Source: TSG-RAN WG2.

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

The following CRs are in RP-050308:

Spec	CR	Rev	Phase	Subject	Cat	Version-Current	Version-New	Doc-2nd-Level	Workitem
25.301	0076	-	Rel-5	Feature Clean-up: Removal of DSCH (FDD)	С	5.4.0	5.5.0	R2-051604	TEI5
25.301	0077	-	Rel-6	Feature Clean-up: Removal of DSCH (FDD)	С	6.2.0	6.3.0	R2-051605	TEI5
25.302	0157	-	Rel-5	Feature Clean-up: Removal of DSCH (FDD)	С	5.7.0	5.8.0	R2-051606	TEI5
25.302	0158	-	Rel-6	Feature Clean-up: Removal of DSCH (FDD)	С	6.3.0	6.4.0	R2-051607	TEI5
25.303	0077	-	Rel-5	Feature Clean-up: Removal of DSCH (FDD)	С	5.2.0	5.3.0	R2-051608	TEI5
25.303	0078	-	Rel-6	Feature Clean-up: Removal of DSCH (FDD)	С	6.2.0	6.3.0	R2-051609	TEI5
25.306	0110	-	Rel-5	Feature Clean-up: Removal of DSCH (FDD)	С	5.10.0	5.11.0	R2-051610	TEI5
25.306	0111	-	Rel-6	Feature Clean-up: Removal of DSCH (FDD)	С	6.4.1	6.5.0	R2-051611	TEI5
25.321	0211	-	Rel-5	Feature Clean-up: Removal of DSCH (FDD)	С	5.10.0	5.11.0	R2-051612	TEI5
25.321	0212	-	Rel-6	Feature Clean-up: Removal of DSCH (FDD)	С	6.4.0	6.5.0	R2-051613	TEI5
25.331	2586	-	Rel-5	Feature Clean-up: Removal of DSCH (FDD)	С	5.12.1	5.13.0	R2-051615	TEI5
25.331	2587	-	Rel-6	Feature Clean-up: Removal of DSCH (FDD)	С	6.5.0	6.6.0	R2-051614	TEI5

3GPP TSG-RAN Working Group 2 #47

Tdoc # R2-051604

CHANGE REQUEST										
¥	25.301	CR <mark>0076</mark>	≋rev	-	\mathfrak{H}	Current version:	5.4.0	ж		
For <u>HELP</u> on using this form, see bottom of this page or look at the pop-up text over the \mathbb{H} symbols.										

ME X Radio Access Network X Core Network Proposed change affects: Title: Feature Clean-up: Removal of DSCH (FDD) Source: ₩ RAN WG2 Date: 第 10/05/2005 C Release: # REL-5 Category: Use one of the following releases: Use one of the following categories: (GSM Phase 2) F (correction) 2 A (corresponds to a correction in an earlier R96 (Release 1996) R97 (Release 1997) release) (addition of feature), (Release 1998) В R98 (functional modification of feature) R99 (Release 1999) (editorial modification) (Release 4) D Rel-4 Detailed explanations of the above categories can Rel-5 (Release 5)

Reason for change: #	Removal of DSCH for FDD
Summary of change: #	Removal of DSCH for FDD
Consequences if # not approved:	DSCH for FDD mode will remain specified

Rel-6

(Release 6)

be found in 3GPP TR 21.900.

Clauses affected:	3.2.1.1, 5.3.1.1.2.2, 5.3.5.8, 5.3.5.12, 5.3.5.20, 5.3.6, 5.6.5.1, 5.6.5.2.1, 5.6.5.2.2, 5.6.5.3, 5.6.5.4, 6.1, 7									
	YN									
Other specs	25.302, 25.30 25.401, 25.40	2, 25.213, 25.214, 25.301, 13, 25.306, 25.321, 25.331, 12, 25.420, 25.423, 25.424, 17, 25.430, 25.433, 25.434,								
affected:	Test specifications O&M Specifications 34.108, 34.12	23								
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 \(\mathcal{H} \) 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.

5.2 Layer 1 Services and Functions

This subclause shall provide an overview on services and functions provided by the physical layer. A detailed description of Layer 1 general requirements can be found in [4].

5.2.1 L1 Services

The physical layer offers information transfer services to MAC and higher layers. The physical layer transport services are described by *how* and with what characteristics data are transferred over the radio interface. An adequate term for this is 'Transport Channel'.

NOTE: This should be clearly separated from the classification of *what* is transported, which relates to the concept of logical channels. Thus DCH is used to denote that the physical layer offers the same type of service for both control and traffic.

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, used in TDD mode only.

- 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.

5.2.2 L1 Functions

The physical layer performs the following main functions:

- Macrodiversity distribution/combining and soft handover execution;
- Error detection on transport channels and indication to higher layers;
- FEC encoding/decoding and interleaving/deinterleaving of transport channels;
- Multiplexing of transport channels and demultiplexing of coded composite transport channels;
- Rate matching;
- Mapping of coded composite transport channels on physical channels;
- Power weighting and combining of physical channels;
- Modulation and spreading/demodulation and despreading of physical channels;
- Frequency and time (chip, bit, slot, frame) synchronisation;
- Measurements and indication to higher layers (e.g. FER, SIR, interference power, transmit power, etc.);
- Closed-loop power control;
- RF processing;
- Support of timing advance on uplink channels (TDD only);
- Support of Uplink Synchronisation as defined in [12] (TDD only).

5.3 Layer 2 Services and Functions

5.3.1 MAC Services and Functions

This subclause provides an overview on services and functions provided by the MAC sublayer. A detailed description of the MAC protocol is given in [7].

5.3.1.1 MAC Services to upper layers

- **Data transfer**. This service provides unacknowledged transfer of MAC SDUs between peer MAC entities. This service does not provide any data segmentation. Therefore, segmentation/reassembly function should be achieved by upper layer.
- **Reallocation of radio resources and MAC parameters**. This service performs on request of RRC execution of radio resource reallocation and change of MAC parameters, i.e. reconfiguration of MAC functions such as

change of identity of UE, change of transport format (combination) sets, change of transport channel type. In TDD mode, in addition, the MAC can handle resource allocation autonomously.

 Reporting of measurements. Local measurements such as traffic volume and quality indication are reported to RRC.

5.3.1.1.1 Logical channels

The MAC layer provides data transfer services on logical channels. A set of logical channel types is defined for different kinds of data transfer services as offered by MAC. Each logical channel type is defined by what type of information is transferred.

A general classification of logical channels is into two groups:

- Control Channels (for the transfer of control plane information);
- Traffic Channels (for the transfer of user plane information).

The configuration of logical channel types is depicted in Figure 3.

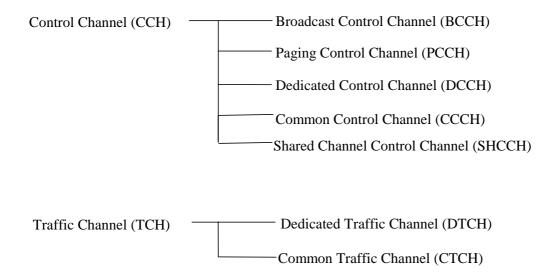


Figure 3: Logical channel structure

Control Channels

Control channels are used for transfer of control plane information only.

Broadcast Control Channel (BCCH)

A downlink channel for broadcasting system control information.

Paging Control Channel (PCCH)

A downlink channel that transfers paging information. This channel is used when the network does not know the location cell of the UE, or, the UE is in the cell connected state (utilising UE sleep mode procedures).

Common Control Channel (CCCH)

Bi-directional channel for transmitting control information between network and UEs. This channel is commonly used by the UEs having no RRC connection with the network and by the UEs using common transport channels when accessing a new cell after cell reselection.

Dedicated Control Channel (DCCH)

A point-to-point bi-directional channel that transmits dedicated control information between a UE and the network. This channel is established through RRC connection setup procedure.

Shared Channel Control Channel (SHCCH)

Bi-directional channel that transmits control information for uplink and downlink shared channels between network and UEs. This channel is for TDD only.

Traffic Channels

Traffic channels are used for the transfer of user plane information only.

Dedicated Traffic Channel (DTCH)

A Dedicated Traffic Channel (DTCH) is a point-to-point channel, dedicated to one UE, for the transfer of user information. A DTCH can exist in both uplink and downlink.

Common Traffic Channel (CTCH)

A point-to-multipoint unidirectional channel for transfer of dedicated user information for all or a group of specified UEs.

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 (in TDD mode only);
- 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 (in TDD mode only);
- 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.

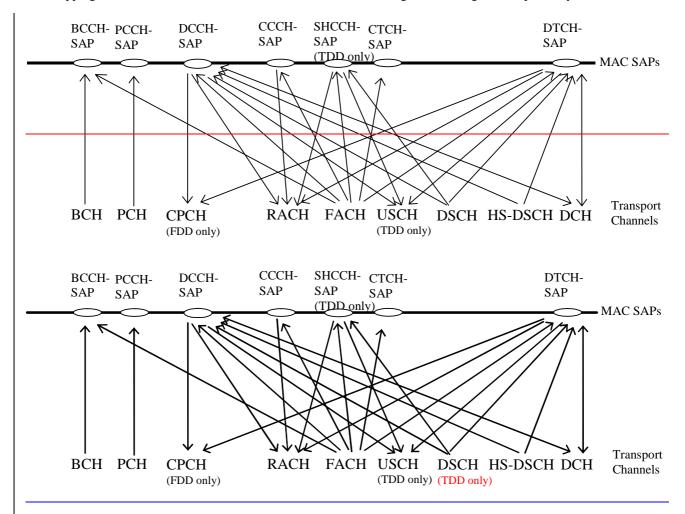


Figure 4: Logical channels mapped onto transport channels, seen from the UE side

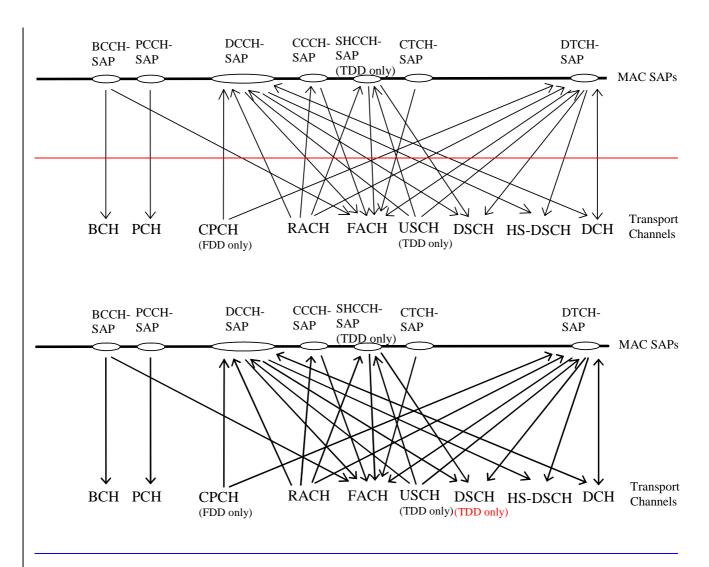


Figure 5: Logical channels mapped onto transport channels, seen from the UTRAN side

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.

5.3.2 RLC Services and Functions

This subclause provides an overview on services and functions provided by the RLC sublayer. A detailed description of the RLC protocol is given in [8].

5.3.2.1 Services provided to the upper layer

- **Transparent data transfer**. This service transmits upper layer PDUs without adding any protocol information, possibly including segmentation/reassembly functionality.
- **Unacknowledged data transfer**. This service transmits upper layer PDUs without guaranteeing delivery to the peer entity. The unacknowledged data transfer mode has the following characteristics:
 - Detection of erroneous data: The RLC sublayer shall deliver only those SDUs to the receiving upper layer that are free of transmission errors by using the sequence-number check function.

- Immediate delivery: The receiving RLC sublayer entity shall deliver a SDU to the upper layer receiving entity as soon as it arrives at the receiver.
- Acknowledged data transfer. This service transmits upper layer PDUs and guarantees delivery to the peer entity. In case RLC is unable to deliver the data correctly, the user of RLC at the transmitting side is notified. For this service, both in-sequence and out-of-sequence delivery are supported. In many cases a upper layer protocol can restore the order of its PDUs. As long as the out-of-sequence properties of the lower layer are known and controlled (i.e. the upper layer protocol will not immediately request retransmission of a missing PDU) allowing out-of-sequence delivery can save memory space in the receiving RLC. The acknowledged data transfer mode has the following characteristics:
 - Error-free delivery: Error-free delivery is ensured by means of retransmission. The receiving RLC entity delivers only error-free SDUs to the upper layer.
 - Unique delivery: The RLC sublayer shall deliver each SDU only once to the receiving upper layer using duplication detection function.
 - In-sequence delivery: RLC sublayer shall provide support for in-order delivery of SDUs, i.e., RLC sublayer should deliver SDUs to the receiving upper layer entity in the same order as the transmitting upper layer entity submits them to the RLC sublayer.
 - Out-of-sequence delivery: Alternatively to in-sequence delivery, it shall also be possible to allow that the
 receiving RLC entity delivers SDUs to upper layer in different order than submitted to RLC sublayer at the
 transmitting side.
- Maintenance of QoS as defined by upper layers. The retransmission protocol shall be configurable by layer 3 to provide different levels of QoS. This can be controlled.
- Notification of unrecoverable errors. RLC notifies the upper layer of errors that cannot be resolved by RLC itself by normal exception handling procedures, e.g. by adjusting the maximum number of retransmissions according to delay requirements.

For AM RLC, there is only one RLC entity per Radio Bearer. For UM and TM RLC, there is one or two (one for each direction) RLC entities per Radio Bearer.

5.3.2.2 RLC Functions

- **Segmentation and reassembly.** This function performs segmentation/reassembly of variable-length upper layer PDUs into/from smaller RLC PDUs. The RLC PDU size is adjustable to the actual set of transport formats.
- Concatenation. If the contents of an RLC SDU cannot be carried by one RLC PDU, the first segment of the next RLC SDU may be put into the RLC PDU in concatenation with the last segment of the previous RLC SDU.
- **Padding.** When concatenation is not applicable and the remaining data to be transmitted does not fill an entire RLC PDU of given size, the remainder of the data field shall be filled with padding bits.
- **Transfer of user data.** This function is used for conveyance of data between users of RLC services. RLC supports acknowledged, unacknowledged and transparent data transfer. QoS setting controls transfer of user data.
- **Error correction.** This function provides error correction by retransmission (e.g. Selective Repeat, Go Back N, or a Stop-and-Wait ARQ) in acknowledged data transfer mode.
- In-sequence delivery of upper layer PDUs. This function preserves the order of upper layer PDUs that were submitted for transfer by RLC using the acknowledged data transfer service. If this function is not used, out-of-sequence delivery is provided.
- **Duplicate Detection.** This function detects duplicated received RLC PDUs and ensures that the resultant upper layer PDU is delivered only once to the upper layer.
- Flow control. This function allows an RLC receiver to control the rate at which the peer RLC transmitting entity may send information.
- **Sequence number check.** This function is used in unacknowledged mode and guarantees the integrity of reassembled PDUs and provides a mechanism for the detection of corrupted RLC SDUs through checking

sequence number in RLC PDUs when they are reassembled into a RLC SDU. A corrupted RLC SDU will be discarded.

- **Protocol error detection and recovery**. This function detects and recovers from errors in the operation of the RLC protocol.
- **Ciphering**. This function prevents unauthorised acquisition of data. Ciphering is performed in RLC layer for non-transparent RLC mode. Details of the security architecture are specified in [15].
- SDU discard. This function allows an RLC transmitter to discharge RLC SDU from the buffer.

5.3.3 PDCP Services and Function

This subclause provides an overview on services and functions provided by the Packet Data Convergence Protocol (PDCP). A detailed description of the PDCP is given in [10].

5.3.3.1 PDCP Services provided to upper layers

- PDCP SDU delivery.

5.3.3.2 PDCP Functions

- **Header compression and decompression.** Header compression and decompression of IP data streams (e.g., TCP/IP and RTP/UDP/IP headers) at the transmitting and receiving entity, respectively. The header compression method is specific to the particular network layer, transport layer or upper layer protocol combinations e.g. TCP/IP and RTP/UDP/IP.
- **Transfer of user data.** Transmission of user data means that PDCP receives PDCP SDU from the NAS and forwards it to the RLC layer and vice versa.
- Support for lossless SRNS relocation or lossless DL RLC PDU size change. Maintenance of PDCP sequence
 numbers for radio bearers that are configured to support lossless SRNS relocation or lossless DL RLC PDU size
 change.

5.3.4 Broadcast/Multicast Control - Services and functions

This subclause provides an overview on services and functions provided by the BMC sublayer. A detailed description of the BMC protocol is given in [10].

5.3.4.1 BMC Services

The BMC-SAP provides a broadcast/multicast transmission service in the user plane on the radio interface for common user data in unacknowledged mode.

5.3.4.2 BMC Functions

- Storage of Cell Broadcast Messages.

The BMC stores the Cell Broadcast messages received over the CBC-RNC interface for scheduled transmission.

- Traffic volume monitoring and radio resource request for CBS.

At the UTRAN side, the BMC calculates the required transmission rate for Cell Broadcast Service based on the messages received over the CBC-RNC interface, and requests for appropriate CTCH/FACH resources from RRC.

- Scheduling of BMC messages.

The BMC receives scheduling information together with each Cell Broadcast message over the CBC-RNC-interface. Based on this scheduling information, at the UTRAN side, BMC generates schedule messages and schedules BMC message sequences accordingly. At the UE side, BMC evaluates the schedule messages and indicates scheduling parameters to RRC, which are used by RRC to configure the lower layers for CBS discontinuous reception.

- Transmission of BMC messages to UE.

 This function transmits the BMC messages (Scheduling and Cell Broadcast messages) according to schedule.
- Delivery of Cell Broadcast messages to upper layer (NAS).
 This functions delivers the received Cell Broadcast messages to upper layer (NAS) in the UE. Only non-corrupted Cell Broadcast messages are delivered.

5.3.5 Data flows through Layer 2

Data flows through layer 2 are characterised by the applied data transfer modes on RLC (acknowledged, unacknowledged and transparent transmission) in combination with the data transfer type on MAC, i.e. whether or not a MAC header is required. The case where no MAC header is required is referred to as "transparent" MAC transmission. Acknowledged and unacknowledged RLC transmissions both require a RLC header. In unacknowledged transmission, only one type of unacknowledged data PDU is exchanged between peer RLC entities. In acknowledged transmission, both (acknowledged) data PDUs and control PDUs are exchanged between peer RLC entities.

The resulting different data flow cases are illustrated in Figures 6 - 9. On the level of detail presented here, differences between acknowledged and unacknowledged RLC transmission are not visible. Acknowledged and unacknowledged RLC transmission is shown as one case, referred to as non-transparent RLC.

NOTE: The term "transparent transmission" is used here to characterise the case where a protocol, MAC or RLC, does not require any protocol control information (e.g. header). In transparent transmission mode, however, some protocol functions may still be applied. In this case an entity of the respective protocol must be present even when the protocol is transparent. For the RLC protocol the segmentation/reassembly function may be applied. This can be performed without segmentation header when a given higher layer PDU fits into a fixed number of RLC PDUs to be transferred in a given transmission time interval. In this case segmentation/reassembly follows predefined rules known to sending and receiving RLC entities. For instance in the user plane, the segmentation/reassembly function is needed for the case of real-time services using high and possibly variable bit rates. For such services higher layer PDUs shall be segmented into reasonably sized RLC PDUs of fixed length allowing efficient FCS error detection on the physical layer. The higher layer PDU can be reassembled by simply concatenating all RLC PDUs included in a transport block set as implied by the used transport format.

Figure 6 and Figure 7 illustrate the data flows for transparent RLC with transparent and non-transparent MAC transmission, respectively.

Figure 8 and Figure 9 illustrate the data flows for non-transparent RLC with transparent and non-transparent MAC transmission, respectively.

A number of MAC PDUs shown in the figures shall comprise a transport block set. Note, however, that in all cases a transport block set must not necessarily match with a RLC SDU. The span of a transport block set can be smaller or larger than an RLC SDU.

Each mapping between a logical channel and a transport channel as defined in Figure 4 and Figure 5 in combination with the respective RLC transmission mode implies a certain data flow that is specified on a general level in the following.

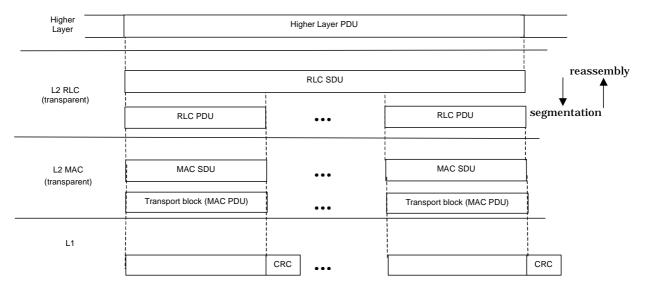


Figure 6: Data flow for transparent RLC and MAC

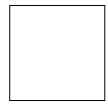


Figure 7: Data flow for transparent RLC and non-transparent MAC

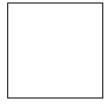


Figure 8: Data flow for non-transparent RLC and transparent MAC

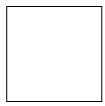


Figure 9: Data flow for non-transparent RLC and MAC

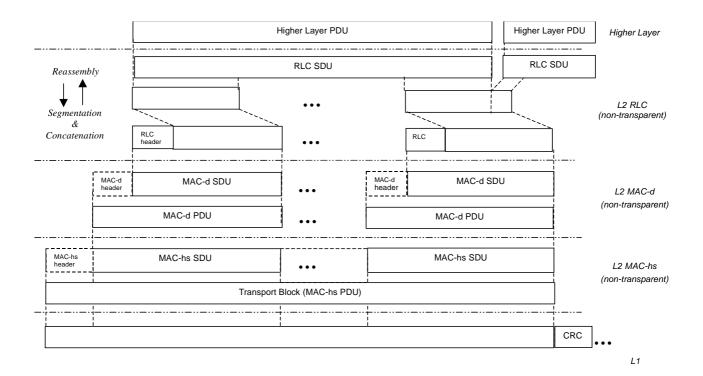


Figure 9a: Data flow for non-transparent RLC and MAC mapped to HS-DSCH

5.3.5.1 Data flow for BCCH mapped to BCH

All RRC PDUs transmitted on BCCH have a fixed length and fit into one RLC PDU (and, equivalently, MAC PDU, as defined by the transport format). No RLC header is needed, i.e. the transparent data transfer mode of RLC is applied.

No MAC header is needed since only one BCCH logical channel is mapped onto a BCH. Figure 6 is applicable.

5.3.5.2 Data flow for BCCH mapped to FACH

No RLC header is needed, i.e. the transparent data transfer mode of RLC is applied. A MAC header is required for identification of the logical channel carried by the FACH. The data flow shown in Figure 7 is applicable.

5.3.5.3 Data flow for PCCH mapped to PCH

No RLC or MAC header is needed, i.e. the data flow in Figure 6 is applicable.

5.3.5.4 Data flow for CCCH mapped to FACH/RACH

For CCCH, transparent transmission mode on RLC is employed on the uplink (when mapped to RACH). Unacknowledged transmission mode on RLC is employed on the downlink (when mapped to FACH). A MAC header is used for logical channel identification (CCCH, CTCH, SHCCH, DCCH, DTCH). If the transparent RLC transfer mode is applied, the data flow Figure 7 is applicable. If the unacknowledged RLC transfer mode is applied, the data flow Figure 9 is applicable.

5.3.5.5 Data flow for SHCCH mapped to USCH

For SHCCH mapped on USCH, transparent transmission mode on RLC is employed. A MAC header may be used for logical channel identification (SHCCH, DCCH, DTCH). When no MAC header is used, SHCCH must be the only channel mapped to USCH/DSCH. Depending on whether the MAC header is needed or not, either the data flow Figure 6 or Figure 7 is applicable.

5.3.5.6 Data flow for SHCCH mapped to FACH/RACH

For SHCCH, transparent transmission mode on RLC is employed on the uplink (when mapped to RACH). Unacknowledged transmission mode on RLC is employed on the downlink (when mapped to FACH). A MAC header may be used for logical channel identification (CCCH, CTCH, SHCCH, DCCH, DTCH). When no MAC header is used, SHCCH must be the only channel mapped to RACH/FACH. If the transparent RLC transfer mode is applied, depending on whether the MAC header is needed or not, either the data flow Figure 6 or Figure 7 is applicable. If the unacknowledged RLC transfer mode is applied, depending on whether the MAC header is needed or not, either the data flow Figure 8 or Figure 9 is applicable.

5.3.5.7 Data flow for DCCH mapped to FACH/RACH

For DCCH, both unacknowledged and acknowledged transmission mode on RLC is employed. A MAC header is mandatory for FACH/RACH carrying DCCH. The data flow shown in Figure 9 is applicable.

5.3.5.8 Data flow for DCCH mapped to DSCH

For DCCH, both unacknowledged and acknowledged transmission mode on RLC is employed. A MAC header is mandatory when DCCH is mapped to a DSCH for FDD mode, i.e. the data flow in Figure 9 is applicable. For TDD a-MAC header is optional, i.e. either the data flow in Figure 8 or Figure 9 is applicable.

5.3.5.9 Data flow for DCCH mapped to USCH

For DCCH, both unacknowledged and acknowledged transmission mode on RLC is employed. 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.

5.3.5.10 Data flow for DCCH mapped to CPCH

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.

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 <u>HS-</u>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 in TDD 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.

5.4 Layer 3 - Uu Stratum Services and Functions

This subclause provides an overview on Layer 3 services and functions provided by the Uu Stratum as a whole. A detailed description of the RRC protocol is given in [11]. Examples of structured procedures involving RRC in Idle Mode and Connected Mode are described in [5] and [6], respectively.

5.4.1 Uu Stratum services

5.4.1.1 General Control

The GC SAP provides an information broadcast service. This service broadcasts information to all UEs in a certain geographical area. The basic requirements from such service are:

- It should be possible to broadcast non-access stratum information in a certain geographical area.
- The information is transferred on an unacknowledged mode link. Unacknowledged mode means that the delivery of the broadcast information can not be guaranteed (typically no retransmission scheme is used). It seems reasonable to use an unacknowledged mode link since the information is broadcast to a lot of UEs and since broadcast information often is repeated periodically.

- It should be possible to do repeated transmissions of the broadcast information (how it is repeated is controlled by the non-access stratum).
- The point where the UE received the broadcast information should be included, when the access stratum delivers broadcast information to the non-access stratum.

5.4.1.2 Notification

The Nt SAP provides paging and notification broadcast services. The paging service sends information to a specific UE(s). The information is broadcast in a certain geographical area but addressed to a specific UE(s). The basic requirements from such service are:

- It should be possible to broadcast paging information to a number of UEs in a certain geographical area.
- The information is transferred on an unacknowledged mode link. It is assumed that the protocol entities in non-access stratum handle any kind of retransmission of paging information.

The notification broadcast service broadcasts information to all UEs in a certain geographical. The basic requirements from this service are typically the same as for the information broadcast service of the GC SAP:

- It should be possible to broadcast notification information in a certain geographical area.
- The information is transferred on an unacknowledged mode link.

5.4.1.3 Dedicated Control

The DC SAP provides services for establishment/release of a connection and transfer of messages using this connection. It should also be possible to transfer a message during the establishment phase. The basic requirements from the establishment/release services are:

- It should be possible to establish connections (both point and group connections).
- It should be possible to transfer an initial message during the connection establishment phase. This message transfer has the same requirements as the information transfer service.
- It should be possible to release connections.

The information transfer service sends a message using the earlier established connection. According to [1] it is possible to specify the quality of service requirements for each message. A finite number of quality of service classes will be specified in [1], but currently no class has been specified. In order to get an idea of the basic requirements, the CC and MM protocols in GSM are used as a reference. A GSM based core network is chosen since it is one main option for UMTS. Considering the existing GSM specification of CC and MM the basic requirements from the information transfer service provided by the 'Duplication avoidance' function are (these are some of the services provided by the combination of a duplication layer, RR and the data link layer in GSM):

- In-sequence transfer of messages
 Messages are delivered to the NAS on the receiver side exactly in the order they have been submitted by the
 NAS on the sending side, without loss or duplication, except possibly for the loss of last messages in case of
 connection abortion.
- Priority handling
 If SMS messages should be transported through the control plane it should be possible to give higher priority to signalling messages.

The CC and MM protocols also expect other services, which can not be supported by the current primitives of the DC SAP, e.g. indication of radio link failure.

The information transfer service is provided by a combination of the services provided by the data link layer, RNC and the 'Duplication avoidance' function.

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.

5.5 Interactions between RRC and lower layers in the C plane

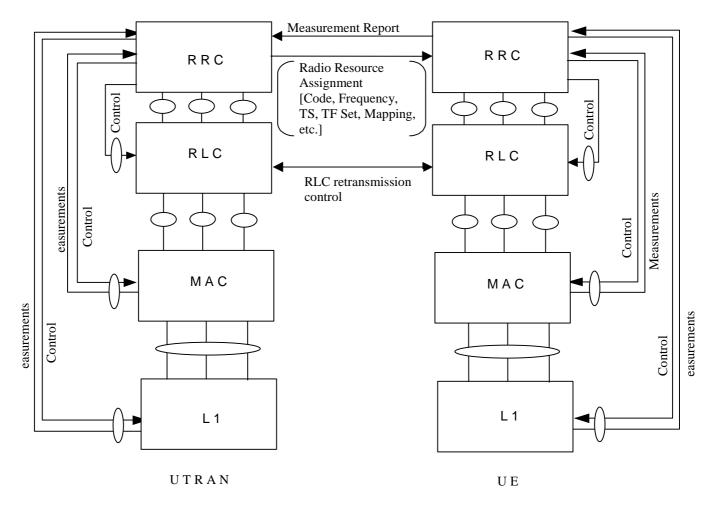


Figure 10: Interactions between RRC and lower layers

The RRC protocol controls and signals the allocation of radio resources to the UE. RRC allows MAC to arbitrate between users and Radio Bearers within the radio resource allocation. The RRC uses the measurements done by the lower layers to determine which radio resources that are available. Therefore it is a need for a measurement report from the UE RRC to the UTRAN RRC. Figure 10 illustrates the principle. The local control and local measurements reporting is handled through the control SAPs between RRC and the lower layers.

5.6 Protocol termination

This subclause specifies in which node of the UTRAN the radio interface protocols are terminated, i.e. where within UTRAN the respective protocol services are accessible. Dashed lines indicate those protocols whose presence is dependent on the service provided to upper layers.

5.6.1 Protocol termination for DCH

Figure 11 and Figure 12 show the protocol termination for DCH for the control and user planes, respectively. The part of physical layer terminating in the Serving RNC is the topmost macro-diversity combining and splitting function for the FDD mode. If no macrodiversity applies, the physical layer is terminated in Node B.

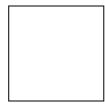


Figure 11: Protocol Termination for DCH, control plane

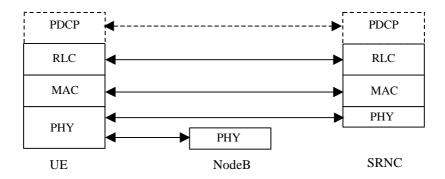


Figure 12: Protocol Termination for DCH, user plane

5.6.2 Protocol termination for RACH/FACH

Figure 13 and Figure 14 show the protocol termination for RACH/FACH for the control and user planes, respectively. Control plane termination refers to the case where RACH/FACH carry dedicated, common or shared control information (i.e. CCCH, DCCH or SHCCH, and in the downlink possibly also BCCH). User plane termination refers to the case where RACH/FACH carry dedicated user data (DTCH) or common user data (CTCH).

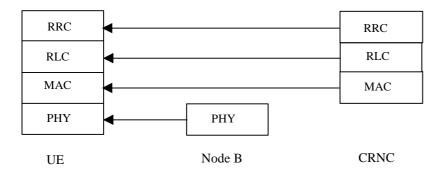
It is assumed that macrodiversity/soft handover is not applied for RACH/FACH. Therefore, the physical layer terminates in Node B. For RACH/FACH carrying DCCH, MAC is split between Controlling and Serving RNC. RLC, and in the C plane also RRC terminate in the Serving RNC. Since Iur can support common channel data streams, the users of that common channel can depend on different SRNCs. However, they depend on the same Controlling RNC. Therefore, for a given user, the Controlling RNC and the Serving RNC can be separate RNCs.

For FACH carrying BCCH, MAC, RLC and RRC are terminated in the CRNC.

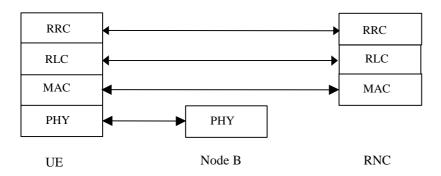
For RACH/FACH carrying SHCCH, MAC, RLC and RRC are terminated in the Controlling RNC (TDD only).

For RACH/FACH carrying CCCH, MAC, RLC and RRC are terminated in the RNC.

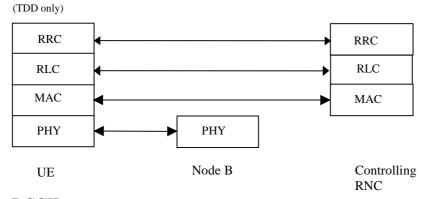
BCCH:



CCCH:



SHCCH:



DCCH:

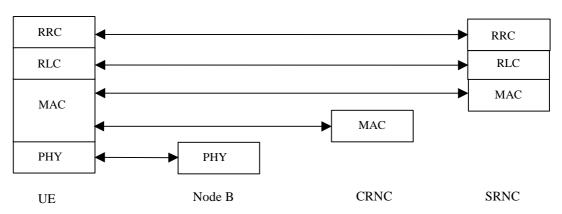
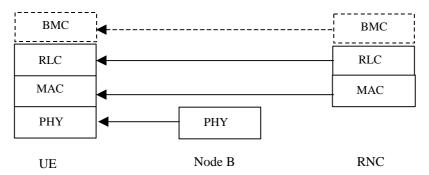


Figure 13: Protocol Termination for RACH/FACH, control plane

CTCH:



DTCH:

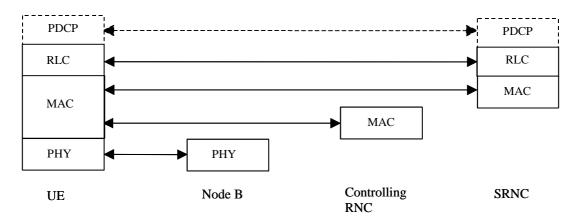


Figure 14: Protocol Termination for RACH/FACH, user plane

5.6.3 Void

5.6.4 Protocol termination for CPCH

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.

5.6.5 Protocol termination for DSCH

5.6.5.1 DSCH definition

<u>The DSCH is only supported for TDD.</u> The DSCH is a resource that exists in downlink only. It has only impact on the physical and transport channel levels, so there is no definition of shared channel in the logical channels provided by MAC.

The DSCH is a transport channel shared dynamically between several UEs. The DSCH is mapped to one or several physical channels such that a specified part of the downlink resources is employed. For the DSCH no macrodiversity is applied, i.e. a specific DSCH is transmitted in a single cell only.

The following two DSCH cases are supported in Release 99, in the following denoted as cases A and B:

Case A: The DSCH is defined as an extension to DCH transmission. DSCH related resource allocation is signalled utilising the transport format indication field (TFI) that will be mapped to the TFCI of the associated DCH.

Case B: The DSCH is defined as a shared downlink channel for which resource allocation is performed by RRC in Controlling RNC. The allocation messages, including UE identification, are transmitted on SHCCH, which is mapped on RACH/FACH. Several DSCH can be multiplexed on a CCTrCH in the physical layer, the transport formats of the DSCHs have to be selected from the transport format combination set of this CCTrCH. Each CCTrCH is mapped on one or more PDSCHs. If the transport format combination subset of a CCTrCH contains more than one transport format combination, a TFCI can be transmitted inside the PDSCH, or blind detection can be applied in the UE. This case is supported for TDD only.

NOTE: —Cases A and B of DSCH can be employed concurrently for TDD (at the same time on a single PDSCH).

Interleaving for the DSCH may be applied over a multiplicity of radio frames. Nevertheless, here the basic case is considered where the interleaving is rectangular for a given MAC PDU, and equal to one radio frame (10 ms). The framing is synchronised on the SCH.

In every radio frame, one or several PDSCHs can be used in the downlink. Therefore, the DSCH supports code multiplexing. MAC multiplexing of different UEs shall not be applied within a radio frame, i.e. within one radio frame a PDSCH is assigned to a single UE. However, MAC multiplexing is allowed on a frame by frame basis, i.e. one PDSCH may be allocated to different UEs at each frame.

Transport blocks on the DSCH may be of constant size, so that the Transport Block Set may be derived from the code allocated to each UE on the DSCH. For case B, the transport format combination set can change with each transmission time interval.

5.6.5.2 Resource allocation and UE identification on DSCH

The principles of capacity allocation and UE identification on the DSCH are described in more detail below.

5.6.5.2.1 VoidCase A (UE requires a downlink TFCI on a DPCCH)

The TFCI of the dedicated physical channel may carry the information that a given code of the DSCH must be listened to by the UE. Fast power control can be applied per code based on the dedicated physical control channel, DPCCH.

Alternatively, a UE may be requested on the DCH to listen to a DSCH for a given period of time, and to decode the data so that the address of the destination UE can be decoded. This does not require more TFCI values because signalling is done in layers 2 and 3.

5.6.5.2.2 Case B (UE requires a downlink SHCCH) (TDD only)

The information which physical downlink shared channels to listen to and when, is sent by RRC on the SHCCH logical channel, which is mapped on RACH and USCH/FACH and DSCH. The transmitted Layer 3 messages contain information about the used PDSCHs and the timing of the allocation.

5.6.5.3 Model of DSCH in UTRAN

Figure 15 captures the working assumption on the Downlink Shared Channel (DSCH). The two RLCs point to logical channel (DTCH) specific RLC-entities of specific users while MAC refers to the provision of MAC sublayer functions for all users.

The MAC sublayer of a DSCH is split between the Controlling RNC and SRNC. For a given user, the RLC sublayer is terminated in its SRNC. Since Iur can support DSCH data streams, the users on that DSCH can depend on different SRNCs. For a given user, the Controlling RNC and the Serving RNC can be separate RNCs. The MAC in the network takes care of mapping downlink data either to a common channel (FACH, not shown in this figure), or to a DCH and/or the DSCH.

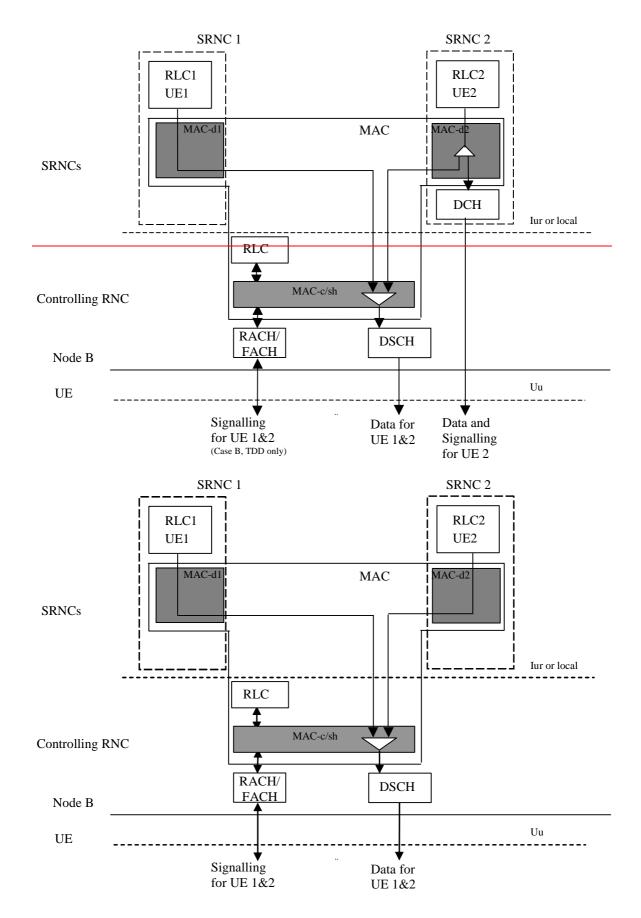


Figure 15: Model of downlink shared channel (DSCH) in UTRAN (TDD only)

5.6.5.4 Protocol termination

The protocol termination points for DSCH in control and user planes are presented in Figure 16 and Figure 17, respectively. The DSCH is for TDD only.

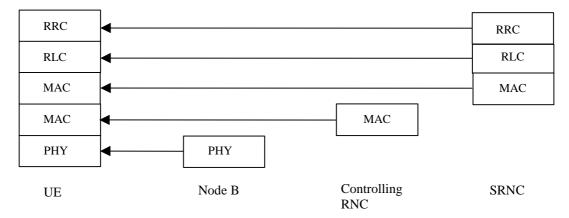


Figure 16: Protocol termination points for DSCH, control plane (TDD only)

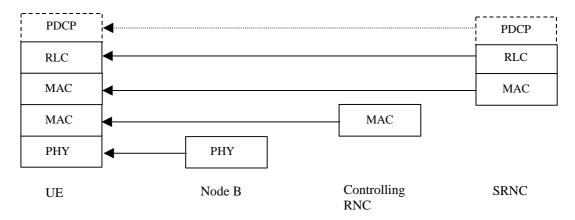


Figure 17: Protocol termination points for DSCH, user plane (TDD only)

5.6.6 Protocol termination for transport channel of type USCH

5.6.6.1 USCH definition

The USCH is only supported for TDD. It is a resource that exists in uplink only. It has only impact on the physical and transport channel levels, so there is no definition of shared channel in the logical channels provided by MAC.

The USCH is a transport channel shared dynamically between several UEs. The USCH is mapped to one or several physical channels such that a specified part of the uplink resources is employed.

The USCH is defined as a shared uplink channel for which resource allocation is performed by RRC in Controlling RNC. The allocation requests and allocation messages, including UE identification, are transmitted on SHCCH, which is mapped on RACH and USCH/FACH and DSCH. Several USCHs can be multiplexed on a CCTrCH in the physical layer, the transport formats of the USCHs have to be selected from the transport format combination set of this CCTrCH. Each CCTrCH is mapped on one or more PUSCHs. If the transport format combination subset of a CCTrCH contains more than one transport format combination, a TFCI can be transmitted inside the PUSCH, or blind detection can be applied in the Node B.

Interleaving for the USCH may be applied over a multiplicity of radio frames.

In every radio frame, one or several PUSCHs can be used in the uplink. Therefore, the USCH supports physical channel multiplexing. MAC multiplexing of different UEs shall not be applied within a radio frame, i.e. within one radio frame

a PUSCH is assigned to a single UE. However, MAC multiplexing is allowed on a frame by frame basis, i.e. one PUSCH may be allocated to different UEs at each frame.

The transport format combination set on the USCH can change with each transmission time interval.

5.6.6.2 Resource allocation and UE identification on USCH

The information which physical uplink shared channels to transmit on and when is sent by RRC on the SHCCH logical channel, which is mapped on RACH and USCH/FACH and DSCH. The transmitted Layer 3 messages contain information about the assigned PUSCHs and the timing of the allocation.

5.6.6.3 Model of USCH in UTRAN

Figure 18 captures the working assumption on the Uplink Shared Channel (USCH). The two RLCs point to logical channel (DTCH) specific RLC-entities of specific users while MAC refers to the provision of MAC sublayer functions for all users.

The MAC sublayer of a USCH is split between the Controlling RNC and SRNC. For a given user, the RLC sublayer is terminated in its SRNC. Since Iur can support USCH data streams, the users on that USCH can depend on different SRNCs. For a given user, the Controlling RNC and the Serving RNC can be separate RNCs. The MAC in the network takes care of mapping uplink data either from a common channel (RACH, not shown in this figure), DCH or the USCH.

Allocations of uplink capacity are requested by the UEs and signalled to the UEs on the SHCCH (Shared channel control channel), which is mapped on RACH and USCH/FACH and DSCH.

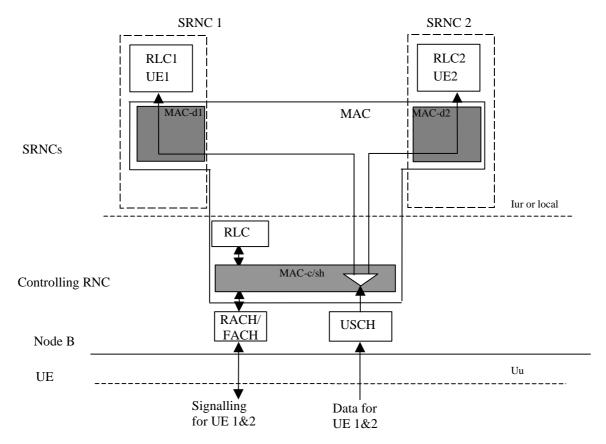


Figure 18: Model of uplink shared channel (USCH) in UTRAN (TDD only)

5.6.6.4 Protocol termination

The protocol termination points for USCH in control and user planes are presented in Figure 19 and Figure 20, respectively. The USCH is for TDD only.

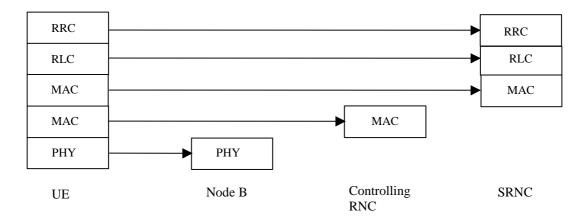


Figure 19: Protocol termination points for USCH, control plane (TDD only)

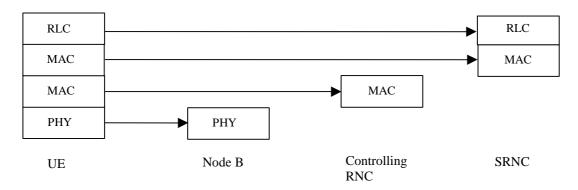


Figure 20: Protocol termination points for USCH, user plane (TDD only)

5.6.7 Protocol termination for transport channel of type BCH

System information on BCH can include information that is available only in Node B, and need to be updated very frequently (each 20-100 ms), such as uplink interference in the cell. Also, for the system information originating from the RNC, it is assumed that the updating of system information is at least one magnitude less (minutes) than the repetition frequency on the BCH (in the order of 1s). The system information originating from the CRNC should be sent transparently to Node B, which then handles the repetition. Protocol termination for the BCH shall therefore be distributed between the Node B and the CRNC, resulting in less signalling on Iub and lower processor load. Note that the RLC sublayer is transparent for this transport channel type.

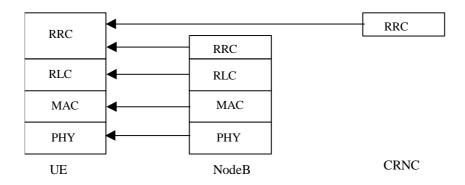


Figure 21: Protocol termination for BCH

5.6.8 Protocol termination for transport channel of type PCH

In order to enable co-ordinated scheduling between PCH and FACH/DSCH the corresponding MAC scheduling functions shall be allocated in the same node. MAC-c/sh is terminated in CRNC. A natural implication is that RLC and RRC also are terminated in CRNC.

Note that the RLC sublayer is transparent for this channel.

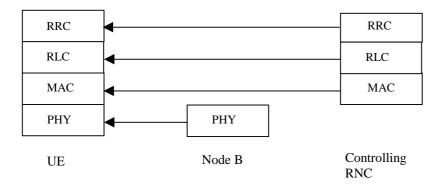


Figure 22: Protocol termination for PCH

5.6.9 Protocol termination for HS-DSCH

5.6.9.1 HS-DSCH definition

The HS-DSCH is a resource that exists in downlink only. It has only impact on the physical and transport channel levels, so there is no definition of shared channel in the logical channels provided by MAC.

The HS-DSCH is a transport channel for which a common pool of radio resources is shared dynamically between several UEs. The HS-DSCH is mapped to one or several physical channels such that a specified part of the downlink resources is employed. For the HS-DSCH no macrodiversity is applied, i.e. a specific HS-DSCH is transmitted in a single cell only.

- The HS-DSCH is defined as an extension to DCH transmission. Physical channel signalling is used for indicating to a UE when it has been scheduled and then the necessary signalling information for the UE to decode the HS-PDSCH.

In every HS-DSCH TTI, one or several HS-PDSCHs can be used in the downlink. Therefore, the HS-DSCH supports code multiplexing. MAC multiplexing of different UEs shall not be applied within an HS-DSCH TTI, i.e. within one HS-DSCH TTI an HS-PDSCH is assigned to a single UE. However, MAC multiplexing is allowed on a TTI by TTI basis, i.e. one HS-PDSCH may be allocated to different UEs at each TTI.

5.6.9.2 Resource allocation and UE identification on HS-DSCH

For each HS-DSCH TTI, each HS-SCCH carries HS-DSCH related downlink signalling for one UE, along with a UE identity (via a UE specific CRC) that identifies the UE for which this information is necessary in order to decode the scheduled HS-PDSCH.

5.6.9.3 Protocol termination

The protocol termination points for HS-DSCH in the control and user planes are presented in figure 5.6.9.3-1 and figure 5.6.9.3-2, respectively. Two configurations exist, a Configuration with MAC-c/sh and a Configuration without MAC-c/sh.

- Configuration with MAC-c/sh: In this case, the MAC-hs in Node B is located below MAC-c/sh in CRNC.

- Configuration without MAC-c/sh: In this case, the CRNC does not have any function for the HS-DSCH. MAC-d in SRNC is located directly above MAC-hs in Node B, i.e. in the HS-DSCH the SRNC is directly connected to the Node B, thus bypassing the DRNC.

Both configurations are transparent to both the UE and Node B. Figures 5.6.9.3-2 and 5.6.9.3-3 show the respective user plane protocol architecture with termination points for the above two configurations.

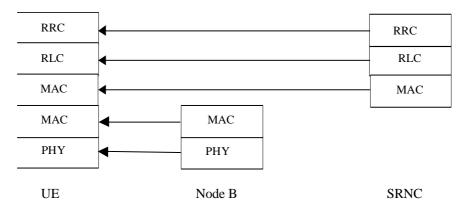


Figure 5.6.9.3-1: Protocol termination points for HS-DSCH, control plane

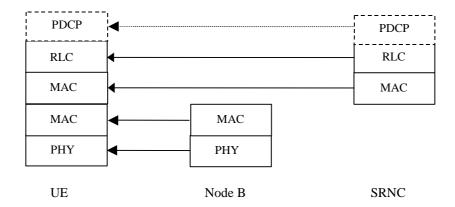


Figure 5.6.9.3-2: Protocol termination points for HS-DSCH, user plane

6 User Identification and RRC Connection Mobility

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-TDD mode, also on DSCH by the MAC protocolRRC, 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 only for TDD 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.

<u>In TDD mode</u>, 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.

<u>In TDD mode</u>, 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).

7 UE modes

Two modes of operation are currently defined for the UE, idle mode and connected mode [5, 6].

After power on, the UE stays in idle mode until it transmits a request to establish an RRC connection. In idle mode the UE is identified by non-access stratum identities such as IMSI, TMSI and P-TMSI. In addition, the UTRAN has no own information about the individual idle mode UEs, and can only address e.g. all UEs in a cell or all UEs monitoring a specific paging occasion.

The connected mode is entered when the RRC connection is established. A RRC connection is established between the UE and a RNC called SRNC. The UE is assigned a radio network temporary identity (U-RNTI and possibly in addition

C-RNTI or, only for TDD, DSCH-RNTI) to be used as UE identity on common transport channels. RRC connection is within a UTRAN identified with the U-RNTI.

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

Reception of SMS cell broadcast can be done in both idle and connected mode.

3GPP TSG-RAN Working Group 2 #47 Athens. Greece. 9 – 13 May 2005

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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:

O&M Specifications

- 1) Fill out the above form. The symbols above marked \$\mathbb{K}\$ 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.

5.2 Layer 1 Services and Functions

This subclause shall provide an overview on services and functions provided by the physical layer. A detailed description of Layer 1 general requirements can be found in [4].

5.2.1 L1 Services

The physical layer offers information transfer services to MAC and higher layers. The physical layer transport services are described by *how* and with what characteristics data are transferred over the radio interface. An adequate term for this is 'Transport Channel'.

NOTE: This should be clearly separated from the classification of *what* is transported, which relates to the concept of logical channels. Thus DCH is used to denote that the physical layer offers the same type of service for both control and traffic.

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, used in TDD mode only.

- 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.

5.2.2 L1 Functions

The physical layer performs the following main functions:

- Macrodiversity distribution/combining and soft handover execution;
- Error detection on transport channels and indication to higher layers;
- FEC encoding/decoding and interleaving/deinterleaving of transport channels;
- Multiplexing of transport channels and demultiplexing of coded composite transport channels;
- Rate matching;
- Mapping of coded composite transport channels on physical channels;
- Power weighting and combining of physical channels;
- Modulation and spreading/demodulation and despreading of physical channels;
- Frequency and time (chip, bit, slot, frame) synchronisation;
- Measurements and indication to higher layers (e.g. FER, SIR, interference power, transmit power, etc.);
- Closed-loop power control;
- RF processing;
- Support of timing advance on uplink channels (TDD only);
- Support of Uplink Synchronisation as defined in [12] (TDD only).

5.3 Layer 2 Services and Functions

5.3.1 MAC Services and Functions

This subclause provides an overview on services and functions provided by the MAC sublayer. A detailed description of the MAC protocol is given in [7].

5.3.1.1 MAC Services to upper layers

Data transfer. This service provides unacknowledged transfer of MAC SDUs between peer MAC entities. This
service does not provide any data segmentation. Therefore, segmentation/reassembly function should be
achieved by upper layer.

- **Reallocation of radio resources and MAC parameters**. This service performs on request of RRC execution of radio resource reallocation and change of MAC parameters, i.e. reconfiguration of MAC functions such as change of identity of UE, change of transport format (combination) sets, change of transport channel type. In TDD mode, in addition, the MAC can handle resource allocation autonomously.
- Reporting of measurements. Local measurements such as traffic volume and quality indication are reported to RRC.

5.3.1.1.1 Logical channels

The MAC layer provides data transfer services on logical channels. A set of logical channel types is defined for different kinds of data transfer services as offered by MAC. Each logical channel type is defined by what type of information is transferred.

A general classification of logical channels is into two groups:

- Control Channels (for the transfer of control plane information);
- Traffic Channels (for the transfer of user plane information).

The configuration of logical channel types is depicted in Figure 3.

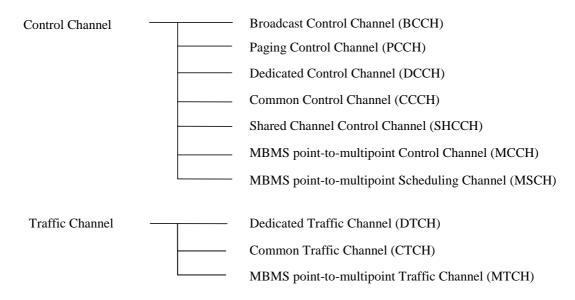


Figure 3: Logical channel structure

Control Channels

Control channels are used for transfer of control plane information only.

Broadcast Control Channel (BCCH)

A downlink channel for broadcasting system control information.

Paging Control Channel (PCCH)

A downlink channel that transfers paging information. This channel is used when the network does not know the location cell of the UE, or, the UE is in the cell connected state (utilising UE sleep mode procedures).

Common Control Channel (CCCH)

Bi-directional channel for transmitting control information between network and UEs. This channel is commonly used by the UEs having no RRC connection with the network and by the UEs using common transport channels when accessing a new cell after cell reselection.

Dedicated Control Channel (DCCH)

A point-to-point bi-directional channel that transmits dedicated control information between a UE and the network. This channel is established through RRC connection setup procedure.

Shared Channel Control Channel (SHCCH)

Bi-directional channel that transmits control information for uplink and downlink shared channels between network and UEs. This channel is for TDD only.

MBMS point-to-multipoint Control Channel (MCCH)

A point-to-multipoint downlink channel used for transmitting control information from the network to the UE. This channel is only used by UEs that receive MBMS.

MBMS point-to-multipoint Scheduling Channel (MSCH)

A point-to-multipoint downlink channel used for transmitting scheduling control information, from the network to the UE, for one or several MTCHs carried on a CCTrCH. This channel is only used by UEs that receive MBMS.

Traffic Channels

Traffic channels are used for the transfer of user plane information only.

Dedicated Traffic Channel (DTCH)

A Dedicated Traffic Channel (DTCH) is a point-to-point channel, dedicated to one UE, for the transfer of user information. A DTCH can exist in both uplink and downlink.

Common Traffic Channel (CTCH)

A point-to-multipoint unidirectional channel for transfer of dedicated user information for all or a group of specified UEs.

MBMS point-to-multipoint Traffic Channel (MTCH)

A point-to-multipoint downlink channel used for transmitting traffic data from the network to the UE. This channel is only used for MBMS.

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 (in TDD mode only);
- 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 (in TDD mode only);
- 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.

8

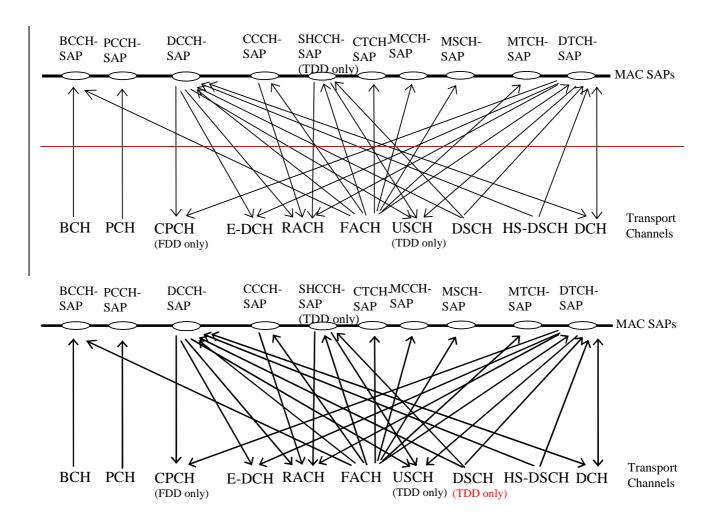


Figure 4: Logical channels mapped onto transport channels, seen from the UE side

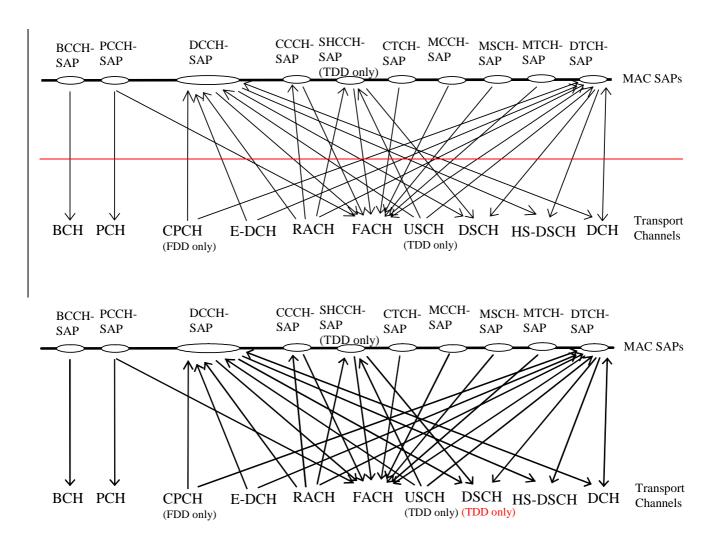


Figure 5: Logical channels mapped onto transport channels, seen from the UTRAN side

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.

5.3.2 RLC Services and Functions

This subclause provides an overview on services and functions provided by the RLC sublayer. A detailed description of the RLC protocol is given in [8].

5.3.2.1 Services provided to the upper layer

- **Transparent data transfer**. This service transmits upper layer PDUs without adding any protocol information, possibly including segmentation/reassembly functionality.
- **Unacknowledged data transfer**. This service transmits upper layer PDUs without guaranteeing delivery to the peer entity. The unacknowledged data transfer mode has the following characteristics:
 - Detection of erroneous data: The RLC sublayer shall deliver only those SDUs to the receiving upper layer that are free of transmission errors by using the sequence-number check function.
 - Immediate delivery: The receiving RLC sublayer entity shall deliver a SDU to the upper layer receiving entity as soon as it arrives at the receiver.
 - Duplication avoidance and reordering: Alternative to immediate delivery, the RLC sublayer shall deliver SDUs to the receiving upper layer entity in the same order as the transmitting upper layer entity submits them to the RLC sublayer without duplication. SDUs may be delayed by this procedure to ensure in-sequence delivery.
 - Out-of-sequence SDU delivery: Alternative to immediate delivery, the RLC sublayer shall deliver SDUs to the upper layer receiving entity as soon as they can be recovered from PDUs, without waiting for earlier insequence SDUs to be recovered.
- Acknowledged data transfer. This service transmits upper layer PDUs and guarantees delivery to the peer entity. In case RLC is unable to deliver the data correctly, the user of RLC at the transmitting side is notified. For this service, both in-sequence and out-of-sequence delivery are supported. In many cases a upper layer protocol can restore the order of its PDUs. As long as the out-of-sequence properties of the lower layer are known and controlled (i.e. the upper layer protocol will not immediately request retransmission of a missing PDU) allowing out-of-sequence delivery can save memory space in the receiving RLC. The acknowledged data transfer mode has the following characteristics:
 - Error-free delivery: Error-free delivery is ensured by means of retransmission. The receiving RLC entity delivers only error-free SDUs to the upper layer.
 - Unique delivery: The RLC sublayer shall deliver each SDU only once to the receiving upper layer using duplication detection function.
 - In-sequence delivery: RLC sublayer shall provide support for in-order delivery of SDUs, i.e., RLC sublayer should deliver SDUs to the receiving upper layer entity in the same order as the transmitting upper layer entity submits them to the RLC sublayer.
 - Out-of-sequence delivery: Alternatively to in-sequence delivery, it shall also be possible to allow that the receiving RLC entity delivers SDUs to upper layer in different order than submitted to RLC sublayer at the transmitting side.
- Maintenance of QoS as defined by upper layers. The retransmission protocol shall be configurable by layer 3 to provide different levels of QoS. This can be controlled.
- **Notification of unrecoverable errors**. RLC notifies the upper layer of errors that cannot be resolved by RLC itself by normal exception handling procedures, e.g. by adjusting the maximum number of retransmissions according to delay requirements.

For AM RLC, there is only one RLC entity per Radio Bearer. For UM and TM RLC, there is one or two (one for each direction) RLC entities per Radio Bearer.

5.3.2.2 RLC Functions

- **Segmentation and reassembly.** This function performs segmentation/reassembly of variable-length upper layer PDUs into/from smaller RLC PDUs. The RLC PDU size is adjustable to the actual set of transport formats.
- Concatenation. If the contents of an RLC SDU cannot be carried by one RLC PDU, the first segment of the next RLC SDU may be put into the RLC PDU in concatenation with the last segment of the previous RLC SDU.
- **Padding.** When concatenation is not applicable and the remaining data to be transmitted does not fill an entire RLC PDU of given size, the remainder of the data field shall be filled with padding bits.

- **Transfer of user data.** This function is used for conveyance of data between users of RLC services. RLC supports acknowledged, unacknowledged and transparent data transfer. QoS setting controls transfer of user data.
- **Error correction.** This function provides error correction by retransmission (e.g. Selective Repeat, Go Back N, or a Stop-and-Wait ARQ) in acknowledged data transfer mode.
- In-sequence delivery of upper layer PDUs. This function preserves the order of upper layer PDUs that were submitted for transfer by RLC using the acknowledged data transfer service. If this function is not used, out-of-sequence delivery is provided.
- **Duplicate Detection.** This function detects duplicated received RLC PDUs and ensures that the resultant upper layer PDU is delivered only once to the upper layer.
- **Flow control**. This function allows an RLC receiver to control the rate at which the peer RLC transmitting entity may send information.
- Sequence number check. This function is used in unacknowledged mode and guarantees the integrity of
 reassembled PDUs and provides a mechanism for the detection of corrupted RLC SDUs through checking
 sequence number in RLC PDUs when they are reassembled into a RLC SDU. A corrupted RLC SDU will be
 discarded.
- **Protocol error detection and recovery**. This function detects and recovers from errors in the operation of the RLC protocol.
- **Ciphering**. This function prevents unauthorised acquisition of data. Ciphering is performed in RLC layer for non-transparent RLC mode. Details of the security architecture are specified in [15].
- SDU discard. This function allows an RLC transmitter to discharge RLC SDU from the buffer.

5.3.3 PDCP Services and Function

This subclause provides an overview on services and functions provided by the Packet Data Convergence Protocol (PDCP). A detailed description of the PDCP is given in [9].

5.3.3.1 PDCP Services provided to upper layers

- PDCP SDU delivery.

5.3.3.2 PDCP Functions

- **Header compression and decompression.** Header compression and decompression of IP data streams (e.g., TCP/IP and RTP/UDP/IP headers) at the transmitting and receiving entity, respectively. The header compression method is specific to the particular network layer, transport layer or upper layer protocol combinations e.g. TCP/IP and RTP/UDP/IP.
- **Transfer of user data.** Transmission of user data means that PDCP receives PDCP SDU from the NAS and forwards it to the RLC layer and vice versa.
- Support for lossless SRNS relocation or lossless DL RLC PDU size change. Maintenance of PDCP sequence
 numbers for radio bearers that are configured to support lossless SRNS relocation or lossless DL RLC PDU size
 change.

5.3.4 Broadcast/Multicast Control - Services and functions

This subclause provides an overview on services and functions provided by the BMC sublayer. A detailed description of the BMC protocol is given in [10].

5.3.4.1 BMC Services

The BMC-SAP provides a broadcast/multicast transmission service in the user plane on the radio interface for common user data in unacknowledged mode.

5.3.4.2 BMC Functions

- Storage of Cell Broadcast Messages.

The BMC stores the Cell Broadcast messages received over the CBC-RNC interface for scheduled transmission.

- Traffic volume monitoring and radio resource request for CBS.

At the UTRAN side, the BMC calculates the required transmission rate for Cell Broadcast Service based on the messages received over the CBC-RNC interface, and requests for appropriate CTCH/FACH resources from RRC.

- Scheduling of BMC messages.

The BMC receives scheduling information together with each Cell Broadcast message over the CBC-RNC-interface. Based on this scheduling information, at the UTRAN side, BMC generates schedule messages and schedules BMC message sequences accordingly. At the UE side, BMC evaluates the schedule messages and indicates scheduling parameters to RRC, which are used by RRC to configure the lower layers for CBS discontinuous reception.

Transmission of BMC messages to UE.

This function transmits the BMC messages (Scheduling and Cell Broadcast messages) according to schedule.

- Delivery of Cell Broadcast messages to upper layer (NAS).

This functions delivers the received Cell Broadcast messages to upper layer (NAS) in the UE. Only non-corrupted Cell Broadcast messages are delivered.

5.3.5 Data flows through Layer 2

Data flows through layer 2 are characterised by the applied data transfer modes on RLC (acknowledged, unacknowledged and transparent transmission) in combination with the data transfer type on MAC, i.e. whether or not a MAC header is required. The case where no MAC header is required is referred to as "transparent" MAC transmission. Acknowledged and unacknowledged RLC transmissions both require a RLC header. In unacknowledged transmission, only one type of unacknowledged data PDU is exchanged between peer RLC entities. In acknowledged transmission, both (acknowledged) data PDUs and control PDUs are exchanged between peer RLC entities.

The resulting different data flow cases are illustrated in Figures 6 - 9. On the level of detail presented here, differences between acknowledged and unacknowledged RLC transmission are not visible. Acknowledged and unacknowledged RLC transmission is shown as one case, referred to as non-transparent RLC.

NOTE: The term "transparent transmission" is used here to characterise the case where a protocol, MAC or RLC, does not require any protocol control information (e.g. header). In transparent transmission mode, however, some protocol functions may still be applied. In this case an entity of the respective protocol must be present even when the protocol is transparent. For the RLC protocol the segmentation/reassembly function may be applied. This can be performed without segmentation header when a given higher layer PDU fits into a fixed number of RLC PDUs to be transferred in a given transmission time interval. In this case segmentation/reassembly follows predefined rules known to sending and receiving RLC entities. For instance in the user plane, the segmentation/reassembly function is needed for the case of real-time services using high and possibly variable bit rates. For such services higher layer PDUs shall be segmented into reasonably sized RLC PDUs of fixed length allowing efficient FCS error detection on the physical layer. The higher layer PDU can be reassembled by simply concatenating all RLC PDUs included in a transport block set as implied by the used transport format.

Figure 6 and Figure 7 illustrate the data flows for transparent RLC with transparent and non-transparent MAC transmission, respectively.

Figure 8 and Figure 9 illustrate the data flows for non-transparent RLC with transparent and non-transparent MAC transmission, respectively.

A number of MAC PDUs shown in the figures shall comprise a transport block set. Note, however, that in all cases a transport block set must not necessarily match with a RLC SDU. The span of a transport block set can be smaller or larger than an RLC SDU.

Each mapping between a logical channel and a transport channel as defined in Figure 4 and Figure 5 in combination with the respective RLC transmission mode implies a certain data flow that is specified on a general level in the following.

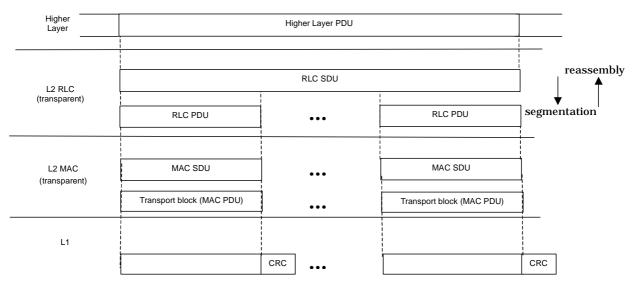


Figure 6: Data flow for transparent RLC and MAC

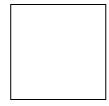


Figure 7: Data flow for transparent RLC and non-transparent MAC

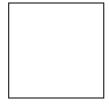


Figure 8: Data flow for non-transparent RLC and transparent MAC

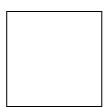


Figure 9: Data flow for non-transparent RLC and MAC

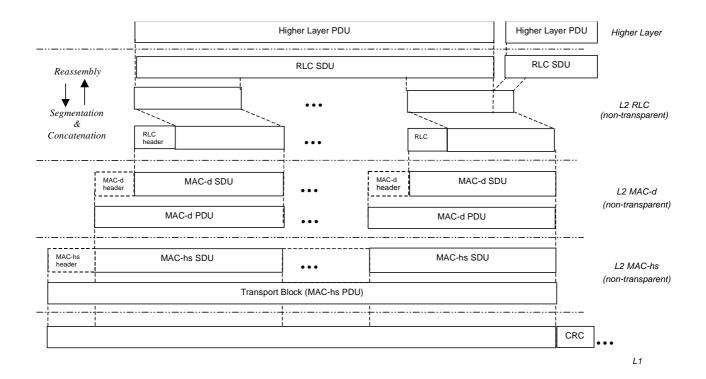


Figure 9a: Data flow for non-transparent RLC and MAC mapped to HS-DSCH

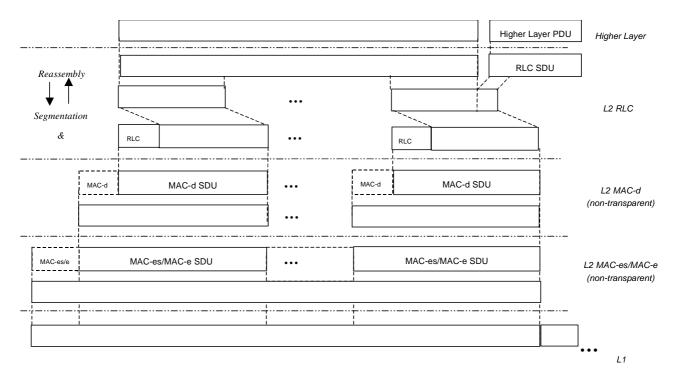


Figure 9b: Data flow for non-transparent RLC and MAC mapped to E-DCH

5.3.5.1 Data flow for BCCH mapped to BCH

All RRC PDUs transmitted on BCCH have a fixed length and fit into one RLC PDU (and, equivalently, MAC PDU, as defined by the transport format). No RLC header is needed, i.e. the transparent data transfer mode of RLC is applied.

No MAC header is needed since only one BCCH logical channel is mapped onto a BCH. Figure 6 is applicable.

5.3.5.2 Data flow for BCCH mapped to FACH

No RLC header is needed, i.e. the transparent data transfer mode of RLC is applied. A MAC header is required for identification of the logical channel carried by the FACH. The data flow shown in Figure 7 is applicable.

5.3.5.3 Data flow for PCCH mapped to PCH

No RLC or MAC header is needed, i.e. the data flow in Figure 6 is applicable.

5.3.5.4 Data flow for CCCH mapped to FACH/RACH

For CCCH, transparent transmission mode on RLC is employed on the uplink (when mapped to RACH). Unacknowledged transmission mode on RLC is employed on the downlink (when mapped to FACH). A MAC header is used for logical channel identification (BCCH, CCCH, CTCH, SHCCH, DCCH, DTCH). If the transparent RLC transfer mode is applied, the data flow Figure 7 is applicable. If the unacknowledged RLC transfer mode is applied, the data flow Figure 9 is applicable.

5.3.5.5 Data flow for SHCCH mapped to USCH

For SHCCH mapped on USCH, transparent transmission mode on RLC is employed. A MAC header may be used for logical channel identification (SHCCH, DCCH, DTCH). When no MAC header is used, SHCCH must be the only channel mapped to USCH/DSCH. Depending on whether the MAC header is needed or not, either the data flow Figure 6 or Figure 7 is applicable.

5.3.5.6 Data flow for SHCCH mapped to FACH/RACH

For SHCCH, transparent transmission mode on RLC is employed on the uplink (when mapped to RACH). Unacknowledged transmission mode on RLC is employed on the downlink (when mapped to FACH). A MAC header may be used for logical channel identification (BCCH, CCCH, CTCH, SHCCH, DCCH, DTCH). When no MAC header is used, SHCCH must be the only channel mapped to RACH/FACH. If the transparent RLC transfer mode is applied, depending on whether the MAC header is needed or not, either the data flow Figure 6 or Figure 7 is applicable. If the unacknowledged RLC transfer mode is applied, depending on whether the MAC header is needed or not, either the data flow Figure 8 or Figure 9 is applicable.

5.3.5.7 Data flow for DCCH mapped to FACH/RACH

For DCCH, both unacknowledged and acknowledged transmission mode on RLC is employed. A MAC header is mandatory for FACH/RACH carrying DCCH. The data flow shown in Figure 9 is applicable.

5.3.5.8 Data flow for DCCH mapped to DSCH

For DCCH, both unacknowledged and acknowledged transmission mode on RLC is employed. A MAC header is mandatory when DCCH is mapped to a DSCH for FDD mode, i.e. the data flow in Figure 9 is applicable. For TDD a MAC header is optional, i.e. either the data flow in Figure 8 or Figure 9 is applicable.

5.3.5.9 Data flow for DCCH mapped to USCH

For DCCH, both unacknowledged and acknowledged transmission mode on RLC is employed. 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.

5.3.5.10 Data flow for DCCH mapped to CPCH

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.

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 <u>HS-</u>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 <u>in TDD</u> 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.

5.4 Layer 3 - Uu Stratum Services and Functions

This subclause provides an overview on Layer 3 services and functions provided by the Uu Stratum as a whole. A detailed description of the RRC protocol is given in [11]. Examples of structured procedures involving RRC in Idle Mode and Connected Mode are described in [5] and [6], respectively.

5.4.1 Uu Stratum services

5.4.1.1 General Control

The GC SAP provides an information broadcast service. This service broadcasts information to all UEs in a certain geographical area. The basic requirements from such service are:

- It should be possible to broadcast non-access stratum information in a certain geographical area.
- The information is transferred on an unacknowledged mode link. Unacknowledged mode means that the delivery of the broadcast information can not be guaranteed (typically no retransmission scheme is used). It seems reasonable to use an unacknowledged mode link since the information is broadcast to a lot of UEs and since broadcast information often is repeated periodically.

- It should be possible to do repeated transmissions of the broadcast information (how it is repeated is controlled by the non-access stratum).
- The point where the UE received the broadcast information should be included, when the access stratum delivers broadcast information to the non-access stratum.

5.4.1.2 Notification

The Nt SAP provides paging and notification broadcast services. The paging service sends information to a specific UE(s). The information is broadcast in a certain geographical area but addressed to a specific UE(s). The basic requirements from such service are:

- It should be possible to broadcast paging information to a number of UEs in a certain geographical area.
- The information is transferred on an unacknowledged mode link. It is assumed that the protocol entities in non-access stratum handle any kind of retransmission of paging information.

The notification broadcast service broadcasts information to all UEs in a certain geographical. The basic requirements from this service are typically the same as for the information broadcast service of the GC SAP:

- It should be possible to broadcast notification information in a certain geographical area.
- The information is transferred on an unacknowledged mode link.

5.4.1.3 Dedicated Control

The DC SAP provides services for establishment/release of a connection and transfer of messages using this connection. It should also be possible to transfer a message during the establishment phase. The basic requirements from the establishment/release services are:

- It should be possible to establish connections (both point and group connections).
- It should be possible to transfer an initial message during the connection establishment phase. This message transfer has the same requirements as the information transfer service.
- It should be possible to release connections.

The information transfer service sends a message using the earlier established connection. According to [1] it is possible to specify the quality of service requirements for each message. A finite number of quality of service classes will be specified in [1], but currently no class has been specified. In order to get an idea of the basic requirements, the CC and MM protocols in GSM are used as a reference. A GSM based core network is chosen since it is one main option for UMTS. Considering the existing GSM specification of CC and MM the basic requirements from the information transfer service provided by the 'Duplication avoidance' function are (these are some of the services provided by the combination of a duplication layer, RR and the data link layer in GSM):

- In-sequence transfer of messages
 Messages are delivered to the NAS on the receiver side exactly in the order they have been submitted by the
 NAS on the sending side, without loss or duplication, except possibly for the loss of last messages in case of
 connection abortion.
- Priority handling
 If SMS messages should be transported through the control plane it should be possible to give higher priority to signalling messages.

The CC and MM protocols also expect other services, which can not be supported by the current primitives of the DC SAP, e.g. indication of radio link failure.

The information transfer service is provided by a combination of the services provided by the data link layer, RNC and the 'Duplication avoidance' function.

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.
- MBMS control. The RRC controls the operation of MBMS point-to-point and point-to-multipoint radio bearers.

5.5 Interactions between RRC and lower layers in the C plane

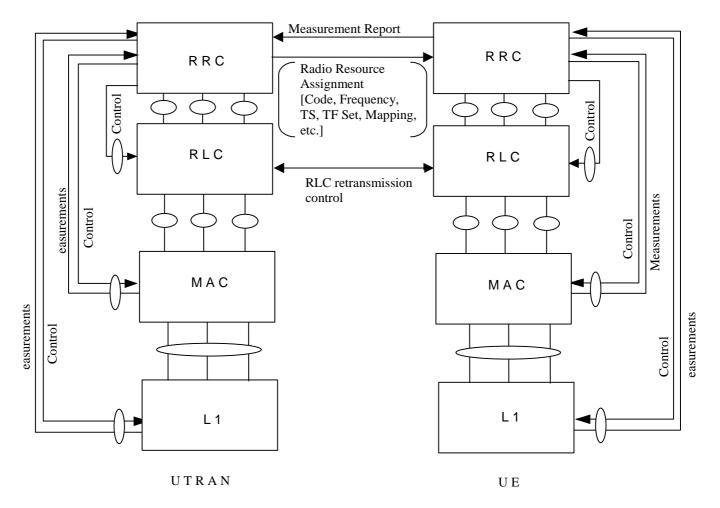


Figure 10: Interactions between RRC and lower layers

The RRC protocol controls and signals the allocation of radio resources to the UE. RRC allows MAC to arbitrate between users and Radio Bearers within the radio resource allocation. The RRC uses the measurements done by the lower layers to determine which radio resources that are available. Therefore it is a need for a measurement report from the UE RRC to the UTRAN RRC. Figure 10 illustrates the principle. The local control and local measurements reporting is handled through the control SAPs between RRC and the lower layers.

5.6 Protocol termination

This subclause specifies in which node of the UTRAN the radio interface protocols are terminated, i.e. where within UTRAN the respective protocol services are accessible. Dashed lines indicate those protocols whose presence is dependent on the service provided to upper layers.

5.6.1 Protocol termination for DCH

Figure 11 and Figure 12 show the protocol termination for DCH for the control and user planes, respectively. The part of physical layer terminating in the Serving RNC is the topmost macro-diversity combining and splitting function for the FDD mode. If no macrodiversity applies, the physical layer is terminated in Node B.

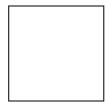


Figure 11: Protocol Termination for DCH, control plane

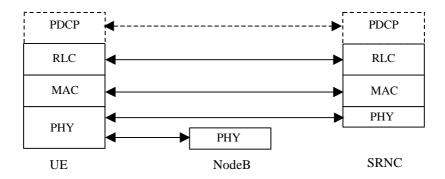


Figure 12: Protocol Termination for DCH, user plane

5.6.2 Protocol termination for RACH/FACH

Figure 13 and Figure 14 show the protocol termination for RACH/FACH for the control and user planes, respectively. Control plane termination refers to the case where RACH/FACH carry dedicated, common or shared control information (i.e. CCCH, DCCH or SHCCH, and in the downlink possibly also BCCH). User plane termination refers to the case where RACH/FACH carry dedicated user data (DTCH) or common user data (CTCH).

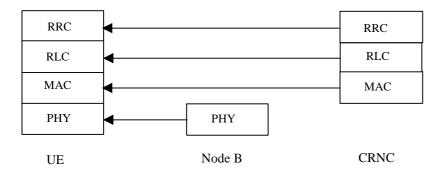
It is assumed that macrodiversity/soft handover is not applied for RACH/FACH. Therefore, the physical layer terminates in Node B. For RACH/FACH carrying DCCH, MAC is split between Controlling and Serving RNC. RLC, and in the C plane also RRC terminate in the Serving RNC. Since Iur can support common channel data streams, the users of that common channel can depend on different SRNCs. However, they depend on the same Controlling RNC. Therefore, for a given user, the Controlling RNC and the Serving RNC can be separate RNCs.

For FACH carrying BCCH, MAC, RLC and RRC are terminated in the CRNC.

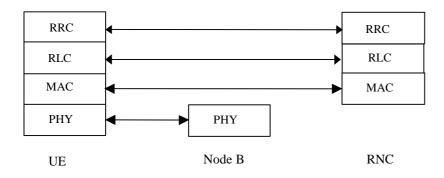
For RACH/FACH carrying SHCCH, MAC, RLC and RRC are terminated in the Controlling RNC (TDD only).

For RACH/FACH carrying CCCH, MAC, RLC and RRC are terminated in the RNC.

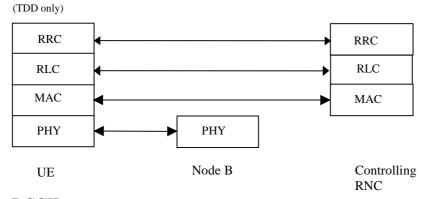
BCCH:



CCCH:



SHCCH:



DCCH:

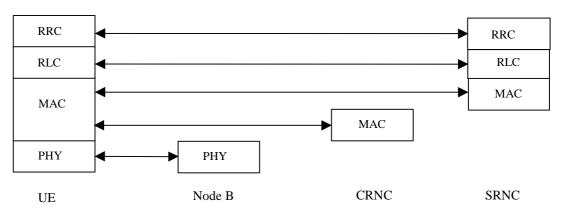
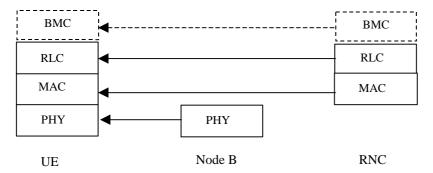


Figure 13: Protocol Termination for RACH/FACH, control plane

CTCH:



DTCH:

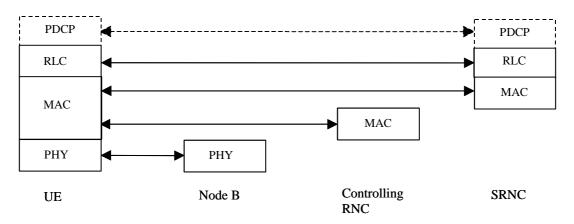


Figure 14: Protocol Termination for RACH/FACH, user plane

5.6.3 Void

5.6.4 Protocol termination for CPCH

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.

5.6.5 Protocol termination for DSCH

5.6.5.1 DSCH definition

<u>The DSCH is only supported for TDD.</u> The DSCH is a resource that exists in downlink only. It has only impact on the physical and transport channel levels, so there is no definition of shared channel in the logical channels provided by MAC.

The DSCH is a transport channel shared dynamically between several UEs. The DSCH is mapped to one or several physical channels such that a specified part of the downlink resources is employed. For the DSCH no macrodiversity is applied, i.e. a specific DSCH is transmitted in a single cell only.

The following two DSCH cases are supported in Release 99, in the following denoted as cases A and B:

 Case A: The DSCH is defined as an extension to DCH transmission. DSCH related resource allocation is signalled utilising the transport format indication field (TFI) that will be mapped to the TFCI of the associated DCH. Case B: The DSCH is defined as a shared downlink channel for which resource allocation is performed by RRC in Controlling RNC. The allocation messages, including UE identification, are transmitted on SHCCH, which is mapped on RACH/FACH. Several DSCH can be multiplexed on a CCTrCH in the physical layer, the transport formats of the DSCHs have to be selected from the transport format combination set of this CCTrCH. Each CCTrCH is mapped on one or more PDSCHs. If the transport format combination subset of a CCTrCH contains more than one transport format combination, a TFCI can be transmitted inside the PDSCH, or blind detection can be applied in the UE. This case is supported for TDD only.

NOTE: Cases A and B of DSCH can be employed concurrently for TDD (at the same time on a single PDSCH).

Interleaving for the DSCH may be applied over a multiplicity of radio frames. Nevertheless, here the basic case is considered where the interleaving is rectangular for a given MAC PDU, and equal to one radio frame (10 ms). The framing is synchronised on the SCH.

In every radio frame, one or several PDSCHs can be used in the downlink. Therefore, the DSCH supports code multiplexing. MAC multiplexing of different UEs shall not be applied within a radio frame, i.e. within one radio frame a PDSCH is assigned to a single UE. However, MAC multiplexing is allowed on a frame by frame basis, i.e. one PDSCH may be allocated to different UEs at each frame.

Transport blocks on the DSCH may be of constant size, so that the Transport Block Set may be derived from the code allocated to each UE on the DSCH. For case B, the transport format combination set can change with each transmission time interval.

5.6.5.2 Resource allocation and UE identification on DSCH

The principles of capacity allocation and UE identification on the DSCH are described in more detail below.

5.6.5.2.1 <u>VoidCase A (UE requires a downlink TFCI on a DPCCH)</u>

The TFCI of the dedicated physical channel may carry the information that a given code of the DSCH must be listened to by the UE. Fast power control can be applied per code based on the dedicated physical control channel, DPCCH.

Alternatively, a UE may be requested on the DCH to listen to a DSCH for a given period of time, and to decode the data so that the address of the destination UE can be decoded. This does not require more TFCI values because signalling is done in layers 2 and 3.

5.6.5.2.2 Case B (UE requires a downlink SHCCH) (TDD only)

The information which physical downlink shared channels to listen to and when, is sent by RRC on the SHCCH logical channel, which is mapped on RACH and USCH/FACH and DSCH. The transmitted Layer 3 messages contain information about the used PDSCHs and the timing of the allocation.

5.6.5.3 Model of DSCH in UTRAN

Figure 15 captures the working assumption on the Downlink Shared Channel (DSCH). The two RLCs point to logical channel (DTCH) specific RLC-entities of specific users while MAC refers to the provision of MAC sublayer functions for all users.

The MAC sublayer of a DSCH is split between the Controlling RNC and SRNC. For a given user, the RLC sublayer is terminated in its SRNC. Since Iur can support DSCH data streams, the users on that DSCH can depend on different SRNCs. For a given user, the Controlling RNC and the Serving RNC can be separate RNCs. The MAC in the network takes care of mapping downlink data either to a common channel (FACH, not shown in this figure), or to a DCH and/or the DSCH.

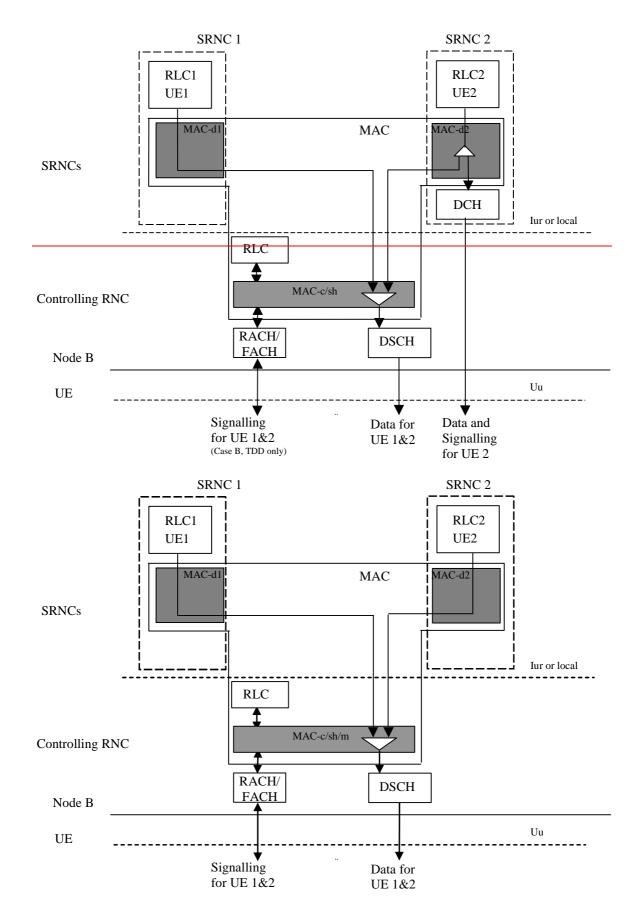


Figure 15: Model of downlink shared channel (DSCH) in UTRAN (TDD only)

5.6.5.4 Protocol termination

The protocol termination points for DSCH in control and user planes are presented in Figure 16 and Figure 17, respectively. The DSCH is for TDD only.

