    UL-DeletedTransChInfoList-r6
OPTIONAL,   ul-AddReconfTransChInfoList  UL-AddReconfTransChInfoList-r6
OPTIONAL,   modeSpecificTransChInfo      CHOICE {
      fdd                   SEQUENCE {
OPTIONAL,   epcch-SetID                CPCH-SetID                OPTIONAL,
      addReconfTransChDRAC-Info    DRAC-StaticInformationList
OPTIONAL,   },
      tdd                       NULL
OPTIONAL,   }

```

~~~~ Next Modified Section ~~~~

```

RadioBearerRelease-r3-IEs ::= SEQUENCE {
-- User equipment IES
  rrc-TransactionIdentifier    RRC-TransactionIdentifier,
  integrityProtectionModeInfo  IntegrityProtectionModeInfo    OPTIONAL,
  cipheringModeInfo           CipheringModeInfo                OPTIONAL,
  activationTime              ActivationTime                      OPTIONAL,
  new-U-RNTI                  U-RNTI                          OPTIONAL,
  new-C-RNTI                  C-RNTI                          OPTIONAL,
  rrc-StateIndicator          RRC-StateIndicator,
  utran-DRX-CycleLengthCoeff  UTRAN-DRX-CycleLengthCoefficient  OPTIONAL,
-- Core network IES
  cn-InformationInfo          CN-InformationInfo          OPTIONAL,
  signallingConnectionRelIndication  CN-DomainIdentity          OPTIONAL,
-- UTRAN mobility IES
  ura-Identity              URA-Identity              OPTIONAL,
-- Radio bearer IES
  rab-InformationReconfigList  RAB-InformationReconfigList    OPTIONAL,
  rb-InformationReleaseList    RB-InformationReleaseList,
  rb-InformationAffectedList    RB-InformationAffectedList      OPTIONAL,
  dl-CounterSynchronisationInfo  DL-CounterSynchronisationInfo  OPTIONAL,
-- Transport channel IES
  ul-CommonTransChInfo        UL-CommonTransChInfo          OPTIONAL,
  ul-deletedTransChInfoList    UL-DeletedTransChInfoList      OPTIONAL,
  ul-AddReconfTransChInfoList  UL-AddReconfTransChInfoList    OPTIONAL,
  modeSpecificTransChInfo      CHOICE {
    fdd                       SEQUENCE {
      -- dummy is not used in this version of the specification, it should
      -- not be sent and if received it should be ignored.
      epcch-SetIDDummy        CPCH-SetID                OPTIONAL,
      addReconfTransChDRAC-Info    DRAC-StaticInformationList  OPTIONAL
    },
    tdd                       NULL
  }
  dl-CommonTransChInfo        DL-CommonTransChInfo          OPTIONAL,
  dl-DeletedTransChInfoList    DL-DeletedTransChInfoList      OPTIONAL,
  dl-AddReconfTransChInfoList  DL-AddReconfTransChInfo2List    OPTIONAL,
-- Physical channel IES
  frequencyInfo              FrequencyInfo                      OPTIONAL,
  maxAllowedUL-TX-Power      MaxAllowedUL-TX-Power          OPTIONAL,
  ul-ChannelRequirement      UL-ChannelRequirement          OPTIONAL,

```

```

modeSpecificPhysChInfo      CHOICE {
    fdd                      SEQUENCE {
        dl-PDSCH-Information  DL-PDSCH-Information  OPTIONAL
    },
    tdd                      NULL
},
dl-CommonInformation        DL-CommonInformation  OPTIONAL,
dl-InformationPerRL-List    DL-InformationPerRL-List  OPTIONAL
}

RadioBearerRelease-v3a0ext ::= SEQUENCE {
    new-DSCH-RNTI            DSCH-RNTI            OPTIONAL
}

RadioBearerRelease-v4b0ext-IEs ::= SEQUENCE {
    -- Physical channel IEs
    -- IE ssdt-UL extends SSdT-Information, which is included in
    -- DL-CommonInformation. FDD only.
    ssdt-UL-r4              SSdT-UL
OPTIONAL,
    -- The order of the RLs in IE cell-id-PerRL-List is the same as
    -- in IE DL-InformationPerRL-List included in this message
    cell-id-PerRL-List      CellIdentity-PerRL-List
OPTIONAL
}

RadioBearerRelease-v590ext-IEs ::= SEQUENCE {
    -- Physical channel IEs
    dl-TPC-PowerOffsetPerRL-List  DL-TPC-PowerOffsetPerRL-List  OPTIONAL
}

RadioBearerRelease-r4-IEs ::= SEQUENCE {
    -- User equipment IEs
    integrityProtectionModeInfo  IntegrityProtectionModeInfo  OPTIONAL,
    cipheringModeInfo            CipheringModeInfo            OPTIONAL,
    activationTime                ActivationTime                OPTIONAL,
    new-U-RNTI                    U-RNTI                    OPTIONAL,
    new-C-RNTI                    C-RNTI                    OPTIONAL,
    new-DSCH-RNTI                DSCH-RNTI                OPTIONAL,
    rrc-StateIndicator            RRC-StateIndicator,
    utran-DRX-CycleLengthCoeff    UTRAN-DRX-CycleLengthCoefficient  OPTIONAL,
    -- Core network IEs
    cn-InformationInfo            CN-InformationInfo            OPTIONAL,
    signallingConnectionRelIndication  CN-DomainIdentity            OPTIONAL,
    -- UTRAN mobility IEs
    ura-Identity                  URA-Identity                  OPTIONAL,
    -- Radio bearer IEs
    rab-InformationReconfigList    RAB-InformationReconfigList    OPTIONAL,
    rb-InformationReleaseList       RB-InformationReleaseList,
    rb-InformationAffectedList      RB-InformationAffectedList      OPTIONAL,
    dl-CounterSynchronisationInfo  DL-CounterSynchronisationInfo  OPTIONAL,
    -- Transport channel IEs
    ul-CommonTransChInfo          UL-CommonTransChInfo-r4        OPTIONAL,
    ul-deletedTransChInfoList      UL-DeletedTransChInfoList      OPTIONAL,
    ul-AddReconfTransChInfoList    UL-AddReconfTransChInfoList    OPTIONAL,
    modeSpecificTransChInfo        CHOICE {
        fdd                      SEQUENCE {
            -- dummy is not used in this version of the specification, it should
            -- not be sent and if received it should be ignored.
            cpch-SetIDdummy          CPCH-SetID          OPTIONAL,
            addReconfTransChDRAC-Info    DRAC-StaticInformationList  OPTIONAL
        },
        tdd                      NULL
    }
    dl-CommonTransChInfo          DL-CommonTransChInfo-r4        OPTIONAL,
    dl-DeletedTransChInfoList      DL-DeletedTransChInfoList      OPTIONAL,
    dl-AddReconfTransChInfoList    DL-AddReconfTransChInfoList-r4  OPTIONAL,
    -- Physical channel IEs
    frequencyInfo                 FrequencyInfo                 OPTIONAL,
    maxAllowedUL-TX-Power          MaxAllowedUL-TX-Power        OPTIONAL,
    ul-ChannelRequirement          UL-ChannelRequirement-r4      OPTIONAL,
    modeSpecificPhysChInfo        CHOICE {
        fdd                      SEQUENCE {
            dl-PDSCH-Information  DL-PDSCH-Information  OPTIONAL
        },
        tdd                      NULL
    }
}

```

```

    },
    dl-CommonInformation          DL-CommonInformation-r4          OPTIONAL,
    dl-InformationPerRL-List      DL-InformationPerRL-List-r4      OPTIONAL
}

RadioBearerRelease-r5-IEs ::= SEQUENCE {
-- User equipment IES
    integrityProtectionModeInfo  IntegrityProtectionModeInfo  OPTIONAL,
    cipheringModeInfo            CipheringModeInfo            OPTIONAL,
    activationTime                ActivationTime                OPTIONAL,
    new-U-RNTI                    U-RNTI                      OPTIONAL,
    new-C-RNTI                    C-RNTI                      OPTIONAL,
    new-DSCH-RNTI                DSCH-RNTI                  OPTIONAL,
    new-H-RNTI                    H-RNTI                      OPTIONAL,
    rrc-StateIndicator            RRC-StateIndicator,
    utran-DRX-CycleLengthCoeff    UTRAN-DRX-CycleLengthCoefficient  OPTIONAL,
-- Core network IES
    cn-InformationInfo            CN-InformationInfo          OPTIONAL,
    signallingConnectionRelIndication  CN-DomainIdentity          OPTIONAL,
-- UTRAN mobility IES
    ura-Identity                  URA-Identity                OPTIONAL,
-- Radio bearer IES
    rab-InformationReconfigList    RAB-InformationReconfigList  OPTIONAL,
    rb-InformationReleaseList      RB-InformationReleaseList,
    rb-InformationAffectedList     RB-InformationAffectedList-r5  OPTIONAL,
    dl-CounterSynchronisationInfo  DL-CounterSynchronisationInfo-r5  OPTIONAL,
-- Transport channel IES
    ul-CommonTransChInfo          UL-CommonTransChInfo-r4      OPTIONAL,
    ul-deletedTransChInfoList      UL-DeletedTransChInfoList    OPTIONAL,
    ul-AddReconfTransChInfoList    UL-AddReconfTransChInfoList  OPTIONAL,
    modeSpecificTransChInfo        CHOICE {
        fdd                        SEQUENCE {
            -- dummy is not used in this version of the specification, it should
            -- not be sent and if received it should be ignored.
            cpch-SetIDdummy      CPCH-SetID                  OPTIONAL,
            addReconfTransChDRAC-Info  DRAC-StaticInformationList  OPTIONAL
        },
        tdd                          NULL
    }
    dl-CommonTransChInfo          DL-CommonTransChInfo-r4      OPTIONAL,
    dl-DeletedTransChInfoList      DL-DeletedTransChInfoList-r5  OPTIONAL,
    dl-AddReconfTransChInfoList    DL-AddReconfTransChInfoList-r5  OPTIONAL,
-- Physical channel IES
    frequencyInfo                 FrequencyInfo                 OPTIONAL,
    maxAllowedUL-TX-Power          MaxAllowedUL-TX-Power        OPTIONAL,
    ul-ChannelRequirement          UL-ChannelRequirement-r5     OPTIONAL,
    modeSpecificPhysChInfo         CHOICE {
        fdd                        SEQUENCE {
            dl-PDSCH-Information    DL-PDSCH-Information        OPTIONAL
        },
        tdd                          NULL
    },
    dl-HSPDSCH-Information         DL-HSPDSCH-Information       OPTIONAL,
    dl-CommonInformation           DL-CommonInformation-r5      OPTIONAL,
    dl-InformationPerRL-List       DL-InformationPerRL-List-r5  OPTIONAL
}

RadioBearerRelease-v6xyext-IEs ::= SEQUENCE {
-- Core network IES
    primary-plmn-Identity          PLMN-Identity                OPTIONAL,
-- Physical channel IES
    harq-Preamble-Mode            HARQ-Preamble-Mode           OPTIONAL,
    beaconPLEst                   BEACON-PL-Est                OPTIONAL,
-- MBMS IES
    mbms-PL-ServiceRestrictInfo    MBMS-PL-ServiceRestrictInfo-r6  OPTIONAL,
    mbms-RB-ListReleasedToChangeTransferMode  RB-InformationReleaseList  OPTIONAL
}

RadioBearerRelease-r6-IEs ::= SEQUENCE {
-- User equipment IES
    integrityProtectionModeInfo  IntegrityProtectionModeInfo  OPTIONAL,
    cipheringModeInfo            CipheringModeInfo            OPTIONAL,
    activationTime                ActivationTime                OPTIONAL,
    new-U-RNTI                    U-RNTI                      OPTIONAL,
    new-C-RNTI                    C-RNTI                      OPTIONAL
}