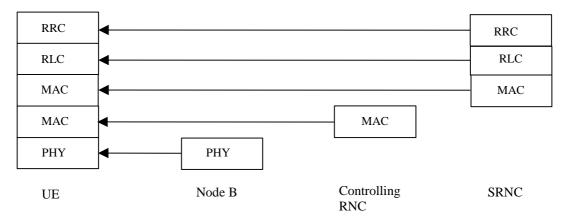


Figure 16: Protocol termination points for DSCH, control plane (TDD only)

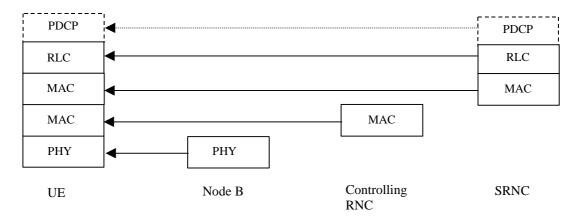


Figure 17: Protocol termination points for DSCH, user plane (TDD only)

5.6.6 Protocol termination for transport channel of type USCH

5.6.6.1 USCH definition

The USCH is only supported for TDD. It is a resource that exists in uplink only. It has only impact on the physical and transport channel levels, so there is no definition of shared channel in the logical channels provided by MAC.

The USCH is a transport channel shared dynamically between several UEs. The USCH is mapped to one or several physical channels such that a specified part of the uplink resources is employed.

The USCH is defined as a shared uplink channel for which resource allocation is performed by RRC in Controlling RNC. The allocation requests and allocation messages, including UE identification, are transmitted on SHCCH, which is mapped on RACH and USCH/FACH and DSCH. Several USCHs can be multiplexed on a CCTrCH in the physical layer, the transport formats of the USCHs have to be selected from the transport format combination set of this CCTrCH. Each CCTrCH is mapped on one or more PUSCHs. If the transport format combination subset of a CCTrCH contains more than one transport format combination, a TFCI can be transmitted inside the PUSCH, or blind detection can be applied in the Node B.

Interleaving for the USCH may be applied over a multiplicity of radio frames.

In every radio frame, one or several PUSCHs can be used in the uplink. Therefore, the USCH supports physical channel multiplexing. MAC multiplexing of different UEs shall not be applied within a radio frame, i.e. within one radio frame

a PUSCH is assigned to a single UE. However, MAC multiplexing is allowed on a frame by frame basis, i.e. one PUSCH may be allocated to different UEs at each frame.

The transport format combination set on the USCH can change with each transmission time interval.

5.6.6.2 Resource allocation and UE identification on USCH

The information which physical uplink shared channels to transmit on and when is sent by RRC on the SHCCH logical channel, which is mapped on RACH and USCH/FACH and DSCH. The transmitted Layer 3 messages contain information about the assigned PUSCHs and the timing of the allocation.

5.6.6.3 Model of USCH in UTRAN

Figure 18 captures the working assumption on the Uplink Shared Channel (USCH). The two RLCs point to logical channel (DTCH) specific RLC-entities of specific users while MAC refers to the provision of MAC sublayer functions for all users.

The MAC sublayer of a USCH is split between the Controlling RNC and SRNC. For a given user, the RLC sublayer is terminated in its SRNC. Since Iur can support USCH data streams, the users on that USCH can depend on different SRNCs. For a given user, the Controlling RNC and the Serving RNC can be separate RNCs. The MAC in the network takes care of mapping uplink data either from a common channel (RACH, not shown in this figure), DCH or the USCH.

Allocations of uplink capacity are requested by the UEs and signalled to the UEs on the SHCCH (Shared channel control channel), which is mapped on RACH and USCH/FACH and DSCH.

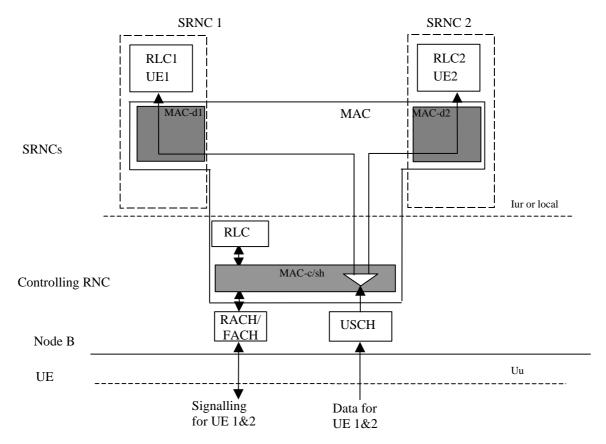


Figure 18: Model of uplink shared channel (USCH) in UTRAN (TDD only)

5.6.6.4 Protocol termination

The protocol termination points for USCH in control and user planes are presented in Figure 19 and Figure 20, respectively. The USCH is for TDD only.

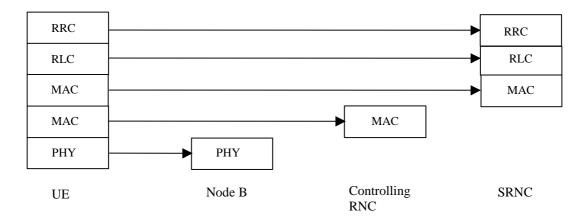


Figure 19: Protocol termination points for USCH, control plane (TDD only)

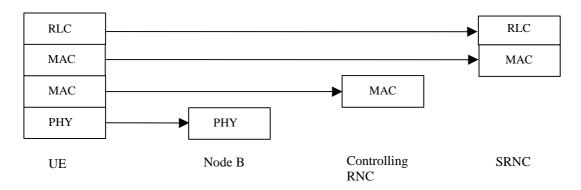


Figure 20: Protocol termination points for USCH, user plane (TDD only)

5.6.7 Protocol termination for transport channel of type BCH

System information on BCH can include information that is available only in Node B, and need to be updated very frequently (each 20-100 ms), such as uplink interference in the cell. Also, for the system information originating from the RNC, it is assumed that the updating of system information is at least one magnitude less (minutes) than the repetition frequency on the BCH (in the order of 1s). The system information originating from the CRNC should be sent transparently to Node B, which then handles the repetition. Protocol termination for the BCH shall therefore be distributed between the Node B and the CRNC, resulting in less signalling on Iub and lower processor load. Note that the RLC sublayer is transparent for this transport channel type.

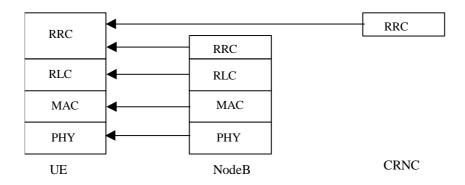


Figure 21: Protocol termination for BCH

5.6.8 Protocol termination for transport channel of type PCH

In order to enable co-ordinated scheduling between PCH and FACH/DSCH the corresponding MAC scheduling functions shall be allocated in the same node. MAC-c/sh is terminated in CRNC. A natural implication is that RLC and RRC also are terminated in CRNC.

Note that the RLC sublayer is transparent for this channel.

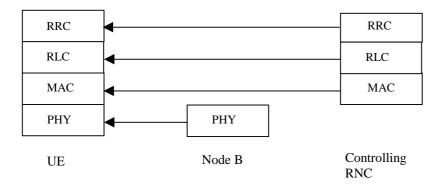


Figure 22: Protocol termination for PCH

5.6.9 Protocol termination for HS-DSCH

5.6.9.1 HS-DSCH definition

The HS-DSCH is a resource that exists in downlink only. It has only impact on the physical and transport channel levels, so there is no definition of shared channel in the logical channels provided by MAC.

The HS-DSCH is a transport channel for which a common pool of radio resources is shared dynamically between several UEs. The HS-DSCH is mapped to one or several physical channels such that a specified part of the downlink resources is employed. For the HS-DSCH no macrodiversity is applied, i.e. a specific HS-DSCH is transmitted in a single cell only.

- The HS-DSCH is defined as an extension to DCH transmission. Physical channel signalling is used for indicating to a UE when it has been scheduled and then the necessary signalling information for the UE to decode the HS-PDSCH.

In every HS-DSCH TTI, one or several HS-PDSCHs can be used in the downlink. Therefore, the HS-DSCH supports code multiplexing. MAC multiplexing of different UEs shall not be applied within an HS-DSCH TTI, i.e. within one HS-DSCH TTI an HS-PDSCH is assigned to a single UE. However, MAC multiplexing is allowed on a TTI by TTI basis, i.e. one HS-PDSCH may be allocated to different UEs at each TTI.

5.6.9.2 Resource allocation and UE identification on HS-DSCH

For each HS-DSCH TTI, each HS-SCCH carries HS-DSCH related downlink signalling for one UE, along with a UE identity (via a UE specific CRC) that identifies the UE for which this information is necessary in order to decode the scheduled HS-PDSCH.

5.6.9.3 Protocol termination

The protocol termination points for HS-DSCH in the control and user planes are presented in figure 5.6.9.3-1 and figure 5.6.9.3-2, respectively. Two configurations exist, a Configuration with MAC-c/sh and a Configuration without MAC-c/sh.

- Configuration with MAC-c/sh: In this case, the MAC-hs in Node B is located below MAC-c/sh in CRNC.

- Configuration without MAC-c/sh: In this case, the CRNC does not have any function for the HS-DSCH. MAC-d in SRNC is located directly above MAC-hs in Node B, i.e. in the HS-DSCH the SRNC is directly connected to the Node B, thus bypassing the DRNC.

Both configurations are transparent to both the UE and Node B. Figures 5.6.9.3-2 and 5.6.9.3-3 show the respective user plane protocol architecture with termination points for the above two configurations.

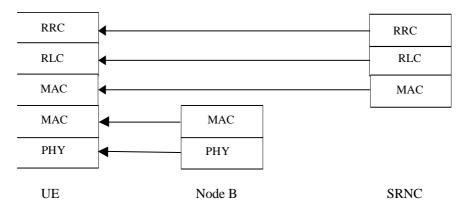


Figure 5.6.9.3-1: Protocol termination points for HS-DSCH, control plane

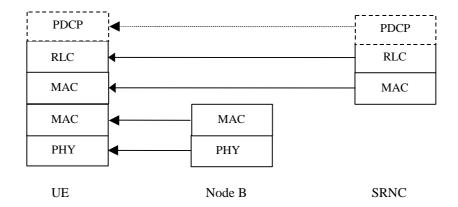


Figure 5.6.9.3-2: Protocol termination points for HS-DSCH, user plane

5.6.10 Protocol termination for E-DCH

5.6.10.1 E-DCH definition

The E-DCH is a resource that exists in uplink only. It has only impact on the physical and transport channel levels, it is not visible in the logical channels provided by MAC.

The E-DCH is a transport channel that is subject to Node-B scheduling. The E-DCH is defined as an extension to DCH transmission.

5.6.10.2 Resource allocation and UE identification related to E-DCH

Physical channel signalling from the Node-B is used for indicating to the UE what amount of uplink resources it is allowed to use. Also the UE sends scheduling requests to the Node-B about the resource needs.

Scheduling information is sent on a common physical channel and a UE identity is used to address the different UEs.

5.6.10.3 Protocol termination

The protocol termination points for E-DCH in the control and user planes are presented in figure 5.6.10.3-1 and figure 5.6.10.3-2, respectively.

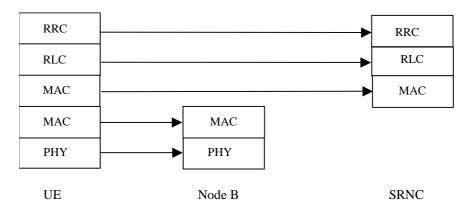


Figure 5.6.10.3-1: Protocol termination points for E-DCH, control plane

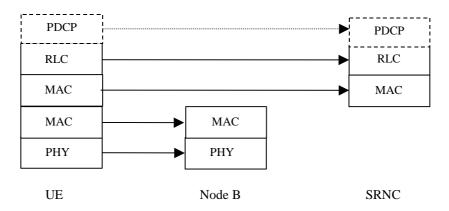


Figure 5.6.10.3-2: Protocol termination points for E-DCH, user plane

5.6.11 Protocol termination for MBMS

5.6.11.1 MBMS definition

The MBMS feature is downlink unidirectional.

MBMS services can be provided in point-to-point and point-to-multipoint. For the point-to-multipoint there exist three logical channels specifically for MBMS: MCCH, MSCH and MTCH.

5.6.11.2 Resource allocation related to MBMS

The radio bearer allocation for the MCCH is indicated in system information on the BCCH. The radio bearer allocations for MSCH and MTCH are indicated on MCCH.

5.6.11.3 Protocol termination

The protocol termination points for MCCH and MSCH in the control plane and MTCH in the user plane are presented in figure 5.6.11.3-1 and figure 5.6.11.3-2, respectively.

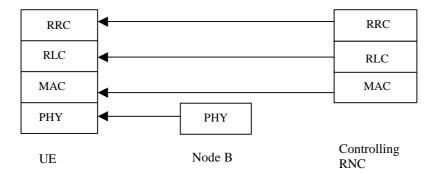


Figure 5.6.11.3-1: Protocol termination points for MCCH and MSCH, control plane

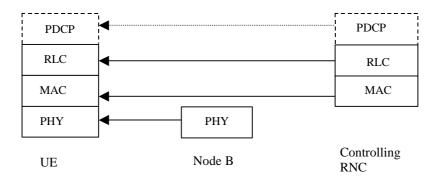


Figure 5.6.11.3-2: Protocol termination points for MTCH, user plane

6 User Identification and RRC Connection Mobility

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-TDD mode, also on DSCH by the MAC protocol RRC, 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 only for TDD 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.

<u>In TDD mode</u>, 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.

<u>In TDD mode</u>, 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).

7 UE modes

Two modes of operation are currently defined for the UE, idle mode and connected mode [5, 6].

After power on, the UE stays in idle mode until it transmits a request to establish an RRC connection. In idle mode the UE is identified by non-access stratum identities such as IMSI, TMSI and P-TMSI. In addition, the UTRAN has no own information about the individual idle mode UEs, and can only address e.g. all UEs in a cell or all UEs monitoring a specific paging occasion.

The connected mode is entered when the RRC connection is established. A RRC connection is established between the UE and a RNC called SRNC. The UE is assigned a radio network temporary identity (U-RNTI and possibly in addition

C-RNTI or-, only for TDD, DSCH-RNTI) to be used as UE identity on common transport channels. RRC connection is within a UTRAN identified with the U-RNTI.

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

Reception of SMS cell broadcast can be done in both idle and connected mode.

3GPP TSG-RAN Working Group 2 #47 Athens, Greece, 9 – 13 May 2005

ж С

Use one of the following categories:

(addition of feature),

(editorial modification)

A (corresponds to a correction in an earlier

(functional modification of feature)

Detailed explanations of the above categories can

F (correction)

be found in 3GPP TR 21.900.

release)

В

D

Category:

Tdoc # R2-051606

Release:

REL-5

2

R96

R97

R98

R99

Rel-4

Rel-5

Rel-6

Use one of the following releases:

(GSM Phase 2)

(Release 1996) (Release 1997)

(Release 1998)

(Release 1999)

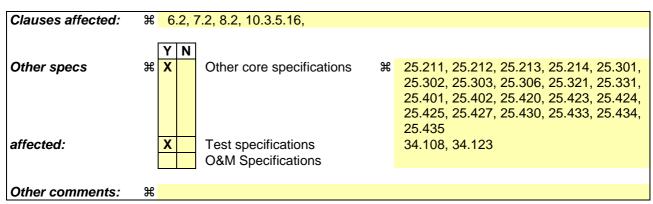
(Release 4)

(Release 5)

(Release 6)

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Proposed char	nge affec	<i>ts:</i> U	ICC ap	ps#	N	мЕ <mark>Х</mark>	Rad	lio A	ccess Network	X Core N	etwork
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Title:	Ж Fea	iture Cl	ean-up	: Remova	al of DS	CH (F	DD)				
Source:	₩ RA	N WG2									
Work item code	e:# TE	5							Date: ₩	10/05/2005	

Reason for change: ₩	Removal of DSCH for FDD						
Summary of change: ₩	Removal of DSCH for FDD						
Consequences if ₩	DSCH for FDD mode will remain specified						
not approved:							



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:

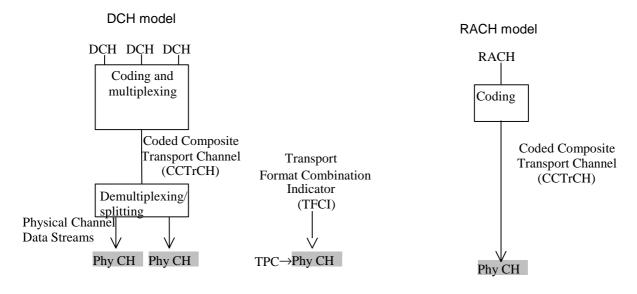
- 1) Fill out the above form. The symbols above marked \(\mathcal{x} \) contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be

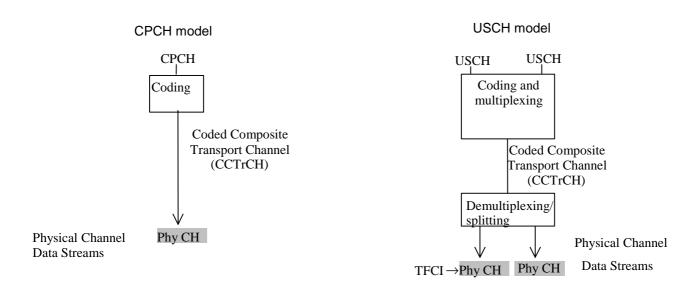
- downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select 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.

6 Model of physical layer of the UE

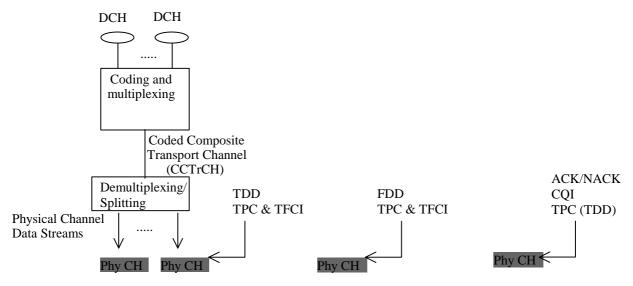
6.1 Uplink models

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 DPCCH. 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.

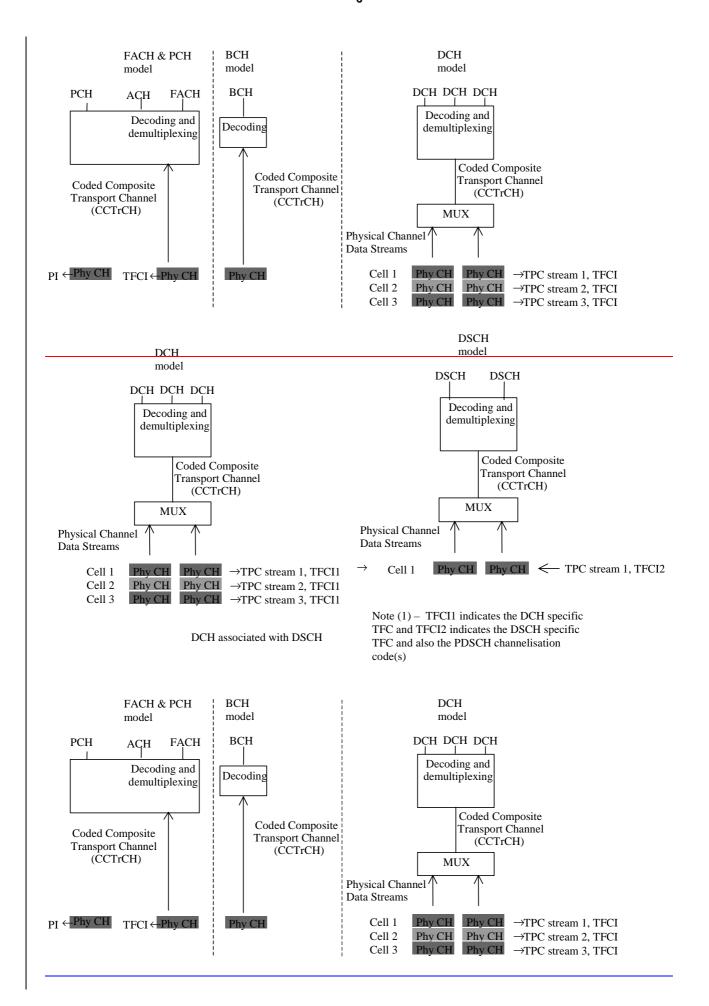
The available pairs of RACH and PRACHs and their parameters are indicated in system information. In FDD mode, the various PRACHs are distinguished either by employing different preamble scrambling codes, or by using a common scrambling code but distinct (non-overlapping) partitions of available signatures 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.

6.2 Downlink models

Figure 3 and figure 4 show the model of the UE's physical layer for the downlink in FDD and TDD mode, respectively. Note that there is a different model for each transport channel type.



DCH model with HS-DSCH(s)

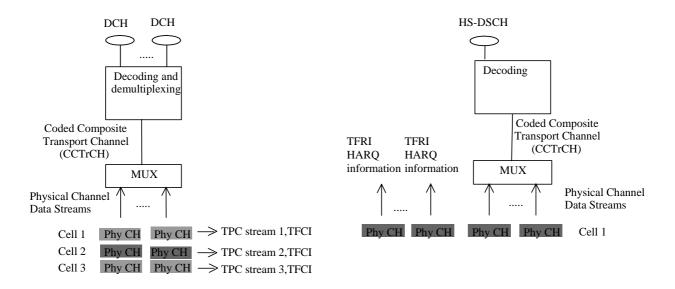
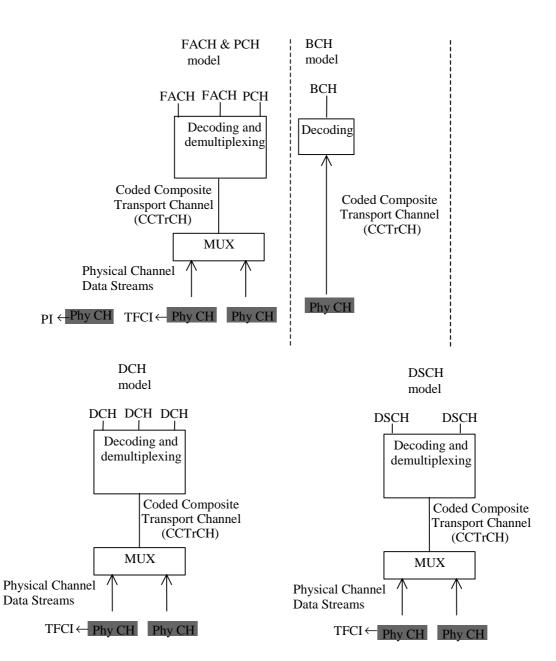
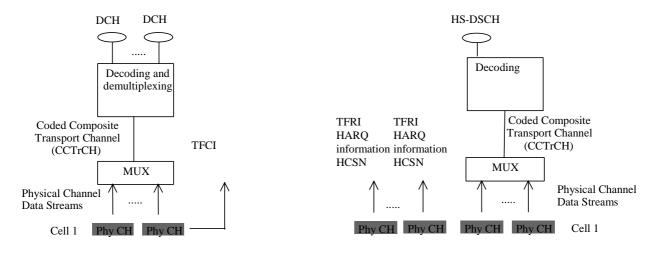


Figure 3: Model of the UE's physical layer - downlink FDD mode



DCH model with HS-DSCH(s) for 3.84 Mcps TDD



DCH model with HS-DSCH(s) for 1.28 Mcps TDD

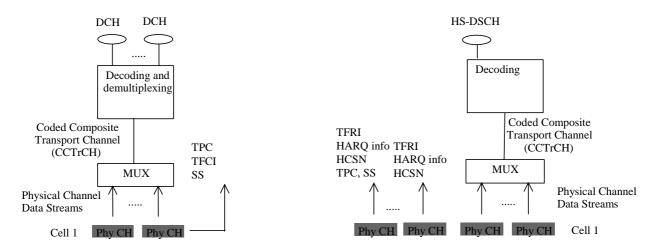


Figure 4: Model of the UE's physical layer - downlink TDD mode

For the DCH case, the mapping between DCHs and physical channel data streams works in the same way as for the uplink. Note however, that the number of DCHs, the coding and multiplexing etc. may be different in uplink and downlink.

In the FDD mode, the differences are mainly due to the soft and softer handover. Further, the pilot, TPC bits and TFCI are time multiplexed onto the same physical channel(s) as the DCHs. Further, the definition of physical channel data stream is somewhat different from the uplink. 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.

Note that it is logically one and the same physical data stream in the active set of cells, even though physically there is one stream for each cell. The same processing and multiplexing is done in each cell. The only difference between the cells is the actual codes, and these codes correspond to the same spreading factor.

The physical channels carrying the same physical channel data stream are combined in the UE receiver, excluding the pilot, and in some cases the TPC bits. TPC bits received on certain physical channels may be combined provided that UTRAN has informed the UE that the TPC information on these channels is identical.

A PCH and one or several FACH can be encoded and multiplexed together forming a CCTrCH. Similarly as in the DCH model there is one TFCI for each CCTrCH for indication of the transport formats used on each PCH and FACH. The PCH is associated with a separate physical channel carrying page indicators (PIs) which are used to trigger UE reception of the physical channel that carries PCH. A FACH or a PCH can also be individually mapped onto a separate physical channel. The BCH is always mapped onto one physical channel without any multiplexing with other transport channels, and there can only be one BCH TrCH and no other TrCH in a BCH CCTrCH.

In the TDD mode a CCTrCh carrying PCH and one or several FACH can be multiplexed onto one or several physical channel data streams.

For each HS-DSCH TTI, each HS-SCCH carries HS-DSCH-related downlink signalling for one UE. The following information is carried on the HS-SCCH:

- Transport Format and Resource Indicator (TFRI);
- Hybrid-ARQ-related Information (HARQ information);
- UE Identity via a UE specific CRC;
- HS-SCCH Cyclic Sequence Number (HCSN) for TDD.

In addition, for the case of 1.28 Mcps TDD, the HS-SCCH also carries Transmit Power Control and Synchronisation Shift symbols.

7 Formats and configurations for L1 data transfer

7.1 General concepts about Transport Channels

Layer 2 is responsible for the mapping of data onto L1 via the L1/L2 interface that is formed by the transport channels. In order to describe how the mapping is performed and how it is controlled, some definitions and terms are required. The required definitions are given in the following subclauses. Note that the definitions are generic for all transport channel types, i.e. not only for DCHs.

All Transport Channels are defined as unidirectional (i.e. uplink or downlink). This means that a UE can have simultaneously (depending on the services and the state of the UE) one or several transport channels in the downlink, and one or more Transport Channel in the uplink.

7.1.1 Transport Block

This is the basic unit exchanged between L1 and MAC, for L1 processing.

Layer 1 adds a CRC for each Transport Block.

7.1.2 Transport Block Set

This is defined as a set of Transport Blocks, which are exchanged between L1 and MAC at the same time instance using the same transport channel.

In case of HS-DSCH the Transport Block Set consists of one Transport Block only.

7.1.3 Transport Block Size

This is defined as the number of bits in a Transport Block. The Transport Block Size is always fixed within a given Transport Block Set, i.e. all Transport Blocks within a Transport Block Set are equally sized.

7.1.4 Transport Block Set Size

This is defined as the number of bits in a Transport Block Set.

7.1.5 Transmission Time Interval

This is defined as the inter-arrival time of Transport Block Sets, and is equal to the periodicity at which a Transport Block Set is transferred by the physical layer on the radio interface. It is always a multiple of the minimum interleaving period (e.g. 10ms, the length of one Radio Frame). The MAC delivers one Transport Block Set to the physical layer every TTI.

Figure 6 shows an example where Transport Block Sets, at certain time instances, are exchanged between MAC and L1 via three parallel transport channels. Each Transport Block Set consists of a number of Transport Blocks. The Transmission Time Interval, i.e. the time between consecutive deliveries of data between MAC and L1, is also illustrated.

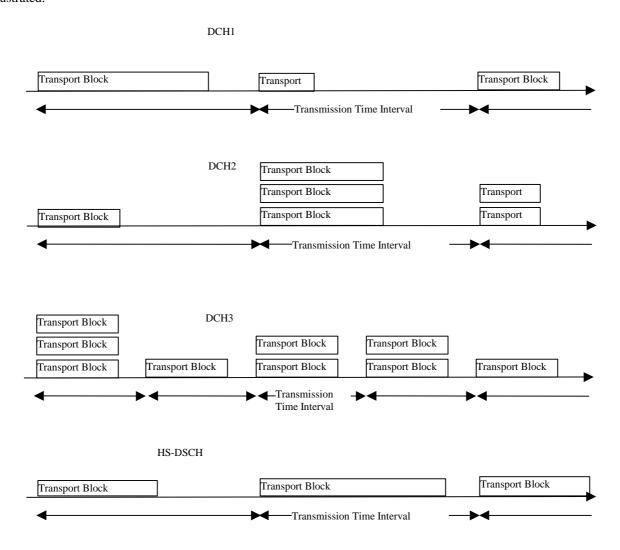


Figure 6: Exchange of data between MAC and L1

7.1.6 Transport Format

This subclause applies to transport channel types other than HS-DSCH.

This is defined as a format offered by L1 to MAC (and vice versa) for the delivery of a Transport Block Set during a Transmission Time Interval on a Transport Channel. The Transport Format constitutes of two parts – one *dynamic* part and one *semi-static* part.

Attributes of the dynamic part are:

- Transport Block Size;
- Transport Block Set Size;
- Transmission Time Interval (optional dynamic attribute for TDD only);

Attributes of the semi-static part are:

- Transmission Time Interval (mandatory for FDD, optional for the dynamic part of TDD NRT bearers);
- error protection scheme to apply:
 - type of error protection, turbo code, convolutional code or no channel coding (TDD only);
 - coding rate
 - static rate matching parameter;
- size of CRC.

In the following example, the Transmission Time Interval is seen as a semi-static part.

EXAMPLE:

Dynamic part: {320 bits, 640 bits}, Semi-static part: {10ms, convolutional coding only, static rate matching parameter = 1}.

An empty Transport Format is defined as a Transport Format that has Block Set Size equal to zero.

For the two realisations of an empty Transport Format, see clause 11.

7.1.6a Transport Format for HS-DSCH

This is defined as a format offered by L1 to MAC (and vice versa) for the delivery of a transport block during a Transmission Time Interval on a Transport Channel. The Transport Format consists of three parts – one *dynamic* part, one *semi-static* part and one *static* part.

The Transport Format for HS-DSCH is always explicitly signalled. There is no support of blind transport format detection.

Attributes of the dynamic part are:

- Transport block size (same as Transport block set size);
- Redundancy version/Constellation;
- Modulation scheme.

Attributes of the semi-static part are:

- no semi-static attributes are defined.

Attributes of the static part are:

- Transmission time interval. The Transmission time interval is fixed to 2ms in FDD, 10ms in 3.84 Mcps TDD and 5ms in 1.28 Mcps TDD.
- error protection scheme to apply:
 - type of error protection is turbo coding;
 - coding rate is 1/3;
 - size of CRC is 24 bits.

7.1.7 Transport Format Set

This is defined as the set of Transport Formats associated to a Transport Channel.

The semi-static parts of all Transport Formats are the same within a Transport Format Set.

Effectively the Transport Block Size and Transport Block Set Size form the instantaneous bit rate on the Transport Channel. Variable bit rate on a Transport Channel may, depending on the type of service, which is mapped onto the transport channel, be achieved by changing between each Transmission Time Interval one of the following:

- 1. the Transport Block Set Size only (not applicable for HS-DSCH);
- 2. both the Transport Block Size and the Transport Block Set Size

Example 1 for DCHs:

- dynamic part: {20 bits, 20 bits}; {40 bits, 40 bits}; {80 bits, 80 bits}; {160 bits, 160 bits}.
- Semi-static part: {10ms, Convolutional coding only, static rate matching parameter = 1}

Example 2 for DCHs:

- dynamic part: {320 bits, 320 bits}; {320 bits, 640 bits}; {320 bits, 1 280 bits}.
- Semi-static part: {10ms, Convolutional coding only, static rate matching parameter = 2}.

Example 3 for HS-DSCH:

- dynamic part: {320 bits, 320 bits, Redundancy version 1, QPSK}; {640, 640, Redundancy version 1, QPSK}; {1280, 1280, Redundancy version 2, 16QAM}.
- static part: See subclause 7.1.6a.

The first example may correspond to a Transport Channel carrying a speech service, requiring blocks delivered on a constant time basis. In the second example, which illustrates the situation where a non-real time service is carried by the Transport Channel, the number of blocks delivered per Transmission Time Interval varies between the different Transport Formats within the Transport Format Set. Referring to figure 6, the Transport Block Size is varied on DCH1 and DCH2. That is, a Transport Format Set where the dynamic part has a variable Transport Block Size has been assigned for DCH1. On DCH3 it is instead only the Transport Block Set Size that is varied. That is, the dynamic parts of the corresponding Transport Format Sets only include variable Transport Block Set Sizes.

7.1.8 Transport Format Combination

The layer 1 multiplexes one or several Transport Channels, and for each Transport Channel, there exists a list of transport formats (Transport Format Set) which are applicable. Nevertheless, at a given point of time, not all combinations may be submitted to layer 1 but only a subset, the Transport Format Combination. This is defined as an authorised combination of the combination of currently valid Transport Formats that can be submitted simultaneously to the layer 1 for transmission on a Coded Composite Transport Channel of a UE, i.e. containing one Transport Format from each Transport Channel.

EXAMPLE:

DCH1:

Dynamic part: {20 bits, 20 bits}, Semi-static part: {10ms, Convolutional coding only, static rate matching parameter = 2};

DCH2:

Dynamic part: {320 bits, 1 280 bits}, Semi-static part: {10ms, Convolutional coding only, static rate matching parameter = 3};

DCH3

Dynamic part: {320 bits, 320 bits}, Semi-static part: {40ms, Turbo coding, static rate matching parameter = 2}.

An empty Transport Format Combination is defined as a Transport Format Combination that is only made up of empty Transport Formats.

7.1.9 Transport Format Combination Set

This is defined as a set of Transport Format Combinations on a Coded Composite Transport Channel.

EXAMPLE for DCHs:

- dynamic part:
 - combination 1: DCH1: {20 bits, 20 bits}, DCH2: {320 bits, 1280 bits}, DCH3: {320 bits, 320 bits};
 - combination 2: DCH1: {40 bits, 40 bits}, DCH2: {320 bits, 1280 bits}, DCH3: {320 bits, 320 bits};
 - combination 3: DCH1: {160 bits, 160 bits}, DCH2: {320 bits, 320 bits}, DCH3: {320 bits, 320 bits}
- semi-static part:
 - DCH1: {10ms, Convolutional coding only, static rate matching parameter = 1};
 - DCH2: {10ms, Convolutional coding only, static rate matching parameter = 1};
 - DCH3: {40ms, Turbo coding, static rate matching parameter = 2}.

The Transport Format Combination Set is what is given to MAC for control. However, the assignment of the Transport Format Combination Set is done by L3. When mapping data onto L1, MAC chooses between the different Transport Format Combinations given in the Transport Format Combination Set. Since it is only the dynamic part that differ between the Transport format Combinations, it is in fact only the dynamic part that MAC has any control over.

The semi-static part, together with the target value for the L1 closed loop power control, correspond to the service attributes:

- quality (e.g. BER);
- transfer delay.

These service attributes are then offered by L1. However, it is L3 that guarantees that the L1 services are fulfilled since it is in charge of controlling the L1 configuration, i.e. the setting of the semi-static part of the Transport Formats. Furthermore, L3 controls the target for the L1 closed loop power control through the outer loop power control (which actually is a quality control rather than a power control).

Note that a Transport Format Combination Set need not contain all possible Transport Format Combinations that can be formed by Transport Format Sets of the corresponding Transport Channels. It is only the allowed combinations that are included. Thereby a maximum total bit rate of all transport channels of a Code Composite Transport Channel can be set appropriately. That can be achieved by only allowing Transport Format Combinations for which the included Transport Formats (one for each Transport Channel) do not correspond to high bit rates simultaneously.

The selection of Transport Format Combinations can be seen as a fast part of the radio resource control. The dedication of these fast parts of the radio resource control to MAC, close to L1, means that the flexible variable rate scheme provided by L1 can be fully utilised. These parts of the radio resource control should be distinguished from the slower parts, which are handled by L3. Thereby the bit rate can be changed very fast, without any need for L3 signalling.

7.1.10 Transport Format Indicator (TFI)

The TFI is a label for a specific transport format within a transport format set. It is used in the inter-layer communication between MAC and L1 each time a transport block set is exchanged between the two layers on a transport channel.

When the DSCH is associated with a DCH, the TFI of the DSCH also indicates the physical channel (i.e. the channelisation code) of the DSCH that has to be listened to by the UE.

7.1.11 Transport Format Combination Indicator (TFCI)

This is a representation of the current Transport Format Combination.

There is a one-to-one correspondence between a certain value of the TFCI and a certain Transport Format Combination. The TFCI is used in order to inform the receiving side of the currently valid Transport Format Combination, and hence how to decode, de-multiplex and deliver the received data on the appropriate Transport Channels. The TFCI is not used for the HS-DSCH.

MAC indicates the TFI to Layer 1 at each delivery of Transport Block Sets on each Transport Channel. Layer 1 then builds the TFCI from the TFIs of all parallel transport channels of the UE, processes the Transport Blocks appropriately and appends the TFCI to the physical control signalling. Through the detection of the TFCI the receiving side is able to identify the Transport Format Combination. For FDD, in case of limited Transport Format Combination Sets the TFCI signalling may be omitted, instead relying on blind detection. Nevertheless, from the assigned Transport Format Combinations, the receiving side has all information it needs in order to decode the information and transfer it to MAC on the appropriate Transport Channels.

The multiplexing and exact rate matching patterns follow predefined rules and may therefore be derived (given the Transport Format Combinations) by transmitter and receiver without signalling over the radio interface.

When the meaning of the TFCI field needs to be reconfigured, two procedures can be used depending on the level of reconfiguration:

- complete reconfiguration of TFCI: in this procedure all TFCI values are reinitialised and new values are
 defined instead. The complete reconfiguration requires an explicit synchronisation between the UE and UTRAN
 regarding when the reconfiguration becomes valid.
- **incremental reconfiguration of TFCI:** in this procedures, a part of the TFCI values before and after the reconfiguration remain identical (note that this must be true for at least a TFCI that carry the signalling connection). This procedure supports addition, removal or redefinition of TFCI values. This procedure does not require an explicit execution time. This procedure may imply the loss of some user-plane data.

7.1.12 Rate matching

Two levels of rate matching are defined on the radio interface:

- a static rate matching per Transport Channel. The static rate matching is part of the semi-static attributes of the Transport Channel. Static rate matching is not applicable to HS-DSCH;
- a dynamic rate matching per CCTrCH. The dynamic rate matching adjusts the size of the physical layer data payload to the physical channel as requested by RRC.

The static rate matching and the dynamic rate matching to be applied by the physical layer are indicated by RRC to the physical layer.

In FDD, RRC is also responsible for configuring the physical layer on whether:

- Blind Rate Detection or TFCI is used;
- dynamic rate matching is applied or not on the downlink.

7.1.13 HARQ information

Hybrid ARQ is defined for HS-DSCH. With the help of the HARQ information the UE is enabled to identify the process being used for the transport block that is received on the HS-DSCH. The HARQ information also includes information that indicates whether a new data block is transmitted for the first time or a retransmission. Furthermore it is used to decode the received data correctly.

7.1.14 Transport Format and Resource Indication (TFRI)

The TFRI includes information about the dynamic part of the HS-DSCH transport format, including transport block set size and modulation scheme. The TFRI also includes information about the set of physical channels (channelisation codes) onto which HS-DSCH is mapped in the corresponding HS-DSCH TTI.

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:
 - used in TDD only;
 - 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).

7.3 Compressed Mode

Compressed Mode is defined as the mechanism whereby certain idle periods are created in radio frames so that the UE can perform measurements during these periods (more details can be found in [3]).

Compressed Mode is obtained by layer 2 using transport channels provided by the layer 1 as follows:

- compressed mode is controlled by the RRC layer, which configures the layer 2 and the physical layer;
- the number of occurrences of compressed frames is controlled by RRC, and can be modified by RRC signalling;

- it is under the responsibility of the layer 2 if necessary and if possible to either buffer some layer 2 PDUs (typically at the RLC layer for NRT services) or to rate-adapt the data flow (similarly to GSM) so that there is no loss of data because of compressed mode. This will be service dependent and controlled by the RRC layer.

For measurements in compressed mode, a transmission gap pattern sequence is defined. A transmission gap pattern sequence consists of alternating transmission gap patterns 1 and 2, and each of these patterns in turn consists of one or two transmission gaps. The transmission gap pattern structure, position and repetition are defined with physical channel parameters described in [6]. In addition, the UTRAN configures compressed mode pattern sequences with the following parameters:

- **TGMP:** Transmission Gap pattern sequence Measurement Purpose: This parameter defines the purpose this transmission gap pattern sequence is intended for. The following values are used:
 - for TDD measurements, one compressed mode pattern sequence can be configured with purpose 'TDD measurement',
 - for FDD measurements, one compressed mode pattern sequence can be configured with purpose 'FDD measurement',
 - for GSM measurements, three simultaneous compressed mode pattern sequences can be configured with purposes 'GSM carrier RSSI measurement', 'Initial BSIC identification' and 'BSIC re-confirmation',
- **TGPSI:** Transmission Gap Pattern Sequence Identifier selects the compressed mode pattern sequence for which the parameters are to be set. The range of TGPSI is [1 to <MaxTGPS>].

The UE shall support a total number of simultaneous compressed mode pattern sequences, which is determined by the UE's capability to support each of the measurement types categorised by the TGMP. For example, a UE supporting FDD and GSM shall support four simultaneous compressed mode pattern sequences and a UE supporting FDD and TDD shall support two simultaneous compressed mode pattern sequences.

When using simultaneous pattern sequences, it is the responsibility of the NW to ensure that the compressed mode gaps do not overlap and are not scheduled to overlap the same frame. Gaps exceeding the maximum gap length shall not be processed by the UE and shall interpreted as a faulty message. If the UE detects overlapping gaps, it shall process the gap from the pattern sequence having the lowest TGPSI.

8 UE Simultaneous Physical Channels combinations

This clause describes the requirements from the UE to send and receive on multiple Transport Channels, which are mapped on different physical channels simultaneously depending on the service capabilities and requirements. The clause will describe the impacts on the support for multiple services (e.g. speech call and SMS-CB) depending on the UE capabilities.

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	СРСН	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	Transport Channel	Mandatory dependent on UE radio access	Comment
1	Combination PCCPCH	Combination BCH	capabilities 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 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.
10	One or more PDSCH + DPCCH + one or more DPDCH	One or more 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.
11	SCCPCH + DPCCH + one or more DPDCH	One or more FACH + 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. 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 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. 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 CCTrCH	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 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. 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.

8.3 TDD Uplink

8.3.1 3.84 Mcps TDD Uplink

The table addresses the possible combinations of 3.84 Mcps TDD physical channels that can be supported in the uplink by one UE simultaneously on the same frequency in any one 10ms frame. In 3.84 Mcps TDD a physical channel corresponds to one code, one timeslot and one frequency.

Table 3: 3.84 Mcps TDD Uplink

	Physical Channel Combination	Transport Channel Combination	Mandatory or dependent on UE radio access capabilities	Comment
1	PRACH	RACH	Mandatory	
2	DPCH	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. This combination is used as reference measurement channel.
3	One or more than one DPCH	One or more DCH coded into one or more 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.
4	PRACH + one or more DPCH	RACH + one or more DCH coded into one or more 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. This combination may be used for shared channel operation only. At least the usage of two timeslots is required.
5	One or more PUSCH	One or more USCH coded onto one or more CCTrCH	Depending on UE radio access capabilities	This combination is used for shared channel operation.
6	PRACH + one or more PUSCH	RACH + One or more USCH coded onto one or more CCTrCH	Depending on UE radio access capabilities	This combination may be used for shared channel operation only. At least the usage of two timeslots is required.
7	One or more PUSCH + one or more DPCH	One or more USCH coded onto one or more CCTrCH + one or more DCH coded into one or more 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. This combination may be used for shared channel operation.
8	PRACH + one or more PUSCH + one or more DPCH	RACH + one or more USCH coded onto one or more CCTrCH + one or more DCH coded into one or more 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. This combination may be used for shared channel operation. At least the usage of two timeslots is required.
9	One or more DPCH + HS-SICH	One or more DCH coded into one or more CCTrCH	Depending on UE radio access capabilities	

8.3.2 1.28 Mcps TDD Uplink

The table addresses the possible combinations of 1.28 Mcps TDD physical channels that can be supported in the uplink by one UE simultaneously on the same frequency in the TDD 1.28 Mcps option in any one 5 ms subframe. In 1.28 Mcps TDD a physical channel corresponds to one code, one timeslot, one frequency.

Table 4: 1.28 Mcps TDD Uplink

	Physical Channel Combination	Transport Channel Combination	Mandatory or dependent on UE radio access capabilities	Comment
1	UpPCH	N/A	Mandatory	UpPCH is used to establish the uplink synchronisation.
2	PRACH	RACH	Mandatory	
3	UpPCH + One DPCH	One or more DCH coded into a single CCTrCH	Mandatory	One DPCH is needed as reference measurement channel. UpPCH transmission to target cell in case of handover.
4	One DPCH	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 This combination is required for the reference measurement channel.
5	More than one DPCH	One or more DCH coded into one or more CCTrCH	Depending on UE radio access capabilities	The maximum number of DCHs, the maximum number of CCTrCH and the maximum channel bit rate are dependent on UE radio access capabilities.
6	UpPCH+ one or more DPCH	One or more DCH coded into one or more CCTrCH	Depending on UE radio access capabilities	The maximum number of DCHs, the maximum number of CCTrCH and the maximum channel bit rate are dependent on UE radio access capabilities. This configuration is required for UE that operate shared channels and dedicated channels simultaneously.
7	PRACH + one or more DPCHs	RACH + one or more DCH coded into one or more than one CCTrCH	Depending on UE radio access capabilities	The maximum number of DCHs, the maximum number of CCTrCH and the maximum channel bit rate are dependent on UE radio access capabilities. This configuration is required for UE that operate shared channels and dedicated channels simultaneously.
8	One or more PUSCH	One or more USCH coded onto one or more CCTrCH	Depending on UE radio access capabilities	This configuration is required for UE that operate shared channels.
9	UpPCH + one or more PUSCH	One or more USCH coded onto one or more CCTrCH	Depending on UE radio access capabilities	This combination may be used for shared channel operation only.
10	PRACH + one or more PUSCH	RACH + One or more USCH coded onto one or more CCTrCH	Depending on UE radio access capabilities	This combination may be used for shared channel operation only
11	One or more PUSCH + one or more DPCH	One or more USCH coded onto one or more CCTrCH + one or more DCH coded onto one or more 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. This configuration is required for UE that operate shared channels and dedicated channels simultaneously

	Physical Channel Combination	Transport Channel Combination	Mandatory or dependent on UE radio access capabilities	Comment
12	UpPCH + one or more PUSCH + one or more DPCH	One or more USCH coded onto one or more CCTrCH + one or more DCH coded into one or more 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. This combination may be used for shared channel operation.
13	PRACH + one or more PUSCH + one or more DPCH	RACH + one or more USCH coded onto one or more CCTrCH + one or more DCH coded into one or more 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. This combination may be used for shared channel operation.
14	One or more DPCH + HS- SICH	One or more DCH coded into one or more CCTrCH	Depending on UE radio access capabilities	

8.4 TDD Downlink

8.4.1 3.84 Mcps TDD Downlink

The table describes the possible combinations of 3.84 Mcps TDD physical channels that can be supported in the downlink by one UE simultaneously on the same frequency in any one 10ms frame, where a 3.84 Mcps TDD physical channel corresponds to one code, one timeslot and one frequency.

Depending on UE radio capabilities UEs may be required to decode occasionally P-CCPCH of its own cell in the following Physical Channel Combinations to maintain open loop power control and/or acquire parameters for RACH access: 4, 6, 7, 8, 9, 10, 11, 12, 13.

Depending on UE radio capabilities UEs may be required to decode occasionally one P-CCPCH of neighbour cells in the following Physical Channel Combinations for handover: 6, 8, 11, 12, 13.

Table 5: 3.84 Mcps TDD Downlink

	Physical Channel	Transport Channel	Mandatory or	Comment
	Combination	Combination	dependent on UE radio access capabilities	
1	P-CCPCH + One S-CCPCH	BCH and PCH and/or one or more FACH	Mandatory	
2	P-CCPCH	BCH	Mandatory	
3	S-CCPCH	FACH or/and PCH	Mandatory	
4	More than one S-CCPCH	one or more FACH+ one or more PCH	Depending on UE capabilities	
5	PICH	N/A	Mandatory	
6	Three or more DPCH	One or more DCH coded into one or more 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.
7	One or two DPCH	One or more DCH coded into a single CCTrCH	Mandatory	This combination is used for reference measurement channel.
8	One or more S-CCPCH + one or more DPCH	PCH and/or one or more FACH + one or more DCH coded into one or more CCTrCH	Depending on UE radio access capabilities	The number of DCHs and the maximum channel bit rate are dependent on the UE radio access capabilities. This combination is used for shared channel operation only.
9	One or more PDSCH	One or more DSCH coded onto one or more CCTrCH	Depending on UE radio access capabilities	This combination is used for shared channel operation.
10	One or more PDSCH + one or more S-CCPCH	PCH and/or one or more FACH + one or more DSCH coded onto one or more CCTrCH	Depending on UE radio access capabilities	This combination is used for shared channel operation.
11	One or more PDSCH + one or more DPCH	One or more DSCH coded onto one or more CCTrCH + one or more DCH coded into one or more 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. This combination is used for shared channel operation.

	Physical Channel Combination	Transport Channel Combination	Mandatory or dependent on UE radio access capabilities	Comment
12	One or more PDSCH + one or more S-CCPCH + one or more DPCH	PCH and/or one or more FACH + one or more DSCH coded onto one or more CCTrCH + one or more DCH coded into one or more 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. This combination is used for shared channel operation.
13	One or more DPCH + zero, one or more HS- PDSCH + one or more HS-SCCH	One or more DCH coded into one or more CCTrCH + one or more HS-DSCH coded into one CCTrCH	Depending on UE radio access capabilities	
NOT	E: Reference: [12	2].		

8.4.2 1.28 Mcps TDD Downlink

The table addresses the possible combinations of 1.28 Mcps TDD physical channels that can be supported in the downlink by one UE simultaneously on the same frequency in any one 5ms subframe. In 1.28 Mcps TDD a physical channel corresponds to one code, one timeslot, one frequency.

Depending on UE radio capabilities UEs may be required to decode occasionally P-CCPCH of its own cell in the following Physical Channel Combinations: 5, 11, 12, 13, 14, 15, 16, 17, 18.

To support handover it depends on UE capabilities if a UE can support the occasional decoding of neighbour cell P-CCPCH in the physical channel combinations 8, 9, 10, 11, 15,16, 17, 18.

Table 6: 1.28 Mcps TDD Downlink

	Physical Channel Combination	Transport Channel Combination	Mandatory or dependent on UE radio access capabilities	Comment
1	FPACH	N/A	Mandatory	FPACH is used to answer the UE and to adjust the timing and synchronization shift of the UE
2	P-CCPCH	BCH	Mandatory	
3	S-CCPCH	FACH or/and PCH	Mandatory	
4	P-CCPCH +S-CCPCH	BCH + (FACH or/and PCH)	Mandatory	
5	More than one S-CCPCH	one or more FACH+ one or more PCH	Depending on UE capabilities	
6	PICH	N/A	Mandatory	
7	FPACH + P- CCPCH + none, one or more S- CCPCH	BCH + (none, one or more FACH+ none, one or more PCH)	Depending on UE capabilities	
8	2 DPCH	One or more DCH coded into a single CCTrCH	Mandatory	The maximum number of DCH and the maximum channel bit rate are dependent on UE radio access capabilities This channel is used as reference measurement channel
9	One or more DPCH	One or more DCH coded into one or more CCTrCH	Depending on UE radio access capabilities	The maximum number of DCHs, the maximum number of CCTrCH and the maximum channel bit rate are dependent on UE radio access capabilities.

	Physical Channel Combination	Transport Channel Combination	Mandatory or dependent on UE radio access capabilities	Comment
10	FPACH + one or more DPCH	One or more DCH coded into one or more CCTrCH	Depending on UE radio access capabilities	FPACH is used to answer the UE and to adjust the timing and synchronization shift of the UE.
				The maximum number of DCHs, the maximum number of CCTrCH and the maximum channel bit rate are dependent on UE radio access capabilities.
				This configuration is required for UE that operate shared channels and dedicated channels simultaneously.
11	One or more S- CCPCH + one or more DPCH	(One or more FACH or/and PCH) + one or more DCH coded into one or more CCTrCH	Depending on UE radio access capabilities	The maximum number of DCHs, the maximum number of CCTrCH and the maximum channel bit rate are dependent on UE radio access capabilities. This configuration is required for UE that operate shared channels and dedicated channels simultaneously.
12	One or more PDSCH	One or more DSCH coded onto one or more CCTrCH	Depending on UE radio access capabilities	This configuration is required for UE that operate shared channels.
13	FPACH + one or more PDSCH	One or more DSCH coded onto one or more CCTrCH	Depending on UE radio access capabilities	This configuration is desirable but not essential for UE supporting shared channels.
14	One or more S- CCPCH +one or more PDSCH	(One or more FACH and/or PCH) + One or more DSCH coded onto one or more CCTrCH	Depending on UE radio access capabilities	This configuration is desirable but not essential for UE supporting shared channels.
15	One or more PDSCH + one or more DPCH	One or more DSCH coded onto one or more CCTrCH + one or more DCH coded into one or more CCTrCH	Depending on UE radio access capabilities	This configuration is required for UE that operate shared channels and dedicated channels simultaneously.
16	FPACH + one or more PDSCH + one or more DPCH	one or more DSCH coded onto one or more CCTrCH + one or more DCH coded into one or more CCTrCH	Depending on UE radio access capabilities.	FPACH is used to answer the UE and to adjust the timing and synchronization shift of the UE. This configuration is desirable but not essential for UE supporting shared channels and dedicated channels simultaneously.
17	One or more S- CCPCH + one or more PDSCH + one or more DPCH	(One or more FACH and/or PCH) + one or more DSCH coded onto one or more CCTrCH + one or more DCH coded into one or more CCTrCH	Depending on UE radio access capabilities.	This configuration is desirable but not essential for UE supporting shared channels and dedicated channels simultaneously.
18	One or more DPCH + zero, one or more HS- PDSCH + one or more HS-SCCH	One or more DCH coded into one or more CCTrCH + one or more HS-DSCH coded into one CCTrCH	Depending on UE radio access capabilities	

9 Measurements provided by the physical layer

One of the key services provided by the physical layer is the measurement of various quantities, which are used to trigger or perform a multitude of functions. Both the UE and the UTRAN are required to perform a variety of measurements. The standard will not specify the method to perform these measurements or stipulate that the list of measurements provided in this clause must all be performed. While some of the measurements are critical to the functioning of the network and are mandatory for delivering the basic functionality (e.g., handover measurements, power control measurements), others may be used by the network operators in optimising the network (e.g., radio environment).

Measurements may be made periodically and reported to the upper layers or may be event-triggered (e.g., primary CCPCH becomes better than the previous best primary CCPCH). Another reporting strategy may combine the event triggered and the periodical approach (e.g. falling of link quality below a certain threshold initiates periodical reporting). The measurements are tightly coupled with the service primitives in that the primitives' parameters may constitute some of the measurements.

The list and frequency of measurements, which the physical layer reports to higher layers, is described in this clause. The detailed definition of measurement control and abilities is contained in [6] for FDD and [11] for TDD. The measurement performance requirements together with accuracy, range and mapping is specified in [9] for TDD and in [10] for FDD.

The measurement quantities measured by the physical layer shall be such that the following principles are applied:

- for handover measurements, the decoding of parameters on the BCCH logical channel of monitored neighbouring cells, should not, in general, be needed for calculating the measurement result. If there is a need to adjust the measurement result with parameters broadcast on the PCCPCH, these parameters shall be provided by the UTRAN in inband measurement control messages. There may be some exceptions to this rule;

EXAMPLE:

It may be necessary to decode the SFN of the measured neighbouring cell for time difference measurements.

in idle mode or in RRC connected mode using common Transport Channels, the UE shall be able to monitor
cells for cell reselection, without being required to frequently decode parameters on the BCCH logical channel of
the monitored neighbouring cells. The decoding frequency of these parameters, set by the cell reselection
algorithm, should be such that UE standby times are not significantly decreased.

9.1 Model of physical layer measurements

This subclause describes a model for how the physical layer measurements are performed. This model applies both to the UE and Node B measurements. This model sets the requirement on the behaviour of the measurement elaboration and reporting performed by L1 as well as filtering controlled by higher layers. It is not meant to be a requirement for implementation as long as the performance requirements in [9] and [10] are fulfilled.

The measurement model for physical layer measurements is represented in the figure 7.

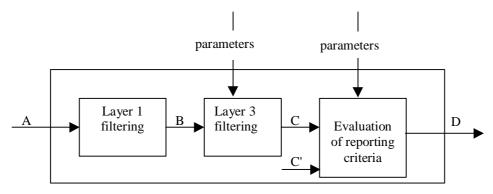


Figure 7: Measurement model

The model is described below:

- **A:** measurements (samples) internal to the physical layer in support to the measurements to be provided to higher layers;
- Layer 1 filtering: internal layer 1 filtering of the inputs measured at point A. Exact filtering is implementation dependant. How the measurements are actually executed in the physical layer by an implementation (inputs A and Layer 1 filtering) in not constrained by the standard i.e. the model does not state a specific sampling rate or even if the sampling is periodic or not. What the standard specifies in [9] and [10] is the performance objective and measurement period at point B in the model. The performance objectives for the physical layer measurements are specified in [9] and [10];
- **B:** A measurement reported by layer 1 after layer 1 filtering. The reporting rate at point B shall be sufficient to meet the performance objectives as defined in [9] and [10];
- Layer 3 filtering: Filtering performed on the measurements provided at point B. The behaviour of the Layer 3 filters are standardised and the configuration of the layer 3 filters is provided by RRC signalling (UE measurements) or NBAP signalling (Node B measurements). Each filtered result at point C shall correspond to a Layer 3 filtering performed using a reporting period equal to one measurement period at point B;
- **C:** A measurement after processing in the layer 3 filter. The reporting rate is identical to the reporting rate at point B and is therefore also measurement type specific. Although this is not shown in the figure, one measurement can be used by a multiplicity of evaluation of reporting criteria;
- Evaluation of reporting criteria: This checks whether actual measurement reporting is necessary at point D i.e. whether a message need to be sent to higher layers on the radio interface or Iub interface. The evaluation can be based on more than one flow of measurements at reference point C e.g. to compare between different measurements. This is illustrated by input C, C', etc. The UE shall evaluate the reporting criteria at least every time a new measurement result is reported at point C, C' etc. The reporting criteria are standardised and the configuration is provided by RRC signalling (UE measurements) or NBAP signalling (Node B measurements). Examples are periodic reporting and event based reporting. In case periodical reporting is in use and if the reporting interval is different from the filtering period defined by the layer 3 filter, the last measurement result filtered by the L3 filter shall be used as the value of the reported result. In case event triggered reporting is in use and the reporting criteria is fulfilled, the last measurement result filtered by the L3 filter shall be used as the value for reporting criteria evaluation and as the value of the reported result. This applies also for any additional measurements that shall be reported as a consequence of the event;
- **D:** a measurement report information (message) sent on the radio or Iub interface.

9.2 UE Measurements

For definitions of the measurements, see [6] and [11].

9.2.1 SFN-CFN observed time difference

This measure is mandatory for UE.

Measurement	SFN-CFN observed time difference
Source	L1 (UE)
Destination	RRC (RNC) for handover
Reporting Trigger	On-demand, Event-triggered
Description	Time difference between the SFN of the target neighbouring cell and the CFN in the UE.

9.2.2 Observed time difference to GSM cell

This measure is mandatory for UE capable of handover to GSM.

Measurement	Observed time difference to GSM cell
Source	L1 (UE)
Destination	RRC (RNC) for maintenance and handover to GSM
Reporting Trigger	On-demand, Event-triggered
Description	Time difference between a UTRA cell and a GSM cell.

9.2.3 CPICH E_c/N₀

This measure is mandatory for UE with FDD mode capability.

Measurement	CPICH Ec/No
Source	L1(UE)
Destination	RRC (UE, RNC)
Reporting Trigger	Periodic, on demand and event triggered
Description	The received energy per chip of the CPICH divided by the power density in the frequency
	band.

9.2.4 Void

9.2.5 CPICH RSCP

This measure is mandatory for UE with FDD mode capability.

Measurement	CPICH RSCP
Source	L1(UE)
Destination	RRC (UE, RNC)
Reporting Trigger	periodic or event triggered
Description	Received signal code power of the CPICH.

9.2.6 P-CCPCH RSCP

This measure is mandatory for UE with TDD mode capability.

Measurement	P-CCPCH RSCP
Source	L1(UE)
Destination	RRC (UE, RNC)
Reporting Trigger	periodic or event triggered
Description	Received signal code power of the P-CCPCH

9.2.7 Timeslot ISCP

This measure is mandatory for UE with TDD mode capability.

meslot ISCP
1(UE)
RC (UE, RNC)
eriodic or event triggered
terference Signal Code Power is the interference on the received signal in a specified meslot.
f e

9.2.8 Void

9.2.9 SIR

This measure is mandatory for UE with TDD mode capability.

Measurement	SIR
Source	L1(UE)
Destination	RRC (UE,RNC)
Reporting Trigger	Periodic, once every power control cycle, event triggered
Description	Signal to Interference Ratio

9.2.10 UTRA carrier RSSI

This measure is mandatory for UE.

Measurement	UTRA carrier RSSI
Source	L1(UE)
Destination	RRC (RNC)
Reporting Trigger	Periodic, event triggered, on demand
Description	Received Signal Strength Indicator, the wideband received power within the relevant channel bandwidth. For TDD this is measured in specified timeslots.

9.2.11 GSM carrier RSSI

This measure is mandatory for UE with GSM capability.

Measurement	GSM carrier RSSI
Source	L1(UE)
Destination	RRC (RNC)
Reporting Trigger	Periodic, event triggered, on demand
Description	Received Signal Strength Indicator, the wide-band received power within the relevant
	channel bandwidth. Details are specified in the GSM specification 05.08

9.2.12 Transport channel BLER

This measure is mandatory for UE.

Measurement	Transport channel BLER (BLock Error Rate)
Source	L1(UE)
Destination	RRC (RNC,UE)
Reporting Trigger	Periodic, on demand
Description	Estimation of the transport channel block error rate (BLER).

9.2.13 UE transmitted power

This measure is mandatory for UE.

Measurement	UE transmitted power
Source	L1(UE)
Destination	RRC (UE,RNC)
Reporting Trigger	On-demand, periodic, Event-triggered
Description	Total transmitted power on one carrier. For TDD this is measured in specified timeslots.

9.2.14 UE Rx-Tx time difference

This measure is mandatory for UE with FDD mode capability.

Measurement	UE Rx-Tx time difference
Source	L1 (UE)
Destination	RRC (RNC)
Reporting Trigger	On-demand, periodic, event-triggered
·	Time difference between the UE uplink DPCCH/DPDCH frame transmission and the first detected path (in time) of the downlink DPCH frame from the measured radio link. Type 1 and Type 2 are defined.

9.2.15 SFN-SFN Observed time difference

This measure is mandatory for UE.

Measurement	SFN-SFN observed time difference
Source	L1 (UE)
Destination	RRC (RNC)
Reporting Trigger	On-demand, Event-triggered
Description	Time difference between a specific reference UTRA cell and a target UTRA cell. Type 1 and Type 2 are defined.

9.2.16 UE GPS Timing of Cell Frames for UE positioning

This measure is mandatory for UE that has the capability to measure GPS reference time.

Measurement	UE GPS Timing of Cell Frames for UE positioning
Source	L1 (UE)
Destination	RRC (RNC-UE positioning)
Reporting Trigger	On-demand, Event-triggered, Periodic
Description	The timing between UTRA cell and GPS Time Of Week.

9.2.17 Timing Advance (T_{ADV}) for 1.28 Mcps TDD

This measure is mandatory for 1.28 Mcps TDD UE.

Measurement	Timing Advance (T _{ADV}) for 1.28 Mcps TDD
Source	L1 (UE)
Destination	RRC (RNC)
Reporting Trigger	On-demand, Event-triggered, Periodic
Description	Difference between the uplink transmission of the UE and the downlink reception.

9.2.18 UE GPS code phase

This measure is mandatory for UE with UE-assisted GPS capability.

NOTE: The UE transmits the GPS code phase in the IE "Whole GPS Chips" and in the IE "Fractional GPS Chips" defined in [13].

Measurement	UE GPS code phase
Source	L1 (UE)
Destination	RRC (RNC)
Reporting Trigger	On-demand, Event-triggered, Periodic
Description	The whole and fractional phase of the spreading code of the GPS satellite signal.

9.3 UTRAN Measurements

9.3.1 Received total wide band power

Received total wide band power
L1 (Node B)
RRC(RNC)
On-demand, Event-triggered, Periodic
The received wide band power including noise generated in the receiver, within the bandwidth defined by the pulse shaping filter. For TDD mode, this is measured in specified timeslots.

9.3.2 Transmitted carrier power

Measurement	Transmitted carrier power
Source	L1(Node B)
Destination	RRC (RNC)
Reporting Trigger	On-demand, periodic, Event-triggered
	Transmitted carrier power is the ratio between the total transmitted power on one DL carrier from one UTRAN access point, compared to the maximum power possible to use on that DL carrier at this moment of time. For TDD mode, this is measured in specified timeslots.

9.3.3 Transmitted code power

Measurement	Transmitted code power
Source	L1(Node B)
Destination	RRC (RNC)
Reporting Trigger	On-demand, periodic, Event-triggered
Description	Transmitted Code Power is the transmitted power on one carrier, one scrambling and one
	channelisation code. For TDD mode, this is measured in specified timeslots.

9.3.4 Void

9.3.5 Physical channel BER

Measurement	Physical channel BER
Source	L1(Node B)
Destination	RRC (RNC)
Reporting Trigger	On-demand, Event-triggered, periodic
Description	The Physical channel BER is an estimation of the average bit error rate (BER) on the DPCCH of a Radio Link Set. This measurement applies to FDD mode only.

9.3.6 Transport channel BER

Measurement	Transport channel BER
Source	L1(Node B)
Destination	RRC (RNC)
Reporting Trigger	On-demand, Event-triggered, periodic
Description	The transport channel BER is an estimation of the average bit error rate (BER) data part.

9.3.7 RX timing deviation

Measurement	RX timing deviation
Source	L1 (Node B)
Destination	RRC (RNC)
Reporting Trigger	Periodic, event triggered
Description	The difference of the time of arrival of the UL transmissions in relation to the arrival time of
	a signal with zero propagation delay. This measurement is applicable for TDD mode.

9.3.8 Timeslot ISCP

Measurement	Timeslot ISCP
Source	L1(Node B)
Destination	RRC (RNC)
Reporting Trigger	periodic or event triggered
Description	Interference on Signal Code Power, is the interference on the received signal in a
	specified timeslot. This measurement is applicable is applicable to TDD mode only.

9.3.9 RSCP

Measurement	RSCP
Source	L1(Node B)
Destination	RRC (RNC)
Reporting Trigger	periodic or event triggered
Description	Received Signal Code Power is the received power on DPCH or PRACH, PUSCH or HS-
	SICH. This measurement is applicable for TDD mode only.

9.3.10 Round Trip Time

Measurement	Round Trip Time
Source	L1(Node B or LMU)
Destination	RRC (RNC-UE positioning)
Reporting Trigger	on demand, event triggered
Description	This is an estimate of the round trip time of signals between the Node B and the UE This
	measurement is applicable for FDD mode only.

9.3.11 Void

9.3.12 Acknowledged PRACH preambles

Measurement	Acknowledged PRACH preambles
Source	L1(Node B)
Destination	RRC (RNC)
Reporting Trigger	Periodic, event triggered, On demand
Description	This measurement indicates the number of positive acquisition indicators transmitted per access
	frame on each AICH. This measurement is applicable for FDD mode only.

9.3.13 Detected PCPCH access preambles

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

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.

9.3.17 UTRAN GPS Timing of Cell Frames for UE positioning

Measurement	UTRAN GPS Timing of Cell Frames for UE positioning
Source	L1 (LMU)
Destination	RRC (RNC-UE positioning)
Reporting Trigger	On-demand, Event-triggered, Periodic
Description	This is the absolute time reference measurement in respect to GPS Time Of Week for the
	transmission of a particular frame.

9.3.18 SIR ERROR

Measurement	SIR ERROR
Source	L1(Node B)
Destination	RRC (RNC)
Reporting Trigger	Periodic, event triggered
Description	Signal to Interference Ratio Error
	This measurement is applicable for FDD cells only.

9.3.19 Received SYNC_UL Timing Deviation

Measurement	Received SYNC_UL Timing Deviation
Source	L1 (Node B)
Destination	RRC (RNC)
Reporting Trigger	Event triggered
Definition	'Received SYNC_UL Timing Deviation' is the time difference
	$UpPCH_{POS} = UpPTS_{Rxpath} - UpPTS_{TS}$
	Where
	UpPTS _{Rxpath} : time of the reception in the Node B of the SYNC_UL to be used in the uplink
	synchronization process
	UpPTS _{TS} : time instance two symbols prior to the end of the DwPCH according to the
	Node B internal timing

9.3.20 Cell Sync Burst Timing

Measurement	Cell Sync Burst Timing
Source	L1(Node B)
Destination	RRC (RNC)
Reporting Trigger	Periodic, event triggered
	Cell sync burst timing is the time of start (defined by the first detected path in time) of the cell sync burst of a neighbouring cell. Type 1 is used for the initial phase of Node B synchronization. Type 2 is used for the steady-state phase of Node B synchronization.

9.3.21 Cell Sync Burst SIR

Measurement	Cell Sync Burst SIR
Source	L1(Node B)
Destination	RRC (RNC)
Reporting Trigger	Periodic, event triggered
Definition	Signal to Interference Ratio for the cell sync burst, defined as: RSCP/Interference, where:

9.3.22 SFN-SFN Observed time difference

Measurement	SFN-SFN observed time difference
Source	L1 (LMU)
Destination	RRC (RNC-UE positioning)
Reporting Trigger	On-demand, Periodic, On Modification
	Measured time between reception of signal from a specific reference UTRA cell and from a neighbour UTRA cell.

9.3.23 Angle of Arrival (AOA) for 1.28 Mcps TDD

Measurement	Angle of Arrival (AOA) for 1.28Mcps TDD
Source	L1 (Node B)
Destination	RRC (RNC)
Reporting Trigger	event-triggered, on-demand
·	AOA defines the estimated angle of a user with respect to a reference direction. The reference direction for this measurement shall be the North, positive in a counter-clockwise direction. The AOA is determined at the UTRAN access point antenna for an UL channel corresponding to this UE.

9.3.24 HS-SICH reception quality

Measurement	HS-SICH reception quality
Source	L1 (Node B)
Destination	RRC (RNC)
Reporting Trigger	On-demand, Event-triggered, Periodic
Description	The HS-SICH reception quality is defined via the the number of expected HS-SICH transmissions from a given UE and the number of unsuccessful HS-SICH receptions for this same UE in the Node B. For 1.28 Mcps TDD, only measurements made on HS-SICH transmissions that were transmitted using open loop power control are reported as part of this measurement.
	This measurement is applicable for TDD cells only.

9.3.25 Transmitted carrier power of all codes not used for HS-PDSCH or HS-SCCH transmission

Measurement	Transmitted carrier power of all codes not used for HS-PDSCH or HS-SCCH transmission
Source	L1 (Node B)
Destination	RRC (RNC)
Reporting Trigger	On-demand, periodic, Event-triggered
Description	Transmitted carrier power of all codes not used for HS-PDSCH or HS-SCCH transmission is the ratio between the total transmitted power of all codes not used for HS-PDSCH or HS-SCCH transmission on one DL carrier from one UTRAN access point, and the maximum transmission power possible to use on that DL carrier at this moment of time. For TDD mode, this is measured in specified timeslots.

10 Primitives of the physical layer

The Physical layer interacts with other entities as illustrated in figure 1. The interactions with the MAC layer and the RRC layer are shown in terms of primitives where the primitives represent the logical exchange of information and control between the physical layer and higher layers. They do not specify or constrain implementations. The (adjacent) layers connect to each other through Service Access Points (SAPs). Primitives, therefore, are the conveyers of the information exchange and control through SAPs.

Four types of primitives are used for the present document, as follows.

- REQUEST (REQ):

- This type is used when a higher layer is requesting a service from a lower layer.

- INDICATION (IND):

- This type is used by a lower layer providing a service to notify its higher layer of activities concerning that higher layer.

- **RESPONSE** (**RESP**):

- This type is used by a higher layer providing the indicated service to respond to its lower layer that the activity has been completed.

- CONFIRM (CNF):

- This type is used by a lower layer providing the requested service to confirm to the higher layer that the activity has been completed.

The primitives defined below are for local communications between MAC and L1, as well as RRC and L1 in the same protocol stack.

For the physical layer two sets of primitives are defined:

- Primitives between layer 1 and 2:

- PHY Generic name Type: Parameters.
- Primitives between layer 1 and the RRC entity:
 - CPHY Generic name Type: Parameters.

NOTE: This is a logical description of the primitives and does not cover addressing aspects (e.g. Transport Channel ID, Physical Channel ID, start frame number or disconnect frame number).

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

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)

10.1.2 PHY-Access-CNF

The PHY-Access-CNF primitive is used to confirm that physical layer synchronisation has been established and that the physical layer is ready for data transmission using the PHY-Data primitive. This primitive is used in FDD and 1.28 Mcps TDD only.

Parameters:

- access information.

10.1.3 PHY-Data-REQ

The PHY-Data primitives are used to request SDUs used for communications passed to and from the physical layer. One PHY-Data primitive is submitted every Transmission Time Interval for each Transport Channel.

Parameters:

- TFI;
- Transport Block Set;
- CFN_{CELL};
- TTI within CFN (HS-DSCH only);
- Page Indicators (PIs) (PCH only);
- HS-DSCH information (HS-DSCH information);
- ASC selected for that Transport Block Set (3.84 Mcps TDD RACH only).

10.1.4 PHY-Data-IND

The PHY-Data primitives are used to indicate SDUs used for Layer 2 passed to and from the physical layer. One PHY-Data primitive is submitted every Transmission Time Interval for each Transport Channel.

Parameters:

- TFI;
- Transport Block Set;
- CRC check result;
- TD (RX Timing Deviation measurement) (optional, TDD only);
- Process Id (HS-DSCH).

10.1.5 PHY-CPCH_Status-REQ

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

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					
Generic Name	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						

10.2.1 STATUS PRIMITIVES

10.2.1.1 CPHY-Sync-IND

This primitive is used for L1 to indicate to RRC that synchronisation of a certain physical channel has been done in the receiver. In FDD synchronisation is based on reception of the DPCCH, and in TDD synchronisation is based on Special Burst, TB reception, and burst quality estimation.

Parameters:

- CCTrCH ID (TDD only).

10.2.1.2 CPHY-Out-of-Sync-IND

Primitive sent from L1 to RRC indicating that synchronisation of a previously configured connection has been lost in the receiver. In FDD synchronisation is based on reception of the DPCCH, and in TDD synchronisation is based on Special Burst, TB reception, and burst quality estimation.

Parameters:

CCTrCH ID (TDD only).

10.2.1.3 CPHY-Measurement-REQ

The Request primitive is used for RRC to configure L1 measurements.

Parameters:

- transmission power threshold;

- refer to clause 9 for measurement parameters.

10.2.1.4 CPHY-Measurement-IND

The Indication primitive is used to report the measurement results.

Parameters:

- refer to clause 9 for measurement parameters.

10.2.1.5 CPHY-Error-IND

The CPHY-Error primitive is used to indicate to the management entity that an error has occurred as a result of a physical layer fault.

Parameters:

- error code.

10.2.1.6 CPHY-CPCH-EOT-IND

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						
Generic Name	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 Paran				
CPHY-RL-Release	No Parameter	Not Defined	Not Defined	No Parameter			
CPHY-RL-Modify	physical channel description	Not Defined	Not Defined No Parame				
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-	Out of Sync detection	Not Defined	Not Defined	No Parameter			
Config	parameters						
NOTE (1): FDD only.							

10.2.2.1 CPHY-TrCH-Config-REQ

This primitive is used for setting up and configuring a transport channel, and also to modify an existing transport channel.

Parameters:

- transport channel description.

10.2.2.2 CPHY-TrCH-Config-CNF

This primitive is used for confirming the setting up and configuring a transport channel, and also modifying an existing transport channel.

Parameters:

No Parameter.

10.2.2.3 CPHY-TrCH-Release-REQ

This primitive is used for releasing a transport channel.

Parameters:

- No Parameter.

10.2.2.4 CPHY-TrCH-Release-CNF

This primitive is used for confirming the releasing a transport channel.

Parameters:

- No Parameter.

10.2.2.5 CPHY-RL-Setup-REQ

The Request primitive is sent from RRC to L1 for establishment of a Radio link to a certain UE.

Parameters:

- physical channel description.

10.2.2.6 CPHY-RL-Setup-CNF

The Confirm primitive is returned from L1 to RRC when the Radio link is established. In case L1 is unable to execute the request, this is indicated in the confirm primitive.

Parameters:

- No Parameter.

10.2.2.7 CPHY-RL-Release-REQ

The Request primitive is sent from RRC to L1 for release of a Radio link to a certain UE.

Parameters:

- No Parameter.

10.2.2.8 CPHY-RL-Release-CNF

The Confirm primitive is returned from L1 to RRC when the radio link is released.

Parameters:

- No Parameter.

10.2.2.9 CPHY- RL-Modify-REQ

The Request primitive is sent from RRC to L1 for modification of a Radio link to a certain UE.

Parameters:

- physical channel description.

10.2.2.10 CPHY-RL-Modify-CNF

The Confirm primitive is returned from L1 to RRC when the radio link is modified. In case L1 is unable to execute the request, this is indicated in the confirm primitive.

Parameters:

- No Parameter.

10.2.2.11 CPHY-Commit-REQ

This primitive is sent from RRC to L1 to synchronise UE and NW for the physical channel modification.

Parameters:

- activation time.

10.2.2.12 CPHY-CPCH-Estop-IND

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

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

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

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.

10.2.2.16 CPHY-Out-of-Sync-Config-REQ

This primitive is sent from RRC to Node B L1 to reconfigure the parameters to detect "in sync" and "out of sync" conditions of uplink physical channel transmission.

Parameters:

- Out of Sync detection parameters

10.2.2.17 CPHY-Out-of-Sync-Config-CNF

This primitive is sent from Node B L1 to RRC for confirming the Reconfiguration of the Out-of-Sync parameters on Node B L1.

Parameters:

- No Parameter.

10.3 Parameter definition

10.3.1 Error code

- Hardware failure.

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 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.

10.3.4 Transport Format Subset

- A subset of the Transport Format set of a Transport Channel.

10.3.5 Physical channel description

10.3.5.1 Primary SCH

- Tx diversity mode.

10.3.5.2 Secondary SCH

- Tx diversity mode.

10.3.5.3 Primary CCPCH

- Frequency info.
- DL scrambling code.
- Tx diversity mode.
- Timeslot (TDD only).
- Burst type (3.84 Mcps TDD only).
- Offset (TDD only).
- Repetition period (TDD only).
- Repetition length (TDD only).

10.3.5.4 Secondary CCPCH

- DL scrambling code.
- Channelisation code.
- Tx diversity mode.
- Timeslot (TDD only).
- Burst type (3.84 Mcps TDD only).
- Midamble shift (TDD only).
- Offset (TDD only).
- Repetition period (TDD only).
- Repetition length (TDD only).
- TFCI presence (TDD only).

10.3.5.5 PRACH

- Access Slot (FDD only).
- Preamble scrambling code (FDD only).
- Available preamble signatures (FDD only).
- Spreading factor for data part.
- Power control info:
 - UL target SIR;
 - primary CCPCH DL TX Power;

- UL interference;
- power offset (Power ramping) (FDD only).
- Access Service Class Information (PRACH Partitioning):
 - Available signatures for each ASC (FDD only).
 - Available Channelisation codes for each ASC (TDD only).
 - Available Subchannels for each ASC.
- AICH transmission timing parameter (FDD only).
- Timeslots (TDD only).
- Available Channelisation Codes (TDD only)
- Spreading Factor (TDD only).
- Midamble Type (TDD only).

10.3.5.6 Uplink DPDCH+DPCCH

- UL scrambling code.
- DPCCH slot structure (N_{pilot}, N_{TPC}, N_{TFCI}, N_{FBI}).
- Transmission Time offset value.

10.3.5.7 Uplink DPCH

- Timing Advance (TDD only).
- DPCH channelisation code (TDD 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).

10.3.5.8 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 ($N_{\text{pilot}}, N_{\text{TPC}}, N_{\text{TFCI}}, N_{\text{CCC}}$) (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)

- 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.

10.3.5.10 PICH

- Scrambling code.
- Channelisation code.
- Timeslot (TDD only).
- Burst Type (3.84 Mcps TDD only).
- Midamble shift (TDD only).
- Offset (TDD only).
- Repetition period (TDD only).
- Repetition length (TDD only).

10.3.5.11 AICH

- Scrambling code.
- Channelisation code.
- Tx diversity mode.

NOTE: The value for the parameters needs to be consistent with the corresponding PRACH.

10.3.5.12 AP-AICH

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

10.3.5.13 CD-ICH

- 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

- 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

- 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.

10.3.5.16 PDSCH (TDD only)

- Scrambling code.
- Channelisation code.
- Tx diversity mode:

- FB mode (FDD only).

- DL channelisation code (TDD only).
- Burst Type (3.84 Mcps TDD only).
- PDSCH Midamble shift (TDD only).
- Timeslot (TDD only).
- Offset (TDD only).

- Repetition period (TDD only).
- Repetition length (TDD only).
- TFCI presence (TDD only).

10.3.5.17 PUSCH

- PUSCH channelisation code.
- Burst Type (3.84 Mcps TDD only).
- PUSCH midamble shift (TDD only).
- Timeslot (TDD only).
- Offset (TDD only).
- Repetition period (TDD only).
- Repetition length (TDD only).
- TFCI presence (TDD only).
- Timing Advance (TDD only).

10.3.5.18 DwPCH (1.28 Mcps TDD only)

- Tx diversity mode.
- SYNC_DL code ID.

10.3.5.19 UpPCH (1.28 Mcps TDD only)

- SYNC_UL code ID.

10.3.5.20 FPACH (1.28 Mcps TDD only)

- Scrambling code
- Channelisation code
- Timeslot
- Midamble shift
- Tx diversity mode.

10.3.5.21 PNBSCH (Physical Node B Synchronisation channel)

- Node B Node B over the air communication.
- Only for TDD cells.
- Repetition period.
- <u>C</u>oncatenated periodically <u>E</u>xtended <u>C</u>omplementary sequences.

10.3.5.22 HS-SCCH

- Scrambling code.
- Channelisation code.

- Timeslot (TDD only).
- Burst type (3.84 Mcps TDD only).

10.3.5.23 HS-SICH (TDD only)

- Channelisation code.
- Burst Type 1 (3.84 Mcps TDD only).
- Midamble shift.
- Timeslot.

10.3.6 Feedback information

- Quality indication.
- HARQ Status.

10.3.7 HARQ process

- Process Id.

10.3.8 HS-DSCH information

- Modulation scheme.
- Channelisation code.
- Timeslot (TDD only).
- Redundancy version/Constellation.
- Process Id.
- HS-SCCH Cyclic Sequence Number (HCSN) for TDD.

10.3.9 HARQ status

- HARQ acknowledgement (acknowledgement or negative acknowledgement).

3GPP TSG-RAN Working Group 2 #47

Tdoc # R2-051607

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CHANGE REQUEST						CR-Form-v7	
*	25.30	2 CR 0158	≋ rev	- #	Current version:	6.3.0	¥
For <u>HEL</u>	.P on using this f	orm, see bottom	of this page or	look at th	ne pop-up text ove	r the ℋ syr	mbols.
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Category:	\aleph	C	Release: ₩	REL-6
		Use <u>one</u> of the following categories:	Use <u>one</u> of	the following releases:
		F (correction)	2	(GSM Phase 2)
		A (corresponds to a correction in an earlier	R96	(Release 1996)
		release)	R97	(Release 1997)
		B (addition of feature),	R98	(Release 1998)
		C (functional modification of feature)	R99	(Release 1999)
		D (editorial modification)	Rel-4	(Release 4)
		Detailed explanations of the above categories can	Rel-5	(Release 5)
		be found in 3GPP TR 21.900.	Rel-6	(Release 6)

Reason for change: #	Removal of DSCH for FDD
Summary of change: #	Removal of DSCH for FDD
Consequences if # not approved:	DSCH for FDD mode will remain specified

Clauses affected:	第 6.2, 7.2, 8.2, 10.3.5.16,				
		Y			
Other specs	\mathfrak{H}	X	Other core specifications	\mathfrak{H}	
					25.302, 25.303, 25.306, 25.321, 25.331,
					25.401, 25.402, 25.420, 25.423, 25.424,
					25.425, 25.427, 25.430, 25.433, 25.434,
					25.435
affected:		Х	Test specifications		34.108, 34.123
			O&M Specifications		
Other comments:	${\mathbb H}$				

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:

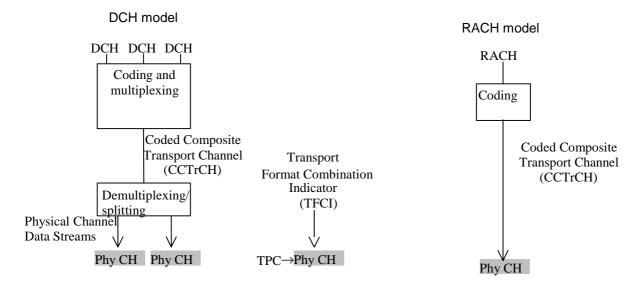
- 1) Fill out the above form. The symbols above marked \$\mathbb{K}\$ contain pop-up help information about the field that they are
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be

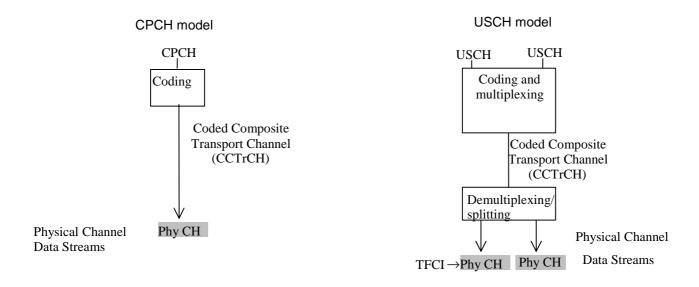
- downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select 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.

6 Model of physical layer of the UE

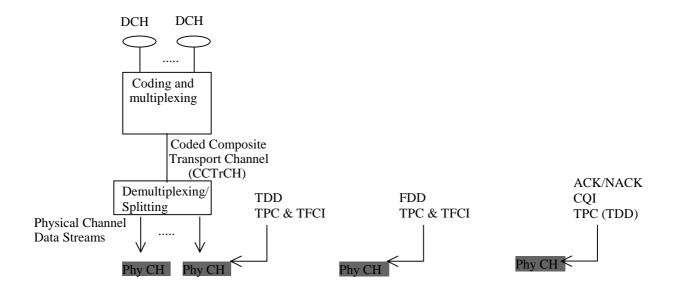
6.1 Uplink models

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].

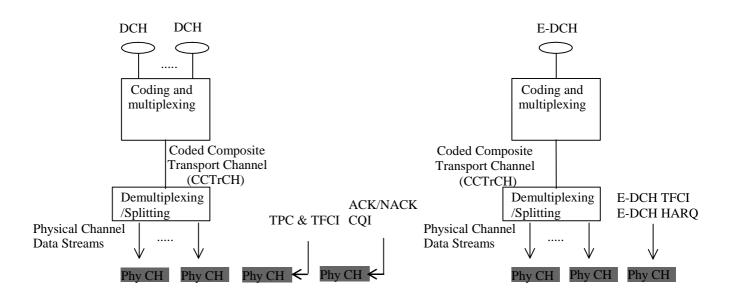




DCH model with HS-DSCH support



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 DPCCH. 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.

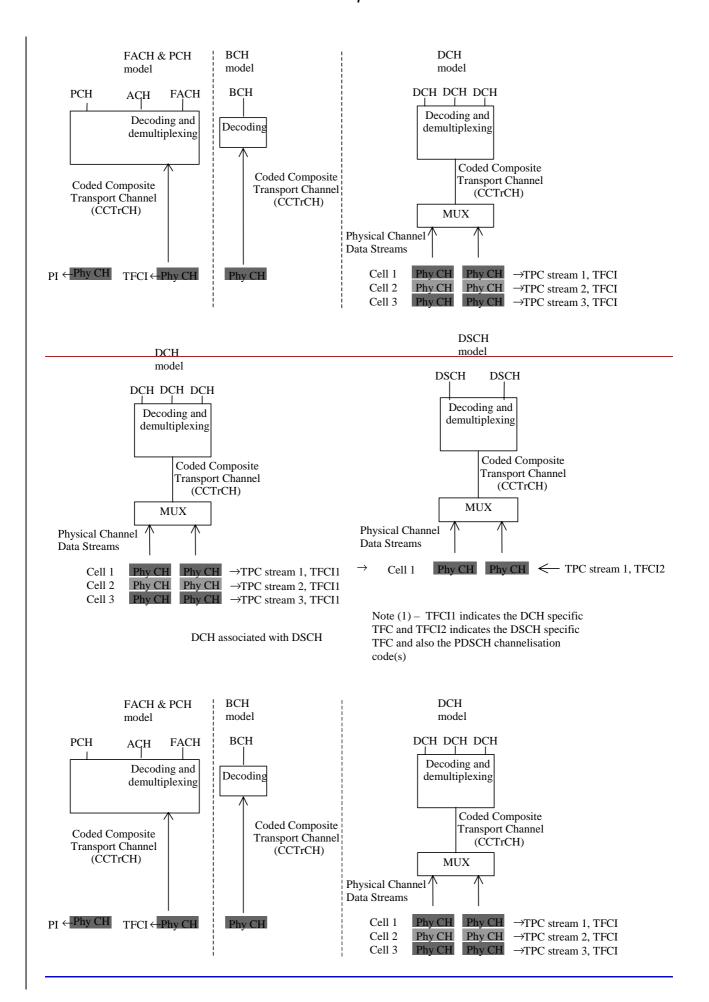
In FDD in case of a configured HS-DSCH one physical channel (HS-DPCCH) is configured for the reporting of HS-DSCH transport block acknowledgement / negative acknowledgement and channel quality indicator. In TDD in case of

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.