```

|                                   |                                  |           |
|-----------------------------------|----------------------------------|-----------|
| new-DSCH-RNTI                     | DSCH-RNTI                        | OPTIONAL, |
| new-H-RNTI                        | H-RNTI                           | OPTIONAL, |
| new-E-RNTI                        | E-RNTI                           | OPTIONAL, |
| rrc-StateIndicator                | RRC-StateIndicator,              |           |
| utran-DRX-CycleLengthCoeff        | UTRAN-DRX-CycleLengthCoefficient | OPTIONAL, |
| -- Core network IEs               |                                  |           |
| cn-InformationInfo                | CN-InformationInfo               | OPTIONAL, |
| plmn-Identity                     | PLMN-Identity                    | OPTIONAL, |
| signallingConnectionRelIndication | CN-DomainIdentity                | OPTIONAL, |
| -- UTRAN mobility IEs             |                                  |           |
| ura-Identity                      | URA-Identity                     | OPTIONAL, |
| -- Radio bearer IEs               |                                  |           |
| rab-InformationReconfigList       | RAB-InformationReconfigList      | OPTIONAL, |
| rb-InformationReleaseList         | RB-InformationReleaseList,       |           |
| rb-InformationAffectedList        | RB-InformationAffectedList-r6    | OPTIONAL, |
| dl-CounterSynchronisationInfo     | DL-CounterSynchronisationInfo-r5 | OPTIONAL, |
| -- Transport channel IEs          |                                  |           |
| ul-CommonTransChInfo              | UL-CommonTransChInfo-r4          | OPTIONAL, |
| ul-deletedTransChInfoList         | UL-DeletedTransChInfoList-r6     | OPTIONAL, |
| ul-AddReconfTransChInfoList       | UL-AddReconfTransChInfoList-r6   | OPTIONAL, |
| modeSpecificTransChInfo           | CHOICE {                         |           |
| fdd                               | SEQUENCE {                       |           |
| <del>cpch-SetID</del>             | <del>CPCH-SetID</del>            | OPTIONAL, |
| addReconfTransChDRAC-Info         | DRAC-StaticInformationList       | OPTIONAL, |
| },                                |                                  |           |
| tdd                               | NULL                             |           |
| }                                 |                                  | OPTIONAL, |

~~~~ Next Modified Section ~~~~

```
RadioBearerSetup-r3-IEs ::= SEQUENCE {
  -- User equipment IEs
  rrc-TransactionIdentifier      RRC-TransactionIdentifier,
  integrityProtectionModeInfo   IntegrityProtectionModeInfo   OPTIONAL,
  cipheringModeInfo             CipheringModeInfo             OPTIONAL,
  activationTime                 ActivationTime                 OPTIONAL,
  new-U-RNTI                     U-RNTI                     OPTIONAL,
  new-C-RNTI                     C-RNTI                     OPTIONAL,
  rrc-StateIndicator             RRC-StateIndicator,
  utran-DRX-CycleLengthCoeff    UTRAN-DRX-CycleLengthCoefficient OPTIONAL,
  -- UTRAN mobility IEs
  ura-Identity                   URA-Identity                   OPTIONAL,
  -- Core network IEs
  cn-InformationInfo             CN-InformationInfo             OPTIONAL,
  -- Radio bearer IEs
  srb-InformationSetupList      SRB-InformationSetupList      OPTIONAL,
  rab-InformationSetupList      RAB-InformationSetupList      OPTIONAL,
  rb-InformationAffectedList    RB-InformationAffectedList    OPTIONAL,
  dl-CounterSynchronisationInfo DL-CounterSynchronisationInfo OPTIONAL,
  -- Transport channel IEs
  ul-CommonTransChInfo         UL-CommonTransChInfo         OPTIONAL,
  ul-deletedTransChInfoList    UL-DeletedTransChInfoList    OPTIONAL,
  ul-AddReconfTransChInfoList  UL-AddReconfTransChInfoList  OPTIONAL,
  modeSpecificTransChInfo      CHOICE {
    fdd                          SEQUENCE {
      cpch-SetIDdummy      CPCH-SetID      OPTIONAL,
      addReconfTransChDRAC-Info DRAC-StaticInformationList OPTIONAL
    },
    tdd                          NULL
  }
  dl-CommonTransChInfo         DL-CommonTransChInfo         OPTIONAL,
  dl-DeletedTransChInfoList    DL-DeletedTransChInfoList    OPTIONAL,
  dl-AddReconfTransChInfoList  DL-AddReconfTransChInfoList  OPTIONAL,
  -- Physical channel IEs
  frequencyInfo                 FrequencyInfo                 OPTIONAL,
  maxAllowedUL-TX-Power         MaxAllowedUL-TX-Power         OPTIONAL,
  ul-ChannelRequirement         UL-ChannelRequirement         OPTIONAL,
  modeSpecificPhysChInfo       CHOICE {
    fdd                          SEQUENCE {
      dl-PDSCH-Information      DL-PDSCH-Information      OPTIONAL
    },
    tdd                          NULL
  },
  dl-CommonInformation          DL-CommonInformation          OPTIONAL,
}
```

```

        dl-InformationPerRL-List          DL-InformationPerRL-List          OPTIONAL
    }

RadioBearerSetup-v3a0ext ::= SEQUENCE {
    new-DSCH-RNTI                        DSCH-RNTI                        OPTIONAL
}

RadioBearerSetup-v4b0ext-IEs ::= SEQUENCE {
    -- Physical channel IEs
    -- ssdt-UL extends SSDT-Information, which is included in
    -- DL-CommonInformation. FDD only.
    ssdt-UL-r4                            SSDT-UL
    OPTIONAL,
    -- The order of the RLs in IE cell-id-PerRL-List is the same as
    -- in IE DL-InformationPerRL-List included in this message
    cell-id-PerRL-List                    CellIdentity-PerRL-List
    OPTIONAL
}

RadioBearerSetup-v590ext-IEs ::= SEQUENCE {
    -- Physical channel IEs
    dl-TPC-PowerOffsetPerRL-List          DL-TPC-PowerOffsetPerRL-List          OPTIONAL
}

RadioBearerSetup-r4-IEs ::= SEQUENCE {
    -- User equipment IEs
    integrityProtectionModeInfo           IntegrityProtectionModeInfo           OPTIONAL,
    cipheringModeInfo                     CipheringModeInfo                     OPTIONAL,
    activationTime                         ActivationTime                         OPTIONAL,
    new-U-RNTI                             U-RNTI                               OPTIONAL,
    new-C-RNTI                             C-RNTI                               OPTIONAL,
    new-DSCH-RNTI                         DSCH-RNTI                            OPTIONAL,
    rrc-StateIndicator                    RRC-StateIndicator,
    utran-DRX-CycleLengthCoeff            UTRAN-DRX-CycleLengthCoefficient     OPTIONAL,
    -- UTRAN mobility IEs
    ura-Identity                           URA-Identity                         OPTIONAL,
    -- Core network IEs
    cn-InformationInfo                     CN-InformationInfo                   OPTIONAL,
    -- Radio bearer IEs
    srb-InformationSetupList               SRB-InformationSetupList             OPTIONAL,
    rab-InformationSetupList               RAB-InformationSetupList-r4         OPTIONAL,
    rb-InformationAffectedList             RB-InformationAffectedList          OPTIONAL,
    dl-CounterSynchronisationInfo         DL-CounterSynchronisationInfo       OPTIONAL,
    -- Transport channel IEs
    ul-CommonTransChInfo                  UL-CommonTransChInfo-r4             OPTIONAL,
    ul-deletedTransChInfoList             UL-DeletedTransChInfoList          OPTIONAL,
    ul-AddReconfTransChInfoList           UL-AddReconfTransChInfoList        OPTIONAL,
    modeSpecificTransChInfo                CHOICE {
        fdd                                SEQUENCE {
            -- dummy is not used in this version of the specification, it should
            -- not be sent and if received it should be ignored.
            cpch-SetIDdummy           CPCH-SetID                           OPTIONAL,
            addReconfTransChDRAC-Info      DRAC-StaticInformationList          OPTIONAL
        },
        tdd                                NULL
    }
    },
    dl-CommonTransChInfo                  DL-CommonTransChInfo-r4             OPTIONAL,
    dl-DeletedTransChInfoList             DL-DeletedTransChInfoList          OPTIONAL,
    dl-AddReconfTransChInfoList           DL-AddReconfTransChInfoList-r4     OPTIONAL,
    -- Physical channel IEs
    frequencyInfo                         FrequencyInfo                         OPTIONAL,
    maxAllowedUL-TX-Power                  MaxAllowedUL-TX-Power               OPTIONAL,
    ul-ChannelRequirement                  UL-ChannelRequirement-r4           OPTIONAL,
    modeSpecificPhysChInfo                CHOICE {
        fdd                                SEQUENCE {
            dl-PDSCH-Information           DL-PDSCH-Information               OPTIONAL
        },
        tdd                                NULL
    }
    },
    dl-CommonInformation                  DL-CommonInformation-r4             OPTIONAL,
    dl-InformationPerRL-List               DL-InformationPerRL-List-r4        OPTIONAL
}

RadioBearerSetup-r5-IEs ::= SEQUENCE {
    -- User equipment IEs
    integrityProtectionModeInfo           IntegrityProtectionModeInfo           OPTIONAL,

```

```

    cipheringModeInfo          CipheringModeInfo          OPTIONAL,
    activationTime             ActivationTime          OPTIONAL,
    new-U-RNTI                 U-RNTI              OPTIONAL,
    new-C-RNTI                 C-RNTI              OPTIONAL,
    new-DSCH-RNTI              DSCH-RNTI           OPTIONAL,
    new-H-RNTI                 H-RNTI              OPTIONAL,
    rrc-StateIndicator          RRC-StateIndicator,
    utran-DRX-CycleLengthCoeff UTRAN-DRX-CycleLengthCoefficient OPTIONAL,
-- UTRAN mobility IEs
    ura-Identity                URA-Identity        OPTIONAL,
-- Core network IEs
    cn-InformationInfo          CN-InformationInfo   OPTIONAL,
-- Radio bearer IEs
    srb-InformationSetupList    SRB-InformationSetupList-r5 OPTIONAL,
    rab-InformationSetupList    RAB-InformationSetupList-r5 OPTIONAL,
    rb-InformationAffectedList  RB-InformationAffectedList-r5 OPTIONAL,
    dl-CounterSynchronisationInfo DL-CounterSynchronisationInfo-r5 OPTIONAL,
-- Transport channel IEs
    ul-CommonTransChInfo        UL-CommonTransChInfo-r4 OPTIONAL,
    ul-deletedTransChInfoList    UL-DeletedTransChInfoList OPTIONAL,
    ul-AddReconfTransChInfoList  UL-AddReconfTransChInfoList OPTIONAL,
    modeSpecificTransChInfo      CHOICE {
        fdd                     SEQUENCE {
            -- dummy is not used in this version of the specification, it should
            -- not be sent and if received it should be ignored.
            cpch-SetIDdummy CPCH-SetID          OPTIONAL,
            addReconfTransChDRAC-Info DRAC-StaticInformationList OPTIONAL
        },
        tdd                     NULL
    }
    dl-CommonTransChInfo        DL-CommonTransChInfo-r4 OPTIONAL,
    dl-DeletedTransChInfoList    DL-DeletedTransChInfoList-r5 OPTIONAL,
    dl-AddReconfTransChInfoList  DL-AddReconfTransChInfoList-r5 OPTIONAL,
-- Physical channel IEs
    frequencyInfo               FrequencyInfo         OPTIONAL,
    maxAllowedUL-TX-Power        MaxAllowedUL-TX-Power OPTIONAL,
    ul-ChannelRequirement        UL-ChannelRequirement-r5 OPTIONAL,
    modeSpecificPhysChInfo       CHOICE {
        fdd                     SEQUENCE {
            dl-PDSCH-Information DL-PDSCH-Information OPTIONAL
        },
        tdd                     NULL
    }
    dl-HSPDSCH-Information      DL-HSPDSCH-Information OPTIONAL,
    dl-CommonInformation         DL-CommonInformation-r5 OPTIONAL,
    dl-InformationPerRL-List     DL-InformationPerRL-List-r5 OPTIONAL
}

RadioBearerSetup-v6xyext-IEs ::= SEQUENCE {
-- Core network IEs
    primary-plmn-Identity        PLMN-Identity        OPTIONAL,
-- Physical channel IEs
    harq-Preamble-Mode           HARQ-Preamble-Mode    OPTIONAL,
    beaconPLEst                  BEACON-PL-Est         OPTIONAL,
-- Radio bearer IEs
    rab-InformationSetupList      RAB-InformationSetupList-r6-ext OPTIONAL,
-- MBMS IEs
    mbms-PL-ServiceRestrictInfo  MBMS-PL-ServiceRestrictInfo-r6 OPTIONAL
}