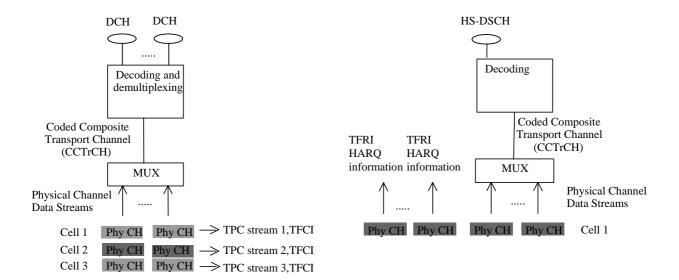
The E-DCH is applicable to the FDD mode only. There can only be one E-DCH TrCH and no other TrCH in a E-DCH CCTrCH. The E-DCH CCTrCH is carried on E-DPDCH(s) physical channel(s). E-DCH TFCI and E-DCH HARQ information are carried on a E-DPCCH physical channel. It is FFS whether some E-DCH scheduling information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

6.2 Downlink models

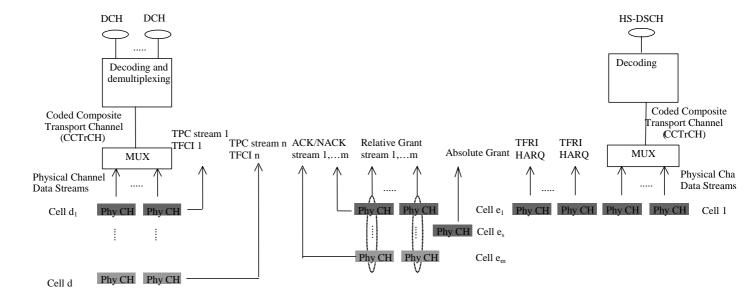
Figure 3 and figure 4 show the model of the UE's physical layer for the downlink in FDD and TDD mode, respectively. Note that there is a different model for each transport channel type.



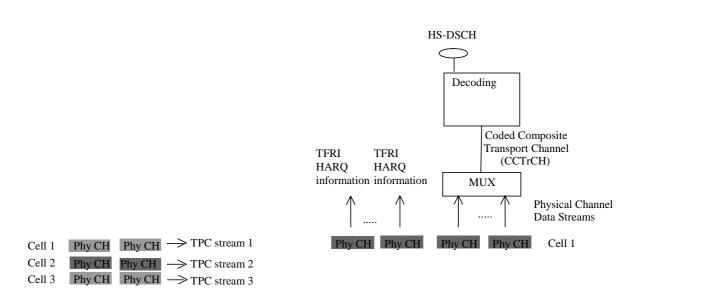
DCH model with HS-DSCH(s)

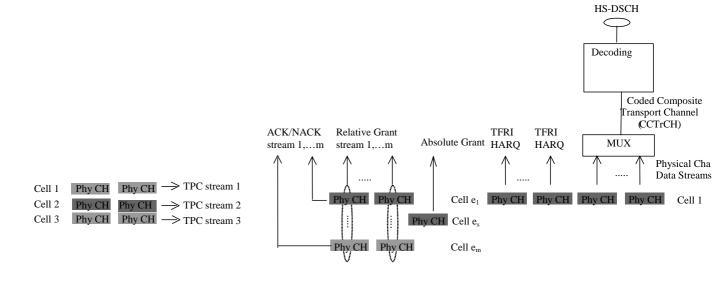


DCH and HS-DSCH model with E-DCH support



HS-DSCH(s) with F-DPCH model





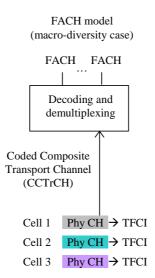
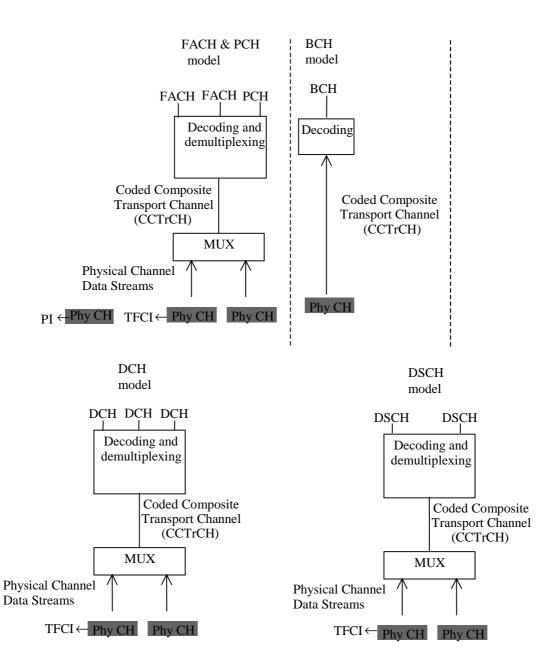
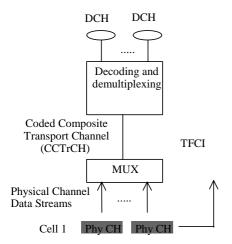
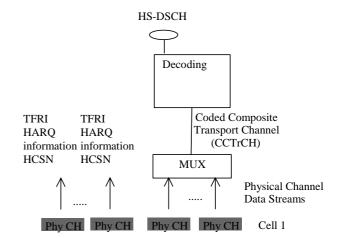


Figure 3: Model of the UE's physical layer - downlink FDD mode

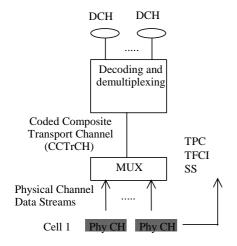


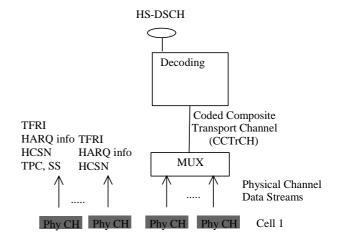
DCH model with HS-DSCH(s) for 3.84 Mcps TDD





DCH model with HS-DSCH(s) for 1.28 Mcps TDD





FACH model (transport channel combining case)

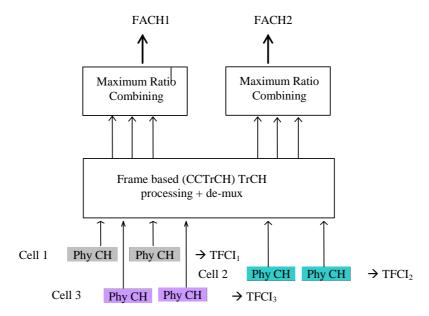


Figure 4: Model of the UE's physical layer - downlink TDD mode

For the DCH case, the mapping between DCHs and physical channel data streams works in the same way as for the uplink. Note however, that the number of DCHs, the coding and multiplexing etc. may be different in uplink and downlink.

In the FDD mode, the differences are mainly due to the soft and softer handover. Further, the pilot, TPC bits and TFCI are time multiplexed onto the same physical channel(s) as the DCHs, in case of HS-DSCH(s) without a DCH in the DL TPC bits are carried onto F-DPCH(s). Further, the definition of physical channel data stream is somewhat different from the uplink. 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.

Note that it is logically one and the same physical data stream in the active set of cells, even though physically there is one stream for each cell. The same processing and multiplexing is done in each cell. The only difference between the cells is the actual codes, and these codes correspond to the same spreading factor.

The physical channels carrying the same physical channel data stream are combined in the UE receiver, excluding the pilot, and in some cases the TPC bits. TPC bits received on certain physical channels may be combined provided that UTRAN has informed the UE that the TPC information on these channels is identical.

A PCH and one or several FACH can be encoded and multiplexed together forming a CCTrCH. Similarly as in the DCH model there is one TFCI for each CCTrCH for indication of the transport formats used on each PCH and FACH. The PCH is associated with a separate physical channel carrying page indicators (PIs) which are used to trigger UE reception of the physical channel that carries PCH. A FACH or a PCH can also be individually mapped onto a separate physical channel. The BCH is always mapped onto one physical channel without any multiplexing with other transport channels, and there can only be one BCH TrCH and no other TrCH in a BCH CCTrCH.

For point-to-multipoint transmission [14], FACH can be distributed on a set of physical layer combinable CCTrCHs, i.e., for macro-diversity combining: soft combining (FDD and TDD) or transport channel combining (TDD only). The physical layer combinable CCTrCHs shall have the same TFC during the TTIs in which soft combining can be used. The physical layer combinable CCTrCHs need not have the same TFC during the TTIs in which transport channel combining can be used. The possibility of performing macro-diversity combining (either soft combining or transport channel combining) shall be signalled to the UE.

In the TDD mode a CCTrCh carrying PCH and one or several FACH can be multiplexed onto one or several physical channel data streams.

For each HS-DSCH TTI, each HS-SCCH carries HS-DSCH-related downlink signalling for one UE. The following information is carried on the HS-SCCH:

- Transport Format and Resource Indicator (TFRI);
- Hybrid-ARQ-related Information (HARQ information);
- UE Identity via a UE specific CRC;
- HS-SCCH Cyclic Sequence Number (HCSN) for TDD.

In addition, for the case of 1.28 Mcps TDD, the HS-SCCH also carries Transmit Power Control and Synchronisation Shift symbols.

In FDD mode, the E-DCH active set can be identical or a subset of the DCH active set.

The E-DCH ACK/NACKs are transmitted by each cell of the E-DCH active set on a physical channel called E-HICH. The E-HICHs of the cells belonging to the same RLS (same MAC-e entity i.e. same Node B) shall have the same content and be combined by the UE. The set of cells transmitting identical ACK/NACK information is the same as the set of cells sending identical TPC bits (excluding the cells which are not in the E-DCH active set).

The E-DCH Absolute Grant is transmitted by a single cell, the Serving E-DCH cell (Cell e_s on figure 4) on a physical channel called E-AGCH. The relationship between the Serving E-DCH cell and the HS-DSCH Serving cell is FFS.

The E-DCH Relative Grants are transmitted by each cell of the E-DCH active set on a physical channel called E-RGCH. The E-RGCHs of the cells belonging to the same RLS shall have the same content and be combined by the UE. There is one Serving E-DCH RLS (containing the Serving E-DCH cell) and optionally one or several Non-serving E-DCH RLS.

7 Formats and configurations for L1 data transfer

7.1 General concepts about Transport Channels

Layer 2 is responsible for the mapping of data onto L1 via the L1/L2 interface that is formed by the transport channels. In order to describe how the mapping is performed and how it is controlled, some definitions and terms are required. The required definitions are given in the following subclauses. Note that the definitions are generic for all transport channel types, i.e. not only for DCHs.

All Transport Channels are defined as unidirectional (i.e. uplink or downlink). This means that a UE can have simultaneously (depending on the services and the state of the UE) one or several transport channels in the downlink, and one or more Transport Channel in the uplink.

7.1.1 Transport Block

This is the basic unit exchanged between L1 and MAC, for L1 processing.

Layer 1 adds a CRC for each Transport Block.

7.1.2 Transport Block Set

This is defined as a set of Transport Blocks, which are exchanged between L1 and MAC at the same time instance using the same transport channel.

In case of HS-DSCH and E-DCH the Transport Block Set consists of one Transport Block only.

7.1.3 Transport Block Size

This is defined as the number of bits in a Transport Block. The Transport Block Size is always fixed within a given Transport Block Set, i.e. all Transport Blocks within a Transport Block Set are equally sized.

7.1.4 Transport Block Set Size

This is defined as the number of bits in a Transport Block Set.

7.1.5 Transmission Time Interval

This is defined as the inter-arrival time of Transport Block Sets, and is equal to the periodicity at which a Transport Block Set is transferred by the physical layer on the radio interface. It is always a multiple of the minimum interleaving period (e.g. 10ms, the length of one Radio Frame). The MAC delivers one Transport Block Set to the physical layer every TTI.

Figure 6 shows an example where Transport Block Sets, at certain time instances, are exchanged between MAC and L1 via three parallel transport channels. Each Transport Block Set consists of a number of Transport Blocks. The Transmission Time Interval, i.e. the time between consecutive deliveries of data between MAC and L1, is also illustrated.

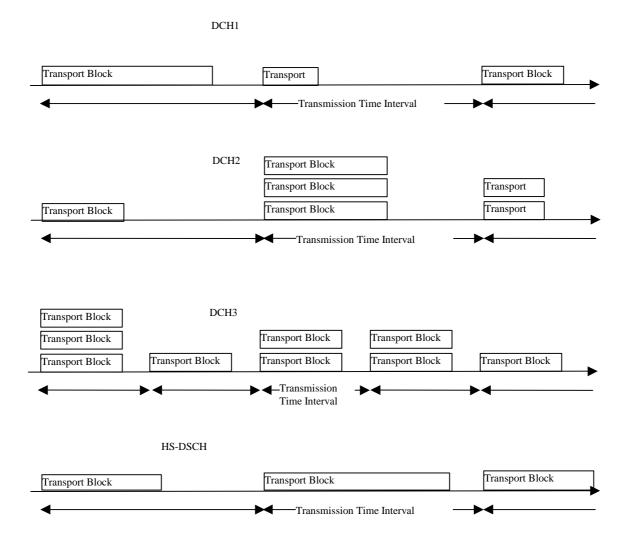


Figure 6: Exchange of data between MAC and L1

7.1.6 Transport Format

This subclause applies to transport channel types other than HS-DSCH and E-DCH.

This is defined as a format offered by L1 to MAC (and vice versa) for the delivery of a Transport Block Set during a Transmission Time Interval on a Transport Channel. The Transport Format constitutes of two parts – one *dynamic* part and one *semi-static* part.

Attributes of the dynamic part are:

- Transport Block Size;
- Transport Block Set Size;
- Transmission Time Interval (optional dynamic attribute for TDD only);

Attributes of the semi-static part are:

- Transmission Time Interval (mandatory for FDD, optional for the dynamic part of TDD NRT bearers);
- error protection scheme to apply:
 - type of error protection, turbo code, convolutional code or no channel coding (TDD only);
 - coding rate;
 - static rate matching parameter;
- size of CRC.

In the following example, the Transmission Time Interval is seen as a semi-static part.

EXAMPLE:

Dynamic part: {320 bits, 640 bits}, Semi-static part: {10ms, convolutional coding only, static rate matching parameter = 1}.

An empty Transport Format is defined as a Transport Format that has Block Set Size equal to zero.

For the two realisations of an empty Transport Format, see clause 11.

7.1.6a Transport Format for HS-DSCH

This is defined as a format offered by L1 to MAC (and vice versa) for the delivery of a transport block during a Transmission Time Interval on a Transport Channel. The Transport Format consists of three parts – one *dynamic* part, one *semi-static* part and one *static* part.

The Transport Format for HS-DSCH is always explicitly signalled. There is no support of blind transport format detection.

Attributes of the dynamic part are:

- Transport block size (same as Transport block set size);
- Redundancy version/Constellation;
- Modulation scheme.

Attributes of the semi-static part are:

- no semi-static attributes are defined.

Attributes of the static part are:

- Transmission time interval. The Transmission time interval is fixed to 2ms in FDD, 10ms in 3.84 Mcps TDD and 5ms in 1.28 Mcps TDD.
- error protection scheme to apply:

- type of error protection is turbo coding;
- coding rate is 1/3;
- size of CRC is 24 bits.

7.1.7 Transport Format for E-DCH

This subclause is only applicable to FDD mode.

This is defined as a format offered by L1 to MAC (and vice versa) for the delivery of a transport block during a Transmission Time Interval on a Transport Channel. The Transport Format consists of three parts – one *dynamic* part, one *semi-static* part and one *static* part.

The Transport Format for E-DCH is always explicitly signalled. There is no support of blind transport format detection.

Attributes of the dynamic part are:

- Transport block size (same as Transport block set size);
- Redundancy version;

Attributes of the semi-static part are:

- Transmission Time Interval. Both Transmission time interval of 2ms and 10 ms are supported;

Attributes of the static part are:

- error protection scheme to apply:
 - type of error protection is turbo coding;
 - coding rate is 1/3;
 - size of CRC is 24 bits.7.1.

7 Transport Format Set

This is defined as the set of Transport Formats associated to a Transport Channel.

The semi-static parts of all Transport Formats are the same within a Transport Format Set.

Effectively the Transport Block Size and Transport Block Set Size form the instantaneous bit rate on the Transport Channel. Variable bit rate on a Transport Channel may, depending on the type of service, which is mapped onto the transport channel, be achieved by changing between each Transmission Time Interval one of the following:

- 1. the Transport Block Set Size only (not applicable for HS-DSCH and E-DCH);
- 2. both the Transport Block Size and the Transport Block Set Size

Example 1 for DCHs:

- dynamic part: {20 bits, 20 bits}; {40 bits, 40 bits}; {80 bits, 80 bits}; {160 bits, 160 bits}.
- Semi-static part: {10ms, Convolutional coding only, static rate matching parameter = 1}

Example 2 for DCHs:

- dynamic part: {320 bits, 320 bits}; {320 bits, 640 bits}; {320 bits, 1 280 bits}.
- Semi-static part: {10ms, Convolutional coding only, static rate matching parameter = 2}.

Example 3 for HS-DSCH:

dynamic part: {320 bits, 320 bits, Redundancy version 1, QPSK}; {640, 640, Redundancy version 1, QPSK}; {1280, 1280, Redundancy version 2, 16QAM}.

- static part: See subclause 7.1.6a.

Example 4 for E-DCH:

- dynamic part: {320 bits, 320 bits, Redundancy version 0}; {320 bits, 320 bits, Redundancy version 1}; {640, 640, Redundancy version 0}; {640, 640, Redundancy version 1};
- Semi-static part: {10ms}.
- static part: See subclause 7.1.7.

The first example may correspond to a Transport Channel carrying a speech service, requiring blocks delivered on a constant time basis. In the second example, which illustrates the situation where a non-real time service is carried by the Transport Channel, the number of blocks delivered per Transmission Time Interval varies between the different Transport Formats within the Transport Format Set. Referring to figure 6, the Transport Block Size is varied on DCH1 and DCH2. That is, a Transport Format Set where the dynamic part has a variable Transport Block Size has been assigned for DCH1. On DCH3 it is instead only the Transport Block Set Size that is varied. That is, the dynamic parts of the corresponding Transport Format Sets only include variable Transport Block Set Sizes.

7.1.8 Transport Format Combination

The layer 1 multiplexes one or several Transport Channels, and for each Transport Channel, there exists a list of transport formats (Transport Format Set) which are applicable. Nevertheless, at a given point of time, not all combinations may be submitted to layer 1 but only a subset, the Transport Format Combination. This is defined as an authorised combination of the combination of currently valid Transport Formats that can be submitted simultaneously to the layer 1 for transmission on a Coded Composite Transport Channel of a UE, i.e. containing one Transport Format from each Transport Channel.

EXAMPLE:

DCH1:

Dynamic part: {20 bits, 20 bits}, Semi-static part: {10ms, Convolutional coding only, static rate matching parameter = 2};

DCH2:

Dynamic part: {320 bits, 1 280 bits}, Semi-static part: {10ms, Convolutional coding only, static rate matching parameter = 3};

DCH3:

Dynamic part: {320 bits, 320 bits}, Semi-static part: {40ms, Turbo coding, static rate matching parameter = 2}.

An empty Transport Format Combination is defined as a Transport Format Combination that is only made up of empty Transport Formats.

7.1.9 Transport Format Combination Set

This is defined as a set of Transport Format Combinations on a Coded Composite Transport Channel.

EXAMPLE for DCHs:

- dynamic part:
 - combination 1: DCH1: {20 bits, 20 bits}, DCH2: {320 bits, 1280 bits}, DCH3: {320 bits, 320 bits};
 - combination 2: DCH1: {40 bits, 40 bits}, DCH2: {320 bits, 1280 bits}, DCH3: {320 bits, 320 bits};
 - combination 3: DCH1: {160 bits, 160 bits}, DCH2: {320 bits, 320 bits}, DCH3: {320 bits, 320 bits}
- semi-static part:
 - DCH1: {10ms, Convolutional coding only, static rate matching parameter = 1};
 - DCH2: {10ms, Convolutional coding only, static rate matching parameter = 1};
 - DCH3: {40ms, Turbo coding, static rate matching parameter = 2}.

The Transport Format Combination Set is what is given to MAC for control. However, the assignment of the Transport Format Combination Set is done by L3. When mapping data onto L1, MAC chooses between the different Transport Format Combinations given in the Transport Format Combination Set. Since it is only the dynamic part that differ between the Transport format Combinations, it is in fact only the dynamic part that MAC has any control over.

The semi-static part, together with the target value for the L1 closed loop power control, correspond to the service attributes:

- quality (e.g. BER);
- transfer delay.

These service attributes are then offered by L1. However, it is L3 that guarantees that the L1 services are fulfilled since it is in charge of controlling the L1 configuration, i.e. the setting of the semi-static part of the Transport Formats. Furthermore, L3 controls the target for the L1 closed loop power control through the outer loop power control (which actually is a quality control rather than a power control).

Note that a Transport Format Combination Set need not contain all possible Transport Format Combinations that can be formed by Transport Format Sets of the corresponding Transport Channels. It is only the allowed combinations that are included. Thereby a maximum total bit rate of all transport channels of a Code Composite Transport Channel can be set appropriately. That can be achieved by only allowing Transport Format Combinations for which the included Transport Formats (one for each Transport Channel) do not correspond to high bit rates simultaneously.

The selection of Transport Format Combinations can be seen as a fast part of the radio resource control. The dedication of these fast parts of the radio resource control to MAC, close to L1, means that the flexible variable rate scheme provided by L1 can be fully utilised. These parts of the radio resource control should be distinguished from the slower parts, which are handled by L3. Thereby the bit rate can be changed very fast, without any need for L3 signalling.

7.1.10 Transport Format Indicator (TFI)

The TFI is a label for a specific transport format within a transport format set. It is used in the inter-layer communication between MAC and L1 each time a transport block set is exchanged between the two layers on a transport channel.

When the DSCH is associated with a DCH, the TFI of the DSCH also indicates the physical channel (i.e. the channelisation code) of the DSCH that has to be listened to by the UE.

7.1.11 Transport Format Combination Indicator (TFCI)

This is a representation of the current Transport Format Combination.

There is a one-to-one correspondence between a certain value of the TFCI and a certain Transport Format Combination. The TFCI is used in order to inform the receiving side of the currently valid Transport Format Combination, and hence how to decode, de-multiplex and deliver the received data on the appropriate Transport Channels. The TFCI is not used for the HS-DSCH and E-DCH.

MAC indicates the TFI to Layer 1 at each delivery of Transport Block Sets on each Transport Channel. Layer 1 then builds the TFCI from the TFIs of all parallel transport channels of the UE, processes the Transport Blocks appropriately and appends the TFCI to the physical control signalling. Through the detection of the TFCI the receiving side is able to identify the Transport Format Combination. For FDD, in case of limited Transport Format Combination Sets the TFCI signalling may be omitted, instead relying on blind detection. Nevertheless, from the assigned Transport Format Combinations, the receiving side has all information it needs in order to decode the information and transfer it to MAC on the appropriate Transport Channels.

The multiplexing and exact rate matching patterns follow predefined rules and may therefore be derived (given the Transport Format Combinations) by transmitter and receiver without signalling over the radio interface.

When the meaning of the TFCI field needs to be reconfigured, two procedures can be used depending on the level of reconfiguration:

complete reconfiguration of TFCI: in this procedure all TFCI values are reinitialised and new values are
defined instead. The complete reconfiguration requires an explicit synchronisation between the UE and UTRAN
regarding when the reconfiguration becomes valid.

- **incremental reconfiguration of TFCI:** in this procedures, a part of the TFCI values before and after the reconfiguration remain identical (note that this must be true for at least a TFCI that carry the signalling connection). This procedure supports addition, removal or redefinition of TFCI values. This procedure does not require an explicit execution time. This procedure may imply the loss of some user-plane data.

7.1.12 Rate matching

Two levels of rate matching are defined on the radio interface:

- a static rate matching per Transport Channel. The static rate matching is part of the semi-static attributes of the Transport Channel. Static rate matching is not applicable to HS-DSCH;
- a dynamic rate matching per CCTrCH. The dynamic rate matching adjusts the size of the physical layer data payload to the physical channel as requested by RRC.

The static rate matching and the dynamic rate matching to be applied by the physical layer are indicated by RRC to the physical layer.

In FDD, RRC is also responsible for configuring the physical layer on whether:

- Blind Rate Detection or TFCI is used;
- dynamic rate matching is applied or not on the downlink.

7.1.13 HARQ information

Hybrid ARQ is defined for HS-DSCH and E-DCH. For HS-DSCH with the help of the HARQ information the UE is enabled to identify the process being used for the transport block that is received on the HS-DSCH For E-DCH the HARQ process is derived in an implicit way. For both HS-DSCH and E-DCH the HARQ information also includes information that indicates whether a new data block is transmitted for the first time or a retransmission. Furthermore it is used to decode the received data correctly. The redundancy version is either explicitly indicated as part of the HARQ information (for the HS-DSCH) or is derived from the retransmission indicator (RSN) and the CFN (FFS) (for the E-DCH).

7.1.14 Transport Format and Resource Indication (TFRI)

The TFRI includes information about the dynamic part of the HS-DSCH transport format, including transport block set size and modulation scheme. The TFRI also includes information about the set of physical channels (channelisation codes) onto which HS-DSCH is mapped in the corresponding HS-DSCH TTI.

7.1.15 E-DCH Transport Format Combination Indication (E-TFCI)

The E-TFCI includes information about the transport block set size.

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:
 - used in TDD only;
 - 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).

7.3 Compressed Mode

Compressed Mode is defined as the mechanism whereby certain idle periods are created in radio frames so that the UE can perform measurements during these periods (more details can be found in [3]).

Compressed Mode is obtained by layer 2 using transport channels provided by the layer 1 as follows:

- compressed mode is controlled by the RRC layer, which configures the layer 2 and the physical layer;
- the number of occurrences of compressed frames is controlled by RRC, and can be modified by RRC signalling;
- it is under the responsibility of the layer 2 if necessary and if possible to either buffer some layer 2 PDUs (typically at the RLC layer for NRT services) or to rate-adapt the data flow (similarly to GSM) so that there is no loss of data because of compressed mode. This will be service dependent and controlled by the RRC layer.

For measurements in compressed mode, a transmission gap pattern sequence is defined. A transmission gap pattern sequence consists of alternating transmission gap patterns 1 and 2, and each of these patterns in turn consists of one or two transmission gaps. The transmission gap pattern structure, position and repetition are defined with physical channel parameters described in [6]. In addition, the UTRAN configures compressed mode pattern sequences with the following parameters:

- **TGMP:** Transmission Gap pattern sequence Measurement Purpose: This parameter defines the purpose this transmission gap pattern sequence is intended for. The following values are used:
 - for TDD measurements, one compressed mode pattern sequence can be configured with purpose 'TDD measurement',
 - for FDD measurements, one compressed mode pattern sequence can be configured with purpose 'FDD measurement',
 - for GSM measurements, three simultaneous compressed mode pattern sequences can be configured with purposes 'GSM carrier RSSI measurement', 'Initial BSIC identification' and 'BSIC re-confirmation',
- **TGPSI:** Transmission Gap Pattern Sequence Identifier selects the compressed mode pattern sequence for which the parameters are to be set. The range of TGPSI is [1 to <MaxTGPS>].

The UE shall support a total number of simultaneous compressed mode pattern sequences, which is determined by the UE's capability to support each of the measurement types categorised by the TGMP. For example, a UE supporting FDD and GSM shall support four simultaneous compressed mode pattern sequences and a UE supporting FDD and TDD shall support two simultaneous compressed mode pattern sequences.

When using simultaneous pattern sequences, it is the responsibility of the NW to ensure that the compressed mode gaps do not overlap and are not scheduled to overlap the same frame. Gaps exceeding the maximum gap length shall not be processed by the UE and shall interpreted as a faulty message. If the UE detects overlapping gaps, it shall process the gap from the pattern sequence having the lowest TGPSI.

8 UE Simultaneous Physical Channels combinations

This clause describes the requirements from the UE to send and receive on multiple Transport Channels, which are mapped on different physical channels simultaneously depending on the service capabilities and requirements. The clause will describe the impacts on the support for multiple services (e.g. speech call and SMS-CB) depending on the UE capabilities.

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. 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 CCTrCH + 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 CCTrCH + 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 combinaision 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

	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.

	Physical Channel Combination	Transport Channel Combination	Mandatory dependent on UE radio access capabilities	Comment
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. 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 CCTrCH	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 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.
10	One or more PDSCH + DPCCH + one or more DPDCH	One or more 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.
11	SCCPCH + DPCCH + one or more DPDCH	One or more FACH + 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. 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 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. 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 CCTrCH	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 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. NOTE 2

	Physical Channel Combination	Transport Channel Combination	Mandatory dependent on UE radio access capabilities	Comment
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	Transport	Mandatory dependent	Comment
	Channel Combination	Channel Combination	on UE radio access capabilities	
23	PCCPCH (neighbour cell) + F-DPCH + one or more HS-SCCH + zero, one or more HS- PDSCH+ one or more E-HICH + one or more 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.

8.3 TDD Uplink

8.3.1 3.84 Mcps TDD Uplink

The table addresses the possible combinations of 3.84 Mcps TDD physical channels that can be supported in the uplink by one UE simultaneously on the same frequency in any one 10ms frame. In 3.84 Mcps TDD a physical channel corresponds to one code, one timeslot and one frequency.

Table 3: 3.84 Mcps TDD Uplink

	Physical Channel Combination	Transport Channel Combination	Mandatory or dependent on UE radio access capabilities	Comment
1	PRACH	RACH	Mandatory	
2	DPCH	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. This combination is used as reference measurement channel.
3	One or more than one DPCH	One or more DCH coded into one or more 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.
4	PRACH + one or more DPCH	RACH + one or more DCH coded into one or more 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. This combination may be used for shared channel operation only. At least the usage of two timeslots is required.
5	One or more PUSCH	One or more USCH coded onto one or more CCTrCH	Depending on UE radio access capabilities	This combination is used for shared channel operation.
6	PRACH + one or more PUSCH	RACH + One or more USCH coded onto one or more CCTrCH	Depending on UE radio access capabilities	This combination may be used for shared channel operation only. At least the usage of two timeslots is required.
7	One or more PUSCH + one or more DPCH	One or more USCH coded onto one or more CCTrCH + one or more DCH coded into one or more 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. This combination may be used for shared channel operation.
8	PRACH + one or more PUSCH + one or more DPCH	RACH + one or more USCH coded onto one or more CCTrCH + one or more DCH coded into one or more 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. This combination may be used for shared channel operation. At least the usage of two timeslots is required.
9	One or more DPCH + HS-SICH	One or more DCH coded into one or more CCTrCH	Depending on UE radio access capabilities	

8.3.2 1.28 Mcps TDD Uplink

The table addresses the possible combinations of 1.28 Mcps TDD physical channels that can be supported in the uplink by one UE simultaneously on the same frequency in the TDD 1.28 Mcps option in any one 5 ms subframe. In 1.28 Mcps TDD a physical channel corresponds to one code, one timeslot, one frequency.

Table 4: 1.28 Mcps TDD Uplink

	Physical Channel Combination	Transport Channel Combination	Mandatory or dependent on UE radio access capabilities	Comment
1	UpPCH	N/A	Mandatory	UpPCH is used to establish the uplink synchronisation.
2	PRACH	RACH	Mandatory	
3	UpPCH + One DPCH	One or more DCH coded into a single CCTrCH	Mandatory	One DPCH is needed as reference measurement channel. UpPCH transmission to target cell in case of handover.
4	One DPCH	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 This combination is required for the reference measurement channel.
5	More than one DPCH	One or more DCH coded into one or more CCTrCH	Depending on UE radio access capabilities	The maximum number of DCHs, the maximum number of CCTrCH and the maximum channel bit rate are dependent on UE radio access capabilities.
6	UpPCH+ one or more DPCH	One or more DCH coded into one or more CCTrCH	Depending on UE radio access capabilities	The maximum number of DCHs, the maximum number of CCTrCH and the maximum channel bit rate are dependent on UE radio access capabilities. This configuration is required for UE that operate shared channels and dedicated channels simultaneously.
7	PRACH + one or more DPCHs	RACH + one or more DCH coded into one or more than one CCTrCH	Depending on UE radio access capabilities	The maximum number of DCHs, the maximum number of CCTrCH and the maximum channel bit rate are dependent on UE radio access capabilities. This configuration is required for UE that operate shared channels and dedicated channels simultaneously.
8	One or more PUSCH	One or more USCH coded onto one or more CCTrCH	Depending on UE radio access capabilities	This configuration is required for UE that operate shared channels.
9	UpPCH + one or more PUSCH	One or more USCH coded onto one or more CCTrCH	Depending on UE radio access capabilities	This combination may be used for shared channel operation only.
10	PRACH + one or more PUSCH	RACH + One or more USCH coded onto one or more CCTrCH	Depending on UE radio access capabilities	This combination may be used for shared channel operation only
11	One or more PUSCH + one or more DPCH	One or more USCH coded onto one or more CCTrCH + one or more DCH coded onto one or more 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. This configuration is required for UE that operate shared channels and dedicated channels simultaneously

	Physical Channel Combination	Transport Channel Combination	Mandatory or dependent on UE radio access capabilities	Comment
12	UpPCH + one or more PUSCH + one or more DPCH	One or more USCH coded onto one or more CCTrCH + one or more DCH coded into one or more 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. This combination may be used for shared channel operation.
13	PRACH + one or more PUSCH + one or more DPCH	RACH + one or more USCH coded onto one or more CCTrCH + one or more DCH coded into one or more 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. This combination may be used for shared channel operation.
14	One or more DPCH + HS- SICH	One or more DCH coded into one or more CCTrCH	Depending on UE radio access capabilities	

8.4 TDD Downlink

8.4.1 3.84 Mcps TDD Downlink

The table describes the possible combinations of 3.84 Mcps TDD physical channels that can be supported in the downlink by one UE simultaneously on the same frequency in any one 10ms frame, where a 3.84 Mcps TDD physical channel corresponds to one code, one timeslot and one frequency.

Depending on UE radio capabilities UEs may be required to decode occasionally P-CCPCH of its own cell in the following Physical Channel Combinations to maintain open loop power control and/or acquire parameters for RACH access: 4, 6, 7, 8, 9, 10, 11, 12, 13.

Depending on UE radio capabilities UEs may be required to decode occasionally one P-CCPCH of neighbour cells in the following Physical Channel Combinations for handover: 6, 8, 11, 12, 13.

Table 5: 3.84 Mcps TDD Downlink

	Physical Channel Combination	Transport Channel Combination	Mandatory or dependent on UE radio access capabilities	Comment
1	P-CCPCH + One S-CCPCH	BCH and PCH and/or one or more FACH	Mandatory	
2	P-CCPCH	BCH	Mandatory	
3	S-CCPCH	FACH or/and PCH	Mandatory	
4	More than one S-CCPCH	one or more FACH+ one or more PCH	Depending on UE capabilities	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.
5	PICH	N/A	Mandatory	
6	Three or more DPCH	One or more DCH coded into one or more 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.
7	One or two DPCH	One or more DCH coded into a single CCTrCH	Mandatory	This combination is used for reference measurement channel.
8	One or more S-CCPCH + one or more DPCH	PCH and/or one or more FACH + one or more DCH coded into one or more CCTrCH	Depending on UE radio access capabilities	The number of DCHs and the maximum channel bit rate are dependent on the UE radio access capabilities. This combination is used for shared channel operation only.
9	One or more PDSCH	One or more DSCH coded onto one or more CCTrCH	Depending on UE radio access capabilities	This combination is used for shared channel operation.
10	One or more PDSCH + one or more S-CCPCH	PCH and/or one or more FACH + one or more DSCH coded onto one or more CCTrCH	Depending on UE radio access capabilities	This combination is used for shared channel operation.

	Physical Channel Combination	Transport Channel Combination	Mandatory or dependent on UE radio access capabilities	Comment
11	One or more PDSCH + one or more DPCH	One or more DSCH coded onto one or more 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.
		+ one or more DCH coded into one or more CCTrCH		This combination is used for shared channel operation.
12	One or more PDSCH + one or more S-CCPCH + one or more DPCH	PCH and/or one or more FACH + one or more DSCH coded onto one or more CCTrCH + one or more DCH coded into one or more 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. This combination is used for shared channel operation.
13	Zero, one or more DPCH + zero, one or more HS- PDSCH + one or more HS-SCCH	Zero, one or more DCH coded into one or more CCTrCH + one or more HS-DSCH coded into one CCTrCH	Depending on UE radio access capabilities	
14	MICH	N/A	Depending on UE radio access capabilities	
15	MICH + PICH	N/A	Depending on UE radio access capabilities	
16	MICH + one or more SCCPCH	One or more FACH + one or more PCH + (NOTE 2)	Depending on UE radio access capabilities	Allowing MBMS notification indication during reception of non-MBMS FACH or PCH.
17	PICH + one or more SCCPCH	One or more FACH + (NOTE 2)	Depending on UE radio access capabilities	The maximum number of SCCPCHs and the maximum bit rate depend on the UE implementation.
18	MICH + PICH + one or more SCCPCH	One or more FACH + (NOTE 2)	Depending on UE radio access capabilities	The maximum number of SCCPCHs and the maximum bit rate depend on the UE implementation.
	E 1: Reference: [1:		to an a an anama COTAC	h) + (zaro, one or more DSCH coded onto one or

NOTE 2: + (zero, one or more DCH coded onto one or more CCTrCh) + (zero, one or more DSCH coded onto one or more CCTrCH) + (zero, one or more HS-DSCH coded onto one or more CCTrCH).

8.4.2 1.28 Mcps TDD Downlink

The table addresses the possible combinations of 1.28 Mcps TDD physical channels that can be supported in the downlink by one UE simultaneously on the same frequency in any one 5ms subframe. In 1.28 Mcps TDD a physical channel corresponds to one code, one timeslot, one frequency.

Depending on UE radio capabilities UEs may be required to decode occasionally P-CCPCH of its own cell in the following Physical Channel Combinations: 5, 11, 12, 13, 14, 15, 16, 17, 18.

To support handover it depends on UE capabilities if a UE can support the occasional decoding of neighbour cell P-CCPCH in the physical channel combinations 8, 9, 10, 11, 15,16, 17, 18.

Table 6: 1.28 Mcps TDD Downlink

	Physical Channel Combination	Transport Channel Combination	Mandatory or dependent on UE radio access capabilities	Comment
1	FPACH	N/A	Mandatory	FPACH is used to answer the UE and to adjust the timing and synchronization shift of the UE
2	P-CCPCH	BCH	Mandatory	
3	S-CCPCH	FACH or/and PCH	Mandatory	
4	P-CCPCH +S-CCPCH	BCH + (FACH or/and PCH)	Mandatory	
5	More than one S-CCPCH	one or more FACH+ one or more PCH	Depending on UE capabilities	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.
6	PICH	N/A	Mandatory	
7	FPACH + P- CCPCH + none, one or more S- CCPCH	BCH + (none, one or more FACH+ none, one or more PCH)	Depending on UE capabilities	
8	2 DPCH	One or more DCH coded into a single CCTrCH	Mandatory	The maximum number of DCH and the maximum channel bit rate are dependent on UE radio access capabilities This channel is used as reference measurement channel
9	One or more DPCH	One or more DCH coded into one or more CCTrCH	Depending on UE radio access capabilities	The maximum number of DCHs, the maximum number of CCTrCH and the maximum channel bit rate are dependent on UE radio access capabilities.
10	FPACH + one or more DPCH	One or more DCH coded into one or more CCTrCH	Depending on UE radio access capabilities	FPACH is used to answer the UE and to adjust the timing and synchronization shift of the UE. The maximum number of DCHs, the maximum number of CCTrCH and the maximum channel bit rate are dependent on UE radio access capabilities.
				This configuration is required for UE that operate shared channels and dedicated channels simultaneously.
11	One or more S- CCPCH + one or more DPCH	(One or more FACH or/and PCH) + one or more DCH coded into one or more CCTrCH	Depending on UE radio access capabilities	The maximum number of DCHs, the maximum number of CCTrCH and the maximum channel bit rate are dependent on UE radio access capabilities. This configuration is required for UE that operate shared channels and dedicated channels simultaneously.
12	One or more PDSCH	One or more DSCH coded onto one or more CCTrCH	Depending on UE radio access capabilities	This configuration is required for UE that operate shared channels.
13	FPACH + one or more PDSCH	One or more DSCH coded onto one or more CCTrCH	Depending on UE radio access capabilities	This configuration is desirable but not essential for UE supporting shared channels.

	Physical Channel Combination	Transport Channel Combination	Mandatory or dependent on UE radio access capabilities	Comment
14	One or more S- CCPCH +one or more PDSCH	(One or more FACH and/or PCH) + One or more DSCH coded onto one or more CCTrCH	Depending on UE radio access capabilities	This configuration is desirable but not essential for UE supporting shared channels.
15	One or more PDSCH + one or more DPCH	One or more DSCH coded onto one or more CCTrCH + one or more DCH coded into one or more CCTrCH	Depending on UE radio access capabilities	This configuration is required for UE that operate shared channels and dedicated channels simultaneously.
16	FPACH + one or more PDSCH + one or more DPCH	one or more DSCH coded onto one or more CCTrCH + one or more DCH coded into one or more CCTrCH	Depending on UE radio access capabilities.	FPACH is used to answer the UE and to adjust the timing and synchronization shift of the UE. This configuration is desirable but not essential for UE supporting shared channels and dedicated channels simultaneously.
17	One or more S- CCPCH + one or more PDSCH + one or more DPCH	(One or more FACH and/or PCH) + one or more DSCH coded onto one or more CCTrCH + one or more DCH coded into one or more CCTrCH	Depending on UE radio access capabilities.	This configuration is desirable but not essential for UE supporting shared channels and dedicated channels simultaneously.
18	One or more DPCH + zero, one or more HS- PDSCH + one or more HS-SCCH	One or more DCH coded into one or more CCTrCH + one or more HS-DSCH coded into one CCTrCH	Depending on UE radio access capabilities	
19	MICH	N/A	Depending on UE radio access capabilities	
20	MICH + PICH	N/A	Depending on UE radio access capabilities	
21	MICH + one or more SCCPCH	One or more FACH + one or more PCH + (NOTE 1)	Depending on UE radio access capabilities	Allowing MBMS notification indication during reception of non-MBMS FACH or PCH.
22	PICH + one or more SCCPCH	One or more FACH + (NOTE 1)	Depending on UE radio access capabilities	The maximum number of SCCPCHs and the maximum bit rate depend on the UE implementation.
23 NOT	MICH + PICH + one or more SCCPCH E 1: + (zero, one or	One or more FACH + (NOTE 1) more DCH coded onto one of	Depending on UE radio access capabilities or more CCTrCh) + (ze	The maximum number of SCCPCHs and the maximum bit rate depend on the UE implementation. To, one or more DSCH coded onto one

NOTE 1: + (zero, one or more DCH coded onto one or more CCTrCh) + (zero, one or more DSCH coded onto one or more CCTrCH) + (zero, one or more CCTrCH).

9 Measurements provided by the physical layer

One of the key services provided by the physical layer is the measurement of various quantities, which are used to trigger or perform a multitude of functions. Both the UE and the UTRAN are required to perform a variety of measurements. The standard will not specify the method to perform these measurements or stipulate that the list of measurements provided in this clause must all be performed. While some of the measurements are critical to the functioning of the network and are mandatory for delivering the basic functionality (e.g., handover measurements, power control measurements), others may be used by the network operators in optimising the network (e.g., radio environment).

Measurements may be made periodically and reported to the upper layers or may be event-triggered (e.g., primary CCPCH becomes better than the previous best primary CCPCH). Another reporting strategy may combine the event triggered and the periodical approach (e.g. falling of link quality below a certain threshold initiates periodical reporting). The measurements are tightly coupled with the service primitives in that the primitives' parameters may constitute some of the measurements.

The list and frequency of measurements, which the physical layer reports to higher layers, is described in this clause. The detailed definition of measurement control and abilities is contained in [6] for FDD and [11] for TDD. The measurement performance requirements together with accuracy, range and mapping is specified in [9] for TDD and in [10] for FDD.

The measurement quantities measured by the physical layer shall be such that the following principles are applied:

- for handover measurements, the decoding of parameters on the BCCH logical channel of monitored neighbouring cells, should not, in general, be needed for calculating the measurement result. If there is a need to adjust the measurement result with parameters broadcast on the PCCPCH, these parameters shall be provided by the UTRAN in inband measurement control messages. There may be some exceptions to this rule;

EXAMPLE:

It may be necessary to decode the SFN of the measured neighbouring cell for time difference measurements.

- in idle mode or in RRC connected mode using common Transport Channels, the UE shall be able to monitor cells for cell reselection, without being required to frequently decode parameters on the BCCH logical channel of the monitored neighbouring cells. The decoding frequency of these parameters, set by the cell reselection algorithm, should be such that UE standby times are not significantly decreased.

9.1 Model of physical layer measurements

This subclause describes a model for how the physical layer measurements are performed. This model applies both to the UE and Node B measurements. This model sets the requirement on the behaviour of the measurement elaboration and reporting performed by L1 as well as filtering controlled by higher layers. It is not meant to be a requirement for implementation as long as the performance requirements in [9] and [10] are fulfilled.

The measurement model for physical layer measurements is represented in the figure 7.

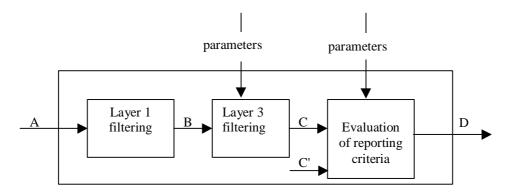


Figure 7: Measurement model

The model is described below:

- **A:** measurements (samples) internal to the physical layer in support to the measurements to be provided to higher layers;
- Layer 1 filtering: internal layer 1 filtering of the inputs measured at point A. Exact filtering is implementation dependant. How the measurements are actually executed in the physical layer by an implementation (inputs A and Layer 1 filtering) in not constrained by the standard i.e. the model does not state a specific sampling rate or even if the sampling is periodic or not. What the standard specifies in [9] and [10] is the performance objective and measurement period at point B in the model. The performance objectives for the physical layer measurements are specified in [9] and [10];

- **B:** A measurement reported by layer 1 after layer 1 filtering. The reporting rate at point B shall be sufficient to meet the performance objectives as defined in [9] and [10];
- Layer 3 filtering: Filtering performed on the measurements provided at point B. The behaviour of the Layer 3 filters are standardised and the configuration of the layer 3 filters is provided by RRC signalling (UE measurements) or NBAP signalling (Node B measurements). Each filtered result at point C shall correspond to a Layer 3 filtering performed using a reporting period equal to one measurement period at point B;
- C: A measurement after processing in the layer 3 filter. The reporting rate is identical to the reporting rate at point B and is therefore also measurement type specific. Although this is not shown in the figure, one measurement can be used by a multiplicity of evaluation of reporting criteria;
- Evaluation of reporting criteria: This checks whether actual measurement reporting is necessary at point D i.e. whether a message need to be sent to higher layers on the radio interface or Iub interface. The evaluation can be based on more than one flow of measurements at reference point C e.g. to compare between different measurements. This is illustrated by input C, C', etc. The UE shall evaluate the reporting criteria at least every time a new measurement result is reported at point C, C' etc. The reporting criteria are standardised and the configuration is provided by RRC signalling (UE measurements) or NBAP signalling (Node B measurements). Examples are periodic reporting and event based reporting. In case periodical reporting is in use and if the reporting interval is different from the filtering period defined by the layer 3 filter, the last measurement result filtered by the L3 filter shall be used as the value of the reported result. In case event triggered reporting is in use and the reporting criteria is fulfilled, the last measurement result filtered by the L3 filter shall be used as the value for reporting criteria evaluation and as the value of the reported result. This applies also for any additional measurements that shall be reported as a consequence of the event;
- **D:** a measurement report information (message) sent on the radio or Iub interface.

9.2 UE Measurements

For definitions of the measurements, see [6] and [11].

The impact of the introduction of E-DCH on the UE measurements is FFS.

9.2.1 SFN-CFN observed time difference

This measure is mandatory for UE.

Measurement	SFN-CFN observed time difference
Source	L1 (UE)
Destination	RRC (RNC) for handover
Reporting Trigger	On-demand, Event-triggered
Description	Time difference between the SFN of the target neighbouring cell and the CFN in the UE.

9.2.2 Observed time difference to GSM cell

This measure is mandatory for UE capable of handover to GSM.

Measurement	Observed time difference to GSM cell
Source	L1 (UE)
Destination	RRC (RNC) for maintenance and handover to GSM
Reporting Trigger	On-demand, Event-triggered
Description	Time difference between a UTRA cell and a GSM cell.

9.2.3 CPICH E_c/N₀

This measure is mandatory for UE with FDD mode capability.

Measurement	CPICH Ec/No
Source	L1(UE)
Destination	RRC (UE, RNC)
Reporting Trigger	Periodic, on demand and event triggered
Description	The received energy per chip of the CPICH divided by the power density in the frequency
	band.

9.2.4 Void

9.2.5 CPICH RSCP

This measure is mandatory for UE with FDD mode capability.

Measurement	CPICH RSCP
Source	L1(UE)
Destination	RRC (UE, RNC)
Reporting Trigger	periodic or event triggered
Description	Received signal code power of the CPICH.

9.2.6 P-CCPCH RSCP

This measure is mandatory for UE with TDD mode capability.

Measurement	P-CCPCH RSCP
Source	L1(UE)
Destination	RRC (UE, RNC)
Reporting Trigger	periodic or event triggered
Description	Received signal code power of the P-CCPCH

9.2.7 Timeslot ISCP

This measure is mandatory for UE with TDD mode capability.

Measurement	Timeslot ISCP
Source	L1(UE)
Destination	RRC (UE, RNC)
Reporting Trigger	periodic or event triggered
Description	Interference Signal Code Power is the interference on the received signal in a specified timeslot.

9.2.8 Void

9.2.9 SIR

This measure is mandatory for UE with TDD mode capability.

Measurement	SIR
Source	L1(UE)
Destination	RRC (UE,RNC)
Reporting Trigger	Periodic, once every power control cycle, event triggered
Description	Signal to Interference Ratio

9.2.10 UTRA carrier RSSI

This measure is mandatory for UE.

Measurement	UTRA carrier RSSI
Source	L1(UE)
Destination	RRC (RNC)
Reporting Trigger	Periodic, event triggered, on demand
Description	Received Signal Strength Indicator, the wideband received power within the relevant
	channel bandwidth. For TDD this is measured in specified timeslots.

9.2.11 GSM carrier RSSI

This measure is mandatory for UE with GSM capability.

Measurement	GSM carrier RSSI
Source	L1(UE)
Destination	RRC (RNC)
Reporting Trigger	Periodic, event triggered, on demand
	Received Signal Strength Indicator, the wide-band received power within the relevant channel bandwidth. Details are specified in the GSM specification 05.08

9.2.12 Transport channel BLER

This measure is mandatory for UE.

Measurement	Transport channel BLER (BLock Error Rate)
Source	L1(UE)
Destination	RRC (RNC,UE)
Reporting Trigger	Periodic, on demand
Description	Estimation of the transport channel block error rate (BLER).

9.2.13 UE transmitted power

This measure is mandatory for UE.

Measurement	UE transmitted power
Source	L1(UE)
Destination	RRC (UE,RNC)
Reporting Trigger	On-demand, periodic, Event-triggered
Description	Total transmitted power on one carrier. For TDD this is measured in specified timeslots.

9.2.14 UE Rx-Tx time difference

This measure is mandatory for UE with FDD mode capability.

Measurement	UE Rx-Tx time difference
Source	L1 (UE)
Destination	RRC (RNC)
Reporting Trigger	On-demand, periodic, event-triggered
Description	Time difference between the UE uplink DPCCH/DPDCH frame transmission and the first
	detected path (in time) of the downlink DPCH or F-DPCH frame from the measured radio
	link. Type 1 and Type 2 are defined.

9.2.15 SFN-SFN Observed time difference

This measure is mandatory for UE.

Measurement	SFN-SFN observed time difference
Source	L1 (UE)
Destination	RRC (RNC)
Reporting Trigger	On-demand, Event-triggered
Description	Time difference between a specific reference UTRA cell and a target UTRA cell. Type 1 and Type 2 are defined.

9.2.16 UE GPS Timing of Cell Frames for UE positioning

This measure is mandatory for UE that has the capability to measure GPS reference time.

Measurement	UE GPS Timing of Cell Frames for UE positioning
Source	L1 (UE)
Destination	RRC (RNC-UE positioning)
Reporting Trigger	On-demand, Event-triggered, Periodic
Description	The timing between UTRA cell and GPS Time Of Week.

9.2.17 Timing Advance (T_{ADV}) for 1.28 Mcps TDD

This measure is mandatory for 1.28 Mcps TDD UE.

Measurement	Timing Advance (T _{ADV}) for 1.28 Mcps TDD
Source	L1 (UE)
Destination	RRC (RNC)
Reporting Trigger	On-demand, Event-triggered, Periodic
Description	Difference between the uplink transmission of the UE and the downlink reception.

9.2.18 UE GPS code phase

This measure is mandatory for UE with UE-assisted GPS capability.

NOTE: The UE transmits the GPS code phase in the IE "Whole GPS Chips" and in the IE "Fractional GPS Chips" defined in [13].

Measurement	UE GPS code phase
Source	L1 (UE)
Destination	RRC (RNC)
Reporting Trigger	On-demand, Event-triggered, Periodic
Description	The whole and fractional phase of the spreading code of the GPS satellite signal.

9.3 UTRAN Measurements

The impact of the introduction of E-DCH on the UTRAN measurements is FFS.

9.3.1 Received total wide band power

Measurement	Received total wide band power
Source	L1 (Node B)
Destination	RRC(RNC)
Reporting Trigger	On-demand, Event-triggered, Periodic
Description	The received wide band power including noise generated in the receiver, within the bandwidth defined by the pulse shaping filter. For TDD mode, this is measured in specified timeslots.

9.3.2 Transmitted carrier power

Measurement	Transmitted carrier power
Source	L1(Node B)
Destination	RRC (RNC)
Reporting Trigger	On-demand, periodic, Event-triggered
Description	Transmitted carrier power is the ratio between the total transmitted power on one DL carrier from one UTRAN access point, compared to the maximum power possible to use on that DL carrier at this moment of time. For TDD mode, this is measured in specified timeslots.

9.3.3 Transmitted code power

Measurement	Transmitted code power
Source	L1(Node B)
Destination	RRC (RNC)
Reporting Trigger	On-demand, periodic, Event-triggered
Description	Transmitted Code Power is the transmitted power on one carrier, one scrambling and one
	channelisation code. For TDD mode, this is measured in specified timeslots.

9.3.4 Void

9.3.5 Physical channel BER

Measurement	Physical channel BER
Source	L1(Node B)
Destination	RRC (RNC)
Reporting Trigger	On-demand, Event-triggered, periodic
Description	The Physical channel BER is an estimation of the average bit error rate (BER) on the DPCCH of a Radio Link Set.
	This measurement applies to FDD mode only.

9.3.6 Transport channel BER

Measurement	Transport channel BER
Source	L1(Node B)
Destination	RRC (RNC)
Reporting Trigger	On-demand, Event-triggered, periodic
Description	The transport channel BER is an estimation of the average bit error rate (BER) data part.

9.3.7 RX timing deviation

Measurement	RX timing deviation
Source	L1 (Node B)
Destination	RRC (RNC)
Reporting Trigger	Periodic, event triggered
Description	The difference of the time of arrival of the UL transmissions in relation to the arrival time of
	a signal with zero propagation delay. This measurement is applicable for TDD mode.

9.3.8 Timeslot ISCP

Measurement	Timeslot ISCP
Source	L1(Node B)
Destination	RRC (RNC)
Reporting Trigger	periodic or event triggered
Description	Interference on Signal Code Power, is the interference on the received signal in a
	specified timeslot. This measurement is applicable is applicable to TDD mode only.

9.3.9 RSCP

Measurement	RSCP
Source	L1(Node B)
Destination	RRC (RNC)
Reporting Trigger	periodic or event triggered
	Received Signal Code Power is the received power on DPCH or PRACH, PUSCH or HS-SICH. This measurement is applicable for TDD mode only.

9.3.10 Round Trip Time

Measurement	Round Trip Time
Source	L1(Node B or LMU)
Destination	RRC (RNC-UE positioning)
Reporting Trigger	on demand, event triggered
Description	This is an estimate of the round trip time of signals between the Node B and the UE This
	measurement is applicable for FDD mode only.

9.3.11 Void

9.3.12 Acknowledged PRACH preambles

Measurement	Acknowledged PRACH preambles
Source	L1(Node B)
Destination	RRC (RNC)
Reporting Trigger	Periodic, event triggered, On demand
Description	This measurement indicates the number of positive acquisition indicators transmitted per access
	frame on each AICH. This measurement is applicable for FDD mode only.

9.3.13 Detected PCPCH access preambles

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

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.

9.3.17 UTRAN GPS Timing of Cell Frames for UE positioning

Measurement	UTRAN GPS Timing of Cell Frames for UE positioning
Source	L1 (LMU)
Destination	RRC (RNC-UE positioning)
Reporting Trigger	On-demand, Event-triggered, Periodic
Description	This is the absolute time reference measurement in respect to GPS Time Of Week for the
	transmission of a particular frame.

9.3.18 SIR ERROR

Measurement	SIR ERROR
Source	L1(Node B)
Destination	RRC (RNC)
Reporting Trigger	Periodic, event triggered
Description	Signal to Interference Ratio Error
	This measurement is applicable for FDD cells only.

9.3.19 Received SYNC_UL Timing Deviation

Measurement	Received SYNC_UL Timing Deviation
Source	L1 (Node B)
Destination	RRC (RNC)
Reporting Trigger	Event triggered
	Received SYNC_UL Timing Deviation' is the time difference UpPCH _{POS} = UpPTS _{Rxpath} - UpPTS _{TS} Where UpPTS _{Rxpath} : time of the reception in the Node B of the SYNC_UL to be used in the uplink synchronization process UpPTS _{TS} : time instance two symbols prior to the end of the DwPCH according to the Node B internal timing

9.3.20 Cell Sync Burst Timing

Measurement	Cell Sync Burst Timing
Source	L1(Node B)
Destination	RRC (RNC)
Reporting Trigger	Periodic, event triggered
	Cell sync burst timing is the time of start (defined by the first detected path in time) of the cell sync burst of a neighbouring cell. Type 1 is used for the initial phase of Node B synchronization. Type 2 is used for the steady-state phase of Node B synchronization.

9.3.21 Cell Sync Burst SIR

Measurement	Cell Sync Burst SIR
Source	L1(Node B)
Destination	RRC (RNC)
Reporting Trigger	Periodic, event triggered
Definition	Signal to Interference Ratio for the cell sync burst, defined as: RSCP/Interference, where:

9.3.22 SFN-SFN Observed time difference

Measurement	SFN-SFN observed time difference
Source	L1 (LMU)
Destination	RRC (RNC-UE positioning)
Reporting Trigger	On-demand, Periodic, On Modification
Description	Measured time between reception of signal from a specific reference UTRA cell and from a neighbour UTRA cell.

9.3.23 Angle of Arrival (AOA) for 1.28 Mcps TDD

Measurement	Angle of Arrival (AOA) for 1.28Mcps TDD
Source	L1 (Node B)
Destination	RRC (RNC)
Reporting Trigger	Event-triggered, on-demand
·	AOA defines the estimated angle of a user with respect to a reference direction. The reference direction for this measurement shall be the North, positive in a counter-clockwise direction. The AOA is determined at the UTRAN access point antenna for an UL channel corresponding to this UE.

9.3.24 HS-SICH reception quality

, Event-triggered, Periodic
H reception quality is defined via the the number of expected HS-SICH as from a given UE and the number of unsuccessful HS-SICH receptions for E in the Node B. For 1.28 Mcps TDD, only measurements made on HS-SICH as that were transmitted using open loop power control are reported as part of ement. The second of the second

9.3.25 Transmitted carrier power of all codes not used for HS-PDSCH or HS-SCCH transmission

Measurement	Transmitted carrier power of all codes not used for HS-PDSCH or HS-SCCH transmission
Source	L1 (Node B)
Destination	RRC (RNC)
Reporting Trigger	On-demand, periodic, Event-triggered
Description	Transmitted carrier power of all codes not used for HS-PDSCH or HS-SCCH transmission is the ratio between the total transmitted power of all codes not used for HS-PDSCH or HS-SCCH transmission on one DL carrier from one UTRAN access point, and the maximum transmission power possible to use on that DL carrier at this moment of time. For TDD mode, this is measured in specified timeslots.

9.3.26 UpPTS interference (1.28Mcps TDD)

Measurement	UpPTS interference (1.28Mcps TDD)
Source	L1 (Node B)
Destination	RRC (RNC)
Reporting Trigger	On-demand, periodic, Event-triggered
Description	The level of interference in the UpPTS is the difference between the mean received power in the UpPTS and the sum of the estimated mean power levels of all detected UpPCH transmissions. In the case of antenna diversity, the linear average of the UpPTS interference levels for each antenna branch shall be calculated. The reference point for the UpPTS interference measurement shall be the Rx antenna connector.

9.3.27 DL Transmission Branch Load

Measurement	DL Transmission Branch Load			
Source	L1(Node B)			
Destination	RRC (RNC)			
Reporting Trigger	On-demand, Event-triggered, Periodic			
Description	The 'DL transmission branch load' is the maximum of the transmission branch loads calculated for each branch. A 'transmission branch load' is the ratio between the total transmitted power [W] on the considered branch and the 'maximum DL branch capability' on this branch. The 'maximum DL branch capability' defines the maximum transmission power possible to use on that branch. The reference point for the transmission branch load measurement shall be the TX antenna connector.			

10 Primitives of the physical layer

The Physical layer interacts with other entities as illustrated in figure 1. The interactions with the MAC layer and the RRC layer are shown in terms of primitives where the primitives represent the logical exchange of information and control between the physical layer and higher layers. They do not specify or constrain implementations. The (adjacent) layers connect to each other through Service Access Points (SAPs). Primitives, therefore, are the conveyers of the information exchange and control through SAPs.

Four types of primitives are used for the present document, as follows.

- **REQUEST (REQ):**

- This type is used when a higher layer is requesting a service from a lower layer.

- INDICATION (IND):

- This type is used by a lower layer providing a service to notify its higher layer of activities concerning that higher layer.

- **RESPONSE** (**RESP**):

- This type is used by a higher layer providing the indicated service to respond to its lower layer that the activity has been completed.

- CONFIRM (CNF):

- This type is used by a lower layer providing the requested service to confirm to the higher layer that the activity has been completed.

The primitives defined below are for local communications between MAC and L1, as well as RRC and L1 in the same protocol stack.

For the physical layer two sets of primitives are defined:

- Primitives between layer 1 and 2:

- PHY - Generic name - Type: Parameters.

- Primitives between layer 1 and the RRC entity:

- CPHY - Generic name - Type: Parameters.

NOTE: This is a logical description of the primitives and does not cover addressing aspects (e.g. Transport Channel ID, Physical Channel ID, start frame number or disconnect frame number).

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	Not Defined	Not Defined	access information (1)
	subset (1), ASC			, ,
	selected for Transport			
	Block Set to be			
	transmitted (5)			
PHY-Data	TFI, E-TFI (8),	TFI, E-TFI	Not Defined	Not Defined
	Transport Block Set,	(8)Transport Block		
	CFN _{CELL} , TTI within	Set, CRC check result,		
	CFN (7), Paging	TD (4), HARQ process		
	Indicators (2), ASC	(7)		
	selected for that			
	Transport Block Set			
	(3), HS-DSCH			
	information (6), E-			
	DCH information (8)			
PHY-CPCH_Status	Transport Format	Not Defined	Not Defined	Transport Format
	subset (1)			subset (1)
PHY-Status	HARQ status (7)	Event value, HS-	Not Defined	Not Defined
		DSCH Feedback		
		information (7)		

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)

10.1.2 PHY-Access-CNF

The PHY-Access-CNF primitive is used to confirm that physical layer synchronisation has been established and that the physical layer is ready for data transmission using the PHY-Data primitive. This primitive is used in FDD and 1.28 Mcps TDD only.

Parameters:

access information.

10.1.3 PHY-Data-REQ

The PHY-Data primitives are used to request SDUs used for communications passed to and from the physical layer. One PHY-Data primitive is submitted every Transmission Time Interval for each Transport Channel.

Parameters:

- TFI;
- E-TFI (E-DCH only);

- Transport Block Set;
- CFN_{CELL};
- TTI within CFN (HS-DSCH and E-DCH (2ms TTI) only);
- Page Indicators (PIs) (PCH only);
- HS-DSCH information (HS-DSCH information);
- E-DCH information (E-DCH information);
- ASC selected for that Transport Block Set (3.84 Mcps TDD RACH only).

10.1.4 PHY-Data-IND

The PHY-Data primitives are used to indicate SDUs used for Layer 2 passed to and from the physical layer. One PHY-Data primitive is submitted every Transmission Time Interval for each Transport Channel.

Parameters:

- TFI:
- E-TFI (E-DCH only);
- Transport Block Set;
- CRC check result;
- TD (RX Timing Deviation measurement) (optional, TDD only);
- Process Id (HS-DSCH and E-DCH only);
- Retransmission number (E-DCH only).

10.1.5 PHY-CPCH Status-REQ

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

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			
Generic Name	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				

10.2.1 STATUS PRIMITIVES

10.2.1.1 CPHY-Sync-IND

This primitive is used for L1 to indicate to RRC that synchronisation of a certain physical channel has been done in the receiver. In FDD synchronisation is based on reception of the DPCCH or F-DPCH, and in TDD synchronisation is based on Special Burst, TB reception, and DPCH burst quality estimation. For 3.84 Mcps TDD, when the UE is in cell_DCH state but no DL DPCH is configured the primitive is based on the methods specified in [5].

Parameters:

- CCTrCH ID (TDD only).

10.2.1.2 CPHY-Out-of-Sync-IND

Primitive sent from L1 to RRC indicating that synchronisation of a previously configured connection has been lost in the receiver. In FDD synchronisation is based on reception of the DPCCH or F-DPCH, and in TDD synchronisation is based on Special Burst, TB reception, and DPCH burst quality estimation. For 3.84 Mcps TDD, when the UE is in cell_DCH state but no DL DPCH is configured the primitive is based on the methods specified in [5].

Parameters:

- CCTrCH ID (TDD only).

10.2.1.3 CPHY-Measurement-REQ

The Request primitive is used for RRC to configure L1 measurements.

Parameters:

transmission power threshold;

- refer to clause 9 for measurement parameters.

10.2.1.4 CPHY-Measurement-IND

The Indication primitive is used to report the measurement results.

Parameters:

- refer to clause 9 for measurement parameters.

10.2.1.5 CPHY-Error-IND

The CPHY-Error primitive is used to indicate to the management entity that an error has occurred as a result of a physical layer fault.

Parameters:

- error code.

10.2.1.6 CPHY-CPCH-EOT-IND

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
CPHY-MBMS-Config	MBMS information	Not Defined	Not Defined	No Parameter
NOTE (1): FDD only.	_			

10.2.2.1 CPHY-TrCH-Config-REQ

This primitive is used for setting up and configuring a transport channel, and also to modify an existing transport channel.

Parameters:

- transport channel description.

10.2.2.2 CPHY-TrCH-Config-CNF

This primitive is used for confirming the setting up and configuring a transport channel, and also modifying an existing transport channel.

Parameters:

- No Parameter.

10.2.2.3 CPHY-TrCH-Release-REQ

This primitive is used for releasing a transport channel.

Parameters:

- No Parameter.

10.2.2.4 CPHY-TrCH-Release-CNF

This primitive is used for confirming the releasing a transport channel.

Parameters:

- No Parameter.

10.2.2.5 CPHY-RL-Setup-REQ

The Request primitive is sent from RRC to L1 for establishment of a Radio link to a certain UE.

Parameters:

- physical channel description.

10.2.2.6 CPHY-RL-Setup-CNF

The Confirm primitive is returned from L1 to RRC when the Radio link is established. In case L1 is unable to execute the request, this is indicated in the confirm primitive.

Parameters:

- No Parameter.

10.2.2.7 CPHY-RL-Release-REQ

The Request primitive is sent from RRC to L1 for release of a Radio link to a certain UE.

Parameters:

- No Parameter.

10.2.2.8 CPHY-RL-Release-CNF

The Confirm primitive is returned from L1 to RRC when the radio link is released.

Parameters:

- No Parameter.

10.2.2.9 CPHY- RL-Modify-REQ

The Request primitive is sent from RRC to L1 for modification of a Radio link to a certain UE.

Parameters:

- physical channel description.

10.2.2.10 CPHY-RL-Modify-CNF

The Confirm primitive is returned from L1 to RRC when the radio link is modified. In case L1 is unable to execute the request, this is indicated in the confirm primitive.

Parameters:

- No Parameter.

10.2.2.11 CPHY-Commit-REQ

This primitive is sent from RRC to L1 to synchronise UE and NW for the physical channel modification.

Parameters:

- activation time.

10.2.2.12 CPHY-CPCH-Estop-IND

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

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

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

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.

10.2.2.16 CPHY-Out-of-Sync-Config-REQ

This primitive is sent from RRC to Node B L1 to reconfigure the parameters to detect "in sync" and "out of sync" conditions of uplink physical channel transmission.

Parameters:

- Out of Sync detection parameters

10.2.2.17 CPHY-Out-of-Sync-Config-CNF

This primitive is sent from Node B L1 to RRC for confirming the Reconfiguration of the Out-of-Sync parameters on Node B L1.

Parameters:

- No Parameter.

10.2.2.18 CPHY-MBMS-Config-REQ

This primitive is sent from UE RRC to L1 for the configuration of the MBMS information.

Parameters:

- MBMS information.

10.2.2.19 CPHY-MBMS-Config-CNF

This primitive is used to confirm the configuration of the MBMS information.

Parameters:

No Parameter.

10.3 Parameter definition

10.3.1 Error code

- Hardware failure.

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.

10.3.4 Transport Format Subset

- A subset of the Transport Format set of a Transport Channel.

10.3.5 Physical channel description

10.3.5.1 Primary SCH

- Tx diversity mode.

10.3.5.2 Secondary SCH

- Tx diversity mode.

10.3.5.3 Primary CCPCH

- Frequency info.
- DL scrambling code.
- Tx diversity mode.
- Timeslot (TDD only).
- Burst type (3.84 Mcps TDD only).
- Offset (TDD only).
- Repetition period (TDD only).
- Repetition length (TDD only).

10.3.5.4 Secondary CCPCH

- DL scrambling code.
- Channelisation code.
- Tx diversity mode.
- Timeslot (TDD only).
- Burst type (3.84 Mcps TDD only).
- Midamble shift (TDD only).
- Offset (TDD only).

- Repetition period (TDD only).
- Repetition length (TDD only).
- TFCI presence (TDD only).
- MCCH modification period (only S-CCPCH carrying MCCH).
- MCCH repetition period (only S-CCPCH carrying MCCH).
- MCCH access info period (only S-CCPCH carrying MCCH).
- MSCH scheduling period/offset (only S-CCPCH carrying MSCH).

10.3.5.5 PRACH

- Access Slot (FDD only).
- Preamble scrambling code (FDD only).
- Available preamble signatures (FDD only).
- Spreading factor for data part.
- Power control info:
 - UL target SIR;
 - primary CCPCH DL TX Power;
 - UL interference;
 - power offset (Power ramping) (FDD only).
- Access Service Class Information (PRACH Partitioning):
 - Available signatures for each ASC (FDD only).
 - Available Channelisation codes for each ASC (TDD only).
 - Available Subchannels for each ASC.
- AICH transmission timing parameter (FDD only).
- Timeslots (TDD only).
- Available Channelisation Codes (TDD only)
- Spreading Factor (TDD only).
- Midamble Type (TDD only).

10.3.5.6 Uplink DPDCH+DPCCH

- UL scrambling code.
- DPCCH slot structure (N_{pilot} , N_{TPC} , N_{TFCI} , N_{FBI}).
- Transmission Time offset value.

10.3.5.7 Uplink DPCH

- Timing Advance (TDD only).
- DPCH channelisation code (TDD 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).

10.3.5.8 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_{CCC}) (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)

- 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.

10.3.5.10 PICH

- Scrambling code.
- Channelisation code.
- Timeslot (TDD only).
- Burst Type (3.84 Mcps TDD only).
- Midamble shift (TDD only).
- Offset (TDD only).
- Repetition period (TDD only).
- Repetition length (TDD only).

10.3.5.11 AICH

- Scrambling code.
- Channelisation code.
- Tx diversity mode.

NOTE: The value for the parameters needs to be consistent with the corresponding PRACH.

10.3.5.12 AP-AICH

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

10.3.5.13 CD-ICH

- 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

- 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

- 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.

10.3.5.16 PDSCH (TDD only)

- Scrambling code.
- Channelisation code.
- Tx diversity mode:
 - FB mode (FDD only).
- DL channelisation code (TDD only).
- Burst Type (3.84 Mcps TDD only).
- PDSCH Midamble shift (TDD only).
- Timeslot (TDD only).
- Offset (TDD only).
- Repetition period (TDD only).
- Repetition length (TDD only).
- TFCI presence (TDD only).

10.3.5.17 PUSCH

- PUSCH channelisation code.
- Burst Type (3.84 Mcps TDD only).
- PUSCH midamble shift (TDD only).
- Timeslot (TDD only).
- Offset (TDD only).
- Repetition period (TDD only).
- Repetition length (TDD only).
- TFCI presence (TDD only).
- Timing Advance (TDD only).

10.3.5.18 DwPCH (1.28 Mcps TDD only)

- Tx diversity mode.

- SYNC_DL code ID.

10.3.5.19 UpPCH (1.28 Mcps TDD only)

- SYNC_UL code ID.

10.3.5.20 FPACH (1.28 Mcps TDD only)

- Scrambling code
- Channelisation code
- Timeslot
- Midamble shift
- Tx diversity mode.

10.3.5.21 PNBSCH (Physical Node B Synchronisation channel)

- Node B Node B over the air communication.
- Only for TDD cells.
- Repetition period.
- <u>C</u>oncatenated periodically <u>E</u>xtended <u>C</u>omplementary sequences.

10.3.5.22 HS-SCCH

- Scrambling code.
- Channelisation code.
- Timeslot (TDD only).
- Burst type (3.84 Mcps TDD only).

10.3.5.23 HS-SICH (TDD only)

- Channelisation code.
- Burst Type 1 (3.84 Mcps TDD only).
- Midamble shift.
- Timeslot.

10.3.5.24 E-AGCH (FDD only)

- Scrambling code.
- Channelisation code.
- Tx diversity mode (FFS).
- Transmission Time offset value (FFS It is FFS whether timing of E-AGCH is identical to other common channels physical channels such as SCCPCH. Decision may be dependent on UE processing time).

10.3.5.25 E-DPCCH (FDD only)

- No parameter.

10.3.5.26 E-DPDCH (FDD only)

- No parameter.

10.3.5.27 E-HICH (FDD only)

- Scrambling code.
- Channelisation code.
- Hadamard sequence
- Transmission Time offset value (FFS –transmission time offset may be UE specific if slot alignment rather than sub-frame alignment is agreed).
- I or Q mapping (if BPSK modulation applies) (FFS)

10.3.5.28 E-RGCH (FDD only)

- Scrambling code.
- Channelisation code.
- Hadamard sequence.
- Transmission Time offset value (FFS –transmission time offset may be UE specific if slot alignment rather than sub-frame alignment is agreed).
- I or Q mapping (if BPSK modulation applies) (FFS).

10.3.5.28 MICH

- Scrambling code.
- Channelisation code.
- Timeslot (TDD only).
- Burst Type (3.84 Mcps TDD only).
- Midamble shift (TDD only).
- Offset (TDD only).
- Repetition period (TDD only).
- Repetition length (TDD only).

10.3.6 Feedback information

- Quality indication (HS-DSCH and E-DCH only FFS).
- HARQ Status (HS-DSCH and E-DCH only).

Additional content of the Feedback information for the E-DCH is FFS.

10.3.7 HARQ process

Process Id.

10.3.8 HS-DSCH information

- Modulation scheme.

- Channelisation code.
- Timeslot (TDD only).
- Redundancy version/Constellation.
- Process Id.
- HS-SCCH Cyclic Sequence Number (HCSN) for TDD.

10.3.9 HARQ status

- HARQ acknowledgement (acknowledgement or negative acknowledgement).

10.3.10 E-DCH information

- Number of allowed redundancy versions.
- Maximum number of transmissions
- New transmission indication
- Process Id.
- Power offset

10.3.11 MBMS information

- MBMS L1 combining schedule.
- MBMS service transmission schedule.

Tdoc # R2-051608

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

 ★ Feature Clean-up: Removal of DSCH (FDD) Title: Source: ₩ RAN WG2 Date: # 10/05/2005 Category: **ℋ** C Release: # REL-5 Use one of the following categories: Use one of the following releases: **F** (correction) (GSM Phase 2) A (corresponds to a correction in an earlier (Release 1996) R96 R97 (Release 1997) release) (addition of feature), (Release 1998) R98 (functional modification of feature) R99 (Release 1999) **D** (editorial modification) Rel-4 (Release 4) Detailed explanations of the above categories can Rel-5 (Release 5) be found in 3GPP TR 21.900. Rel-6 (Release 6)

Reason for change: # Removal of DSCH for FDD Summary of change:

Removal of DSCH for FDD Consequences if ★ DSCH for FDD mode will remain specified not approved:

Clauses affected: 第 6.3.1, 6.3.2

	YN			
Other specs	₩ X	Other core specifications	*	25.211, 25.212, 25.213, 25.214, 25.301, 25.302, 25.303, 25.306, 25.321, 25.331, 25.401, 25.402, 25.420, 25.423, 25.424, 25.425, 25.427, 25.430, 25.433, 25.434, 25.435
affected:	X	Test specifications O&M Specifications		34.108, 34.123
Other comments:	H			

How to create CRs using this form:

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- 1) Fill out the above form. The symbols above marked \(\mathcal{H} \) 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.

6.3 Data transmission

6.3.1 VoidAcknowledged-mode data transmission on DSCH using hard split of TFCI-word

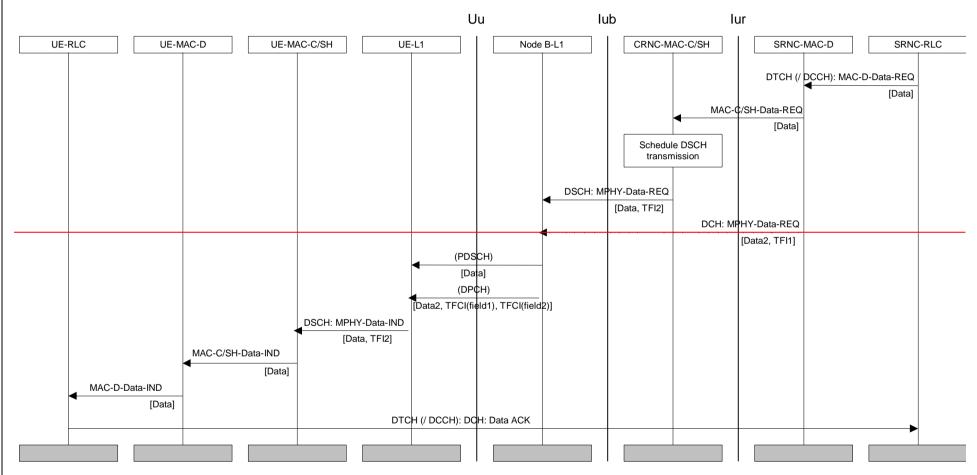


Figure 19: Example of acknowledged-mode data transmission on DSCH

Figure 19 shows an example of acknowledged mode data transmission on DSCH associated with a DCH. First RLC in SRNC requests data transmission locally from MAC d. MAC d routes the request either locally or across the Iur to MAC c/sh in CRNC, where DSCH transmission scheduling takes place. MAC c/sh determines the TFI for the data ('TFI2') and requests data transmission across Iub from the physical layer in Node B. At the same time data for an associated dedicated channel may arrive in Node B.

All TFIs for DCHs (e.g. 'TFI1')) are translated into TFCI(field1). TFCI(field2) carries corresponding information for the DSCH. TFCI(field1) and TFCI(field2) are combined in the physical layer using 'hard' split of the TFCI word and transmitted on the DPCCH (dedicated physical control channel) of the associated DPCH (dedicated physical channel). The DSCH data is transmitted separately on the PDSCH (physical downlink shared channel). TFCI(field2) is used to decode DSCH data, which is then forwarded through MAC c/sh and MAC d to the receiving RLC. An acknowledgement is eventually sent by the UE RLC mapped to a DCH, unless the DCH is released before the acknowledgement.

6.3.2 <u>VoidAcknowledged-mode data transmission on DSCH using logical split of TFCI-word</u>

NOTE: For this release of the specification this example is only valid in the case where SRNC = CRNC.

Figure 20 shows an example of acknowledged mode data transmission on DSCH. First RLC in SRNC requests data transmission from MAC d. MAC d passes the data on to MAC c/sh, which schedules the DSCH-transmission and determines the TFI2 for the data. TFCI(field2) and CFN (connection frame number) for transmission are given back to MAC d.

MAC c/sh transmits the DSCH data while MAC d transmits all TFIs synchronised with the transmission of any DCH data and TFIs intended for transmission in the same frame. TFCI(field2)for the DSCH and TFCI(field1)for the DCH are combined into the same TFCI on the physical layer using 'logical' split of TFCI word and transmitted on the DPCCH (dedicated physical control channel) of the associated DPCH (dedicated physical channel). The DSCH data is transmitted separately on the PDSCH (physical downlink shared channel). TFCI(field2)is used to decode DSCH data, which is then forwarded through MAC c/sh and MAC d to the receiving RLC. An acknowledgement is eventually sent by the UE RLC mapped to a DCH, unless the DCH is released before the acknowledgement.

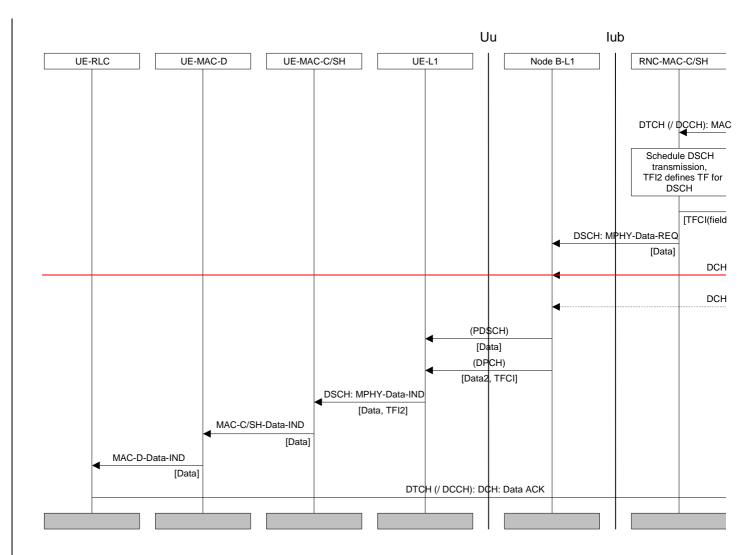


Figure 20: Example of acknowledged mode data transmission on DSCH

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CHANGE REQUEST							CR-Form-v7	
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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 X Radio Access Network X Core Network

 ★ Feature Clean-up: Removal of DSCH (FDD) Title: Source: ₩ RAN WG2 Date: # 10/05/2005 Category: **ℋ** C Release: # REL-6 Use one of the following categories: Use one of the following releases: **F** (correction) (GSM Phase 2) A (corresponds to a correction in an earlier (Release 1996) R96 R97 (Release 1997) release) (Release 1998) **B** (addition of feature), R98 **C** (functional modification of feature) R99 (Release 1999) **D** (editorial modification) Rel-4 (Release 4) Detailed explanations of the above categories can Rel-5 (Release 5) be found in 3GPP TR 21.900. Rel-6 (Release 6)

Reason for change:
Removal of DSCH for FDD

Summary of change:
Removal of DSCH for FDD

Consequences if mot approved:

Beginned approved:
Removal of DSCH for FDD

DSCH for FDD mode will remain specified

Clauses affected: # 6.3.1, 6.3.2

	YN			
Other specs	₩ X	Other core specifications	*	25.211, 25.212, 25.213, 25.214, 25.301, 25.302, 25.303, 25.306, 25.321, 25.331, 25.401, 25.402, 25.420, 25.423, 25.424, 25.425, 25.427, 25.430, 25.433, 25.434, 25.435
affected:	X	Test specifications O&M Specifications		34.108, 34.123
Other comments:	H			

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6.3 Data transmission

6.3.1 VoidAcknowledged-mode data transmission on DSCH using hard split of TFCI-word

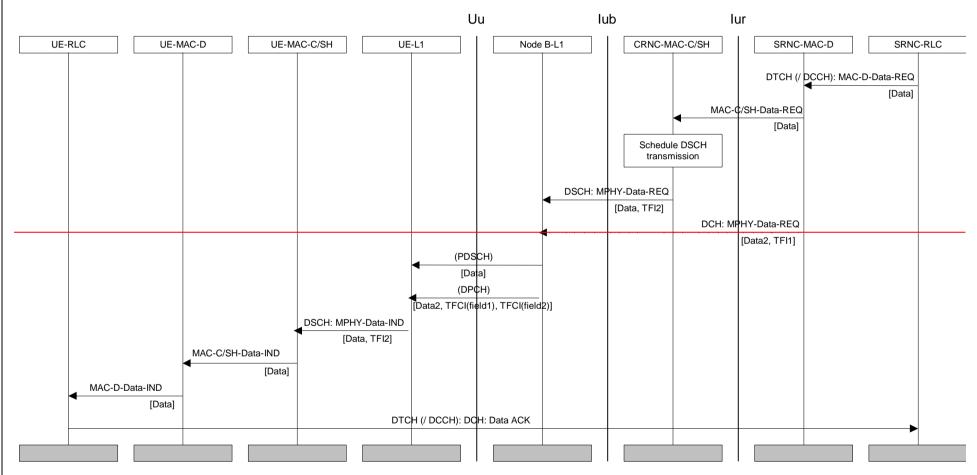


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6.3.2 <u>VoidAcknowledged-mode data transmission on DSCH using logical split of TFCI-word</u>

NOTE: For this release of the specification this example is only valid in the case where SRNC = CRNC.

Figure 20 shows an example of acknowledged mode data transmission on DSCH. First RLC in SRNC requests data transmission from MAC d. MAC d passes the data on to MAC c/sh, which schedules the DSCH-transmission and determines the TFI2 for the data. TFCI(field2) and CFN (connection frame number) for transmission are given back to MAC d.

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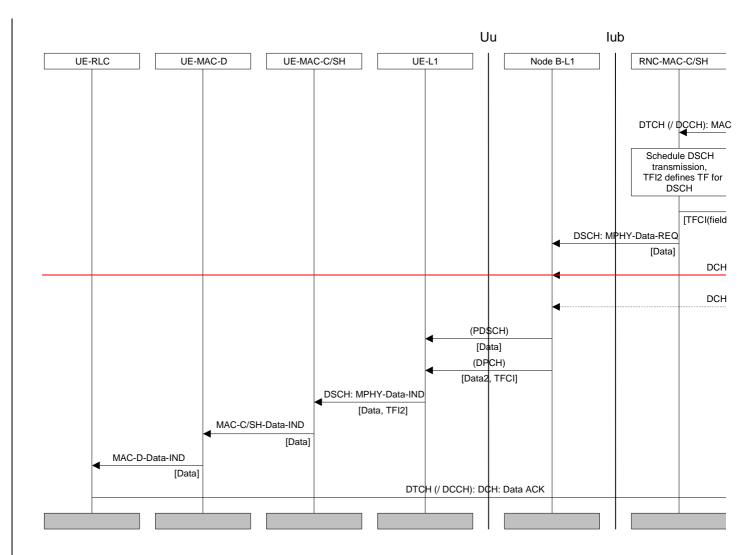


Figure 20: Example of acknowledged mode data transmission on DSCH

3GPP TSG-RAN Working Group 2 #47 Athens, Greece, 9 – 13 May 2005

Tdoc # R2-051610

CHANGE REQUEST						
*	25.306 CR 0110 #rev	# Current version: 5.10.0				
For <u>HELP</u> on u	sing this form, see bottom of this page or loc	ok at the pop-up text over the Ж symbols.				
Proposed change	affects: UICC apps業 ME X R	adio Access Network X Core Network				
<u> </u>						
Title: ∺	Feature Clean-up: Removal of DSCH (FDI	D)				
Source: ೫	RAN WG2					
 Work item code: ₩	TEI5	Date:				
Category:	Use one of the following categories: F (correction) A (corresponds to a correction in an earlier release) B (addition of feature), C (functional modification of feature) D (editorial modification) Detailed explanations of the above categories categories in a control of the control of the control of the categories categories in a control of the categories categories in a control of the categories categories in a control of the categories categories categories in a control of the categories categories categories.	R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) Rel-4 (Release 4)				
Reason for change	e: X Removal of DSCH for FDD					
Summary of chang	ge:					
Consequences if not approved:	₩ DSCH for FDD mode will remain spec	cified				
Clauses affected:	% 4.5.3, 4.11, 5.1, 5.2.2, 5.2.3,					
Other specs	Y N X Other core specifications 発	25.211, 25.212, 25.213, 25.214, 25.301, 25.302, 25.303, 25.306, 25.321, 25.331, 25.401, 25.402, 25.420, 25.423, 25.424, 25.425, 25.427, 25.430, 25.433, 25.434, 25.435				
affected:	Test specifications O&M Specifications	34.108, 34.123				

How to create CRs using this form:

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Other comments:

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4 UE radio access capability parameters

In the following the UE radio capability parameters are defined. When using the RRC configuration parameters, UTRAN needs to respect the UE capabilities. Only parameters for which there is a need to set different values for different UEs are considered as UE capability parameters. Therefore, the capabilities that are the same for all UEs, including baseline capabilities, are not listed here.

UTRAN needs to respect the UE capabilities when configuring the RBs. Actions in the UE when capabilities are in conflict with a UTRAN request are specified in RRC.

4.1 PDCP parameters

Support for RFC 2507

This parameter defines whether the UE supports header compression according to RFC 2507 as defined in [1] or not.

Support for RFC 3095

This parameter defines whether the UE supports header compression according to RFC 3095 as defined in [1] or not.

Support for RFC 3095 context relocation

This parameter defines whether the UE supports RFC 3095 context relocation as defined in [1] or not.

Support for loss-less SRNS relocation

Defines whether the UE supports loss-less SRNS relocation as defined in [1] or not.

Support for lossless DL RLC PDU size change

Defines whether the UE supports lossless DL RLC PDU size change as defined in [1] or not.

Maximum header compression context space

This parameter is only applicable if the UE supports header compression according to RFC 2507. It is defined as the maximum header compression context size supported by the UE for all RFC 2507 protocol entities for all RBs. UTRAN controls that the UE capability can be fulfilled through the following parameters:

- 1. MAX_HEADER;
- 2. TCP_SPACE;
- 3. NON_TCP_SPACE;

The context space for a single RFC 2507 protocol entity calculates from:

```
(2 * (TCP\_SPACE + 1 + NON\_TCP\_SPACE + 1) * MAX\_HEADER).
```

The following criterion must be fulfilled in the configuration:

Maximum header compression context space ≥ sum of context spaces for all RFC 2507 protocol entities for all RBs.

Maximum number of ROHC context sessions

This parameter is only applicable if the UE supports header compression according to RFC3095. It is defined as the maximum number of header compression context sessions supported by the UE.

Support for Reverse Decompression

This parameter determines whether reverse decompression is supported or not and the maximum number of packets that can be reverse decompressed by the decompressor in the UE.

4.2 Void

4.3 RLC and MAC-hs parameters

Total RLC AM and MAC-hs buffer size

When HS-DSCH is not configured this is defined as the maximum total buffer size across all RLC AM entities supported by the UE. When HS-DSCH is configured this is defined as the maximum total buffer size across all MAC-hs reordering entities and all RLC AM entities supported by the UE. The memory signalled in this capability can be dynamically shared by RLC AM entities and MAC-hs reordering entities at any time. UTRAN controls that the UE capability can be fulfilled through the following parameters:

- 1. The number of RLC AM entities configured (no explicit RRC parameter);
- 2. UL PDU size:
- 3. DL PDU size;
- 4. Transmission window size (in number of PDUs);
- 5. Receiving window size (in number of PDUs);

The following criterion must be fulfilled in the configuration at all times:

In order to evaluate memory consumption in the UE, it shall be assumed that a stored MAC-hs PDU of N bits requires a memory equal to (N-10) bits.

The UE shall only consider itself in a memory shortage situation as defined in [9] [10] when the amount of stored AM RLC PDUs and MAC-hs PDUs exceeds its capability.

Maximum number of AM entities

This is defined as the maximum number of RLC AM entities supported by the UE.

Maximum RLC AM Window Size

This is defined as the maximum transmission and receiving window size of RLC AM entities supported by the UE.

4.4 Void

4.5 PHY parameters

4.5.1 Transport channel parameters in downlink

Maximum sum of number of bits of all transport blocks being received at an arbitrary time instant

NOTE 1: "Being received" refers to all bits in the active TFC within the TFCS over all simultaneous transport channels received by the UE. "Arbitrary time instant" means that the time instant corresponding to the highest sum of number of bits is relevant. This note also applies to similar parameter definitions below.

This parameter is defined as:

 $\sum_{i}(N_{i})$

where N_i is defined as the number of bits in transport block #i, and the sum is over all transport blocks being received at an arbitrary time instant. All transport blocks that are to be simultaneously received by the UE on DCH, FACH, PCH and DSCH transport channels are included in the parameter.

NOTE 2: A UE does not need to support a TFC within the TFCS for which the sum of *Number of Transport Blocks** *Transport Block size* over all simultaneous transport channels is larger than what the UE capability indicates.

This UE capability also limits the maximum number of bits before de-rate-matching as follows: The maximum number of bits before de-rate matching being received at an arbitrary time instant (DPCH, PDSCH, S-CCPCH) shall be less or equal to 6.6 times the Maximum sum of number of bits of all transport blocks being received at an arbitrary time instant.

Maximum sum of number of bits of all convolutionally coded transport blocks being received at an arbitrary time instant.

This parameter is defined similar to the parameter above, but the sum includes only transport blocks that are to be convolutionally coded.

Maximum sum of number of bits of all turbo coded transport blocks being received at an arbitrary time instant.

This parameter is defined similar to the parameter above, but the sum includes only transport blocks that are to be turbo coded.

Maximum number of simultaneous transport channels

This is defined as the maximum number of downlink Transport Channels that the UE is capable to process simultaneously, not taking into account the rate of each Transport Channel.

NOTE: The number of simultaneous transport channels affects how the total memory space and processing capacity can be shared among the transport channels. A UE does not need to support more simultaneous transport channels than the UE capability allows for.

Maximum number of simultaneous CCTrCH

This is defined as the maximum number of downlink CCTrCH that the UE is capable to process simultaneously. CCTrCH should be interpreted as consisting of DCH, FACH or DSCH.

Maximum total number of transport blocks received within TTIs that end within the same 10 ms interval

All transport blocks that are to be simultaneously received by the UE on DCH, FACH, PCH and DSCH transport channels are included in the parameter.

NOTE: Relates to processing requirements for CRC in downlink. A UE does not need to support a TFC within the TFCS for which the sum of *Number of Transport Blocks* is larger than what the UE capability indicates. In the case of several CCTrCHs, the combination of the TFCs within the respective TFCSs for simultaneous TTIs at an arbitrary time instant shall not exceed this parameter.

Maximum number of TFC

Defines the maximum number of transport format combinations the UE can store, where all transport format combinations for all downlink transport format combination sets are counted. Different channelisation code mapping shall be counted as separate TFC in case of DSCH.

Maximum number of TF

The maximum total number of downlink transport formats the UE can store, where all transport formats for all downlink transport channels are counted.

Support for turbo decoding

Defines whether turbo decoding is supported or not.

Maximum number of bits of an HS-DSCH transport block received within an HS-DSCH TTI

Defines the maximum number of bits of an HS-DSCH transport block received within an HS-DSCH TTI the UE is capable of receiving within a HS-DSCH TTI.

4.5.2 Transport channel parameters in uplink

Maximum sum of number of bits of all transport blocks being transmitted at an arbitrary time instant

NOTE 1: "Being transmitted" refers to all bits in the active TFC within the TFCS over all simultaneous transport channels transmitted by the UE. "Arbitrary time instant" means that the time instant corresponding to the highest sum of number of bits is relevant. This note also applies to similar parameter definitions below.

This parameter is defined as:

$$\sum_{i}(N_i)$$

where N_i is defined as the number of bits in transport block #i, and the sum is over all transport blocks being transmitted at an arbitrary time instant.

NOTE 2: This parameter is related to memory requirements for uplink data received from MAC before it can be transmitted over the radio interface. As shown in Figure 4.1 the worst case occurs for the maximum TTI. A UE does not need to support a TFC within the TFCS for which the sum of *Number of Transport Blocks* * *Transport Block size* over all simultaneous transport channels is larger than what the UE capability indicates.

Maximum sum of number of bits of all convolutionally coded transport blocks being transmitted at an arbitrary time instant

This parameter is defined similar to the parameter above, but the sum includes only transport blocks that are to be convolutionally coded.

Maximum sum of number of bits of all turbo coded transport blocks being transmitted at an arbitrary time instant

This parameter is defined similar to the parameter above, but the sum includes only transport blocks that are to be turbo coded.

Maximum number of simultaneous transport channels

This is defined as the maximum number of uplink transport channels that the UE is capable to process simultaneously, not taking into account the rate of each transport channel.

NOTE: A UE does not need to support a TFC within the TFCS for which the sum of *Number of Transport Blocks** *Transport Block size* over all simultaneous transport channels is larger than what the UE capability indicates.

Maximum number of simultaneous CCTrCH

This parameter is applicable for TDD only. For FDD there is always only one CCTrCH at a time. The parameter is defined as the maximum number of uplink CCTrCH that the UE is capable to process simultaneously.

Maximum total number of transport blocks transmitted within TTIs that start at the same time

Defines the maximum number of transport blocks that the UE is capable to transmit within TTIs that start at the same time. An example is shown in figure 4.1.

NOTE: Relates to processing requirements for CRC in uplink.

Maximum number of TFC

Defines the maximum number of transport format combinations the UE can store, where all transport format combinations for all uplink transport format combination sets are counted.

Maximum number of TF

The maximum total number of uplink transport formats the UE can store, where all transport formats for all uplink transport channels are counted.

Support for turbo encoding

Defines whether turbo encoding is supported or not.

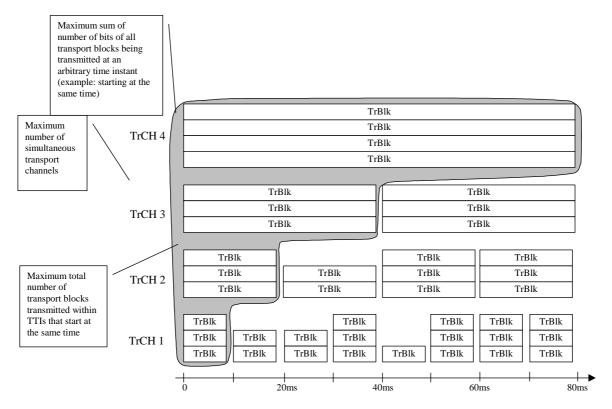


Figure 4.1: UE transport channel processing limitations in uplink

4.5.3 FDD Physical channel parameters in downlink

Maximum number of DPCH/PDSCH codes to be simultaneously received

Defines the number of codes the UE is capable of receiving in parallel. For DPCH in soft/softer handover, each DPCH is only calculated once in this capability. The capability does not include codes used for S-CCPCH.

Maximum number of physical channel bits received in any 10 ms interval (DPCH, PDSCH, S-CCPCH)

Defines the number of physical channel bits the UE is capable of receiving. For DPCH in soft/softer handover, each DPCH is only calculated once in this capability.

The number of DPCH channel bits indicates the capability of the UE when operating in non-compressed mode.

The parameter also indicates the capability of the UE to support compressed mode by spreading factor reduction as follows. The UE shall:

- for parameter values up to and including 9600 bits:
 - support compressed mode by spreading factor reduction when operating at any value up to the reported capability.
- for parameter values greater than 9600 bits:
 - support compressed mode by spreading factor reduction when operating at any value up to the greater of:
 - half the reported capability; or
 - 9600bits.

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

Support for SF 512

Defines whether the UE supports spreading factor 512 in downlink or not.

Support of PDSCH

Defines whether the UE supports PDSCH or not.

Support of HS-PDSCH

Defines whether the UE supports HS-PDSCH or not.

Simultaneous reception of SCCPCH and DPCH

Defines whether the UE supports simultaneous reception of SCCPCH and DPCH or not.

NOTE: Simultaneous reception of SCCPCH and DPCH, i.e. simultaneous reception of FACH and DCH is required for e.g. DRAC procedure

Simultaneous reception of SCCPCH, DPCH and PDSCH

Defines whether the UE supports simultaneous reception of SCCPCH, DPCH and PDSCH or not. The PDSCH part of this capability is only relevant if the UE supports PDSCH, as covered by the capability "Support of PDSCH".

NOTE: Simultaneous reception of SCCPCH, DPCH and PDSCH, i.e. simultaneous reception of FACH, DCH and DSCH is required for e.g. simultaneous use of DSCH and the DRAC procedure.

Simultaneous reception of SCCPCH, DPCH and HS-PDSCH

Defines whether the UE supports simultaneous reception of SCCPCH, DPCH and HS-PDSCH or not. The HS-PDSCH part of this capability is only relevant if the UE supports HS-PDSCH, as covered by the capability "Support of HS-PDSCH".

NOTE: Simultaneous reception of SCCPCH, DPCH and HS-PDSCH, i.e. simultaneous reception of FACH, DCH and HS-PDSCH is required for e.g. simultaneous use of HS-PDSCH and the DRAC procedure.

Maximum number of simultaneous S-CCPCH radio links

Defines the maximum number of radio links on which the UE is capable of receiving S-CCPCH simultaneously.

Support of dedicated pilots for channel estimation

Defines whether the UE supports dedicated pilots for channel estimation or not.

Support of dedicated pilots for channel estimation of HS-DSCH

Defines whether the UE supports dedicated pilots for channel estimation of HS-PDSCH and HS-SCCH or not.

Maximum number of HS-DSCH codes received

Defines the maximum number of HS-DSCH codes the UE is capable of receiving.

Total number of soft channel bits in HS-DSCH

Defines the maximum number of soft channel bits over all HARQ processes. When explicit signalling is used, UTRAN configures Process Memory Size for each HARQ process so that the following criterion must be fulfilled in the configuration:

Total number of soft channel bits in HS-DSCH ≥ sum of Process Memory Size of all the HARQ processes.

Minimum inter-TTI interval in HS-DSCH

Defines the distance from the beginning of a TTI to the beginning of the next TTI that can be assigned to the UE.

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.

4.5.5 TDD physical channel parameters in downlink

4.5.5.1 3.84 Mcps TDD physical channel parameters in downlink

Maximum number of timeslots per frame

Defines the maximum number of timeslots per frame that the UE can receive.

Maximum number of physical channels per frame

This parameter defines how many physical channels can be received during one frame. The distribution of the received physical channels on the received timeslots can be arbitrary.

Minimum SF

Defines the minimum SF supported by the UE.

Support of PDSCH

Defines whether PDSCH is supported or not.

Support of HS-PDSCH

Defines whether the UE supports HS-PDSCH or not.

Maximum number of physical channels per timeslot

This parameter defines how many physical channels can be received within one timeslot.

Maximum number of HS-DSCH codes per timeslot

This is the maximum number of channelisation codes that can be used for the HS-DSCH in a given downlink timeslot. Where the parameter "Maximum number of physical channels per timeslot" is larger than "Maximum number of HS-DSCH codes per timeslot", this indicates that the UE is able to receive HS-SCCH or associated DPCH transmissions in the same timeslot as HS-PDSCHs, even if the maximum HS-DSCH code allocation for that slot is being used.

Maximum number of HS-DSCH timeslots per TTI

This is the maximum number of timeslots in a given 10 ms frame that can be used for HS-DSCH transmissions.

Maximum number of bits of an HS-DSCH transport block received within an HS-DSCH TTI

Defines maximum number of bits of an HS-DSCH transport block received within an HS-DSCH TTI the UE is capable of receiving within an HS-DSCH TTI.

Total number of soft channel bits

Defines the maximum number of soft channel bits over all HARQ processes.

4.5.5.2 1.28 Mcps TDD physical channel parameters in downlink

Maximum number of timeslots per subframe

Defines the maximum number of timeslots per subframe that the UE can receive.

Maximum number of physical channels per subframe

This parameter defines how many physical channels can be received during one subframe. The distribution of the received physical channels on the received timeslots can be arbitrary.

Minimum SF

Defines the minimum SF supported by the UE.

Support of PDSCH

Defines whether PDSCH is supported or not.

Support of HS-PDSCH

Defines whether the UE supports HS-PDSCH or not.

Maximum number of physical channels per timeslot

This parameter defines how many physical channels can be received within one timeslot.

Support of 8PSK

Defines whether 8PSK modulation is supported or not.

Maximum number of HS-DSCH codes per timeslot

This is the maximum number of channelisation codes that can be used for the HS-DSCH in a given downlink timeslot. Where the parameter "Maximum number of physical channels per timeslot" is larger than "Maximum number of HS-DSCH codes per timeslot", this indicates that the UE is able to receive HS-SCCH or associated DPCH transmissions in the same timeslot as HS-PDSCHs, even if the maximum HS-DSCH code allocation for that slot is being used.

Maximum number of HS-DSCH timeslots per TTI

This is the maximum number of timeslots in a given 5 ms subframe that can be used for HS-DSCH transmissions.

Maximum number of bits of an HS-DSCH transport block received within an HS-DSCH TTI

Defines maximum number of bits of an HS-DSCH transport block received within an HS-DSCH TTI the UE is capable of receiving within an HS-DSCH TTI.

Total number of soft channel bits

Defines the maximum number of soft channel bits over all HARQ processes.

4.5.6 TDD physical channel parameters in uplink

4.5.6.1 3.84 Mcps TDD physical channel parameters in uplink

Maximum Number of timeslots per frame

Defines the maximum number of timeslots per frame that the UE can transmit.

Maximum number of physical channels per timeslot

Defines the maximum number physical channels transmitted in parallel during one timeslot.

Minimum SF

Defines the minimum SF supported by the UE.

Support of PUSCH

Defines whether PUSCH is supported or not.

4.5.6.2 1.28 Mcps TDD physical channel parameters in uplink

Maximum Number of timeslots per subframe

Defines the maximum number of timeslots per subframe that the UE can transmit.

Maximum number of physical channels per timeslot

Defines the maximum number of physical channels transmitted in parallel during one timeslot.

Minimum SF

Defines the minimum SF supported by the UE.

Support of PUSCH

Defines whether PUSCH is supported or not.

Support of 8PSK

Defines whether 8PSK modulation is supported or not.

4.5.7 RF parameters

UE power class

Indicates the UE power class as defined in [4] for FDD and [5] for TDD.

Radio frequency bands

This parameter is only applicable for TDD. It defines the uplink and downlink frequency bands supported by the UE as defined in [5].

Tx/Rx frequency separation

This parameter is only applicable for FDD and only if the UE is operating in frequency band a as defined in [4]. It defines the uplink/downlink frequency separations supported by the UE.

4.6 Multi-mode related parameters

Support of UTRA FDD

Defines whether UTRA FDD is supported.

There is no explicit configuration parameter.

Support of UTRA TDD 3.84 Mcps

Defines whether UTRA TDD 3.84 Mcps is supported.

There is no explicit configuration parameter.

Support of UTRA TDD 1.28 Mcps

Defines whether UTRA TDD 1.28 Mcps is supported.

There is no explicit configuration parameter.

4.7 Multi-RAT related parameters

Support of GSM

Defines whether GSM is supported or not. There is a separate parameter for each GSM frequency band.

Support of multi-carrier

Defines whether multi-carrier is supported or not.

Support of UTRAN to GERAN NACC

Defines whether UTRAN to GERAN NACC is supported or not.

4.7a Security parameters

Ciphering algorithm capability

This capability defines the ciphering algorithms supported by the UE. In this version of the protocol, the UE shall support UEA0 and UEA1.

Integrity protection algorithm capability

This capability defines the integrity protection algorithms supported by the UE. In this version of the protocol, the UE shall support UIA1.

4.8 UE positioning related parameters

Standalone location method(s) supported

Defines if a UE can measure its location by some means unrelated to UTRAN (e.g. if the UE has access to a standalone GPS receiver).

OTDOA UE based method supported

Defines if a UE supports the OTDOA UE based schemes.

Network Assisted GPS support

Defines if a UE supports either of the two types of assisted GPS schemes, namely "Network based", "UE based", "Both", or "none".

GPS reference time capable

Defines if a UE has the capability to measure GPS reference time as defined in [6].

Support for IPDL

Defines if a UE has the capability to use IPDL to enhance its "SFN-SFN observed time difference –type 2" measurement.

Support for Rx-Tx time difference type 2

Defines if a UE has the capability to perform the Rx-Tx time difference type 2 measurement.

Support for UE Positioning assisted GPS measurement validity in CELL_PCH and URA_PCH RRC states

Defines if UE Positioning measurements using the assisted GPS method are valid in CELL_PCH and URA_PCH RRC states.

Support for SFN-SFN observed time difference type 2 measurement

Defines if the UE has the capability to perform the SFN-SFN observed time difference type 2 measurement.

4.9 Measurement related capabilities

Need for downlink compressed mode

Defines whether the UE needs compressed mode in the downlink in order to perform inter-frequency or inter-RAT measurements. There are separate parameters for measurements on each UTRA mode, on each RAT, and in each frequency band.

Need for uplink compressed mode

Defines whether the UE needs compressed mode in the uplink in order to perform inter-frequency or inter-RAT measurements. There are separate parameters for measurements on each UTRA mode, on each RAT, and in each frequency band.

4.10 General capabilities

Access stratum release indicator

This is defined as the release of the UTRA layer 1, 2, and 3 specifications that is applicable for the UE e.g. R'99, Rel-4.

4.11 DL capabilities with simultaneous HS-DSCH

DL capability with simultaneous HS-DSCH configuration

Defines the modification of reception capabilities in downlink in terms of DPCH in case an HS-DSCH is configured simultaneously. The parameter values in table 4.11-1 replace the signalled values in case an HS-DSCH is configured simultaneously depending on the setting of the parameter DL DPCH capability with simultaneous HS-DSCH configuration. Other parameters are valid irrespective whether HS-DSCH is configured simultaneously or not.

Table 4.11-1: DL capabilities with simultaneous HS-DSCH

DL DPCH capability with simultaneous HS-DSCH configuration	32 kbps	64 kbps	128 kbps	384 kbps
Transport channel parameters				
Maximum sum of number of bits of all transport blocks being received at an arbitrary time instant	640	3840	3840	6400
Maximum sum of number of bits of all convolutionally coded transport blocks being received at an arbitrary time instant	640	640	640	640
Maximum sum of number of bits of all turbo coded transport blocks being received at an arbitrary time instant	NA	3840	3840	6400
Maximum number of simultaneous transport channels	8	8	8	8
Maximum number of simultaneous CCTrCH (FDD)	1	1	1	1
Maximum number of simultaneous CCTrCH (TDD)	2	3	3	3
Maximum total number of transport blocks received within TTIs that end at the same time	8	8	16	32
Maximum number of TFC	32	48	96	128
Maximum number of TF	32	64	64	64
Support for turbo decoding	No	Yes	Yes	Yes

DL DPCH capability with simultaneous HS-DSCH	32 kbps	64 kbps	128 kbps	384 kbps
configuration			•	-
Physical channel parameters (FDD)				
Maximum number of DPCH/PDSCH codes to be	1	1	1	3
simultaneously received				
Maximum number of physical channel bits received in	1200	2400	4800	19200
any 10 ms interval (DPCH , PDSCH , S-CCPCH).				
Support of PDSCH	No	No	No	No
Physical channel parameters (TDD 3.84 Mcps)				
Maximum number of timeslots per frame	1	2	4	5
Maximum number of physical channels per frame	8	9	14	28
Support of PDSCH	No	No	No	No
Maximum number of physical channels per timeslot	8	9	9	9
Physical channel parameters (TDD 1.28 Mcps)				
Maximum number of timeslots per subframe	1	2	3	4
Maximum number of physical channels per subframe	8	12	18	43
Support of PDSCH	No	No	No	No
Maximum number of physical channels per timeslot	8	11	14	14

5 Possible UE radio access capability parameter settings

5.1 Value ranges

Table 5.1: UE radio access capability parameter value ranges

		UE radio access capability	Value range	
		parameter		
PDCP parameters		Support for RFC 2507	Yes/No	
		Support for RFC 3095	Yes/No	
		Support for RFC 3095 context	Yes/No	
		relocation		
		Support for loss-less SRNS relocation	Yes/No	
		Support for loss-less DL RLC PDU	Yes/No	
		size change		
		Maximum header compression	1024, 2048, 4096, 8192, 16384,	
		context space	32768, 65536, 131072 bytes	
		Maximum number of ROHC context	2, 4, 8, 12, 16, 24, 32, 48, 64, 128,	
		sessions	256, 512, 1024, 16384	
		Support for Reverse Decompression	Not supported, 165535	
RLC and MAC-hs p	oarameters	Total RLC AM and MAC-hs buffer	2, 10, 50, 100, 150, 200, 300, 400,	
		size	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	Maximum sum of number of bits of all	640, 1280, 2560, 3840, 5120, 6400,	
	channel parameters in downlink	transport blocks being received at an	7680, 8960, 10240, 20480, 40960,	
		arbitrary time instant	81920, 163840	
		Maximum sum of number of bits of all	640, 1280, 2560, 3840, 5120, 6400,	
		convolutionally coded transport blocks	7680, 8960, 10240, 20480, 40960,	
		being received at an arbitrary time	81920, 163840	
		instant		
		Maximum sum of number of bits of all	640, 1280, 2560, 3840, 5120, 6400,	
		turbo coded transport blocks being	7680, 8960, 10240, 20480, 40960,	
		received at an arbitrary time instant	81920, 163840	
		Maximum number of simultaneous	4, 8, 16, 32	
		transport channels		
		Maximum number of simultaneous	1, 2, 3, 4, 5, 6, 7, 8	
		CCTrCH		

	UE radio access capability parameter	Value range
	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 Support for turbo decoding	32, 64, 128, 256, 512, 1024 Yes/No
Transport channel parameters in	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
uplink	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 Support for turbo encoding	32, 64, 128, 256, 512, 1024 Yes/No
FDD Physical	Maximum number of DPCH/PDSCH	1, 2, 3, 4, 5, 6, 7, 8
channel parameters in downlink	Maximum number of physical channel bits received in any 10 ms interval	600, 1200, 2400, 3600, 4800, 7200, 9600, 14400, 19200, 28800, 38400,
	(DPCH , PDSCH , S-CCPCH) Support for SF 512	48000, 57600, 67200, 76800 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	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	Maximum number of DPDCH bits transmitted per 10 ms	600, 1200, 2400, 4800, 9600, 19200, 28800, 38400, 48000, 57600
parameters in uplink	Support of PCPCH	Yes/No
TDD 3.84 Mcps physical channel		114
parameters in downlink	Maximum number of physical channels per frame	1, 2, 3224
	Minimum SF	16, 1
	Support of PDSCH Support of HS-PDSCH	Yes/No Yes/No
	Maximum number of physical channels per timeslot	116
TDD 3.84 Mcps physical channel	Maximum Number of timeslots per	114

		UE radio access capability parameter	Value range
	parameters in uplink	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	Maximum number of timeslots per subframe	16
	parameters in downlink	Maximum number of physical channels per subframe	1, 2, 3,, 96
		Minimum SF Support of PDSCH	16, 1 Yes/No
		Support of HS-PDSCH	Yes/No
		Maximum number of physical channels per timeslot	116
		Support 8PSK	Yes/No
	TDD 1.28 Mcps physical channel	Maximum number of timeslots per subframe	16
	parameters in uplink	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	UE power class	2, 3
	RF parameters	Radio frequency bands	a), b), c), a+b), a+c), b+c), a+b+c)
Multi-mode related	d parameters	Support of UTRA FDD	Yes/No
		Support of UTRA TDD 3.84 Mcps	Yes/No
Multi DAT malata d		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 parameter	are	Support of ciphering algorithm UEA0	Yes
Security paramete	513	Support of ciphering algorithm UEA1	Yes
		Support of cipriening algorithm GEAT Support of integrity protection algorithm UIA1	Yes
UE positioning rel	ated 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
			Vaa
		Support for UE Positioning assisted GPS measurement validity in CELL_PCH and URA_PCH RRC states	Yes
		Support for UE Positioning assisted GPS measurement validity in CELL_PCH and URA_PCH RRC	Yes/No

	UE radio access capability	Value range
	parameter	
	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-	DL capability with simultaneous HS-	32 kbps, 64 kbps, 128 kbps, 384 kbps
DSCH	DSCH configuration	

Table 5.1a: FDD HS-DSCH physical layer categories

HS-DSCH category	Maximum number of HS-DSCH codes received	Minimum inter-TTI interval	Maximum number of bits of an HS-DSCH transport block received within an HS-DSCH TTI	Total number of soft channel bits
Category 1	5	3	7298	19200
Category 2	5	3	7298	28800
Category 3	5	2	7298	28800
Category 4	5	2	7298	38400
Category 5	5	1	7298	57600
Category 6	5	1	7298	67200
Category 7	10	1	14411	115200
Category 8	10	1	14411	134400
Category 9	15	1	20251	172800
Category 10	15	1	27952	172800
Category 11	5	2	3630	14400
Category 12	5	1	3630	28800

UEs of Categories 11 and 12 support QPSK only.

Table 5.1b: RLC and MAC-hs parameters for FDD HS-DSCH physical layer categories

HS-DSCH category	Maximum number of AM RLC entities	Minimum total RLC AM and MAC-hs buffer size [kBytes]
Category 1	6	50
Category 2	6	50
Category 3	6	50
Category 4	6	50
Category 5	6	50
Category 6	6	50
Category 7	8	100
Category 8	8	100
Category 9	8	150
Category 10	8	150
Category 11	6	50
Category 12	6	50

Table 5.1c: 1.28 Mcps TDD HS-DSCH physical layer categories

HS-DSCH category	Maximum number of HS- DSCH codes per timeslot	Maximum number of HS- DSCH timeslots per TTI	Maximum number of HS- DSCH transport channel bits that can be received within an HS- DSCH TTI	Total number of soft channel bits
Category 1	12	5	7016	28160
Category 2	12	5	7016	56320
Category 3	12	5	7016	84480
Category 4	16	5	7016	28160
Category 5	16	5	7016	56320
Category 6	16	5	7016	84480

HS-DSCH category	Maximum number of HS- DSCH codes per timeslot	Maximum number of HS- DSCH timeslots per TTI	Maximum number of HS- DSCH transport channel bits that can be received within an HS- DSCH TTI	Total number of soft channel bits
Category 7	12	5	10204	40912
Category 8	12	5	10204	81824
Category 9	12	5	10204	122736
Category 10	16	5	10204	40912
Category 11	16	5	10204	81824
Category 12	16	5	10204	122736
Category 13	16	5	14056	56320
Category 14	16	5	14056	112640
Category 15	16	5	14056	168960

Table 5.1d: RLC and MAC-hs parameters for 1.28 Mcps TDD HS-DSCH physical layer categories

HS-DSCH category	Maximum number of AM RLC entities	Minimum total RLC AM and MAC-hs buffer size [kBytes]
Category 1	6	50
Category 2	6	50
Category 3	6	50
Category 4	6	50
Category 5	6	50
Category 6	6	50
Category 7	6	50
Category 8	6	50
Category 9	6	50
Category 10	6	50
Category 11	6	50
Category 12	6	50
Category 13	6	100
Category 14	6	100
Category 15	6	100

Table 5.1e: 3.84 Mcps TDD HS-DSCH physical layer categories

HS-DSCH category	Maximum number of HS- DSCH codes per timeslot	Maximum number of HS- DSCH timeslots per TTI	Maximum number of HS-DSCH transport channel bits that can be received within an HS-DSCH TTI	Total number of soft channel bits
Category 1	16	2	12000	52992
Category 2	16	12	12000	52992
Category 3	16	4	24000	105984
Category 4	16	12	24000	105984
Category 5	16	6	36000	158976
Category 6	16	12	36000	158976
Category 7	16	12	53000	211968
Category 8	16	12	73000	264960
Category 9	16	12	102000	317952

Table 5.1f: RLC and MAC-hs parameters for 3.84 Mcps TDD HS-DSCH physical layer categories

HS-DSCH	Maximum number	Minimum total RLC AM
category	of AM RLC entities	and MAC-hs buffer size
		[kBytes]

HS-DSCH category	Maximum number of AM RLC entities	Minimum total RLC AM and MAC-hs buffer size [kBytes]
Category 1	6	50
Category 2	6	50
Category 3	6	50
Category 4	6	50
Category 5	6	100
Category 6	6	100
Category 7	6	150
Category 8	8	150
Category 9	8	200

5.2 Reference UE radio access capability combinations

Based on required UE radio access capabilities to support reference RABs as defined in [2], this clause lists reference UE Radio Access capability combinations. Subclause 5.2.1 defines reference combinations of UE radio access capability parameters common for UL and DL. Subclauses 5.2.2 and 5.2.3 define reference combinations of UE radio access capability parameters that are separate for DL and UL respectively. A reference combination for common UL and DL parameters, one combination for UL parameters and one combination for DL parameters together relate to a UE with a certain implementation complexity, that allows support for one or several combined reference RABs. Combinations for UL and DL can be chosen independently. The bit rate supported by the selected combination of common UL and DL parameters needs to be at least as high as the maximum out of the supported bit rates of the selected combination of DL parameters and the selected combination of UL parameters. Different combinations have different levels of implementation complexity.

For defined reference RABs, it is possible to require a UE to meet a certain reference UE radio access capability combination. Each UE needs to have capabilities complying with a given reference radio access capability combination. Each individual radio access capability parameter as defined in subclause 5.1 shall be signalled.

The reference combination numbers shall not be used in the signalling of UE radio access capabilities between the UE and UTRAN. Reference UE radio access capability combinations provide default configurations that should be used as a basis for conformance testing against reference RABs.

The UE shall support at least the UE radio access capability parameter values as specified for the 12kbps UE reference class for both UL and DL.

Allowed values of UE capability parameters are limited by the defined range and granularity of values in subclause 5.1. Values might change depending on further definition of reference RABs for testing.

5.2.1 Combinations of common UE Radio Access Parameters for UL and DL

NOTE: Measurement-related capabilities are not included in the combinations. These capabilities are independent from the supported RABs.

Table 5.2.1.1: UE radio access capability parameter combinations, parameters common for UL and DL

Reference combination of UE Radio Access capability parameters common for UL and DL	12 kbps class	32 kbps class	64 kbps class	128 kbps class	384 kbps class	768 kbps class	2048 kbps class
PDCP parameters							
Support for RFC 2507	No	No	No/Yes	No/Yes	No/Yes	No/Yes	No/Yes
			NOTE 1	NOTE 1	NOTE 1	NOTE 1	NOTE 1
Support for RFC 3095	No/Yes	No/Yes	No/Yes	No/Yes	No/Yes	No/Yes	No/Yes
	NOTE 1	NOTE 1	NOTE 1	NOTE 1	NOTE 1	NOTE 1	NOTE 1
Support for RFC 3095 context				No/Yes			
relocation				NOTE 1			
Support for loss-less SRNS relocation				No/Yes			
				NOTE 1			

Reference combination of UE Radio Access capability parameters common for UL and DL	12 kbps class	32 kbps class	64 kbps class	128 kbps class	384 kbps class	768 kbps class	2048 kbps class		
Maximum header compression context space		Not applicable for conformance testing							
Maximum number of ROHC context sessions		Not applicable for conformance testing							
Support for Reverse decompression		No/Yes NOTE 1							
RLC parameters									
Total RLC AM buffer size (kbytes)	10	10	10	50	50	100	500		
Maximum number of AM entities	4	4	4	5	6	8	8		
Maximum RLC AM window size	2047/4095 NOTE 1	2047/4095 NOTE 1	2047/4095 NOTE 1	2047/4095 NOTE 1	2047/4095 NOTE 1	2047/4095 NOTE 1	2047/4095 NOTE 1		
Multi-mode related parameters							l		
Support of UTRA FDD				Yes/No NOTE 1					
Support of UTRA TDD 3.84 Mcps				Yes/No NOTE 1					
Support of UTRA TDD 1.28 Mcps				Yes/No					
Multi-RAT related parameters				NOTE 1					
Support of GSM				Yes/No					
Cupport of Colvi				NOTE 1					
Support of multi-carrier	<u> </u>			Yes/No					
				NOTE 1					
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)				Yes/No					
supported				NOTE 1					
Network assisted GPS support		N	etwork base	d / UE based NOTE 1	d / Both/ Nor	ne			
GPS reference time capable				Yes/No NOTE 1					
Support for IPDL				Yes/No					
Support for OTDOA UE based method				NOTE 1 Yes/No					
Dupport for OTDOA OE based method				NOTE 1					
Support for Rx-Tx time difference type	<u> </u>			Yes/No					
2 measurement				NOTE 1					
Support for UE Positioning assisted				Yes					
GPS measurement validity in CELL_PCH and URA_PCH RRC				100					
states Support for SFN-SFN observed time				Yes/No					
difference type 2 measurement RF parameters for FDD				NOTE 1					
				2/4					
UE power class				3 / 4 NOTE 1					
Tx/Rx frequency separation				190 MHz					
RF parameters for TDD 3.84 Mcps				100 1011 12					
Radio frequency bands	A/b/c/a+b/a+c/b+c/a+b+c								
UE power class		NOTE 1 2 / 3 NOTE 1							
RF parameters for TDD 1.28 Mcps				NOIEI					
Radio frequency bands			A/h/c/	a+b / a+c / b	+c/ a+b+c				
Table frequency barries			, 5, 6, 7	NOTE 1	. 5, 41510				

Reference combination of UE Radio Access capability parameters common for UL and DL	12 kbps class	32 kbps class	64 kbps class	128 kbps class	384 kbps class	768 kbps class	2048 kbps class
UE power class				2/3 NOTE 1			

NOTE 1: Options represent different combinations that should be supported with Conformance Tests.

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	12 kbps class	32 kbps class	64 kbps class	128 kbps class	384 kbps class	768 kbps class	2048 kbps class
parameters in DL							
Transport channel parameters	040 (EDD)	4000	0040	0040	0.400	40040	00400
Maximum sum of number of bits of	640 (FDD)	1280	3840	3840	6400	10240	20480
all transport blocks being received at	1280(100)						
an arbitrary time instant	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Maximum sum of number of bits of	640	640	640	640	640	640	640
all convolutionally coded transport							
blocks being received at an arbitrary							
time instant Maximum sum of number of bits of	NA (EDD)	1280	3840	3840	6400	10240	20490(4)
all turbo coded transport blocks	NA (FDD)	1260	3040	3040	6400	10240	20480(1)
being received at an arbitrary time	1280(TDD)						10240(2) NOTE 5
instant							NOTES
Maximum number of simultaneous	4	8	8	8	8	8	16
transport channels	-	NOTE 4	NOTE 4	NOTE 4	NOTE 4	NOTE 4	NOTE 4
Maximum number of simultaneous	1	1	2/1	2/1	2/1	2/ 1	2/ 1
CCTrCH (FDD)	•	'	NOTE 2	NOTE 2	NOTE 2	NOTE 2	NOTE 2
		NOTE 3	NOTE 3	NOTE 3	NOTE 3	NOTE 3	NOTE 3
Maximum number of simultaneous	1	2	3	3	3	4	4
CCTrCH (TDD)	NOTE 3	NOTE 3	NOTE 3	NOTE 3	NOTE 3	NOTE 3	NOTE 3
Maximum total number of transport	4	8	8	16	32	64	96
blocks received within TTIs that end	-	· ·			0_		
at the same time							
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	Yes	Yes	Yes	Yes	Yes
	Yes (TDD)						
Support for loss-less DL RLC PDU	No	No	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No
size change							
Physical channel parameters							
(FDD)							
Maximum number of DPCH/PDSCH	1	1	2/ 1	2/ 1	3	3	3
codes to be simultaneously received			NOTE 2	NOTE 2			
Maximum number of physical	1200	1200	3600/ 2400	7200/ 4800	19200	28800	57600
channel bits received in any 10 ms			NOTE2	NOTE2			
interval (DPCH , PDSCH , S-							
CCPCH).							
Support for SF 512 for DPCH	No	No	No	No	No	No	No
NOTE 6							
Support of PDSCH	No	No	Yes/No	Yes/No	Yes/No-	Yes/No-	Yes/No
			NOTE 1	NOTE 1	NOTE 1	NOTE 1	NOTE 1
Support of HS-PDSCH	No	No	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No
Mariana and C. C. H			NOTE 1	NOTE 1	NOTE 1	NOTE 1	NOTE 1
Maximum number of simultaneous	1	1	1	1	1	1	1
S-CCPCH radio links	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \						
Support of dedicated pilots for	Yes	Yes	Yes	Yes	Yes	Yes	Yes
channel estimation	NOTE 1	NOTE 1	NOTE 1	NOTE 1	NOTE 1	NOTE 1	NOTE 1
	NOTE 7	NOTE 7	NOTE 7	NOTE 7	NOTE 7	NOTE 7	NOTE 7
Support of dedicated pilots for	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No
channel estimation of HS-DSCH	NOTE 1	NOTE 1	NOTE 1	NOTE 1	NOTE 1	NOTE 1	NOTE 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
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 NOTE 1	1/16 NOTE 1	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	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	2.4 Mbps	3.6 Mbps	7.3 Mbps	10.2 Mbps
	class	class	class	class	class
3.84Mcps 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
Transport channel parameters						
Maximum sum of number of bits of all transport blocks being transmitted at an arbitrary time instant	640	640(FDD) 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) 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 NOTE 3	1 NOTE 3	2 NOTE 3	2 NOTE 3	2 NOTE 3	2 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) Yes (TDD)	Yes	Yes	Yes	Yes
Physical channel parameters (FDD)		1000	0.100	1000	2222	40000
Maximum number of DPDCH bits transmitted per 10 ms	600	1200	2400	4800	9600	19200
Simultaneous reception of SCCPCH and DPCH NOTE 2	No	No	No	Yes/No NOTE 1	Yes/No NOTE 1	Yes/No NOTE 1
Simultaneous reception of SCCPCH, DPCH and PDSCH NOTE 2	No	No	No	No	No	No
Simultaneous reception of SCCPCH, DPCH and HS-PDSCH NOTE 2	No	No	No	No	No	No
Support of PCPCH NOTE 4	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	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 NOTE 1	Yes	Yes	Yes	Yes
Physical channel parameters (TDD 1.28 Mcps)						
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

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
Support of PUSCH	No	Yes/No 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 is 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 Working Group 2 #47

Tdoc # R2-051611

CHANGE REQUEST					CR-Form-v7			
ж	25.306	CR <mark>0111</mark>	жrev	-	¥	Current version:	6.4.1	¥
For HELP on using this form, see bottom of this page or look at the pop-up text over the % symbols.								

ME X Radio Access Network X Core Network Proposed change affects: UICC apps# Title: Feature Clean-up: Removal of DSCH (FDD) ₩ RAN WG2 Source: C Release: # REL-6 Category: Use one of the following releases: Use one of the following categories: F (correction) (GSM Phase 2) 2 A (corresponds to a correction in an earlier R96 (Release 1996) R97 release) (Release 1997) (addition of feature), (Release 1998) В R98 (functional modification of feature) R99 (Release 1999) (editorial modification) (Release 4) D Rel-4 Detailed explanations of the above categories can Rel-5 (Release 5)

Rel-6

(Release 6)

be found in 3GPP TR 21.900.

Clauses affected:	\mathfrak{H}	4.5.3	3, 4.11, 5.1, 5.2.2, 5.2.3,		
	Γ	YN			
Other specs	æ	X	Other core specifications	\mathfrak{H}	25.211, 25.212, 25.213, 25.214, 25.301,
					25.302, 25.303, 25.306, 25.321, 25.331,
					25.401, 25.402, 25.420, 25.423, 25.424,
					25.425, 25.427, 25.430, 25.433, 25.434,
					25.435
affected:		X	Test specifications		34.108, 34.123
			O&M Specifications		
Other comments:	\mathfrak{H}				

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 \(\mathbb{X} \) 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.

4 UE radio access capability parameters

In the following the UE radio capability parameters are defined. When using the RRC configuration parameters, UTRAN needs to respect the UE capabilities. Only parameters for which there is a need to set different values for different UEs are considered as UE capability parameters. Therefore, the capabilities that are the same for all UEs, including baseline capabilities, are not listed here.

UTRAN needs to respect the UE capabilities when configuring the RBs. Actions in the UE when capabilities are in conflict with a UTRAN request are specified in RRC.

4.1 PDCP parameters

Support for RFC 2507

This parameter defines whether the UE supports header compression according to RFC 2507 as defined in [1] or not.

Support for RFC 3095

This parameter defines whether the UE supports header compression according to RFC 3095 as defined in [1] or not. Except for a CS only UE, the UE shall support header compression according to RFC 3095 as defined in [1].

Support for RFC 3095 context relocation

This parameter defines whether the UE supports RFC 3095 context relocation as defined in [1] or not.

Support for loss-less SRNS relocation

Defines whether the UE supports loss-less SRNS relocation as defined in [1] or not.

Support for lossless DL RLC PDU size change

Defines whether the UE supports lossless DL RLC PDU size change as defined in [1] or not.

Maximum header compression context space

This parameter is only applicable if the UE supports header compression according to RFC 2507. It is defined as the maximum header compression context size supported by the UE for all RFC 2507 protocol entities for all RBs. UTRAN controls that the UE capability can be fulfilled through the following parameters:

- 1. MAX_HEADER;
- 2. TCP_SPACE;
- 3. NON_TCP_SPACE;

The context space for a single RFC 2507 protocol entity calculates from:

```
(2 * (TCP\_SPACE + 1 + NON\_TCP\_SPACE + 1) * MAX\_HEADER).
```

The following criterion must be fulfilled in the configuration:

Maximum header compression context space ≥ sum of context spaces for all RFC 2507 protocol entities for all RBs.

Maximum number of ROHC context sessions

This parameter is only applicable if the UE supports header compression according to RFC3095. It is defined as the maximum number of header compression context sessions supported by the UE.

Support for Reverse Decompression

This parameter determines whether reverse decompression is supported or not and the maximum number of packets that can be reverse decompressed by the decompressor in the UE.

4.2 Void

4.3 RLC and MAC-hs parameters

Total RLC AM and MAC-hs buffer size

When HS-DSCH is not configured this is defined as the maximum total buffer size across all RLC AM entities supported by the UE. When HS-DSCH is configured this is defined as the maximum total buffer size across all MAC-hs reordering entities and all RLC AM entities supported by the UE. The memory signalled in this capability is dynamically shared by RLC AM entities and MAC-hs reordering entities at any time.

In order to evaluate memory consumption in the UE, it shall be assumed that:

- a stored AMD PDU of N octets requires a memory equal to N octets;
- a stored MAC-hs PDU of N bits requires a memory equal to (N 10) bits.

The UE shall only consider itself in a memory shortage situation as defined in [9] [10] when the amount of stored AM RLC PDUs and MAC-hs PDUs exceeds its capability.

Maximum number of AM entities

This is defined as the maximum number of RLC AM entities supported by the UE.

Maximum RLC AM Window Size

This is defined as the maximum transmission and receiving window size of RLC AM entities supported by the UE.

4.4 Void

4.5 PHY parameters

4.5.1 Transport channel parameters in downlink

Maximum sum of number of bits of all transport blocks being received at an arbitrary time instant

NOTE 1: "Being received" refers to all bits in the active TFC within the TFCS over all simultaneous transport channels received by the UE. "Arbitrary time instant" means that the time instant corresponding to the highest sum of number of bits is relevant. This note also applies to similar parameter definitions below.

This parameter is defined as:

$$\sum_{i}(N_{i})$$

where N_i is defined as the number of bits in transport block #i, and the sum is over all transport blocks being received at an arbitrary time instant. All transport blocks that are to be simultaneously received by the UE on DCH, FACH, PCH and DSCH transport channels are included in the parameter.

NOTE 2: A UE does not need to support a TFC within the TFCS for which the sum of *Number of Transport Blocks* * *Transport Block size* over all simultaneous transport channels is larger than what the UE capability indicates.

This UE capability also limits the maximum number of bits before de-rate-matching as follows: The maximum number of bits before de-rate matching being received at an arbitrary time instant (DPCH, PDSCH, S-CCPCH) shall be less or equal to 6.6 times the Maximum sum of number of bits of all transport blocks being received at an arbitrary time instant.

Maximum sum of number of bits of all convolutionally coded transport blocks being received at an arbitrary time instant.

This parameter is defined similar to the parameter above, but the sum includes only transport blocks that are to be convolutionally coded.

Maximum sum of number of bits of all turbo coded transport blocks being received at an arbitrary time instant.

This parameter is defined similar to the parameter above, but the sum includes only transport blocks that are to be turbo coded.

Maximum number of simultaneous transport channels

This is defined as the maximum number of downlink Transport Channels that the UE is capable to process simultaneously, not taking into account the rate of each Transport Channel.

NOTE: The number of simultaneous transport channels affects how the total memory space and processing capacity can be shared among the transport channels. A UE does not need to support more simultaneous transport channels than the UE capability allows for.

Maximum number of simultaneous CCTrCH

This is defined as the maximum number of downlink CCTrCH that the UE is capable to process simultaneously. CCTrCH should be interpreted as consisting of DCH, FACH or DSCH.

Maximum total number of transport blocks received within TTIs that end within the same 10 ms interval

All transport blocks that are to be simultaneously received by the UE on DCH, FACH, PCH and DSCH transport channels are included in the parameter.

NOTE: Relates to processing requirements for CRC in downlink. A UE does not need to support a TFC within the TFCS for which the sum of *Number of Transport Blocks* is larger than what the UE capability indicates. In the case of several CCTrCHs, the combination of the TFCs within the respective TFCSs for simultaneous TTIs at an arbitrary time instant shall not exceed this parameter.

Maximum number of TFC

Defines the maximum number of transport format combinations the UE can store, where all transport format combinations for all downlink transport format combination sets are counted. Different channelisation code mapping shall be counted as separate TFC in case of DSCH.

Maximum number of TF

The maximum total number of downlink transport formats the UE can store, where all transport formats for all downlink transport channels are counted.

Support for turbo decoding

Defines whether turbo decoding is supported or not.

Maximum number of bits of an HS-DSCH transport block received within an HS-DSCH TTI

Defines the maximum number of bits of an HS-DSCH transport block received within an HS-DSCH TTI the UE is capable of receiving within a HS-DSCH TTI.

4.5.2 Transport channel parameters in uplink

Maximum sum of number of bits of all transport blocks being transmitted at an arbitrary time instant

NOTE 1: "Being transmitted" refers to all bits in the active TFC within the TFCS over all simultaneous transport channels transmitted by the UE. "Arbitrary time instant" means that the time instant corresponding to the highest sum of number of bits is relevant. This note also applies to similar parameter definitions below.

This parameter is defined as:

 $\sum_{i}(N_{i})$

where N_i is defined as the number of bits in transport block #i, and the sum is over all transport blocks being transmitted at an arbitrary time instant.

NOTE 2: This parameter is related to memory requirements for uplink data received from MAC before it can be transmitted over the radio interface. As shown in Figure 4.1 the worst case occurs for the maximum TTI. A UE does not need to support a TFC within the TFCS for which the sum of *Number of Transport Blocks* * *Transport Block size* over all simultaneous transport channels is larger than what the UE capability indicates.

Maximum sum of number of bits of all convolutionally coded transport blocks being transmitted at an arbitrary time instant

This parameter is defined similar to the parameter above, but the sum includes only transport blocks that are to be convolutionally coded.

Maximum sum of number of bits of all turbo coded transport blocks being transmitted at an arbitrary time instant

This parameter is defined similar to the parameter above, but the sum includes only transport blocks that are to be turbo coded.

Maximum number of simultaneous transport channels

This is defined as the maximum number of uplink transport channels that the UE is capable to process simultaneously, not taking into account the rate of each transport channel.

NOTE: A UE does not need to support a TFC within the TFCS for which the sum of *Number of Transport Blocks* * *Transport Block size* over all simultaneous transport channels is larger than what the UE capability indicates.

Maximum number of simultaneous CCTrCH

This parameter is applicable for TDD only. For FDD there is always only one CCTrCH at a time. The parameter is defined as the maximum number of uplink CCTrCH that the UE is capable to process simultaneously.

Maximum total number of transport blocks transmitted within TTIs that start at the same time

Defines the maximum number of transport blocks that the UE is capable to transmit within TTIs that start at the same time. An example is shown in figure 4.1.

NOTE: Relates to processing requirements for CRC in uplink.

Maximum number of TFC

Defines the maximum number of transport format combinations the UE can store, where all transport format combinations for all uplink transport format combination sets are counted.

Maximum number of TF

The maximum total number of uplink transport formats the UE can store, where all transport formats for all uplink transport channels are counted.

Support for turbo encoding

Defines whether turbo encoding is supported or not.

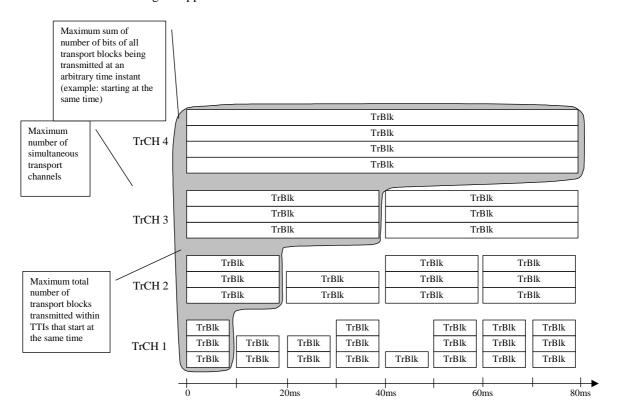


Figure 4.1: UE transport channel processing limitations in uplink

4.5.3 FDD Physical channel parameters in downlink

Maximum number of DPCH/PDSCH codes to be simultaneously received

Defines the number of codes the UE is capable of receiving in parallel. For DPCH in soft/softer handover, each DPCH is only calculated once in this capability. The capability does not include codes used for S-CCPCH.

Maximum number of physical channel bits received in any 10 ms interval (DPCH, PDSCH, S-CCPCH)

Defines the number of physical channel bits the UE is capable of receiving. For DPCH in soft/softer handover, each DPCH is only calculated once in this capability.

The number of DPCH channel bits indicates the capability of the UE when operating in non-compressed mode.

The parameter also indicates the capability of the UE to support compressed mode by spreading factor reduction as follows. The UE shall:

- for parameter values up to and including 9600 bits:
 - support compressed mode by spreading factor reduction when operating at any value up to the reported capability.
- for parameter values greater than 9600 bits:
 - support compressed mode by spreading factor reduction when operating at any value up to the greater of:

- half the reported capability; or
- 9600bits.

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

Support for SF 512

Defines whether the UE supports spreading factor 512 in downlink or not.

Support of PDSCH

Defines whether the UE supports PDSCH or not.

Support of HS-PDSCH

Defines whether the UE supports HS-PDSCH or not.

Simultaneous reception of SCCPCH and DPCH

Defines whether the UE supports simultaneous reception of SCCPCH and DPCH or not.

NOTE: Simultaneous reception of SCCPCH and DPCH, i.e. simultaneous reception of FACH and DCH is required for e.g. DRAC procedure

Simultaneous reception of SCCPCH, DPCH and PDSCH

Defines whether the UE supports simultaneous reception of SCCPCH, DPCH and PDSCH or not. The PDSCH part of this capability is only relevant if the UE supports PDSCH, as covered by the capability "Support of PDSCH".

NOTE: Simultaneous reception of SCCPCH, DPCH and PDSCH, i.e. simultaneous reception of FACH, DCH and DSCH is required for e.g. simultaneous use of DSCH and the DRAC procedure.

Simultaneous reception of SCCPCH, DPCH and HS-PDSCH

Defines whether the UE supports simultaneous reception of SCCPCH, DPCH and HS-PDSCH or not. The HS-PDSCH part of this capability is only relevant if the UE supports HS-PDSCH, as covered by the capability "Support of HS-PDSCH".

NOTE: Simultaneous reception of SCCPCH, DPCH and HS-PDSCH, i.e. simultaneous reception of FACH, DCH and HS-PDSCH is required for e.g. simultaneous use of HS-PDSCH and the DRAC procedure.

Maximum number of simultaneous S-CCPCH radio links

Defines the maximum number of radio links on which the UE is capable of receiving S-CCPCH simultaneously.

Support of dedicated pilots for channel estimation

Defines whether the UE supports dedicated pilots for channel estimation or not.

Support of dedicated pilots for channel estimation of HS-DSCH

Defines whether the UE supports dedicated pilots for channel estimation of HS-PDSCH and HS-SCCH or not.

Maximum number of HS-DSCH codes received

Defines the maximum number of HS-DSCH codes the UE is capable of receiving.

Total number of soft channel bits in HS-DSCH

Defines the maximum number of soft channel bits over all HARQ processes. When explicit signalling is used, UTRAN configures Process Memory Size for each HARQ process so that the following criterion must be fulfilled in the configuration:

Total number of soft channel bits in HS-DSCH ≥ sum of Process Memory Size of all the HARQ processes.

Minimum inter-TTI interval in HS-DSCH

Defines the distance from the beginning of a TTI to the beginning of the next TTI that can be assigned to the UE.

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.

4.5.5 TDD physical channel parameters in downlink

4.5.5.1 3.84 Mcps TDD physical channel parameters in downlink

Maximum number of timeslots per frame

Defines the maximum number of timeslots per frame that the UE can receive.

Maximum number of physical channels per frame

This parameter defines how many physical channels can be received during one frame. The distribution of the received physical channels on the received timeslots can be arbitrary.

Minimum SF

Defines the minimum SF supported by the UE.

Support of PDSCH

Defines whether PDSCH is supported or not.

Support of HS-PDSCH

Defines whether the UE supports HS-PDSCH or not.

Maximum number of physical channels per timeslot

This parameter defines how many physical channels can be received within one timeslot.

Maximum number of HS-DSCH codes per timeslot

This is the maximum number of channelisation codes that can be used for the HS-DSCH in a given downlink timeslot. Where the parameter "Maximum number of physical channels per timeslot" is larger than "Maximum number of HS-DSCH codes per timeslot", this indicates that the UE is able to receive HS-SCCH or associated DPCH transmissions in the same timeslot as HS-PDSCHs, even if the maximum HS-DSCH code allocation for that slot is being used.

Maximum number of HS-DSCH timeslots per TTI

This is the maximum number of timeslots in a given 10 ms frame that can be used for HS-DSCH transmissions.

Maximum number of bits of an HS-DSCH transport block received within an HS-DSCH TTI

Defines maximum number of bits of an HS-DSCH transport block received within an HS-DSCH TTI the UE is capable of receiving within an HS-DSCH TTI.

Total number of soft channel bits

Defines the maximum number of soft channel bits over all HARQ processes.

4.5.5.2 1.28 Mcps TDD physical channel parameters in downlink

Maximum number of timeslots per subframe

Defines the maximum number of timeslots per subframe that the UE can receive.

Maximum number of physical channels per subframe

This parameter defines how many physical channels can be received during one subframe. The distribution of the received physical channels on the received timeslots can be arbitrary.

Minimum SF

Defines the minimum SF supported by the UE.

Support of PDSCH

Defines whether PDSCH is supported or not.

Support of HS-PDSCH

Defines whether the UE supports $\mbox{HS-PDSCH}$ or not.

Maximum number of physical channels per timeslot

This parameter defines how many physical channels can be received within one timeslot.

Support of 8PSK

Defines whether 8PSK modulation is supported or not.

Maximum number of HS-DSCH codes per timeslot

This is the maximum number of channelisation codes that can be used for the HS-DSCH in a given downlink timeslot. Where the parameter "Maximum number of physical channels per timeslot" is larger than "Maximum number of HS-DSCH codes per timeslot", this indicates that the UE is able to receive HS-SCCH or associated DPCH transmissions in the same timeslot as HS-PDSCHs, even if the maximum HS-DSCH code allocation for that slot is being used.

Maximum number of HS-DSCH timeslots per TTI

This is the maximum number of timeslots in a given 5 ms subframe that can be used for HS-DSCH transmissions.

Maximum number of bits of an HS-DSCH transport block received within an HS-DSCH TTI

Defines maximum number of bits of an HS-DSCH transport block received within an HS-DSCH TTI the UE is capable of receiving within an HS-DSCH TTI.

Total number of soft channel bits

Defines the maximum number of soft channel bits over all HARQ processes.

4.5.6 TDD physical channel parameters in uplink

4.5.6.1 3.84 Mcps TDD physical channel parameters in uplink

Maximum Number of timeslots per frame

Defines the maximum number of timeslots per frame that the UE can transmit.

Maximum number of physical channels per timeslot

Defines the maximum number physical channels transmitted in parallel during one timeslot.

Minimum SF

Defines the minimum SF supported by the UE.

Support of PUSCH

Defines whether PUSCH is supported or not.

4.5.6.2 1.28 Mcps TDD physical channel parameters in uplink

Maximum Number of timeslots per subframe

Defines the maximum number of timeslots per subframe that the UE can transmit.

Maximum number of physical channels per timeslot

Defines the maximum number of physical channels transmitted in parallel during one timeslot.

Minimum SF

Defines the minimum SF supported by the UE.

Support of PUSCH

Defines whether PUSCH is supported or not.

Support of 8PSK

Defines whether 8PSK modulation is supported or not.

4.5.7 RF parameters

UE power class

Indicates the UE power class as defined in [4] for FDD and [5] for TDD.

Radio frequency bands

This parameter is only applicable for TDD. It defines the uplink and downlink frequency bands supported by the UE as defined in [5].

Tx/Rx frequency separation

This parameter is only applicable for FDD and only if the UE is operating in frequency band a as defined in [4]. It defines the uplink/downlink frequency separations supported by the UE.

4.6 Multi-mode related parameters

Support of UTRA FDD

Defines whether UTRA FDD is supported.

There is no explicit configuration parameter.

Support of UTRA TDD 3.84 Mcps

Defines whether UTRA TDD 3.84 Mcps is supported.

There is no explicit configuration parameter.

Support of UTRA TDD 1.28 Mcps

Defines whether UTRA TDD 1.28 Mcps is supported.

There is no explicit configuration parameter.

4.7 Multi-RAT related parameters

Support of GSM

Defines whether GSM is supported or not. There is a separate parameter for each GSM frequency band.

Support of multi-carrier

Defines whether multi-carrier is supported or not.

Support of UTRAN to GERAN NACC

Defines whether UTRAN to GERAN NACC is supported or not.

4.7a Security parameters

Ciphering algorithm capability

This capability defines the ciphering algorithms supported by the UE. In this version of the protocol, the UE shall support UEA0 and UEA1.

Integrity protection algorithm capability

This capability defines the integrity protection algorithms supported by the UE. In this version of the protocol, the UE shall support UIA1.

4.8 UE positioning related parameters

Standalone location method(s) supported

Defines if a UE can measure its location by some means unrelated to UTRAN (e.g. if the UE has access to a standalone GPS receiver).

OTDOA UE based method supported

Defines if a UE supports the OTDOA UE based schemes.

Network Assisted GPS support

Defines if a UE supports either of the two types of assisted GPS schemes, namely "Network based", "UE based", "Both", or "none".

GPS reference time capable

Defines if a UE has the capability to measure GPS reference time as defined in [6].

Support for IPDL

Defines if a UE has the capability to use IPDL to enhance its "SFN-SFN observed time difference –type 2" measurement.

Support for Rx-Tx time difference type 2

Defines if a UE has the capability to perform the Rx-Tx time difference type 2 measurement.

Support for UE Positioning assisted GPS measurement validity in CELL PCH and URA PCH RRC states

Defines if UE Positioning measurements using the assisted GPS method are valid in CELL_PCH and URA_PCH RRC states

Support for SFN-SFN observed time difference type 2 measurement

Defines if the UE has the capability to perform the SFN-SFN observed time difference type 2 measurement.

4.9 Measurement related capabilities

Need for downlink compressed mode

Defines whether the UE needs compressed mode in the downlink in order to perform inter-frequency or inter-RAT measurements. There are separate parameters for measurements on each UTRA mode, on each RAT, and in each frequency band.

Need for uplink compressed mode

Defines whether the UE needs compressed mode in the uplink in order to perform inter-frequency or inter-RAT measurements. There are separate parameters for measurements on each UTRA mode, on each RAT, and in each frequency band.

4.10 General capabilities

Access stratum release indicator

This is defined as the release of the UTRA layer 1, 2, and 3 specifications that is applicable for the UE e.g. R'99, Rel-4.

4.11 DL capabilities with simultaneous HS-DSCH

DL capability with simultaneous HS-DSCH configuration

Defines the modification of reception capabilities in downlink in terms of DPCH in case an HS-DSCH is configured simultaneously. The parameter values in table 4.11-1 replace the signalled values in case an HS-DSCH is configured simultaneously depending on the setting of the parameter DL DPCH capability with simultaneous HS-DSCH configuration. Other parameters are valid irrespective whether HS-DSCH is configured simultaneously or not.

Table 4.11-1: DL capabilities with simultaneous HS-DSCH

DL DPCH capability with simultaneous HS-DSCH	32 kbps	64 kbps	128 kbps	384 kbps
configuration				
Transport channel parameters				
Maximum sum of number of bits of all transport blocks	640	3840	3840	6400
being received at an arbitrary time instant				
Maximum sum of number of bits of all convolutionally	640	640	640	640
coded transport blocks being received at an arbitrary time				
instant				
Maximum sum of number of bits of all turbo coded	NA	3840	3840	6400
transport blocks being received at an arbitrary time				
instant				
Maximum number of simultaneous transport channels	8	8	8	8
Maximum number of simultaneous CCTrCH (FDD)	1	1	1	1
Maximum number of simultaneous CCTrCH (TDD)	2	3	3	3
Maximum total number of transport blocks received	8	8	16	32
within TTIs that end at the same time				
Maximum number of TFC	32	48	96	128
Maximum number of TF	32	64	64	64
Support for turbo decoding	No	Yes	Yes	Yes
Physical channel parameters (FDD)				
Maximum number of DPCH /PDSCH codes to be	1	1	1	3
simultaneously received				
Maximum number of physical channel bits received in	1200	2400	4800	19200
any 10 ms interval (DPCH , PDSCH , S-CCPCH).				
Support of PDSCH	No	No	No	No
Physical channel parameters (TDD 3.84 Mcps)				
Maximum number of timeslots per frame	1	2	4	5
Maximum number of physical channels per frame	8	9	14	28
Support of PDSCH	No	No	No	No
Maximum number of physical channels per timeslot	8	9	9	9

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DL DPCH capability with simultaneous HS-DSCH	32 kbps	64 kbps	128 kbps	384 kbps
configuration			-	-
Physical channel parameters (TDD 1.28 Mcps)				
Maximum number of timeslots per subframe	1	2	3	4
Maximum number of physical channels per subframe	8	12	18	43
Support of PDSCH	No	No	No	No
Maximum number of physical channels per timeslot	8	11	14	14

4.12 UL capabilities with simultaneous E-DCH

UL capability with simultaneous E-DCH configuration

Defines the modification of transmission capabilities in uplink in terms of DPCH in case an E-DCH is configured simultaneously. The parameter values in table 4.12-1 replace the signalled values in case an E-DCH is configured simultaneously depending on the setting of the parameter UL DPCH capability with simultaneous E-DCH configuration. Other parameters are valid irrespective whether E-DCH is configured simultaneously or not.

Table 4.12-1: UL capabilities with simultaneous E-DCH

UL DPCH capability with simultaneous E-DCH configuration	64 kbps
Transport channel parameters	
Maximum sum of number of bits of all transport blocks being transmitted at an arbitrary time instant	3840
Maximum sum of number of bits of all convolutionally coded transport blocks being transmitted at an arbitrary time instant	640
Maximum sum of number of bits of all turbo coded transport blocks being transmitted at an arbitrary time instant	3840
Maximum number of simultaneous transport channels	8
Maximum total number of transport blocks transmitted within TTIs that end at the same time	8
Maximum number of TFC	32
Maximum number of TF	32
Support for turbo encoding	Yes
Physical channel parameters (FDD)	
Maximum number of DPDCH bits transmitted per 10 ms	2400
Support of PCPCH	Yes/No

5 Possible UE radio access capability parameter settings

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, 165535
RLC and MAC-hs p	arameters	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	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
	downlink	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	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
	uplink	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	2, 4, 8, 16, 32, 48, 64, 96, 128, 256,

	UE radio access capability parameter	Value range
	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	Maximum number of DPCH/PDSCH codes to be simultaneously received	1, 2, 3, 4, 5, 6, 7, 8
parameters in downlink	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	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	Maximum number of DPDCH bits transmitted per 10 ms	600, 1200, 2400, 4800, 9600, 19200, 28800, 38400, 48000, 57600
parameters in	Support of PCPCH	Yes/No
uplink	Support of E-DPDCH	Yes/No
TDD 3.84 Mcps physical channel	Maximum number of timeslots per frame	114
parameters in downlink	Maximum number of physical channels per frame	1, 2, 3224
	Minimum SF	16, 1
	Support of PDSCH	Yes/No
	Support of HS-PDSCH	Yes/No
	Maximum number of physical channels per timeslot	116
TDD 3.84 Mcps physical channel	Maximum Number of timeslots per frame	114
parameters in uplink	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	Maximum number of timeslots per subframe	16
parameters in downlink	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	116
	Support 8PSK	Yes/No
TDD 1.28 Mcps physical channel	Maximum number of timeslots per subframe	16
parameters in uplink	Maximum number of physical channels per timeslot	1, 2
	Minimum SF	16, 8, 4, 2, 1
	Support of 8PSK	Yes/No
1	Support of PUSCH	Yes/No

		UE radio access capability parameter	Value range		
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	UE power class	2, 3		
	RF parameters	Radio frequency bands	a), b), c), a+b), a+c), b+c), a+b+c)		
Multi-mode related		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 p	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 parameter	rs	Support of ciphering algorithm UEA0	Yes		
, ,		Support of ciphering algorithm UEA1	Yes		
		Support of integrity protection algorithm UIA1	Yes		
UE positioning rela	ted 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		
		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 capabilitie		Access Stratum release indicator	R99, REL-4, REL-5		
DSCH	n simultaneous HS-	DL capability with simultaneous HS- DSCH configuration	32 kbps, 64 kbps, 128 kbps, 384 kbps		
UL capabilities with DCH	n simultaneous E-	UL capabilities with simultaneous E- DCH	64 kbps		

Table 5.1a: FDD HS-DSCH physical layer categories

HS-DSCH category	Maximum number of HS-DSCH codes received	Minimum inter-TTI interval	Maximum number of bits of an HS-DSCH transport block received within an HS-DSCH TTI	Total number of soft channel bits
Category 1	5	3	7298	19200
Category 2	5	3	7298	28800
Category 3	5	2	7298	28800
Category 4	5	2	7298	38400

HS-DSCH category	Maximum number of HS-DSCH codes received	Minimum inter-TTI interval	Maximum number of bits of an HS-DSCH transport block received within an HS-DSCH TTI	Total number of soft channel bits
Category 5	5	1	7298	57600
Category 6	5	1	7298	67200
Category 7	10	1	14411	115200
Category 8	10	1	14411	134400
Category 9	15	1	20251	172800
Category 10	15	1	27952	172800
Category 11	5	2	3630	14400
Category 12	5	1	3630	28800

UEs of Categories 11 and 12 support QPSK only.

Table 5.1b: RLC and MAC-hs parameters for FDD HS-DSCH physical layer categories

HS-DSCH category	Maximum number of AM RLC entities	Minimum total RLC AM and MAC-hs buffer size [kBytes]
Category 1	6	50
Category 2	6	50
Category 3	6	50
Category 4	6	50
Category 5	6	50
Category 6	6	50
Category 7	8	100
Category 8	8	100
Category 9	8	150
Category 10	8	150
Category 11	6	50
Category 12	6	50

Table 5.1c: 1.28 Mcps TDD HS-DSCH physical layer categories

HS-DSCH category	Maximum number of HS- DSCH codes per timeslot	Maximum number of HS- DSCH timeslots per TTI	Maximum number of HS- DSCH transport channel bits that can be received within an HS- DSCH TTI	Total number of soft channel bits
Category 1	12	5	7016	28160
Category 2	12	5	7016	56320
Category 3	12	5	7016	84480
Category 4	16	5	7016	28160
Category 5	16	5	7016	56320
Category 6	16	5	7016	84480
Category 7	12	5	10204	40912
Category 8	12	5	10204	81824
Category 9	12	5	10204	122736
Category 10	16	5	10204	40912
Category 11	16	5	10204	81824
Category 12	16	5	10204	122736
Category 13	16	5	14056	56320
Category 14	16	5	14056	112640
Category 15	16	5	14056	168960

Table 5.1d: RLC and MAC-hs parameters for 1.28 Mcps TDD HS-DSCH physical layer categories

HS-DSCH category	Maximum number of AM RLC entities	Minimum total RLC AM and MAC-hs buffer size [kBytes]
Category 1	6	50
Category 2	6	50
Category 3	6	50
Category 4	6	50
Category 5	6	50
Category 6	6	50
Category 7	6	50
Category 8	6	50
Category 9	6	50
Category 10	6	50
Category 11	6	50
Category 12	6	50
Category 13	6	100
Category 14	6	100
Category 15	6	100

Table 5.1e: 3.84 Mcps TDD HS-DSCH physical layer categories

HS-DSCH category	Maximum number of HS- DSCH codes per timeslot	Maximum number of HS- DSCH timeslots per TTI	Maximum number of HS-DSCH transport channel bits that can be received within an HS-DSCH TTI	Total number of soft channel bits
Category 1	16	2	12000	52992
Category 2	16	12	12000	52992
Category 3	16	4	24000	105984
Category 4	16	12	24000	105984
Category 5	16	6	36000	158976
Category 6	16	12	36000	158976
Category 7	16	12	53000	211968
Category 8	16	12	73000	264960
Category 9	16	12	102000	317952

Table 5.1f: RLC and MAC-hs parameters for 3.84 Mcps TDD HS-DSCH physical layer categories

HS-DSCH category	Maximum number of AM RLC entities	Minimum total RLC AM and MAC-hs buffer size [kBytes]
Category 1	6	50
Category 2	6	50
Category 3	6	50
Category 4	6	50
Category 5	6	100
Category 6	6	100
Category 7	6	150
Category 8	8	150
Category 9	8	200

Table 5.1g: FDD E-DCH physical layer categories

E-DCH category	Maximum number of E-DCH codes transmitted	Minimum spreading factor	Support for 10 and 2 ms TTI EDCH	Maximum number of bits of an E-DCH transport block transmitted within a 10 ms E-DCH TTI	Maximum number of bits of an E-DCH transport block transmitted within a 2 ms E-DCH TTI
Category 1	1	SF4	10 ms TTI only	7296	-
Category 2	2	SF4	10 ms and 2 ms TTI	14592	2919
Category 3	2	SF4	10 ms TTI only	14592	-
Category 4	2	SF2	10 ms and 2 ms TTI	20000	5837
Category 5	2	SF2	10 ms TTI only	20000	-
Category 6	4	SF2	10 ms and 2 ms TTI	20000	11520
NOTE: When	4 codes are tran	smitted in para	allel, two codes sha	all be transmitted with SF2 a	nd two with SF4

5.2 Reference UE radio access capability combinations

Based on required UE radio access capabilities to support reference RABs as defined in [2], this clause lists reference UE Radio Access capability combinations. Subclause 5.2.1 defines reference combinations of UE radio access capability parameters common for UL and DL. Subclauses 5.2.2 and 5.2.3 define reference combinations of UE radio access capability parameters that are separate for DL and UL respectively. A reference combination for common UL and DL parameters, one combination for UL parameters and one combination for DL parameters together relate to a UE with a certain implementation complexity, that allows support for one or several combined reference RABs. Combinations for UL and DL can be chosen independently. The bit rate supported by the selected combination of common UL and DL parameters needs to be at least as high as the maximum out of the supported bit rates of the selected combination of DL parameters and the selected combination of UL parameters. Different combinations have different levels of implementation complexity.

For defined reference RABs, it is possible to require a UE to meet a certain reference UE radio access capability combination. Each UE needs to have capabilities complying with a given reference radio access capability combination. Each individual radio access capability parameter as defined in subclause 5.1 shall be signalled.

The reference combination numbers shall not be used in the signalling of UE radio access capabilities between the UE and UTRAN. Reference UE radio access capability combinations provide default configurations that should be used as a basis for conformance testing against reference RABs.

The UE shall support at least the UE radio access capability parameter values as specified for the 12kbps UE reference class for both UL and DL.

Allowed values of UE capability parameters are limited by the defined range and granularity of values in subclause 5.1. Values might change depending on further definition of reference RABs for testing.

5.2.1 Combinations of common UE Radio Access Parameters for UL and DL

NOTE: Measurement-related capabilities are not included in the combinations. These capabilities are independent from the supported RABs.

Table 5.2.1.1: UE radio access capability parameter combinations, parameters common for UL and DL

Reference combination of UE Radio Access capability parameters common for UL and DL	12 kbps class	32 kbps class	64 kbps class	128 kbps class	384 kbps class	768 kbps class	2048 kbps class
PDCP parameters							

Reference combination of UE Radio Access capability parameters common for UL and DL	12 kbps class	32 kbps class	64 kbps class	128 kbps class	384 kbps class	768 kbps class	2048 kbps class	
Support for RFC 2507	No	No	No/Yes NOTE 1					
Support for RFC 3095	No/Yes Yes Yes Yes Yes Yes Yes Yes							
Support for RFC 3095 context relocation				No/Yes NOTE 1				
Support for loss-less SRNS relocation				No/Yes NOTE 1				
Maximum header compression context space		١	Not applicabl	e for conforr	nance testin	g		
Maximum number of ROHC context sessions		١	Not applicabl		nance testin	g		
Support for Reverse decompression				No/Yes NOTE 1				
RLC parameters								
Total RLC AM buffer size (kbytes)	10	10	10	50	50	100	500	
Maximum number of AM entities	4	4	4	5	6	8	8	
Maximum RLC AM window size	2047/4095 NOTE 1	2047/4095 NOTE 1	2047/4095 NOTE 1	2047/4095 NOTE 1	2047/4095 NOTE 1	2047/4095 NOTE 1	2047/4095 NOTE 1	
Multi-mode related parameters	110121							
Support of UTRA FDD				Yes/No NOTE 1				
Support of UTRA TDD 3.84 Mcps				Yes/No				
Support of UTRA TDD 1.28 Mcps	NOTE 1 Yes/No NOTE 1							
Multi-RAT related parameters								
Support of GSM				Yes/No NOTE 1				
Support of multi-carrier				Yes/No NOTE 1				
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 NOTE 1				
Network assisted GPS support		N	etwork base		d / Both/ Nor	ne		
GPS reference time capable				Yes/No NOTE 1				
Support for IPDL				Yes/No NOTE 1				
Support for OTDOA UE based method				Yes/No NOTE 1				
Support for Rx-Tx time difference type 2 measurement				Yes/No NOTE 1				
Support for UE Positioning assisted GPS measurement validity in CELL_PCH and URA_PCH RRC states	Yes							
Support for SFN-SFN observed time difference type 2 measurement				Yes/No NOTE 1				
RF parameters for FDD UE power class				3 / 4 NOTE 1				
Tx/Rx frequency separation				190 MHz				
RF parameters for TDD 3.84 Mcps								

Reference combination of UE Radio Access capability parameters common for UL and DL	12 kbps class	32 kbps class	64 kbps class	128 kbps class	384 kbps class	768 kbps class	2048 kbps class
Radio frequency bands			A/b/c/a	a+b/a+c/b	+c / a+b+c		
				NOTE 1			
UE power class				2/3			
				NOTE 1			
RF parameters for TDD 1.28 Mcps							
Radio frequency bands			A/b/c/	a+b / a+c / b	+c/ a+b+c		
	NOTE 1						
UE power class	2/3						
				NOTE 1			

NOTE 1: Options represent different combinations that should be supported with Conformance Tests.

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	12 kbps class	32 kbps class	64 kbps class	128 kbps class	384 kbps class	768 kbps class	2048 kbps class
parameters in DL Transport channel parameters							
Maximum sum of number of bits of	640 (FDD)	1280	3840	3840	6400	10240	20480
all transport blocks being received a		1260	3040	3640	6400	10240	20460
an arbitrary time instant	1200(100)						
Maximum sum of number of bits of	640	640	640	640	640	640	640
all convolutionally coded transport	040	040	040	040	040	040	040
blocks being received at an arbitrary	,						
time instant	'						
Maximum sum of number of bits of	NA (FDD)	1280	3840	3840	6400	10240	20480(1)
all turbo coded transport blocks	1280(TDD)	1200	3040	3040	0400	10240	10240(2)
being received at an arbitrary time	1200(122)						NOTE 5
instant							110120
Maximum number of simultaneous	4	8	8	8	8	8	16
transport channels		NOTE 4	NOTE 4	NOTE 4	NOTE 4	NOTE 4	NOTE 4
Maximum number of simultaneous	1	1	2/ 1	2/ 1	2/ 1	2/ 1	2/ 1
CCTrCH (FDD)			NOTE 2	NOTE 2	NOTE 2	NOTE 2	NOTE 2
,		NOTE 3	NOTE 3	NOTE 3	NOTE 3	NOTE 3	NOTE 3
Maximum number of simultaneous	1	2	3	3	3	4	4
CCTrCH (TDD)	NOTE 3	NOTE 3	NOTE 3	NOTE 3	NOTE 3	NOTE 3	NOTE 3
Maximum total number of transport	4	8	8	16	32	64	96
blocks received within TTIs that end							
at the same time							
Maximum number of TFC	16	32	48	96	128	256	1024
<u> </u>							
Maximum number of TF	32	32	64	64	64	128	256
Support for turbo decoding	No (FDD)	Yes	Yes	Yes	Yes	Yes	Yes
	Yes (TDD)						
Support for loss-less DL RLC PDU	No	No	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No
size change							
Physical channel parameters (FDD)							
Maximum number of DPCH	1	1	2/ 1	2/ 1	3	3	3
codes to be simultaneously received		•	NOTE 2	NOTE 2			
Maximum number of physical	1200	1200	3600/ 2400	7200/ 4800	19200	28800	57600
channel bits received in any 10 ms			NOTE2	NOTE2			
interval (DPCH , PDSCH , S- CCPCH).							
Support for SF 512 for DPCH NOTE 6	No	No	No	No	No	No	No
Support of PDSCH	No	No	Yes/No	Yes/No	Yes/No-	Yes/No-	Yes/No
	1.12		NOTE 1	NOTE 1	NOTE 1	NOTE 1	NOTE 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 HS-PDSCH	No	No	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						
Support of dedicated pilots for channel estimation of HS-DSCH Physical channel parameters	Yes/No NOTE 1						
(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				
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 NOTE 1	1/16 NOTE 1	1
Support of PDSCH	No	Yes/No NOTE 1	Yes	Yes	Yes	Yes	Yes
Support of HS-PDSCH	No	No	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.

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

Reference combination	1.2 Mbps	class 3.6 Mb	ps class	7 Mbp	s class	10 Mb	ps class	
-----------------------	----------	--------------	----------	-------	---------	-------	----------	--

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	2.4 Mbps	3.6 Mbps	7.3 Mbps	10.2 Mbps
	class	class	class	class	class
3.84Mcps 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
Transport channel parameters						
Maximum sum of number of bits of all transport blocks being transmitted at an arbitrary time instant	640	640(FDD) 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) 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 NOTE 3	1 NOTE 3	2 NOTE 3	2 NOTE 3	2 NOTE 3	2 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) Yes (TDD)	Yes	Yes	Yes	Yes
Physical channel parameters (FDD)						
Maximum number of DPDCH bits transmitted per 10 ms	600	1200	2400	4800	9600	19200
Simultaneous reception of SCCPCH and DPCH NOTE 2	No	No	No	Yes/No NOTE 1	Yes/No NOTE 1	Yes/No NOTE 1
Simultaneous reception of SCCPCH, DPCH and PDSCH NOTE 2	Ne	No	Ne	Ne	No	No
Simultaneous reception of SCCPCH, DPCH and HS-PDSCH NOTE 2	No	No	No	No	No	No
Support of PCPCH	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No
NOTE 4	NOTE 1	NOTE 1	NOTE 1	NOTE 1	NOTE 1	NOTE 1
Support of E-DPDCH	No	No	Yes/No	Yes/No	Yes/No	Yes/No
Physical channel parameters (TDD 3.84 Mcps)						

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 NOTE 1	Yes	Yes	Yes	Yes
Physical channel parameters (TDD 1.28 Mcps)						
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 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 is 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 Working Group 2 #47 Athens, Greece, 9 – 13 May 2005

Tdoc # R2-051612

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Consequences if not approved:	₩ DS0	CH for FDD mode w	vill remain spe	ecified			
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Other specs	¥ X	Other core speci	fications			5.213, 25.214, 2 5.306, 25.321, 2	

How to create CRs using this form:

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affected:

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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:

Test specifications

O&M Specifications

- 1) Fill out the above form. The symbols above marked \(\mathcal{H} \) 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.

4 General

4.1 Objective

The objective is to describe the MAC architecture and the different MAC entities from a functional point of view.

4.2 MAC architecture

The description in this subclause is a model and does not specify or restrict implementations.

According to the RRC functions the RRC is generally in control of the internal configuration of the MAC.

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). The DSCH exists only in TDD mode.
 - 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.

4.2.2 MAC-b

The following diagram illustrates the connectivity of the MAC-b entity in a UE and in each cell of the UTRAN.

MAC-b represents the control entity for the broadcast channel (BCH).

There is one (current cell) or multiple (current and neighbour cells) MAC-b entities in each UE and one MAC-b in the UTRAN for each cell.

The MAC Control SAP is used to transfer Control information to MAC-b.

The MAC-b entity is located in the Node B.

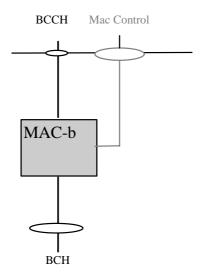


Figure 4.2.2.1: UE side and UTRAN side architecture

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.

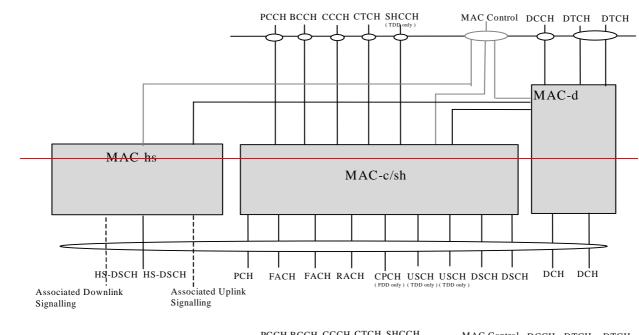
In the downlink, if logical channels of dedicated type are mapped to common transport channels then MAC-d receives the data from MAC-c/sh or MAC-hs via the illustrated connection between the functional entities.

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].



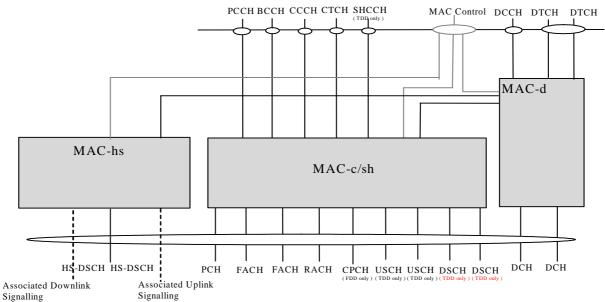


Figure 4.2.3.1: UE side MAC architecture

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

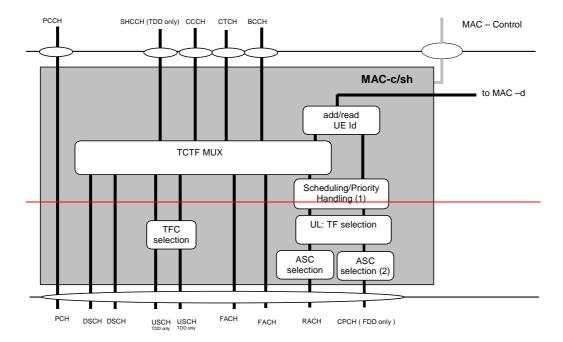
- this functionality is used to transmit the information received from MAC-d on RACH and CPCH based on logical channel priorities. This function is related to TF selection.

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,

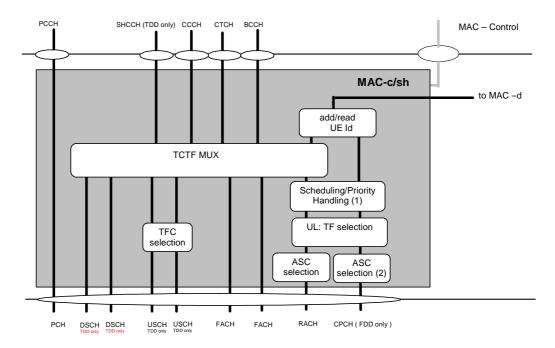
The RLC provides RLC-PDUs to the MAC, which fit into the available transport blocks on the transport channels.

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.



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

4.2.3.2 MAC-d entity - UE Side

Figure 4.2.3.2.1 shows the UE side MAC-d entity.

The following functionality is covered:

Transport Channel type switching

- Transport Channel type switching is performed by this entity, based on decision taken by RRC. This is related to a change of radio resources. If requested by RRC, MAC shall switch the mapping of one designated logical channel between common and dedicated transport channels.

- C/T MUX:

- The C/T MUX is used when multiplexing of several dedicated logical channels onto one transport channel (other than HS-DSCH) or one MAC-d flow (HS-DSCH) is used. An unambiguous identification of the logical channel is included.

Ciphering:

- Ciphering for transparent mode data to be ciphered is performed in MAC-d. Details about ciphering can be found in [10].

- Deciphering:

- Deciphering for ciphered transparent mode data is performed in MAC-d. Details about ciphering can be found in [10].

- UL 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 MAC-d entity is responsible for mapping dedicated logical channels for the uplink either onto dedicated transport channels or to transfer data to MAC-c/sh to be transmitted via common channels.

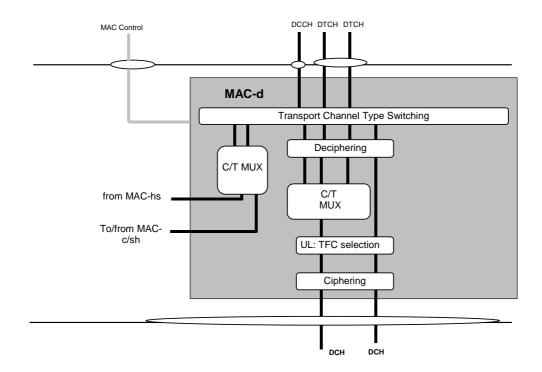
One dedicated logical channel can be mapped simultaneously onto DCH and DSCH in TDD mode.

One dedicated logical channel can be simultaneously mapped onto DCH and HS-DSCH.

The MAC-d entity has a connection to the MAC-c/sh entity. This connection is used to transfer data to the MAC-c/sh to transmit data on transport channels that are handled by MAC-c/sh (uplink) or to receive data from transport channels that are handled by MAC-c/sh (downlink).