RadioBearerSetup-r6-IEs ::= SEQUENCE {
-- User equipment IEs
    integrityProtectionModeInfo  IntegrityProtectionModeInfo OPTIONAL,
    cipheringModeInfo             CipheringModeInfo      OPTIONAL,
    activationTime                ActivationTime          OPTIONAL,
    new-U-RNTI                    U-RNTI                OPTIONAL,
    new-C-RNTI                    C-RNTI                OPTIONAL,
    new-DSCH-RNTI                 DSCH-RNTI             OPTIONAL,
    new-H-RNTI                    H-RNTI                OPTIONAL,
    new-E-RNTI                    E-RNTI                OPTIONAL,
    rrc-StateIndicator            RRC-StateIndicator,
    utran-DRX-CycleLengthCoeff    UTRAN-DRX-CycleLengthCoefficient OPTIONAL,
-- UTRAN mobility IEs
    ura-Identity                  URA-Identity          OPTIONAL,
-- Core network IEs
    cn-InformationInfo            CN-InformationInfo     OPTIONAL,

```


| | | |
|-------------------------------|----------------------------------|----------------------|
| plmn-Identity | PLMN-Identity | OPTIONAL, |
| -- Radio bearer IEs | | |
| srb-InformationSetupList | SRB-InformationSetupList-r6 | OPTIONAL, |
| rab-InformationSetupList | RAB-InformationSetupList-r6 | OPTIONAL, |
| rb-InformationAffectedList | RB-InformationAffectedList-r6 | OPTIONAL, |
| dl-CounterSynchronisationInfo | DL-CounterSynchronisationInfo-r5 | OPTIONAL, |
| -- Transport channel IEs | | |
| ul-CommonTransChInfo | UL-CommonTransChInfo-r4 | OPTIONAL, |
| ul-deletedTransChInfoList | UL-DeletedTransChInfoList-r6 | OPTIONAL, |
| ul-AddReconfTransChInfoList | UL-AddReconfTransChInfoList-r6 | OPTIONAL, |
| modeSpecificTransChInfo | CHOICE { | |
| fdd | SEQUENCE { | |
| cpeh-SetID | CPCH-SetID | OPTIONAL, |
| addReconfTransChDRAC-Info | DRAC-StaticInformationList | OPTIONAL |
| }, | | |
| tdd | NULL | |
| } | | OPTIONAL, |

~~~~ Next Modified Section ~~~~

```

TransportChannelReconfiguration-r3-IEs ::= SEQUENCE {
  -- User equipment IEs
  rrc-TransactionIdentifier      RRC-TransactionIdentifier,
  integrityProtectionModeInfo    IntegrityProtectionModeInfo    OPTIONAL,
  cipheringModeInfo             CipheringModeInfo             OPTIONAL,
  activationTime                 ActivationTime                 OPTIONAL,
  new-U-RNTI                     U-RNTI                     OPTIONAL,
  new-C-RNTI                     C-RNTI                     OPTIONAL,
  rrc-StateIndicator            RRC-StateIndicator,
  utran-DRX-CycleLengthCoeff    UTRAN-DRX-CycleLengthCoefficient  OPTIONAL,
  -- Core network IEs
  cn-InformationInfo            CN-InformationInfo            OPTIONAL,
  -- UTRAN mobility IEs
  ura-Identity                  URA-Identity                  OPTIONAL,
  -- Radio bearer IEs
  dl-CounterSynchronisationInfo DL-CounterSynchronisationInfo  OPTIONAL,
  -- Transport channel IEs
  ul-CommonTransChInfo          UL-CommonTransChInfo          OPTIONAL,
  ul-AddReconfTransChInfoList   UL-AddReconfTransChInfoList   OPTIONAL,
  modeSpecificTransChInfo       CHOICE {
    fdd                          SEQUENCE {
      -- dummy is not used in this version of the specification, it should
      -- not be sent and if received it should be ignored.
      cpeh-SetIDdummy        CPCH-SetID                OPTIONAL,
      addReconfTransChDRAC-Info  DRAC-StaticInformationList  OPTIONAL
    },
    tdd                          NULL
  }
  dl-CommonTransChInfo          DL-CommonTransChInfo          OPTIONAL,
  dl-AddReconfTransChInfoList   DL-AddReconfTransChInfoList   OPTIONAL,
  -- Physical channel IEs
  frequencyInfo                 FrequencyInfo                 OPTIONAL,
  maxAllowedUL-TX-Power         MaxAllowedUL-TX-Power         OPTIONAL,
  ul-ChannelRequirement         UL-ChannelRequirement         OPTIONAL,
  modeSpecificPhysChInfo        CHOICE {
    fdd                          SEQUENCE {
      dl-PDSCH-Information       DL-PDSCH-Information       OPTIONAL
    },
    tdd                          NULL
  },
  dl-CommonInformation          DL-CommonInformation          OPTIONAL,
  dl-InformationPerRL-List      DL-InformationPerRL-List      OPTIONAL
}

```

```

TransportChannelReconfiguration-v3a0ext ::= SEQUENCE {
  new-DSCH-RNTI                 DSCH-RNTI                 OPTIONAL
}

```

```

TransportChannelReconfiguration-v4b0ext-IEs ::= SEQUENCE {
  -- Physical channel IEs
  -- ssdt-UL extends SSdT-Information, which is included in
  -- DL-CommonInformation. FDD only.
  ssdt-UL-r4                    SSdT-UL
OPTIONAL,
  -- The order of the RLS in IE cell-id-PerRL-List is the same as
  -- in IE DL-InformationPerRL-List included in this message

```

```

        cell-id-PerRL-List                CellIdentity-PerRL-List
    OPTIONAL
}

TransportChannelReconfiguration-v590ext-IEs ::= SEQUENCE {
    -- Physical channel IEs
    dl-TPC-PowerOffsetPerRL-List    DL-TPC-PowerOffsetPerRL-List    OPTIONAL
}

TransportChannelReconfiguration-r4-IEs ::= SEQUENCE {
    -- User equipment IEs
    integrityProtectionModeInfo    IntegrityProtectionModeInfo    OPTIONAL,
    cipheringModeInfo              CipheringModeInfo                OPTIONAL,
    activationTime                  ActivationTime                    OPTIONAL,
    new-U-RNTI                     U-RNTI                          OPTIONAL,
    new-C-RNTI                     C-RNTI                          OPTIONAL,
    new-DSCH-RNTI                  DSCH-RNTI                       OPTIONAL,
    rrc-StateIndicator             RRC-StateIndicator,            OPTIONAL,
    utran-DRX-CycleLengthCoeff     UTRAN-DRX-CycleLengthCoefficient OPTIONAL,
    -- Core network IEs
    cn-InformationInfo             CN-InformationInfo              OPTIONAL,
    -- UTRAN mobility IEs
    ura-Identity                   URA-Identity                    OPTIONAL,
    -- Radio bearer IEs
    dl-CounterSynchronisationInfo  DL-CounterSynchronisationInfo  OPTIONAL,
    -- Transport channel IEs
    ul-CommonTransChInfo           UL-CommonTransChInfo-r4        OPTIONAL,
    ul-AddReconfTransChInfoList    UL-AddReconfTransChInfoList    OPTIONAL,
    modeSpecificTransChInfo        CHOICE {
        fdd                        SEQUENCE {
            -- dummy is not used in this version of the specification, it should
            -- not be sent and if received it should be ignored.
            cpeh-SetIDdummy    CPCH-SetID                      OPTIONAL,
            addReconfTransChDRAC-Info DRAC-StaticInformationList    OPTIONAL
        },
        tdd                        NULL
    }
    dl-CommonTransChInfo           DL-CommonTransChInfo-r4        OPTIONAL,
    dl-AddReconfTransChInfoList    DL-AddReconfTransChInfoList-r4 OPTIONAL,
    -- Physical channel IEs
    frequencyInfo                  FrequencyInfo                    OPTIONAL,
    maxAllowedUL-TX-Power          MaxAllowedUL-TX-Power          OPTIONAL,
    ul-ChannelRequirement          UL-ChannelRequirement-r4       OPTIONAL,
    modeSpecificPhysChInfo         CHOICE {
        fdd                        SEQUENCE {
            dl-PDSCH-Information    DL-PDSCH-Information           OPTIONAL
        },
        tdd                        NULL
    },
    dl-CommonInformation           DL-CommonInformation-r4        OPTIONAL,
    dl-InformationPerRL-List       DL-InformationPerRL-List-r4    OPTIONAL
}

TransportChannelReconfiguration-r5-IEs ::= SEQUENCE {
    -- User equipment IEs
    integrityProtectionModeInfo    IntegrityProtectionModeInfo    OPTIONAL,
    cipheringModeInfo              CipheringModeInfo                OPTIONAL,
    activationTime                  ActivationTime                    OPTIONAL,
    new-U-RNTI                     U-RNTI                          OPTIONAL,
    new-C-RNTI                     C-RNTI                          OPTIONAL,
    new-DSCH-RNTI                  DSCH-RNTI                       OPTIONAL,
    new-H-RNTI                     H-RNTI                          OPTIONAL,
    rrc-StateIndicator             RRC-StateIndicator,            OPTIONAL,
    utran-DRX-CycleLengthCoeff     UTRAN-DRX-CycleLengthCoefficient OPTIONAL,
    -- Core network IEs
    cn-InformationInfo             CN-InformationInfo              OPTIONAL,
    -- UTRAN mobility IEs
    ura-Identity                   URA-Identity                    OPTIONAL,
    -- Radio bearer IEs
    dl-CounterSynchronisationInfo  DL-CounterSynchronisationInfo-r5 OPTIONAL,
    -- Transport channel IEs
    ul-CommonTransChInfo           UL-CommonTransChInfo-r4        OPTIONAL,
    ul-AddReconfTransChInfoList    UL-AddReconfTransChInfoList    OPTIONAL,
    modeSpecificTransChInfo        CHOICE {
        fdd                        SEQUENCE {
            -- dummy is not used in this version of the specification, it should

```



~~~~ Next Modified Section ~~~~

```
UL-TransportChannelType ::= CHOICE {
    dch TransportChannelIdentity,
    rach NULL,
    -- dummy is not used in this version of the specification and
    -- if received the UE behaviour is not specified.
    epch-dummy NULL,
    usch TransportChannelIdentity
}
```

~~~~ Next Modified Section ~~~~

```
UL-ChannelRequirement ::= CHOICE {
    ul-DPCH-Info UL-DPCH-Info,
    -- dummy is not used in this version of the specification, it should
    -- not be sent and if received the UE behaviour is not specified.
    epch-SetInfo-dummy CPCH-SetInfo
}
```

```
UL-ChannelRequirement-r4 ::= CHOICE {
    ul-DPCH-Info UL-DPCH-Info-r4,
    -- dummy is not used in this version of the specification, it should
    -- not be sent and if received the UE behaviour is not specified.
    epch-SetInfo-dummy CPCH-SetInfo
}
```

```
UL-ChannelRequirement-r5 ::= CHOICE {
    ul-DPCH-Info UL-DPCH-Info-r5,
    -- dummy is not used in this version of the specification, it should
    -- not be sent and if received the UE behaviour is not specified.
    epch-SetInfo-dummy CPCH-SetInfo
}
```

```
UL-ChannelRequirement-r6 ::= CHOICE {
    ul-DPCH-Info UL-DPCH-Info-r6,
    epch-SetInfo CPCH-SetInfo
}
```

-- Note: the reference to CPCH in the element name below is incorrect. The name is not  
-- changed to keep it aligned with R99.

```
UL-ChannelRequirementWithCPCH-SetID ::= CHOICE {
    ul-DPCH-Info UL-DPCH-Info,
    -- dummy1 and dummy 2 are not used in this version of the specification, they
    -- should not be sent and if received the UE behaviour is not specified.
    epch-SetInfo-dummy1 CPCH-SetInfo,
    epch-SetID-dummy2 CPCH-SetID
}
```