The MAC-d entity has a connection to the MAC-hs entity. This connection is used to receive data from the HS-DSCH transport channel which is handled by MAC-hs (downlink).

There is one MAC-d entity in the UE.



Note 1: For DCH, DSCH and HS-DSCH, different scheduling mechanism apply Note 2: Ciphering is performed in MAC-d only for transparent RLC mode

Figure 4.2.3.2.1: UE side MAC architecture / MAC-d details

4.2.3.3 MAC-hs entity – UE Side

The MAC-hs handles the HSDPA specific functions. In the model below the MAC-hs comprises the following entities:

- HARQ:

The HARQ entity is responsible for handling the MAC functions relating to the HARQ protocol. The HARQ functional entity handles all the tasks that are required for hybrid ARQ. It is responsible for generating ACKs or NACKs. The detailed configuration of the hybrid ARQ protocol is provided by RRC over the MAC-Control SAP.

- Reordering Queue distribution:

The reordering queue distribution function routes the MAC-hs PDUs to the correct reordering buffer based on the Queue ID.

- Reordering:

The reordering entity reorders received MAC-hs PDUs according to the received TSN. MAC-hs PDUs with consecutive TSNs are delivered to the disassembly function upon reception. MAC-hs PDUs are not delivered to the disassembly function if MAC-hs PDUs with lower TSN are missing. There is one reordering entity for each Queue ID configured at the UE.

- Disassembly:

The disassembly entity is responsible for the disassembly of MAC-hs PDUs. When a MAC-hs PDU is disassembled the MAC-hs header is removed, the MAC-d PDUs are extracted and any present padding bits are removed. Then the MAC-d PDUs are delivered to higher layer.

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

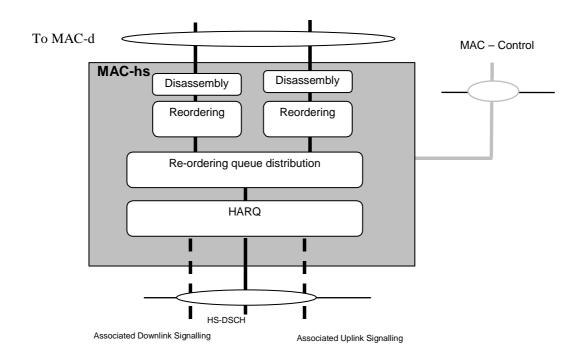


Figure 4.2.3.3.1: UE side MAC architecture / MAC-hs details

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].

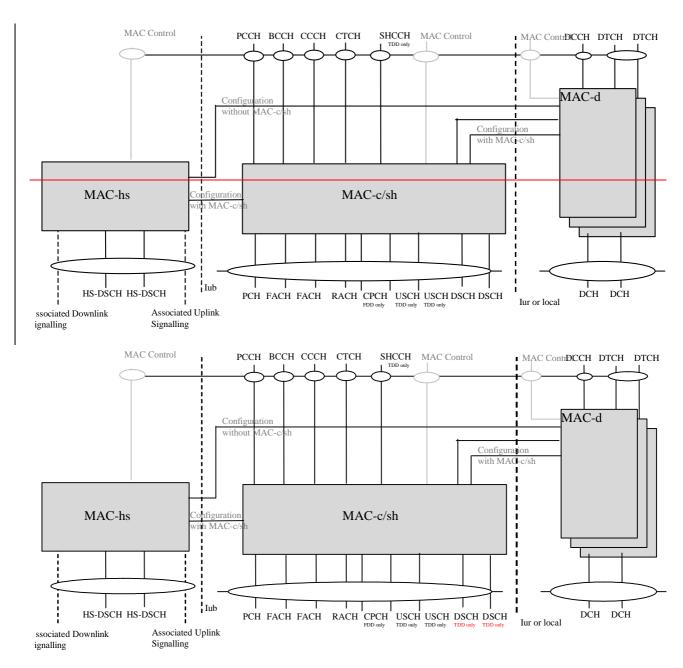


Figure 4.2.4.1: UTRAN side MAC architecture

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 <u>for TDD</u> 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 for TDD 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;
 - for TDD 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;

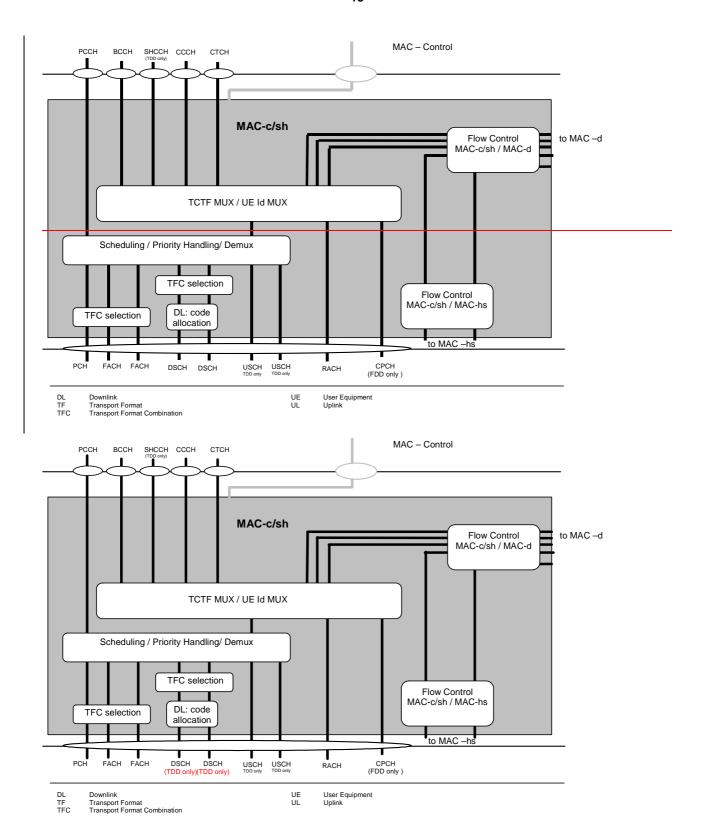


Figure 4.2.4.1.1: UTRAN side MAC architecture / MAC-c/sh details

4.2.4.2 MAC-d entity – UTRAN Side

Figure 4.2.4.2.1 shows the UTRAN side MAC-d entity.

The following functionality is covered:

- Transport Channel type switching:
 - Transport Channel type switching is performed by this entity, based on decision taken by RRC; this is related to a change of radio resources. If requested by RRC, MAC shall switch the mapping of one designated logical channel between common and dedicated transport channels.
- C/T MUX box;
 - the function includes the C/T field when multiplexing of several dedicated logical channels onto one transport channel (other than HS-DSCH) or one MAC-d flow (HS-DSCH) is used.
- Priority setting;
 - This function is responsible for priority setting on data received from DCCH / DTCH;
- Ciphering;
 - Ciphering for transparent mode data to be ciphered is performed in MAC-d. Details about ciphering can be found in [10].
- Deciphering;
 - Deciphering for ciphered transparent mode data is performed in MAC-d. Details about ciphering can be found in [10].
- DL Scheduling/Priority handling;
 - in the downlink, scheduling and priority handling of transport channels is performed within the allowed transport format combinations of the TFCS assigned by the RRC.
- Flow Control;
 - a flow control function exists toward MAC-c/sh to limit buffering between MAC-d and MAC-c/sh entities. This function is intended to limit layer 2 signalling latency and reduce discarded and retransmitted data as a result of FACH or <u>for TDD</u> DSCH congestion. For the Iur interface this is specified in [11]. A flow control function also exists towards MAC-hs in case of configuration without MAC-c/sh, see subclause 4.2.4.2.

A MAC-d entity using common channels other than the high speed downlink shared channel is connected to a MAC-c/sh entity that handles the scheduling of the common channels to which the UE is assigned and DL (FACH) priority identification to MAC-c/sh;

A MAC-d entity using downlink shared channel is connected to a MAC-c/sh entity that handles the shared channels to which the UE is assigned and indicates the level of priority of each PDU to MAC-c/sh;

A MAC-d entity using the high speed downlink shared channel may be connected to a MAC-c/sh entity that in turn is connected to the MAC-hs entity in the Node B (configuration with MAC-c/sh); alternately, a MAC-d entity using the high speed downlink shared channel may be connected to the MAC-hs entity in the Node B in case of configuration without MAC-c/sh.

A MAC-d entity is responsible for mapping dedicated logical channels onto the available dedicated transport channels or routing the data received on a DCCH or DTCH to MAC-c/sh or to MAC-hs.

One dedicated logical channel can be mapped simultaneously on DCH and DSCH in TDD mode. Different scheduling mechanisms apply for DCH and DSCH.

One dedicated logical channel can be mapped simultaneously on DCH and HS-DSCH.

There is one MAC-d entity in the UTRAN for each UE that has one or more dedicated logical channels to or from the UTRAN.

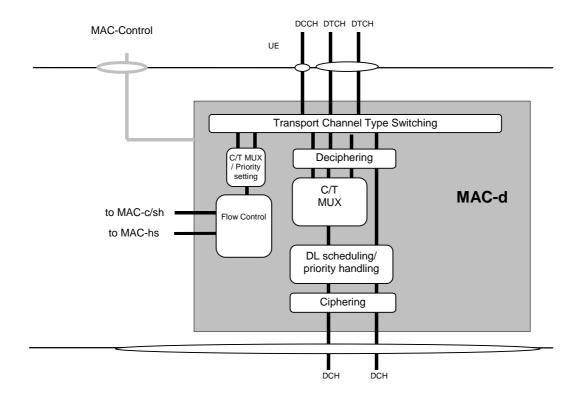


Figure 4.2.4.2.1: UTRAN side MAC architecture / MAC-d details

4.2.4.3 MAC-hs entity – UTRAN Side

There is one MAC-hs entity in the UTRAN for each cell that supports HS-DSCH transmission. The MAC-hs is responsible for handling the data transmitted on the HS-DSCH. Furthermore it is responsible for the management of the physical resources allocated to HSDPA. MAC-hs receives configuration parameters from the RRC layer via the MAC-Control SAP. There should be priority handling per MAC-d PDU in the MAC-hs. The MAC-hs is comprised of four different functional entities:

- Flow Control:

This is the companion flow control function to the flow control function in the MAC-c/sh in case of configuration with MAC-c/sh and MAC-d in case of configuration without MAC-c/sh. Both entities together provide a controlled data flow between the MAC-c/sh and the MAC-hs (Configuration with MAC-c/sh) or the MAC-d and MAC-hs (Configuration without MAC-c/sh) taking the transmission capabilities of the air interface into account in a dynamic manner. This function is intended to limit layer 2 signalling latency and reduce discarded and retransmitted data as a result of HS-DSCH congestion. Flow control is provided independently by MAC-d flow for a given MAC-hs entity.

- Scheduling/Priority Handling:

This function manages HS-DSCH resources between HARQ entities and data flows according to their priority. Based on status reports from associated uplink signalling either new transmission or retransmission is determined. Further it determines the Queue ID and TSN for each new MAC-hs PDU being serviced, and in the case of TDD the HCSN is determined. A new transmission can be initiated instead of a pending retransmission at any time to support the priority handling.

- HARO:

One HARQ entity handles the hybrid ARQ functionality for one user. One HARQ entity is capable of supporting multiple instances (HARQ process) of stop and wait HARQ protocols. There shall be one HARQ process per HS-DSCH per TTI.

- TFRC selection:

Selection of an appropriate transport format and resource for the data to be transmitted on HS-DSCH.

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

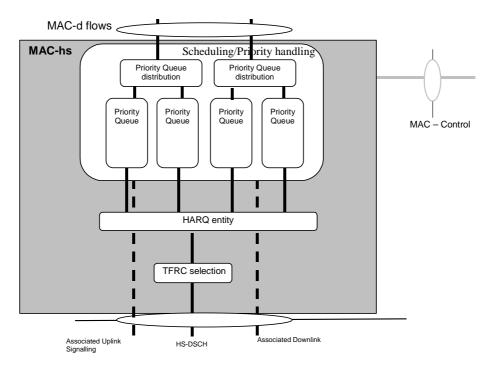


Figure 4.2.4.3.1: UTRAN side MAC architecture / MAC-hs details

4.3 Channel structure

The MAC operates on the channels defined below; the transport channels are described between MAC and Layer 1, the logical channels are described between MAC and RLC.

The following subclauses provide an overview, the normative description can be found in [2] and [3] respectively.

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), for TDD operation only;
- 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).

4.3.2 Logical Channels

The MAC layer provides data transfer services on logical channels. A set of logical channel types is defined for different kinds of data transfer services as offered by MAC.

Each logical channel type is defined by what type of information is transferred.

4.3.2.1 Logical channel structure

The configuration of logical channel types is depicted in figure 4.3.2.1.

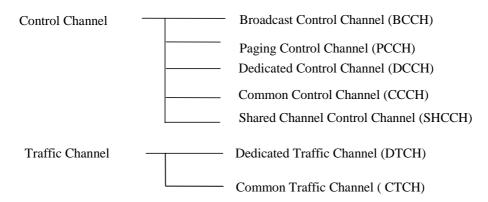


Figure 4.3.2.1: Logical channel structure

4.3.2.2 Control Channels

Following control channels are used for transfer of control plane information only:

- Broadcast Control Channel (BCCH);
- Paging Control Channel (PCCH);
- Common Control Channel (CCCH);
- Dedicated Control Channel (DCCH);
- Shared Channel Control Channel (SHCCH).

4.3.2.3 Traffic Channels

Following traffic channels are used for the transfer of user plane information only:

- Dedicated Traffic Channel (DTCH);
- Common Traffic Channel (CTCH).

5 Services provided to upper layers

This clause describes the different services provided by the MAC to higher layers. For a detailed description of the following functions see [2].

5.1 Description of Services provided to upper layers

- Data transfer: This service provides unacknowledged transfer of MAC SDUs between peer MAC entities without data segmentation.
- Reallocation of radio resources and MAC parameters: This service performs on request of RRC execution of radio resource reallocation and change of MAC parameters.
- Reporting of measurements: Local measurements are reported to RRC.

6 Functions

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	Trans port Ch	TF Sele ctio n	Priority handling between UEs	Priority handling (one UE)	Sched uling	Identif icatio n of UEs	Mux/ Demux on common transport channels	Mux/ Demux on dedicated transport channels	HARQ supp ort
	CCCH	RACH						X		
	DCCH	RACH					Х	X		
	DCCH	CPCH					Х	X		
	DCCH	DCH							X	
Uplink	DTCH	RACH					Χ	X		
(Rx)	DTCH	CPCH					Χ	Х		
(1\x)	DTCH	DCH							X	
	SHCCH	RACH					Χ	X		
	SHCCH	USCH						Х		
	DTCH	USCH						Х		
	DCCH	USCH						X		
	BCCH	BCH				Χ				
	BCCH	FACH	Χ			Χ		X		
	PCCH	PCH	Χ			Χ				
	CCCH	FACH	Χ	X		Χ		Χ		
	CTCH	FACH	Х			Χ		Х		
	DCCH	FACH	Χ	X		Χ	Χ	Х		
	DCCH	DSCH	Х	Х			Х	Х		
Downlink	DCCH	DCH	Χ		Х				X	
(Tx)	DCCH	HS-	Χ	Х	Х	Χ	Х	Х		Χ
(12)		DSCH	(1)							
	DTCH	FACH	Χ	Χ		Χ	X	X		
	DTCH	DSCH	Χ	Х			X	X		
	DTCH	DCH	X		X				X	
	DTCH	HS-	X	X	Χ	Χ	Х	X		Х
		DSCH	(1)							
	SHCCH	FACH	Χ	X		Χ		X		
	SHCCH	DSCH	Х	Χ				Χ		

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	Transp ort Ch	TF Selection	Priority handling (one UE)	Identification	Mux/Demux on common transport channels	Mux/Demux on dedicated transport channels	HARQ suppor t
	СССН	RACH				Х		
	DCCH	RACH	Х	Х	Х	Х		
	DCCH	CPCH	Х	Х	Х	Х		
	DCCH	DCH	Х	Х			Х	
Uplink	DTCH	RACH	Х	Х	X	X		
(Tx)	DTCH	CPCH	Х	Х	Х	Χ		
(17)	DTCH	DCH	Х	Х			Х	
	SHCCH	RACH				Х		
	SHCCH	USCH	Х	Х		Х		
	DCCH	USCH	Х	Х		Х		
	DTCH	USCH	Х	Х		Х		
	BCCH	BCH						
	BCCH	FACH				X		
	PCCH	PCH						
	CCCH	FACH				X		
	CTCH	FACH				Х		
	DCCH	FACH			X	Х		
	DCCH	DSCH				X		
Downlink	DCCH	DCH					Х	
(Rx)	DCCH	HS- DSCH			X	Х		Х
	DTCH	FACH			X	Х		
	DTCH	DSCH				Х		
	DTCH	DCH					Х	
	DTCH	HS- DSCH			Х	Х		Х
	SHCCH	FACH				X		
	SHCCH	DSCH				X		

7 Services expected from physical layer

The physical layer offers information transfer services to MAC. For detailed description, see [3].

8 Elements for layer-to-layer communication

The interaction between the MAC layer and other layers are described in terms of primitives where the primitives represent the logical exchange of information and control between the MAC layer and other layers. The primitives shall not specify or constrain implementations. The MAC is connected to layer 1, RLC and RRC. The following subclauses describe the primitives between these layers.

8.1 Primitives between layers 1 and 2

8.1.1 Primitives

The primitives are described in [3].

8.1.2 Parameters

- a) Transport Format Resource Indicator (TFRI) for HS-DSCH:
 - For HS-DSCH the Transport Block size is derived from the TFRI value signalled on the HS-SCCH. The mapping between TFRI value and Transport Block size is specified in subclause 9.2.3.

8.2 Primitives between MAC and RLC

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

Ciphering mode

Ciphering key

Ciphering sequence number

i) CPCH transmission control elements

CPCH persistency value, P for each Transport Format

Maximum number of preamble ramping cycles N_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

9 Elements for peer-to-peer communication

9.1 Protocol data units

9.1.1 General

A MAC PDU is a bit string, with a length not necessarily a multiple of 8 bits. In the drawings in clause 9.1, bit strings are represented by tables in which the first bit is the leftmost one on the first line of the table, the last bit is the rightmost on the last line of the table, and more generally the bit string is to be read from left to right and then in the reading order of the lines.

Depending on the provided service, MAC SDUs are bit strings with any non-null length, or bit strings with an integer number of octets in length. An SDU is included into a MAC PDU from first bit onward.

In the UE for the uplink, all MAC PDUs delivered to the physical layer within one TTI are defined as Transport Block Set (TBS). It consists of one or several Transport Blocks, each containing one MAC PDU. The Transport Blocks, shall be transmitted in the order as delivered from RLC. When multiplexing of RLC PDUs from different logical channels is performed on MAC, the order of all Transport Blocks originating from the same logical channel shall be the same as the order of the sequence delivered from RLC. The order of the different logical channels in a TBS is set by the MAC protocol.

9.1.2 MAC PDU (non-HS-DSCH)

A MAC PDU consists of an optional MAC header and a MAC Service Data Unit (MAC SDU), see figure 9.1.2.1. Both the MAC header and the MAC SDU are of variable size.

The content and the size of the MAC header depends on the type of the logical channel, and in some cases none of the parameters in the MAC header are needed.

The size of the MAC-SDU depends on the size of the RLC-PDU, which is defined during the setup procedure.

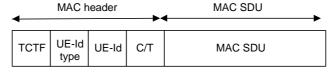


Figure 9.1.2.1: MAC PDU

9.1.3 MAC-d PDU (HS-DSCH)

For HS-DSCH the MAC-d PDU format equals the MAC PDU format for the non HS-DSCH case.

9.1.4 MAC PDU (HS-DSCH)

In case of HS-DSCH a MAC PDU consists of one MAC-hs header and one or more MAC-hs SDUs where each MAC-hs SDU equals a MAC-d PDU. A maximum of one MAC-hs PDU can be transmitted in a TTI per UE. The MAC-hs header is of variable size. The MAC-hs SDUs in one TTI belongs to the same reordering queue.

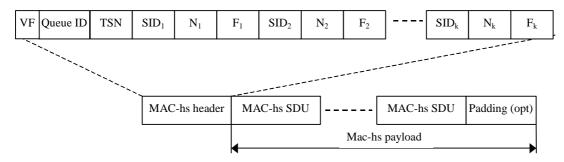


Figure 9.1.4.1: MAC-hs PDU

9.2 Formats and parameters

NOTE: MAC header field encodings as specified in this clause with designation "Reserved" are forbidden to be used by a sender in this version of the protocol.

9.2.1 MAC PDU: Parameters of the MAC PDU header (non HS-DSCH) and MAC-d PDU header (HS-DSCH)

The following fields are defined for the MAC header for transport channels other than HS-DSCH and for the MAC-d PDU header for HS-DSCH:

Target Channel Type Field
The TCTF field is a flag that provides identification of the logical channel class on FACH and RACH transport channels, i.e. whether it carries BCCH, CCCH, CTCH, SHCCH or dedicated logical channel information. The size and coding of TCTF for FDD and TDD are shown in tables 9.2.1.1, 9.2.1.2, 9.2.1.3, 9.2.1.4 and 9.2.1.5.

Note that the size of the TCTF field of FACH for FDD is either 2 or 8 bits depending of the value of the 2 most significant bits and for TDD is either 3 or 5 bits depending on the value of the 3 most significant bits. The TCTF of the RACH for TDD is either 2 or 4 bits depending on the value of the 2 most significant bits.

Table 9.2.1.1: Coding of the Target Channel Type Field on FACH for TDD

TCTF	Designation
000	BCCH
001	CCCH
010	CTCH
01100	DCCH or DTCH
	over FACH
01101-	Reserved
01111	(PDUs with this coding
	will be discarded by this
	version of the protocol)
100	
	SHCCH
101-111	Reserved
	(PDUs with this coding
	will be discarded by this
	version of the protocol)

Table 9.2.1.2: Coding of the Target Channel Type Field on FACH for FDD

TCTF	Designation
00	BCCH
01000000	CCCH
01000001-	Reserved
01111111	(PDUs with this coding
	will be discarded by this
	version of the protocol)
10000000	CTCH
10000001-	Reserved
10111111	(PDUs with this coding
	will be discarded by this
	version of the protocol)
11	DCCH or DTCH
	over FACH

Table 9.2.1.3: Coding of the Target Channel Type Field on USCH or DSCH (TDD only)

TCTF	Designation
0	SHCCH
1	DCCH or DTCH over
	USCH or DSCH

Table 9.2.1.4: Coding of the Target Channel Type Field on RACH for FDD

TCTF	Designation
00	CCCH
01	DCCH or DTCH
	over RACH
10-11	Reserved
	(PDUs with this coding
	will be discarded by this
	version of the protocol)

Table 9.2.1.5: Coding of the Target Channel Type Field on RACH for TDD

TCTF	Designation
00	CCCH
0100	DCCH or DTCH
	Over RACH
0101-	Reserved
0111	(PDUs with this coding
	will be discarded by this
	version of the protocol)
10	SHCCH
11	Reserved
	(PDUs with this coding
	will be discarded by this
	version of the protocol)

- C/T field

The C/T field provides identification of the logical channel instance when multiple logical channels are carried on the same transport channel (other than HS-DSCH) or same MAC-d flow (HS-DSCH). The C/T field is used also to provide identification of the logical channel type on dedicated transport channels and on FACH and RACH when used for user data transmission. The size of the C/T field is fixed to 4 bits for both common transport channels and dedicated transport channels. Table 9.2.1.5a shows the 4-bit C/T field.

Table 9.2.1.5a: Structure of the C/T field

C/T field	Designation
0000	Logical channel 1
0001	Logical channel 2
1110	Logical channel 15
1111	Reserved
	(PDUs with this coding will be
	discarded by this version of
	the protocol)

UE-Id

The UE-Id field provides an identifier of the UE on common transport channels. The following types of UE-Id used on MAC are defined:

- UTRAN Radio Network Temporary Identity (U-RNTI) may be used in the MAC header of DCCH using RLC UM (SRB1), when mapped onto common transport channels in downlink direction; the U-RNTI is never used in uplink direction;
- Cell Radio Network Temporary Identity (C-RNTI) is used on DTCH and DCCH in uplink, and may be used on DCCH in downlink and is used on DTCH in downlink when mapped onto common transport channels, except when mapped onto DSCH transport channel in TDD;
- In FDD, DSCH Radio Network Temporary Identity (DSCH RNTI) is used on DTCH and DCCH indownlink when mapped onto DSCH transport channel; the UE id to be used by MAC is configured through the MAC control SAP. The lengths of the UE id field of the MAC header are given in table 9.2.1.6.

Table 9.2.1.6: Lengths of UE Id field

UE ld type	Length of UE Id field
U-RNTI	32 bits
C-RNTI	16 bits
DSCH-RNTI	16 bits

UE-Id Type

The UE-Id Type field is needed to ensure correct decoding of the UE-Id field in MAC Headers.

Table 9.2.1.7: UE-Id Type field definition

UE-Id Type field 2 bits	UE-Id Type
00	U-RNTI
01	C-RNTI or DSCH-RNTI
	Reserved
10	(PDUs with this coding will be
10	discarded by this version of
	the protocol)
	Reserved
11	(PDUs with this coding will be
11	discarded by this version of
	the protocol)

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.

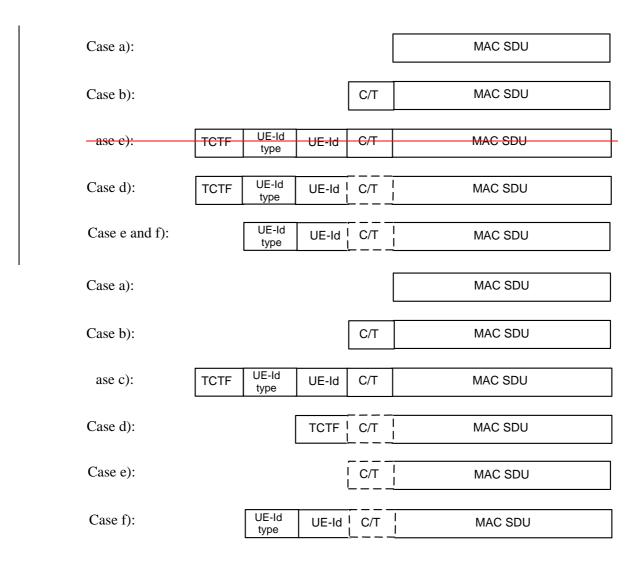


Figure 9.2.1.1.1: MAC PDU formats for DTCH and DCCH

9.2.1.1a MAC-d Header for DTCH and DCCH (mapped on HS-DSCH)

The MAC-d PDU header for DTCH and DCCH mapped on HS-DSCH is as shown in figure 9.2.1.1a.1.

- C/T field is included in the MAC-d PDU header if multiplexing on MAC is applied.



Figure 9.2.1.1a.1 MAC-d PDU format for DTCH and DCCH mapped on HS-DSCH

9.2.1.2 MAC header for BCCH

- a) BCCH mapped to BCH:
 - no MAC header is included.
- b) BCCH mapped to FACH:
 - the TCTF field is included in MAC header.

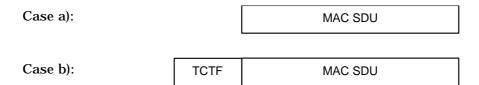


Figure 9.2.1.2.1: MAC PDU formats for BCCH

9.2.1.3 MAC header for PCCH

There is no MAC header for PCCH.

9.2.1.4 MAC header for CCCH

CCCH mapped to RACH/FACH:

- TCTF field is included in MAC header.



Figure 9.2.1.4.1: MAC PDU formats for CCCH

9.2.1.5 MAC Header for CTCH

The TCTF field is included as MAC header for CTCH as shown in figure 9.2.1.5.1.



Figure 9.2.1.5.1: MAC PDU format for CTCH

9.2.1.6 MAC Header for SHCCH

The MAC header for SHCCH is as shown in figure 9.2.1.6.1.

- a) SHCCH mapped to RACH and USCH/FACH and DSCH:
 - TCTF has to be included.
- b) SHCCH mapped to RACH and USCH/FACH and DSCH, where SHCCH is the only channel.

Case a):

MAC SDU

MAC SDU

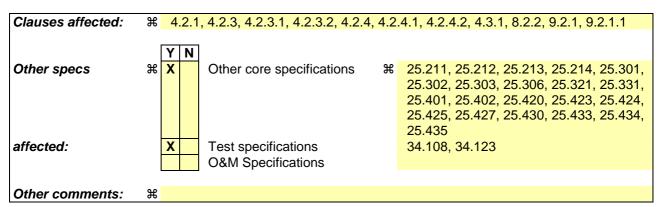
Figure 9.2.1.6.1: MAC PDU format for SHCCH

3GPP TSG-RAN Working Group 2 #47 Athens, Greece, 9 – 13 May 2005

Tdoc # R2-051613

	CHANGE REQUI	EST	
*	25.321 CR 0212 #rev -		
For <u>HELP</u> 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 X Radio Access Network X Core Network			
Title:	★ Feature Clean-up: Removal of DSCH (FDD)	0)	
Source:	₩ RAN WG2		
Work item code	:: 郑 <mark>TEI5</mark>	<i>Date</i> :	
Category:	Use one of the following categories: F (correction) A (corresponds to a correction in an earlied release) B (addition of feature), C (functional modification of feature) D (editorial modification) Detailed explanations of the above categories categories to be found in 3GPP TR 21.900.	R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) Rel-4 (Release 4)	

Reason for change: #	Removal of DSCH for FDD
Summary of change: %	Removal of DSCH for FDD
Consequences if # not approved:	DSCH for FDD mode will remain specified



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 \(\mathcal{x} \) 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.

4 General

4.1 Objective

The objective is to describe the MAC architecture and the different MAC entities from a functional point of view.

4.2 MAC architecture

The description in this subclause is a model and does not specify or restrict implementations.

According to the RRC functions the RRC is generally in control of the internal configuration of the MAC.

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). The DSCH exists only in TDD mode.
 - 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.

4.2.2 MAC-b

The following diagram illustrates the connectivity of the MAC-b entity in a UE and in each cell of the UTRAN.

MAC-b represents the control entity for the broadcast channel (BCH).

There is one (current cell) or multiple (current and neighbour cells) MAC-b entities in each UE and one MAC-b in the UTRAN for each cell.

The MAC Control SAP is used to transfer Control information to MAC-b.

The MAC-b entity is located in the Node B.

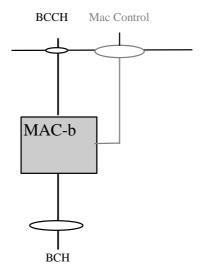


Figure 4.2.2.1: UE side and UTRAN side architecture

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].

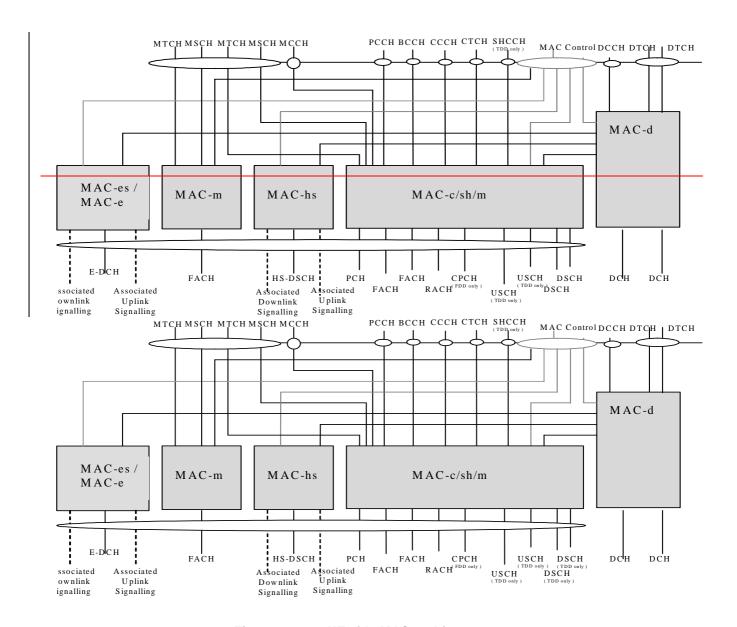


Figure 4.2.3.1: UE side MAC architecture

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

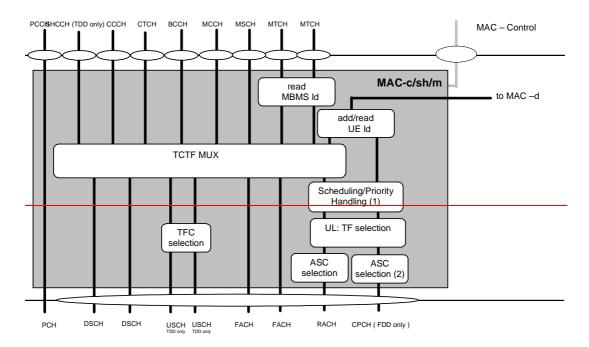
- this functionality is used to transmit the information received from MAC-d on RACH and CPCH based on logical channel priorities. This function is related to TF selection.

- 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,

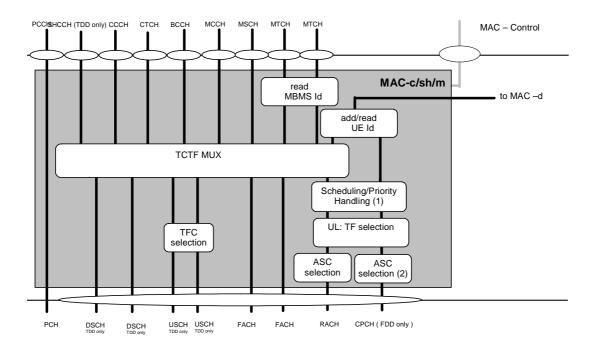
The RLC provides RLC-PDUs to the MAC, which fit into the available transport blocks on the transport channels.

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

4.2.3.1b MAC-m entity – UE Side

Figure 4.2.3.1b.1 shows the UE side MAC-m entity.

The following functionality is covered:

- TCTF DEMUX:

- this function represents the handling (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;
- read MBMS Id
 - the MBMS Id is read in case of MTCH reception;
 - the MBMS Id identifies received data to an MBMS service.

The MAC Control SAP is used to transfer control information to MAC-m.

If MTCH channels are selectively combined, the MAC-m entity exists in the UE. Otherwise, the MAC-m entity does not exist.

In case of selective combining of MTCH channels from multiple cells, there are one MAC-c/sh/m for the current cell and one MAC-m entity for each neighboring cell in the UE.

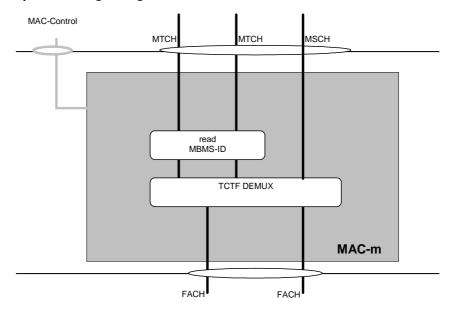


Figure 4.2.3.1b.1: UE side MAC architecture / MAC-m details

4.2.3.2 MAC-d entity – UE Side

Figure 4.2.3.2.1 shows the UE side MAC-d entity.

The following functionality is covered:

- Transport Channel type switching
 - Transport Channel type switching is performed by this entity, based on decision taken by RRC. This is related to a change of radio resources. If requested by RRC, MAC shall switch the mapping of one designated logical channel between common and dedicated transport channels.
- C/T MUX:
 - The C/T MUX is used when multiplexing of several dedicated logical channels onto one transport channel (other than HS-DSCH) or one MAC-d flow (HS-DSCH) is used. An unambiguous identification of the logical channel is included.
- Ciphering:
 - Ciphering for transparent mode data to be ciphered is performed in MAC-d. Details about ciphering can be found in [10].
- Deciphering:

- Deciphering for ciphered transparent mode data is performed in MAC-d. Details about ciphering can be found in [10].

- UL 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 MAC-d entity is responsible for mapping dedicated logical channels for the uplink either onto dedicated transport channels or to transfer data to MAC-c/sh/m to be transmitted via common channels.

One dedicated logical channel can be mapped simultaneously onto DCH and DSCH in TDD mode.

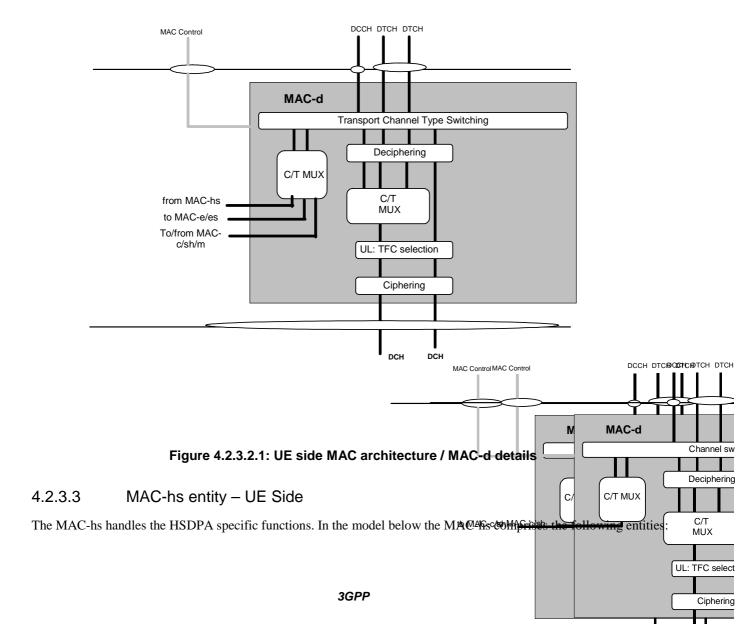
One dedicated logical channel can be simultaneously mapped onto DCH and HS-DSCH.

The MAC-d entity has a connection to the MAC-c/sh/m entity. This connection is used to transfer data to the MAC-c/sh/m to transmit data on transport channels that are handled by MAC-c/sh/m (uplink) or to receive data from transport channels that are handled by MAC-c/sh/m (downlink).

The MAC-d entity has a connection to the MAC-hs entity. This connection is used to receive data from the HS-DSCH transport channel which is handled by MAC-hs (downlink).

The MAC-d entity has a connection to the MAC-e/es entity. This connection is used to transmit data on the E-DCH transport channel which is handled by the MAC-e/es (uplink).

There is one MAC-d entity in the UE.



- HARO:

The HARQ entity is responsible for handling the MAC functions relating to the HARQ protocol. The HARQ functional entity handles all the tasks that are required for hybrid ARQ. It is responsible for generating ACKs or NACKs. The detailed configuration of the hybrid ARQ protocol is provided by RRC over the MAC-Control SAP.

- Reordering Queue distribution:

The reordering queue distribution function routes the MAC-hs PDUs to the correct reordering buffer based on the Queue ID.

Reordering:

The reordering entity reorders received MAC-hs PDUs according to the received TSN. MAC-hs PDUs with consecutive TSNs are delivered to the disassembly function upon reception. MAC-hs PDUs are not delivered to the disassembly function if MAC-hs PDUs with lower TSN are missing. There is one reordering entity for each Queue ID configured at the UE.

- Disassembly:

The disassembly entity is responsible for the disassembly of MAC-hs PDUs. When a MAC-hs PDU is disassembled the MAC-hs header is removed, the MAC-d PDUs are extracted and any present padding bits are removed. Then the MAC-d PDUs are delivered to higher layer.

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

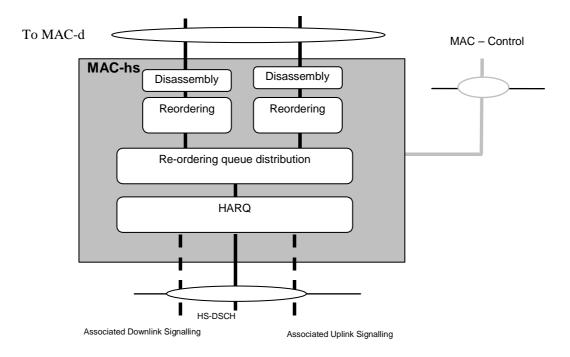


Figure 4.2.3.3.1: UE side MAC architecture / MAC-hs details

4.2.3.4 MAC-e/es entity – UE Side

The MAC-es/e handles the E-DCH specific functions. The split between MAC-e and MAC-es in the UE is not detailed. In the model below the MAC-e/es comprises the following entities:

- HARQ:

The HARQ entity is responsible for handling the MAC functions relating to the HARQ protocol. It is responsible for storing MAC-e payloads and re-transmitting them. The detailed configuration of the hybrid ARQ protocol is provided by RRC over the MAC-Control SAP. The HARQ entity provides the E-TFC, the retransmission sequence number (RSN), and the power offset to be used by L1. Redundancy version (RV) of the HARQ transmission is derived by L1 from RSN, CFN and in case of 2 ms TTI from the sub-frame number.

- Multiplexing:

The multiplexing entity is responsible for concatenating multiple MAC-d PDUs into MAC-es PDUs, and to multiplex one or multiple MAC-es PDUs into a single MAC-e PDU, to be transmitted at the next TTI, and as instructed by the E-TFC selection function. It is also responsible for managing and setting the TSN per logical channel for each MAC-es PDU.

- E-TFC selection:

This entity is responsible for E-TFC selection according to the scheduling information (Relative Grants and Absolute Grants) received from UTRAN via L1, and for arbitration among the different flows mapped on the E-DCH. The detailed configuration of the E-TFC entity is provided by RRC over the MAC-Control SAP. The E-TFC selection function controls the multiplexing function.

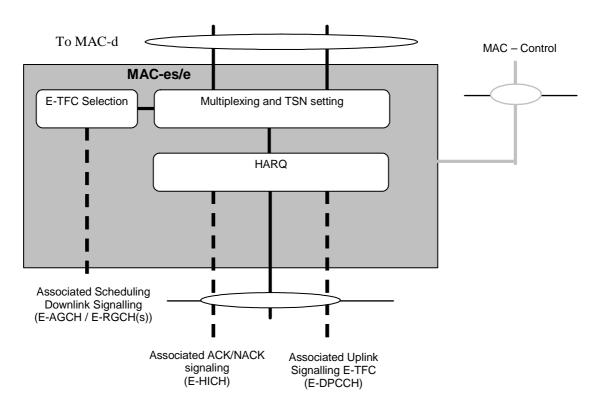


Figure 4.2.3.4.1: UE side MAC architecture / MAC-e/es details

4.2.4 Traffic Related Architecture - UTRAN Side

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

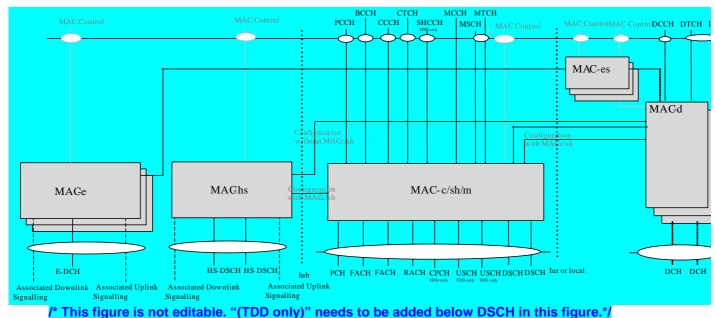
It is similar to the UE case with the exception that there will be one MAC-d for each UE and each UE (MAC-d) that is associated with a particular cell may be associated with that cell's MAC-c/sh/m.

MAC-c/sh/m 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/m to the MAC-hs via the Iub interface in case of configuration with MAC-c/sh/m, or from the MAC-d via Iur/Iub in case of configuration without MAC-c/sh/m.

For each UE that uses E-DCH, one MAC-e entity per Node-B and one MAC-es entity in the SRNC are configured. MAC-e, located in the Node B, controls access to the E-DCH and is connected to MAC-es, located in the SRNC. MAC-es is further connected to MAC-d. There is one transport bearer set up per E-DCH MAC-d flow.

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].



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Figure 4.2.4.1: UTRAN side MAC architecture

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 <u>for TDD</u> 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 for TDD 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;
 - for TDD 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;

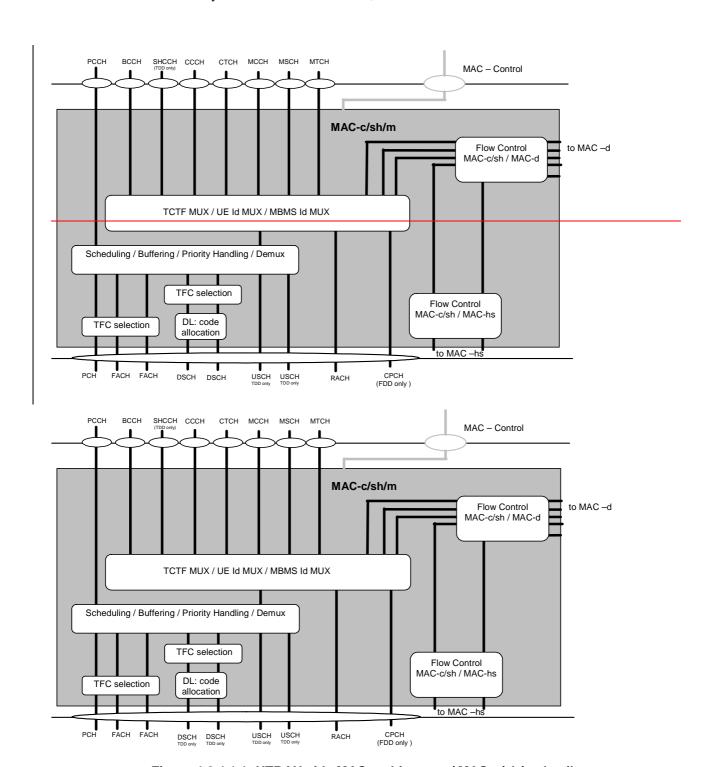


Figure 4.2.4.1.1: UTRAN side MAC architecture / MAC-c/sh/m details

4.2.4.2 MAC-d entity – UTRAN Side

Figure 4.2.4.2.1 shows the UTRAN side MAC-d entity.

The following functionality is covered:

- Transport Channel type switching:
 - Transport Channel type switching is performed by this entity, based on decision taken by RRC; this is related to a change of radio resources. If requested by RRC, MAC shall switch the mapping of one designated logical channel between common and dedicated transport channels.
- C/T MUX box;
 - the function includes the C/T field when multiplexing of several dedicated logical channels onto one transport channel (other than HS-DSCH) or one MAC-d flow (HS-DSCH) is used.
- Priority setting;
 - This function is responsible for priority setting on data received from DCCH / DTCH;
- Ciphering;
 - Ciphering for transparent mode data to be ciphered is performed in MAC-d. Details about ciphering can be found in [10].
- Deciphering;
 - Deciphering for ciphered transparent mode data is performed in MAC-d. Details about ciphering can be found in [10].
- DL Scheduling/Priority handling;
 - in the downlink, scheduling and priority handling of transport channels is performed within the allowed transport format combinations of the TFCS assigned by the RRC.
- Flow Control;
 - a flow control function exists toward MAC-c/sh/m to limit buffering between MAC-d and MAC-c/sh/m entities. This function is intended to limit layer 2 signalling latency and reduce discarded and retransmitted data as a result of FACH or <u>for TDD DSCH</u> congestion. For the Iur interface this is specified in [11]. A flow control function also exists towards MAC-hs in case of configuration without MAC-c/sh/m, see subclause 4.2.4.2.

A MAC-d entity using common channels other than the high speed downlink shared channel is connected to a MAC-c/sh/m entity that handles the scheduling of the common channels to which the UE is assigned and DL (FACH) priority identification to MAC-c/sh/m:

A MAC-d entity using downlink shared channel is connected to a MAC-c/sh/m entity that handles the shared channels to which the UE is assigned and indicates the level of priority of each PDU to MAC-c/sh/m;

A MAC-d entity using the high speed downlink shared channel may be connected to a MAC-c/sh/m entity that in turn is connected to the MAC-hs entity in the Node B (configuration with MAC-c/sh/m); alternately, a MAC-d entity using the high speed downlink shared channel may be connected to the MAC-hs entity in the Node B in case of configuration without MAC-c/sh/m.

A MAC-d entity using the enhanced dedicated transport channel (Uplink only) is connected to a MAC-es entity that handles the re-ordering and combining of data received from different Node Bs. Given that the MAC-es is collocated in the SRNC, it is not necessary to flow control this connection. The MAC-es will indicate the logical channel for which the data is intended, to allow the MAC-d to route it appropriately.

A MAC-d entity is responsible for mapping dedicated logical channels onto the available dedicated transport channels or routing the data received on a DCCH or DTCH to MAC-c/sh/m or to MAC-hs.

One dedicated logical channel can be mapped simultaneously on DCH and DSCH<u>in TDD mode</u>. Different scheduling mechanisms apply for DCH and DSCH. One dedicated logical channel can be mapped simultaneously on DCH and HSDSCH.

There is one MAC-d entity in the UTRAN for each UE that has one or more dedicated logical channels to or from the UTRAN.

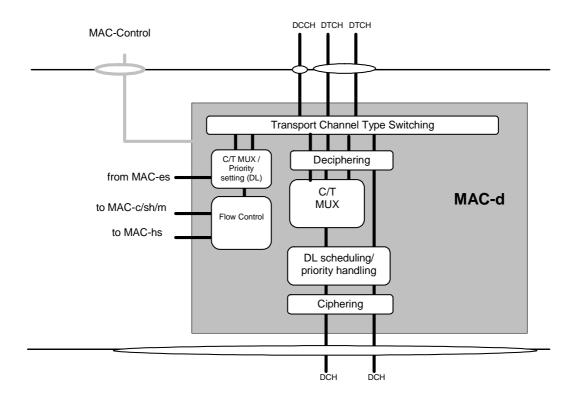


Figure 4.2.4.2.1: UTRAN side MAC architecture / MAC-d details

4.2.4.3 MAC-hs entity – UTRAN Side

There is one MAC-hs entity in the UTRAN for each cell that supports HS-DSCH transmission. The MAC-hs is responsible for handling the data transmitted on the HS-DSCH. Furthermore it is responsible for the management of the physical resources allocated to HSDPA. MAC-hs receives configuration parameters from the RRC layer via the MAC-Control SAP. There should be priority handling per MAC-d PDU in the MAC-hs. The MAC-hs is comprised of four different functional entities:

- Flow Control:

This is the companion flow control function to the flow control function in the MAC-c/sh/m in case of configuration with MAC-c/sh/m and MAC-d in case of configuration without MAC-c/sh/m. Both entities together provide a controlled data flow between the MAC-c/sh/m and the MAC-hs (Configuration with MAC-c/sh/m) or the MAC-d and MAC-hs (Configuration without MAC-c/sh/m) taking the transmission capabilities of the air interface into account in a dynamic manner. This function is intended to limit layer 2 signalling latency and reduce discarded and retransmitted data as a result of HS-DSCH congestion. Flow control is provided independently by MAC-d flow for a given MAC-hs entity.

- Scheduling/Priority Handling:

This function manages HS-DSCH resources between HARQ entities and data flows according to their priority. Based on status reports from associated uplink signalling either new transmission or retransmission is determined. Further it determines the Queue ID and TSN for each new MAC-hs PDU being serviced, and in the case of TDD the HCSN is determined. A new transmission can be initiated instead of a pending retransmission at any time to support the priority handling.

- HARO:

One HARQ entity handles the hybrid ARQ functionality for one user. One HARQ entity is capable of supporting multiple instances (HARQ process) of stop and wait HARQ protocols. There shall be one HARQ process per HS-DSCH per TTI.

- TFRC selection:

Selection of an appropriate transport format and resource for the data to be transmitted on HS-DSCH.

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

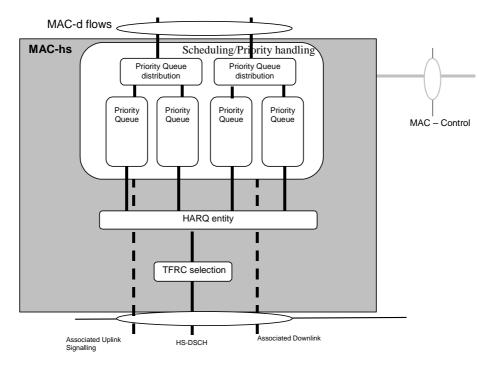


Figure 4.2.4.3.1: UTRAN side MAC architecture / MAC-hs details

4.2.4.4 MAC-es entity – UTRAN Side

For each UE, there is one MAC-es entity in the SRNC. The MAC-es sublayer handles E-DCH specific functionality, which is not covered in the MAC-e entity in Node B. In the model below, the MAC-e comprises the following entities:

- Reordering Queue Distribution:

The reordering queue distribution function routes the MAC-es PDUs to the correct reordering buffer based the SRNC configuration.

- Reordering:

This function reorders received MAC-es PDUs according to the received TSN and Node-B tagging i.e. (CFN, subframe number). MAC-es PDUs with consecutive TSNs are delivered to the disassembly function upon reception. PDUs are not delivered to the disassembly function if PDUs with a lower TSN are missing. There is one Re-ordering Process per logical channel.

- Macro diversity selection:

The function is performed in the MAC-es, in case of soft handover with multiple Node-Bs (The soft combining for all the cells of a Node-B takes place in the Node-B). This means that the reordering function receives MAC-es PDUs from each Node-B in the E-DCH active set. The exact implementation is not specified. However the model below is based on one Reordering Queue Distribution entity receiving all the MAC-d flow from all the Node-Bs, and one MAC-es entity per UE.

- Disassembly:

The disassembly function is responsible for disassembly of MAC-es PDUs. When a MAC-es PDU is disassembled the MAC-es header is removed, the MAC-d PDU's are extracted and delivered to MAC-d.

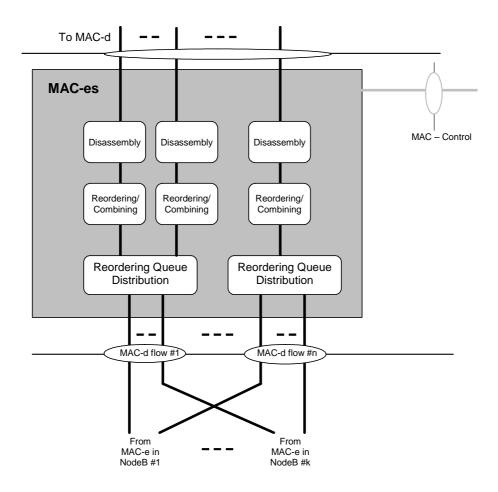


Figure 4.2.4.4-1: UTRAN side MAC architecture / MAC-es details (SHO case)

4.2.4.5 MAC-e entity – UTRAN Side

There is one MAC-e entity in Node B for each UE and one E-DCH scheduler function in the Node-B. The MAC-e and E-DCH scheduler handle HSUPA specific functions in Node B. In the model below, the MAC-e and E-DCH scheduler comprises the following entities:

- E-DCH Scheduling:

This function manages E-DCH cell resources between UEs. Based on scheduling requests, scheduling assignments are determined and transmitted. The general principles of the E-DCH scheduling are described in subclause 11.8.2.3 below. However implementation is not specified (i.e. depends on RRM strategy).

- E-DCH Control:

The E-DCH control entity is responsible for reception of scheduling requests and transmission of scheduling assignments. The general principles of the E-DCH schedulling are described in subclause [FFS] below.

- De-multiplexing:

This function provides de-multiplexing of MAC-e PDUs. MAC-es PDUs are forwarded to the associated MAC-d flow.

- HARQ:

One HARQ entity is capable of supporting multiple instances (HARQ process) of stop and wait HARQ protocols. Each process is responsible for generating ACKs or NACKs indicating delivery status of E-DCH transmissions. The HARQ entity handles all tasks that are required for the HARQ protocol.

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

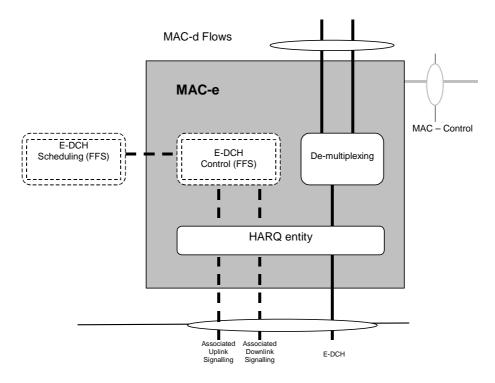


Figure 4.2.4.5-1: UTRAN side MAC architecture / MAC-e details

4.3 Channel structure

The MAC operates on the channels defined below; the transport channels are described between MAC and Layer 1, the logical channels are described between MAC and RLC.

The following subclauses provide an overview, the normative description can be found in [2] and [3] respectively.

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), for TDD operation only;
- 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.

4.3.2 Logical Channels

The MAC layer provides data transfer services on logical channels. A set of logical channel types is defined for different kinds of data transfer services as offered by MAC.

Each logical channel type is defined by what type of information is transferred.

4.3.2.1 Logical channel structure

The configuration of logical channel types is depicted in figure 4.3.2.1.

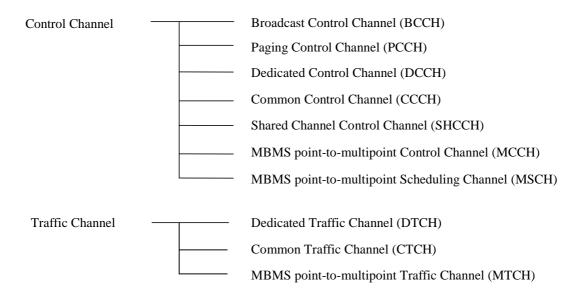


Figure 4.3.2.1: Logical channel structure

4.3.2.2 Control Channels

Following control channels are used for transfer of control plane information only:

- Broadcast Control Channel (BCCH);
- Paging Control Channel (PCCH);
- Common Control Channel (CCCH);
- Dedicated Control Channel (DCCH);
- Shared Channel Control Channel (SHCCH);
- MBMS point-to-multipoint Control Channel (MCCH);
- MBMS point-to-multipoint Scheduling Channel (MSCH)

4.3.2.3 Traffic Channels

Following traffic channels are used for the transfer of user plane information only:

- Dedicated Traffic Channel (DTCH);
- Common Traffic Channel (CTCH);
- MBMS point-to-multipoint Traffic Channel (MTCH).

5 Services provided to upper layers

This clause describes the different services provided by the MAC to higher layers. For a detailed description of the following functions see [2].

5.1 Description of Services provided to upper layers

- Data transfer: This service provides unacknowledged transfer of MAC SDUs between peer MAC entities without data segmentation.
- Reallocation of radio resources and MAC parameters: This service performs on request of RRC execution of radio resource reallocation and change of MAC parameters.
- Reporting of measurements: Local measurements are reported to RRC.

6 Functions

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	Trans port Ch	TF Sele ctio n	Priority handling between UEs	Priority handling (one UE)	Sche dulin g	Identific ation of UEs or MBMS services	Mux/ Demux on common transport	Mux/ Demux on dedicated transport channels	HARQ supp ort
								channels		
	CCCH	RACH						Х		
	DCCH	RACH					Х	Х		
	DCCH	CPCH					X	X		
	DCCH	DCH							X	
	DTCH	RACH					X	X		
	DTCH	CPCH					Х	X		
Uplink	DTCH	DCH							Χ	
(Rx)	SHCCH	RACH					X	X		
(100)	SHCCH	USCH						Х		
	DTCH	USCH						X		
	DCCH	USCH						X		
	DTCH	E- DCH				Х			X	X
	DCCH	E- DCH				Х			Х	Х
	BCCH	BCH				Х				
	BCCH	FACH	Х			Х		Х		
	PCCH	PCH	Х			Х				
	CCCH	FACH	Х	Х		Х		Х		
	CTCH	FACH	Χ			Х		Х		
	MCCH	FACH	Х			Х		Х		
	MSCH	FACH	Х			Х		Х		
	MTCH	FACH	Х			Х	Х	Х		
	CTCH	FACH	Х			Х		Х		
Downlink	DCCH	FACH	Х	Х		Х	Х	Х		
(Tx)	DCCH	DSCH	Х	Х			Х	Х		
(17)	DCCH	DCH	X		X				X	
	DCCH	HS-	X	Х	Х	Х	Χ	Х		X
		DSCH	(1)							
	DTCH	FACH	X	Χ		Χ	Χ	X		
	DTCH	DSCH	Χ	Χ			Χ	Χ		
	DTCH	DCH	X		X				X	
	DTCH	HS- DSCH	X (1)	X	Х	Х	Х	X		Х
	SHCCH	FACH	X	X		X		Х		
	SHCCH	DSCH	Χ	X				Х		

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	Transp ort Ch	TF Selection	Priority handling (one UE)	Identification	Mux/Demux on common transport channels	Mux/Demux on dedicated transport channels	HARQ suppor t
	CCCH	RACH				X		
	DCCH	RACH	Х	Х	Х	X		
	DCCH	CPCH	X	X	X	X		
	DCCH	DCH	X	X	Λ	Λ	X	
	DTCH	RACH	X	X	Х	X		
	DTCH	CPCH	X	X	X	X		
Uplink	DTCH	DCH	X	X	X	Х	Х	
(Tx)	SHCCH	RACH	X	,		X	, , , , , , , , , , , , , , , , , , ,	
	SHCCH	USCH	Χ	Х		X		
	DCCH	USCH	X	X		X		
	DTCH	USCH	X	X		X		
	DCCH	E-DCH	X	X			Х	Х
	DTCH	E-DCH	X	X			X	X
	BCCH	BCH		,				7.
	BCCH	FACH				X		
	PCCH	PCH						
	CCCH	FACH				X		
	CTCH	FACH				Χ		
	MCCH	FACH				Χ		
	MSCH	FACH				Х		
	MTCH	FACH			X	X		
	DCCH	FACH			X	X		
Downlink	DCCH	DSCH				Χ		
(Rx)	DCCH	DCH					Х	
	DCCH	HS- DSCH			Х	Х		Х
	DTCH	FACH			Χ	X		
	DTCH	DSCH				X		
	DTCH	DCH				_	X	
	DTCH	HS- DSCH			Х	Х		Х
	SHCCH	FACH				X		
	SHCCH	DSCH			_	X		

7 Services expected from physical layer

The physical layer offers information transfer services to MAC. For detailed description, see [3].

8 Elements for layer-to-layer communication

The interaction between the MAC layer and other layers are described in terms of primitives where the primitives represent the logical exchange of information and control between the MAC layer and other layers. The primitives shall not specify or constrain implementations. The MAC is connected to layer 1, RLC and RRC. The following subclauses describe the primitives between these layers.

8.1 Primitives between layers 1 and 2

8.1.1 Primitives

The primitives are described in [3].

8.1.2 Parameters

- a) Transport Format Resource Indicator (TFRI) for HS-DSCH:
 - For HS-DSCH the Transport Block size is derived from the TFRI value signalled on the HS-SCCH. The mapping between TFRI value and Transport Block size is specified in subclause 9.2.3.
- b) HARO information for E-DCH:
 - ACK/NACK information (details specified in subclause 9.2.5.1).
 - RSN information (details specified in subclause 9.2.5.1).
- c) Relative Grant information for E-DCH:
 - Serving Relative Grant information (details specified in subclause 9.2.5.2.1).
 - Non-serving Relative Grant information (details specified in subclause 9.2.5.2.1).
- d) Absolute Grant information for E-DCH (details specified in subclause 9.2.5.2.2).

8.2 Primitives between MAC and RLC

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				
Generic Name	Request	Indication	Response	Confirm	
MAC-DATA	Data, BO, UE-ID type	Data, No_TB,			
	indicator, RLC Entity	TD (note), Error			
	Info	indication			
MAC-STATUS		No_PDU, PDU_Size,	BO,		
		TX status,	RLC Entity Info		
		Status_Report_REQ			
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						
Generic Name	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,						
	MBMS information elements						
CMAC-	Measurement information elements	Measurement					
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) 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_{BO1min} and N_{BO1max} (FDD only)

ASC for RRC CONNECTION REQUEST message

h) Ciphering elements

Ciphering mode

Ciphering key

Ciphering sequence number

i) CPCH transmission control elements

CPCH persistency value, P for each Transport Format

Maximum number of preamble ramping cycles N_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

j) MBMS information elements

MBMS Id

k) E-DCH configuration elements

HARQ Round Trip Time

9 Elements for peer-to-peer communication

9.1 Protocol data units

9.1.1 General

A MAC PDU is a bit string, with a length not necessarily a multiple of 8 bits. In the drawings in clause 9.1, bit strings are represented by tables in which the first bit is the leftmost one on the first line of the table, the last bit is the rightmost on the last line of the table, and more generally the bit string is to be read from left to right and then in the reading order of the lines.

Depending on the provided service, MAC SDUs are bit strings with any non-null length, or bit strings with an integer number of octets in length. An SDU is included into a MAC PDU from first bit onward.

In the UE for the uplink, all MAC PDUs delivered to the physical layer within one TTI are defined as Transport Block Set (TBS). It consists of one or several Transport Blocks, each containing one MAC PDU. The Transport Blocks, shall be transmitted in the order as delivered from RLC. When multiplexing of RLC PDUs from different logical channels is performed on MAC, the order of all Transport Blocks originating from the same logical channel shall be the same as the order of the sequence delivered from RLC. The order of the different logical channels in a TBS is set by the MAC protocol.

9.1.2 MAC PDU (not HS-DSCH or E-DCH)

A MAC PDU consists of an optional MAC header and a MAC Service Data Unit (MAC SDU), see figure 9.1.2.1. Both the MAC header and the MAC SDU are of variable size.

The content and the size of the MAC header depends on the type of the logical channel, and in some cases none of the parameters in the MAC header are needed.

The size of the MAC-SDU depends on the size of the RLC-PDU, which is defined during the setup procedure.

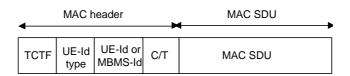


Figure 9.1.2.1: MAC PDU

9.1.3 MAC-d PDU (HS-DSCH)

For HS-DSCH the MAC-d PDU format equals the MAC PDU format for the non HS-DSCH case.

9.1.4 MAC PDU (HS-DSCH)

In case of HS-DSCH a MAC PDU consists of one MAC-hs header and one or more MAC-hs SDUs where each MAC-hs SDU equals a MAC-d PDU. A maximum of one MAC-hs PDU can be transmitted in a TTI per UE. The MAC-hs header is of variable size. The MAC-hs SDUs in one TTI belongs to the same reordering queue.

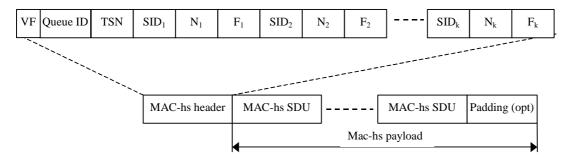


Figure 9.1.4.1: MAC-hs PDU

9.1.5 MAC PDU (E-DCH)

In the case of E-DCH there are two MAC sublayers, MAC-e and MAC-es. MAC-es sits on top of MAC-e and receives PDUs directly from MAC-d. MAC-es SDUs (i.e. MAC-d PDUs) of the same size, coming from a particular logical channel can be multiplexed together into a single MAC-es payload. To this payload is prepended the MAC-es header (see subclause 9.2.4.1). The number of PDUs, as well as the DDI value identifying the logical channel, the MAC-d flow and the MAC-es SDU size will be included as part of the MAC-e header. Multiple MAC-es PDUs, but only one MAC-e PDU can be transmitted in a TTI.

In the illustration below the field DDI_0 is referring to the specific DDI value that indicates that there are no more MAC-es PDUs included in the MAC-e PDU (see subclause 9.2.4.2). This header will not be associated with a new MAC-es payload.

RLC PDUs coming from one Logical Channel

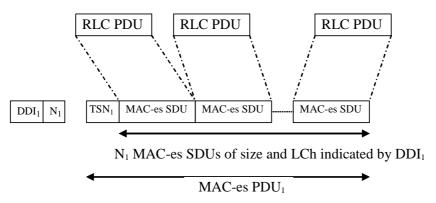


Figure 9.1.5.1: MAC-es PDU

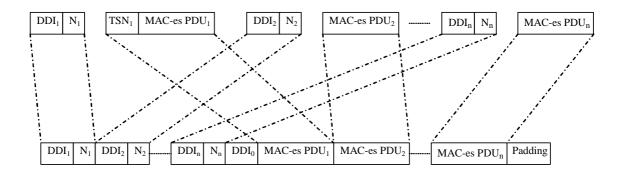


Figure 9.1.5.2: MAC-e PDU

9.2 Formats and parameters

NOTE: MAC header field encodings as specified in this clause with designation "Reserved" are forbidden to be used by a sender in this version of the protocol.

9.2.1 MAC PDU: Parameters of the MAC PDU header (not HS-DSCH or E-DCH) and MAC-d PDU header (HS-DSCH and E-DCH)

The following fields are defined for the MAC header for transport channels other than HS-DSCH and for the MAC-d PDU header for HS-DSCH:

- Target Channel Type Field
The TCTF field is a flag that provides identification of the logical channel class on FACH and RACH transport channels, i.e. whether it carries BCCH, CCCH, CTCH, SHCCH, MCCH, MTCH, MSCH or dedicated logical channel information. The size and coding of TCTF for FDD and TDD are shown in tables 9.2.1.1, 9.2.1.2, 9.2.1.3, 9.2.1.4 and 9.2.1.5. Note that the size of the TCTF field of FACH for FDD is 2,4 or 8 bits and for TDD is either 3 or 5 bits depending on the value of the 3 most significant bits. The TCTF of the RACH for TDD is either 2 or 4 bits depending on the value of the 2 most significant bits.

Table 9.2.1.1: Coding of the Target Channel Type Field on FACH for TDD

TCTF	Designation
000	BCCH
001	CCCH
010	CTCH
01100	DCCH or DTCH
	over FACH
01101	MCCH
01110	MTCH
	MSCH
01111	
100	
	SHCCH
101-111	Reserved
	(PDUs with this coding
	will be discarded by this
	version of the protocol)

Table 9.2.1.2: Coding of the Target Channel Type Field on FACH for FDD

TCTF	Designation
00	BCCH
01000000	CCCH
01000001-	Reserved
01001111	(PDUs with this coding
	will be discarded by this
	version of the protocol)
01010000	MCCH
01010001-	Reserved
01011110	(PDUs with this coding
	will be discarded by this
	version of the protocol)
01011111	MSCH
0110	MTCH
0111	Reserved
	(PDUs with this coding
	will be discarded by this
	version of the protocol)
10000000	CTCH
10000001-	Reserved
10111111	(PDUs with this coding
	will be discarded by this
	version of the protocol)
11	DCCH or DTCH
	over FACH

Table 9.2.1.3: Coding of the Target Channel Type Field on USCH or DSCH (TDD only)

TCTF	Designation
0	SHCCH
1	DCCH or DTCH over
	USCH or DSCH

Table 9.2.1.4: Coding of the Target Channel Type Field on RACH for FDD

TCTF	Designation
00	CCCH
01	DCCH or DTCH
	over RACH
10-11	Reserved
	(PDUs with this coding
	will be discarded by this
	version of the protocol)

Table 9.2.1.5: Coding of the Target Channel Type Field on RACH for TDD

TCTF	Designation
00	CCCH
0100	DCCH or DTCH
	Over RACH
0101-	Reserved
0111	(PDUs with this coding
	will be discarded by this
	version of the protocol)
10	SHCCH
11	Reserved
	(PDUs with this coding
	will be discarded by this version of the protocol)

- C/T field

The C/T field provides identification of the logical channel instance when multiple logical channels are carried on the same transport channel (other than HS-DSCH) or same MAC-d flow (HS-DSCH). The C/T field is used also to provide identification of the logical channel type on dedicated transport channels and on FACH and RACH when used for user data transmission. The size of the C/T field is fixed to 4 bits for both common transport channels and dedicated transport channels. Table 9.2.1.5a shows the 4-bit C/T field.

Table 9.2.1.5a: Structure of the C/T field

C/T field	Designation
0000	Logical channel 1
0001	Logical channel 2
1110	Logical channel 15
1111	Reserved
	(PDUs with this coding will be
	discarded by this version of
	the protocol)

- UE-Id

The UE-Id field provides an identifier of the UE on common transport channels. The following types of UE-Id used on MAC are defined:

- UTRAN Radio Network Temporary Identity (U-RNTI) may be used in the MAC header of DCCH using RLC UM (SRB1), when mapped onto common transport channels in downlink direction; the U-RNTI is never used in uplink direction;
- Cell Radio Network Temporary Identity (C-RNTI) is used on DTCH and DCCH in uplink, and may be used on DCCH in downlink and is used on DTCH in downlink when mapped onto common transport channels, except when mapped onto DSCH transport channel in TDD;
- In FDD, DSCH Radio Network Temporary Identity (DSCH RNTI) is used on DTCH and DCCH indownlink when mapped onto DSCH transport channel; the UE id to be used by MAC is configured through the MAC control SAP. The lengths of the UE id field of the MAC header are given in table 9.2.1.6.

Table 9.2.1.6: Lengths of UE Id field

UE ld type	Length of UE Id field
U-RNTI	32 bits
C-RNTI	16 bits
DSCH-RNTI	16 bits

UE-Id Type
 The UE-Id Type field is needed to ensure correct decoding of the UE-Id field in MAC Headers.

Table 9.2.1.7: UE-Id Type field definition

UE-Id Type field 2 bits	UE-Id Type
00	U-RNTI
01	C-RNTI-or DSCH-RNTI
10	Reserved (PDUs with this coding will be discarded by this version of the protocol)
11	Reserved (PDUs with this coding will be discarded by this version of the protocol)

MBMS-Id

The MBMS-Id field provides an identifier of MTCH for an MBMS service carried on FACH. The MBMS-Id is used in the MAC header of MTCH mapped onto FACH in downlink direction; the MBMS-Id is never used in uplink direction. The MBMS Id to be used by MAC is configured through the MAC control SAP. The length of the MBMS-Id field is 4 bits. Table 9.2.1.7a shows the 4-bit MBMS-Id field.

Table 9.2.1.8: Structure of the MBMS-Id field

MBMS-Id	Designation				
field					
0000	MBMS service 1				
0001	MBMS service 2				
1110	MBMS service 15				
1111	Reserved				
	(PDUs with this coding will be				
	discarded by this version of				
	the protocol)				

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.

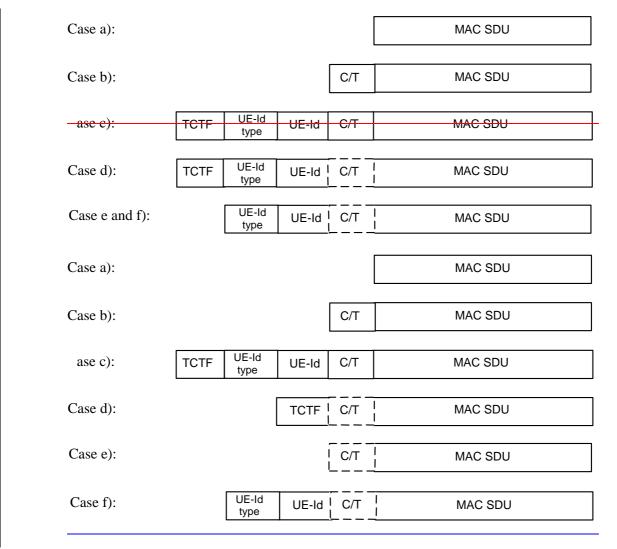


Figure 9.2.1.1.1: MAC PDU formats for DTCH and DCCH

9.2.1.1a MAC-d Header for DTCH and DCCH (mapped on HS-DSCH)

The MAC-d PDU header for DTCH and DCCH mapped on HS-DSCH is as shown in figure 9.2.1.1a.1.

- C/T field is included in the MAC-d PDU header if multiplexing on MAC is applied.



Figure 9.2.1.1a.1 MAC-d PDU format for DTCH and DCCH mapped on HS-DSCH

9.2.1.1b MAC-d Header for DTCH and DCCH (mapped on E-DCH)

For DTCH and DCCH mapped on E-DCH there is no need for a MAC-d header. Therefore, the MAC-d PDUs will be as shown in figure 9.2.1.1a.1.



Figure 9.2.1.1b.1 MAC-d PDU format for DTCH and DCCH mapped on E-DCH

9.2.1.2 MAC header for BCCH

- a) BCCH mapped to BCH:
 - no MAC header is included.
- b) BCCH mapped to FACH:
 - the TCTF field is included in MAC header.

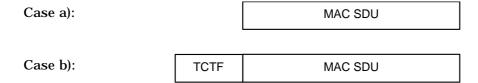


Figure 9.2.1.2.1: MAC PDU formats for BCCH

9.2.1.3 MAC header for PCCH

There is no MAC header for PCCH.

9.2.1.4 MAC header for CCCH

CCCH mapped to RACH/FACH:

- TCTF field is included in MAC header.

TCTF	MAC SDU

Figure 9.2.1.4.1: MAC PDU formats for CCCH

9.2.1.5 MAC Header for CTCH

The TCTF field is included as MAC header for CTCH as shown in figure 9.2.1.5.1.

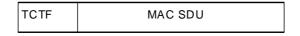


Figure 9.2.1.5.1: MAC PDU format for CTCH

9.2.1.6 MAC Header for SHCCH

The MAC header for SHCCH is as shown in figure 9.2.1.6.1.

- a) SHCCH mapped to RACH and USCH/FACH and DSCH:
 - TCTF has to be included.
- b) SHCCH mapped to RACH and USCH/FACH and DSCH, where SHCCH is the only channel.

Case a):

MAC SDU

MAC SDU

Figure 9.2.1.6.1: MAC PDU format for SHCCH

9.2.1.7 MAC Header for MCCH

The MAC PDU format for MCCH is as shown in figure 9.2.1.7.1.

- a) If the MAC header for MCCH is not configured through the MAC control SAP:
 - there is no MAC header for MCCH.
- b) If the MAC header for MCCH is configured through the MAC control SAP:
 - TCTF field is included in the MAC header for MCCH.

NOTE: If MCCH is not the only channel on the FACH, the MAC header shall be configured for the MCCH.

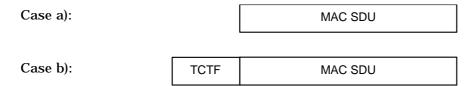


Figure 9.2.1.7.1: MAC PDU format for MCCH

9.2.1.8 MAC Header for MTCH

The TCTF field and MBMS-Id field are included in the MAC header for MTCH as shown in figure 9.2.1.8.1.



Figure 9.2.1.8.1: MAC PDU format for MTCH

9.2.1.9 MAC Header for MSCH

The MAC PDU format for MSCH is as shown in figure 9.2.1.9.1.

- a) If the MAC header for MSCH is not configured through the MAC control SAP:
 - there is no MAC header for MSCH.
- b) If the MAC header for MSCH is configured through the MAC control SAP:
 - TCTF field is included in the MAC header for MSCH.

NOTE: If MSCH is not the only channel on the FACH, the MAC header shall be configured for the MSCH.

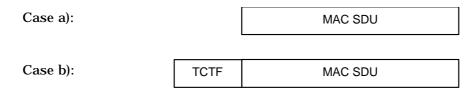


Figure 9.2.1.9.1: MAC PDU format for MSCH

3GPP TSG-RAN2 Meeting #47 Athens. Greece. Mai 9th to 13th 2005

CHANGE REQUEST						CR-Form-v7.1		
×	25.331 CR	2586	⊭rev	- 3	¥	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 \mathbb{H} symbols.

ME X Radio Access Network X Core Network UICC apps# Proposed change affects: Title: Feature Clean-up: Removal of DSCH (FDD) Source: 第 RAN WG2 Date: # 09/05/2005 **ℋ** C Release: 第 Rel-6 Category: Use one of the following releases: Use <u>one</u> of the following categories: **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 Rel-4 (Release 4) Rel-5 be found in 3GPP TR 21.900. (Release 5) Rel-6 (Release 6) Rel-7 (Release 7)

Summary of change: # Removal of t

Removal of the IEs and their associated handling for FDD:

- "PDSCH code mapping"
- "PDSCH with SHO DCH Info"
- "New DSCH-RNTI"
- "TFCI combining indicator"
- "TFCI FIELD 2 Information"
- "PDSCH with SHO DCH Info"
- "PDSCH code mapping"
- "Downlink PDSCH information"
- "Support of PDSCH"
- "Simultaneous reception of SCCPCH, DPCH and PDSCH"
- "TFCS Information for DSCH (TFCI range method)"

Specifying that in the case the IE "RB mapping info" is set to "DCH+DSC"H or "DSCH" the UE behaviour is unspecified.

Removal of unnecessary calculation of the TB size for FDD DSCH.

Renaming of the IE "Max no DPCH/PDSCH codes" into Max no DPCH codes.

Specifying that the UE behaviour in the case the transport channel type in the IE "Added or Reconfigured DL TrCH information" or "Deleted DL TrCH information" is set to "DSCH" is unspecified.

ĺ		Removal of the TFCS split mode.
		Transfer and Transfer model
Consequences if	\mathbb{H}	DSCH for FDD mode will remain specified
not approved:		
Clauses affected:	\mathfrak{H}	8.2.2.3, 8.2.11.3, 8.3.4.3, 8.5.21, 8.6.3.1, 8.6.3.9a, 8.6.4.8, 8.6.5.1, 8.6.5.12,
		8.6.5.14, 8.6.6.9, 8.6.6.10, 10.2.8, 10.2.16a, 10.2.22, 10.2.27, 10.2.30, 10.2.33,
		10.2.50, 10.3.3.9a, 10.3.3.25, 10.3.4.21, 10.3.5.1, 10.3.5.4, 10.3.5.12, 10.3.5.13,
		10.3.5.14, 10.3.5.20, 10.3.6.27, 10.3.6.30, 10.3.6.31, 10.3.6.43, 10.3.6.47,
		10.3.6.68, 10.3.6.81, 10.3.10, 11.1, 11.2, 11.3, 11.4, 11.5, 13.4.3a, B.3.1
	1	
		YN
Other specs	\aleph	Y Other core specifications # 25.211, 25.212, 25.213, 25.214, 25.301,
		25.302, 25.303, 25.306, 25.321, 25.331,
		25.401, 25.402, 25.420, 25.423, 25.424,
		25.425, 25.427, 25.430, 25.433, 25.434,
		25.435
affected:		Y Test specifications 34.108, 34.123
		N O&M Specifications
Other comments:	\mathfrak{H}	

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:

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

8.2 Radio Bearer control procedures

8.2.1 Radio bearer establishment

See subclause 8.2.2 Reconfiguration procedures.

8.2.2 Reconfiguration procedures

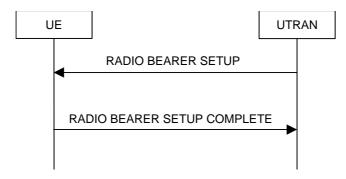


Figure 8.2.2-1: Radio Bearer Establishment, normal case

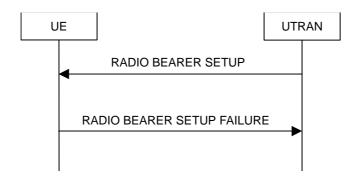


Figure 8.2.2-2: Radio Bearer Establishment, failure case

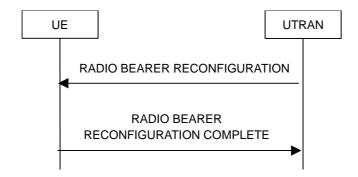


Figure 8.2.2-3: Radio bearer reconfiguration, normal flow

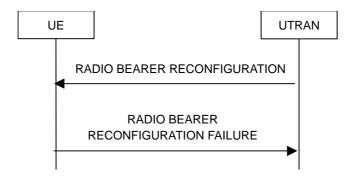


Figure 8.2.2-4: Radio bearer reconfiguration, failure case

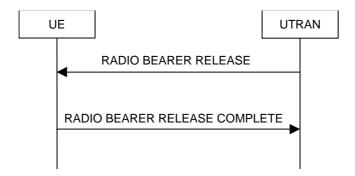


Figure 8.2.2-5: Radio Bearer Release, normal case

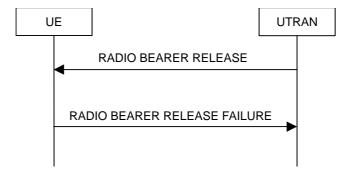


Figure 8.2.2-6: Radio Bearer Release, failure case

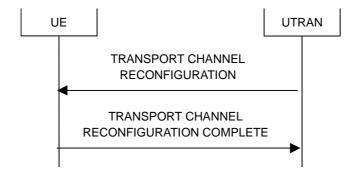


Figure 8.2.2-7: Transport channel reconfiguration, normal flow

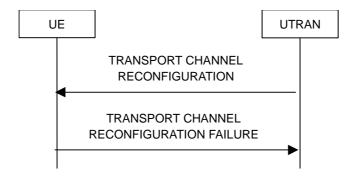


Figure 8.2.2-8: Transport channel reconfiguration, failure case

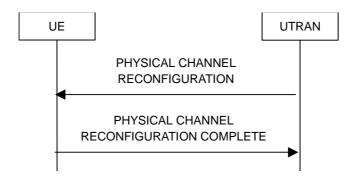


Figure 8.2.2-9: Physical channel reconfiguration, normal flow

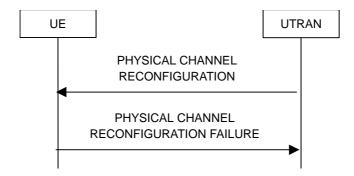


Figure 8.2.2-10: Physical channel reconfiguration, failure case

8.2.2.1 General

Reconfiguration procedures include the following procedures:

- the radio bearer establishment procedure;
- radio bearer reconfiguration procedure;
- the radio bearer release procedure;
- the transport channel reconfiguration procedure; and
- the physical channel reconfiguration procedure.

The radio bearer establishment procedure is used to establish new radio bearer(s).

The radio bearer reconfiguration procedure is used to reconfigure parameters for a radio bearer.

The radio bearer release procedure is used to release radio bearer(s).

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

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

While performing any of the above procedures, these procedures may perform a hard handover (subclause 8.3.5) and/or an HS-DSCH cell change and/or a serving E-DCH cell change. The reconfiguration procedures are also used to change the feedback configuration for HS-DSCH.

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) 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.

8.2.2.2a Initiation of handover from GERAN *lu mode*

To initiate the handover from GERAN *Iu mode*, UTRAN should:

- 1> provide a RADIO BEARER RECONFIGURATION message to be encapsulated in INTERSYSTEM HANDOVER TO UTRAN COMMAND message, sent on the downlink SRB2 in GERAN *Iu mode*, as specified in [53].
- 1> in case UTRAN decides to use a predefined or default radio configuration that is stored in the UE, it should include the following information in the RADIO BEARER RECONFIGURATION message:
 - PhyCH information elements; and
 - either:
 - the IE "Predefined configuration identity", to indicate which pre-defined configuration of RB, transport channel and physical channel parameters shall be used; or
 - the IE "Default configuration mode" and IE "Default configuration identity", to indicate which default configuration of RB, transport channel and physical channel parameters shall be used.

8.2.2.3 Reception of RADIO BEARER SETUP or RADIO BEARER RECONFIGURATION or RADIO BEARER RELEASE or TRANSPORT CHANNEL RECONFIGURATION or PHYSICAL CHANNEL RECONFIGURATION message by the UE

The UE shall:

- 1> be able to receive any of the following messages:
 - 2> RADIO BEARER SETUP message; or
 - 2> RADIO BEARER RECONFIGURATION message; or

- 2> RADIO BEARER RELEASE message; or
- 2> TRANSPORT CHANNEL RECONFIGURATION message; or
- 2> PHYSICAL CHANNEL RECONFIGURATION message;
- 1> be able to perform a hard handover and apply physical layer synchronisation procedure A as specified in [29], even if no prior UE measurements have been performed on the target cell and/or frequency.

In case the reconfiguration procedure is used to remove all existing RL(s) in the active set while new RL(s) are established the UE shall:

- 1> if the UE has a pending "TGPS reconfiguration CFN" at the activation time received in the reconfiguration message and the reconfiguration requests a timing re-initialised hard handover (see subclause 8.3.5.1), the UE may:
 - 2> abort the pending CM activation;
 - 2> set the CM_PATTERN_ACTIVATION_ABORTED to TRUE.
- 1> otherwise:
 - 2> set the CM_PATTERN_ACTIVATION_ABORTED to FALSE.

If the UE receives:

- a RADIO BEARER SETUP message; or
- a RADIO BEARER RECONFIGURATION message; or
- a RADIO BEARER RELEASE message; or
- a TRANSPORT CHANNEL RECONFIGURATION message; or
- a PHYSICAL CHANNEL RECONFIGURATION message:

it shall:

- 1> set the variable ORDERED_RECONFIGURATION to TRUE;
- 1> if the UE will enter the CELL_DCH state from any state other than CELL_DCH state at the conclusion of this procedure:
 - 2> perform the physical layer synchronisation procedure A as specified in [29] (FDD only).
- 1> act upon all received information elements as specified in subclause 8.6, unless specified in the following and perform the actions below.

The UE may:

1> maintain a list of the set of cells to which the UE has Radio Links if the IE "Cell ID" is present.

The UE may first release the physical channel configuration used at reception of the reconfiguration message. The UE shall then:

- 1> in FDD, if the IE "PDSCH code mapping" is included but the IE "PDSCH with SHO DCH Info" is not included and if the DCH has only one link in its active set:
 - 2> act upon the IE "PDSCH code mapping" as specified in subclause 8.6; and
 - 2> infer that the PDSCH will be transmitted from the cell from which the downlink DPCH is transmitted.
- 1> enter a state according to subclause 8.6.3.3.

In case the UE receives a RADIO BEARER RECONFIGURATION message including the IE "RB information to reconfigure" that only includes the IE "RB identity", the UE shall:

1> handle the message as if IE "RB information to reconfigure" was absent.

NOTE: The RADIO BEARER RECONFIGURATION message always includes the IE "RB information to reconfigure". UTRAN has to include it even if it does not require the reconfiguration of any RB.

In case the UE receives a RADIO BEARER RECONFIGURATION message with the IE "Specification mode" set to "Preconfiguration" while the message is not sent through GERAN *Iu mode*, the UE behaviour is unspecified.

If after state transition the UE enters CELL DCH state, the UE shall, after the state transition:

- 1> in FDD: or
- 1> in TDD when "Primary CCPCH Info" is included indicating a new target cell and "New C-RNTI" is not specified:
 - 2> remove any C-RNTI from MAC;
 - 2> clear the variable C_RNTI.

If after state transition the UE leaves CELL_DCH state, the UE shall, after the state transition:

- 1> clear any stored IE "Downlink HS-PDSCH information";
- 1> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25;
- 1> clear any stored IE "E-DCH information";
- 1> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

In FDD, if after state transition the UE leaves CELL_DCH state, the UE shall, after the state transition:

- 1> remove any DSCH RNTI from MAC;
- 1> clear the variable DSCH_RNTI.

If the UE was in CELL_DCH state upon reception of the reconfiguration message and remains in CELL_DCH state, the UE shall:

- 1> if the IE "Uplink DPCH Info" is absent, not change its current UL Physical channel configuration;
- 1> in TDD:
 - 2> if "Primary CCPCH Info" is included indicating a new target cell and "New C-RNTI" is not specified:
 - 3> remove any C-RNTI from MAC;
 - 3> clear the variable C_RNTI.
 - 2> if "Primary CCPCH Info" is included indicating a new target cell and "New H-RNTI" is not specified:
 - 3> remove any H-RNTI from MAC;
 - 3> clear the variable H_RNTI;
 - 3> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25.
- 1> if "DPCH frame offset" is included for one or more RLs in the active set:
 - 2> use its value to determine the beginning of the DPCH or F-DPCH frame in accordance with the following:
 - 3> if the received IE "DPCH frame offset" is across the value range border compared to the DPCH or F-DPCH frame offset currently used by the UE:
 - 4> consider it to be a request to adjust the timing with 256 chips across the frame border (e.g. if the UE receives value 0 while the value currently used is 38144 consider this as a request to adjust the timing with +256 chips).

- 3> if after taking into account value range borders, the received IE "DPCH frame offset" corresponds to a request to adjust the timing with a step exceeding 256 chips:
 - 4> set the variable INVALID_CONFIGURATION to TRUE.
- 3> and the procedure ends.
- 2> adjust the radio link timing accordingly.

If after state transition the UE enters CELL_FACH state, the UE shall, after the state transition:

- 1> if the IE "Frequency info" is included in the received reconfiguration message:
 - 2> select a suitable UTRA cell according to [4] on that frequency;
 - 2> if the UE finds a suitable UTRA cell on that frequency:
 - 3> if the received reconfiguration message included the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD), and the UE selects another cell than indicated by this IE or the received reconfiguration message did not include the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD):
 - 4> initiate a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";
 - 4> when the cell update procedure completed successfully:
 - 5> if the UE is in CELL_PCH or URA_PCH state, initiate a cell update procedure according to subclause 8.3.1 using the cause "Uplink data transmission" and proceed as below.
 - 2> else, if the UE can not find a suitable UTRA cell on that frequency but it finds a suitable UTRA cell on another frequency:
 - 3> initiate a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";
 - 3> when the cell update procedure completed successfully:
 - 4> if the UE is in CELL_PCH or URA_PCH state, initiate a cell update procedure according to subclause 8.3.1 using the cause "Uplink data transmission" and proceed as below.
- 1> if the IE "Frequency info" is not included in the received reconfiguration message:
 - 2> select a suitable UTRA cell according to [4];
 - 2> if the UE finds a suitable UTRA cell on the current frequency:
 - 3> if the received reconfiguration message included the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD), and the UE selects another cell than indicated by this IE or the received reconfiguration message did not include the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD):
 - 4> initiate a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";
 - 4> when the cell update procedure completed successfully:
 - 5> if the UE is in CELL_PCH or URA_PCH state, initiate a cell update procedure according to subclause 8.3.1 using the cause "Uplink data transmission" and proceed as below.
 - 2> else, if the UE can not find a suitable UTRA cell on the current frequency but it finds a suitable UTRA cell on another frequency:
 - 3> initiate a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";
 - 3> when the cell update procedure completed successfully:
 - 4> if the UE is in CELL_PCH or URA_PCH state, initiate a cell update procedure according to subclause 8.3.1 using the cause "Uplink data transmission" and proceed as below.

- 1> start timer T305 using its initial value if timer T305 is not running and if periodical update has been configured by T305 in the IE "UE Timers and constants in connected mode" set to any other value than "infinity" in the variable TIMERS_AND_CONSTANTS;
- 1> select PRACH according to subclause 8.5.17;
- 1> select Secondary CCPCH according to subclause 8.5.19;
- 1> use the transport format set given in system information;
- 1> if the IE "UTRAN DRX cycle length coefficient" is included in the same message:
 - 2> ignore that IE and stop using DRX.
- 1> if the contents of the variable C_RNTI is empty:
 - 2> perform a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";
 - 2> when the cell update procedure completed successfully:
 - 3> if the UE is in CELL_PCH or URA_PCH state:
 - 4> initiate a cell update procedure according to subclause 8.3.1 using the cause "Uplink data transmission";
 - 4> proceed as below.

If the UE was in CELL_FACH state upon reception of the reconfiguration message and remains in CELL_FACH state, the UE shall:

- 1> if the IE "Frequency info" is included in the received reconfiguration message:
 - 2> select a suitable UTRA cell according to [4] on that frequency;
 - 2> if the UE finds a suitable UTRA cell on that frequency:
 - 3> if the received reconfiguration message included the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD), and the UE selected another cell than indicated by this IE or the received reconfiguration message did not include the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD):
 - 4> initiate a cell update procedure according to subclause 8.3.1 using the cause "cell reselection";
 - 4> when the cell update procedure completed successfully:
 - 5> if the UE is in CELL_PCH or URA_PCH state, initiate a cell update procedure according to subclause 8.3.1 using the cause "Uplink data transmission" and proceed as below.
 - 2> else, if the UE can not find a suitable UTRA cell on that frequency but it finds a suitable UTRA cell on another frequency:
 - 3> initiate a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";
 - 3> when the cell update procedure completed successfully:
 - 4> if the UE is in CELL_PCH or URA_PCH state, initiate a cell update procedure according to subclause 8.3.1 using the cause "Uplink data transmission" and proceed as below.
- 1> if the IE "Frequency info" is not included in the received reconfiguration message:
 - 2> if the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD) is included the UE shall either:
 - 3> ignore the content of the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD) and proceed as below;
 - 2> or:

- 3> if the received reconfiguration message included the IE "Primary CPICH info" (for FDD) or "Primary CPCH info" (for TDD), and it is different from the current cell:
 - 4> initiate a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";
 - 4> when the cell update procedure completed successfully:
 - 5> if the UE is in CELL_PCH or URA_PCH state, initiate a cell update procedure according to subclause 8.3.1 using the cause "Uplink data transmission" and proceed as below.

If after state transition the UE leaves CELL_FACH state, the UE shall:

1> stop timer T305.

If after state transition the UE enters CELL_PCH or URA_PCH state, the UE shall:

- 1> if the IE "UTRAN DRX cycle length coefficient" is not included in the same message:
 - 2> set the variable INVALID_CONFIGURATION to TRUE.

The UE shall transmit a response message as specified in subclause 8.2.2.4, setting the information elements as specified below. The UE shall:

- 1> if the received reconfiguration message included the IE "Downlink counter synchronisation info"; or
- 1> if the received reconfiguration message is a RADIO BEARER RECONFIGURATION and the IE "New U-RNTI" is included:
 - 2> if the variable PDCP_SN_INFO is empty:
 - 3> configure the corresponding RLC entity for all AM and UM radio bearers and AM and UM signalling radio bearers except RB2 to "stop".
 - 2> else:
 - 3> configure the RLC entity for signalling radio bearers RB1, RB3 and RB4 to "stop";
 - 3> configure the RLC entity for UM and AM radio bearers for which the IE "PDCP SN Info" is not included to "stop".
 - 2> re-establish the RLC entity for RB2;
 - 2> for the downlink and the uplink, apply the ciphering configuration as follows:
 - 3> if the received re-configuation message included the IE "Ciphering Mode Info":
 - 4> use the ciphering configuration in the received message when transmitting the response message.
 - 3> if the ciphering configuration for RB2 from a previously received SECURITY MODE COMMAND has not yet been applied because the activation times not having been reached:
 - 4> if the previous SECURITY MODE COMMAND was received due to new keys being received:
 - 5> consider the new ciphering configuration to include the received new keys;
 - 5> initialise the HFN component of the uplink COUNT-C and downlink COUNT-C of SRB2 as indicated in subclause 8.1.12.3.1.
 - 4> if the ciphering configuration for RB2 from a previously received SECURITY MODE COMMAND has not yet been applied because of the corresponding activation times not having been reached and the previous SECURITY MODE COMMAND caused a change in LATEST_CONFIGURED_CN_DOMAIN:
 - 5> consider the new ciphering configuration to include the keys associated with the LATEST_CONFIGURED_CN_DOMAIN;
 - 5> initialise the HFN component of the uplink COUNT-C and downlink COUNT-C of SRB2 to the most recently transmitted IE "START list" or IE "START" for the

LATEST_CONFIGURED_CN_DOMAIN at the reception of the previous SECURITY MODE COMMAND.

- 4> apply the new ciphering configuration immediately following RLC re-establishment.
- 3> else:
 - 4> continue using the current ciphering configuration.
- 2> set the new uplink and downlink HFN component of COUNT-C of RB2 to MAX(uplink HFN component of COUNT-C of RB2, downlink HFN component of COUNT-C of RB2);
- 2> increment by one the downlink and uplink values of the HFN of COUNT-C for RB2;
- 2> calculate the START value according to subclause 8.5.9;
- 2> include the calculated START values for each CN domain in the IE "START list" in the IE "Uplink counter synchronisation info".
- 1> if the received reconfiguration message did not include the IE "Downlink counter synchronisation info":
 - 2> if the variable START_VALUE_TO_TRANSMIT is set:
 - 3> include and set the IE "START" to the value of that variable.
 - 2> if the variable START_VALUE_TO_TRANSMIT is not set and the IE "New U-RNTI" is included:
 - 3> calculate the START value according to subclause 8.5.9;
 - 3> include the calculated START values for each CN domain in the IE "START list" in the IE "Uplink counter synchronisation info".
 - 2> if the received reconfiguration message caused a change in the RLC size for any RB using RLC-AM:
 - 3> calculate the START value according to subclause 8.5.9;
 - 3> include the calculated START values for the CN domain associated with the corresponding RB identity in the IE "START list" in the IE "Uplink counter synchronisation info".
- 1> if the received reconfiguration message contained the IE "Ciphering mode info" or contained the IE "Integrity protection mode info":
 - 2> set the IE "Status" in the variable SECURITY_MODIFICATION for all the CN domains in the variable SECURITY_MODIFICATION to "Affected".
- 1> if the received reconfiguration message contained the IE "Ciphering mode info":
 - 2> if the reconfiguration message is not used to perform SRNS relocation with change of ciphering algorithm:
 - 3> the UE behaviour is not specified.
 - 2> if the message is used to perform a timing re-initialised hard handover:
 - 3> if IE "Ciphering activation time for DPCH" is included:
 - 4> the UE behaviour is not specified.
 - 2> else:
 - 3> if the reconfiguration message is used to setup radio bearer(s) using RLC-TM; or
 - 3> if radio bearer(s) using RLC-TM already exist:
 - 4> if IE "Ciphering activation time for DPCH" is not included:
 - 5> the UE behaviour is not specified.

- 1> if the received reconfiguration message did not contain the IE "Ciphering activation time for DPCH" in IE "Ciphering mode info":
 - 2> if prior to this procedure there exist no transparent mode RLC radio bearers:
 - 3> if, at the conclusion of this procedure, the UE will be in CELL_DCH state; and
 - 3> if, at the conclusion of this procedure, at least one transparent mode RLC radio bearer exists:
 - 4> include the IE "COUNT-C activation time" and specify a CFN value for this IE that is a multiple of 8 frames (CFN mod 8 = 0) and lies at least 200 frames ahead of the CFN in which the response message is first transmitted.
- NOTE: UTRAN should not include the IE "Ciphering mode info" in any reconfiguration message unless it is also used to perform an SRNS relocation with change of ciphering algorithm.
- 1> set the IE "RRC transaction identifier" to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and
- 1> clear that entry;
- 1> if the variable PDCP_SN_INFO is not empty:
 - 2> include the IE "RB with PDCP information list" and set it to the value of the variable PDCP_SN_INFO.
- 1> in TDD, if the procedure is used to perform a handover to a cell where timing advance is enabled, and the UE can calculate the timing advance value in the new cell (i.e. in a synchronous TDD network):
 - 2> set the IE "Uplink Timing Advance" according to subclause 8.6.6.26.
- 1> if the IE "Integrity protection mode info" was present in the received reconfiguration message:
 - 2> start applying the new integrity protection configuration in the uplink for signalling radio bearer RB2 from and including the transmitted response message.

If after state transition the UE enters URA_PCH state, the UE shall, after the state transition and transmission of the response message:

- 1> if the IE "Frequency info" is included in the received reconfiguration message:
 - 2> select a suitable UTRA cell according to [4] on that frequency.
 - 2> if the UE can not find a suitable UTRA cell on that frequency but it finds a suitable UTRA cell on another frequency:
 - 3> proceed as below.
- 1> if the IE "Frequency info" is not included in the received reconfiguration message:
 - 2> select a suitable UTRA cell according to [4].
- 1> prohibit periodical status transmission in RLC;
- 1> remove any C-RNTI from MAC;
- 1> clear the variable C_RNTI;
- 1> start timer T305 using its initial value if timer T305 is not running and if periodical update has been configured by T305 in the IE "UE Timers and constants in connected mode" set to any other value than "infinity" in the variable TIMERS_AND_CONSTANTS;
- 1> select Secondary CCPCH according to subclause 8.5.19;
- 1> if the IE "UTRAN DRX cycle length coefficient" is included in the same message:
 - 2> use the value in the IE "UTRAN DRX Cycle length coefficient" for calculating Paging occasion and PICH Monitoring Occasion as specified in subclause 8.6.3.2.

- 1> if the criteria for URA update caused by "URA reselection" according to subclause 8.3.1 are fulfilled after cell selection:
 - 2> initiate a URA update procedure according to subclause 8.3.1 using the cause "URA reselection";
 - 2> when the URA update procedure is successfully completed:
 - 3> the procedure ends.

If after state transition the UE enters CELL_PCH state from CELL_DCH state, the UE shall, after the state transition and transmission of the response message:

- 1> if the IE "Frequency info" is included in the received reconfiguration message:
 - 2> select a suitable UTRA cell according to [4] on that frequency.
 - 2> if the UE finds a suitable UTRA cell on that frequency:
 - 3> if the received reconfiguration message included the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD), and the UE selects another cell than indicated by this IE or the received reconfiguration message did not include the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD):
 - 4> initiate a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";
 - 4> proceed as below.
 - 2> else, if the UE can not find a suitable UTRA cell on that frequency but it finds a suitable UTRA cell on another frequency:
 - 3> initiate a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";
 - 3> proceed as below.
- 1> if the IE "Frequency info" is not included in the received reconfiguration message:
 - 2> select a suitable UTRA cell according to [4].
 - 2> if the UE finds a suitable UTRA cell on the current frequency:
 - 3> if the received reconfiguration message included the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD), and the UE selects another cell than indicated by this IE or the received reconfiguration message did not include the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD):
 - 4> initiate a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";
 - 4> proceed as below.
 - 2> else, if the UE can not find a suitable UTRA cell on the current frequency but it finds a suitable UTRA cell on another frequency:
 - 3> initiate a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";
 - 3> proceed as below.
- 1> prohibit periodical status transmission in RLC;
- 1> remove any C-RNTI from MAC;
- 1> clear the variable C_RNTI;
- 1> start timer T305 using its initial value if timer T305 is not running and if periodical update has been configured by T305 in the IE "UE Timers and constants in connected mode" set to any other value than "infinity" in the variable TIMERS_AND_CONSTANTS;
- 1> select Secondary CCPCH according to subclause 8.5.19;

- 1> if the IE "UTRAN DRX cycle length coefficient" is included in the same message:
 - 2> use the value in the IE "UTRAN DRX Cycle length coefficient" for calculating Paging occasion and PICH Monitoring Occasion as specified in subclause 8.6.3.2.
- 1> the procedure ends.

If after state transition the UE enters CELL_PCH state from CELL_FACH state, the UE shall, after the state transition and transmission of the response message:

- 1> if the IE "Frequency info" is included in the received reconfiguration message:
 - 2> select a suitable UTRA cell according to [4] on that frequency.
 - 2> if the UE finds a suitable UTRA cell on that frequency:
 - 3> if the received reconfiguration message included the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD), and the UE selected another cell than indicated by this IE or the received reconfiguration message did not include the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD):
 - 4> initiate a cell update procedure according to subclause 8.3.1 using the cause "cell reselection";
 - 4> proceed as below.
 - 2> else, if the UE can not find a suitable UTRA cell on that frequency but it finds a suitable UTRA cell on another frequency:
 - 3> initiate a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";
 - 3> proceed as below.
- 1> if the IE "Frequency info" is not included in the received reconfiguration message:
 - 2> if the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD) is included the UE shall either:
 - 3> ignore the content of the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD) and proceed as below;
 - 2> or:
 - 3> if the received reconfiguration message included the IE "Primary CPICH info" (for FDD) or "Primary CPCH info" (for TDD), and it is different from the current cell:
 - 4> initiate a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";
 - 4> proceed as below.
- 1> prohibit periodical status transmission in RLC;
- 1> remove any C-RNTI from MAC;
- 1> clear the variable C_RNTI;
- 1> start timer T305 using its initial value if timer T305 is not running and if periodical update has been configured by T305 in the IE "UE Timers and constants in connected mode" set to any other value than "infinity" in the variable TIMERS_AND_CONSTANTS;
- 1> select Secondary CCPCH according to subclause 8.5.19;
- 1> if the IE "UTRAN DRX cycle length coefficient" is included in the same message:
 - 2> use the value in the IE "UTRAN DRX Cycle length coefficient" for calculating Paging occasion and PICH Monitoring Occasion as specified in subclause 8.6.3.2.
- 1> the procedure ends.

** Next modified section ****

8.2.11.3 Runtime error due to overlapping compressed mode configuration and PDSCH receptionVoid

If UE is scheduled to receive a PDSCH frame at the same time instant as a compressed mode gap, UE shall perform the measurements according to the measurement purpose of the pattern sequence.

Next modified section

8.3.4 Active set update



Figure 8.3.4-1: Active Set Update procedure, successful case

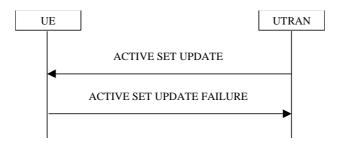


Figure 8.3.4-2: Active Set Update procedure, failure case

8.3.4.1 General

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

8.3.4.2 Initiation

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

- a) Radio link addition;
- b) Radio link removal;
- c) Combined radio link addition and removal.

In case a) and c), UTRAN should:

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

In all cases, UTRAN should:

1> send an ACTIVE SET UPDATE message on downlink DCCH using AM or UM RLC;

1> create active sets that contain at least one common radio link across a DPCH or F-DPCH frame boundary as the result of one or multiple (parallel) active set update procedures.

UTRAN should include the following information:

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

8.3.4.3 Reception of an ACTIVE SET UPDATE message by the UE

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

The UE may:

1> maintain a list of the set of cells to which the UE has Radio Links if the IE "Cell ID" is present.

The UE shall:

- 1> first add the RLs indicated in the IE "Radio Link Addition Information";
- 1> remove the RLs indicated in the IE "Radio Link Removal Information". If the UE active set is full or becomes full, an RL, which is included in the IE "Radio Link Removal Information" for removal, shall be removed before adding RL, which is included in the IE "Radio Link Addition Information" for addition;
- 1> perform the physical layer synchronisation procedure B as specified in [29];
- 1> if the IE "TFCI combining indicator" associated with a radio link to be added is set to TRUE:
 - 2> if a DSCH transport channel is assigned and there is a 'hard' split in the TFCI field:
 - 3> configure Layer 1 to soft combine TFCI (field 2) of this new link with those links already in the TFCI (field 2) combining set.
- 1> if the radio link currently considered to be the serving HS-DSCH radio link is indicated in the IE "Radio Link Removal Information":
 - 2> no longer consider any radio link as the serving HS-DSCH radio link;
 - 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 radio link currently considered to be the serving E-DCH radio link is indicated in the IE "Radio Link Removal Information":
 - 2> no longer consider any radio link as the serving E-DCH radio link;
 - 2> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.
- 1> set the IE "RRC transaction identifier" in the ACTIVE SET UPDATE COMPLETE message to the value of "RRC transaction identifier" in the entry for the ACTIVE SET UPDATE message in the table "Accepted transactions" in the variable TRANSACTIONS; and
- 1> clear that entry;
- 1> transmit an ACTIVE SET UPDATE COMPLETE message on the uplink DCCH using AM RLC without waiting for the completion of the Physical Layer synchronisation B, as specified in [29];
- 1> the procedure ends on the UE side.

8.5.21 Actions related to Radio Bearer mapping

When the UE receives the IE "RB mapping info" and/or the IE "Transport format set", when transport channels, MAC-d flows or E-DCH MAC-d flows are added or deleted, when the UE performs a cell reselection or a state transition, or when the UE releases a RB, the UE shall for each of the configured Radio Bearers:

- 1> upon moving to CELL_FACH state from CELL_DCH state to initiate a cell update procedure and upon subsequent cell reselections until the first successfully completed cell update procedure, perform the actions defined in the remainder of this subclause only for SRB1, SRB2, SRB3 and SRB4;
- 1> for FDD, select the multiplexing option according to the following:
 - 2> if the UE is in CELL_FACH state:
 - 3> if the RB has a multiplexing option with transport channel type "FACH" for the DL and transport channel type "RACH" for the UL:
 - 4> select this multiplexing option.
 - 2> if the UE is in CELL_DCH state:
 - 3> if the RB has a multiplexing option with transport channel type "DCH + HS-DSCH" for the DL, and both the corresponding DCH transport channel and MAC-d flow are configured, and with transport channel type "E-DCH" for the UL, and the corresponding E-DCH MAC-d flow is configured:
 - 4> select this multiplexing option; else
 - 3> if the RB has a multiplexing option with transport channel type "DCH + HS-DSCH" for the DL, and both the corresponding DCH transport channel and MAC-d flow are configured, and with transport channel type "DCH" for the UL, and the corresponding DCH transport channel is configured:
 - 4> select this multiplexing option; else
 - 3> if the RB has a multiplexing option with transport channel type "DCH + DSCH" for the DL, and both the corresponding DCH and DSCH transport channels are configured, and with transport channel type "EDCH" for the UL, and the corresponding EDCH MAC d flow is configured:
 - 4> the UE behaviour is unspecified select this multiplexing option; else
 - 3> if the RB has a multiplexing option with transport channel type "DCH + DSCH" for the DL, and both the corresponding DCH and DSCH transport channels are configured, and with transport channel type "DCH" for the UL, and the corresponding DCH transport channel is configured:
 - 4> select this multiplexing option; else
 - 3> if the RB has a multiplexing option with transport channel type "HS-DSCH" for the DL, and the corresponding MAC-d flow is configured, and with transport channel type "E-DCH" for the UL, and the corresponding E-DCH MAC-d flow is configured:
 - 4> select this multiplexing option; else
 - 3> if the RB has a multiplexing option with transport channel type "HS-DSCH" for the DL, and the corresponding MAC-d flow is configured, and with transport channel type "DCH" for the UL, and the corresponding DCH transport channel is configured:
 - 4> select this multiplexing option; else
 - 3> if the RB has a multiplexing option with transport channel type "DSCH" for the DL, and the corresponding DSCH transport channel is configured, and with transport channel type "E DCH" for the UL, and the corresponding E DCH MAC d flow is configured:
 - 4> the UE behaviour is unspecified select this multiplexing option; else
 - 3> if the RB has a multiplexing option with transport channel type "DSCH" for the DL, and the corresponding DSCH transport channel is configured, and with transport channel type "DCH" for the UL, and the corresponding DCH transport channel is configured:

- 4> select this multiplexing option; else
- 3> if the RB has a multiplexing option with transport channel type "DCH" for the DL, and the corresponding DCH transport channel is configured, and with transport channel type "E-DCH" for the UL, and the corresponding E-DCH MAC-d flow is configured:
 - 4> select this multiplexing option.
- 3> if the RB has a multiplexing option with transport channel type "DCH" for the DL, and the corresponding DCH transport channel is configured, and with transport channel type "DCH" for the UL, and the corresponding DCH transport channel is configured:
 - 4> select this multiplexing option.
- 1> for TDD, select the multiplexing option according to the following:
 - 2> if the UE is in CELL_FACH state:
 - 3> if the RB has the multiplexing options with the transport channel types "FACH" and "DSCH" for the DL, and the corresponding FACH and DSCH transport channels are configured, and with the transport channel types "RACH" and "USCH" for the UL, and the corresponding RACH and USCH transport channels are configured:
 - 4> if both PUSCH and PDSCH are allocated:
 - 5> select the multiplexing option "DSCH" for DL and "USCH" for UL; else
 - 4> if only PUSCH is allocated:
 - 5> select the multiplexing option "FACH" for DL and "USCH" for UL; else
 - 4> if only PDSCH is allocated:
 - 5> select the multiplexing option "DSCH" for DL and "RACH" for UL; else
 - 4> if neither PUSCH nor PDSCH is allocated:
 - 5> select the multiplexing option "FACH" for DL and "RACH" for UL.
 - 3> if the RB has a single multiplexing option with the transport channel type "FACH" for the DL and the transport channel type "RACH" for the UL:
 - 4> select this multiplexing option; else
 - 3> if the RB has a single multiplexing option with the transport channel type "DSCH" for the DL, and the corresponding DSCH transport channel is configured, and with the transport channel type "USCH" for the UL, and the corresponding USCH transport channel is configured:
 - 4> select this multiplexing option; else
 - 2> if the UE is in CELL_DCH state:
 - 3> if the RB has a multiplexing option with transport channel type "DCH + HS-DSCH" for the DL, and both the corresponding DCH transport channel and MAC-d flow are configured, and with transport channel type "DCH" for the UL, and the corresponding DCH transport channel is configured:
 - 4> select this multiplexing option; else
 - 3> if the RB has a multiplexing option with transport channel type "DCH + DSCH" for the DL, and both the corresponding DCH and DSCH transport channels are configured, and with transport channel type "DCH" for the UL, and the corresponding DCH transport channel is configured:
 - 4> select this multiplexing option; else
 - 3> if the RB has a multiplexing option with transport channel type "HS-DSCH" for the DL, and the corresponding MAC-d flow is configured, and with transport channel type "DCH" for the UL, and the corresponding DCH transport channel is configured:

- 4> select this multiplexing option; else
- 3> if the RB has a multiplexing option with transport channel type "DCH" for the DL, and the corresponding DCH transport channel is configured, and with transport channel type "DCH" for the UL, and the corresponding DCH transport channel is configured:
 - 4> select this multiplexing option; else
- 3> if theRB has a multiplexing option with transport channel type "DSCH" for the DL, and the corresponding DSCH transport channel is configured, and with transport channel "USCH" for the UL, and the corresponding USCH transport channel is configured:
 - 4> select this multiplexing option.
- 1> configure the MAC with the appropriate transport format set (with computed transport block sizes) for the transport channel used by that RB;
- 1> in case the selected multiplexing option is a multiplexing option on E-DCH:
 - 2> the set of RLC sizes that apply to the logical channel used by that RB consists of all RLC PDU sizes listed in the IE "RLC PDU size list" in the RB mapping info for E-DCH.

1> else:

- 2> determine the sets of RLC sizes that apply to the logical channels used by that RB, based on the IEs "RLC size list" and/or the IEs "Logical Channel List" included in the applicable "Transport format set" (either the ones received in the same message or the ones stored if none were received);
- 1> in case the selected multiplexing option is a multiplexing option on RACH:
 - 2> ignore the RLC size indexes that do not correspond to any RLC size within the Transport Format Set stored for RACH.
 - 2> if there is no remaining RLC size index corresponding to an RLC size within the Transport Format Set stored for RACH:
 - 3> set the variable INVALID CONFIGURATION to TRUE.
- 1> if RACH is the transport channel to be used on the uplink, if that RB has a multiplexing option on RACH and if it is using AM:
 - 2> apply the largest size amongst the ones derived according to the previous bullet for the RLC size (or RLC sizes in case the RB is realised using two logical channels) for the corresponding RLC entity.
- NOTE: The IE "RB mapping info" is only included in the IE "Predefined RB configurations" in system information when used for Inter-RAT handover to UTRAN and there is no AM RLC size change involved in this case.
- 1> if that RB is using AM and the RLC size applicable to the uplink logical channel transporting data PDUs is different from the one derived from the previously stored configuration; and
- 1> none of the following conditions is met:
 - the RLC size change is caused by a CELL UPDATE CONFIRM and the CELL UPDATE CONFIRM message includes the IE "Downlink counter synchronisation info".
 - the RLC size change is caused by a reconfiguration message, and a cell update procedure occurs during the reconfiguration procedure and the CELL UPDATE CONFIRM message includes the IE "Downlink counter synchronisation info".
 - the RLC size change is caused by a reconfiguration message, and a cell update procedure occurs during this
 reconfiguration procedure and the CELL UPDATE CONFIRM message includes the IE "RLC re-establish
 indicator" being set to TRUE for the corresponding radio bearer.
 - 2> if the RLC size change is caused by a reconfiguration message or a CELL UPDATE CONFIRM; and
 - 2> the IE "one sided RLC re-establishment" is included in that message and is set to TRUE:

- 3> re-establish the transmitting side of the corresponding RLC entity.
- 2> else:
 - 3> re-establish the corresponding RLC entity.
- 2> configure the corresponding RLC entity with the new uplink RLC size;
- 2> for each AM RLC radio bearer in the CN domain as indicated in the IE "CN domain identity" in the IE "RAB info" in the variable ESTABLISHED_RABS whose RLC size is changed; and
- 2> for each AM RLC signalling radio bearer in the CN domain as indicated in the IE "CN domain identity" in the variable LATEST_CONFIGURED_CN_DOMAIN whose RLC size is changed:
 - 3> if the IE "Status" in the variable CIPHERING_STATUS of this CN domain is set to "Started":
 - 4> if the information causing the RLC re-establishment was included in system information:
 - 5> set the HFN values for the corresponding RLC entity equal to the value of the IE "START" for this CN domain that will be included in the CELL UPDATE message following cell reselection.
- NOTE: Since the UE cannot predict the START value at the time of the next CELL UPDATE transmission in the future, UTRAN should desist from changing the RLC size for a signalling radio bearer within a cell. Other than this case the change in RLC size for a signalling radio bearer is known to the UE when reading system information following cell reselection.
 - 4> if the RLC re-establishment is caused by a CELL UPDATE CONFIRM:
 - 5> if the whole RLC entity was re-established:
 - 6> set the HFN values for the corresponding RLC entity in uplink and downlink equal to the value of the IE "START" included in the latest transmitted CELL UPDATE message for this CN domain.
 - 5> if only the transmitting side of the RLC entity was re-established:
 - 6> set the HFN value for the corresponding RLC entity in the uplink equal to the value of the IE "START" included in the latest transmitted CELL UPDATE message for this CN domain.
 - 4> if the RLC re-establishment is caused by a reconfiguration message:
 - 5> if the whole RLC entity was re-established:
 - 6> set the HFN values for the corresponding RLC entity in uplink and downlink equal to the value of the IE "START" that will be included in the reconfiguration complete message for this CN domain.
 - 5> if only the transmitting side of the RLC entity was re-established:
 - 6> set the HFN value for the corresponding RLC entity in the direction uplink equal to the value of the IE "START" that will be included in the reconfiguration complete message for this CN domain.
- NOTE1: If the UTRAN modifies the RLC size for RB2 on any reconfiguration message or Cell Update Confirm message, the UE behaviour is unspecified in this version of the specification.
- NOTE2: The UE cannot rely on the configured Transport Formats to determine the RLC sizes to be used in downlink for a particular logical channel. This size can be signalled explicitly in the RLC Info IE.
- 1> if that RB is using UM:
 - 2> indicate the largest RLC size applicable for uplink to the corresponding RLC entity.
- 1> configure MAC multiplexing according to the selected multiplexing option (MAC multiplexing shall only be configured for a logical channel if the transport channel it is mapped on according to the selected multiplexing

option is the same as the transport channel another logical channel is mapped on according to the multiplexing option selected for it);

- 1> configure the MAC with the logical channel priorities according to selected multiplexing option;
- 1> configure the MAC with the set of applicable RLC Sizes for each of the logical channels used for that RB;
- 1> if there is no multiplexing option applicable for the transport channels and MAC-d flows to be used:
 - 2> set the variable INVALID_CONFIGURATION to TRUE.
- 1> if there is more than one multiplexing option applicable for the transport channels or MAC-d flows to be used:
 - 2> set the variable INVALID_CONFIGURATION to TRUE.

If upon cell re-selection or upon moving to CELL_FACH state from CELL_DCH state to initiate cell update procedure the UE sets variable INVALID_CONFIGURATION to TRUE as a result of the actions defined in this subclause, the UE should:

- 1> move to idle mode;
- 1> release (locally) the established signalling connections (as stored in the variable ESTABLISHED_SIGNALLING_CONNECTIONS) and the established radio access bearers (as stored in the variable ESTABLISHED_RABS) and indicate this to upper layers;
- 1> perform other actions when entering idle mode from connected mode as specified in subclause 8.5.2.

8.6.3.1 Activation time

If the UE receives a message in which presence is needed for the IE "Activation time", and the value is other than the default value "Now", the UE shall:

- 1> let the "reference CCTrCH" be defined as the CCTrCh that includes any transport channel or is associated with any physical channel which is being added, re-configured or removed, or, in the case of DSCH (FDD only) or HS-DSCH, the CCTrCh including the associated DCH;
- 1> if the frame boundary immediately before the frame with the CFN (Connection Frame Number) value indicated by the IE "Activation Time" is at the TTI boundary common to all the transport channels that are multiplexed onto the reference CCTrCh:
 - 2> select that frame boundary as the activation time T.
- 1> else:
 - 2> select the next TTI boundary, which is common to all the transport channels that are multiplexed onto the reference CCTrCh, after the frame with the CFN (Connection Frame Number) value indicated by the IE "Activation Time", as the activation time T.
- 1> at the activation time T:
 - 2> for a physical channel reconfiguration other than an HS-DSCH related reconfiguration, caused by the received message:
 - 3> release the physical channel configuration, which was present before T;
 - 3> initiate the establishment of the physical channel configuration as specified for the physical channel information elements in the received message as specified elsewhere.
 - 2> for an HS-DSCH related reconfiguration in FDD or 1.28 Mcps TDD caused by the received message:
 - 3> select the HS-SCCH subframe boundary immediately before the first HS-SCCH subframe, which entirely falls within the 10 ms frame following T;

- 3> start using, at that HS-SCCH subframe boundary, the new HS-DSCH configuration in the received message, replacing any old HS-DSCH configuration.
- 2> for an HS-DSCH related reconfiguration in 3.84 Mcps TDD caused by the received message:
 - 3> start using, at activation time T, the new HS-DSCH configuration in the received message, replacing any old HS-DSCH configuration.
- 2> for actions, other than a physical channel reconfiguration, caused by the received message:
 - 3> perform the actions for the information elements in the received message as specified elsewhere.
- NOTE: In FDD an "HS-DSCH related reconfiguration" includes, in particular, reconfigurations that need to be time-aligned with the 2ms subframe of the HS-SCCH, HS-PDSCH and/or HS-DPCCH. For example, start and stop of HS-SCCH reception and serving HS-DSCH cell change.

If the UE receives a message in which presence is needed for the IE "Activation time", and the value is the default value "Now", the UE shall:

- 1> choose an activation time T as soon as possible after the reception of the message, respecting the performance requirements in subclause 13.5;
- 1> at the activation time T:
 - 2> perform the actions for the information elements in the received message as specified elsewhere.
- NOTE: In FDD, if the UE was in idle mode or CELL_FACH state upon reception of the message, regardless of the state the UE enters after reception of the message, and the value of the IE "Activation time" in the received message is different from "Now", the UE behaviour is unspecified. In TDD, if the UE was in idle mode or CELL_FACH state upon reception of the message, the value of the IE "Activation time" in the received message is relative to the CFN associated with the cell from which the message was received.

8.6.3.9a New DSCH-RNTI

In TDD ilf the IE "New DSCH-RNTI" is included, the UE shall:

1> in FDD:

- 2> if the UE will be in CELL_DCH at the end of the procedure where the received message included this IE:
 - 3> if the UE supports DSCH as indicated in the IE "Physical Channel Capability" included in the IE "UE Radio Access Capability":
 - 4> store the value in the variable DSCH_RNTI, replacing any old stored value;
 - 4> use that DSCH RNTI when using common transport channels of type DSCH in the current cell.

1> in TDD:

- 21> if the UE will be in CELL_DCH or CELL_FACH at the end of the procedure where the received message included this IE:
 - 32> if the UE supports DSCH or USCH as indicated in the IE "Physical Channel Capability" included in the IE "UE Radio Access Capability":
 - 43> store the value in the variable DSCH_RNTI, replacing any old stored value;
 - 43> use that DSCH-RNTI when using SHCCH signalling in the current cell.

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 (only for TDD), 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 ****

8.6.5.1 Transport Format Set

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

- 1> if the transport format set is a RACH TFS received in System Information Block type 5 or 6, and CHOICE "Logical Channel List" has a value different from "Configured":
 - 2> ignore that System Information Block.
- 1> if the transport format set for a downlink transport channel is received in a System Information Block, and CHOICE "Logical Channel List" has a value different from 'ALL':
 - 2> ignore that System Information Block.
- 1> if the transport format set for a downlink transport channel is received in a message on a DCCH, and CHOICE "Logical Channel List" has a value different from 'ALL':
 - 2> keep the transport format set if this exists for that transport channel;
 - 2> set the variable INVALID_CONFIGURATION to TRUE.
- 1> if the value of any IE "RB identity" (and "Logical Channel" for RBs using two UL logical channels) in the IE "Logical channel list" does not correspond to a logical channel indicated to be mapped onto this transport channel in any RB multiplexing option (either included in the same message or previously stored and not changed by this message); or
- 1> if the "Logical Channel List" for any of the RLC sizes defined for that transport channel is set to "Configured" while it is set to "All" or given as an "Explicit List" for any other RLC size; or
- 1> if the "Logical Channel List" for any of the RLC sizes defined for that transport channel is set to "All" and for any logical channel mapped to this transport channel, the value of the "RLC size list" (either provided in the IE "RB mapping info" if included in the same message, or stored) is not set to "Configured"; or
- 1> if the "Logical Channel List" for any of the RLC sizes defined for that transport channel is given as an "Explicit List" that contains a logical channel for which the value of the "RLC size list" (either provided in the IE "RB mapping info" if included in the same message, or stored) is not set to "Configured"; or
- 1> if the "Logical Channel List" for all the RLC sizes defined for that transport channel are given as "Explicit List" and if one of the logical channels mapped onto this transport channel is not included in any of those lists; or
- 1> if the "Logical Channel List" for the RLC sizes defined for that transport channel is set to "Configured" and for any logical channel mapped onto that transport channel, the value of the "RLC size list" (either provided in the IE "RB mapping info" if included in the same message, or stored) is also set to "Configured"; or
- 1> if the IE "Transport Format Set" was not received within the IE "PRACH system information list" and if the "Logical Channel List" for the RLC sizes defined for that transport channel is set to "Configured" and for any logical channel mapped onto that transport channel, the "RLC size list" (either provided in the IE "RB mapping info" if included in the same message, or stored) is given as an "Explicit List" that includes an "RLC size index" that does not correspond to any RLC size in this "Transport Format Set"; or

- 1> if the IE "Transport Format Set" was not received within the IE "PRACH system information list", and if that RB is using AM and the set of RLC sizes applicable to the logical channel transferring data PDUs has more than one element not equal to zero:
 - 2> keep the transport format set if this exists for that transport channel;
 - 2> set the variable INVALID_CONFIGURATION to TRUE.
- 1> if the total number of configured transport formats for the transport channel exceeds maxTF:
 - 2> keep the transport format set if this exists for that transport channel;
 - 2> set the variable INVALID_CONFIGURATION to TRUE.
- 1> if the IE "Transport format set" is considered as valid according to the rules above:
 - 2> remove a previously stored transport format set if this exists for that transport channel;
 - 2> store the transport format set for that transport channel;
 - 2> consider the first instance of the parameter *Number of TBs and TTI List* within the *Dynamic transport format information* to correspond to transport format 0 for this transport channel, the second to transport format 1 and so on;
 - 2> if the IE "Transport format Set" has the choice "Transport channel type" set to "Dedicated transport channel":
 - 3> calculate the transport block size for all transport formats in the TFS using the following

TB size = RLC size + MAC header size if "RLC size"
$$<> 0$$
,
TB size = 0 if "RLC size" = 0,

where:

- MAC header size is calculated according to [15] if MAC multiplexing is used. Otherwise it is 0 bits;
- 'RLC size' reflects the RLC PDU size.
- 2> if the IE "Transport format Set" has the choice "Transport channel type" set to "Common transport channel":
 - 3> in FDD:
 - 4> for transport channels other than DSCH calculate the transport block size for all transport formats in the TFS using the following:

TB size =
$$RLC$$
 size.

4> for DSCH transport channels calculate the transport block size for all transport formats in the TFS using the following:

TB size = RLC size + MAC header size if "RLC size"
$$\Leftrightarrow 0$$
TB size = 0 if "RLC size" = 0

where:

- MAC header size is calculated according to [15];
- 'RLC size' reflects the RLC PDU size.
- 3> for TDD calculate the transport block size for all transport formats in the TFS using the following:

- 2> if the IE "Number of Transport blocks" <> 0 and IE "RLC size" = 0, no RLC PDU data exists but only parity bits exist for that transport format;
- 2> if the IE "Number of Transport blocks" = 0, neither RLC PDU neither data nor parity bits exist for that transport format;

2> perform the actions as specified in subclause 8.5.21.

For configuration restrictions on Blind Transport Format Detection, see [27].

*** Next modified section ***

8.6.5.12 TFCS Reconfiguration/Addition Information

If the IE "TFCS Reconfiguration/Addition Information" is included the UE shall:

- 1> store the TFCs to be reconfigured/added indicated in the IE "CTFC information" as specified below;
- 1> if the IE "Power offset information" is included:
 - 2> perform actions as specified in [29].

In order to identify the TFCs included in this IE the UE shall calculate the CTFC as specified in subclause 14.10 and

- 1> if the IE "TFCS Reconfiguration/Addition Information" was included in the IE "TFCI Field 1 Information":
 - 2> ignore for the CTFC calculation any DSCH transport channel that may be assigned.
- 1> if the IE "TFCS Reconfiguration/Addition Information" was included in the IE "TFCI Field 2 Information":
 - 2> ignore for the CTFC calculation any DCH transport channel that may be assigned.

If the IE "TFCS Reconfiguration/Addition Information" is used in case of TFCS "Complete reconfiguration" the UE shall:

- 1> remove a previously stored transport format combination set if this exists;
- 1> consider the first instance of the IE "CTFC information" as Transport Format Combination 0 in FDD (TFCI=0) and 1 in TDD (TFCI=1), the second instance as Transport Format Combination 1 in FDD (TFCI=1) and 2 in TDD (TFCI=2) and so on. In TDD the TFCI value = 0 is reserved for physical layer use.

If the IE "TFCS Reconfiguration/Addition Information" is used in case of TFCS "Addition" the UE shall insert the new additional(s) TFC into the first available position(s) in ascending TFCI order in the TFCS.

8.6.5.13 TFCS Removal Information

If the IE "TFCS Removal Information" is included the UE shall:

1> remove the TFC indicated by the IE "TFCI" from the current TFCS, and regard this position (TFCI) in the TFCS as vacant.

8.6.5.14 TFCI Field 2 Information Void

If the IE "TFCI Field 2 Information" is included the UE shall:

- 1> if the IE choice "Signalling method" is set to 'TFCI range':
 - 2> for the first group in the IE "TFCI(field 2) range":
 - 3> apply the Transport Format Combination indicated by the value of the IE "TFCS Information for DSCH (TFCI range method)" to the group of values of TFCI(field 2) between 0 and the IE "Max TFCI(field2) value".
 - 2> for the following groups in the IE "TFCI(field 2) range":
 - 3> apply the Transport Format Combination indicated by the value of the IE "TFCS Information for DSCH (TFCI range method)" to the group of values of TFCI(field 2) between the largest value reached in the previous group plus one and the IE "Max TFCI(field2) value".
- 1> if the IE choice "Signalling method" is set to 'Explicit':
 - 2> perform actions for the IE "TFCS explicit configuration" as specified in subclause 8.6.5.15.

8.6.5.15 TFCS Explicit Configuration

If the IE "TFCS Explicit Configuration" is included the UE shall:

- 1> if the IE choice "TFCS representation" is set to 'complete reconfiguration':
 - 2> perform the actions for the IE "TFCS Reconfiguration/Addition Information" as specified in subclause 8.6.5.12.
- 1> if the IE choice "TFCS representation" is set to 'addition':
 - 2> perform the actions for the IE "TFCS Reconfiguration/Addition Information" as specified in subclause 8.6.5.12.
- 1> if the IE choice "TFCS representation" is set to 'removal':
 - 2> perform the actions for the IE "TFCS Removal Information" as specified in subclause 8.6.5.13.
- 1> if the IE choice "TFCS representation" is set to 'replace':
 - 2> perform first the actions for the IE "TFCS Removal Information" as specified in subclause 8.6.5.13; and then
 - 2> perform the actions for the IE "TFCS Reconfiguration/Addition Information" as specified in subclause 8.6.5.12.

***** Next modified section ****

8.6.6.9 PDSCH with SHO DCH Info (FDD only) Void

If the IE "PDSCH with SHO DCH Info" is included, the UE shall:

- 1> if the variable DSCH_RNTI is empty:
 - 2> set the variable INVALID_CONFIGURATION to TRUE.
- 1> configure itself to receive the PDSCH from the specified radio link within the active set identified by the IE "DSCH radio link identifier";
- 1> if the TFCI has a 'hard' split:
 - 2> if the IE "TFCI(field2) combining set" is included:
 - 3> configure the Layer 1 to combine soft only the DPCCH TFCI(field 2) of the radio links within the active set which are identified by the IE "Radio link identifier" in the IE "TFCI(field2) Combining set".
 - 2> if the IE "TFCI(field2) combining set" is not included:
 - 3> configure the L1 to combine soft the DPCCH TFCI(field 2) of all radio links within the active set.

8.6.6.10 PDSCH code mapping (FDD only) Void

If the IE "PDSCH code mapping" is included, the UE shall:

- 1> if the variable DSCH_RNTI is empty:
 - 2> set the variable INVALID CONFIGURATION to TRUE.
- 1> use the scrambling code defined by the IE "DL Scrambling Code" to receive the PDSCH;
- 1> if the IE choice "signalling method" is set to 'code range':
 - 2> map the TFCI(field2) values to PDSCH codes in the following way:
 - 2> for the first group of the IE "PDSCH code mapping":

- 3> if the value of the IE "multi code info" equals 1:
 - 4> map the TFCI(field 2) = 0 to the PDSCH code specified by the IE "Spreading factor" and the code number given by the IE "Code number (for PDSCH code) start";
 - 4> map TFCI(field 2) = 1 to the PDSCH code specified by the IE "Spreading factor" and the code number given by the IE "Code number (for PDSCH code) start"+1;
 - 4> continue this process with unit increments in the value of TFCI(field 2) mapped to unit increments in code number until the code number equals the value of the IE "Code number (for PDSCH code) stop".
- 3> if the value of the IE "multi code info" is greater than 1:
 - 4> if the value of the difference between the IE "Code number (for PDSCH code) start" and the IE "Code number (for PDSCH code) stop" + 1 is not a multiple of the value of the IE "multi-code info":
 - 5> set the variable INVALID_CONFIGURATION to TRUE.
 - 4> map TFCI (field 2)=0 to a set of PDSCH contiguous codes. This code set is specified by the IE

 "Spreading factor" and code numbers between 'code number start' denoted by the IE "Code number

 (for PDSCH code) start" and 'code number stop' given by IE "Code number (for PDSCH code) start"
 1 + the value of the IE "multi-code info";
 - 4> continue this process with unit increments in the value of TFCI(field 2) mapped to a set of contiguous codes. This code set is specified by the IE "Spreading factor" and code numbers between 'code number start' = 'code number stop' +1 of the previous TFCI(field2) and 'code number stop'='code number start' 1 + the value of the IE "multi-code info";
 - 4> stop this process when the 'code number stop' associated to the last TFCI(field2) equals the value of the IE "Code number (for PDSCH code) stop".
- 2> for each of the next groups included in the IE "PDSCH code mapping":
 - 3> continue the process in the same way as for the first group with the TFCI(field 2) value used by the UE to construct its mapping table starting at the largest TFCI(field 2) value reached in the previous group plus one.
- 2> if the value of the IE "Code number (for PDSCH code) start" equals the value of the IE "Code number (for PDSCH code) stop" (as may occur when mapping the PDSCH root code to a TFCI (field 2) value):
 - 3> consider this as defining the mapping between the channelisation code and a single TFCI (i.e., TFCI(field 2) shall not be incremented twice).
- 1> if the IE choice "signalling method" is set to 'TFCI range':
 - 2> map the TFCI(field2) values to PDSCH codes in the following way:
 - 2> for the first group of the IE "DSCH mapping":
 - 3> map each of the TFCI(field 2) between 0 and the value of the IE "Max TFCI(field2)" to the PDSCH code specified by the IE "Spreading factor (for PDSCH code)" and the code number given by the IE "Code number (for PDSCH code)".
 - 2> for each of the next groups included in the IE "DSCH mapping":
 - 3> map each of the TFCI(field 2) between the IE "Max TFCI(field2) value" specified in the last group plus one and the specified IE "Max TFCI(field2)" in the current group to the PDSCH code specified by the IE "Spreading factor (for PDSCH code)" and the code number given by the IE "Code number (for PDSCH code)".
 - 2> if the value of the IE "multi code info" is greater than 1:
 - 3> map each value of TFCI (field 2) to a set of PDSCH contiguous codes starting at the channelisation code denoted by the 'code number' parameter and including all codes with code numbers up to and including 'code number' 1 + the value of the IE "multi-code info".

- 1> if the IE choice "signalling method" is set to 'Explicit'
 - 2> map the TFCI(field2) values to PDSCH codes in the following way:
 - 2> for the first instance on the IE "PDSCH code info":
 - 3> apply the PDSCH code specified by the IE "Spreading factor (for PDSCH code)" and the code number given by the IE "Code number (for PDSCH code)" for TFCI(field2)=0.
 - 2> for the second instance of the IE "PDSCH code info":
 - 3> apply the PDSCH code specified by the IE "Spreading factor (for PDSCH code)" and the code number given by the IE "Code number (for PDSCH code)" for TFCI(field2)=1.
 - 2> continue in a similar way for each next instance of the IE "PDSCH code info";
 - 2> if the value of the IE "multi-code info" is greater than 1, then
 - 3> map each value of TFCI (field 2) to a set of PDSCH contiguous codes starting at the channelisation code denoted by the 'code number' parameter and including all codes with code numbers up to and including 'code number' 1 + the value of the IE "multi-code info".
- 1> if the IE choice "signalling method" is set to 'Replace':
 - 2> map the TFCI(field2) values to PDSCH codes in the following way:
 - 2> for each instance of the IE "Replaced PDSCH code":
 - 3> replace the corresponding PDSCH code for the TFCI(field2) identified by the IE "TFCI(field2)" with the new code specified by the IE "Spreading factor (for PDSCH code)" and the code number given by the IE "Code number (for PDSCH code)".
 - 2> if the value of the IE "multi-code info" is greater than 1:
 - 3> map each value of TFCI (field 2) to a set of PDSCH contiguous codes starting at the channelisation code denoted by the 'code number' parameter and including all codes with code numbers up to and including 'code number' 1 + the value of the IE "multi-code info".

*** 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	СН		Integrity check info 10.3.3.16		

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
Integrity protection mode info	OP		Integrity	The UTRAN should not include	
			protection mode info	this IE unless it is	
			10.3.3.19	performing an	
				SRNS relocation	
				or a cell	
				reselection from GERAN <i>lu mode</i>	
Ciphering mode info	OP		Ciphering	The UTRAN	
			mode info 10.3.3.5	should not include this IE unless it is	
			10.0.0.0	performing either	
				an SRNS	
				relocation or a cell	
				reselection 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	11000	
			10.3.3.47		
New C-RNTI	OP		C-RNTI		
New DSCH-RNTI	OP		10.3.3.8 DSCH-RNTI	Should not be set	
New Docti-Kivii			10.3.3.9a	in FDD. If	
			. 0.0.0.0	received The UE	
				should ignore it	
New H-RNTI	OP		H-RNTI 10.3.3.14a		REL-5
New E-RNTI	OP		E-RNTI		REL-6
	145		10.3.3.10a		
RRC State Indicator	MP		RRC State Indicator		
			10.3.3.35a		
UTRAN DRX cycle length	OP		UTRAN DRX		
coefficient			cycle length		
			coefficient 10.3.3.49		
RLC re-establish indicator (RB2,	MP		RLC re-	Should not be set	
RB3 and RB4)			establish	to TRUE if IE	
			indicator	"Downlink counter	
			10.3.3.35	synchronisation	
				info" is included in message.	
RLC re-establish indicator (RB5	MP		RLC re-	Should not be set	
and upwards)			establish	to TRUE if IE	
			indicator	"Downlink counter	
			10.3.3.35	synchronisation info" is included in	
				message.	
CN Information Elements				Ŭ	
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			
>RB information to release	MP	<maxrb></maxrb>	RB		
יייין ווויסוווומנוטוו נט וכוכמסכ	IVII		information		
			to release		
			10.3.4.19		

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
RB information to reconfigure list	OP	1 to <maxrb></maxrb>		,	
>RB information to reconfigure	MP		RB information to reconfigure 10.3.4.18		
RB information to be affected list	OP	1 to <maxrb></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></maxrball 			
>>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 ></maxtrch 			
>Deleted UL TrCH information	MP		Deleted UL TrCH information 10.3.5.5		
Added or Reconfigured TrCH information list	OP	1 to <maxtrch ></maxtrch 			
>Added or Reconfigured UL TrCH information	MP		Added or Reconfigure d UL TrCH information 10.3.5.2		
CHOICE mode	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 ></maxtrch 			
>>>DRAC static information	MP		DRAC static information 10.3.5.7		

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
>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< td=""><td></td><td></td><td></td></maxtrch<>			
>Deleted DL TrCH information	MP		Deleted DL TrCH information 10.3.5.4		
Added or Reconfigured TrCH information list	OP	1 to <maxtrch< td=""><td></td><td></td><td></td></maxtrch<>			
>Added or Reconfigured DL TrCH information	MP		Added or Reconfigure d DL TrCH information 10.3.5.1		
PhyCH information elements					
Frequency info	OP		Frequency info 10.3.6.36		
Uplink radio resources	MD		Mandania	Defections in	1
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 channel requirement	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 mode	MP				
>FDD	1411-				
>>Downlink PDSCH information	OP		Downlink PDSCH information 10.3.6.30		
Downlink HS-PDSCH Information	OP		Downlink HS_PDSCH Information 10.3.6.23a	(no data)	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></maxrl>		Send downlink information for each radio link to be set-up	
>Downlink information for each radio link	MP		Downlink information		

Information Element/Group	Need	Multi	Type and	Semantics	Version
name			reference	description	
			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

Condition	Explanation
CCCH	This IE is mandatory present when CCCH is used and
	ciphering is not required and not needed otherwise.

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)

 $Logical\ channel:\ N/A\ (Sent\ through\ a\ different\ RAT)$

Information Element/Group name	Need	Multi	Type and reference	Semantics description
New U-RNTI	MP		U-RNTI Short 10.3.3.48	
Ciphering algorithm	OP		Ciphering algorithm 10.3.3.4	
CHOICE specification mode	MP			
>Complete specification				
RB information elements				
>>Signalling RB information to setup list	MP	1 to <maxsrbs etup></maxsrbs 		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></maxrabs 		For each RAB established
>>>RAB information for setup	MP		RAB information for setup 10.3.4.10	
Uplink transport channels				
>>UL Transport channel information common for all transport channels	MP		UL Transport channel information common for	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
			all transport channels 10.3.5.24	
>>Added or Reconfigured TrCH information	MP	1 to <maxtrch< td=""><td></td><td></td></maxtrch<>		
>>>Added or Reconfigured UL TrCH information	MP		Added or Reconfigure d UL TrCH information 10.3.5.2	
Downlink transport channels				
>>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 ></maxtrch 		
>>>Added or Reconfigured DL TrCH information	MP		Added or Reconfigure d DL TrCH information 10.3.5.1	
Uplink radio resources				
>>Uplink DPCH info	MP		Uplink DPCH info 10.3.6.88	
>>CHOICE mode	MP			
>>>FDD >>>>CPCH SET Info	OP		CPCH SET	
Downlink radio recourses			10.3.6.13	
Downlink radio resources >>>>Downlink PDSCH	OP		Downlink	
information			PDSCH information 10.3.6.30	
>>>TDD			10.0.0.0	(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></maxrl>		
>>>Downlink information for each radio link	MP		Downlink information for each radio link 10.3.6.27	
>Preconfiguration	ļ. <u></u>			
>>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

Information Element/Group name	Need	Multi	Type and reference	Semantics description
>>>>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	
Downlink radio resources				
>>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></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 information for each radio link Post 10.3.6.28	
>>CHOICE mode	MP			
>>>FDD				(no data)
>>>TDD >>>Primary CCPCH Tx Power	MP		Primary CCPCH Tx Power 10.3.6.59	
Frequency info	MP		Frequency info 10.3.6.36	
Maximum allowed UL TX power	MP		Maximum allowed UL TX power 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

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	СН		Integrity check info		

Information Element/Group	Need	Multi	Type and	Semantics	Version
name			reference 10.3.3.16	description	
Integrity protection mode info	OP		Integrity	The UTRAN	
Integrity protection mode into			protection	should not include	
			mode info	this IE unless it is	
			10.3.3.19	performing an	
				SRNS relocation	
Ciphering mode info	OP		Ciphering	The UTRAN	
			mode info	should not include	
			10.3.3.5	this IE unless it is	
				performing an	
				SRNS relocation and a change in	
				ciphering	
				algorithm	
Activation time	MD		Activation	Default value is	
			time 10.3.3.1	"now"	
New U-RNTI	OP		U-RNTI		
			10.3.3.47		
New C-RNTI	OP		C-RNTI		
Now DOOL DAT	OD	1	10.3.3.8	Obacild not be a c	
New DSCH-RNTI	OP		DSCH-RNTI 10.3.3.9a	Should not be set in FDD. If	
			10.3.3.9a	received The UE	
				should ignore it	
New H-RNTI	OP		H-RNTI	<u> </u>	REL-5
			10.3.3.14a		
New E-RNTI	OP		E-RNTI		REL-6
			10.3.3.10a		
RRC State Indicator	MP		RRC State		
			Indicator		
UTRAN DRX cycle length	OP		10.3.3.35a UTRAN DRX		
coefficient	OF .		cycle length		
Cochicient			coefficient		
			10.3.3.49		
CN Information Elements					
CN Information info	OP		CN		
			Information		
LITE AND TO A PROPERTY OF THE			info 10.3.1.3		
UTRAN mobility information elements					
URA identity	OP		URA identity		
OTO Clashing			10.3.2.6		
RB information elements					
Downlink counter	OP				
synchronisation info					
>RB with PDCP information list	OP	1 to			
		<maxrball RABs></maxrball 			
>>RB with PDCP information	MP	RADS>	RB with	This IE is needed	
	IVII		PDCP	for each RB	
			information	having PDCP in	
			10.3.4.22	the case of	
				lossless SRNS	
				relocation	
DDOD 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	OP		DDOD	T	REL-5
>>PDCP context relocation info	OP		PDCP	This IE is needed for each RB	REL-5
			context relocation	having PDCP and	
			info	performing PDCP	
			10.3.4.1a	context relocation	
PhyCH information elements					
Frequency info	OP		Frequency		
			info		
			10.3.6.36		<u> </u>

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
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	OP			power	
>Uplink DPCH info			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		
E-DCH Info	OP		E-DCH Info 10.3.6.97		REL-6
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		
Downlink information per radio link list	ОР	1 to <maxrl></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

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

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
Message Type	MP		Message Type		
UE Information elements			туре		
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.36		
Integrity check info	СН		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 lu mode	
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 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	Should not be set in FDD. If received The UE should ignore it	
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		
CHOICE specification mode	MP		1515.2.5		REL-5
>Complete specification					
RB information elements					

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
>>RAB information to reconfigure list	OP	1 to < maxRABse		, , , , , , , , , , , , , , , , , , ,	
>>>RAB information to reconfigure	MP	tup >	RAB information to		
			reconfigure 10.3.4.11		
>>RB information to reconfigure list	MP	1to <maxrb></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></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></maxrball 		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
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 ></maxtrch 			
>>>Deleted UL TrCH information	MP		Deleted UL TrCH information 10.3.5.5		
>>Added or Reconfigured TrCH information list	OP	1 to <maxtrch ></maxtrch 			
>>>Added or Reconfigured UL TrCH information	MP		Added or Reconfigure d UL TrCH information 10.3.5.2		
>>CHOICE mode	OP				
>>>FDD >>>>CPCH set ID	OP		CPCH set ID 10.3.5.3		
>>>Added or Reconfigured	OP	1 to			

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
TrCH information for DRAC list		<maxtrch< td=""><td></td><td></td><td></td></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 ></maxtrch 			
>>>Deleted DL TrCH information	MP		Deleted DL TrCH information 10.3.5.4		
>>Added or Reconfigured TrCH information list	OP	1 to <maxtrch< td=""><td></td><td></td><td></td></maxtrch<>			
>>>Added or Reconfigured DL TrCH information	MP		Added or Reconfigure d DL TrCH information 10.3.5.1		
>Preconfiguration					REL-5
>>CHOICE Preconfiguration mode	MP			This value only applies in case the message is sent through GERAN <i>Iu 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		
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 channel requirement	OP				
>Uplink DPCH info			Uplink DPCH info 10.3.6.88		
>CPCH SET Info			CPCH SET Info		

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
			10.3.6.13		
E-DCH Info	OP		E-DCH Info		REL-6
			10.3.6.97		
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		
Downlink information per radio link list	MP	1 to <maxrl></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		
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

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		

Integrity check info CH Integrity check info 10.3.3.36 Integrity protection mode info CP Integrity check info 10.3.3.17 Integrity protection mode info Ciphering an SRNS Ciphering an Ciphering an Ciphering an Ciphering an Ciphering and Ciphering	Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
Integrity check info Integrity protection mode info Integrity protection mode info OP Integrity protection mode info OP Integrity protection mode info Integrity protection mode info OP Integrity protection mode info Integrity protection mode info OP Integrity protection mode info Integrity protection include this It is promoting include this It is proportional include this It is proforming an SRNS relocation. Integrity protection include this It is promoting include this It is proforming an SRNS relocation. Integrity protection include this It is proforming an SRNS relocation. Integrity profection include this It is promoting include this It is It i				identifier		
Integrity protection mode info OP Integrity protection mode info OP Integrity protection mode info Integrity protection mode info Include this IE unless it is performing an SRNS relocation. Ciphering mode info OP Ciphering mode info 10.3.3.99 Include this IE unless it is performing an SRNS relocation and a change in ciphering algorithm. Activation time MD Activation time MD Activation time MD INFAITI OP INFAITI O	Integrity check info	СН		Integrity		
Integrity protection mode info OP Integrity protection mode info 10.3.15 Ciphering mode info OP Ciphering mode info 10.3.3.5 Activation time MD Activation time New U-RNTI OP						
Protection mode into	Integrity protection mode info	OP			The UTRAN should not	
10.3.3.19 relocation.	minegin, protection mean and			protection	include this IE unless it is	
Ciphering mode info OP Ciphering mode info 10.3.3.5 Ciphering mode info 10.3.3.5 Activation time MD Activation time New U-RNTI New U-RNTI OP OP OP OP-RNTI New DSCH-RNTI OP SSCH-RNTI 10.3.3.47 New H-RNTI OP SSCH-RNTI 10.3.3.14a New E-RNTI OP New E-RNTI OP OP OP OP OP OP OP OP OP O						
Mode info 10.3.3.5 relocation and a change in ciphering algorithm.	Ciphoring mode info	OP				
Activation time MD	Cipriering mode into	OP		mode info	include this IE unless it is performing an SRNS	
New U-RNTI					ciphering algorithm.	
New U-RNTI	Activation time	MD			Default value is "now"	
New CRNTI	New U-RNTI	OP		U-RNTI		
New DSCH-RNTI						
New H-RNTI	New C-RNTI	OP				
New H-RNTI	New DSCH-RNTI	OP			Should not be set in FDD. If	
New E-RNTI	New Book-Kivii				received The UE should ignore	
New E-RNTI	New H-RNTI	OP				REL-5
10.3.3.10a RRC State Indicator	New F-RNTI	OP				RFI -6
UTRAN DRX cycle length coefficient coeffic	New 2 rath					IXEE 0
UTRAN DRX cycle length coefficient coefficient coefficient coefficient coefficient coefficient coefficient 10.3.3.49 CN Information Elements CN Information info OP CN Information info OP CN Information info 10.3.1.3 Signalling Connection release indication 10.3.1.3 Signalling Connection release indication 10.3.1.3 UTRAN mobility information elements URA identity 10.3.2.6 RB Information Elements RAB information to reconfigure list >RAB information to reconfigure NP RAB information to reconfigure NP RAB information to release list MP 1 to < maxRAbse tup > RAB information to release list MP 1 to < maxRAbse information to release list NP 1 to < maxRAbse information to release 10.3.4.11 RB information to release NP RB information to be affected list OP 1 to < maxRB> RB information to be affected list OP 1 to < maxRB> RB information to be affected list OP 1 to < maxRB> RB information to be affected list OP 1 to < maxRB> RB information to be affected list OP RB information	RRC State Indicator	MP				
UTRAN DRX cycle length coefficient coefficient 10.3.3.49 CN Information Elements CN Information info OP CN Information info OP CN Information info OP CN Information info OP CN Information Informati						
coefficient coeffi	UTRAN DRX cycle length	OP				
CN Information Elements CN Information info CN Information info 10.3.1.3 Signalling Connection release indication CN domain identity 10.3.1.1 UTRAN mobility information elements URA identity OP URA identity 10.3.2.6 RB Information to reconfigure list PAB information to reconfigure WP RAB information to reconfigure Information to reconfigure NP RAB information to release list MP 1 to compared to the information information to release information i						
CN Information Elements CN Information info OP CN Information info OP CN Information info Information info Information info Information info Information info Information info 10.3.1.3 CN domain identity I0.3.1.1 UTRAN mobility information elements URA identity OP URA identity I0.3.2.6 RB Information Elements RAB information to reconfigure list It to < maxRABse tup > RAB information to reconfigure I0.3.4.11 RB information to release list MP I to < maxRBs RB information to release I0.3.4.11 RB information to release INP RB information to be affected list OP I to < maxRBs RB information to be affected list OP I to < maxRBs RB information to be affected RB information to be affected INP RB information INP RB information to be affected INP RB information				coefficient		
CN Information info OP CN Information info 10.3.1.3 Signalling Connection release indication 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 to reconfigure list >RAB information to reconfigure NP RB information to reconfigure NP RAB information to release list >RB information to release list NP 1 to < maxRABse information to release list >RB information to release NP RB information to release NP RB information to be affected list OP 1 to < maxRBs RB information to be affected list OP 1 to < maxRBs RB information to be affected list OP 1 to < maxRBs RB information to be affected list OP 1 to < maxRBs RB information to be affected list OP RB information to be affected list RB information	CN Information Floments			10.3.3.49		
Signalling Connection release indication 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 >RAB information to reconfigure WP RAB information to reconfigure NP RAB information to release list MP 1 to consumption to reconfigure 10.3.4.11 RB information to release MP RB information to release 10.3.4.19 RB information to be affected list PRB information to be affected MP RB information RB information to be affected MP RB information RB information RB information RB information		OP		CN		
indication 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 >RAB information to reconfigure NP RAB information to reconfigure RB information to release list MP RB information to release MP RB information to release NP RB information to release NP RB information to be affected list NP RB information to be affected NP RB information RB information to be affected NP RB information	Oly miorination mio			Information		
UTRAN mobility information elements URA identity OP URA identity 10.3.2.6 RB Information Elements RAB information to reconfigure list >RAB information to reconfigure NP RB information to reconfigure NP RB information to release list NP 1 to < maxRABse information to reconfigure reconfigure 10.3.4.11 RB information to release NP RB information to release NP RB information to release NP RB information to be affected list OP 1 to < maxRB> RB information to be affected NP RB information to be affected NP RB information RB information to be affected NP RB information	Signalling Connection release	OP		CN domain		
elements OP URA identity URA identity 10.3.2.6 RB Information Elements Page 10.3.2.6 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 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 release 10.3.4.19						
URA identity RB Information Elements RAB information to reconfigure list >RAB information to reconfigure SRAB information to reconfigure list SRAB information to release list list list list list list list list						
RAB information to reconfigure list PAB information to reconfigure list PRAB information to reconfigure PRAB information to reconfigure PRAB information to release list PRAB information to release list PRAB information to release PRAB information to be affected list PRAB information to be affected PRAB information PRAB information to be affected PRAB information		OP				
RAB information to reconfigure list PRAB information to reconfigure PRAB information to reconfigure PRAB information to reconfigure PRAB information to release list PRAB information to release list PRAB information to release PRAB information to be affected list PRAB information to be affected PRAB information to reconfigure PRAB information	RB Information Elements			10.3.2.0		
>RAB information to reconfigure MP RAB information to reconfigure 10.3.4.11 RB information to release list MP 1 to	RAB information to reconfigure	OP	maxRABse			
information to reconfigure 10.3.4.11 RB information to release list MP 1 to	>RAB information to reconfigure	MP	tup >	RAB		
RB information to release list MP 1 to						
RB information to release list MP 1 to						
RB information to release list MP 1 to						
>RB information to release MP RB information to release 10.3.4.19 RB information to be affected list OP 1 to	RB information to release list	MP		10.0.4.11		
RB information to be affected list OP 1 to compared to release 10.3.4.19 RB information to be affected list RB information to be affected MP RB information			<maxrb></maxrb>			
to release 10.3.4.19 RB information to be affected list OP 1 to <maxrb> RB information to be affected MP RB information RB information</maxrb>	>RB information to release	MP				
RB information to be affected list OP 1 to				to release		
>RB information to be affected MP RB information	RB information to be affected list	OP				
	>RB information to be affected	MP				
				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></maxrball 			
>>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></maxrball 			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 ></maxtrch 			
>Deleted UL TrCH information	MP		Deleted UL TrCH information 10.3.5.5		
Added or Reconfigured TrCH information list	OP	1 to <maxtrch ></maxtrch 			
>Added or Reconfigured UL TrCH information	MP		Added or Reconfigure d UL TrCH information 10.3.5.2		
CHOICE mode	OP		10.0.0.2		
>FDD					
>>CPCH set ID	OP		CPCH set ID 10.3.5.3		
>>Added or Reconfigured TrCH information for DRAC list	OP	1 to <maxtrch ></maxtrch 			
>>>DRAC static information	MP		DRAC static information 10.3.5.7		
>TDD		1		(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		

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
Deleted TrCH information list	OP	1 to <maxtrch></maxtrch>			
>Deleted DL TrCH information	MP		Deleted DL TrCH information 10.3.5.4		
Added or Reconfigured TrCH information list	OP	1 to <maxtrch< td=""><td>10.3.3.4</td><td></td><td></td></maxtrch<>	10.3.3.4		
>Added or Reconfigured DL TrCH information	MP		Added or Reconfigure d 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 channel requirement	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 mode	MP				
>FDD					
>>Downlink PDSCH information	OP		Downlink PDSCH information 40.3.6.30		
>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></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) no restrictions apply concerning the use of non-MBMS services i.e. the PL is not congested	REL-6
MBMS RB list released to change transfer mode	OP	1 to <maxrb></maxrb>			REL-6

Information Element/Group	Need	Multi	Type and	Semantics description	Version
name			reference		
>RB information to release	MP		RB		REL-6
			information		
			to release		
			10.3.4.19		

** 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

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
Message Type	MP		Message Type	•	
UE Information Elements			1 7 7 7		
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.36		
Integrity check info	СН		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	Should not be set in FDD. If received The UE should ignore it	
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		

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
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					
Signalling RB information to setup list	OP	1 to <maxsrbs etup></maxsrbs 		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></maxrabs 		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></maxrb>			
>RB information to be affected	MP		RB information to be affected 10.3.4.17		
Downlink counter synchronisation info	ОР		10.5.4.17		
>RB with PDCP information list	OP	1 to <maxrball RABs></maxrball 			
>>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 ></maxtrch 			
>Deleted UL TrCH information	MP		Deleted UL TrCH information 10.3.5.5		
Added or Reconfigured TrCH	OP	1 to			

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
information list		<maxtrch< td=""><td></td><td>•</td><td></td></maxtrch<>		•	
>Added or Reconfigured UL TrCH information	MP		Added or Reconfigure d UL TrCH information 10.3.5.2		
CHOICE mode	OP				
>FDD >>CPCH set ID	OP		CPCH set ID		
>>Or Orr sectio	Oi		10.3.5.3		
>>Added or Reconfigured TrCH information for DRAC list	OP	1 to <maxtrch ></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 channels10. 3.5.6		
Deleted TrCH information list	OP	1 to <maxtrch ></maxtrch 			
>Deleted DL TrCH information	MP		Deleted DL TrCH information 10.3.5.4		
Added or Reconfigured TrCH information list	OP	1 to <maxtrch ></maxtrch 			
>Added or Reconfigured DL TrCH information	MP		Added or Reconfigure d 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 channel requirement	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 mode	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></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 ***

10.2.50 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

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	СН		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	

52

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
	1			SRNS relocation	
Ciphering mode info	OP		Ciphering	The UTRAN	
			mode info	should not include	
			10.3.3.5	this IE unless it is	
				performing an	
				SRNS relocation	
				and a change in	
				ciphering	
A stirretion times	MD		A ativeation	algorithm	
Activation time	MD		Activation	Default value is	
N. H. DAIT	0.0		time 10.3.3.1	"now"	
New U-RNTI	OP		U-RNTI		
	1		10.3.3.47		
New C-RNTI	OP		C-RNTI		
			10.3.3.8		
New DSCH-RNTI	OP		DSCH-RNTI	Should not be set	
			10.3.3.9a	in FDD. If	
				received The UE	
				should ignore it	
New H-RNTI	OP		H-RNTI		REL-5
	<u>1 </u>	<u> </u>	10.3.3.14a		<u> </u>
New E-RNTI	OP		E-RNTI		REL-6
	1		10.3.3.10a		
RRC State Indicator	MP		RRC State		
			Indicator		
			10.3.3.35a		
UTRAN DRX cycle length	OP		UTRAN DRX		
coefficient			cycle length		
Coemcient			coefficient		
			10.3.3.49		
CN Information Elements			10.0.0.40		
CN Information info	OP		CN		
CN IIIIOIIIIalioii IIIIO	OF		Information		
			info 10.3.1.3		
UTRAN mobility information	+		11110 10.3.1.3		
elements					
	OP		LIDA idoptitu		
URA identity	UP		URA identity		
DD information alements			10.3.2.6		
RB information elements	0.0				
Downlink counter	OP				
synchronisation info					
>RB with PDCP information list	OP	1 to			
		<maxrball< td=""><td></td><td></td><td></td></maxrball<>			
		RABs>			
>>RB with PDCP information	MP		RB with	This IE is needed	
	1		PDCP	for each RB	
	1		information	having PDCP in	
	1		10.3.4.22	the case of	
	1			lossless SRNS	
	1	<u> </u>		relocation	
					REL-5
	OP		<u> </u>		
>>PDCP context relocation info	OP OP		PDCP	This IE is needed	REL-5
>>PDCP context relocation info			PDCP context	This IE is needed for each RB	
>>PDCP context relocation info				for each RB	
>>PDCP context relocation info			context	for each RB having PDCP and	
>>PDCP context relocation info			context relocation	for each RB	
>>PDCP context relocation info TrCH Information Elements			context relocation info	for each RB having PDCP and performing PDCP	
TrCH Information Elements			context relocation info	for each RB having PDCP and performing PDCP	
TrCH Information Elements Uplink transport channels	OP		context relocation info 10.3.4.1a	for each RB having PDCP and performing PDCP	
TrCH Information Elements Uplink transport channels UL Transport channel			context relocation info 10.3.4.1a UL Transport	for each RB having PDCP and performing PDCP	
TrCH Information Elements Uplink transport channels UL Transport channel information common for all	OP		context relocation info 10.3.4.1a UL Transport channel	for each RB having PDCP and performing PDCP	
TrCH Information Elements Uplink transport channels UL Transport channel	OP		context relocation info 10.3.4.1a UL Transport channel information	for each RB having PDCP and performing PDCP	
TrCH Information Elements Uplink transport channels UL Transport channel information common for all	OP		context relocation info 10.3.4.1a UL Transport channel information common for	for each RB having PDCP and performing PDCP	
TrCH Information Elements Uplink transport channels UL Transport channel information common for all	OP		context relocation info 10.3.4.1a UL Transport channel information	for each RB having PDCP and performing PDCP	

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
Added or Reconfigured TrCH information list	OP	1 to <maxtrch< td=""><td></td><td></td><td></td></maxtrch<>			
>Added or Reconfigured UL TrCH information	MP		Added or Reconfigure d UL TrCH information 10.3.5.2		
CHOICE mode	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 ></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< td=""><td></td><td></td><td></td></maxtrch<>			
>Added or Reconfigured DL TrCH information	MP		Added or Reconfigure d 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 channel requirement	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 mode	MP				
CHOICE mode >FDD	WIE				
>>Downlink PDSCH information	OP		Downlink PDSCH information 40.3.6.30		
Downlink HS-PDSCH Information	OP		Downlink HS-PDSCH Information 10.3.6.23a	(no data)	REL-5

Information Element/Group	Need	Multi	Type and	Semantics	Version
name			reference	description	
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></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

10.3.3.9a DSCH-RNTI

In FDD, the DSCH RNTI identifies a UE in CELL_DCH using a DSCH within a cell. In TDD, the DSCH-RNTI identifies a UE in CELL_DCH or CELL_FACH using a DSCH or USCH within the cell.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
DSCH-RNTI	MP		bit string(16)	

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- fdd_req_su p				
>Max no DPCH/ PDSCH codes	MP		Integer (18)	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,	Maximum number of physical channel bits received in any 10 ms interval (DPCH, PDSCH, S-CCPCH)	

Information Element/Group name	Need	Multi	Type and Reference 76800)	Semantics description	Version
>Support for SF 512	MP		Boolean	TRUE means supported	
>Support of PDSCH	MP		Boolean	TRUE means supported	
>CHOICE Support of HS- PDSCH	CV- not_iRAT_ HoInfo				REL-5
>>Supported					REL-5
>>>HS-DSCH physical layer category	MP		Integer (164)		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 (114)		
>Maximum number of physical channels per frame	MP		Integer (5224)		
>Minimum SF	MP		Integer (1, 16)		
>Support of PDSCH	MP		Boolean	TRUE means supported	
>CHOICE Support of HS- PDSCH	CV- not_iRAT_ HoInfo				REL-5
>>Supported					REL-5
>>>HS-DSCH physical layer category	MP		Integer (164)		REL-5
>>Unsupported >Maximum number of physical	MP		Integer	(no data)	REL-5

Information Element/Group name	Need	Multi	Type and Reference	Semantics description	Version
channels per timeslot			(516)		
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 (16)		REL-4
>Maximum number of physical channels per subframe	MP		Integer (196)		REL-4
>Minimum SF	MP		Integer (1, 16)		REL-4
>Support of PDSCH	MP		Boolean	TRUE means supported	REL-4
>CHOICE Support of HS- PDSCH	CV- not_iRAT_ HoInfo				REL-5
>>Supported					REL-5
>>>HS-DSCH physical layer	MP		Integer		REL-5
category			(164)		
>>Unsupported				(no data)	REL-5
>Maximum number of physical	MP		Integer		REL-4
channels per timeslot >Support of 8PSK	MP		(116) Boolean	TRUE means supported	REL-4
Uplink physical channel capability information elements				Сирропои	
FDD uplink physical channel	CH-				
capability	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 up				Name changed in REL-4
>Maximum Number of timeslots per frame	MP		Integer (114)		
>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- 1.28_Mcps _tdd_req_s up				REL-4
>Maximum Number of timeslots per subframe	МР		Integer (16)		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

Information Element/Group name	Need	Multi	Type and Reference	Semantics description	Version
>Support of 8PSK	MP		Boolean	TRUE means supported	REL-4

Condition	Explanation
if_sim_rec_pdsch_sup	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.
if_sim_rec	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.
3.84_Mcps_tdd_req_sup	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.
1.28_Mcps_tdd_req_sup	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.
fdd_req_sup	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.
not_iRAT_HoInfo	The CHOICE Support of HS-PDSCH 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 <maxrbm uxOptions></maxrbm 		·	
>RLC logical channel mapping indicator	CV-UL- RLCLogica IChannels		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	CV-UL-	1 to		1 or 2 logical	

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
channels	RLC info	MaxLoCHp erRLC		channels per RLC entity or radio bearer RLC [16]	
>>Uplink transport channel type	MP		Enumerated(DCH,RACH, CPCH,USC H	CPCH is FDD only USCH is TDD only	
OLIOLOF Haliah tuanan art			, E-DCH)	Note 2	REL-6
>>CHOICE Uplink transport channel type >>>DCH, RACH, CPCH, USCH					REL-6
>>>ULTransport channel	CV-UL-		Transport	This is the ID of a	IXEE 0
identity	DCH/USC H		channel identity 10.3.5.18	DCH or USCH (TDD only) that this RB could be mapped onto.	
>>>Logical channel identity	OP		Integer(115	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 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></maxtf>		Lists the RLC sizes that are valid for the logical channel.	
>>>>RLC size index	MP		Integer(1m axTF)	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	MD	-	E DOL!		REL-6
>>>E-DCH MAC-d flow identity	MP		E-DCH MAC-d flow identity 10.3.5.7e		REL-6
>>>DDI	MP		Integer (062)	If more than 1 UL RLC PDU size is configured for this RB, the different sizes will use subsequent DDI	REL-6

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
				values starting from this DDI value. Value "0x3F" is reserved	
>>>>RLC PDU size list	MP	1 to <maxrlc PDUsizeP erLogChan</maxrlc 			REL-6
>>>>RLC PDU size	MP		Integer(165 000 by step of 8)	Unit is bits	REL-6
>>MAC logical channel priority	MP		Integer(18)	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 MaxLoCHp erRLC		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 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	Note 3	
			, 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(115	16 is reserved	

Information Element/Group		Need	Multi	Type and	Semantics	Version	
	name			reference	description		
Note 1:	e 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 transpor	channel type	" value E-DCH	is not used in th	ne RRC CONNECTIO	N SETUP	
	message.						
Note 3:	The IE "Downlink trans	ort channel ty	/pe" values " C	SCH" and "DCH	H+DSCH " should not	be used	
	for FDD. If received the	UE behaviou	r is unspecified	<u>d.</u>			

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 **

10.3.5.1 Added or Reconfigured DL TrCH information

Information Element/Group	Need	Multi	Type and	Semantics	Version
name			reference	description	
Downlink transport channel type	MP		Enumerated(DCH,DSCH	Note 2	
			,HS-DSCH)	Note 1	REL-5
DL Transport channel identity	MP		Transport channel identity 10.3.5.18		
	CV-not HS-DSCH				REL-5
CHOICE DL parameters					
>Explicit					
>>TFS	MP		Transport Format Set 10.3.5.23		
>SameAsUL					

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
>>Uplink transport channel type	MP		Enumerated(DCH,USCH)	USCH is TDD only	
>>UL TrCH identity	MP		Transport channel identity 10.3.5.18	Same TFS applies as specified for indicated UL TrCH	
>HS-DSCH				Note 1	REL-5
>>HARQ Info	OP		HARQ info 10.3.5.7a		REL-5
>>Added or reconfigured MAC-d flow	OP		Added or reconfigured MAC-d flow 10.3.5.1a		REL-5
DCH quality target	OP		Quality target 10.3.5.10		
Note 1: The IE "Downlink transport channel type" value "HS-DSCH" is not used in the RRC CONNECTION SETUP message, nor is the CHOICE <i>DL parameters</i> = "HS-DSCH".					
Note 2: The IE "Downlink trans the UE behaviour is un	port channel ty				received

Condition	Explanation		
NotHS-DSCH	If the downlink transport channel type is DCH or		
	DSCH then this IE is mandatory otherwise it is not		
	needed.		

*** Next modified section ****

10.3.5.4 Deleted DL TrCH information

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
Downlink transport channel type	MP		Enumerated(DCH,DSCH	Note 1	
			,HS-DSCH)		REL-5
DL Transport channel identity	MP		Transport channel identity 10.3.5.18		
	CV-notHS- DSCH				REL-5
DL HS-DSCH MAC-d flow identity	CV-HS- DSCH		MAC-d flow identity 10.3.5.7c		REL-5

Note 1: The IE "Downlink transport channel type" value " DSCH " should not be used for FDD. If received the UE behaviour is unspecified.

Condition	Explanation
NotHS-DSCH	If the downlink transport channel type is DCH or DSCH then this IE is mandatory otherwise it is not
	needed.
HS-DSCH	If the downlink transport channel type is HSDSCH
	then this IE is mandatory otherwise it is not needed.

*** Next modified section ****

10.3.5.12 TFCI Field 2 Information Void

This IE is used for signalling the mapping between TFCI (field 2) values and the corresponding TFC.

Information Element/Group	Need	Multi	IE type and	Semantics description
name			reference	
CHOICE Signalling method	MP			
>TFCI range				
>>TFCI(field 2) range	MP	1 to		
		<maxpds< td=""><td></td><td></td></maxpds<>		
		CH-		
		TFCIgroup		
		S>		
>>>Max TFCI(field2) value	MP		Integer(110	This is the Maximum value in
, ,			23)	the range of TFCI(field2)
			,	values for which the specified
				CTFC(field2) applies
>>>TFCS Information for DSCH	MP		TFCS	
(TFCI range method)			Information	
			for DSCH	
			(TFCI range	
			method)	
			10.3.5.14	
>Explicit				
>>TFCS explicit configuration	MP		TFCS	
			explicit	
			configuration	
			10.3.5.13	

10.3.5.13 TFCS Explicit Configuration

Information Element/Group	Need	Multi	IE type and	Semantics description
name			reference	
CHOICE TFCS representation	MP			
>Complete reconfiguration				
>>TFCS complete	MP		TFCS	
reconfiguration information			Reconfigurat	
			ion/Addition	
			information	
			10.3.5.15	
>Addition				
>>TFCS addition information	MP		TFCS	
			Reconfigurat	
			ion/Addition	
			information	
			10.3.5.15	
>Removal				
>>TFCS removal information	MP		TFCS	
			Removal	
			Information	
			10.3.5.16	
>Replace				
>>TFCS removal information	MP		TFCS	
			Removal	
			Information	
TEOD IIII : (:	MD		10.3.5.16	
>>TFCS addition information	MP		TFCS	
			Reconfigurat	
			ion/Addition	
			information	
			10.3.5.15	

10.3.5.14 TFCS Information for DSCH (TFCI range method) Void

Information Element/Group	Need	Multi	IE type and	Semantics description
name			reference	
CHOICE CTFC Size	MP			
>2 bit CTFC				
>>2bit CTFC	MP		Integer(03)	
>4 bit CTFC				
>>4bit CTFC	MP		Integer(015	
)	
>6 bit CTFC				
>>6 bit CTFC	MP		Integer(063	
)	
>8 bit CTFC				
>>8 bit CTFC	MP		Integer(025	
			5)	
>12 bit CTFC				
>>12 bit CTFC	MP		Integer(040	
			95)	
>16 bit CTFC				
>>16 bit CTFC	MP		Integer(065	
			535)	
>24 bit CTFC				
>>24 bit CTFC	MP		Integer(016	·
			777215)	

**** Next modified section ***

10.3.5.20 Transport Format Combination Set

Indicates the allowed combinations of already defined Transport formats and the mapping between these allowed TFCs and the corresponding TFCI values.

For TDD, different coded composite transport channels have independent transport format combination sets and thus independent TFCI values.

For FDD, Where the UE is assigned access to one or more DSCH transport channels, a TFCI(field2) is used to signal the transport format combination for the DSCH. The following two cases exist:

Case 1

Using one TFCI word on the physical layer. A logical split determines the available number of transport format combinations for DCH and DSCH.

Case 2:

Using split TFCI on the physical layer. Two TFCI words, TFCI (field1) and TFCI (field2), are used and they are block coded separately.

Information Element/Group name	Need	Multi	IE type and reference	Semantics description
CHOICE TFCI signalling	MP			'Normal': meaning no split in the TFCI field (either 'Logical' or 'Hard') 'Split': meaning there is a split in the TFCI field (either 'Logical' or 'Hard'). This value is only valid for FDD downlink when using DSCH.
>Normal				
→TFCI Field 1 Information	MP		TFCS explicit Configuratio n 10.3.5.13	
>Split				
>> Split type	OP		Enumerated ('Hard', 'Logical')	'Hard': meaning that TFCI (field 1) and TFCI (field 2) are block coded separately. 'Logical': meaning that on the physical layer TFCI (field 1) and TFCI (field 2) are concatenated, field 1 taking the most significant bits and field 2 taking the least significant bits). The whole is then encoded with a single block code.
>>Length of TFCI(field2)	OP		Integer (110)	This IE indicates the length measured in number of bits of TFCI(field2)
>>TFCI Field 1 Information	OP		TFCS explicit Configuratio n 10.3.5.13	
>>TFCI Field 2 Information	OP		TFCI field 2 information 10.3.5.12	

CHOICE TFCI signalling	Condition under which TFCI signalling type is
	chosen
Normal	It is chosen when no split in the TFCI field.
Split	It is chosen when split in the TFCI field. This value is enly valid for FDD downlink when using DSCH.