-- Note: the reference to CPCH in the element name below is incorrect. The name is not  
-- changed to keep it aligned with R99.

```
UL-ChannelRequirementWithCPCH-SetID-r4 ::= CHOICE {
    ul-DPCH-Info UL-DPCH-Info-r4,
    -- dummy1 and dummy 2 are not used in this version of the specification, they
    -- should not be sent and if received the UE behaviour is not specified.
    epch-SetInfo-dummy1 CPCH-SetInfo,
    epch-SetID-dummy2 CPCH-SetID
}
```

-- Note: the reference to CPCH in the element name below is incorrect. The name is not  
-- changed to keep it aligned with R99.

```
UL-ChannelRequirementWithCPCH-SetID-r5 ::= CHOICE {
    ul-DPCH-Info UL-DPCH-Info-r5,
    -- dummy1 and dummy 2 are not used in this version of the specification, they
    -- should not be sent and if received the UE behaviour is not specified.
    epch-SetInfo-dummy1 CPCH-SetInfo,
    epch-SetID-dummy2 CPCH-SetID
}
```

```
UL-ChannelRequirementWithCPCH-SetID-r6 ::= CHOICE {
    ul-DPCH-Info UL-DPCH-Info-r6,
    epch-SetInfo CPCH-SetInfo,
    epch-SetID CPCH-SetID
}
```

~~~~ Next Modified Section ~~~~

```

UL-TrCH-Identity ::=                               CHOICE{
    dch                                             TransportChannelIdentity,
    --- Default transport channel in the UL is either RACH or CPCH, but not both.
    -- Note: the reference to CPCH in the element name below is incorrect. The name is
    -- not changed to keep it aligned with R99.
    rachorcpcch                                    NULL,
    usch                                           TransportChannelIdentity
}

```

~~~~ Next Modified Section ~~~~

```

SysInfoType8 ::=                                 SEQUENCE {
    -- User equipment IEs
    -- dummy1, dummy2, dummy3 are not used in this version of the specification
    -- and they should be ignored by the receiver.
    epch-Parametersdummy1                       CPCH-Parameters,
    -- Physical channel IEs
    epch-SetInfoListdummy2                     CPCH-SetInfoList,
    esich-PowerOffsetdummy3                     CSICH-PowerOffset,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions                          SEQUENCE {}                               OPTIONAL
}

SysInfoType9 ::=                                 SEQUENCE {
    -- Physical channel IEs
    -- dummy is not used in this version of the specification and
    -- it should be ignored by the receiver.
    epch-PersistenceLevelsListdummy           CPCH-PersistenceLevelsList,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions                          SEQUENCE {}                               OPTIONAL
}

```

~~~~ Next Modified Section ~~~~

```

SRNC-RelocationInfo-r3-IEs ::=                 SEQUENCE {
    -- Non-RRC IEs
    stateOfRRCCalculationTimeForCipherring      StateOfRRCCalculationTimeForCipherring      OPTIONAL,
    stateOfRRCCalculationTimeForCipherring      StateOfRRCCalculationTimeForCipherring      OPTIONAL,
    -- Cipherring related information IEs
    -- If the extension v380 is included use the extension for the cipherring status
    per CN domain
    cipherringStatus                             CipherringStatus,
    calculationTimeForCipherring                 CalculationTimeForCipherring                 OPTIONAL,
    -- The order of occurrence in the IE cipherringInfoPerRB-List is the
    -- same as the RBs in SRB-InformationSetupList in RAB-InformationSetupList.
    -- The signalling RBs are supposed to be listed
    -- first. Only UM and AM RBs that are ciphered are listed here
    cipherringInfoPerRB-List                     CipherringInfoPerRB-List                     OPTIONAL,
    count-C-List                                 COUNT-C-List                                 OPTIONAL,
    integrityProtectionStatus                     IntegrityProtectionStatus,
    -- In the IE srb-SpecificIntegrityProtInfo, the first information listed
    corresponds to
    -- signalling radio bearer RB0 and after the order of occurrence is the same
    as the SRBs in
    -- SRB-InformationSetupList
    -- The target RNC may ignore the IE srb-SpecificIntegrityProtInfo if the
    -- IE integrityProtectionStatus has the value "not started".
    srb-SpecificIntegrityProtInfo                SRB-SpecificIntegrityProtInfoList,
    implementationSpecificParams                  ImplementationSpecificParams                  OPTIONAL,
    -- User equipment IEs
    u-RNTI                                        U-RNTI,
    c-RNTI                                        C-RNTI,
    ue-RadioAccessCapability                     UE-RadioAccessCapability,
    ue-Positioning-LastKnownPos                  UE-Positioning-LastKnownPos                  OPTIONAL,
    -- Other IEs
    ue-RATSpecificCapability                     InterRAT-UE-RadioAccessCapabilityList
    OPTIONAL,
    -- UTRAN mobility IEs
}

```

```

ura-Identity                URA-Identity                OPTIONAL,
-- Core network IEs
  cn-CommonGSM-MAP-NAS-SysInfo  NAS-SystemInformationGSM-MAP,
  cn-DomainInformationList      CN-DomainInformationList      OPTIONAL,
-- Measurement IEs
  ongoingMeasRepList           OngoingMeasRepList           OPTIONAL,
-- Radio bearer IEs
  predefinedConfigStatusList    PredefinedConfigStatusList,
  srb-InformationList          SRB-InformationSetupList,
  rab-InformationList          RAB-InformationSetupList      OPTIONAL,
-- Transport channel IEs
  ul-CommonTransChInfo        UL-CommonTransChInfo        OPTIONAL,
  ul-TransChInfoList          UL-AddReconfTransChInfoList  OPTIONAL,
  modeSpecificInfo            CHOICE {
    fdd                        SEQUENCE {
      -- dummy is not used in this version of the specification, it should
      -- not be sent and if received it should be ignored.
      epeh-SetIDdummy      CPCH-SetID                OPTIONAL,
      transChDRAC-Info        DRAC-StaticInformationList  OPTIONAL,
    },
    tdd                        NULL
  },
  dl-CommonTransChInfo        DL-CommonTransChInfo        OPTIONAL,
  dl-TransChInfoList          DL-AddReconfTransChInfoList  OPTIONAL,
-- Measurement report
  measurementReport            MeasurementReport            OPTIONAL,
}

```

~~~~ Next Modified Section ~~~~

```

SRNC-RelocationInfo-r4-IEs ::= SEQUENCE {
  -- Non-RRC IEs
  -- IE rb-IdentityForHOMessage includes the identity of the RB used by the
source SRNC
  -- to send the message contained in the IE "TargetRNC-ToSourceRNC-Container".
  -- Only included if type is "UE involved"
  rb-IdentityForHOMessage      RB-Identity                OPTIONAL,
  stateOfRRC                  StateOfRRC,
  stateOfRRC-Procedure        StateOfRRC-Procedure,
-- Ciphering related information IEs
  cipheringStatusList         CipheringStatusList-r4,
  latestConfiguredCN-Domain   CN-DomainIdentity,
  calculationTimeForCiphering  CalculationTimeForCiphering  OPTIONAL,
  count-C-List                COUNT-C-List                OPTIONAL,
  cipheringInfoPerRB-List     CipheringInfoPerRB-List-r4  OPTIONAL,
-- Integrity protection related information IEs
  integrityProtectionStatus    IntegrityProtectionStatus,
  -- The target RNC may ignore the IE srb-SpecificIntegrityProtInfo if the
  -- IE integrityProtectionStatus has the value "not started".
  srb-SpecificIntegrityProtInfo  SRB-SpecificIntegrityProtInfoList,
  implementationSpecificParams  ImplementationSpecificParams  OPTIONAL,
-- User equipment IEs
  u-RNTI                      U-RNTI,
  c-RNTI                      C-RNTI                OPTIONAL,
  ue-RadioAccessCapability     UE-RadioAccessCapability-r4,
  ue-RadioAccessCapability-ext  UE-RadioAccessCapabBandFDDList  OPTIONAL,
  ue-Positioning-LastKnownPos  UE-Positioning-LastKnownPos  OPTIONAL,
  ueSpecificBehaviourInformationIdle  UEspecificBehaviourInformationIdle  OPTIONAL,
UESpecificBehaviourInformationInterRAT  OPTIONAL,
-- Other IEs
  ue-RATSpecificCapability     InterRAT-UE-RadioAccessCapabilityList
OPTIONAL,
-- UTRAN mobility IEs
  ura-Identity                URA-Identity                OPTIONAL,
-- Core network IEs
  cn-CommonGSM-MAP-NAS-SysInfo  NAS-SystemInformationGSM-MAP,
  cn-DomainInformationListFull  CN-DomainInformationListFull  OPTIONAL,
-- Measurement IEs
  ongoingMeasRepList-r4       OngoingMeasRepList-r4       OPTIONAL,
-- Radio bearer IEs
  predefinedConfigStatusList    PredefinedConfigStatusList,
  srb-InformationList          SRB-InformationSetupList,
  rab-InformationList-r4       RAB-InformationSetupList-r4   OPTIONAL,
-- Transport channel IEs

```

```

        ul-CommonTransChInfo          UL-CommonTransChInfo-r4          OPTIONAL,
        ul-TransChInfoList            UL-AddReconfTransChInfoList    OPTIONAL,
        modeSpecificInfo              CHOICE {
            fdd                        SEQUENCE {
                -- dummy is not used in this version of the specification, it should
                -- not be sent and if received it should be ignored.
                epeh-SetIDdummy          CPCH-SetID          OPTIONAL,
                transChDRAC-Info          DRAC-StaticInformationList  OPTIONAL
            },
            tdd                        NULL
        }
        dl-CommonTransChInfo          DL-CommonTransChInfo-r4          OPTIONAL,
        dl-TransChInfoList            DL-AddReconfTransChInfoList-r4    OPTIONAL,
        -- Measurement report
        measurementReport             MeasurementReport          OPTIONAL,
        failureCause                   FailureCauseWithProtErr      OPTIONAL
    }

SRNC-RelocationInfo-r5-IEs ::=      SEQUENCE {
    -- Non-RRC IEs
    -- IE rb-IdentityForHOMessage includes the identity of the RB used by the
source SRNC
    -- to send the message contained in the IE "TargetRNC-ToSourceRNC-Container".
    -- Only included if type is "UE involved"
    rb-IdentityForHOMessage           RB-Identity                OPTIONAL,
    stateOfRRC                        StateOfRRC,
    stateOfRRC-Procedure              StateOfRRC-Procedure,
    -- Ciphering related information IEs
    cipheringStatusList               CipheringStatusList-r4,
    latestConfiguredCN-Domain         CN-DomainIdentity,
    calculationTimeForCiphering       CalculationTimeForCiphering  OPTIONAL,
    count-C-List                      COUNT-C-List                OPTIONAL,
    cipheringInfoPerRB-List           CipheringInfoPerRB-List-r4  OPTIONAL,
    -- Integrity protection related information IEs
    integrityProtectionStatus         IntegrityProtectionStatus,
    srb-SpecificIntegrityProtInfo     SRB-SpecificIntegrityProtInfoList  OPTIONAL,
    implementationSpecificParams      ImplementationSpecificParams  OPTIONAL,
    -- User equipment IEs
    u-RNTI                             U-RNTI,
    c-RNTI                             C-RNTI                      OPTIONAL,
    ue-RadioAccessCapability          UE-RadioAccessCapability-r5,
    ue-RadioAccessCapability-ext      UE-RadioAccessCapabBandFDDList  OPTIONAL,
    ue-Positioning-LastKnownPos      UE-Positioning-LastKnownPos  OPTIONAL,
    uESpecificBehaviourInformationIdle UESpecificBehaviourInformationIdle
    OPTIONAL,
    uESpecificBehaviourInformationInterRAT UESpecificBehaviourInformationInterRAT
    OPTIONAL,
    -- Other IEs
    ue-RATSpecificCapability          InterRAT-UE-RadioAccessCapabilityList-r5
    OPTIONAL,
    -- UTRAN mobility IEs
    ura-Identity                     URA-Identity                OPTIONAL,
    -- Core network IEs
    cn-CommonGSM-MAP-NAS-SysInfo     NAS-SystemInformationGSM-MAP,
    cn-DomainInformationList         CN-DomainInformationListFull  OPTIONAL,
    -- Measurement IEs
    ongoingMeasRepList               OngoingMeasRepList-r5       OPTIONAL,
    -- Radio bearer IEs
    predefinedConfigStatusList        PredefinedConfigStatusList,
    srb-InformationList               SRB-InformationSetupList-r5,
    rab-InformationList               RAB-InformationSetupList-r5  OPTIONAL,
    -- Transport channel IEs
    ul-CommonTransChInfo             UL-CommonTransChInfo-r4     OPTIONAL,
    ul-TransChInfoList               UL-AddReconfTransChInfoList  OPTIONAL,
    modeSpecificInfo                 CHOICE {
        fdd                          SEQUENCE {
            -- dummy is not used in this version of the specification, it should
            -- not be sent and if received it should be ignored.
            epeh-SetIDdummy          CPCH-SetID          OPTIONAL,
            transChDRAC-Info          DRAC-StaticInformationList  OPTIONAL
        },
        tdd                          NULL
    }
    }
    dl-CommonTransChInfo             DL-CommonTransChInfo-r4     OPTIONAL,