*** Next modified section ****

10.3.6.27 Downlink information for each radio link

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
Choice mode	MP				
>FDD					
>>Primary CPICH info	MP		Primary CPICH info 10.3.6.60		
>>Cell ID	OP		Cell ID 10.3.2.2		REL-4

DECOME ME ONO DOMEST					1
>>PDSCH with SHO DCH Info	OP		PDSCH with		
			SHO DCH		
			Info		
			10.3.6.47		
>>PDSCH code mapping	OP		PDSCH		
			code		
			mapping		
			10.3.6.43		
>>Serving HS-DSCH radio link	CV-		Boolean	The value "TRUE"	REL-5
indicator	not_rrcCon			indicates that this	
	nectionSet			radio link is the	
	ир			serving HS-DSCH	
	ap			radio link	
>> Serving E-DCH radio link	CV-		Boolean	The value "TRUE"	REL-6
Serving L-Dorrhadio link	not_rrcCon		Doolean	indicates that this	INLL-0
	nectionSet			radio link is the	
	ир			serving E-DCH	
T0.0				radio link	
>TDD			.		
>>Primary CCPCH info	MP		Primary		
			CCPCH info		
			10.3.6.57		
CHOICE DPCH info	OP				REL-6
>Downlink DPCH info for each	MP		Downlink		
RL			DPCH info		
			for each RL		
			10.3.6.21		
>Downlink F-DPCH info for each	MP		Downlink F-		REL-6
RL			DPCH info		
			for each RL		
			10.3.6.23ob		
SCCPCH Information for FACH	OP		SCCPCH		1
2221 311 111011110111011101117011]		Information		
			for FACH		
			10.3.6.70		
E-AGCH Info	CV-		E-AGCH Info		REL-6
E-AGCH IIIIU					VET-0
	not_rrcCon		10.3.6.100		
	nectionSet				
	up				DEL 0
E-HICH Information	CV-		E-HICH Info		REL-6
	not_rrcCon		10.3.6.101		
	nectionSet				
	ир				
E-RGCH Information	CV-		E-RGCH		REL-6
	not_rrcCon		Info		
	nectionSet		10.3.6.102		
	ир				
	-7-	I .		l	ı

Condition	Explanation
not_rrcConnectionSetup	This IE is not needed in the RRC CONNECTION
	SETUP message. Otherwise it is mandatory present.

Next modified section ***

10.3.6.30 Downlink PDSCH information Void

NOTE: Only for FDD.

Information Element/Group	Need	Multi	Type and	Semantics description
name			reference	
PDSCH with SHO DCH Info	OP		PDSCH with	
			SHO DCH	
			Info	
			10.3.6.47	
PDSCH code mapping	OP		PDSCH	
			code	
			mapping	
			10.3.6.43	

10.3.6.31 Downlink rate matching restriction information

This IE indicates which TrCH is restricted in TFI.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
			reference	
Restricted TrCH information	OP	1 to		
		<maxtrch< td=""><td></td><td></td></maxtrch<>		
		>		
>Downlink transport channel	MP		Enumerated(
type			DCH ,DSCH)	
>Restricted DL TrCH identity	MP		Transport	
>1Cotholog DE 11O11 Identity	1411		channel	
			identity	
			10.3.5.18	
>Allowed TFIs	MP	1 to		
		<maxtf></maxtf>		
>>Allowed TFI	MP		Integer(031	
)	

*** Next modified section **

10.3.6.43 PDSCH code mapping Void

NOTE: Only for FDD.

This IE indicates the association between each possible value of TFCI(field 2) and the corresponding PDSCH channelisation code(s). The following signalling methods are specified:

- 'code range': the mapping is described in terms of a number of groups, each group associated with a given spreading factor;
- 'TFCI range': the mapping is described in terms of a number of groups, each group corresponding to a given PDSCH channelisation code;
- 'Explicit': the mapping between TFCI(field 2) value and PDSCH channelisation code is spelt out explicitly for each value of TFCI (field2);
- 'Removal': replace individual entries in the TFCI(field 2) to PDSCH code mapping table with new PDSCH code values.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
DL Scrambling Code	MD		Secondary scrambling code 10.3.6.74	Scrambling code on which PDSCH is transmitted. Default is the same scrambling code as for the Primary CPICH
Choice signalling method	MP			

Information Element/Group name	Need	Multi	Type and reference	Semantics description
>code range				
>>PDSCH code mapping	MP	1-to < maxPDSC H- TFClgroup s->		
>>>Spreading factor	MP		Integer(4, 8, 16, 32, 64, 128, 256)	
>>>multi-code info	MP		Integer(116	
>>>Code number (for PDSCH code) start	MP		Integer(0Sp reading factor-1)	
>>>Code number (for PDSCH code) stop	MP		Integer(0Sp reading factor-1)	
>TFCI range				
>>DSCH mapping	MP	1-to < maxPDSC H- TFClgroup S->		
>>>Max TFCI(field2) value	MP		Integer(110 23)	This is the maximum value in the range of TFCI(field 2) values for which the specified PDSCH code applies
>>>Spreading factor (for PDSCH code)	MP		Integer(4, 8, 16, 32, 64, 128, 256)	
>>>Code number (for PDSCH code)	MP		Integer(0Sp reading factor-1)	
>>>multi-code info	MP		Integer(116	
>Explicit				
>>PDSCH code info	MP	1-to < maxTFCI- 2-Combs >		The first instance of the parameter PDSCH code corresponds to TFCI (field2) = 0, the second to TFCI(field 2) = 1 and so on.
>>>Spreading factor (for PDSCH-code)	MP		Integer(4, 8, 16, 32, 64, 128, 256)	
>>>Code number (for PDSCH code)	MP		Integer(0Sp reading factor-1)	
>>>multi-code info	MP		Integer(116	
>Replace				This choice is made if the PDSCH code(s) associated with a given value of TFCI(field 2) is to be replaced.
>>Replaced PDSCH code	MP	1-to-< maxTFCI- 2-Combs >		Identity of the PDSCH code(s) to be used for the specified value of TFCI(field 2). These code identity(s) replace any that had been specified before
>>>TFCI (field 2)	MP		Integer (01023)	Value of TFCI(field 2) for which PDSCH code mapping will be changed
>>>Spreading factor (for PDSCH code)	MP		Integer(4, 8, 16, 32, 64, 128, 256)	
>>>Code number (for PDSCH	MP		Integer(0Sp	

Information Element/Group	Need	Multi	Type and	Semantics description
name			reference	
code)			reading	
			factor-1)	
>>>multi-code info	MP		Integer(116	
			1 ,	

**** Next modified section ****

10.3.6.47 PDSCH with SHO DCH Info Void

NOTE: Only for FDD

Information Element/Group name	Need	Multi	Type and reference	Semantics description
DSCH radio link identifier	MP		Primary CPICH info 10.3.6.60	This parameter indicates on which radio link the user will be allocated resource on the DSCH.
TFCI(field2) Combining set	OP	1-te <maxrl></maxrl>		This is used to indicate which of the downlink TFCI(field 2) transmissions made on the DPCCHs within the active set should be soft combined on the physical layer. This parameter may only be sent if there is a 'hard' split of the TFCI field and in this case the sending of the parameter is optional.
>Radio link identifier	MP		Primary CPICH info 10.3.6.60	

10.3.6.68 Radio link addition information

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
Primary CPICH info	MP		Primary CPICH info 10.3.6.60		
Cell ID	OP		Cell ID 10.3.2.2		REL-4
CHOICE DPCH info	MP				REL-6
>Downlink DPCH info for each RL	MP		Downlink DPCH info for each RL 10.3.6.21		
>Downlink F-DPCH info for each RL	MP		Downlink F- F-DPCH info for each RL 10.3.6.23ob		REL-6
TFCI combining indicator	MP		TFCI combining indicator 10.3.6.81		
SCCPCH Information for FACH	OP		SCCPCH Information for FACH 10.3.6.70	Note 1	

NOTE 1: These IEs are present when the UE needs to listen to system information on FACH in CELL_DCH state.

*** Next modified section ****

10.3.6.81 TFCI Combining Indicator Void

NOTE: Only for FDD.

This IE indicates whether the TFCI (field 2), which will be transmitted on the DPCCH of a newly added radio link, should be soft combined with the others in the TFCI (field 2) combining set. This IE is relevant only when the UE is in CELL_DCH state with a DSCH transport channel assigned and when there is a 'hard' split in the TFCI field (such that TFCI1 and TFCI2 have their own separate block coding).

Information Element/Group	Need	Multi	Type and	Semantics description
name			reference	
TFCI combining indicator	MP		Boolean	TRUE means that TFCI is
_				combined, FALSE means that
				TFCI is not combined or that
				this IE is not applicable to the
				added radio link.

The Next Hoursed 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
CN information			
maxCNdomains	Maximum number of CN domains	4	
UTRAN mobility			
information			
maxRAT	Maximum number or Radio Access Technologies	maxOtherRAT + 1	
maxOtherRAT	Maximum number or other Radio Access	15	
	Technologies		
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	
UE information			
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
RB information			
maxPredefConfig	Maximum number of predefined configurations	16	
maxRB	Maximum number of RBs	32	
maxSRBsetup	Maximum number of signalling RBs to be	8	

Constant	Explanation	Value	Version
	established		
maxRBperRAB	Maximum number of RBs per RAB	8	
maxRBallRABs	Maximum number of non signalling RBs	27	DELO
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		
maxRLCPDUsizePerLogCha n	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	
maxRFC 3095-CID	Maximum number of available CID values per radio bearer	16384	REL-5
TrCH information			
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	
maxTF-CPCH	Maximum number of TFs in a CPCH set	16	
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	
maxCPCHsets	Maximum number of CPCH sets per cell	16	
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	
PhyCH information			
maxHSSCCHs	Maximum number of HSSCCH codes that can be assigned to a UE	4	REL-5
maxPCPCH-APsubCH	Maximum number of available sub-channels for AP signature on PCPCH	12	
maxPCPCH-CDsubCH	Maximum number of available sub-channels for CD signature on PCPCH	12	
maxPCPCH-APsig	Maximum number of available signatures for AP on PCPCH	16	
maxPCPCH-CDsig	Maximum number of available signatures for CD on PCPCH	16	
maxAC	Maximum number of access classes	16	1
maxASC	Maximum number of access service classes	8	1
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	

Constant	Explanation	Value	Version
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	11220
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-TFClgroups	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)	
		6 (1.28 Mcps TDD)	REL-4
hiPUSCHidentities	Maximum number of PUSCH Identities	64	
hiPDSCHidentities	Maximum number of PDSCH Identities	64	
Measurement information			
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	
Frequency information			
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	
Other information			1
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	8	

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Constant	Explanation	Value	Version
	store		
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
MBMS information			
maxMBMS- CommonCCTrCh	Maximum number of CCTrCh configurations included in the MBMS COMMON P-T-M RB INFORMATION message	32	REL-6
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

11.1 General message structure

Class-definitions DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

ActiveSetUpdate,
ActiveSetUpdateComplete,
ActiveSetUpdateFailure,
AssistanceDataDelivery,
CellChangeOrderFromUTRAN,
CellChangeOrderFromUTRANFailure,
CellUpdate,
CellUpdateConfirm-CCCH,
CellUpdateConfirm,
CounterCheck,
CounterCheckResponse,

```
DownlinkDirectTransfer,
   HandoverToUTRANComplete,
   InitialDirectTransfer,
   HandoverFromUTRANCommand-GERANIu,
   HandoverFromUTRANCommand-GSM,
   HandoverFromUTRANCommand-CDMA2000,
   HandoverFromUTRANFailure,
   MBMSAccessInformation,
   MBMSCommonPTMRBInformation,
   {\tt MBMSCurrentCellPTMRBInformation,}
   MBMSGeneralInformation,
   MBMSModificationRequest,
   MBMSModifiedServicesInformation,
   MBMSNeighbouringCellPTMRBInformation,
   MBMSSchedulingInformation,
   {\tt MBMSUnmodifiedServicesInformation,}
   MeasurementControl,
   MeasurementControlFailure,
   MeasurementReport,
   PagingType1,
   PagingType2,
   PhysicalChannelReconfiguration,
   {\tt Physical Channel Reconfiguration Complete,}
   PhysicalChannelReconfigurationFailure,
   PhysicalSharedChannelAllocation,
   PUSCHCapacityRequest,
   RadioBearerReconfiguration,
   RadioBearerReconfigurationComplete,
   RadioBearerReconfigurationFailure,
   RadioBearerRelease,
   RadioBearerReleaseComplete,
   RadioBearerReleaseFailure,
   RadioBearerSetup,
   RadioBearerSetupComplete,
   RadioBearerSetupFailure,
   RRCConnectionReject,
   RRCConnectionRelease,
   RRCConnectionRelease-CCCH,
   RRCConnectionReleaseComplete,
   RRCConnectionRequest,
   RRCConnectionSetup,
   {\tt RRCConnectionSetupComplete},\\
   RRCStatus,
   SecurityModeCommand,
   SecurityModeComplete,
   SecurityModeFailure,
   SignallingConnectionRelease,
   SignallingConnectionReleaseIndication,
   SystemInformation-BCH,
   SystemInformation-FACH,
   SystemInformationChangeIndication,
   TransportChannelReconfiguration,
   {\tt TransportChannelReconfigurationComplete,}
   TransportChannelReconfigurationFailure,
   TransportFormatCombinationControl,
   {\tt TransportFormatCombinationControlFailure}\,,
   UECapabilityEnquiry,
   UECapabilityInformation,
   UECapabilityInformationConfirm,
   UplinkDirectTransfer,
   UplinkPhysicalChannelControl,
   URAUpdate,
   URAUpdateConfirm,
   URAUpdateConfirm-CCCH,
   UTRANMobilityInformation,
   UTRANMobilityInformationConfirm,
   UTRANMobilityInformationFailure
FROM PDU-definitions
-- User Equipment IEs :
   IntegrityCheckInfo
FROM InformationElements;
__********************
-- Downlink DCCH messages
__*********************
```

```
DL-DCCH-Message ::= SEQUENCE {
                           IntegrityCheckInfo
                                                   OPTIONAL,
   integrityCheckInfo
   message
                           DL-DCCH-MessageType
DL-DCCH-MessageType ::= CHOICE {
                                       ActiveSetUpdate,
   activeSetUpdate
   assistanceDataDelivery
                                       AssistanceDataDelivery,
   {\tt cellChangeOrderFromUTRAN}
                                       CellChangeOrderFromUTRAN,
   cellUpdateConfirm
                                       CellUpdateConfirm,
   counterCheck
                                       CounterCheck,
   downlinkDirectTransfer
                                       DownlinkDirectTransfer,
   handoverFromUTRANCommand-GSM
                                       HandoverFromUTRANCommand-GSM,
   handoverFromUTRANCommand-CDMA2000
                                       HandoverFromUTRANCommand-CDMA2000,
   measurementControl
                                       MeasurementControl,
   pagingType2
                                       PagingType2,
   physicalChannelReconfiguration
                                       PhysicalChannelReconfiguration,
   physicalSharedChannelAllocation
                                       PhysicalSharedChannelAllocation,
   radioBearerReconfiguration
                                       RadioBearerReconfiguration,
   radioBearerRelease
                                       RadioBearerRelease,
   radioBearerSetup
                                       RadioBearerSetup,
   rrcConnectionRelease
                                       RRCConnectionRelease,
   securityModeCommand
                                       SecurityModeCommand,
   signallingConnectionRelease
                                       SignallingConnectionRelease,
   transportChannelReconfiguration
                                       TransportChannelReconfiguration,
   transportFormatCombinationControl
                                       TransportFormatCombinationControl,
   ueCapabilityEnquiry
                                       UECapabilityEnquiry,
   ueCapabilityInformationConfirm
                                       UECapabilityInformationConfirm,
   uplinkPhysicalChannelControl
                                       UplinkPhysicalChannelControl,
   uraUpdateConfirm
                                       URAUpdateConfirm,
   {\tt utranMobilityInformation}
                                       UTRANMobilityInformation,
   handoverFromUTRANCommand-GERANIu
                                       HandoverFromUTRANCommand-GERANIu,
   {\tt mbmsModifiedServicesInformation}
                                       MBMSModifiedServicesInformation,
   spare5
                                       NULL,
   spare4
                                       NULL,
   spare3
                                       NULL,
   spare2
                                       NULL.
   spare1
                                       NULL
}
__*********************
-- Uplink DCCH messages
__*********************
UL-DCCH-Message ::= SEQUENCE {
   integrityCheckInfo
                           IntegrityCheckInfo
                                                   OPTIONAL,
   message
                           UL-DCCH-MessageType
}
UL-DCCH-MessageType ::= CHOICE {
   activeSetUpdateComplete
                                       ActiveSetUpdateComplete,
   activeSetUpdateFailure
                                       ActiveSetUpdateFailure,
   cellChangeOrderFromUTRANFailure
                                       CellChangeOrderFromUTRANFailure,
   {\tt counterCheckResponse}
                                       CounterCheckResponse,
   handoverToUTRANComplete
                                       HandoverToUTRANComplete
    initialDirectTransfer
                                       InitialDirectTransfer,
   handoverFromUTRANFailure
                                       HandoverFromUTRANFailure.
   measurementControlFailure
                                       MeasurementControlFailure,
   measurementReport
                                       MeasurementReport,
   physicalChannelReconfigurationComplete
                                       PhysicalChannelReconfigurationComplete,
   physicalChannelReconfigurationFailure
                                       PhysicalChannelReconfigurationFailure,
   radioBearerReconfigurationComplete
                                       RadioBearerReconfigurationComplete,
   radioBearerReconfigurationFailure
                                       RadioBearerReconfigurationFailure,
   radioBearerReleaseComplete
                                       RadioBearerReleaseComplete,
   radioBearerReleaseFailure
                                       RadioBearerReleaseFailure,
   radioBearerSetupComplete
                                       RadioBearerSetupComplete,
   radioBearerSetupFailure
                                       RadioBearerSetupFailure,
   rrcConnectionReleaseComplete
                                       RRCConnectionReleaseComplete,
   rrcConnectionSetupComplete
                                       RRCConnectionSetupComplete,
   rrcStatus
                                       RRCStatus,
   securityModeComplete
                                       SecurityModeComplete,
   securityModeFailure
                                       SecurityModeFailure,
   signallingConnectionReleaseIndication
```

```
{\tt SignallingConnectionReleaseIndication,}
   transportChannelReconfigurationComplete
                                   TransportChannelReconfigurationComplete,
   transportChannelReconfigurationFailure
                                   TransportChannelReconfigurationFailure,
   transport {\tt FormatCombinationControlFailure}
                                   TransportFormatCombinationControlFailure,
   UplinkDirectTransfer UplinkDirectTransfer, UplinkDirectTransfer, UtranMobilityInformationConfirm, UtranMobilityInformationFailure UTRANMobilityInformationFailure, mbmsModificationRequest Sparel
   spare1
}
__********************
-- Downlink CCCH messages
__*********************
DL-CCCH-Message ::= SEQUENCE {
   integrityCheckInfo IntegrityCheckInfo OPTIONAL, message DL-CCCH-MessageType
   message
}
DL-CCCH-MessageType ::= CHOICE {
  cellUpdateConfirm
                                  CellUpdateConfirm-CCCH,
   rrcConnectionReject
                                 RRCConnectionReject,
                              RRCConnectionRelease-CCCH,
   rrcConnectionRelease
   rrcConnectionSetup
                                  RRCConnectionSetup,
   uraUpdateConfirm
                                  URAUpdateConfirm-CCCH,
   spare3
                                   NULL,
   spare2
                                  NULL.
   spare1
                                   NULL
}
__********************
-- Uplink CCCH messages
__*********************
UL-CCCH-Message ::= SEQUENCE {
   integrityCheckInfo IntegrityCheckInfo
                        UL-CCCH-MessageType
   message
}
UL-CCCH-MessageType ::= CHOICE {
  cellUpdate
                                  CellUpdate,
                                  RRCConnectionRequest,
   rrcConnectionRequest
   uraUpdate
                                   URAUpdate,
                                   NULL
   spare
}
__*******************
-- PCCH messages
__*********************
PCCH-Message ::= SEQUENCE {
   message
               PCCH-MessageType
PCCH-MessageType ::= CHOICE {
   pagingType1
                                   PagingType1,
                                   NULL
   spare
}
__*****************
-- Downlink SHCCH messages
DL-SHCCH-Message ::= SEQUENCE {
                        DL-SHCCH-MessageType
   message
```

```
}
DL-SHCCH-MessageType ::= CHOICE {
                                  PhysicalSharedChannelAllocation,
   physicalSharedChannelAllocation
                                  NULL
}
__*******************
-- Uplink SHCCH messages
__**********************
UL-SHCCH-Message ::= SEQUENCE {
                       UL-SHCCH-MessageType
   message
}
UL-SHCCH-MessageType ::= CHOICE {
                                  PUSCHCapacityRequest,
  puschCapacityRequest
                                  NULL
   spare
}
__********************
-- BCCH messages sent on FACH
__**********************
BCCH-FACH-Message ::= SEQUENCE {
                    BCCH-FACH-MessageType
BCCH-FACH-MessageType ::= CHOICE {
   systemInformation
                                  SystemInformation-FACH,
   {\tt systemInformationChangeIndication} \qquad {\tt SystemInformationChangeIndication},
   spare2
                                  NULL,
   spare1
                                  NULL
}
__**********************
-- BCCH messages sent on BCH
__*********************
{\tt BCCH-BCH-Message} \; ::= \; {\tt SEQUENCE} \; \; \big\{
                   SystemInformation-BCH
__*****************
-- MCCH messages
__********************
MCCH-Message ::= SEQUENCE {
               MCCH-MessageType
   message
MCCH-MessageType ::= CHOICE {
   mbmsAccessInformation MBMSAccessInformation, mbmsCommonPTMRBInformation MBMSCommonPTMRBInformation,
   mbmsCurrentCellPTMRBInformation MBMSCurrentCellPTMRBInformation,
   {\tt mbmsGeneralInformation}
                                  MBMSGeneralInformation,
   mbmsModifiedServicesInformation
                                  MBMSModifiedServicesInformation,
   {\tt mbmsNeighbouringCellPTMRBInformation}
                                  MBMSNeighbouringCellPTMRBInformation,
   mbmsUnmodifiedServicesInformation MBMSUnmodifiedServicesInformation,
   spare9
                                  NULL,
   spare8
                                  NULL,
   spare7
                                  NULL,
   spare6
                                  NULL,
   spare5
                                  NULL,
   spare4
                                  NULL,
   spare3
                                  NULL,
                                  NULL.
   spare2
   spare1
                                  NULL
```

```
}
__*********************
-- MSCH messages
__**********************
MSCH-Message ::= SEQUENCE {
  message
             MSCH-MessageType
MSCH-MessageType ::= CHOICE {
   {\tt mbmsSchedulingInformation}
                             MBMSSchedulingInformation,
   spare3
                              NULL,
   spare2
                              NULL,
                              NITIT.
   spare1
}
END
```

11.2 PDU definitions

```
__**********************
-- TABULAR: The message type and integrity check info are not
-- visible in this module as they are defined in the class module. -- Also, all FDD/TDD specific choices have the FDD option first
\mbox{--} and TDD second, just for consistency.
__**********************
PDU-definitions DEFINITIONS AUTOMATIC TAGS ::=
BEGIN
__********************
-- IE parameter types from other modules
__**********************
IMPORTS
-- Core Network IEs :
   CN-DomainIdentity,
   CN-InformationInfo,
   CN-InformationInfoFull,
   NAS-Message,
   PagingRecordTypeID,
   PLMN-Identity,
-- UTRAN Mobility IEs :
   CellIdentity,
   CellIdentity-PerRL-List,
   URA-Identity,
-- User Equipment IEs :
   UE-RadioAccessCapabBandFDDList2,
   UE-RadioAccessCapabBandFDDList-ext,
   AccessStratumReleaseIndicator,
   ActivationTime,
   C-RNTI,
   CapabilityUpdateRequirement,
   CapabilityUpdateRequirement-r4,
   CapabilityUpdateRequirement-r4-ext,
   CapabilityUpdateRequirement-r5,
   CellUpdateCause,
   CellUpdateCause-ext,
   CipheringAlgorithm,
   CipheringModeInfo,
   DSCH-RNTI,
   E-RNTI,
   EstablishmentCause,
   FailureCauseWithProtErr,
   FailureCauseWithProtErrTrId,
   GroupReleaseInformation,
   H-RNTI.
   UESpecificBehaviourInformation1idle,
```

```
UESpecificBehaviourInformationlinterRAT,
   InitialUE-Identity,
   IntegrityProtActivationInfo,
   IntegrityProtectionModeInfo,
   N-308,
   PagingCause,
   PagingRecordList,
   PagingRecord2List-r5,
   ProtocolErrorIndicator,
   ProtocolErrorIndicatorWithMoreInfo,
   RadioFrequencyBandTDDList,
   Rb-timer-indicator,
   RedirectionInfo,
   RedirectionInfo-r6,
   RejectionCause,
   ReleaseCause,
   RF-CapabilityComp,
   RRC-StateIndicator,
   RRC-TransactionIdentifier,
   SecurityCapability,
   START-Value,
   STARTList,
   SystemSpecificCapUpdateReq-v590ext,
   U-RNTI,
   U-RNTI-Short,
   UE-RadioAccessCapability,
   UE-RadioAccessCapability-v370ext,
   UE-RadioAccessCapability-v380ext,
   UE-RadioAccessCapability-v3a0ext,
   UE-RadioAccessCapability-v3g0ext,
   UE-RadioAccessCapability-v4b0ext,
   UE-RadioAccessCapability-v590ext,
   UE-RadioAccessCapability-v5c0ext,
   UE-RadioAccessCapability-v650ext,
   UE-RadioAccessCapabilityComp,
   DL-PhysChCapabilityFDD-v380ext,
   UE-ConnTimersAndConstants,
   UE-ConnTimersAndConstants-v3a0ext,
   UE-ConnTimersAndConstants-r5,
   UE-SecurityInformation,
   URA-UpdateCause,
   UTRAN-DRX-CycleLengthCoefficient,
   WaitTime,
-- Radio Bearer IEs :
   DefaultConfigIdentity,
   DefaultConfigIdentity-r4,
   DefaultConfigIdentity-r5,
   DefaultConfigMode,
   DL-CounterSynchronisationInfo,
   DL-CounterSynchronisationInfo-r5,
   PredefinedConfigIdentity,
   PredefinedConfigStatusList
   PredefinedConfigStatusListComp,
   PredefinedConfigSetWithDifferentValueTag,
   RAB-Info,
   RAB-Info-Post,
   RAB-InformationList,
   RAB-InformationReconfigList,
   RAB-InformationSetupList,
   RAB-InformationSetupList-r4,
   RAB-InformationSetupList-r5,
   RAB-InformationSetupList-r6-ext,
   RAB-InformationSetupList-r6,
   RB-ActivationTimeInfoList,
   RB-COUNT-C-InformationList
   RB-COUNT-C-MSB-InformationList,
   RB-IdentityList,
   RB-InformationAffectedList,
   RB-InformationAffectedList-r5,
   RB-InformationAffectedList-r6,
   RB-InformationReconfigList,
   RB-InformationReconfigList-r4,
   RB-InformationReconfigList-r5,
   RB-InformationReconfigList-r6,
   RB-InformationReleaseList
   RB-PDCPContextRelocationList,
   SRB-InformationSetupList.
   SRB-InformationSetupList-r5,
```

```
SRB-InformationSetupList-r6,
   SRB-InformationSetupList2,
   UL-CounterSynchronisationInfo,
-- Transport Channel IEs:
   CPCH-SetID,
   DL-AddReconfTransChInfo2List,
   DL-AddReconfTransChInfoList,
   DL-AddReconfTransChInfoList-r4,
   DL-AddReconfTransChInfoList-r5,
   DL-CommonTransChInfo,
   DL-CommonTransChInfo-r4,
   DL-DeletedTransChInfoList,
   DL-DeletedTransChInfoList-r5,
   DRAC-StaticInformationList,
   TFC-Subset,
   TFCS-Identity,
   UL-AddReconfTransChInfoList,
   UL-AddReconfTransChInfoList-r6,
   UL-CommonTransChInfo,
   UL-CommonTransChInfo-r4,
   UL-DeletedTransChInfoList,
   UL-DeletedTransChInfoList-r6,
-- Physical Channel IEs :
   Alpha,
   BEACON-PL-Est .
   CCTrCH-PowerControlInfo,
   CCTrCH-PowerControlInfo-r4,
   CCTrCH-PowerControlInfo-r5,
   ConstantValue,
   ConstantValueTdd,
   CPCH-SetInfo,
   DL-CommonInformation,
   DL-CommonInformation-r4,
   DL-CommonInformation-r5,
   DL-CommonInformation-r6,
   DL-CommonInformationPost,
   DL-HSPDSCH-Information,
   DL-InformationPerRL-List,
   DL-InformationPerRL-List-r4,
   DL-InformationPerRL-List-r5,
   DL-InformationPerRL-List-r5bis,
   DL-InformationPerRL-List-r6,
   DL-InformationPerRL-ListPostFDD,
   DL-InformationPerRL-PostTDD,
   DL-InformationPerRL-PostTDD-LCR-r4,
   DL-PDSCH-Information,
   DL-TPC-PowerOffsetPerRL-List,
   DPC-Mode,
   DPCH-CompressedModeStatusInfo,
   FrequencyInfo,
   FrequencyInfoFDD,
   FrequencyInfoTDD,
   HARQ-Preamble-Mode,
   HS-SICH-Power-Control-Info-TDD384,
   MaxAllowedUL-TX-Power,
   OpenLoopPowerControl-IPDL-TDD-r4,
   PDSCH-CapacityAllocationInfo,
   PDSCH-CapacityAllocationInfo-r4,
   PDSCH-Identity,
   PrimaryCPICH-Info,
   PrimaryCCPCH-TX-Power,
   PUSCH-CapacityAllocationInfo,
   PUSCH-CapacityAllocationInfo-r4,
   PUSCH-Identity,
   PUSCH-SysInfoList-HCR-r5,
   PDSCH-SysInfoList-HCR-r5,
   RL-AdditionInformationList
   RL-AdditionInformationList-r6,
   RL-RemovalInformationList,
   SpecialBurstScheduling,
   SSDT-Information,
   SSDT-Information-r4,
   TFC-ControlDuration,
   SSDT-UL,
   TimeslotList,
   TimeslotList-r4,
   TX-DiversityMode,
   UL-ChannelRequirement,
```

```
UL-ChannelRequirement-r4,
   UL-ChannelRequirement-r5,
   UL-ChannelRequirement-r6,
   UL-ChannelRequirementWithCPCH-SetID,
   UL-ChannelRequirementWithCPCH-SetID-r4,
   UL-ChannelRequirementWithCPCH-SetID-r5,
   UL-ChannelRequirementWithCPCH-SetID-r6,
   UL-DPCH-Info,
   UL-DPCH-Info-r4,
   UL-DPCH-Info-r5,
   UL-DPCH-Info-r6,
   UL-DPCH-InfoPostFDD,
   UL-DPCH-InfoPostTDD,
   UL-DPCH-InfoPostTDD-LCR-r4,
   UL-EDCH-Information-r6,
   UL-SynchronisationParameters-r4,
   UL-TimingAdvance,
   UL-TimingAdvanceControl,
   UL-TimingAdvanceControl-r4,
-- Measurement IEs :
   AdditionalMeasurementID-List,
   DeltaRSCP,
   Frequency-Band,
   EventResults,
   Inter-FreqEventCriteriaList-v590ext,
   Intra-FreqEventCriteriaList-v590ext,
   IntraFreqReportingCriteria-1b-r5,
   IntraFreqEvent-1d-r5,
   InterFreqEventResults-LCR-r4-ext,
   InterRATCellInfoIndicator,
   InterRAT-TargetCellDescription,
   MeasuredResults,
   MeasuredResults-v390ext,
   MeasuredResults-v590ext,
   MeasuredResultsList,
   MeasuredResultsList-LCR-r4-ext,
   MeasuredResultsOnRACH,
   MeasurementCommand,
   MeasurementCommand-r4,
   MeasurementIdentity,
   MeasurementReportingMode,
   PrimaryCCPCH-RSCP,
   SFN-Offset-Validity
   TimeslotListWithISCP,
   TrafficVolumeMeasuredResultsList,
   UE-Positioning-GPS-AssistanceData,
   UE-Positioning-Measurement-v390ext
   UE-Positioning-OTDOA-AssistanceData,
   UE-Positioning-OTDOA-AssistanceData-r4ext,
   UE-Positioning-OTDOA-AssistanceData-UEB,
-- Other IEs :
   BCCH-ModificationInfo,
   CDMA2000-MessageList,
   GSM-TargetCellInfoList,
   GERANIu-MessageList,
   GERAN-SystemInformation,
   GSM-MessageList,
   InterRAT-ChangeFailureCause,
   InterRAT-HO-FailureCause,
   InterRAT-UE-RadioAccessCapabilityList,
   InterRAT-UE-RadioAccessCapability-v590ext,
   InterRAT-UE-SecurityCapList,
   IntraDomainNasNodeSelector
   ProtocolErrorMoreInformation,
   Rplmn-Information,
   Rplmn-Information-r4,
   SegCount,
   SegmentIndex,
   SFN-Prime,
   SIB-Data-fixed,
   SIB-Data-variable,
   SIB-Type,
-- MBMS IEs:
   MBMS-CellGroupIdentity-r6,
   MBMS-CommonRBInformationList-r6,
   MBMS-CurrentCell-SCCPCHList-r6,
   MBMS-JoinedInformation-r6,
   MBMS-MICHConfigurationInfo-r6,
   MBMS-ModifedServiceList-r6,
```

```
MBMS-MSCHConfigurationInfo-r6,
    MBMS-NeighbouringCellSCCPCHList-r6,
    MBMS-PhyChInformationList-r6,
    MBMS-PL-ServiceRestrictInfo-r6,
    MBMS-PreferredFreqRequest-r6,
    MBMS-PreferredFrequencyList-r6,
    MBMS-ServiceAccessInfoList-r6,
    MBMS-ServiceSchedulingInfoList-r6,
    MBMS-SIBType5-SCCPCHList-r6,
    MBMS-TimersAndCouneters-r6,
    MBMS-TranspChInfoForEachCCTrCh-r6,
    MBMS-TranspChInfoForEachTrCh-r6,
    {\tt MBMS-UnmodifiedServiceList-r6}
FROM InformationElements
    maxSIBperMsq,
    maxURNTI-Group
FROM Constant-definitions;
__ ***************
-- ACTIVE SET UPDATE (FDD only)
__ ***************
ActiveSetUpdate ::= CHOICE {
                                        SEQUENCE {
         -- Container for additional R99 extensions
             activeSetUpdate-r3-add-ext BIT STRING OPTIONAL,
v4b0NonCriticalExtensions SEQUENCE {
   activeSetUpdate-v4b0ext ActiveSetUpdate-v4b0ext-IEs,
   v590NonCriticalExtensions SEQUENCE {
   activeSetUpdate-v590ext ActiveSetUpdate-v590ext-IEs,
   v6xyNonCriticalExtensions SEQUENCE {
                          ACLIVESETUPDATE-v590ext-IEs,
SEQUENCE {
activeSetUpdate-v6xyext
nonCriticalExtensions
OPTIONAL
SEQUENCE {} OPTIONAL
                          OPTIONAL
                      OPTIONAL
             } OPTIONAL
         } OPTIONAL
    later-than-r3
                                         SEQUENCE {
        rrc-TransactionIdentifier RRC-TransactionIdentifier,
         criticalExtensions
                                            CHOICE {
                 activeSetUpdate-r6 ActiveS
nonCriticalExtensions SEQUENCE {
             rб
                                                     ActiveSetUpdate-r6-IEs,
                                                      SEQUENCE { } OPTIONAL
             criticalExtensions
                                                SEQUENCE {}
         }
    }
ActiveSetUpdate-r3-IEs ::= SEQUENCE {
     -- User equipment IEs
                                         RRC-TransactionIdentifier,
        rrc-TransactionIdentifier
         -- dummy and dummy2 are not used in this version of the specification, they should
         -- not be sent and if received they should be ignored.
                                        IntegrityProtectionModeInfo
                                                                                  OPTIONAL,
         dummy
         dummy2
                                         CipheringModeInfo
                                                                                  OPTIONAL,
         activationTime
                                            ActivationTime
                                                                                       OPTIONAL,
        newU-RNTI
                                             U-RNTI
                                                                                       OPTIONAL.
    -- Core network IEs
         cn-InformationInfo
                                             CN-InformationInfo
                                                                                       OPTIONAL.
    -- Radio bearer IEs
         -- dummy3 is not used in this version of the specification, it should
         -- not be sent and if received it should be ignored.
                                     DL-CounterSynchronisationInfo
                                                                               OPTIONAL,
        dummy3
    -- Physical channel IEs
        maxAllowedUL-TX-Power
        maxAllowedUL-TX-Power
rl-AdditionInformationList
rl-RemovalInformationList
tx-DiversityMode
ssdt-Information

MaxAllowedUL-TX-Power
RL-AdditionInformationList
RL-RemovalInformationList
TX-DiversityMode
SSDT-Information
                                             MaxAllowedUL-TX-Power
                                                                                      OPTIONAL,
                                                                                      OPTIONAL,
                                                                                     OPTIONAL,
                                                                                     OPTIONAL
}
```

```
ActiveSetUpdate-v4b0ext-IEs ::= SEQUENCE {
    -- Physical channel IEs
       -- ssdt-UL extends SSDT-Information. FDD only.
                                                                                 OPTIONAL,
        ssdt-UL-r4
                                            SSDT-UL
        -- The order of the RLs in IE cell-id-PerRL-List is the same as
        -- in IE RL-AdditionInformationList included in this message cell-id-PerRL-List CellIdentity-PerRL-List OPTIONAL
        cell-id-PerRL-List
}
ActiveSetUpdate-v590ext-IEs ::= SEQUENCE {
   -- Physical channel IEs
        dpc-Mode
                                            DPC-Mode.

    dpc-Mode
    DPC-Mode,

    dl-TPC-PowerOffsetPerRL-List
    DL-TPC-PowerOffsetPerRL-List
    OPTIONAL

}
ActiveSetUpdate-v6xyext-IEs ::= SEQUENCE {
    -- Core network IEs
        primary-plmn-Identity PLMN-Identity
                                                                           OPTIONAL
}
ActiveSetUpdate-r6-IEs ::= SEQUENCE {
    -- User equipment IEs
       activationTime
                                      ActivationTime
U-RNTI
                                                                             OPTIONAL,
       activationTime ActivationTime OPTIONAL, newU-RNTI U-RNTI OPTIONAL,
Core network IEs
cn-InformationInfo CN-InformationInfo OPTIONAL,
Physical channel IEs
maxAllowedUL-TX-Power MaxAllowedUL-TX-Power OPTIONAL,
rl-AdditionInformationList RL-AdditionInformationList-r6 OPTIONAL,
rl-RemovalInformationList RL-RemovalInformationList OPTIONAL,
tx-DiversityMode TX-DiversityMode OPTIONAL,
dpc-Mode DPC-Mode
    -- Core network IEs
    -- Physical channel IEs
        dpc-Mode
                                        DPC-Mode
}
__ **************
-- ACTIVE SET UPDATE COMPLETE (FDD only)
__ ****************
ActiveSetUpdateComplete ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier RRC-TransactionIdentifier,
        -- dummy is not used in this version of the specification, it should
        -- not be sent and if received it should be ignored.
        dummy
                                   IntegrityProtActivationInfo
    -- Radio bearer IEs
        -- dummy2 and dummy3 are not used in this version of the specification, they should
        -- dummyz and dummys are not used in this ....-
       dummy2 RB-ActivationTimeInfoList
dummy3 UL-CounterSynchronisationInfo
laterNonCriticalExtensions SEQUENCE {
                                                                         OPTIONAL,
                                                                        OPTIONAL,
             -- Container for additional R99 extensions
           activeSetUpdateComplete-r3-add-ext BIT STRING OPTIONAL,
                                        SEQUENCE {} OPTIONAL
            nonCriticalExtensions
        } OPTIONAL
}
__ ***************
-- ACTIVE SET UPDATE FAILURE (FDD only)
__ ***************
ActiveSetUpdateFailure ::= SEQUENCE {
    -- User equipment IEs
       rrc-TransactionIdentifier RRC-TransactionIdentifier,
        -- Container for additional R99 extensions
            activeSetUpdateFailure-r3-add-ext BIT STRING
                                                                    OPTIONAL,
                                     SEQUENCE {} OPTIONAL
           nonCriticalExtensions
   } OPTIONAL
}
__ ***************
```

```
-- Assistance Data Delivery
__ ***************
AssistanceDataDelivery ::= CHOICE {
                                  SEQUENCE {
       assistanceDataDelivery-r3 AssistanceDataDelivery-r3-IEs, v3a0NonCriticalExtensions SEQUENCE {
           assistanceDataDelivery-v3a0ext AssistanceDataDelivery-v3a0ext, laterNonCriticalExtensions SEQUENCE {
               -- Container for additional R99 extensions
               assistanceDataDelivery-r3-add-ext BIT STRING v4b0NonCriticalExtensions SEQUENCE {
                                                                   OPTIONAL,
                  assistanceDataDelivery-v4b0ext
                                                 AssistanceDataDelivery-v4b0ext-IEs,
                  nonCriticalExtensions
                                                 SEQUENCE {}
                                                                               OPTIONAL
                  OPTIONAL
               OPTIONAL
       } OPTIONAL
                                 SEQUENCE {
   later-than-r3
       rrc-TransactionIdentifier RRC-TransactionIdentifier,
       criticalExtensions
                                     SEQUENCE {}
}
AssistanceDataDelivery-r3-IEs ::= SEQUENCE {
   -- User equipment IEs
   rrc-TransactionIdentifier
                                 RRC-TransactionIdentifier,
    -- Measurement Information Elements
   ue-positioning-GPS-AssistanceData
                                             UE-Positioning-GPS-AssistanceData
   ue-positioning-OTDOA-AssistanceData-UEB UE-Positioning-OTDOA-AssistanceData-UEB
   OPTIONAL
}
AssistanceDataDelivery-v3a0ext ::= SEQUENCE {
                                    SFN-Offset-Validity OPTIONAL
   sfn-Offset-Validity
AssistanceDataDelivery-v4b0ext-IEs ::= SEQUENCE {
   ue-Positioning-OTDOA-AssistanceData-r4ext UE-Positioning-OTDOA-AssistanceData-r4ext OPTIONAL
 __ ****************************
-- CELL CHANGE ORDER FROM UTRAN
__ ***************
CellChangeOrderFromUTRAN ::= CHOICE {
                              SEQUENCE {
       cellChangeOrderFromUTRAN-IES CellChangeOrderFromUTRAN-r3-IEs, laterNonCriticalExtensions SEQUENCE {
           -- Container for additional R99 extensions
           cellChangeOrderFromUTRAN-r3-add-ext BIT STRING
                                                                OPTIONAL,
           v590NonCriticalExtensions SEQUENCE {
              cellChangeOrderFromUTRAN-v590ext CellChangeOrderFromUTRAN-v590ext-IEs,
               OPTIONAL
       } OPTIONAL
   later-than-r3
                                 SEQUENCE {
       rrc-TransactionIdentifier RRC-TransactionIdentifier,
       criticalExtensions
                                     SEQUENCE {}
}
CellChangeOrderFromUTRAN-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
       rrc-TransactionIdentifier
                                    RRC-TransactionIdentifier,
       -- dummy is not used in this version of the specification, it should
       -- not be sent and if received it should be ignored.
                                     IntegrityProtectionModeInfo
       dummy
                                                                        OPTIONAL,
       activationTime
                                     ActivationTime
                                                                        OPTIONAL,
       -- the IE rab-InformationList is not used in this version of the specification, it should
       -- not be sent and if received it should be ignored. The IE may be used in a later
       -- version of the protocol and hence it is not changed into a dummy
```

```
rab-InformationList
                                       RAB-InformationList
                                                                               OPTIONAL,
        interRAT-TargetCellDescription InterRAT-TargetCellDescription
}
CellChangeOrderFromUTRAN-v590ext-IEs ::= SEQUENCE {
        geran-SystemInfoType CHOICE
                                                 GERAN-SystemInformation,
           sI
                                                 GERAN-SystemInformation
            pSI
                OPTIONAL
}
__ ***************
-- CELL CHANGE ORDER FROM UTRAN FAILURE
__ ***************
CellChangeOrderFromUTRANFailure ::= CHOICE {
                                     SEQUENCE {
        cellChangeOrderFromUTRANFailure-r3
                                     CellChangeOrderFromUTRANFailure-r3-IEs,
        laterNonCriticalExtensions
                                        SEQUENCE {
             -- Container for additional R99 extensions
                                                           BIT STRING OPTIONAL,
            cellChangeOrderFromUTRANFailure-r3-add-ext
                                             SEQUENCE {} OPTIONAL
            nonCriticalExtensions
           OPTIONAL
    -- dummy is not used in this version of the specification and it
    -- should be ignored.
                                    SEQUENCE {
    dummy
       rrc-TransactionIdentifier RRC-TransactionIdentifier,
                                        SEQUENCE {}
        criticalExtensions
    }
}
CellChangeOrderFromUTRANFailure-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
       user equipment ims
rrc-TransactionIdentifier RRC-TransactionIdentifier,
        \mbox{--}\mbox{ dummy} is not used in this version of the specification, it should
        -- not be sent and if received it should be ignored.
                                      IntegrityProtectionModeInfo OPTIONAL,
InterRAT-ChangeFailureCause
        interRAT-ChangeFailureCause
}
__ ********************
-- CELL UPDATE
__ *******************************
CellUpdate ::= SEQUENCE {
    -- User equipment IEs
        u-RNTI
                                       U-RNTI,
        startList
                       STARTList,
        am-RLC-ErrorIndicationRb2-3or4 BOOLEAN,
        am-RLC-ErrorIndicationRb5orAbove
                                             BOOLEAN,
        cellUpdateCause
                                       CellUpdateCause,
        -- TABULAR: RRC transaction identifier is nested in FailureCauseWithProtErrTrId
        failureCause FailureCauseWithProtErrTrId OPTIONAL, rb-timer-indicator Rb-timer-indicator,
        rb-timer-indicator Rb-timer-indicator,

Measurement IEs

measuredResultsOnRACH MeasuredResultsOnRACH
laterNonCriticalExtensions SEQUENCE {
    -- Measurement IEs
                                                                             OPTIONAL,
            -- Container for additional R99 extensions cellupdate-r3-add-ext BIT STRING OPTIONAL, v590NonCriticalExtensions SEQUENCE {
                cellUpdate-v590ext CellUpdate-v590ext,
                v6xyNonCriticalExtensions SEQUENCE {
    cellUpdate-v6xyext CellUpdate-v6xyext-IEs,
    nonCriticalExtensions SEQUENCE {} OPTIONAL
                       OPTIONAL
                    OPTIONAL
            OPTIONAL
}
CellUpdate-v590ext ::= SEQUENCE {
    establishmentCause
                                    EstablishmentCause OPTIONAL
```

```
CellUpdate-v6xyext-IEs ::=
                                                                                                 SEQUENCE {
             -- User equipment IEs
                         cellUpdateCause-ext
                                                                                                                           CellUpdateCause-ext
                                                                                                                                                                                                                                                  OPTIONAL
        *************
 -- CELL UPDATE CONFIRM
 __ *****************
CellUpdateConfirm ::= CHOICE {
                         v3a0NonCriticalExtensions

cellUpdateConfirm-r3-IEs,

SEOUENCE 

S
                                                                                                                  SEQUENCE {
                                      cellUpdateConfirm-v3a0ext
laterNonCriticalExtensions
CellUpdateConfirm-v3a0ext,
SEQUENCE {
                                                     -- Container for additional R99 extensions
                                                   cellUpdateConfirm-r3-add-ext BIT STRING OPTIONAL,
v4b0NonCriticalExtensions SEQUENCE {
    cellUpdateConfirm-v4b0ext
    v590NonCriticalExtenstions SEQUENCE {
                                                                             | CellupdateConfirm v6xyext | CellupdateConfirm v7b0ext | CellupdateConfirm v590ext | CellupdateConfirm v590ext | CellupdateConfirm v590ext | CellupdateConfirm v6xyext | 
                                                                                                       OPTIONAL
                                                                                          OPTIONAL
                                                                             OPTIONAL
                                      }
                                                                OPTIONAL
                          }
                                                    OPTIONAL
             },
             later-than-r3
                                                                                                                   SEQUENCE {
                        rrc-TransactionIdentifier RRC-TransactionIdentifier, criticalExtensions CHOICE {
                                                   SEQUENCE {
cellUpdateConfirm-r4
                                     r4
                                                    cellUpdateConfirm-r4
v4d0NonCriticalExtensions
CellUpdateConfirm-r4-IEs,
v5equence {
                                                                 -- Container for adding non critical extensions after freezing REL-5
                                                                cellUpdateConfirm-r4-add-ext BIT STRING OPTIONAL, v590NonCriticalExtenstions SEQUENCE {
                                                                             OPTIONAL
                                                                              OPTIONAL
                                                                OPTIONAL
                                                    }
                                      criticalExtensions
                                                                                                                                             CHOICE {
                                                                cellUpdateConfirm-r5
                                                   r5
                                                                                                                                                          CellUpdateConfirm-r5-IEs,
                                                                 -- Container for adding non critical extensions after freezing REL-6
                                                                cellUpdateConfirm-r5-add-ext BIT STRING v6xyNonCriticalExtensions SEQUENCE {
                                                                                                                                                                                                                OPTIONAL,
                                                                             cellUpdateConfirm-v6xyext CellUpdateConfirm-v6xyext-IEs, nonCriticalExtensions SEQUENCE {} OPTIONAL
                                                                 }
                                                                             OPTIONAL
                                                    },
                                                    criticalExtensions
                                                                                                                   CHOICE {
                                                                             SEQUENCE {
cellUpdateConfirm-r6
-- Container f
                                                                                                                                                                        CellUpdateConfirm-r6-IEs,
                                                                              -- Container for adding non critical extensions after freezing REL-7
                                                                             cellUpdateConfirm-r6-add-ext BIT STRING OPTIONAL,
nonCriticalExtensions SEQUENCE {} OPTIONAL
                                                                             nonCriticalExtensions
                                                                                                                                              SEQUENCE {}
                                                                 criticalExtensions
                                                   }
                                   }
                         }
}
CellUpdateConfirm-r3-IEs ::= SEQUENCE {
             -- User equipment IEs
                         rrc-TransactionIdentifier
                                                                                                                               RRC-TransactionIdentifier,
                                                                                                                                                                                                                                                OPTIONAL.
                          integrityProtectionModeInfo
                                                                                                                             IntegrityProtectionModeInfo
```

```
cipheringModeInfo
                                              CipheringModeInfo
                                                                                        OPTIONAL,
         activationTime
                                              ActivationTime
                                                                                        OPTIONAL,
         new-U-RNTI
                                             U-RNTI
                                                                                        OPTIONAL,
         new-C-RNTI
                                             C-RNTI
                                                                                        OPTIONAL,
         rrc-StateIndicator
                                             RRC-StateIndicator,
                                          RRC-Staternardator,
UTRAN-DRX-CycleLengthCoefficient
         utran-DRX-CycleLengthCoeff
         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 rb-InformationReconfigList RB-InformationReconfigList rb-InformationAffectedList RB-InformationAffectedList
                                                                                        OPTIONAL,
                                                                                        OPTIONAL,
                                                                                        OPTIONAL,
        ul-deletedTransChInfo UL-CommonTransChInfo UL-DeletedTransChInfo UL-DeletedTransChInfo UL-AddReconfTransChInfo UL-AddReconfTransChInfo UL-AddReconfTransChInfo CHOICE {
fdd cpch-SetID addRecorf
         dl-CounterSynchronisationInfo DL-CounterSynchronisationInfo
                                                                                       OPTIONAL,
    -- Transport channel IEs
                                                                                       OPTIONAL.
                                             UL-DeletedTransChInfoList
                                                                                        OPTIONAL,
                                             UL-AddReconfTransChInfoList
                                                                                        OPTIONAL,
                                                       DRAC-StaticInformationList OPTIONAL
             },
             tdd
                                                  NULL
        dl-CommonTransChInfo
dl-DeletedTransChInfoList
dl-AddReconfTransChInfoList
DL-AddReconfTransChInfoList
                                                                                        OPTIONAL,
                                                                                        OPTIONAL.
                                                                                        OPTIONAL,
    -- Physical channel IEs
         frequencyInfo
                                             FrequencyInfo
                                                                                        OPTIONAL,
        FrequencyInfo
maxAllowedUL-TX-Power
ul-ChannelRequirement
modeSpecificPhysChInfo

FrequencyInfo
MaxAllowedUL-TX-Power
UL-ChannelRequirement
modeSpecificPhysChInfo
CHOICE {
                                                                                       OPTIONAL.
                                                                                       OPTIONAL,
             fdd
                                                SEQUENCE {
-- dummy is not used in this version of specification, it should
-- not be sent and if received it should be ignored.
                  dummydl-PDSCH-Information
                                                            DL-PDSCH-Information
                                                                                           OPTIONAL
             t.dd
                                                  NULL
         dl-CommonInformation DL-CommonInformation
dl-InformationPerRL-List DL-InformationPerRL-List
                                                                                       OPTIONAL,
                                                                                      OPTIONAL
}
CellUpdateConfirm-v3a0ext ::= SEQUENCE {
-- The IE "new-DSCH-RNTI" should not be included in FDD mode, and if received the UE behaviour
-- is unspecified
    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
                                                                                            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
         \verb|integrityProtectionModeInfo|\\
                                             IntegrityProtectionModeInfo
                                                                                        OPTIONAL,
         cipheringModeInfo
                                              CipheringModeInfo
                                                                                        OPTIONAL,
                                             ActivationTime
         activationTime
                                                                                        OPTIONAL,
        new-U-RNTI
                                              U-RNTI
                                                                                        OPTIONAL,
        new-C-RNTI
                                              C-RNTI
                                                                                        OPTIONAL,
   The IE "new-DSCH-RNTI" should not be included in FDD mode, and if received the UE behaviour
   is unspecified
                                              DSCH-RNTI
        new-DSCH-RNTI
                                                                                        OPTIONAL,
```

```
rrc-StateIndicator
                                        RRC-StateIndicator,
                                        UTRAN-DRX-CycleLengthCoefficient
        utran-DRX-CycleLengthCoeff
        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 {
                                                 CPCH-SetID
                cpch-SetID
                                                                             OPTIONAL,
                {\tt addReconfTransChDRAC-Info}
                                                 DRAC-StaticInformationList OPTIONAL
            },
            tdd
                                             NULL
        dl-CommonTransChInfo
                                        DL-CommonTransChInfo-r4
                                                                             OPTIONAL,
        dl-DeletedTransChInfoList
                                        DL-DeletedTransChInfoList
                                                                             OPTIONAL,
                                        DL-AddReconfTransChInfoList-r4
        dl-AddReconfTransChInfoList
                                                                             OPTIONAL,
    -- Physical channel IEs
        frequencyInfo
                                        FrequencyInfo
                                                                             OPTIONAL,
        maxAllowedUL-TX-Power
                                        MaxAllowedUL-TX-Power
                                                                             OPTIONAL.
                                        UL-ChannelRequirement-r4
        ul-ChannelRequirement
                                                                             OPTIONAL.
        modeSpecificPhysChInfo
                                        CHOICE {
            fdd
                                             SEQUENCE {
  dummy is not used in this version of specification, it should
 - not be sent and if received it should be ignored.
                                                     DL-PDSCH-Information
                                                                                  OPTIONAL
                dummydl PDSCH Information
            },
            tdd
                                             NULL
        dl-CommonInformation
                                        DL-CommonInformation-r4
                                                                             OPTIONAL,
        dl-InformationPerRL-List
                                        DL-InformationPerRL-List-r4
                                                                             OPTIONAL
}
CellUpdateConfirm-r5-IEs ::= SEOUENCE {
     - User equipment IEs
        integrityProtectionModeInfo
                                        IntegrityProtectionModeInfo
                                                                             OPTIONAL,
                                        {\tt Ciphering ModeInfo}
        cipheringModeInfo
                                                                             OPTIONAL.
        activationTime
                                         ActivationTime
                                                                             OPTIONAL,
        new-U-RNTI
                                         U-RNTI
                                                                              OPTIONAL,
        new-C-RNTI
                                         C-RNTI
                                                                              OPTIONAL,
  The IE "new-DSCH-RNTI" should not be included in FDD mode, and if received the UE behaviour
-- is unspecified
        new-DSCH-RNTI
                                        DSCH-RNTI
                                                                              OPTIONAL,
        new-H-RNTI
                                        H-RNTI
                                                                             OPTIONAL,
        rrc-StateIndicator
                                        RRC-StateIndicator,
        utran-DRX-CvcleLengthCoeff
                                        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
                                        {\tt UL-DeletedTransChInfoList}
                                                                             OPTIONAL,
        ul-AddReconfTransChInfoList
                                         UL-AddReconfTransChInfoList
                                                                             OPTIONAL,
        modeSpecificTransChInfo
                                        CHOICE {
            fdd
                                             SEQUENCE {
                cpch-SetID
                                                 CPCH-Set.ID
                                                                             OPTIONAL.
                addReconfTransChDRAC-Info
                                                 DRAC-StaticInformationList OPTIONAL
            },
            tdd
                                            NITIT.
        },
```

```
dl-CommonTransChInfo
                                          DL-CommonTransChInfo-r4
                                                                                  OPTIONAL,
        dl-CommonTransChInfo DL-CommonTransChInfo-r4
dl-DeletedTransChInfoList DL-DeletedTransChInfoList-r5
dl-AddReconfTransChInfoList DL-AddReconfTransChInfoList-r5
                                                                                  OPTIONAL,
                                                                                  OPTIONAL,
    -- Physical channel IEs
        frequencyInfo
                                           FrequencyInfo
                                                                                  OPTIONAL,
        maxAllowedUL-TX-Power
                                          MaxAllowedUL-TX-Power
        ul-ChannelRequirement
                                          UL-ChannelRequirement-r5
                                                                                  OPTIONAL,
        modeSpecificPhysChInfo CHOICE {
            fdd
                                               SEQUENCE {
  dummy is not used in this version of specification, it should
-- not be sent and if received it should be ignored.
                 dl-PDSCH-Informationdummy
                                                        DL-PDSCH-Information
                                                                                       OPTIONAL
            tdd
                                               NULL
        dl-HSPDSCH-Information
                                       DL-HSPDSCH-Information
                                                                                  OPTIONAL,
        dl-CommonInformation

DL-CommonInformation-r5

dl-InformationPerRL-List

DL-InformationPerRL-T.ist
                                                                                  OPTIONAL,
                                          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,
-- The IE "new-DSCH-RNTI" should not be included in FDD mode, and if received the UE behaviour
   is unspecified
        new-DSCH-RNTI
                                           DSCH-RNTI
                                                                                   OPTIONAL,
                                                                                   OPTIONAL,
        new-H-RNTI
                                           H-RNTI
                                          E-RNTI
        new-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,
        rb-InformationAffectedList
rb-InformationAffectedList
RB-InformationReconfigList-r6
RB-InformationAffectedList
RB-InformationAffectedList
RB-InformationAffectedList
RB-InformationAffectedList
    -- Radio bearer IEs
                                                                                  OPTIONAL.
                                                                                  OPTIONAL,
                                                                                  OPTIONAL,
        dl-CounterSynchronisationInfo DL-CounterSynchronisationInfo-r5
                                                                                  OPTIONAL,
    -- Transport channel IEs
        ul-CommonTransChInfo
                                           UL-CommonTransChInfo-r4
                                                                                   OPTIONAL,
        ul-deletedTransChInfoList
                                         UL-DeletedTransChInfoList-r6
        ul-AddReconfTransChInfoList
                                           UL-AddReconfTransChInfoList-r6
                                                                                  OPTIONAL,
        modeSpecificTransChInfo
                                          CHOICE {
                                               SEQUENCE {
            fdd
                 cpch-SetID
                                                    CPCH-SetID
                                                                                   OPTIONAL,
                 addReconfTransChDRAC-Info
                                                    DRAC-StaticInformationList OPTIONAL
            },
            tdd
                                               NULL
        dl-CommonTransChInfo DL-CommonTransChInfo-r4 dl-DeletedTransChInfoList DL-DeletedTransChInfoList-r5
        dl-CommonTransChInfo
                                          DL-CommonTransChInfo-r4
                                                                                  OPTIONAL,
                                                                                  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 {
                                               SEOUENCE {
                 dl-PDSCH-Information
                                                   DL PDSCH-Information
                                             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
CellUpdateConfirm-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
}
__ *******************
-- CELL UPDATE CONFIRM for CCCH
__ ******************************
CellUpdateConfirm-CCCH ::= CHOICE {
                                    SEOUENCE {
        -- User equipment IEs
           u-RNTI
        -- The rest of the message is identical to the one sent on DCCH.
cellUpdateConfirm-r3 CellUpdateConfirm-r3-IEs,
laterNonCriticalExtensions SEQUENCE {
                 -- Container for additional R99 extensions
                cellUpdateConfirm-CCCH-r3-add-ext
                                                            BIT STRING OPTIONAL,
                cellUpdateConfirm-v6xyext CellUpdateConfirm-v6xyext-IEs, nonCriticalExtensions SEQUENCE {} OPTIONAL
                            OPTIONAL
                        OPTIONAL
                    OPTIONAL
            }
               OPTIONAL
    later-than-r3
                                   SEQUENCE {
                                    U-RNTI,
       u-RNTI
       rrc-TransactionIdentifier
criticalExtensions
CHOICE {
SEQUENCE {
                                       RRC-TransactionIdentifier,
                -- The rest of the message is identical to the one sent on DCCH.
                 \begin{array}{lll} {\tt cellUpdateConfirm-r4} & {\tt CellUpdateConfirm-r4-IEs,} \\ {\tt v4d0NonCriticalExtensions} & {\tt SEQUENCE} \end{array} \{
                    -- Container for adding non critical extensions after freezing REL-5
                    cellUpdateConfirm-CCCH-r4-add-ext BIT STRING
                                                                           OPTIONAL,
                    v590NonCriticalExtensions SEQUENCE {
                        cellUpdateConfirm-v590ext CellUpdateConfirm-v590ext-IEs,
v6xyNonCriticalExtensions SEQUENCE {
    cellUpdateConfirm-v6xyext nonCriticalExtensions SEQUENCE {} OPTIONAL.
                            OPTIONAL
                        OPTIONAL
                    OPTIONAL
                }
            criticalExtensions
                                            CHOICE {
                    cellUpdateConfirm-r5
                r5
                                                CellUpdateConfirm-r5-IEs,
                    cellUpdateConfirm-CCCH-r5-add-ext BIT STRING OPTIONAL,
                    }
                       OPTIONAL
                },
                },
criticalExtensions
                                              CHOICE {
                        SEQUENCE {
cellUpdateConfirm-r6 | CellUpdateConfirm-r6-IEs,
                                                      BIT STRING OPTIONAL, SEQUENCE {} OPTIONAL
                        cellUpdateConfirm-r6-add-ext
                        nonCriticalExtensions
                                            SEQUENCE {}
                    criticalExtensions
               }
           }
       }
    }
}
   ************
```

```
-- COUNTER CHECK
__ ****************
CounterCheck ::= CHOICE {
       SEQUENCE {
counterCheck-r3 CounterCheck-r3-IEs,
laterNonCriticalExtensions SEQUENCE {
          -- Container for additional R99 extensions
          counterCheck-r3-add-ext BIT STRING OPTIONAL, nonCriticalExtensions SEQUENCE {} OPTIONAL
       } OPTIONAL
      rrc-TransactionIdentifier RRC-TransactionIdentifier, criticalExtensions SEQUENCE {}
   later-than-r3
}
CounterCheck-r3-IEs ::= SEQUENCE {
   -- User equipment IEs
      rrc-TransactionIdentifier RRC-TransactionIdentifier,
   -- Radio bearer IEs
      rb-COUNT-C-MSB-InformationList RB-COUNT-C-MSB-InformationList
}
__ **************
-- COUNTER CHECK RESPONSE
__ ****************************
CounterCheckResponse ::= SEQUENCE {
   -- User equipment IEs
       rrc-TransactionIdentifier
                                  RRC-TransactionIdentifier,
   -- Radio bearer IEs
       rb-COUNT-C-InformationList RB-COUNT-C-InformationList OPTIONAL, laterNonCriticalExtensions SEQUENCE {
           -- Container for additional R99 extensions
          counterCheckResponse-r3-add-ext BIT STRING OPTIONAL,
          nonCriticalExtensions
                                           SEQUENCE {} OPTIONAL
       } OPTIONAL
  ***************
-- DOWNLINK DIRECT TRANSFER
__ ***************
DownlinkDirectTransfer ::= CHOICE {
       SEQUENCE {
downlinkDirectTransfer-r3 | DownlinkDirectTransfer-r3-IEs,
laterNonCriticalExtensions | SEQUENCE {
           -- Container for additional R99 extensions
          downlinkDirectTransfer-r3-add-ext BIT STRING OPTIONAL,
                                       SEQUENCE {} OPTIONAL
          nonCriticalExtensions
       } OPTIONAL
   later-than-r3
                               SEQUENCE {
      }
}
DownlinkDirectTransfer-r3-IEs ::= SEQUENCE {
   -- User equipment IEs
      rrc-TransactionIdentifier RRC-TransactionIdentifier,
   -- Core network IEs
      cn-DomainIdentity
                             CN-DomainIdentity,
      nas-Message
                                    NAS-Message
}
__ ****************
-- HANDOVER TO UTRAN COMMAND
```