```

```

    dl-TransChInfoList          DL-AddReconfTransChInfoList-r5      OPTIONAL,
-- PhyCH IEs
    tpc-CombinationInfoList     TPC-CombinationInfoList           OPTIONAL,
-- Measurement report
    measurementReport           MeasurementReport               OPTIONAL,
-- Other IEs
    failureCause                FailureCauseWithProtErr         OPTIONAL
}

SRNC-RelocationInfo-v6xyext-IEs ::= SEQUENCE {
-- Radio bearer IEs
    rab-InformationSetupList     RAB-InformationSetupList-r6-ext  OPTIONAL,
-- MBMS IEs
    mbms-JoinedInformation       MBMS-JoinedInformation-r6       OPTIONAL
}

SRNC-RelocationInfo-r6-IEs ::= SEQUENCE {
-- Non-RRC IEs
-- IE rb-IdentityForHOMessage includes the identity of the RB used by the
source SRNC
-- to send the message contained in the IE "TargetRNC-ToSourceRNC-Container".
-- Only included if type is "UE involved"
    rb-IdentityForHOMessage      RB-Identity                               OPTIONAL,
    stateOfRRC                  StateOfRRC,
    stateOfRRC-Procedure        StateOfRRC-Procedure,
-- Ciphering related information IEs
    cipheringStatusList         CipheringStatusList-r4,
    latestConfiguredCN-Domain   CN-DomainIdentity,
    calculationTimeForCiphering CalculationTimeForCiphering          OPTIONAL,
    count-C-List                COUNT-C-List                             OPTIONAL,
    cipheringInfoPerRB-List     CipheringInfoPerRB-List-r4             OPTIONAL,
-- Integrity protection related information IEs
    integrityProtectionStatus    IntegrityProtectionStatus,
    srb-SpecificIntegrityProtInfo SRB-SpecificIntegrityProtInfoList     OPTIONAL,
    implementationSpecificParams ImplementationSpecificParams          OPTIONAL,
-- User equipment IEs
    u-RNTI                      U-RNTI,
    c-RNTI                      C-RNTI                               OPTIONAL,
    ue-RadioAccessCapability    UE-RadioAccessCapability-r5,
    ue-RadioAccessCapability-ext UE-RadioAccessCapabBandFDDList       OPTIONAL,
    ue-Positioning-LastKnownPos UE-Positioning-LastKnownPos          OPTIONAL,
    uESpecificBehaviourInformationIdle
                                UESpecificBehaviourInformationIdle
OPTIONAL,
    uESpecificBehaviourInformationInterRAT
                                UESpecificBehaviourInformationInterRAT
OPTIONAL,
-- Other IEs
    ue-RATSpecificCapability    InterRAT-UE-RadioAccessCapabilityList-r5
OPTIONAL,
-- UTRAN mobility IEs
    ura-Identity                URA-Identity                           OPTIONAL,
-- Core network IEs
    cn-CommonGSM-MAP-NAS-SysInfo NAS-SystemInformationGSM-MAP,
    cn-DomainInformationList     CN-DomainInformationListFull          OPTIONAL,
-- Measurement IEs
    ongoingMeasRepList          OngoingMeasRepList-r5                OPTIONAL,
    interRATCellInfoIndicator    InterRATCellInfoIndicator            OPTIONAL,
-- Radio bearer IEs
    predefinedConfigStatusList   PredefinedConfigStatusList,
    srb-InformationList          SRB-InformationSetupList-r6,
    rab-InformationList          RAB-InformationSetupList-r6          OPTIONAL,
-- Transport channel IEs
    ul-CommonTransChInfo        UL-CommonTransChInfo-r4              OPTIONAL,
    ul-TransChInfoList          UL-AddReconfTransChInfoList-r6      OPTIONAL,
    modeSpecificInfo            CHOICE {
        fdd                      SEQUENCE {
            cpcch-SetID          CPCH-SetID          OPTIONAL,
            transChDRAC-Info      DRAC-StaticInformationList        OPTIONAL
        },
        tdd                      NULL
    }
    dl-CommonTransChInfo        DL-CommonTransChInfo-r4              OPTIONAL,
    dl-TransChInfoList          DL-AddReconfTransChInfoList-r5      OPTIONAL,
-- PhyCH IEs
    tpc-CombinationInfoList     TPC-CombinationInfoList           OPTIONAL,
    storedCompressedModeInfo     StoredCompressedModeInfo           OPTIONAL
}

```



```

-- Measurement report
   measurementReport           MeasurementReport           OPTIONAL,
-- Other IEs
   failureCause                 FailureCauseWithProtErr   OPTIONAL,
-- MBMS IEs
   mbms-JoinedInformation       MBMS-JoinedInformation-r6 OPTIONAL
}

```

~~~~ Next Modified Section ~~~~

### 13.4.32 VALUE\_TAG

This variable contains information about the value tag for the last received system information block of a given type, for all system information blocks using value tags. The UE shall maintain one instance of this variable for the current selected cell. The UE may store several instances of this variable, one for each cell, to be used if the UE returns to these cells.

All IEs in this variable shall be cleared when switched off. All IEs in this variable except for the IE "SIB 16 value tag list" shall be cleared at selection of a new cell and this cell broadcasts an IE "PLMN Identity" in the MIB which is different from the IE "PLMN Identity" broadcast in the MIB in the previously selected cell. The IE "SIB 16 value tag list" is cleared when NAS informs AS about a new selected PLMN.

| Information Element/Group name | Need    | Multi | Type and reference       | Semantics description                                |
|--------------------------------|---------|-------|--------------------------|------------------------------------------------------|
| MIB value tag                  | OP      |       | MIB value tag 10.3.8.9   | Value tag for the master information block           |
| SB 1 value tag                 | OP      |       | Cell value tag 10.3.8.4  | Value tag for the scheduling block type 1            |
| SB 2 value tag                 | OP      |       | Cell value tag 10.3.8.4  | Value tag for the scheduling block type 2            |
| SIB 1 value tag                | CV-GSM  |       | PLMN value tag 10.3.8.10 | Value tag for the system information block type 1    |
| SIB 2 value tag                | OP      |       | Cell value tag 10.3.8.4  | Value tag for the system information block type 2    |
| SIB 3 value tag                | OP      |       | Cell value tag 10.3.8.4  | Value tag for the system information block type 3    |
| SIB 4 value tag                | OP      |       | Cell value tag 10.3.8.4  | Value tag for the system information block type 4    |
| SIB 5 value tag                | OP      |       | Cell value tag 10.3.8.4  | Value tag for the system information block type 5    |
| SIB 6 value tag                | OP      |       | Cell value tag 10.3.8.4  | Value tag for the system information block type 6    |
| CHOICE mode                    | MP      |       |                          |                                                      |
| >FDD                           |         |       |                          |                                                      |
| >>SIB-8-value-tag              | OP      |       | Cell value tag 10.3.8.4  | Value tag for the system information block type 8    |
| >TDD                           |         |       |                          | (no data)                                            |
| SIB 11 value tag               | OP      |       | Cell value tag 10.3.8.4  | Value tag for the system information block type 11   |
| SIB 12 value tag               | OP      |       | Cell value tag 10.3.8.4  | Value tag for the system information block type 12   |
| SIB 13 value tag               | CV-ANSI |       | Cell value tag 10.3.8.4  | Value tag for the system information block type 13   |
| SIB 13.1 value tag             | CV-ANSI |       | Cell value tag 10.3.8.4  | Value tag for the system information block type 13.1 |
| SIB 13.2 value tag             | CV-ANSI |       | Cell value tag 10.3.8.4  | Value tag for the system information block type 13.2 |
| SIB 13.3 value tag             | CV-ANSI |       | Cell value tag 10.3.8.4  | Value tag for the system information block type 13.3 |
| SIB 13.4 value tag             | CV-ANSI |       | Cell value tag 10.3.8.4  | Value tag for the system information block type 13.4 |
| SIB 15 value tag               | OP      |       | Cell value tag 10.3.8.4  | Value tag for the system information block type 15   |
| SIB 15.1 value tag             | OP      |       | Cell value               | Value tag for the system                             |

| Information Element/Group name                   | Need | Multi                   | Type and reference                                        | Semantics description                                                                 |
|--------------------------------------------------|------|-------------------------|-----------------------------------------------------------|---------------------------------------------------------------------------------------|
|                                                  |      |                         | tag 10.3.8.4                                              | information block type 15.1                                                           |
| SIB 15.2 value tag list                          | OP   | 1 to <maxSat>           |                                                           | List of value tags for all stored occurrences of system information block type 15.2   |
| >SIB 15.2 value tag                              | MP   |                         | Cell value tag 10.3.8.4                                   |                                                                                       |
| >SIB occurrence identity and value tag           | MP   |                         | SIB occurrence identity and value tag 10.3.8.20b          |                                                                                       |
| SIB 15.3 value tag list                          | OP   | 1 to <maxSat>           |                                                           | List of value tags for all stored occurrences of system information block type 15.3   |
| >SIB 15.3 value tag                              | MP   |                         | PLMN value tag 10.3.8.10                                  | Value tag for the system information block type 15.3                                  |
| >SIB occurrence identity and value tag           | MP   |                         | SIB occurrence identity and value tag 10.3.8.20b          |                                                                                       |
| SIB 15.4 value tag                               | OP   |                         | Cell value tag 10.3.8.4                                   | Value tag for the system information block type 15.4                                  |
| SIB 15.5 value tag                               | OP   |                         | Cell value tag 10.3.8.4                                   | Value tag for the system information block type 15.5                                  |
| SIB 16 value tag list                            | OP   | 1 to <maxPred efConfig> |                                                           | List of value tags for all stored occurrences of the system information block type 16 |
| >Predefined configuration identity and value tag | MP   |                         | Predefined configuration identity and value tag 10.3.8.11 |                                                                                       |
| SIB 18 value tag                                 | OP   |                         | Cell value tag 10.3.8.4                                   | Value tag for the system information block type 18                                    |

| Condition   | Explanation                                                                                         |
|-------------|-----------------------------------------------------------------------------------------------------|
| <i>GSM</i>  | This information is optional when the UE is operating in "GSM-MAP mode" and never stored otherwise. |
| <i>ANSI</i> | This information is optional when the UE is operating in "ANSI-41 mode" and never stored otherwise. |

~~~~ Next Modified Section ~~~~

13.5.2 RRC procedure performance values

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

| Procedure title: | UTRAN -> UE | UE -> UTRAN | N1 | N2 | Notes |
|---|--------------------|-------------|----|----|---|
| RRC Connection Management Procedures | | | | | |
| Broadcast of system information | SYSTEM INFORMATION | | | | N2 is not applicable for any system information messages, because there is no response message from the UE. |

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

The performance of the physical layer synchronisation procedure is specified in [19] and [20] |
| RRC connection establishment
<i>Target state CELL_FACH</i> | RRC CONNECTION SETUP | RRC CONNECTION SETUP COMPLETE | 10 | 11 | N1 and N2 applicable as defined (N2 can be tested from the initiation of the power ramp on RACH). |

| Procedure title: | UTRAN -> UE | UE -> UTRAN | N1 | N2 | Notes |
|--|-------------------------------|---|-----------|-----------|---|
| RRC connection release
<i>From CELL_DCH state</i> | RRC CONNECTION RELEASE | RRC CONNECTION RELEASE COMPLETE | 5 | 8 | N1 sets the requirement for the time from the completion of the last repetition of the RRC CONNECTION RELEASE COMPLETE message to the release of the physical channel.

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

| Procedure title: | UTRAN -> UE | UE -> UTRAN | N1 | N2 | Notes |
|---|--------------------------------------|--|-----------|-----------|--|
| Radio bearer reconfiguration
<i>From state CELL_DCH to state CELL_FACH</i> | RADIO BEARER RECONFIGURATION | RADIO BEARER RECONFIGURATION COMPLETE | NA | NA | N1 and N2 cannot be specified, because UE need to read SIBs on BCH before sending RADIO BEARER RECONFIGURATION COMPLETE |
| Radio bearer release
<i>Target state CELL_DCH</i> | RADIO BEARER RELEASE | RADIO BEARER RELEASE COMPLETE / FAILURE | 10 | 11 | |
| Radio bearer release
<i>From state CELL_FACH to state CELL_FACH</i> | RADIO BEARER RELEASE | RADIO BEARER RELEASE COMPLETE / FAILURE | 10 | 11 | |
| Radio bearer release
<i>From state CELL_DCH to state CELL_FACH</i> | RADIO BEARER RELEASE | RADIO BEARER RELEASE COMPLETE | NA | NA | N1 and N2 cannot be specified, because UE need to read SIBs on BCH before sending RADIO BEARER RECONFIGURATION COMPLETE |
| Transport channel reconfiguration
<i>Target state CELL_DCH</i> | TRANSPORT CHANNEL RECONFIGURATION | TRANSPORT CHANNEL RECONFIGURATION COMPLETE / FAILURE | 10 | NA | N2 cannot be specified, because the TRANSPORT CHANNEL RECONFIGURATION COMPLETE / FAILURE message is transmitted only after physical layer synchronisation, which depends also on Node B. |
| Transport channel reconfiguration
<i>From state CELL_FACH to state CELL_FACH</i> | TRANSPORT CHANNEL RECONFIGURATION | TRANSPORT CHANNEL RECONFIGURATION COMPLETE / FAILURE | 10 | 11 | |
| Transport channel reconfiguration
<i>From state CELL_DCH to state CELL_FACH</i> | TRANSPORT CHANNEL RECONFIGURATION | TRANSPORT CHANNEL RECONFIGURATION COMPLETE | NA | NA | N1 and N2 cannot be specified, because UE need to read SIBs on BCH before sending TRANSPORT CHANNEL RECONFIGURATION COMPLETE |
| Transport format combination control
<i>AM or UM RLC mode</i> | TRANSPORT FORMAT COMBINATION CONTROL | TRANSPORT FORMAT COMBINATION CONTROL FAILURE | 5 | 8 | |
| Transport format combination control
<i>Transparent mode</i> | TRANSPORT FORMAT COMBINATION CONTROL | | 5 | NA | N2 is not applicable because no response message is defined. |
| Physical channel reconfiguration
<i>Target state CELL_DCH</i> | PHYSICAL CHANNEL RECONFIGURATION | PHYSICAL CHANNEL RECONFIGURATION COMPLETE / FAILURE | 8 | NA | N2 cannot be specified, because the PHYSICAL CHANNEL RECONFIGURATION COMPLETE / FAILURE message is transmitted only after physical layer synchronisation, which depends also on Node B. |
| Physical channel reconfiguration
<i>From state CELL_FACH to state CELL_FACH</i> | PHYSICAL CHANNEL RECONFIGURATION | PHYSICAL CHANNEL RECONFIGURATION COMPLETE / FAILURE | 8 | 9 | |

| Procedure title: | UTRAN -> UE | UE -> UTRAN | N1 | N2 | Notes |
|---|------------------------------------|---|-----------|-----------|---|
| Physical channel reconfiguration

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

| Procedure title: | UTRAN -> UE | UE -> UTRAN | N1 | N2 | Notes |
|-------------------------------|--|---|----|----|---|
| | | RADIO BEARER RECONFIGURATION COMPLETE
<i>Target state</i>
<i>CELL_DCH</i> | 10 | NA | N2 cannot be specified, because the PHYSICAL CHANNEL RECONFIGURATION COMPLETE / FAILURE message is transmitted only after physical layer synchronisation, which depends also on Node B. |
| | | RADIO BEARER RELEASE COMPLETE
<i>Target state</i>
<i>CELL_DCH</i> | 10 | 11 | |
| URA update | URA UPDATE CONFIRM | UTRAN MOBILITY INFORMATION CONFIRM | 5 | 8 | |
| UTRAN mobility information | UTRAN MOBILITY INFORMATION | UTRAN MOBILITY INFORMATION CONFIRM / FAILURE | 5 | 8 | |
| Active set update | ACTIVE SET UPDATE | ACTIVE SET UPDATE COMPLETE / FAILURE | NA | 8 | The requirements on UE combining and power control performance for both UL and DL are specified by RAN WG4 in [21] and [19].

Also in case of branch addition the COMPLETE / FAILURE message is transmitted without waiting for the new branch to stabilise, therefore N2 is specified. |
| Inter-RAT handover to UTRAN | HANDOVER TO UTRAN COMMAND (other system) | HANDOVER TO UTRAN COMPLETE | NA | NA | The performance of this procedure is specified in 05.10. |
| Inter-RAT handover from UTRAN | HANDOVER FROM UTRAN COMMAND | HANDOVER FROM UTRAN FAILURE | NA | NA | The performance of this procedure is specified in [19] and [20]. |
| Measurement procedures | | | | | |
| Measurement control | MEASUREMENT CONTROL | MEASUREMENT CONTROL FAILURE | 5 | 8 | Response to measurement inquiry depends on physical layer measurement. Response time is defined in [19] and [20]. N1 and N2 only define the processing of the message. |

~~~~ Next Modified Section ~~~~

## 14.9.1 Generalities

This function is implemented in the UE in order to set the SIR target value on each CCTrCH used for the downlink power control. This SIR value shall be adjusted according to an autonomous function in the UE in order to achieve the same measured quality as the quality target set by UTRAN. The quality target is set as the transport channel BLER value for each transport channel as signalled by UTRAN.

~~For CPCH the quality target is set as the BER of the DL-DPCCH as signalled by UTRAN.~~

When transport channel BLER is used the UE shall run a quality target control loop such that the quality requirement is met for each transport channel, which has been assigned a BLER target.

~~When DL-DPCCH BER is used the UE shall run a quality target control loop such that the quality requirement is met for each CPCH transport channel, which has been assigned a DL-DPCCH BER target.~~

The UE shall set the SIR target when the physical channel has been set up or reconfigured. It shall not increase the SIR target value before the power control has converged on the current value. The UE may estimate whether the power control has converged on the current value, by comparing the averaged measured SIR to the SIR target value.

~~~~ Next Modified Section ~~~~

14.12.4.2 SRNS RELOCATION INFO

This RRC message is sent between network nodes when preparing for an SRNS relocation or a handover/cell reselection from GERAN *Iu mode*.

With the presence or absence of the IE "RB identity for Hard Handover message" the source RNC indicates to the target SRNC whether the source RNC expects to receive the choice "DL DCCH message" in the IE "RRC information, target RNC to source RNC" in case the SRNS relocation is of type "UE involved". Furthermore the target RNC uses this information for the calculation of the MAC-I.

Direction: source RNC/RAT→target RNC

| Information Element/Group Name | Need | Multi | Type and reference | Semantics description | Vers |
|-----------------------------------|------|-------|--|---|------|
| Non RRC IEs | | | | | |
| >RB identity for Handover message | OP | | RB identity
10.3.4.16 | Gives the id of the radio bearer on which the source RNC will transmit the RRC message in the case the relocation is of type "UE involved". In handover from GERAN <i>Iu mode</i> this IE is always set to 2. | |
| >State of RRC | MP | | RRC state indicator,
10.3.3.35a | | |
| >State of RRC procedure | MP | | Enumerated
(await no RRC message, await RB Release Complete, await RB Setup Complete, await RB Reconfiguration Complete, await Transport CH Reconfiguration Complete, await Physical CH Reconfiguration Complete, await Active Set Update | | |

| Information Element/Group Name | Need | Multi | Type and reference | Semantics description | Vers |
|---|----------------------|----------------------|---|--|------|
| | | | Complete, await Handover Complete, send Cell Update Confirm, send URA Update Confirm, , others) | | |
| Ciphering related information | | | | | |
| >Ciphering status for each CN domain | MP | <1 to maxCNDo mains> | | | |
| >>CN domain identity | MP | | CN domain identity 10.3.1.1 | | |
| >>Ciphering status | MP | | Enumerated(Not started, Started) | | |
| >>START | MP | | START 10.3.3.38 | START value to be used in this CN domain. | |
| >Latest configured CN domain | MP | | CN domain identity 10.3.1.1 | Value contained in the variable of the same name. In case this variable is empty, the source RNC can set any CN domain identity. In that case, the Ciphering status and the Integrity protection status should be Not started and the target RNC should not initialise the variable Latest configured CN domain. | |
| >Calculation time for ciphering related information | CV- <i>Ciphering</i> | | | Time when the ciphering information of the message were calculated, relative to a cell of the target RNC. In handover and cell reselection from GERAN <i>lu mode</i> this field is not present. | |
| >>Cell Identity | MP | | Cell Identity 10.3.2.2 | Identity of one of the cells under the target RNC and included in the active set of the current call | |
| >>SFN | MP | | Integer(0..40 95) | | |
| >COUNT-C list | OP | 1 to <maxCNdo mains> | | COUNT-C values for radio bearers using transparent mode RLC | |
| >>CN domain identity | MP | | CN domain identity 10.3.1.1 | | |
| >>COUNT-C | MP | | Bit string(32) | | |
| >Ciphering info per radio bearer | OP | 1 to <maxRB> | | For signalling radio bearers this IE is mandatory. | |
| >>RB identity | MP | | RB identity 10.3.4.16 | | |
| >>Downlink HFN | MP | | Bit string(20..25) | This IE is either RLC AM HFN (20 bits) or RLC UM HFN (25 bits) | |
| >>Downlink SN | CV- <i>SRB1</i> | | Bit String(7) | VT(US) of RLC UM | |
| >>Uplink HFN | MP | | Bit string(20..25 | This IE is either RLC AM HFN (20 bits) or RLC UM HFN (25 | |

| Information Element/Group Name | Need | Multi | Type and reference | Semantics description | Vers |
|--|-------|---------------------|-----------------------------------|---|------|
| | | |) | bits) | |
| Integrity protection related information | | | | | |
| >Integrity protection status | MP | | Enumerated(Not started, Started) | | |
| >Signalling radio bearer specific integrity protection information | CV-IP | 4 to <maxSRBs etup> | | | |
| >>Uplink RRC HFN | MP | | Bit string (28) | For each SRB, in the case activation times for the next IP configuration to be applied on this SRB have already been reached this IE corresponds to the last value used. Else this value corresponds to the value the source would have initialized the HFN to at the activation time. Increment of HFN due to RRC SN roll over is taken care of by target based on value sent by the source.
NOTE: In order to have the possibility of sending downlink messages after the construction of the IE "SRNS RELOCATION INFO", the source may choose a value ahead of the last value used. | |
| >>Downlink RRC HFN | MP | | Bit string (28) | For each SRB, in the case activation times for the next IP configuration to be applied on this SRB have already been reached this IE corresponds to the last value used. Else this value corresponds to the value the source would have initialized the HFN to at the activation time. Increment of HFN due to RRC SN roll over is taken care of by target based on value sent by the source. In particular, for SRB2, this IE should not take into account the RRC message that will trigger the relocation.
NOTE: In order to have the possibility of sending downlink messages after the construction of the IE "SRNS RELOCATION INFO", the source may choose a value ahead of the last value used. | |
| >>Uplink RRC Message sequence number | MP | | Integer (0.. 15) | For each SRB, this IE corresponds to the last value received or in the case activation time was not reached for a configuration the value equals (activation time - 1). | |
| >>Downlink RRC Message sequence number | MP | | Integer (0.. 15) | For each SRB, this IE corresponds to the last value used or in the case activation | |

| Information Element/Group Name | Need | Multi | Type and reference | Semantics description | Vers |
|--|------|-------|---|---|------|
| | | | | time was not reached for a configuration the value equals (activation time -1). In particular, for SRB2, this IE should not take into account the RRC message that will trigger the relocation.
NOTE: In order to have the possibility of sending downlink messages after the construction of the IE "SRNS RELOCATION INFO", the source may choose a value ahead of the last value used. | |
| >Implementation specific parameters | OP | | Bit string (1..512) | | |
| RRC IEs | | | | | |
| UE Information elements | | | | | |
| >U-RNTI | MP | | U-RNTI 10.3.3.47 | G-RNTI is placed in this field when performing handover or cell reselection from GERAN <i>lu mode</i> . | |
| >C-RNTI | OP | | C-RNTI 10.3.3.8 | | |
| >UE radio access Capability | MP | | UE radio access capability 10.3.3.42 | | |
| >UE radio access capability extension | OP | | UE radio access capability extension 10.3.3.42a | | |
| >Last known UE position | OP | | | | |
| >>SFN | MP | | Integer (0..4095) | Time when position was estimated | |
| >>Cell ID | MP | | Cell identity; 10.3.2.2 | Indicates the cell, the SFN is valid for. | |
| >>CHOICE <i>Position estimate</i> | MP | | | | |
| >>>Ellipsoid Point | | | Ellipsoid Point; 10.3.8.4a | | |
| >>>Ellipsoid point with uncertainty circle | | | Ellipsoid point with uncertainty circle 10.3.8.4d | | |
| >>>Ellipsoid point with uncertainty ellipse | | | Ellipsoid point with uncertainty ellipse 10.3.8.4e | | |
| >>>Ellipsoid point with altitude | | | Ellipsoid point with altitude 10.3.8.4b | | |
| >>>Ellipsoid point with altitude and uncertainty ellipsoid | | | Ellipsoid point with altitude and uncertainty ellipsoid 10.3.8.4c | | |

| Information Element/Group Name | Need | Multi | Type and reference | Semantics description | Vers |
|---|----------|----------------------------|--|--|------|
| >UE Specific Behaviour Information 1 idle | OP | | UE Specific Behaviour Information idle 1
10.3.3.51 | This IE should be included if received via the "INTER RAT HANDOVER INFO", the "RRC CONNECTION REQUEST", the IE "SRNS RELOCATION INFO" or the "Inter RAT Handover Info with Inter RAT Capabilities" | |
| >UE Specific Behaviour Information 1 interRAT | OP | | UE Specific Behaviour Information 1 interRAT
10.3.3.52 | This IE should be included if received via the "INTER RAT HANDOVER INFO", the "RRC CONNECTION REQUEST", the IE "SRNS RELOCATION INFO" or the "Inter RAT Handover Info with Inter RAT Capabilities" | |
| Other Information elements | | | | | |
| >UE system specific capability | OP | 1 to <maxSystemCapability> | | | |
| >>Inter-RAT UE radio access capability | MP | | Inter-RAT UE radio access capability
10.3.8.7 | | |
| UTRAN Mobility Information elements | | | | | |
| >URA Identifier | OP | | URA identity
10.3.2.6 | | |
| CN Information Elements | | | | | |
| >CN common GSM-MAP NAS system information | MP | | NAS system information (GSM-MAP)
10.3.1.9 | | |
| >CN domain related information | OP | 1 to <MaxCNdomains> | | CN related information to be provided for each CN domain | |
| >>CN domain identity | MP | | | | |
| >>CN domain specific GSM-MAP NAS system info | MP | | NAS system information (GSM-MAP)
10.3.1.9 | | |
| >>CN domain specific DRX cycle length coefficient | MP | | CN domain specific DRX cycle length coefficient,
10.3.3.6 | | |
| Measurement Related Information elements | | | | | |
| >For each ongoing measurement reporting | OP | 1 to <MaxNoOfMeas> | | | |
| >>Measurement Identity | MP | | Measurement identity
10.3.7.48 | | |
| >>Measurement Command | MP | | Measurement command
10.3.7.46 | | |
| >>Measurement Type | CV-Setup | | Measurement type
10.3.7.50 | | |
| >>Measurement Reporting Mode | OP | | Measurement reporting | | |

| Information Element/Group Name | Need | Multi | Type and reference | Semantics description | Vers |
|---|------|-------|---|-----------------------|------|
| | | | mode
10.3.7.49 | | |
| >>Additional Measurements list | OP | | Additional measurements list
10.3.7.1 | | |
| >>CHOICE <i>Measurement</i> | OP | | | | |
| >>>Intra-frequency | | | | | |
| >>>>Intra-frequency cell info | OP | | Intra-frequency cell info list
10.3.7.33 | | |
| >>>>Intra-frequency measurement quantity | OP | | Intra-frequency measurement quantity
10.3.7.38 | | |
| >>>>Intra-frequency reporting quantity | OP | | Intra-frequency reporting quantity
10.3.7.41 | | |
| >>>>Reporting cell status | OP | | Reporting cell status
10.3.7.61 | | |
| >>>>Measurement validity | OP | | Measurement validity
10.3.7.51 | | |
| >>>>CHOICE <i>report criteria</i> | OP | | | | |
| >>>>>Intra-frequency measurement reporting criteria | | | Intra-frequency measurement reporting criteria
10.3.7.39 | | |
| >>>>>Periodical reporting | | | Periodical reporting criteria
10.3.7.53 | | |
| >>>>>No reporting | | | NULL | | |
| >>>Inter-frequency | | | | | |
| >>>>Inter-frequency cell info | OP | | Inter-frequency cell info list
10.3.7.13 | | |
| >>>>Inter-frequency measurement quantity | OP | | Inter-frequency measurement quantity
10.3.7.18 | | |
| >>>>Inter-frequency reporting quantity | OP | | Inter-frequency reporting quantity
10.3.7.21 | | |
| >>>>Reporting cell status | OP | | Reporting cell status
10.3.7.61 | | |
| >>>>Measurement validity | OP | | Measurement validity
10.3.7.51 | | |
| >>>>Inter-frequency set update | OP | | Inter-frequency set update | | |

| Information Element/Group Name | Need | Multi | Type and reference | Semantics description | Vers |
|--|------|-------|---|-----------------------|------|
| | | | 10.3.7.22 | | |
| >>>>CHOICE <i>report criteria</i> | OP | | | | |
| >>>>Intra-frequency measurement reporting criteria | | | Intra-frequency measurement reporting criteria
10.3.7.39 | | |
| >>>>Inter-frequency measurement reporting criteria | | | Inter-frequency measurement reporting criteria
10.3.7.19 | | |
| >>>>Periodical reporting | | | Periodical reporting criteria
10.3.7.53 | | |
| >>>>No reporting | | | NULL | | |
| >>>Inter-RAT | | | | | |
| >>>>Inter-RAT cell info | OP | | Inter-RAT cell info list
10.3.7.23 | | |
| >>>>Inter-RAT measurement quantity | OP | | Inter-RAT measurement quantity
10.3.7.29 | | |
| >>>>Inter-RAT reporting quantity | OP | | Inter-RAT reporting quantity
10.3.7.32 | | |
| >>>>Reporting cell status | OP | | Reporting cell status
10.3.7.61 | | |
| >>>>Measurement validity | OP | | Measurement validity
10.3.7.51 | | |
| >>>>CHOICE <i>report criteria</i> | OP | | | | |
| >>>>>Inter-RAT measurement reporting criteria | | | Inter-RAT measurement reporting criteria
10.3.7.30 | | |
| >>>>>Periodical reporting | | | Periodical reporting criteria
10.3.7.53 | | |
| >>>>>No reporting | | | NULL | | |
| >>>Traffic Volume | | | | | |
| >>>>Traffic volume measurement Object | OP | | Traffic volume measurement object
10.3.7.70 | | |
| >>>>Traffic volume measurement quantity | OP | | Traffic volume measurement quantity
10.3.7.71 | | |
| >>>>Traffic volume reporting quantity | OP | | Traffic volume reporting quantity
10.3.7.74 | | |

| Information Element/Group Name | Need | Multi | Type and reference | Semantics description | Vers |
|--|------|-------|--|-----------------------|------|
| >>>>Measurement validity | OP | | Measurement validity
10.3.7.51 | | |
| >>>>CHOICE <i>report criteria</i> | OP | | | | |
| >>>>>Traffic volume measurement reporting criteria | | | Traffic volume measurement reporting criteria
10.3.7.72 | | |
| >>>>>Periodical reporting | | | Periodical reporting criteria
10.3.7.53 | | |
| >>>>>No reporting | | | NULL | | |
| >>>Quality | | | | | |
| >>>>Quality measurement quantity | OP | | Quality measurement quantity
10.3.7.59 | | |
| >>>>CHOICE <i>report criteria</i> | OP | | | | |
| >>>>>Quality measurement reporting criteria | | | Quality measurement reporting criteria
10.3.7.58 | | |
| >>>>>Periodical reporting | | | Periodical reporting criteria
10.3.7.53 | | |
| >>>>>No reporting | | | NULL | | |
| >>>UE internal | | | | | |
| >>>>UE internal measurement quantity | OP | | UE internal measurement quantity
10.3.7.79 | | |
| >>>>UE internal reporting quantity | OP | | UE internal reporting quantity
10.3.7.82 | | |
| >>>>CHOICE <i>report criteria</i> | OP | | | | |
| >>>>>UE internal measurement reporting criteria | | | UE internal measurement reporting criteria
10.3.7.80 | | |
| >>>>>Periodical reporting | | | Periodical reporting criteria
10.3.7.53 | | |
| >>>>>No reporting | | | NULL | | |
| >>>UE positioning | | | | | |
| >>>>LCS reporting quantity | OP | | LCS reporting quantity
10.3.7.111 | | |
| >>>>CHOICE <i>report criteria</i> | OP | | | | |
| >>>>>LCS reporting criteria | | | LCS reporting criteria
10.3.7.110 | | |
| >>>>>Periodical reporting | | | Periodical reporting criteria | | |

| Information Element/Group Name | Need | Multi | Type and reference | Semantics description | Vers |
|---|------|---------------------|---|----------------------------------|------|
| | | | 10.3.7.53 | | |
| >>>>No reporting | | | | | |
| Radio Bearer Information Elements | | | | | |
| >Predefined configuration status information | OP | | Predefined configuration status information
10.3.4.5a | | |
| >Signalling RB information list | MP | 1 to <maxSRBs etup> | | For each signalling radio bearer | |
| >>Signalling RB information | MP | | Signalling RB information to setup
10.3.4.24 | | |
| >RAB information list | OP | 1 to <maxRABs etup> | | Information for each RAB | |
| >>RAB information | MP | | RAB information to setup
10.3.4.10 | | |
| Transport Channel Information Elements | | | | | |
| Uplink transport channels | | | | | |
| >UL Transport channel information common for all transport channels | OP | | UL Transport channel information common for all transport channels
10.3.5.24 | | |
| >UL transport channel information list | OP | 1 to <MaxTrCH > | | | |
| >>UL transport channel information | MP | | Added or reconfigured UL TrCH information
10.3.5.2 | | |
| >CHOICE mode | OP | | | | |
| >>FDD | | | | | |
| >>>CPCH set ID | OP | | CPCH set ID
10.3.5.3 | | |
| >>>Transport channel information for DRAC list | OP | 1 to <MaxTrCH > | | | |
| >>>>DRAC static information | MP | | DRAC static information
10.3.5.7 | | |
| >>TDD | | | | (no data) | |
| Downlink transport channels | | | | | |
| >DL Transport channel information common for all transport channels | OP | | DL Transport channel information common for all transport channels
10.3.5.6 | | |
| >DL transport channel information list | OP | 1 to <MaxTrCH > | | | |

| Information Element/Group Name | Need | Multi | Type and reference | Semantics description | Vers |
|---------------------------------------|-------------|--------------|--|------------------------------|-------------|
| >>DL transport channel information | MP | | Added or reconfigured DL TrCH information 10.3.5.1 | | |

| Information Element/Group Name | Need | Multi | Type and reference | Semantics description | Vers |
|--|-----------|----------------|---|--|------|
| PhyCH information elements | | | | | |
| >TPC Combination Info list | OP | 1 to <maxRL> | | | |
| >>Primary CPICH info | MP | | Primary CPICH info
10.3.6.60 | | |
| >>TPC combination index | MP | | TPC combination index
10.3.6.85 | | |
| >Transmission gap pattern sequence | OP | 1 to <maxTGPS> | | | REL- |
| >>TGPSI | MP | | TGPSI
10.3.6.82 | | REL- |
| >> Current TGPS Status Flag | MP | | Enumerated(active, inactive) | This flag indicates the current status of the Transmission Gap Pattern Sequence, whether it is active or inactive | REL- |
| >>TGCFN | CV-Active | | Integer (0..255) | Connection Frame Number of the latest past frame of the first pattern within the Transmission Gap Pattern Sequence. | REL- |
| >>Transmission gap pattern sequence configuration parameters | OP | | | | REL- |
| >>>TGMP | MP | | Enumerated(TDD measurement, FDD measurement, GSM carrier RSSI measurement, GSM Initial BSIC identification, GSM BSIC re-confirmation, Multi-carrier measurement) | Transmission Gap pattern sequence Measurement Purpose. | REL- |
| >>>TGPRC | MP | | Integer (1..511, Infinity) | The number of remaining transmission gap patterns within the Transmission Gap Pattern Sequence. | REL- |
| >>>TGSN | MP | | Integer (0..14) | Transmission Gap Starting Slot Number
The slot number of the first transmission gap slot within the TGCFN. | REL- |
| >>>TGL1 | MP | | Integer(1..14) | The length of the first Transmission Gap within the transmission gap pattern expressed in number of slots | REL- |
| >>>TGL2 | MD | | Integer (1..14) | The length of the second Transmission Gap within the transmission gap pattern. If omitted, then TGL2=TGL1. The value of TGL2 shall be ignored if TGD is set to "undefined" | REL- |

| Information Element/Group Name | Need | Multi | Type and reference | Semantics description | Vers |
|--------------------------------------|------|-------|--|---|------|
| >>>TGD | MP | | Integer(15..269, undefined) | Transmission gap distance indicates the number of slots between starting slots of two consecutive transmission gaps within a transmission gap pattern. If there is only one transmission gap in the transmission gap pattern, this parameter shall be set to undefined. | REL- |
| >>>TGPL1 | MP | | Integer (1..144) | The duration of transmission gap pattern 1. | REL- |
| >>>RPP | MP | | Enumerated (mode 0, mode 1). | Recovery Period Power control mode during the frame after the transmission gap within the compressed frame. Indicates whether normal PC mode or compressed PC mode is applied | REL- |
| >>>ITP | MP | | Enumerated (mode 0, mode 1). | Initial Transmit Power is the uplink power control method to be used to compute the initial transmit power after the compressed mode gap. | REL- |
| >>>CHOICE <i>UL/DL mode</i> | MP | | | | REL- |
| >>>>DL only | | | | Compressed mode used in DL only | REL- |
| >>>>>Downlink compressed mode method | MP | | Enumerated (puncturing, SF/2, higher layer scheduling) | Method for generating downlink compressed mode gap | REL- |
| >>>>>UL only | | | | Compressed mode used in UL only | REL- |
| >>>>>Uplink compressed mode method | MP | | Enumerated (SF/2, higher layer scheduling) | Method for generating uplink compressed mode gap | REL- |
| >>>>>UL and DL | | | | Compressed mode used in UL and DL | REL- |
| >>>>>Downlink compressed mode method | MP | | Enumerated (puncturing, SF/2, higher layer scheduling) | Method for generating downlink compressed mode gap | REL- |
| >>>>>Uplink compressed mode method | MP | | Enumerated (SF/2, higher layer scheduling) | Method for generating uplink compressed mode gap | REL- |
| >>>Downlink frame type | MP | | Enumerated (A, B) | | REL- |
| >>>DeltaSIR1 | MP | | Real(0..3 by step of 0.1) | Delta in DL SIR target value to be set in the UE during the frame containing the start of the first transmission gap in the transmission gap pattern (without including the effect of the bit-rate increase) | REL- |
| >>>DeltaSIRafter1 | MP | | Real(0..3 by step of 0.1) | Delta in DL SIR target value to be set in the UE one frame after the frame containing the start of the first transmission gap in the transmission gap | REL- |

| Information Element/Group Name | Need | Multi | Type and reference | Semantics description | Vers |
|--------------------------------|---------------------------|--------------|--|---|------|
| | | | | pattern. | |
| >>>DeltaSIR2 | OP | | Real(0..3 by step of 0.1) | Delta in DL SIR target value to be set in the UE during the frame containing the start of the second transmission gap in the transmission gap pattern (without including the effect of the bit-rate increase)
When omitted, DeltaSIR2 = DeltaSIR1. | REL- |
| >>>DeltaSIRafter2 | OP | | Real(0..3 by step of 0.1) | Delta in DL SIR target value to be set in the UE one frame after the frame containing the start of the second transmission gap in the transmission gap pattern.
When omitted, DeltaSIRafter2 = DeltaSIRafter1. | REL- |
| >>>N Identify abort | <i>CV-Initial BSIC</i> | | Integer(1..128) | Indicates the maximum number of repeats of patterns that the UE shall use to attempt to decode the unknown BSIC of the GSM cell in the initial BSIC identification procedure | REL- |
| >>>T Reconfirm abort | <i>CV-Re-confirm BSIC</i> | | Real(0.5..10.0 by step of 0.5) | Indicates the maximum time allowed for the re-confirmation of the BSIC of one GSM cell in the BSIC re-confirmation procedure. The time is given in steps of 0.5 seconds. | REL- |
| >Scrambling Code Change List | CH-SF/2 | 1 to <maxRL> | | | REL- |
| >>Primary CPICH info | MP | | Primary CPICH info
10.3.6.60 | | REL- |
| >>Scrambling code change | MP | | Enumerated (code change, no code change) | Indicates whether the alternative scrambling code is used for compressed mode method 'SF/2'. | REL- |
| Other Information elements | | | | | |
| >Measurement report | OP | | MEASUREMENT REPORT
10.2.1.9 | | |
| >Failure cause | OP | | Failure cause
10.3.3.13 | Diagnostics information related to an earlier SRNC Relocation request (see NOTE 2 in 14.12.0a) | |
| >Protocol error information | <i>CV-ProtErr</i> | | Protocol error information
10.3.8.12 | | |
| MBMS joined information | OP | | | Included if the UE has joined one or more MBMS services | REL- |
| >P-TMSI | OP | | P-TMSI (GSM-MAP)
10.3.1.13 | In case the UE is in PMM- Idle | REL- |

| Multi Bound | Explanation |
|-------------|---|
| MaxNoOfMeas | Maximum number of active measurements, upper limit 16 |

| Condition | Explanation |
|-----------------|--|
| Setup | The IE is mandatory present when the IE Measurement command has the value "Setup", otherwise the IE is not needed. |
| Ciphering | The IE is mandatory present when the IE Ciphering Status has the value "started" and the ciphering counters need not be reinitialised, otherwise the IE is not needed. |
| IP | The IE is mandatory present when the IE Integrity protection status has the value "started" and the integrity protection counters need not be reinitialised, otherwise the IE is not needed. |
| ProtErr | This IE is mandatory present if the IE "Protocol error indicator" is included and has the value "TRUE". Otherwise it is not needed. |
| SRB1 | The IE is mandatory present for RB1. Otherwise it is not needed. |
| Active | This IE is mandatory present when the value of the IE "Current TGPS Status Flag" is "Active" and not needed otherwise. |
| Initial BSIC | This IE is mandatory present when the value of the IE "TGMP" is set to "GSM Initial BSIC identification" and not needed otherwise. |
| Re-confirm BSIC | This IE is mandatory present when the value of the IE "TGMP" is set to "GSM BSIC re-confirmation" and not needed otherwise. |
| SF/2 | The IE is mandatory present if the IE "Transmission Gap Pattern Sequence" is included and has the value "SF/2" as the compressed mode method, and already sent the UE the IE "Scrambling Code Change" for each RL in the active set. Otherwise the IE is not needed. |

~~~~ Next Modified Section ~~~~

## 14.14 ~~Versatile Channel Assignment Mode (VCAM)~~ mapping rule (FDD only) Void

~~When Versatile Channel Assignment Method (VCAM) is used in the CPCH procedure, the following mapping rules shall be used to specify one PCPCH.~~

~~If the number of PCPCHs is less than or equal to 16, there is a one to one mapping between the CA index and the PCPCH index. Thus a suitable AP signature (and/or AP sub channel) number is transmitted for the required spreading factor based on the broadcast system information, and the assigned PCPCH index (having the requested spreading factor) corresponds to the received CA index. When the number of PCPCHs is greater than 16, a combination of an AP signature (and/or AP sub channel) number and a CA signature number specifies one PCPCH as follows:~~

~~In VCAM mapping rule, a combination of an AP signature (and/or AP sub channel) number and a CA signature number specifies one PCPCH. In a CPCH set, there are  $K$  available PCPCHs which are numbered  $k=0,1,\dots,K-1$ , and there are  $R$  available Minimum Spreading Factor  $A_r, r=0,1,\dots,R-1$ , that a UE can request and use. The maximum available number of PCPCHs and the number of available AP signatures (and/or AP sub channels) for  $A_r$  are denoted as  $P0_r$  and  $S_r$ , respectively, for  $r=0,1,\dots,R-1$ . Let  $P_r$  be equal to 16 if  $P0_r$  is less than 16 and to  $P0_r$  otherwise.  $T_r$  represents the number of CA signatures for  $A_r$ , which are needed for specifying PCPCH. The default value of  $T_r$  is 16.~~

~~$S_r$  always satisfies  $S_r \geq \min\{s \mid s \in N, s \times T_r \geq P_r\}$ , where  $N$  is the set of positive integers.~~

~~The list of available AP signatures (and/or AP sub channels) for each  $A_r$  is renumbered from signature index 0 to signature index  $S_r-1$ , starting with the lowest AP signature (and/or AP sub channel) number, and continuing in sequence, in the order of increasing signature numbers.~~

~~Then for given AP signature (and/or AP sub channel) number and CA signature number, the number  $k$  that signifies the assigned PCPCH is obtained as:~~

$$k = \{[(i+n) \bmod S_r] + j \times S_r\} \bmod P_r,$$

~~where  $i$  ( $i=0,1,\dots,S_r-1$ ) is the AP signature (and/or AP sub channel) index for  $A_r$ ,  $j$  ( $j=0,1,\dots,\min(P_r,T_r)-1$ ) is the CA signature number for  $A_r$  and  $n$  is a nonnegative integer which satisfies  $n \times M_r \times S_r \leq i + j \times S_r < (n+1) \times M_r \times S_r$  where  $M_r = \min\{m : m \in N, (m \times S_r) \bmod P_r = 0\}$ .~~

~~An example of the above mapping rule is shown in [38].~~

~~~~ Next Modified Section ~~~~

B.3.2.5 Radio Resource Allocation Tasks (CELL_FACH)

In the CELL_FACH state 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 transport channel parameters (e.g. transport format sets) in advance, to be used when a DCH is used. Upon assignment of the physical channel for DCH, the UE moves to CELL_DCH state and uses the pre-assigned TFS for the DCH.

If no UE dedicated physical channel or transport channel configuration has been assigned, the UE uses the common physical channel and transport channel configuration according to the system information. 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).

~~In FDD mode, the UTRAN can assign CPCH resources to the UE in CELL_FACH state. When CPCH resources are assigned, the UE will continue to monitor FACHs. When CPCH resources are assigned, the UE will use CPCH for all uplink traffic in accordance with RB mapping.~~

~~In FDD mode, UTRAN may configure the UE to provide CPCH measurement reports of traffic volume on each CPCH channel used. With these measures, 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.~~

In the TDD mode, the UTRAN can assign USCH / DSCH resources to the UE in CELL_FACH state. When USCH / DSCH resources are assigned, the UE will continue to monitor FACHs, depending on the UE capability. The UE may use the USCH / DSCH to transmit signalling messages or user data in the uplink and / or the downlink using USCH and / or DSCH when resources are allocated to cell and UE is assigned use of those USCH / DSCH.

For the uplink data transmission on USCH the UE reports to the network the traffic volume (current size of RLC data buffers), The UTRAN can use these measurement reports to re-evaluate the current allocation of the USCH / DSCH resources.