_ *****************

```
HandoverToUTRANCommand ::= CHOICE {
                                          SEQUENCE {
                                        HandoverToUTRANCommand-r3-IEs,
         handoverToUTRANCommand-r3
         nonCriticalExtensions
                                              SEQUENCE {} OPTIONAL
                                    CHOICE {
    {\tt criticalExtensions}
                                            SEQUENCE {
                                              HandoverToUTRANCommand-r4-IEs,
              handoverToUTRANCommand-r4
              nonCriticalExtensions
                                                  SEQUENCE { } OPTIONAL
                                      CHOICE {
         criticalExtensions
                                                 SEQUENCE {
                                                   HandoverToUTRANCommand-r5-IEs,
SEQUENCE {} OPTIONAL
                  handoverToUTRANCommand-r5
                  nonCriticalExtensions
                                         CHOICE {
              criticalExtensions
                                                    SEQUENCE {
                                                        HandoverToUTRANCommand-r6-IEs,
                       handoverToUTRANCommand-r6
                       nonCriticalExtensions
                                                           SEQUENCE {} OPTIONAL
                                              SEQUENCE {}
                  criticalExtensions
             }
         }
    }
}
HandoverToUTRANCommand-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
                                             U-RNTI-Short,
         -- dummy is not used in this version of specification, it should
         -- not be sent and if received it should be ignored.
                                                                                        OPTIONAL,
         dummy
                                              ActivationTime
         cipheringAlgorithm
                                              CipheringAlgorithm
                                                                                         OPTIONAL,
    -- Radio bearer IEs
    -- RAGIO Dealer III
-- Specification mode information specificationMode CHOICE {
                                               SEQUENCE {
              complete
                  srb-InformationSetupList
rab-InformationSetupList
rab-InformationSetupList
ul-CommonTransChInfo
ul-AddReconfTransChInfo
dl-AddReconfTransChInfo
dl-AddReconfTransChInfoList
ul-DPCH-Info
modeSpecificInfo

SEQUENCE {
SRB-InformationSetupList
RAB-InformationSetupList
UL-CommonTransChInfo,
UL-AddReconfTransChInfoList,
UL-AddReconfTransChInfoList,
UL-DPCH-Info,
CHOICE {
                                                                                                 OPTIONAL.
                  modeSpecificInfo
                                                      CHOICE {
                       fdd
                                                             SEQUENCE {
-- dummy is not used in this version of specification, it should
-- dummy is not used in this verbion of the ignored.
-- not be sent and if received it should be ignored.

DL-PDSCH-Information OPTIONAL,
                           dl-PDSCH-Informationdummy

cpch-SetInfo

CPCH-SetInfo

OPTIONAL
                       },
                                                           NULL
                       tdd
                  dl-CommonInformation DL-CommonInformation, dl-InformationPerRL-List DL-InformationPerRL-List, FrequencyInfo
                  frequencyInfo
                                                  SEQUENCE {
              preconfiguration
-- 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.
                                                        CHOICE {
                   preConfigMode
                          redefinedConfigIdentity
faultConfig

defaultConfigMode
defaultConfigIdentity

DefaultConfigIdentity

DefaultConfigIdentity
                       predefinedConfigIdentity
                       defaultConfig
                   rab-Info
                                                        RAB-Info-Post
                                                                               OPTIONAL,
                   modeSpecificInfo
                                                        CHOICE {
                                                        SEQUENCE {
                       fdd
```

```
SEQUENCE {
                         ul-DPCH-Info
                                                           UL-DPCH-InfoPostTDD,
                         dl-CommonInformationPost DL-CommonInformationPost, dl-InformationPerRL DL-InformationPerRL-PostT
                         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
                                          CHOICE {
        specificationMode
                                            SEQUENCE {
            complete
                srb-InformationSetupList SRB-InformationSetupList,
rab-InformationSetupList RAB-InformationSetupList-r4
ul-CommonTransChInfo UL-CommonTransChInfo-r4,
ul-AddReconfTransChInfoList
dl-CommonTransChInfoList,
                                                                                         OPTIONAL.
                                                  DL-CommonTransChInfo-r4,
                 dl-CommonTransChInfo
                dl-CommonTransChInfo-r4,
dl-AddReconfTransChInfoList DL-AddReconfTransChInfoList-r4,
                 ul-DPCH-Info
                                                   UL-DPCH-Info-r4,
                 modeSpecificInfo
                                                   CHOICE {
                                                       SEQUENCE {
                    fdd
-- dummy is not used in this version of specification, it should
-- not be sent and if received it should be ignored.
                         dl-PDSCH-Informationdummy
                                                               DL-PDSCH-Information OPTIONAL,
                         cpch-SetInfo
                                                           CPCH-SetInfo
                                                                           OPTIONAL
                     },
                     tdd
                                                      NULL
                 },
                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
                                                       SEQUENCE {
                     defaultConfig
                         defaultConfigMode
                                                      DefaultConfigMode,
                         defaultConfigIdentity
                                                           DefaultConfigIdentity-r4
                 rab-Info
                                                   RAB-Info-Post
                                                                        OPTIONAL,
                 modeSpecificInfo
                                                   CHOICE {
                     fdd
                                                  SEQUENCE {
                                                          UL-DPCH-InfoPostFDD,
                         ul-DPCH-Info
                         dl-CommonInformationPost
                                                           DL-CommonInformationPost,
                         dl-InformationPerRL-List
                                                          DL-InformationPerRL-ListPostFDD,
                                                          FrequencyInfoFDD
                         frequencyInfo
                     },
                     tdd
                                                       CHOICE {
                         tdd384
                                                       SEQUENCE {
                                                               UL-DPCH-InfoPostTDD,
                             ul-DPCH-Info
                             dl-InformationPerRL
                                                               DL-InformationPerRL-PostTDD,
                              frequencyInfo
                                                               FrequencyInfoTDD,
                             primaryCCPCH-TX-Power
                                                               PrimaryCCPCH-TX-Power
                         tdd128
                                                          SEQUENCE {
                                                           UL-DPCH-InfoPostTDD-LCR-r4,
                             ul-DPCH-Info
                             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
                                                          U-RNTI-Short,
           new-U-RNTI
           cipheringAlgorithm
                                                          CipheringAlgorithm
                                                                                                             OPTIONAL,
     -- Radio bearer IEs
     -- Specification mode information
                                            CHOICE {
           specificationMode
                      cationMode CHOICE {
plete SEQUENCE {
    srb-InformationSetupList SRB-InformationSetupList-r5,
    rab-InformationSetupList RAB-InformationSetupList-r5
    ul-CommonTransChInfo UL-CommonTransChInfo-r4,
    ul-AddReconfTransChInfo DL-CommonTransChInfo-r4,
    dl-CommonTransChInfo DL-CommonTransChInfo-r4,
    dl-AddReconfTransChInfo-r5,
    ul-DPCH-Info UL-DPCH-Info-r5,
    modeSpecificInfo CHOICE {
                 complete
                                                                                                                           OPTIONAL,
                       modeSpecificInfo
                                                                      CHOICE {
                            fdd
                                                                           SEQUENCE {
-- dummy is not used in this version of specification, it should

-- not be sent and if received it should be ignored.
                                   dl-PDSCH-Informationdummy

CPCH-SetInfo

OPTIONAL
                                                                                       DL-PDSCH-Information OPTIONAL,
                             },
                                                                     NULL
                             tdd
                       ),
dl-CommonInformation
DL-CommonInformation-r4,
dl-InformationPerRL-List
DL-InformationPerRL-List-r5,
frequencyInfo
FrequencyInfo
                       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
                                                                                 DefaultConfigIdentity-r5
                       rab-Info
                                                                      RAB-Info-Post OPTIONAL,
                                                   CHOICE {
SEQUENCE {
UL-DPCI
                       modeSpecificInfo
                             fdd
                                   ul-DPCH-Info
dl-CommonInformationPost
dl-InformationPerRL-List
frequencyInfo

DL-CommonInformationPerRL-List
DL-InformationPerRL-ListPostFDD,
FrequencyInfo
DL-InformationPerRL-ListPostFDD,
                             },
                             tdd
                                                                          CHOICE {
                                        384 SEQUENCE {
ul-DPCH-Info UL-DPCH-InfoPostTDD,
dl-InformationPerRL DL-InformationPerRL-PostTDD,
frequencyInfo FrequencyInfoTDD,
primaryCCPCH-TX-Power
                                   tdd384
                                   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 {
                                          SEQUENCE {
            complete
               srb-InformationSetupList
rab-InformationSetupList
rab-InformationSetupList
RAB-InformationSetupList-r6,
RAB-InformationSetupList-r6
UL-CommonTransChInfo-r4,
UL-AddReconfTransChInfoList
UL-AddReconfTransChInfoList-r6,
DL-CommonTransChInfo-r4,
                                                                                OPTIONAL,
                dl-AddReconfTransChInfoList DL-AddReconfTransChInfoList-r5, ul-DPCH-Info UL-DPCH-Info-r6,
                modeSpecificInfo
                                                CHOICE {
                                                 SEOÙENCE {
                   -fdd-
                    dl-PDSCH-Information DL-PDSCH-Information OPTIONAL,
                        <del>cpch SetInfo</del>
                                                       CPCH SetInfo
                   tdd
                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
                                      MaxAllowedIII.-TX-Power
}
  **************
-- HANDOVER TO UTRAN COMPLETE
__ ****************
{\tt HandoverToUTRANComplete ::= SEQUENCE } \{
   --TABULAR: Integrity protection shall not be performed on this message.
   -- User equipment IEs
   -- TABULAR: startList is conditional on history.
       startList
                                      STARTList
                                                                             OPTIONAL,
    -- Radio bearer IEs
       OPTIONAL,
            -- Container for additional R99 extensions
           handoverToUTRANComplete-r3-add-ext BIT STRING OPTIONAL,
                                                         OPTIONAL
           nonCriticalExtensions
                                       SEQUENCE {}
          OPTIONAL
}
__ ***************************
-- INITIAL DIRECT TRANSFER
__ ******************
InitialDirectTransfer ::= SEQUENCE {
   -- Core network IEs
       cn-DomainIdentity
intraDomainNasNodeSelector
NAS-Message,
                                      CN-DomainIdentity,
                                        IntraDomainNasNodeSelector,
       nas-Message
    -- Measurement IEs
       measuredResultsOnRACH
                                      MeasuredResultsOnRACH
                                                                           OPTIONAL.
       v3a0NonCriticalExtensions
        - Container for additional R99 extensions
            initialDirectTransfer-r3-add-ext BIT STRING OPTIONAL, v590NonCriticalExtensions SEQUENCE {
                    initialDirectTransfer-v590ext InitialDirectTransfer-v590ext, v6xyNonCriticalExtensions SEQUENCE {
                        initial Direct Transfer-v 6 x y ext-IEs,\\
                        nonCriticalExtensions
                                                        SEQUENCE { }
                                                                      OPTIONAL
                           OPTIONAL
                        OPTIONAL
                    OPTIONAL
           OPTIONAL
InitialDirectTransfer-v3a0ext ::= SEQUENCE {
   -- start-value shall always be included in this version of the protocol
```

```
start-Value
                                   START-Value
                                                                       OPTIONAL
InitialDirectTransfer-v590ext ::= SEQUENCE {
    establishmentCause EstablishmentCause OPTIONAL
InitialDirectTransfer-v6xyext-IEs ::= SEQUENCE {
   -- Core network IEs
       plmn-Identity
                                      PLMN-Identity
                                                                          OPTIONAL,
    -- MBMS IEs
       mbms-JoinedInformation
                                     MBMS-JoinedInformation-r6
                                                                         OPTIONAL
}
__ *******************
-- HANDOVER FROM UTRAN COMMAND
HandoverFromUTRANCommand-GSM ::= CHOICE {
                                   SEQUENCE {
       \verb|handoverFromUTRANCommand-GSM-r3| \\
                                       HandoverFromUTRANCommand-GSM-r3-IEs,
        -- UTRAN should not include the IE laterNonCriticalExtensions when it sets the IE
        \hbox{$\tt --$ gsm-message included in handover From UTRAN Command-GSM-r3 to single-GSM-Message. The UE}
        -- behaviour upon receiving a message with this combination of IE values is unspecified.
        -- Container for additional R99 extensions
                                                      BIT STRING OPTIONAL,
           handoverFromUTRANCommand-GSM-r3-add-ext
                                           SEQUENCE {} OPTIONAL
           nonCriticalExtensions
          OPTIONAL
       er-than-r3 SEQUENCE {
    rrc-TransactionIdentifier RRC-TransactionIdentifier,
    criticalExtensions SEQUENCE {}
    later-than-r3
       criticalExtensions
                                      SEQUENCE {}
}
HandoverFromUTRANCommand-GSM-r3-IEs ::= SEQUENCE {
       User equipment IEs
rrc-TransactionIdentifier
    -- User equipment IEs
                                      RRC-TransactionIdentifier,
       activationTime
                                      ActivationTime
                                                                           OPTIONAL.
    -- Radio bearer IEs
       toHandoverRAB-Info
                                     RAB-Info
                                                                           OPTIONAL,
    -- Measurement IEs
       frequency-band
                                      Frequency-Band,
    -- Other TEs
       gsm-message
                                      CHOICE {
           -- In the single-GSM-Message case the following rules apply:
            -- 1> the GSM message directly follows the basic production; the final padding that
           -- results when PER encoding the abstract syntax value is removed prior to appending
                 the GSM message.
            -- 2> the RRC message excluding the GSM part, does not contain a length determinant;
                 there is no explicit parameter indicating the size of the included GSM message.
            -- 3> depending on need, final padding (all "0"s) is added to ensure the final result
               comprises a full number of octets
           single-GSM-Message SEQUENCE {},
           gsm-MessageList
                                          SEQUENCE {
               gsm-Messages
                                               GSM-MessageList
           }
        }
HandoverFromUTRANCommand-GERANIu ::= SEQUENCE {
    rrc-TransactionIdentifier RRC-TransactionIdentifier,
    handoverFromUTRANCommand-GERANIu CHOICE {
                                           SEQUENCE {
           handoverFromUTRANCommand-GERANIu-r5
                                           HandoverFromUTRANCommand-GERANIu-r5-IEs,
            -- UTRAN should not include the IE nonCriticalExtensions when it sets
            -- the IE geranIu-message included in handoverFromUTRANCommand-GERANIu-r5 to
            -- single-GERANIu-Message
           -- The UE behaviour upon receiving a message including this combination of IE values is
           -- not specified
           nonCriticalExtensions
                                          SEQUENCE {} OPTIONAL
        later-than-r5
                                      SEQUENCE {
                                           SEQUENCE {}
           criticalExtensions
```

```
}
   }
}
HandoverFromUTRANCommand-GERANIu-r5-IEs ::= SEQUENCE {
   -- User equipment IEs
       activationTime
                                    ActivationTime
                                                                       OPTIONAL,
   -- Measurement IEs
       frequency-Band
                                    Frequency-Band,
    -- Other IEs
       geranIu-Message
                                        CHOICE {
           -- In the single-GERANIu-Message case the following rules apply:
           -- 1> the GERAN Iu message directly follows the basic production; the final padding that
           -- results when PER encoding the abstract syntax value is removed prior to appending
                 the GERAN Iu message.
           -- 2> the RRC message excluding the GERAN Iu part does not contain a length determinant;
              there is no explicit parameter indicating the size of the included GERAN Iu
                message.
           -- 3> depending on need, final padding (all "0"s) is added to ensure the final result
                comprises a full number of octets.
           single-GERANIu-Message SEQUENCE {}, geranIu-MessageList SEQUENCE { geranIu-Messages GERANIu-
                                             GERANIu-MessageList
       }
}
HandoverFromUTRANCommand-CDMA2000 ::= CHOICE
                                 SEQUENCE {
       handoverFromUTRANCommand-CDMA2000-r3
                                  HandoverFromUTRANCommand-CDMA2000-r3-IEs,
       laterNonCriticalExtensions
                                         SEQUENCE {
            -- Container for additional R99 extensions
           {\tt handoverFromUTRANCommand-CDMA2000-r3-add-ext}
                                             BIT STRING
                                                            OPTIONAL,
           nonCriticalExtensions
                                             SEQUENCE {}
                                                             OPTIONAL
       } OPTIONAL
   later-than-r3
                              SEQUENCE {
      rrc-TransactionIdentifier RRC-TransactionIdentifier,
       criticalExtensions
                                     SEQUENCE {}
}
HandoverFromUTRANCommand-CDMA2000-r3-IEs ::= SEQUENCE {
   -- User equipment IEs
      rrc-TransactionIdentifier RRC-TransactionIdentifier,
       activationTime
                                    ActivationTime
                                                                        OPTIONAL,
   -- Radio bearer IEs
      toHandoverRAB-Info
                                    RAB-Info
                                                                        OPTIONAL,
   -- Other IEs
       cdma2000-MessageList
                                    CDMA2000-MessageList
}
__ *******************
-- HANDOVER FROM UTRAN FAILURE
__ ****************
HandoverFromUTRANFailure ::= SEQUENCE {
   -- User equipment IEs
       rrc-TransactionIdentifier RRC-TransactionIdentifier,
   -- Other IEs
       interRAT-HO-FailureCause InterRAT-HO-FailureCause
                                                                       OPTIONAL,
       -- In case the interRATMessage to be transferred is for GERAN Iu mode, the
       -- message should be placed in the HandoverFromUtranFailure-v590ext-IEs
       -- non-critical extension container.
                                     CHOICE {
       interRATMessage
                                        SEQUENCE {
           gsm
              n
gsm-MessageList
                                                GSM-MessageList
           cdma2000
                                            SEQUENCE {
               cdma2000-MessageList
                                                CDMA2000-MessageList
                      OPTIONAL,
       laterNonCriticalExtensions SEQUENCE {
           -- Container for additional R99 extensions
```

```
handoverFromUTRANFailure-r3-add-ext BIT STRING OPTIONAL,
          v590NonCriticalExtensions SEQUENCE {
              handoverFromUTRANFailure-v590ext HandoverFromUtranFailure-v590ext-IEs,
              OPTIONAL
             OPTIONAL
          OPTIONAL
HandoverFromUtranFailure-v590ext-IEs ::= SEQUENCE {
   geranIu-MessageList
                                       GERANIu-MessageList
                                                               OPTIONAL
 ************
-- INTER RAT HANDOVER INFO
__ ****************
InterRATHandoverInfo ::= SEQUENCE {
   -- This structure is defined for historical reasons, backward compatibility with 04.18
   absent
                                    NULL
                                    PredefinedConfigStatusList
      present
   uE-SecurityInformation
                               CHOICE {
      absent
                                   NULL,
      present
                                    UE-SecurityInformation
   ue-CapabilityContainer
                                CHOICE {
                                   NULT.
       absent
       -- present is an octet aligned string containing IE UE-RadioAccessCapabilityInfo
       present
                                   OCTET STRING (SIZE (0..63))
   -- Non critical extensions
   v390NonCriticalExtensions
                              CHOICE {
                               NULL,
       absent
      present
                                   SEQUENCE {
          interRATHandoverInfo-v390ext InterRATHandoverInfo-v390ext-IEs, v3a0NonCriticalExtensions SEQUENCE {
              \verb|interRATH| and over Info-v3a0ext & | InterRATH| and over Info-v3a0ext-IEs , \\
              laterNonCriticalExtensions
                                           SEQUENCE {
                  interRATHandoverInfo-v3d0ext InterRATHandoverInfo-v3d0ext-IEs,
                  -- Container for additional R99 extensions
                  interRATHandoverInfo-r3-add-ext BIT STRING OPTIONAL,
                                                  SEQUENCE {
                  v3g0NonCriticalExtensions
                     interRATHandoverInfo-v4b0ext InterRATHandoverInfo-v4b0ext-IEs, v4d0NonCriticalExtensions SEQUENCE {
                            interRATHandoverInfo-v4d0ext InterRATHandoverInfo-v4d0ext-IEs,
                             -- Reserved for future non critical extension
                            v590NonCriticalExtensions
                                                         SEQUENCE {
                                interRATHandoverInfo-v590ext
                                                      InterRATHandoverInfo-v590ext-IEs,
                                nonCriticalExtensions
                                                             SEQUENCE {} OPTIONAL
                                OPTIONAL
                            OPTIONAL
                         OPTIONAL
                     OPTIONAL
                  ÓPTIONAL
         } OPTIONAL
   }
}
InterRATHandoverInfo-v390ext-IEs ::= SEQUENCE {
   -- User equipment IEs
      ue-RadioAccessCapability-v380ext
                                       UE-RadioAccessCapability-v380ext
                                                                            OPTIONAL,
                                     DL-PhysChCapabilityFDD-v380ext
       dl-PhysChCapabilityFDD-v380ext
}
InterRATHandoverInfo-v3a0ext-IEs ::= SEQUENCE {
   -- User equipment IEs
      ue-RadioAccessCapability-v3a0ext UE-RadioAccessCapability-v3a0ext
                                                                           OPTIONAL
}
InterRATHandoverInfo-v3d0ext-IEs ::= SEQUENCE {
   -- User equipment IEs
```

```
uESpecificBehaviourInformationlinterRAT
                                                  UESpecificBehaviourInformationlinterRAT
   OPTIONAL
}
InterRATHandoverInfo-v3g0ext-IEs ::= SEQUENCE {
    -- User equipment IEs
       ue-RadioAccessCapability-v3g0ext
                                          UE-RadioAccessCapability-v3g0ext
                                                                               OPTIONAL
InterRATHandoverInfo-v4b0ext-IEs ::= SEQUENCE {
   -- User equipment IEs
       accessStratumReleaseIndicator
                                          AccessStratumReleaseIndicator
}
InterRATHandoverInfo-v4d0ext-IEs ::= SEQUENCE {
   -- User equipment IEs
   tdd128-RF-Capability
                                      RadioFrequencyBandTDDList
                                                                    OPTIONAL
}
InterRATHandoverInfo-v590ext-IEs ::= SEQUENCE {
   -- User equipment IEs
                                                                                 OPTIONAL,
       {\tt predefinedConfigStatusListComp}
                                          PredefinedConfigStatusListComp
       ue-RadioAccessCapabilityComp
                                          UE-RadioAccessCapabilityComp
                                                                                 OPTIONAL
}
  **************
-- MEASUREMENT CONTROL
__ *******************************
MeasurementControl ::= CHOICE {
    -- The Rel-4 functionality of UE Positioning OTDOA AssistanceData TDD is only available
   -- in the later-than-r3 branch of this message (i.e. through the use of the IE
   -- ue-Positioning-OTDOA-AssistanceData-r4)
                               SEQUENCE {
                                 MeasurementControl-r3-IEs,
       measurementControl-r3
       v390nonCriticalExtensions
                                      SEQUENCE {
           measurementControl-v390ext
                                      MeasurementControl-v390ext,
           v3a0NonCriticalExtensions
                                           SEQUENCE {
               measurementControl-v3a0ext
                                                 MeasurementControl-v3a0ext,
               laterNonCriticalExtensions
                                             SEQUENCE {
                   -- Container for additional R99 extensions
                   measurementControl-r3-add-ext
                                                      BIT STRING OPTIONAL,
                   v4b0NonCriticalExtensions
                                                     SEQUENCE {
                       -- The content of the v4b0 non-critical extension has been removed. If sent
                       -- to a UE of AS release 4, the UE behaviour is unspecified. A UE of AS
                       -- release 5 onward shall comply with the v4b0 and later extensions in this
                       -- branch of the message.
                       v590NonCriticalExtensions
                                                      SEQUENCE {
                           measurementControl-v590ext
                                                          MeasurementControl-v590ext-IEs,
                                                          SEQUENCE {
                           v5b0NonCriticalExtensions
                               measurementControl-v5b0ext
                                                              MeasurementControl-v5b0ext-IEs,
                                                              SEQUENCE {}
                               nonCriticalExtensions
                                                                          OPTIONAL
                                                  OPTIONAL
                           }
                       }
                                              OPTIONAL
                   }
                                          OPTIONAL
               }
                                      OPTIONAL
           }
                                  OPTIONAL
       }
                               OPTIONAL
    later-than-r3
                                   SEQUENCE {
       rrc-TransactionIdentifier
                                   RRC-TransactionIdentifier,
                                      CHOICE {
       criticalExtensions
                                          SEQUENCE {
           r4
               measurementControl-r4
                                            MeasurementControl-r4-IEs,
                                                SEQUENCE {
               v4d0NonCriticalExtensions
                   -- Container for adding non critical extensions after freezing REL-5
                   measurementControl-r4-add-ext
                                                                    OPTIONAL,
                                                     BIT STRING
                   v590NonCriticalExtensions
                                                  SEQUENCE {
                       measurementControl-v590ext
                                                  MeasurementControl-v590ext-IEs,
                       v5b0NonCriticalExtensions
                                                      SEQUENCE {
                           measurementControl-v5b0ext
                                                      MeasurementControl-v5b0ext-IEs,
                           nonCriticalExtensions
                                                         SEQUENCE {}
                                                                        OPTIONAL
                           OPTIONAL
                       OPTIONAL
                   OPTIONAL
```

```
criticalExtensions
                                        SEQUENCE {}
   }
}
MeasurementControl-r3-IEs ::= SEQUENCE {
   -- User equipment IEs
       rrc-TransactionIdentifier RRC-TransactionIdentifier,
   -- Measurement IEs
       -- TABULAR: The measurement type is included in MeasurementCommand.
       measurementCommand MeasurementCommand,
measurementReportingMode MeasurementReportingMode
additionalMeasurementList AdditionalMeasurementID-List
Physical channel TFs
                                                                        OPTIONAL.
                                                                       OPTIONAL,
    -- Physical channel IEs
       dpch-CompressedModeStatusInfo DPCH-CompressedModeStatusInfo
                                                                       OPTIONAL
}
MeasurementControl-v390ext ::= SEQUENCE {
       ue-Positioning-Measurement-v390ext
                                           UE-Positioning-Measurement-v390ext OPTIONAL
}
MeasurementControl-v3a0ext ::= SEQUENCE {
                           SFN-Offset-Validity OPTIONAL
   sfn-Offset-Validity
}
MeasurementControl-r4-IEs ::= SEQUENCE {
   -- Measurement IEs
       measurementIdentity MeasurementIdentity,
       -- TABULAR: The measurement type is included in measurementCommand.
       measurementCommand MeasurementCommand-r4,
measurementReportingMode MeasurementReportingMode OPTIONAL,
additionalMeasurementList AdditionalMeasurementID-List OPTIONAL,
   -- Physical channel IEs
       dpch-CompressedModeStatusInfo DPCH-CompressedModeStatusInfo
                                                                       OPTIONAL
}
MeasurementControl-v590ext-IEs ::= SEQUENCE {
       measurementCommand-v590ext
        -- as well as when intra-frequency events are configured for inter-frequency measurement
       intra-frequency
                                         Intra-FregEventCriteriaList-v590ext,
       inter-frequency
                                         Inter-FreqEventCriteriaList-v590ext
           OPTIONAL,
   intraFreqReportingCriteria-lb-r5 IntraFreqReportingCriteria-lb-r5 OPTIONAL,
                                         IntraFreqEvent-1d-r5
   intraFregEvent-1d-r5
                                                                                OPTIONAL,
   -- most significant part of "RRC transaction identifier" (MSP),
   -- "RRC transaction identifier" = rrc-TransactionIdentifier-MSP-v590ext * 4 +
   -- rrc-TransactionIdentifier
   rrc-TransactionIdentifier-MSP-v590ext RRC-TransactionIdentifier
}
MeasurementControl-v5b0ext-IEs ::= SEQUENCE {
   interRATCellInfoIndicator
                                     InterRATCellInfoIndicator OPTIONAL
}
__ ****************
-- MEASUREMENT CONTROL FAILURE
__ ***************
MeasurementControlFailure ::= SEQUENCE {
   -- User equipment IEs
       Jser equipment IES
rrc-TransactionIdentifier
failureCause
laterNonCriticalExtensions
RRC-TransactionIdentifier,
FailureCauseWithProtErr,
SEQUENCE {
           -- Container for additional R99 extensions
           nonCriticalExtensions
                                            SEQUENCE {} OPTIONAL
              OPTIONAL
       } OPTIONAL
}
MeasurementControlFailure-v590ext-IEs ::= SEQUENCE {
   -- most significant part of "RRC transaction identifier" (MSP),
```

```
-- "RRC transaction identifier" = rrc-TransactionIdentifier-MSP-v590ext * 4 +
    -- rrc-TransactionIdentifier
    -- If the rrc-TransactionIdentifier-MSP-v590ext was not received in the MEASUREMENT CONTROL
    -- message, then the rrc-TransactionIdentifier-MSP-v590ext shall be set to zero
    rrc-TransactionIdentifier-MSP-v590ext RRC-TransactionIdentifier
}
__ ****************
-- MEASUREMENT REPORT
__ ***************
MeasurementReport ::= SEQUENCE {
   -- Measurement IEs
       measurementIdentity MeasurementIdentity,
       measuredResults
measuredResults
measuredResultsOnRACH
additionalMeasuredResults
eventResults

MeasuredResultsList
EventResults

Non-critical extension
                                                                        OPTIONAL,
                                                                        OPTIONAL,
                                                                        OPTIONAL.
                                                                         OPTIONAL,
    -- Non-critical extensions
       Non-critical extensions
v390nonCriticalExtensions
measurementReport-v390ext
laterNonCriticalExtensions
SEQUENCE {
MeasurementReport-v390ext,
SEQUENCE {
               -- Container for additional R99 extensions
               measurementReport-r3-add-ext
v4b0NonCriticalExtensions
measurementReport-v4b0ext
BIT STRING OPTIONAL,
SEQUENCE {
MeasurementReport-v4b0ext-IEs,
                   -- Extension mechanism for non-Rel4 information
                   v590NonCriticalExtensions SEQUENCE {
                       measurementReport-v5b0ext MeasurementReport-v5b0ext-IEs, nonCriticalExtensions SEQUENCE {} OPTIONAL
                             OPTIONAL
                          OPTIONAL
                       OPTIONAL
                   OPTIONAL
           }
               OPTIONAL
}
MeasurementReport-v390ext ::= SEQUENCE {
       measuredResults-v390ext MeasuredResults-v390ext
                                                                       OPTIONAL
OPTIONAL.
    -- additionalMeasuredResults-LCR shall contain measurement results and additional measurement
    -- results list.
    additionalMeasuredResults-LCR MeasuredResultsList-LCR-r4-ext
                                                                         OPTIONAL,
    qsmOTDreferenceCell
                                 PrimaryCPICH-Info
                                                                         OPTIONAL
}
MeasurementReport-v590ext-IEs ::= SEQUENCE {
                             MeasuredResults-v590ext
                                                                   OPTIONAL
   measuredResults-v590ext
}
MeasurementReport-v5b0ext-IEs ::= SEQUENCE {
    interRATCellInfoIndicator
                                      InterRATCellInfoIndicator
                                                                OPTIONAL
}
__ ****************************
-- PAGING TYPE 1
__ ***************
PagingType1 ::= SEQUENCE {
    -- User equipment IEs
                           PagingRecordList
       pagingRecordList
                                                                        OPTIONAL,
    -- Other IEs
       bcch-ModificationInfo BCCH-ModificationInfo laterNonCriticalExtensions SEQUENCE {
                                                                        OPTIONAL,
           -- Container for additional R99 extensions
           SEQUENCE { } OPTIONAL
```

```
OPTIONAL
                    OPTIONAL
}
PagingType1-v590ext-IEs ::= SEQUENCE {
     -- User equipment IEs
             pagingRecord2List
                                                                      PagingRecord2List-r5
                                                                                                                                   OPTIONAL
}
__ ****************************
-- PAGING TYPE 2
__ *******************************
PagingType2 ::= SEQUENCE {
       -- User equipment IEs
             rrc-TransactionIdentifier RRC-TransactionIdentifier, pagingCause PagingCause,
       -- Core network IEs
             cn-DomainIdentity
                                                                     CN-DomainIdentity,
              pagingRecordTypeID PagingRecordTypeID,
laterNonCriticalExtensions SEQUENCE {
              pagingRecordTypeID
                      -- Container for additional R99 extensions
                    pagingType2-r3-add-ext BIT STRING nonCriticalExtensions SEQUENCE {}
                                                                                                          OPTIONAL.
                                                                             SEQUENCE {}
                                                                                                          OPTIONAL
                 OPTIONAL
}
__ ****************
-- PHYSICAL CHANNEL RECONFIGURATION
__ ***************
PhysicalChannelReconfiguration ::= CHOICE {
                                                               SEQUENCE {
              physicalChannelReconfiguration-r3
                                                                      PhysicalChannelReconfiguration-r3-IEs,
                                                                           SEQUENCE {
              v3a0NonCriticalExtensions
                     physicalChannelReconfiguration-v3a0ext
                                                                                                   PhysicalChannelReconfiguration-v3a0ext,
                     -- Container for additional R99 extensions
                            physicalChannelReconfiguration-r3-add-ext
                                                                                                                     BIT STRING OPTIONAL,
                            v4b0NonCriticalExtenstions SEQUENCE {
                                   PhysicalChannelReconfiguration-v4b0ext-IEs, v590NonCriticalExtenstions

SECTION SECTIO
                                   physicalChannelReconfiguration-v4b0ext
                                          physicalChannelReconfiguration-v590ext
                                                                                     PhysicalChannelReconfiguration-v590ext-IEs, ns SEQUENCE {
                                          v6xvNonCriticalExtensions
                                                 physicalChannelReconfiguration-v6xyext
                                                                                           PhysicalChannelReconfiguration-v6xyext-IEs,
                                                                                                                         SEQUENCE {} OPTIONAL
                                                 nonCriticalExtensions
                                                 OPTIONAL
                                          OPTIONAL
                                   OPTIONAL
                            OPTIONAL
                    OPTIONAL
       later-than-r3
                                                                SEQUENCE {
             rrc-TransactionIdentifier
                                                                      RRC-TransactionIdentifier,
                                                                      CHOICE {
                    criticalExtensions
                                                                             SEQUENCE {
                     r4
                            physicalChannelReconfiguration-r4
                                                                                   PhysicalChannelReconfiguration-r4-IEs,
                                                                                           SEQUENCE {
                            v4d0NonCriticalExtensions
                                    -- Container for adding non critical extensions after freezing REL-5 \,
                                    physicalChannelReconfiguration-r4-add-ext
                                                                                                                      BIT STRING OPTIONAL,
                                    v590NonCriticalExtenstions
                                                                                                   SEQUENCE {
                                          physicalChannelReconfiguration-v590ext
                                                                                    PhysicalChannelReconfiguration-v590ext-IEs,
                                          physicalChannelReconfiguration-v6xyext
                                                                                            PhysicalChannelReconfiguration-v6xyext-IEs,
                                                                                                        SEQUENCE { } OPTIONAL
                                                 nonCriticalExtensions
                                                 OPTIONAL
                                          OPTIONAL
```

```
} OPTIONAL
            },
           criticalExtensions
                                           CHOICE {
                                               SEQUENCE {
                   physicalChannelReconfiguration-r5
                                                   PhysicalChannelReconfiguration-r5-IEs,
                    -- Container for adding non critical extensions after freezing REL-6
                   physicalChannelReconfiguration-r5-add-ext
                                                                BIT STRING
                                                                                   OPTIONAL,
                    physicalChannelReconfiguration-v6xyext
                                                       PhysicalChannelReconfiguration-v6xyext-IEs,
                                                       SEQUENCE {}
                                                                     OPTIONAL
                       nonCriticalExtensions
                       OPTIONAL
                criticalExtensions
                                                CHOICE {
                                                 SEQUENCE {
                   rб
                       physicalChannelReconfiguration-r6
                                                       PhysicalChannelReconfiguration-r6-IEs,
                        -- Container for adding non critical extensions after freezing REL-7
                       physicalChannelReconfiguration-r6-add-ext
                                                                   BIT STRING
                                                      SEQUENCE {}
                                                                       OPTIONAL
                       nonCriticalExtensions
                    criticalExtensions
                                         SEQUENCE {}
               }
          }
       }
   }
}
PhysicalChannelReconfiguration-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
       User equipment IEs
rrc-TransactionIdentifier RRC-TransactionIdentifier,
       rrc-Transactioniuements
integrityProtectionModeInfo
CipheringModeInfo
CipheringModeInfo
                                       IntegrityProtectionModeInfo
                                                                            OPTIONAL,
                                                                            OPTIONAL,
       activationTime
                                       ActivationTime
                                                                            OPTIONAL,
       new-U-RNTI
                                       U-RNTI
                                                                            OPTIONAL,
       new-C-RNTI C-RNT1
rrc-StateIndicator RRC-StateIndicator,
utran-DRX-CycleLengthCoeff UTRAN-DRX-CycleLengthCoefficient OPTIONAL,
   -- Core network IEs
       cn-InformationInfo
                                       CN-InformationInfo
    -- UTRAN mobility IEs
       ura-Identity
                                      URA-Identity
                                                                            OPTIONAL.
    -- Radio bearer IEs
       dl-CounterSynchronisationInfo DL-CounterSynchronisationInfo
    -- Physical channel IEs
       frequencyInfo FrequencyInfo maxAllowedUL-TX-Power MaxAllowedUL-TX-Power
                                                                            OPTIONAL.
                                                                            OPTIONAL,
        -- TABULAR: UL-ChannelRequirementWithCPCH-SetID contains the choice
        -- between UL DPCH info, CPCH SET info and CPCH set ID.
       ul-ChannelRequirement UL-ChannelRequirementWithCPCH-SetID
                                                                               OPTIONAL,
                                       CHOICE {
       modeSpecificInfo
           fdd
                                          SEQUENCE {
  dummy is not used in this version of specification, it should
 - not be sent and if received it should be ignored.
               dl PDSCH Informationdummy
                                                   DL-PDSCH-Information
                                                                               OPTIONAL
           tdd
                                           NULL
       dl-InformationPerRL-List
        dl-CommonInformation
                                      DL-CommonInformation
                                                                           OPTIONAL.
                                      DL-InformationPerRL-List
                                                                           OPTIONAL
}
PhysicalChannelReconfiguration-v3a0ext ::= SEQUENCE {
-- The IE "new-DSCH-RNTI" should not be included in FDD mode, and if received the UE behaviour
-- is unspecified
   new-DSCH-RNTI
                                                                        OPTIONAL
                                   DSCH-RNTI
}
PhysicalChannelReconfiguration-v4b0ext-IEs ::= SEQUENCE {
     - Physical channel IEs
       -- ssdt-UL extends SSDT-Information, which is included in
        -- DL-CommonInformation. FDD only.
                                           SSDT-III.
       ssdt-UL-r4
                                                                                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
        OPTIONAL,
        cipheringModeInfo
                                        CipheringModeInfo
                                                                            OPTIONAL,
        activationTime
                                        ActivationTime
                                                                            OPTIONAL,
       new-U-RNTI
                                        U-RNTI
                                                                            OPTIONAL.
                                        C-RNTI
       new-C-RNTI
                                                                            OPTIONAL.
 - The IE "new-DSCH-RNTI" should not be included in FDD mode, and if received the UE behaviour
-- is unspecified
       new-DSCH-RNTI
                                       DSCH-RNTI
                                                                            OPTIONAL,
       utran-DRX-CycleLengthCoeff UTRAN-DRX-CycleLengtCore network IEs
                                       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
maxAllowedUL-TX-Power MaxAllowedUL-TX-Power
                                                                            OPTIONAL,
                                                                            OPTIONAL,
        -- TABULAR: UL-ChannelRequirementWithCPCH-SetID-r4 contains the choice
        -- between UL DPCH info, CPCH SET info and CPCH set ID.
        ul-ChannelRequirement UL-ChannelRequirementWithCPCH-SetID-r4 OPTIONAL,
        modeSpecificInfo
                                       CHOICE {
                                           SEQUENCE {
           fdd
- dummy is not used in this version of specification, it should - not be sent and if received it should be ignored.
                dl-PDSCH-Informationdummy
                                                    DL-PDSCH-Information
                                                                                OPTIONAL
            tdd
                                            NULL
        dl-CommonInformation DL-CommonInformation-r4 dl-InformationPerRL-List DL-InformationPerRL-List-r4
                                                                           OPTIONAL,
                                                                          OPTIONAL
}
PhysicalChannelReconfiguration-r5-IEs ::= SEQUENCE {
    -- User equipment IEs
        integrityProtectionModeInfo
                                       IntegrityProtectionModeInfo
                                                                            OPTIONAL,
        cipheringModeInfo
                                                                            OPTIONAL,
                                        CipheringModeInfo
        activationTime
                                        ActivationTime
                                                                            OPTIONAL,
        new-U-RNTI
                                        II-RNTT
                                                                            OPTIONAL,
       new-C-RNTI
                                        C-RNTI
                                                                            OPTIONAL,
 - The IE "new-DSCH-RNTI" should not be included in FDD mode, and if received the UE behaviour
-- is unspecified
                                        DSCH-RNTI
       new-DSCH-RNTI
                                                                            OPTIONAL,
       new-H-RNTI
                                                                            OPTIONAL,
                                        H-RNTI
       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
                                                                            OPTIONAL,
       maxAllowedUL-TX-Power
        -- TABULAR: UL-ChannelRequirementWithCPCH-SetID-r5 contains the choice
        -- between UL DPCH info, CPCH SET info and CPCH set ID.
        ul-ChannelRequirement UL-ChannelRequirementWithCPCH-SetID-r5 OPTIONAL,
       modeSpecificInfo
                                       CHOICE {
                                            SEQUENCE {
            fdd
  dummy is not used in this version of specification, it should
  not be sent and if received it should be ignored.
               dl PDSCH Informationdummy
                                                    DL-PDSCH-Information
                                                                                OPTIONAL
            tdd
                                            NULL
       dl-HSPDSCH-Information DL-HSPDSCH-Information dl-CommonInformation DL-CommonInformation-r5
                                                                           OPTIONAL,
        dl-CommonInformation
                                       DL-CommonInformation-r5
                                                                            OPTIONAL.
                                       DL-InformationPerRL-List-r5
        dl-InformationPerRL-List
                                                                            OPTIONAL
```

```
}
PhysicalChannelReconfiguration-r6-IEs ::= SEQUENCE {
    -- User equipment IEs
       integrityProtectionModeInfo
                                       IntegrityProtectionModeInfo
                                                                           OPTIONAL,
       cipheringModeInfo
                                       CipheringModeInfo
       activationTime
                                       ActivationTime
                                                                           OPTIONAL,
       new-U-RNTI
                                       U-RNTI
                                                                           OPTIONAL,
       new-C-RNTI
                                       C-RNTI
                                                                           OPTIONAL,
  The IE "new-DSCH-RNTI" should not be included in FDD mode, and if received the UE behaviour
-- is unspecified
       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
                                                                           OPTIONAL.
       ura-Identity
   -- 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-r6 contains the choice
        -- 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 {
                                           SEQUENCE {
           fdd
               dl PDSCH Information
                                               DL-PDSCH-Information OPTIONAL
           t.dd
                                         NULL
       dl-HSPDSCH-Information
                                     DL-HSPDSCH-Information
                                                                           OPTIONAL,
       dl-CommonInformation
                                       DL-CommonInformation-r6
                                                                           OPTIONAL,
                                     DL-InformationPerRL-List-r6
       dl-InformationPerRL-List
                                                                           OPTIONAL,
    -- MBMS IEs
       mbms-PL-ServiceRestrictInfo
                                       MBMS-PL-ServiceRestrictInfo-r6
}
PhysicalChannelReconfiguration-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
}
__ ****************************
-- PHYSICAL CHANNEL RECONFIGURATION COMPLETE
__ ******************************
PhysicalChannelReconfigurationComplete ::= SEQUENCE {
    -- User equipment IEs
       rrc-TransactionIdentifier RRC-TransactionIdentifier, ul-IntegProtActivationInfo IntegrityProtActivationInfo
                                                                           OPTIONAL,
       -- TABULAR: UL-TimingAdvance is applicable for TDD mode only.
       ul-TimingAdvance
                                       UL-TimingAdvance
                                                                           OPTIONAL.
   -- Radio bearer IEs
       count-C-ActivationTime
                                       ActivationTime
                                                                           OPTIONAL,
        -- dummy is not used in this version of the specification and
        -- it should be ignored by the receiver.
       dummy
                                       RB-ActivationTimeInfoList
                                                                           OPTIONAL,
       ul-CounterSynchronisationInfo UL-CounterSynchronisationInfo laterNonCriticalExtensions SEQUENCE {
            -- Container for additional R99 extensions
           physicalChannelReconfigurationComplete-r3-add-ext BIT STRING
                                                                                 OPTIONAL,
           {\tt nonCriticalExtensions}
                                           SEQUENCE {}
                                                        OPTIONAL
       } OPTIONAL
}
```

```
__ ****************************
-- PHYSICAL CHANNEL RECONFIGURATION FAILURE
PhysicalChannelReconfigurationFailure ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier RRC-TransactionIdentifier failureCause FailureCauseWithProtErr, laterNonCriticalExtensions SEQUENCE {
                                                                                 OPTIONAL,
             -- Container for additional R99 extensions
             physicalChannelReconfigurationFailure-r3-add-ext BIT STRING OPTIONAL,
            {\tt nonCriticalExtensions} \qquad \qquad {\tt SEQUENCE} \ \{\,\} \qquad {\tt OPTIONAL}
        } OPTIONAL
}
__ ****************
-- PHYSICAL SHARED CHANNEL ALLOCATION (TDD only)
__ ***************
PhysicalSharedChannelAllocation ::= CHOICE {
                                       SEQUENCE {
        physicalSharedChannelAllocation-r3
        PhysicalSharedChannelAllocation-r3-IEs, laterNonCriticalExtensions SEQUENCE {
            -- Container for additional R99 extensions
                                                              BIT STRING OPTIONAL,
             physicalSharedChannelAllocation-r3-add-ext
             {\tt nonCriticalExtensions} \qquad \qquad {\tt SEQUENCE} \ \{\} \ {\tt OPTIONAL}
        } OPTIONAL
    },
        uscn-RNTI DSCH-RNTI
rrc-TransactionIdentifier RRC-TransactionIdentifier,
criticalExtensions CHOICE {
    r4 SEQUENCE (
                           SEQUENCE {
    later-than-r3
                                                                                  OPTIONAL,
                 {\tt physicalSharedChannelAllocation-r4}
                                             PhysicalSharedChannelAllocation-r4-IEs,
                                                   SEQUENCE {
                 v4d0NonCriticalExtensions
                      -- Container for adding non critical extensions after freezing REL-5
                      physicalSharedChannelAllocation-r4-add-ext BIT STRING OPTIONAL,
                      physicalSharedChannelAllocation-v6xyext
                                                    PhysicalSharedChannelAllocation-v6xyext-IEs,
                          nonCriticalExtensions
                                                             SEQUENCE { } OPTIONAL
                             OPTIONAL
                          OPTIONAL
                 }
             criticalExtensions SEQUENCE {}
        }
}
PhysicalSharedChannelAllocation-r3-IEs ::= SEQUENCE {
    -- TABULAR: Integrity protection shall not be performed on this message.
        DSCH-RNTI
rrc-TransactionIdentifier RRC-TransactionIdentifier,
Physical channel IEs
ul-TimingAdvance
    -- User equipment IEs
        dsch-RNTI
                                                                                  OPTIONAL,
    -- Physical channel IEs
        ul-TimingAdvanceUL-TimingAdvanceControlOPTIONAL,pusch-CapacityAllocationInfoPUSCH-CapacityAllocationInfoOPTIONAL,pdsch-CapacityAllocationInfoPDSCH-CapacityAllocationInfoOPTIONAL,
         -- TABULAR: If confirmRequest is not present, the default value "No Confirm"
        -- shall be used as specified in 10.2.25.
                                         ENUMERATED {
        confirmRequest
                                              confirmPDSCH, confirmPUSCH } OPTIONAL,
NTEGER (0..255) OPTIONAL,
Timeslotlist
        confirmPDSCH, trafficVolumeReportRequest iscpTimeslotList requestPCCPCHRSCP confirmPDSCH, INTEGER (0..255) iscpTimeslotList requestPCCPCHRSCP BOOLEAN
                                                                                       OPTIONAL,
        requestPCCPCHRSCP
}
PhysicalSharedChannelAllocation-r4-IEs ::= SEQUENCE {
    -- TABULAR: Integrity protection shall not be performed on this message.
    -- Physical channel IEs ul-TimingAdvance
                                           UL-TimingAdvanceControl-r4
                                                                                 OPTIONAL,
        pusch-CapacityAllocationInfo PUSCH-CapacityAllocationInfo-r4
```

```
pdsch-CapacityAllocationInfo PDSCH-CapacityAllocationInfo-r4
                                                                      OPTIONAL,
        -- TABULAR: If confirmRequest is not present, the default value "No Confirm"
       -- shall be used as specified in 10.2.25.
       confirmRequest
                                   ENUMERATED {
       confirmPDSCH,
trafficVolumeReportRequest INTEGER (0..255)
iscpTimeslotList TimeslotList-r4
requestPCCPCHRSCP BOOLEAN
                                         confirmPDSCH, confirmPUSCH }
                                                                        OPTIONAL,
                                                                        OPTIONAL,
}
PhysicalSharedChannelAllocation-v6xyext-IEs ::= SEQUENCE {
    -- Physical Channel IEs
                                                                        OPTIONAL.
       beaconPLEst.
                                     BEACON-PL-Est
}
  ***************
-- PUSCH CAPACITY REQUEST (TDD only)
__ *******************
PUSCHCapacityRequest ::= SEQUENCE {
   -- User equipment IEs
       dsch-RNTI
                                    DSCH-RNTI
                                                                        OPTIONAL,
   protocolErrorIndicator ProtocolErrorIndicatorWithMoreInfo,
laterNonCriticalExtensions SEQUENCE {
           -- Container for additional R99 extensions
           v590NonCriticalExtensions SEQUENCE {
               puschCapacityRequest-v590ext PUSCHCapacityRequest-v590ext, nonCriticalExtensions SEQUENCE {} OPTIONAL
                  OPTIONAL
           OPTIONAL
}
PUSCHCapacityRequest-v590ext ::= SEQUENCE {
   primaryCCPCH-RSCP-delta DeltaRSCP
                                                       OPTIONAL
__ ******************
-- RADIO BEARER RECONFIGURATION
__ **************
RadioBearerReconfiguration ::= CHOICE {
                                 SEQUENCE {
       radioBearerReconfiguration-r3 RadioBearerReconfiguration-r3-IEs,
        -- Prefix "v3ao" is used (in one instance) to keep alignment with R99
       v3aoNonCriticalExtensions SEQUENCE {
           radioBearerReconfiguration-v3a0ext RadioBearerReconfiguration-v3a0ext,
           -- Container for additional R99 extensions
               radioBearerReconfiguration-r3-add-ext
                                                       BIT STRING
                                                                      OPTIONAL,
                                                SEQUENCE {
               v4b0NonCriticalExtensions
                  radioBearerReconfiguration-v4b0ext
                   {\tt RadioBearerReconfiguration-v4b0ext-IEs,} \\ {\tt v590NonCriticalExtensions} \\ {\tt SEQUENCE} \ \big\{
                      radioBearerReconfiguration-v590ext
                      \label{eq:radioBearerReconfiguration-v590ext-IEs, v6xyNonCriticalExtensions} RadioBearerReconfiguration-v590ext-IEs, v6xyNonCriticalExtensions SEQUENCE {}
                          radioBearerReconfiguration-v6xyext
                                                        RadioBearerReconfiguration-v6xyext-IEs,
                          nonCriticalExtensions
                                                       SEQUENCE {} OPTIONAL
                          OPTIONAL
                      OPTIONAL
                  OPTIONAL
               OPTIONAL
           OPTIONAL
   later-than-r3
                                 SEQUENCE {
```

```
rrc-TransactionIdentifier
                                                                    RRC-TransactionIdentifier,
             criticalExtensions
                                                                    CHOICE {
                    r4
                                                                          SEQUENCE {
                           radioBearerReconfiguration-r4 RadioBearerReconfiguration-r4-IEs,
                           v4d0NonCriticalExtensions
                                                                                       SEQUENCE {
                                  -- Container for adding non critical extensions after freezing REL-5
                                  radioBearerReconfiguration-r4-add-ext
                                                                                                           BIT STRING OPTIONAL,
                                  v590NonCriticalExtensions
                                                                                             SEQUENCE {
                                         radioBearerReconfiguration-v590ext
                                                                                       RadioBearerReconfiguration-v590ext-IEs,
                                         v6xyNonCriticalExtensions
                                                                                             SEQUENCE {
                                                radioBearerReconfiguration-v6xyext
                                                                                                      RadioBearerReconfiguration-v6xyext-IEs,
                                                nonCriticalExtensions
                                                                                                      SEQUENCE {}
                                                                                                                               OPTIONAL
                                                OPTIONAL
                                         OPTIONAL
                                  OPTIONAL
                    criticalExtensions
                                                                           CHOICE {
                                                                                         SEQUENCE {
                                  radioBearerReconfiguration-r5
                                                                                             RadioBearerReconfiguration-r5-IEs,
                                   -- Container for adding non critical extensions after freezing REL-6
                                  radioBearerReconfiguration-r5-add-ext
                                                                                                             BIT STRING
                                                                                  SEQUENCE {
                                  v6xyNonCriticalExtensions
                                         radioBearerReconfiguration-v6xyext
                                                                                                RadioBearerReconfiguration-v6xyext-IEs,
                                         nonCriticalExtensions
                                                                                                SEQUENCE { } OPTIONAL
                                         OPTIONAL
                                                                                  CHOICE {
                           criticalExtensions
                                                                                                SEOUENCE {
                                  r6
                                         radioBearerReconfiguration-r6
                                                                                                    RadioBearerReconfiguration-r6-IEs,
                                         -- Container for adding non critical extensions after freezing REL-7 \,
                                         radioBearerReconfiguration-r6-add-ext
                                                                                                                 BIT STRING
                                                                                                      SEQUENCE {}
                                         nonCriticalExtensions
                                                                                                                                 OPTIONAL
                                  criticalExtensions
                                                                                        SEQUENCE {}
                           }
                   }
            }
      }
}
RadioBearerReconfiguration-r3-IEs ::= SEQUENCE {
      -- User equipment IEs
             rrc-TransactionIdentifier
                                                                   RRC-TransactionIdentifier,
             integrityProtectionModeInfo
                                                                    IntegrityProtectionModeInfo
                                                                                                                                  OPTIONAL,
             cipheringModeInfo
                                                                    CipheringModeInfo
                                                                                                                                  OPTIONAL,
                                                                   ActivationTime
             activationTime
             new-U-RNTI
                                                                    U-RNTI
                                                                                                                                  OPTIONAL,
             new-C-RNTI
                                                                   C-RNTI
                                                                                                                                  OPTIONAL,
             rrc-StateIndicator
                                                                   RRC-StateIndicator,
             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
             rab-InformationReconfigList RAB-InformationReconfigList
              -- 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 {
                           cpch-SetID
                                                                                  CPCH-SetID
                                                                                                                                  OPTIONAL,
                           addReconfTransChDRAC-Info
                                                                                  DRAC-StaticInformationList OPTIONAL
                    },
                                                                           NULL
                    tdd
             DL-CommonTransChInfo
DL-DeletedTransChInfo
dl-AddReconfTransChInfoList
DL-AddPon
DL-DeletedTransChInfo
DL-AddPon
DL-DeletedTransChInfo
DL-AddPon
DL-DeletedTransChInfo
DL-DeletedT
                                                                                                                                  OPTIONAL,
                                                                                                                                  OPTIONAL,
                                                                   DL-DeletedTransChInfoList
                                                                                                                                  OPTIONAL,
                                                                   DL-AddReconfTransChInfo2List
                                                                                                                                 OPTIONAL,
       -- Physical channel IEs
```

```
frequencyInfo
                                              FrequencyInfo
                                                                                          OPTIONAL,
         maxAllowedUL-TX-Power MaxAllowedUL-TX-Power ul-ChannelRequirement UL-ChannelRequirement
                                                                                          OPTIONAL,
                                                                                         OPTIONAL,
         modeSpecificPhysChInfo CHOICE {
              fdd
                                                   SEQUENCE {
-- dummy is not used in this version of specification,
                                                                 it should
 - not be sent and if received it should be ignored.
                                                             DL-PDSCH-Information OPTIONAL
                  \underline{\text{dl PDSCH Information}}\underline{\text{dummy}}
              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 {
-- The IE "new-DSCH-RNTI" should not be included in FDD mode, and if received the UE behaviour
-- is unspecified
                                          DSCH-RNTI
                                                                                     OPTIONAL
    new-DSCH-RNTI
RadioBearerReconfiguration-v4b0ext-IEs ::= SEQUENCE {
     -- Physical channel IEs
         -- ssdt-UL extends SSDT-Information, which is included in
         -- DL-CommonInformation. FDD only.
                                                    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
}
{\tt RadioBearerReconfiguration-r4-IEs} \; ::= \; {\tt SEQUENCE} \; \big\{
    -- User equipment IEs
         integrityProtectionModeInfo
                                               IntegrityProtectionModeInfo
         cipheringModeInfo
                                              CipheringModeInfo
                                                                                          OPTIONAL.
         activationTime
                                               ActivationTime
                                                                                          OPTIONAL,
         new-U-RNTI
                                               U-RNTI
                                                                                          OPTIONAL,
         new-C-RNTI
                                              C-RNTI
                                                                                          OPTIONAL,
-- The IE "new-DSCH-RNTI" should not be included in FDD mode, and if received the UE behaviour
-- is unspecified
         new-DSCH-RNTI
rrc-StateIndicator
utran-DRX-CycleLengthCoeff

TTT

TTT

RRC-StateIndicator,
UTRAN-DRX-CycleLengthCoefficient
                                                                                          OPTIONAL,
                                                                                         OPTIONAL,
     -- Core network IEs
         cn-InformationInfo
                                              CN-InformationInfo
                                                                                          OPTTONAL.
     -- UTRAN mobility IEs
         ura-Identity
                                              URA-Identity
                                                                                          OPTIONAL,
     -- Radio bearer IEs
         rab-InformationReconfigList
rb-InformationReconfigList
rb-InformationAffectedList
RB-InformationAffectedList
RB-InformationAffectedList
                                                                                          OPTIONAL.
                                                                                          OPTIONAL,
                                                                                          OPTIONAL,
     -- Transport channel IEs

    ul-CommonTransChInfo
    UL-CommonTransChInIo-r4

    ul-deletedTransChInfoList
    UL-DeletedTransChInfoList

    ul-AddReconfTransChInfoList
    UL-AddReconfTransChInfoList

    modeSpecificTransChInfo
    CHOICE {

    SEQUENCE {

                                                                                         OPTTONAL.
                                                                                          OPTIONAL,
                                               UL-AddReconfTransChInfoList
                                                                                         OPTIONAL,
                   cpch-SetID
                                                        CPCH-Set.ID
                                                                                          OPTIONAL.
                   addReconfTransChDRAC-Info
                                                         DRAC-StaticInformationList OPTIONAL
              },
              tdd
                                                    NULL
                                                                                          OPTIONAL.
         dl-CommonTransChInfo DL-CommonTransChInfo-r4
dl-DeletedTransChInfoList DL-DeletedTransChInfoList
dl-AddReconfTransChInfoList DL-AddReconfTransChInfoList-r4
                                                                                          OPTIONAL,
                                                                                         OPTIONAL,
     -- Physical channel IEs
         {\tt frequencyInfo}
                                              FrequencyInfo
                                                                                         OPTIONAL,
                                       MaxAllowedUL-TA-rower
UL-ChannelRequirement-r4
         maxAllowedUL-TX-Power
                                                                                         OPTIONAL,
         ul-ChannelRequirement
                                                                                        OPTIONAL,
         ul-ChannelRequirement of CHOICE {
                                                   SEOUENCE {
              fdd
```

```
-- dummy is not used in this version of specification, it should
    not be sent and if received it should be ignored.
                             dummydl PDSCH Information
                                                                                                DL-PDSCH-Information
                                                                                                                                                 OPTIONAL
                      tdd
                                                                                 NULL
               },
              dl-CommonInformation DL-CommonInformation-r4 dl-InformationPerRL-List DL-InformationPerRL-List-r4
                                                                                                                                          OPTIONAL,
                                                                                                                                            OPTIONAL
}
{\tt RadioBearerReconfiguration-r5-IEs} \; ::= \; {\tt SEQUENCE} \; \left\{ \right. \\
       -- User equipment IEs
               integrityProtectionModeInfo
                                                                          IntegrityProtectionModeInfo
                                                                                                                                             OPTIONAL,
                                                                          CipheringModeInfo
               cipheringModeInfo
                                                                                                                                             OPTIONAL.
               activationTime
                                                                          ActivationTime
                                                                                                                                             OPTIONAL,
               new-U-RNTI
                                                                          U-RNTI
                                                                                                                                             OPTIONAL,
              new-C-RNTI
                                                                          C-RNTI
                                                                                                                                             OPTIONAL,
    The IE "new-DSCH-RNTI" should not be included in FDD mode, and if received the UE behaviour
     is unspecified
              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
                                                                                                                                             OPTIONAL,
              ura-Identity
       -- Specification mode information
                                                                         CHOICE {
               specificationMode
                      complete
                                                                                 SEQUENCE {
                      -- Radio bearer IEs
                             rab-InformationReconfigList
                                                                                        RAB-InformationReconfigList
                                                                                                                                                           OPTIONAL,
                             rb-InformationAffectedList RB-InformationAffectedList-r5
RB-InformationAffectedList-r5
                                                                                                                                                          OPTIONAL,
                                                                                        RB-InformationAffectedList-r5
                                                                                                                                                           OPTIONAL,
                             rb-PDCPContextRelocationList RB-PDCPContextRelocationList
                                                                                                                                                          OPTIONAL,
                      -- Transport channel IEs

    ul-CommonTransChInfo
    UL-CommonTransCnInfo-14

    ul-deletedTransChInfoList
    UL-DeletedTransChInfoList

    ul-AddReconfTransChInfoList
    UL-AddReconfTransChInfoList

    modeSpecificTransChInfo
    CHOICE {

    fdd
    SEQUENCE {

                                                                                                                                                           OPTIONAL,
                                                                                                                                                            OPTIONAL,
                                                                                        UL-AddReconfTransChInfoList
                                                                                                                                                           OPTIONAL,
                                             cpch-SetID
                                                                                                       CPCH-SetID
                                                                                                                                                            OPTIONAL,
                                            addReconfTransChDRAC-Info
                                                                                                       DRAC-StaticInformationList OPTIONAL
                                     },
                                     tdd
                                                                                               NULL
                                                                                                                                                            OPTIONAL,
                             dl-CommonTransChInfo
dl-DeletedTransChInfoList
                                                                                       DL-CommonTransChInfo-r4
                                                                                                                                                            OPTIONAL,
                                                                                        DL-DeletedTransChInfoList-r5
                                                                                                                                                            OPTIONAL.
                             dl-AddReconfTransChInfoList DL-AddReconfTransChInfoList-r5
                                                                                                                                                            OPTIONAL
                                                                               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
                                                                             rement

LITY PredefinedConfigIdentity,

SEQUENCE {

Default and the second seco
                      -- FDD/TDD choice in this level is sufficient.
                             preConfigMode
                                    predefinedConfigIdentity
                                     defaultConfig
                                           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 {
                                                                               SEQUENCE {
                     fdd
-- dummy is not used in this version of specification, it should
     not be sent and if received it should be ignored.
                             dummydl-PDSCH-Information
                                                                                                DL-PDSCH-Information
                                                                                                                                                 OPTIONAL
                      },
                      tdd
                                                                                 NULL
              },
dl-HSPDSCH-Information DL-HSPDSCH-Information
dl-CommonInformation DL-CommonInformation-r5
                                                                                                                                            OPTIONAL,
                                                                                                                                            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,
   The IE "new-DSCH-RNTI" should not be included in FDD mode, and if received the UE behaviour
-- is unspecified
        new-DSCH-RNTI
                                           DSCH-RNTT
                                                                                    OPTIONAL,
        new-H-RNTI
                                           H-RNTT
                                                                                    OPTIONAL.
        new-E-RNTI
                                           E-RNTI
                                                                                    OPTIONAL,
        rrc-StateIndicator
                                           RRC-StateIndicator,
        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
                                                                                    OPTIONAL.
        ura-Identity
    -- Specification mode information
                                            CHOICE {
        specificationMode
                                             SEQUENCE {
             complete
             -- Radio bearer TEs
                 rab-InformationReconfigList RAB-InformationReconfigList OPTIONAL, rb-InformationAffectedList RB-InformationAffectedList RB-InformationAffectedList-r6 OPTIONAL, rb-PDCPContextRelocationList RB-PDCPContextRelocationList OPTIONAL,
                 -- Transport channel IEs
                          addReconfTransChDRAC-Info
                                                             DRAC-StaticInformationList OPTIONAL
                      },
                      tdd
                                                       NULL
                                                                                            OPTIONAL,
                 dl-CommonTransChInfo DL-CommonTransChInfo-r4
dl-DeletedTransChInfoList DL-DeletedTransChInfoList-r5
dl-AddReconfTransChInfoList DL-AddReconfTransChInfoList-r5
                                                                                             OPTIONAL,
                                                                                             OPTIONAL.
                                                                                            OPTIONAL
                                           SEQUENCE {
             preconfiguration
             -- All IEs that include an FDD/TDD choice are split in two IEs for this message,
             \mbox{--} one for the FDD only elements and one for the TDD only elements, so that one
             \operatorname{\text{--}} FDD/TDD choice in this level is sufficient.
                                                  CHOICE {
                          aultConfig

defaultConfigIdentity

defaultConfigIdentity

defaultConfigMode

defaultConfigIdentity

defaultConfigIdentity

DefaultConfigIdentity
                 preConfigMode
                     predefinedConfigIdentity
                      defaultConfig
                                                            DefaultConfigIdentity-r5
                      }
                 }
             }
    -- Physical channel IEs
                                         FrequencyInfo
MaxAllowedUL-TX-Power
                                                                                   OPTIONAL,
         frequencyInfo
        maxAllowedUL-TX-Power
                                          UL-ChannelRequirement-r6
         ul-ChannelRequirement
                                                                                  OPTIONAL,
         ul-EDCH-Information
                                         UL-EDCH-Information-r6
         modeSpecificPhysChInfo
                                           CHOICE {
                                              SEOÙENCE (
            fdd
               dl PDSCH Information DL PDSCH Information OPTIONAL
             tdd
        dl-HSPDSCH-Information DL-HSPDSCH-Information dl-CommonInformation
                                                                                   OPTIONAL,
                                           DL-CommonInformation-r6
         dl-CommonInformation
                                                                                    OPTIONAL,
         dl-InformationPerRL-List DL-InformationPerRL-List-r6
    -- MBMS IEs
        mbms-PL-ServiceRestrictInfo
                                         MBMS-PL-ServiceRestrictInfo-r6
}
RadioBearerReconfiguration-v6xyext-IEs ::= SEQUENCE {
    -- Core network IEs
                                          PLMN-Identity
        primary-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
}
__ ****************
-- RADIO BEARER RECONFIGURATION COMPLETE
__ ***************
RadioBearerReconfigurationComplete ::= SEQUENCE {
    -- User equipment IEs
       rrc-TransactionIdentifier RRC-TransactionIdentifier, ul-IntegProtActivationInfo IntegrityProtActivationInfo
                                                                               OPTIONAL.
        -- TABULAR: UL-TimingAdvance is applicable for TDD mode only.
                                UL-TimingAdvance
        ul-TimingAdvance
                                                                                OPTIONAL.
    -- Radio bearer IEs
        count-C-ActivationTime
                                        ActivationTime
                                                                                OPTIONAL,
        -- dummy is not used in this version of the specification and
        -- it should be ignored by the receiver.
                                       RB-ActivationTimeInfoList
                                                                              OPTIONAL.
        ul-CounterSynchronisationInfo UL-CounterSynchronisationInfo OPTIONAL, laterNonCriticalExtensions SEQUENCE {
             -- Container for additional R99 extensions
            radioBearerReconfigurationComplete-r3-add-ext BIT STRING OPTIONAL,
            nonCriticalExtensions
                                            SEQUENCE {} OPTIONAL
           OPTIONAL
}
  *************
-- RADIO BEARER RECONFIGURATION FAILURE
__ ***************
RadioBearerReconfigurationFailure ::= SEQUENCE {
    -- User equipment IEs
        Jser equipment IES
rrc-TransactionIdentifier RRC-TransactionIdentifier,
failureCause FailureCauseWithProtErr,
    -- Radio bearer IEs
        {\tt potentiallySuccesfulBearerList} \quad {\tt RB-IdentityList}
                                                                         OPTIONAL,
        -- Container for additional R99 extensions
            radioBearerReconfigurationFailure-r3-add-ext BIT STRING
                                                                                   OPTIONAL,
            nonCriticalExtensions
                                              SEQUENCE {} OPTIONAL
           OPTIONAL
}
__ ***************************
-- RADIO BEARER RELEASE
__ ***************
RadioBearerRelease ::= CHOICE {
        SEQUENCE {
radioBearerRelease-r3 RadioBearerRelease-r3-IEs,
v3a0NonCriticalExtensions SEQUENCE {
radioBearerRelease-v3a0ext
radioBearerRelease-v3a0ext
laterNonCriticalExtensions SEQUENCE {
            -- Container for additional R99 extensions
            radioBearerRelease-r3-add-ext BIT STRING OPTIONAL,
v4b0NonCriticalExtensions SEQUENCE {
    radioBearerRelease-v4b0ext RadioBearerRelease-v4b0ext-IEs,
    v590NonCriticalExtensions SEQUENCE {
                         radioBearerRelease-v590ext RadioBearerRelease-v590ext-IEs, v6xyNonCriticalExtensions SEQUENCE {
                             radioBearerRelease-v6xyext RadioBearerRelease-v6xyext-IEs, nonCriticalExtensions SEQUENCE {} OPTIONAL
                                OPTIONAL
                         OPTIONAL
                     OPTIONAL
                 OPTIONAL
        ) OPTIONAL
```

```
later-than-r3
                                        SEQUENCE {
                                        RRC-TransactionIdentifier,
         rrc-TransactionIdentifier
         criticalExtensions
                                            CHOICE {
                 radioBearerRelease-r4 SEQUENCE {
                 -- Container for adding non critical extensions after freezing REL-5
                      radioBearerRelease-r4-add-ext BIT STRING v590NonCriticalExtensions SEQUENCE {
                                                                               OPTIONAL,
                          radioBearerRelease-v590ext RadioBearerRelease-v590ext-IEs, v6xyNonCriticalExtensions SEQUENCE {
                                                              SEQUENCE {
                               radioBearerRelease-v6xyext
                                                                   RadioBearerRelease-v6xyext-IEs,
                                                                   SEQUENCE {}
                                                                                     OPTIONAL.
                               nonCriticalExtensions
                               OPTIONAL
                           OPTIONAL
                  }
                      OPTIONAL
             criticalExtensions
                                                 CHOICE {
                 r5
                                                    SEQUENCE {
                      radioBearerRelease-r5
                                                         RadioBearerRelease-r5-IEs,
                       -- Container for adding non critical extensions after freezing REL-6
                      radioBearerRelease-r5-add-ext BIT STRING OPTIONAL,
                                                         SEQUENCE {
                      v6xyNonCriticalExtensions
                          radioBearerRelease-v6xyext RadioBearerRelease-v6xyext-IEs,
                                                              SEQUENCE {}
                          nonCriticalExtensions
                                                                                OPTIONAL
                          OPTIONAL
                  criticalExtensions
                                                    CHOICE {
                                                      SEQUENCE {
                          radioBearerRelease-r6
                                                          RadioBearerRelease-r6-IEs,
                           -- Container for adding non critical extensions after freezing REL-7
                          OPTIONAL,
                                                                                OPTIONAL
                      },
                      criticalExtensions SEQUENCE {}
             }
        }
    }
}
RadioBearerRelease-r3-IEs ::= SEQUENCE {
        Jser equipment IEs
rrc-TransactionIdentifier RRC-TransactionIdentifier,
integrityProtectionModeInfo CipheringModeInfo
CipheringModeInfo
    -- User equipment IEs
                                                                                     OPTIONAL,
                                                                                     OPTIONAL,
         activationTime
                                            ActivationTime
                                                                                     OPTIONAL,
        new-U-RNTI
                                            U-RNTI
                                                                                     OPTIONAL,
        utran-DRX-CycleLengthCoeff UTRAN-DRX-CycleLengthCoefficient
Core network IEs
cn-InformationInfo
                                                                                     OPTIONAL,
    -- Core network IEs
                                                                                     OPTIONAL,
         signallingConnectionRelIndication CN-DomainIdentity
                                                                                     OPTIONAL,
    -- UTRAN mobility IEs
        ura-Identity
                                            URA-Identity
                                                                                     OPTIONAL,
    -- Radio bearer IEs
        rab-InformationReconfigList
rb-InformationReleaseList
rb-InformationAffectedList
rb-InformationAffectedList
dl-CounterSynchronisationInfo
RAB-InformationReconfigList
RB-InformationReleaseList,
RB-InformationAffectedList
DL-CounterSynchronisationInfo
                                                                                     OPTIONAL,
                                                                                     OPTIONAL.
                                                                                     OPTIONAL,
    -- Transport channel IEs
         ul-CommonTransChInfo
                                            UL-CommonTransChInfo
                                                                                     OPTIONAL,
        ul-deletedTransChInfoList
                                            UL-DeletedTransChInfoList
                                                                                     OPTIONAL,
         ul-AddReconfTransChInfoList UL-AddReconfTransChInfoList modeSpecificTransChInfo CHOICE {
   fdd SEQUENCE {
                                                                                     OPTIONAL,
                                                     CPCH-SetID
                 cpch-SetID
                                                                                     OPTIONAL,
                                                     DRAC-StaticInformationList OPTIONAL
                  addReconfTransChDRAC-Info
             tdd
                                                 NULL
                                                                                     OPTIONAL,
        dl-CommonTransChInfo
dl-DeletedTransChInfoList
dl-AddReconfTransChInfoList
DL-AddReconfTransChInfo2List
DL-AddReconfTransChInfo2List
                                                                                     OPTIONAL,
                                                                                     OPTIONAL,
                                                                                    OPTIONAL,
    -- Physical channel IEs
        frequencyInfo
                                            FrequencyInfo
                                                                                     OPTIONAL.
         maxAllowedUL-TX-Power
                                            MaxAllowedUL-TX-Power
                                                                                     OPTIONAL,
```

```
ul-ChannelRequirement
                                         UL-ChannelRequirement
                                                                               OPTIONAL,
        modeSpecificPhysChInfo
                                         CHOICE {
            fdd
                                              SEQUENCE {
-- dummy is not used in this version of specification, it should
  not be sent and if received it should be ignored.
                dummydl-PDSCH-Information
                                                      DL-PDSCH-Information
                                                                                   OPTIONAL
            tdd
                                         NULL
        dl-CommonInformation
                                         DL-CommonInformation
                                                                               OPTIONAL,
                                       DL-InformationPerRL-List
        dl-InformationPerRL-List
                                                                               OPTIONAL
}
RadioBearerRelease-v3a0ext ::= SEQUENCE {
-- The IE "new-DSCH-RNTI" should not be included in FDD mode, and if received the UE behaviour
-- is unspecified
    new-DSCH-RNTI
                                     DSCH-RNTT
                                                                           OPTIONAL
}
RadioBearerRelease-v4b0ext-IEs ::= SEQUENCE {
    -- Physical channel IEs
        -- IE ssdt-UL extends SSDT-Information, which is included in
        -- DL-CommonInformation. FDD only.
                                              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,
 - The IE "new-DSCH-RNTI" should not be included in FDD mode, and if received the UE behaviour
-- is unspecified
        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 rb-InformationReleaseList rb-InformationAffectedList RB-InformationAffectedList
                                                                               OPTIONAL,
                                                                               OPTIONAL,
        dl-CounterSynchronisationInfo DL-CounterSynchronisationInfo
                                                                               OPTIONAL,
    -- Transport channel IEs
        ul-CommonTransChInfo
                                         UL-CommonTransChInfo-r4
                                                                               OPTIONAL,
        ul-deletedTransChInfoList
ul-AddReconfTransChInfoList
                                         UL-DeletedTransChInfoList
                                                                               OPTIONAL,
                                         UL-AddReconfTransChInfoList
                                                                               OPTIONAL.
        modeSpecificTransChInfo
                                         CHOICE {
            fdd
                                              SEQUENCE {
                cpch-SetID
                                                 CPCH-SetID
                                                                               OPTIONAL,
                addReconfTransChDRAC-Info
                                                  DRAC-StaticInformationList OPTIONAL
            tdd
                                              NULL
        dl-DeletedTransChInfo DL-CommonTransChInfo-r4
DL-DeletedTransChInfoList
DL-AddReconfTransChInfoList
DL-AddReconfTransChInfoList
                                                                               OPTIONAL,
                                                                               OPTIONAL,
                                                                               OPTIONAL,
                                         DL-AddReconfTransChInfoList-r4
                                                                               OPTIONAL,
    -- Physical channel IEs
        frequencyInfo
                                         FrequencyInfo
                                                                               OPTIONAL.
                                         MaxAllowedUL-TX-Power
        maxAllowedUL-TX-Power
                                                                               OPTIONAL,
        maxAllowedUL-TX-Power
ul-ChannelRequirement
                                         UL-ChannelRequirement-r4
                                                                              OPTIONAL,
        modeSpecificPhysChInfo
                                        CHOICE {
                                             SEQUENCE {
            fdd
   dummy is not used in this version of specification, it should
-- not be sent and if received it should be ignored.
```

```
dl-PDSCH-Informationdummy
                                                           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
         activationTime
                                               ActivationTime
                                                                                          OPTIONAL,
         new-II-RNTT
                                               II-RNTT
                                                                                          OPTIONAL.
         new-C-RNTI
                                               C-RNTI
                                                                                          OPTIONAL,
-- The IE "new-DSCH-RNTI" should not be included in FDD mode, and if received the UE behaviour
-- is unspecified
         new-DSCH-RNTI
                                               DSCH-RNTI
                                                                                          OPTIONAL.
         new-H-RNTI
         rrc-StateIndicator
                                              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
-- Radio bearer IEs
                                              URA-Identity
                                                                                          OPTIONAL.
         rab-InformationReconfigList RAB-InformationReconfigList rb-InformationReleaseList RB-InformationReleaseList, rb-InformationAffectedList RB-InformationAffectedList-r5
                                                                                          OPTIONAL,
                                                                                          OPTIONAL.
         dl-CounterSynchronisationInfo DL-CounterSynchronisationInfo-r5
                                                                                          OPTIONAL.
     -- Transport channel IEs
         ul-CommonTransChInfo UL-CommonTransChInfo-r4
ul-deletedTransChInfoList UL-DeletedTransChInfoList
ul-AddReconfTransChInfoList UL-AddReconfTransChInfoList
                                                                                          OPTIONAL,
                                                                                          OPTIONAL,
                                                                                         OPTIONAL,
         modeSpecificTransChInfo
fdd
                                              CHOICE {
                                                    SEQUENCE {
                  cpch-SetID
                                                        CPCH-SetID
                  addReconfTransChDRAC-Info
                                                        DRAC-StaticInformationList OPTIONAL
              },
              tdd
                                                    NULL
                                                                                          OPTIONAL,
         dl-CommonTransChInfo DL-CommonTransChInfo-r4
dl-DeletedTransChInfoList DL-DeletedTransChInfoList-r5
dl-AddReconfTransChInfoList DL-AddReconfTransChInfoList-r5
                                                                                         OPTIONAL.
                                                                                         OPTIONAL,
                                                                                         OPTIONAL,
     -- Physical channel IEs
         frequencyInto
maxAllowedUL-TX-Power
ul-ChannelRequirement
ul-ChannelRequirement
TOTAL CHOICE {
SECUENCE {
                                                                                          OPTIONAL.
                                                                                          OPTIONAL,
                                                                                        OPTIONAL,
-- dummy is not used in this version of specification, it should
   not be sent and if received it should be ignored.
                                                             DL-PDSCH-Information
                   dl PDSCH Informationdummy
                                                                                               OPTIONAL
              }.
              tdd
                                               NIII.I.
         dl-HSPDSCH-Information
dl-CommonInformation
dl-Information
DL-CommonInformation-r5
dl-InformationPerRL-List
DL-InformationPerRL-List-r5
                                                                                         OPTIONAL.
                                                                                          OPTIONAL,
                                                                                          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,
         \verb|mbms-RB-ListReleasedToChangeTransferMode| \\
                                               RB-InformationReleaseList
                                                                                          OPTIONAL
}
RadioBearerRelease-r6-IEs ::= SEQUENCE {
     -- User equipment IEs
         \verb|integrity| Protection ModeInfo|\\
                                               IntegrityProtectionModeInfo
                                                                                          OPTIONAL,
         cipheringModeInfo
                                               CipheringModeInfo
                                                                                          OPTIONAL,
```

```
activationTime
                                                                             ActivationTime
                                                                                                                                                    OPTIONAL,
               new-U-RNTI
                                                                             U-RNTI
                                                                                                                                                    OPTIONAL,
              new-C-RNTI
                                                                             C-RNTI
                                                                                                                                                    OPTIONAL,
-- The IE "new-DSCH-RNTI" should not be included in FDD mode, and if received the UE behaviour
     is unspecified
              new-DSCH-RNTI
                                                                            DSCH-RNTI
              new-H-RNTI
                                                                             H-RNTI
                                                                                                                                                    OPTIONAL,
                                                                           E-RNTI
              new-E-RNTI
                                                                                                                                                    OPTIONAL,
              utran-DRX-CycleLengthCoeff UTRAN-DRX-CycleLength
                                                                            UTRAN-DRX-CycleLengthCoefficient
                                                         CN-InformationInfo
PLMN-Identity
       -- Core network IEs
               cn-InformationInfo
                                                                                                                                                    OPTIONAL.
               plmn-Identity
                                                                                                                                                    OPTIONAL.
               signallingConnectionRelIndication CN-DomainIdentity
                                                                                                                                                    OPTIONAL,
       -- UTRAN mobility IEs
              ura-Identity
                                                                          URA-Identity
                                                                                                                                                    OPTIONAL,
       -- Radio bearer IEs
              rab-InformationReconfigList RAB-InformationReconfigList rb-InformationReleaseList RB-InformationReleaseList, rb-InformationAffectedList RB-InformationAffectedList-r6
                                                                                                                                                  OPTIONAL,
                                                                                                                                                    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
                              addReconfTransChDRAC-Info
                                                                                             DRAC-StaticInformationList OPTIONAL
                       },
                       tdd
                                                                                     NULL
              dl-CommonTransChInfo DL-CommonTransChInfo-r4
dl-DeletedTransChInfoList DL-DeletedTransChInfoList-r5
dl-AddReconfTransChInfoList DL-AddReconfTransChInfoList-r5
                                                                                                                                                   OPTIONAL,
                                                                                                                                                   OPTIONAL,
                                                                                                                                                OPTIONAL,
       -- Physical channel IEs
              frequencyInfo
                                                                         FrequencyInfo
              frequencyInfo FrequencyInfo
maxAllowedUL-TX-Power
ul-ChannelRequirement UL-ChannelRequirement-r6
ul-EDCH-Information UL-EDCH-Information-r6
                                                                                                                                                  OPTIONAL,
                                                                                                                                                   OPTIONAL,
                                                                                                                                                  OPTIONAL,
                                                                                                                                                  OPTIONAL,
               modeSpecificPhysChInfo
                                                                           -CHOICE {
                      fdd
                                                                   SEQUENCE {
                              dl PDSCH Information
                                                                                         DL PDSCH Information OPTIONAL
                                                                          ---NULL
              dl-HSPDSCH-Information
dl-CommonInformation
dl-Information
DL-HSPDSCH-Information
DL-CommonInformation-r5
dl-InformationPerRL-List
DL-InformationPerRL-List-r6
                                                                                                                                                   OPTIONAL.
                                                                                                                                                   OPTIONAL,
                                                                                                                                                   OPTIONAL,
       -- MBMS IEs
              mbms-PL-ServiceRestrictInfo
                                                                           MBMS-PL-ServiceRestrictInfo-r6,
              mbms-RB-ListReleasedToChangeTransferMode
                                                                            RB-InformationReleaseList
                                                                                                                                                 OPTIONAL
}
__ ****************
-- RADIO BEARER RELEASE COMPLETE
__ **************
RadioBearerReleaseComplete ::= SEQUENCE {
       -- User equipment IEs
              rrc-TransactionIdentifier RRC-TransactionIdentifier, ul-IntegProtActivationInfo IntegrityProtActivationInfo
                                                                                                                                                    OPTIONAL.
               -- TABULAR: UL-TimingAdvance is applicable for TDD mode only.
               ul-TimingAdvance
                                                                            UL-TimingAdvance
                                                                                                                                                    OPTIONAL,
       -- Radio bearer IEs
               count-C-ActivationTime
                                                                           ActivationTime
                                                                                                                                                    OPTIONAL.
               -- dummy is not used in this version of the specification and
               -- it should be ignored by the receiver.
               dummy
                                                                          RB-ActivationTimeInfoList
                                                                                                                                                    OPTIONAL,
               ul-CounterSynchronisationInfo UL-CounterSynchronisationInfo laterNonCriticalExtensions SEQUENCE {
                                                                                                                                                    OPTIONAL,
                       -- Container for additional R99 extensions
                                                                                                          BIT STRING
                       radioBearerReleaseComplete-r3-add-ext
                                                                                                                                            OPTIONAL,
                       nonCriticalExtensions
                                                                                    SEQUENCE {} OPTIONAL
               }
                      OPTIONAL
```

```
}
__ ***************
-- RADIO BEARER RELEASE FAILURE
__ ******************
RadioBearerReleaseFailure ::= SEQUENCE {
     -- User equipment IEs
          User equipment IEs
rrc-TransactionIdentifier RRC-TransactionIdentifier,
failureCause FailureCauseWithProtErr,
     -- Radio bearer IEs
          potentiallySuccesfulBearerList RB-IdentityList
                                                                                                        OPTIONAL,
           -- Container for additional R99 extensions
                                                                             BIT STRING OPTIONAL,
                radioBearerReleaseFailure-r3-add-ext
                                                            SEQUENCE { } OPTIONAL
                nonCriticalExtensions
               OPTIONAL
}
__ **************************
-- RADIO BEARER SETUP
__ ******************************
          RadioBearerSetup ::= CHOICE {
                ONONCriticalExtensions SEQUENCE {
radioBearerSetup-v3a0ext
laterNonCriticalExtensions SEQUENCE {
                      -- Container for additional R99 extensions
                      -- Container for additional R99 extensions
radioBearerSetup-r3-add-ext BIT STRING OPTIONAL,
v4b0NonCriticalExtensions SEQUENCE {
    radioBearerSetup-v4b0ext RadioBearerSetup-v4b0ext-IEs,
    v590NonCriticalExtensions SEQUENCE {
        radioBearerSetup-v590ext RadioBearerSetup-v590ext-IEs,
        v6xyNonCriticalExtensions SEQUENCE {
            radioBearerSetup-v6xyext RadioBearerSetup-v6xyext-IEs,
            nonCriticalExtensions SEQUENCE {} OPTIONAL
    }
}
                                      OPTIONAL
                                 OPTIONAL
                           OPTIONAL
                      OPTIONAL
           } OPTIONAL
                                     SEQUENCE {
     later-than-r3
          rrc-TransactionIdentifier RRC-TransactionIdentifier, criticalExtensions CHOICE {
    r4 SEQUENCE {
        radioBearerSetup-r4 RadioBearerSetup-r
                      radioBearerSetup-r4 RadioBearerSetup-r4-IEs,
v4d0NonCriticalExtensions SEQUENCE {
                            -- Container for adding non critical extensions after freezing REL-5
                           -- Container for adding non critical extensions after freezing REL-5 radioBearerSetup-r4-add-ext BIT STRING OPTIONAL, v590NonCriticalExtensions SEQUENCE { radioBearerSetup-v590ext RadioBearerSetup-v590ext-IEs, v6xyNonCriticalExtensions SEQUENCE { radioBearerSetup-v6xyext nonCriticalExtensions SEQUENCE {} OPTIONAL } OPTIONAL
                                      OPTIONAL
                                 OPTIONAL
                           OPTIONAL
                      }
                           CHOICE {
SEQUENCE {
radioBearerSetup-r5
RadioBearerSetup-r5-IEs,
                 criticalExtensions
                            -- Container for adding non critical extensions after freezing REL-6
                           radioBearerSetup-r5-add-ext BIT STRING OPTIONAL, v6xyNonCriticalExtensions SEQUENCE {
                                 radioBearerSetup-v6xyext RadioBearerSetup-v6xyext-IEs, nonCriticalExtensions SEQUENCE {} OPTIONAL
                           } OPTIONAL
                      },
criticalExtensions CHOICE {
    r6 SEQU
                                                                 SEQUENCE {
                                 radioBearerSetup-r6
                                                                             RadioBearerSetup-r6-IEs,
```

```
-- Container for adding non critical extensions after freezing REL-7
                         radioBearerSetup-r6-add-ext BIT STRING OPTIONAL, nonCriticalExtensions SEQUENCE {} OPTIONAL
                     criticalExtensions
                                                     SEQUENCE {}
                }
            }
        }
    }
}
RadioBearerSetup-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier
                                          RRC-TransactionIdentifier,
        integrityProtectionModeInfo
                                          IntegrityProtectionModeInfo
                                                                                 OPTIONAL,
        cipheringModeInfo
                                          CipheringModeInfo
                                                                                 OPTIONAL,
        activationTime
                                          ActivationTime
                                                                                 OPTIONAL.
        new-U-RNTI
                                          II-RNTT
                                                                                 OPTIONAL,
        new-C-RNTI
                                          C-RNTI
                                                                                 OPTIONAL,
                                          RRC-StateIndicator,
        rrc-StateIndicator
        utran-DRX-CycleLengthCoeff
JTRAN mobility TEC
                                          UTRAN-DRX-CycleLengthCoefficient
                                                                                 OPTIONAL,
    -- UTRAN mobility IEs
        ura-Identity
                                          URA-Identity
                                                                                 OPTIONAL,
    -- Core network IEs
        cn-InformationInfo
                                          CN-InformationInfo
                                                                                 OPTIONAL.
    -- Radio bearer IEs
        rab-InformationSetupList SRB-InformationSetupList RAB-InformationSetupList rb-InformationAffectedList RB-InformationAffectedList
                                                                                 OPTIONAL,
                                                                                 OPTIONAL,
                                                                                 OPTIONAL,
        dl-CounterSynchronisationInfo DL-CounterSynchronisationInfo
                                                                                 OPTIONAL.
    -- Transport channel IEs
                                          UL-CommonTransChInfo
        ul-CommonTransChInfo
        ul-deletedTransChInfoList
                                          UL-DeletedTransChInfoList
                                                                                 OPTIONAL,
        ul-AddReconfTransChInfoList
                                          UL-AddReconfTransChInfoList
                                                                                 OPTIONAL.
        ul-Addrecomination modeSpecificTransChInfo
                                          CHOICE {
            fdd
                                         SEQUENCE {
                 cpch-SetID
                                                  CPCH-SetID
                                                                                 OPTIONAL,
                 addReconfTransChDRAC-Info
                                                   DRAC-StaticInformationList OPTIONAL
            },
            tdd
                                              NULL
                                                                                 OPTIONAL,
        dl-CommonTransChInfo
dl-DeletedTransChInfoList
dl-AddReconfTransChInfoList
DL-AddReconfTransChInfoList
                                                                                 OPTIONAL.
                                                                                 OPTIONAL,
                                                                                 OPTIONAL,
    -- Physical channel IEs
        frequencyInfo
                                          FrequencyInfo
                                                                                 OPTIONAL,
        maxAllowedUL-TX-Power
                                          MaxAllowedUL-TX-Power
                                                                                 OPTIONAL.
        modeSpecificPhysChInfo
                                          UL-ChannelRequirement
                                                                                 OPTIONAL,
                                          CHOICE {
                                            SEQUENCE {
            fdd
-- dummy is not used in this version of specification, it should
-- not be sent and if received it should be ignored.
                 dl PDSCH Informationdummy
                                                       DL-PDSCH-Information
                                                                                     OPTIONAL
             },
            tdd
                                              NULL
                                       DL-CommonInformation
DL-InformationPerRL-List
        dl-CommonInformation
                                                                                 OPTIONAL,
        dl-CommonInformation
dl-InformationPerRL-List
                                                                                 OPTIONAL
}
RadioBearerSetup-v3a0ext ::= SEQUENCE {
-- The IE "new-DSCH-RNTI" should not be included in FDD mode, and if received the UE behaviour
-- is unspecified
    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
                                                                                     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
                                                                                   OPTIONAL
        cell-id-PerRL-List
                                               CellIdentity-PerRL-List
}
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,
-- The IE "new-DSCH-RNTI" should not be included in FDD mode, and if received the UE behaviour
-- is unspecified
       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
        rb-InformationAffectedList RB-InformationAffectedList dl-CounterSymphosis
                                        SRB-InformationSetupList
                                                                             OPTIONAL,
                                                                             OPTIONAL,
                                                                             OPTIONAL,
        dl-CounterSynchronisationInfo DL-CounterSynchronisationInfo
                                                                             OPTIONAL,
    -- Transport channel IEs
                                        UL-CommonTransChInfo-r4
        ul-CommonTransChInfo
                                                                             OPTIONAL,
        ul-AddReconfTransChInfoList
        ul-deletedTransChInfoList
                                      UL-DeletedTransChInfoList
                                                                             OPTIONAL,
                                        UL-AddReconfTransChInfoList
       wodeSpecificTransChInfo
                                        CHOICE {
                                            SEQUENCE {
            fdd
                cpch-SetID
                                                CPCH-Set.ID
                                                                             OPTIONAL.
                addReconfTransChDRAC-Info
                                                 DRAC-StaticInformationList OPTIONAL
            },
            t.dd
                                            NULL
                                                                             OPTIONAL,
        dl-CommonTransChInfo DL-CommonTransChInfo-r4 dl-DeletedTransChInfoList DL-DeletedTransChInfoList
                                                                             OPTIONAL,
                                                                             OPTIONAL,
        dl-AddReconfTransChInfoList DL-AddReconfTransChInfoList-r4
                                                                            OPTIONAL,
    -- Physical channel IEs
        frequencyInfo
                                        FrequencyInfo
                                                                             OPTIONAL,
        maxAllowedUL-TX-Power
                                        MaxAllowedUL-TX-Power
        ul-ChannelRequirement
                                        UL-ChannelRequirement-r4
                                                                             OPTIONAL.
                                        CHOICE {
        modeSpecificPhysChInfo
                                             SEQUENCE {
 - dummy is not used in this version of specification, it should
  not be sent and if received it should be ignored.
                                                     DL-PDSCH-Information
                                                                                 OPTIONAL
                dl PDSCH Informationdummy
            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-RNTT
                                        II-RNTT
                                                                             OPTIONAL.
        new-C-RNTI
                                        C-RNTI
                                                                             OPTIONAL,
  The IE "new-DSCH-RNTI" should not be included in FDD mode, and if received the UE behaviour
-- is unspecified
        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
        rb-InformationAffectedList RB-InformationAff
dl-CounterSymphysical RB-InformationAff
                                                                             OPTIONAL,
        srb-InformationSetupList
                                        SRB-InformationSetupList-r5
                                                                             OPTIONAL,
                                        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 {
                cpch-SetID
                                                 CPCH-SetID
                                                                               OPTIONAL,
                addReconfTransChDRAC-Info
                                                  DRAC-StaticInformationList OPTIONAL
            },
            tdd
                                             NULL
                                                                               OPTIONAL,
        dl-CommonTransChInfo
                                         DL-CommonTransChInfo-r4
                                                                               OPTIONAL,
        dl-DeletedTransChInfoList
                                         DL-DeletedTransChInfoList-r5
                                                                               OPTIONAL,
                                                                               OPTIONAL,
        dl-AddReconfTransChInfoList
                                         DL-AddReconfTransChInfoList-r5
    -- Physical channel IEs
        frequencyInfo
                                         FrequencyInfo
                                                                               OPTIONAL,
        maxAllowedUL-TX-Power
                                         MaxAllowedUL-TX-Power
                                                                               OPTIONAL,
                                         UL-ChannelRequirement-r5
        ul-ChannelRequirement
                                                                               OPTIONAL,
                                         CHOICE {
        modeSpecificPhysChInfo
            fdd
                                             SEQUENCE {
 - dummy is not used in this version of specification,
                                                         it should
-- not be sent and if received it should be ignored.
                                                      DL-PDSCH-Information
                                                                                   OPTIONAL
                \underline{\text{dl-PDSCH-Information}}\underline{\text{dummy}}
            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
        harg-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
        \verb|integrityProtectionModeInfo|\\
                                         {\tt IntegrityProtectionModeInfo}
                                                                               OPTIONAL,
        cipheringModeInfo
                                         CipheringModeInfo
                                                                               OPTIONAL,
        activationTime
                                         ActivationTime
                                                                               OPTIONAL,
        new-U-RNTI
                                         II-RNTT
                                                                               OPTIONAL.
        new-C-RNTI
                                         C-RNTI
                                                                               OPTIONAL,
   The IE "new-DSCH-RNTI" should not be included in FDD mode, and if received the UE behaviour
-- is unspecified
        new-DSCH-RNTI
                                         DSCH-RNTI
                                                                               OPTIONAL,
        new-H-RNTI
                                         H-RNTI
                                                                               OPTIONAL,
        new-E-RNTI
                                                                               OPTIONAL,
                                         E-RNTI
        rrc-StateIndicator
                                         RRC-StateIndicator,
                                         UTRAN-DRX-CycleLengthCoefficient
        utran-DRX-CycleLengthCoeff
                                                                              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-r6
        rb-InformationAffectedList
                                                                               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 {
                                             SEQUENCE {
            fdd
                cpch-SetID
                                                  CPCH-SetID
                                                                               OPTIONAL,
                addReconfTransChDRAC-Info
                                                 DRAC-StaticInformationList OPTIONAL
            },
            tdd
                                             NULL
                                                                              OPTIONAL.
        dl-CommonTransChInfo
                                         DL-CommonTransChInfo-r4
                                                                               OPTIONAL.
        dl-DeletedTransChInfoList
                                         DL-DeletedTransChInfoList-r5
                                                                              OPTIONAL,
```

```
dl-AddReconfTransChInfoList DL-AddReconfTransChInfoList-r5
                                                                             OPTIONAL,
    -- Physical channel IEs
       frequencyInfo
maxAllowedUL-TX-Power
ul-ChannelRequirement
ul-EDCH-Information

FrequencyInfo
MaxAllowedUL-TX-Power
UL-ChannelRequirement-r6
UL-EDCH-Information-r6
                                       FrequencyInfo
                                                                             OPTIONAL,
       frequencyInfo
                                                                              OPTIONAL,
                                        MaxAllowedUL-TX-Power
UL-ChannelRequirement-r6
                                                                              OPTIONAL,
        modeSpecificPhysChInfo
                                     CHOICE {
                                 SEQUENCE {
               dl PDSCH Information
                                                DL PDSCH Information OPTIONAL
                                            NULL
       dl-HSPDSCH-Information DL-HSPDSCH-Information dl-CommonInformation DL-CommonInformation-r6 dl-InformationPerRL-List DL-InformationPerRL-List
                                                                             OPTIONAL,
                                        DL-InformationPerRL-List-r6
                                                                              OPTIONAL,
    -- MBMS IEs
       mbms-PL-ServiceRestrictInfo MBMS-PL-ServiceRestrictInfo-r6
}
__ ***************
-- RADIO BEARER SETUP COMPLETE
__ ****************
RadioBearerSetupComplete ::= SEQUENCE {
    -- User equipment IEs
       rrc-TransactionIdentifier RRC-TransactionIdentifier, ul-IntegProtActivationInfo IntegrityProtActivationInfo
                                                                             OPTIONAL,
        -- TABULAR: UL-TimingAdvance is applicable for TDD mode only.
        ul-TimingAdvance UL-TimingAdvance start-Value START-Value
                                                                              OPTIONAL,
                                                                              OPTIONAL,
    -- Radio bearer IEs
        count-C-ActivationTime
                                       ActivationTime
                                                                              OPTIONAL.
        -- dummy is not used in this version of the specification and
        -- it should be ignored by the receiver.
                                     RB-ActivationTimeInfoList
       RB-ActivationTimeInfoList OPTIONAL, ul-CounterSynchronisationInfo UL-CounterSynchronisationInfo OPTIONAL, laterNonCriticalExtensions SEQUENCE {
            -- Container for additional R99 extensions
            radioBearerSetupComplete-r3-add-ext BIT STRING OPTIONAL,
            } OPTIONAL
  **************
-- RADIO BEARER SETUP FAILURE
__ ***************
RadioBearerSetupFailure ::= SEQUENCE {
    -- User equipment IEs
       rrc-TransactionIdentifier RRC-TransactionIdentifier, failureCause FailureCauseWithProtErr, Radio bearer TEs
    -- Radio bearer IEs
        potentiallySuccesfulBearerList RB-IdentityList
laterNonCriticalExtensions SEQUENCE {
                                                                              OPTIONAL,
            -- Container for additional R99 extensions
            radioBearerSetupFailure-r3-add-ext BIT STRING OPTIONAL,
                                           SEQUENCE { } OPTIONAL
            nonCriticalExtensions
           OPTIONAL
}
__ **************************
-- RRC CONNECTION REJECT
__ ****************
RRCConnectionReject ::= CHOICE {
   r3
                                     SEQUENCE {
        rrcConnectionReject-r3
        -- Container for additional R99 extensions
            rrcConnectionReject-r3-add-ext
v6xyNonCriticalExtensions
    rrcConnectionReject-v6xyext
BIT STRING OPTIONAL,
SEQUENCE {
    RRCConnectionReject-v6xyext-IEs,
```

```
nonCriticalExtensions
                                                     SEQUENCE { } OPTIONAL
                 OPTIONAL
        } OPTIONAL
      ater-than-r3 SEQUENCE {
  initialUE-Identity InitialUE-Identity,
  rrc-TransactionIdentifier RRC-TransactionIdentifier,
  criticalExtensions SEQUENCE {}
    later-than-r3
        criticalExtensions
}
RRCConnectionReject-r3-IEs ::= SEQUENCE {
    -- TABULAR: Integrity protection shall not be performed on this message.
    -- User equipment IEs
        initialUE-Identity InitialUE-Identity,
rrc-TransactionIdentifier RRC-TransactionIdentifier,
rejectionCause RejectionCause,
        waitTime
                                            WaitTime,
        redirectionInfo
                                            RedirectionInfo
                                                                                    OPTIONAL
}
RRCConnectionReject-v6xyext-IEs ::= SEQUENCE {
    redirectionInfo-v6xyext GSM-TargetCellInfoList OPTIONAL
__ ****************
-- RRC CONNECTION RELEASE
__ ****************
RRCConnectionRelease ::= CHOICE {
        SEQUENCE {
rrcConnectionRelease-r3
laterNorg-----
         rrcConnectionRelease-r3 RRCConnectionRelease-r3-IEs,
laterNonCriticalExtensions SEQUENCE {
              -- Container for additional R99 extensions
            rrcConnectionRelease-r3-add-ext BIT STRING OPTIONAL, v6xyNonCriticalExtensions SEQUENCE { rrcConnectionRelease-v6xyext nonCriticalExtensions SEQUENCE {} OPTIONAL
                 OPTIONAL
        OPTIONAL
                              SEQUENCE {
    later-than-r3
        rrc-TransactionIdentifier RRC-TransactionIdentifier, criticalExtensions CHOICE {
                 rrcConnectionRelease-r4 PPCCc--v4d0NonCritical PPCCc--
             r4
                                                RRCConnectionRelease-r4-IEs,
                  v4d0NonCriticalExtensions
                                                         SEQUENCE {
                      -- Container for adding non critical extensions after freezing REL-6
                      rrcConnectionRelease-r4-add-ext BIT STRING OPTIONAL,
v6xyNonCriticalExtensions SEQUENCE {
                          rrcConnectionRelease-v6xyext
                                                   RRCConnectionRelease-v6xyext-IEs,
                          nonCriticalExtensions
                                                              SEQUENCE {}
                                                                              OPTIONAL
                          OPTIONAL
                     OPTIONAL
             },
             criticalExtensions
                                              SEQUENCE {}
        }
    }
}
RRCConnectionRelease-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier RRC-TransactionIdentifier,
         -- n-308 is conditional on the UE state
                                            N-308
                                                                                    OPTIONAL,
                                            ReleaseCause,
        releaseCause
                                            Rplmn-Information
        rplmn-information
                                                                                    OPTIONAL
}
RRCConnectionRelease-r4-IEs ::= SEQUENCE {
    -- User equipment IEs
        \ensuremath{\text{--}} n-308 is conditional on the UE state.
        n-308
                                            N - 308
                                                                                     OPTIONAL,
        releaseCause
                                            ReleaseCause,
        rplmn-information
                                            Rplmn-Information-r4
                                                                                     OPTIONAL
```

```
}
RRCConnectionRelease-v6xyext-IEs ::= SEQUENCE {
                                  RedirectionInfo-r6 OPTIONAL
   redirectionInfo-v6xyext
__ ***************
-- RRC CONNECTION RELEASE for CCCH
__ *****************
RRCConnectionRelease-CCCH ::= CHOICE {
                                SEQUENCE {
      rrcConnectionRelease-CCCH-r3 RRCConnectionRelease-CCCH-r3-IEs, laterNonCriticalExtensions SEQUENCE {
          -- Container for additional R99 extensions rrcConnectionRelease-CCCH-r3-add-ext BIT STRING OPTIONAL,
       } OPTIONAL
                          SEQUENCE {
   later-than-r3
       u-RNTI U-RNTI,
rrc-TransactionIdentifier RRC-TransactionIdentifier,
criticalExtensions CHOICE {
    r4 SEQUENCE {
              rrcConnectionRelease-CCCH-r4 RRCConnectionRelease-CCCH-r4-IEs, v4d0NonCriticalExtensions SEQUENCE {
                                           SEQUENCE {
                  -- Container for adding non critical extensions after freezing REL-5
                  rrcConnectionRelease-CCCH-r4-add-ext BIT STRING OPTIONAL,
                  }
                    OPTIONAL
           },
           criticalExtensions
                                        SEQUENCE {
              -- TABULAR: CHOICE IdentityType (U-RNTI, GroupIdentity) is replaced with the
              -- optional element groupIdentity, since the U-RNTI is mandatory in ASN.1.
              -- In case CHOICE IdentityType is equal to GroupIdentity the value of the U-RNTI
              -- shall be ignored by a UE complying with this version of the message.
              groupIdentity SEQUENCE ( SIZE (1 .. maxURNTI-Group) ) OF
                                 GroupReleaseInformation OPTIONAL,
                                          CHOICE {
              criticalExtensions
                  r5
                                             SEQUENCE {
                      rrcConnectionRelease-CCCH-r5 RRCConnectionRelease-CCCH-r5-IEs,
                      -- Container for adding non critical extensions after freezing REL-6
                      rrcConnectionRelease-CCCH-r5-add-ext BIT STRING OPTIONAL,
                                                  SEQUENCE {} OPTIONAL
                      nonCriticalExtensions
                  criticalExtensions
                                              SEQUENCE {}
         }
      }
}
RRCConnectionRelease-CCCH-r3-IEs ::= SEQUENCE {
   -- User equipment IEs
       u-RNTI
                                     U-RNTI,
   -- The rest of the message is identical to the one sent on DCCH.
      rrcConnectionRelease
                                    RRCConnectionRelease-r3-IEs
}
RRCConnectionRelease-CCCH-r4-IEs ::= SEQUENCE {
  -- The rest of the message is identical to the one sent on DCCH.
      rrcConnectionRelease
                                   RRCConnectionRelease-r4-IEs
}
-- The R5 and R4 sequence of IEs are identical in this message
RRCConnectionRelease-CCCH-r5-IEs ::= RRCConnectionRelease-CCCH-r4-IEs
__ ***************
-- RRC CONNECTION RELEASE COMPLETE
__ ****************
RRCConnectionReleaseComplete ::= SEQUENCE {
   -- User equipment IEs
      rrc-TransactionIdentifier RRC-TransactionIdentifier,
```

```
errorIndication FailureCauseWithProtErr laterNonCriticalExtensions SEQUENCE {
                                                                                      OPTIONAL,
             -- Container for additional R99 extensions
             rrcConnectionReleaseComplete-r3-add-ext BIT STRING
                                                                                 OPTIONAL,
             nonCriticalExtensions
                                                 SEQUENCE { } OPTIONAL
         } OPTIONAL
}
__ *****************
-- RRC CONNECTION REQUEST
__ ***************
RRCConnectionRequest ::= SEQUENCE {
    -- TABULAR: Integrity protection shall not be performed on this message.
    -- User equipment IEs
        initialUE-Identity InitialUE-Identity, establishmentCause EstablishmentCause,
         -- protocolErrorIndicator is MD, but for compactness reasons no default value
         -- has been assigned to it.
protocolErrorIndicator ProtocolErrorIndicator,
    -- Measurement IEs
        measuredResultsOnRACH MeasuredResultsOnRACH
Non critical Extensions
v3d0NonCriticalExtensions SEQUENCE {
                                                                                      OPTIONAL,
    -- Non critical Extensions
             ONonCriticalExtensions SEQUENCE {
rRCConnectionRequest-v3d0ext RRCConnectionRequest-v3d0ext-IEs,
         -- Reserved for future non critical extension
             v4b0NonCriticalExtensions SEQUENCE {
    rrcConnectionRequest-v4b0ext RRCConnectionRequest-v4b0ext-IEs,
    v590NonCriticalExtensions SEQUENCE {
        rrcConnectionRequest-v590ext RRCConnectionRequest-v590ext-IEs,
                      -- Reserved for future non critical extension nonCriticalExtensions SEQUENCE {} OPTIONAL
                     OPTIONAL
                  OPTIONAL
         } OPTIONAL
}
RRCConnectionRequest-v3d0ext-IEs ::= SEQUENCE {
    -- User equipment IEs
        uESpecificBehaviourInformationlidle UESpecificBehaviourInformationlidle OPTIONAL
}
RRCConnectionRequest-v4b0ext-IEs ::= SEQUENCE {
    -- User equipment IEs
        accessStratumReleaseIndicator
                                                     AccessStratumReleaseIndicator
}
RRCConnectionRequest-v590ext-IEs ::= SEQUENCE {
   -- User equipment IEs
       predefinedConfigStatusInfo
                                                BOOLEAN
}
__ *****************
-- RRC CONNECTION SETUP
__ **************
RRCConnectionSetup ::= CHOICE {
                                         SEQUENCE {
         rrcConnectionSetup-r3
         -- Container for additional R99 extensions
             rrcConnectionSetup-r3-add-ext BIT STRING OPTIONAL,
v4b0NonCriticalExtensions SEQUENCE {
                 rrcConnectionSetup-v4b0ext RRCConnectionSetup-v4b0ext-IEs,
v590NonCriticalExtensions SEQUENCE {
    rrcConnectionSetup-v590ext nonCriticalExtensions SEQUENCE {}
    RRCConnectionSetup-v590ext-IEs,
    nonCriticalExtensions SEQUENCE {}
    OPTIONAL
                      OPTIONAL
                 OPTIONAL
         } OPTIONAL
    },
         er-than-r3 SEQUENCE {
initialUE-Identity InitialUE-Identity,
rrc-TransactionIdentifier RRC-TransactionIden
    later-than-r3
                                             RRC-TransactionIdentifier,
```

```
criticalExtensions
                                                                            CHOICE {
                                                                                 SEQUENCE {
                                                                                   RRCConnectionSetup-r4-IEs,
                              rrcConnectionSetup-r4
                              v4d0NonCriticalExtensions
                                                                                           SEQUENCE {
                                       -- Container for adding non critical extensions after freezing REL-5
                                      rrcConnectionSetup-r4-add-ext BIT STRING OPTIONAL,
v590NonCriticalExtensions SEQUENCE {
    rrcConnectionSetup-v590ext
    v6xyNonCriticalExtensions SEQUENCE {
    RRCConnectionSetup-v590ext-IEs,
    SEQUENCE {
                                                     rrcConnectionSetup-v6xyext RRCConnectionSetup-v6xyext-IEs, nonCriticalExtensions SEQUENCE {} OPTIONAL
                                                     OPTIONAL
                                             OPTIONAL
                                      OPTIONAL
                       },
                                                                                           CHOICE {
                       criticalExtensions
                                      rrcConnectionSetup-r5

PROCE
                                                                                                   RRCConnectionSetup-r5-IEs,
                                      -- Container for adding non critical extensions after freezing REL-6
                                      rrcConnectionSetup-r5-add-ext BIT STRING OPTIONAL,
                                      v6xyNonCriticalExtensions
                                                                                                  SEQUENCE {
                                             rrcConnectionSetup-v6xyext RRCConnectionSetup-v6xyext-IEs, nonCriticalExtensions SEQUENCE {} OPTIONAL
                                             OPTIONAL
                              \verb|criticalExtensions| SEQUENCE | \{ \} \\
                     }
              }
       }
}
RRCConnectionSetup-r3-IEs ::= SEQUENCE {
        -- TABULAR: Integrity protection shall not be performed on this message.
        -- User equipment IEs
               rrc-TransactionIdentifier RRC-TransactionIden activationTime ActivationTime
                                                                           RRC-TransactionIdentifier,
                                                                                                                                                  OPTIONAL.
               new-U-RNTI
                                                                            U-RNTI,
                                                                            C-RNTI
               new-c-RNTI
               utran-DRX-CycleLengthCoeff
-- TABULAR: If compared to the control of the control 
                                                                           UTRAN-DRX-CycleLengthCoefficient,
               -- TABULAR: If capabilityUpdateRequirement is not present, the default value
               -- defined in 10.3.3.2 shall be used.
               {\tt capabilityUpdateRequirement} \qquad {\tt CapabilityUpdateRequirement}
       -- Radio bearer IEs
       srb-InformationSetupList
-- Transport channel IEs

-- UL-CommonTransChInfo

UL-CommonTransChInfo
               srb-InformationSetupList
                                                                         SRB-InformationSetupList2,
               -- NOTE: ul-AddReconfTransChInfoList should be optional in later versions of
               -- this message
               \verb"ul-AddReconfTransChInfoList" UL-AddReconfTransChInfoList",
               dl-CommonTransChInfo
                                                                            DL-CommonTransChInfo
               -- NOTE: dl-AddReconfTransChInfoList should be optional in later versions
                -- of this message
               \verb| dl-AddReconfTransChInfoList| & \verb| DL-AddReconfTransChInfoList|, \\
        -- Physical channel IEs
               frequencyInfo
                                                                           FrequencyInfo
                                                                                                                                                OPTIONAL,
               maxAllowedUL-TX-Power
ul-ChannelRequirement
dl-CommonInformation

MaxAllowedUL-TX-Power
UL-ChannelRequirement
DL-CommonInformation
                                                                                                                                               OPTIONAL,
                                                                                                                                                OPTIONAL.
                                                                                                                                                OPTIONAL,
               dl-InformationPerRL-List DL-InformationPerRL-List
}
RRCConnectionSetup-v4b0ext-IEs ::= SEQUENCE {
               \verb|capabilityUp| date \verb|Requirement-r4-ext| CapabilityUp| date \verb|Requirement-r4-ext| OPTIONAL, \\
        -- Physical channel IEs
               -- ssdt-UL extends SSDT-Information, which is included in
               -- DL-CommonInformation. FDD only.
                                                                                    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
                                                                                                                                                      OPTIONAL
                                                                                    CellIdentity-PerRL-List
}
RRCConnectionSetup-v590ext-IEs ::= SEQUENCE {
       -- User equipment IEs
              systemSpecificCapUpdateReq SystemSpecificCapUpdateReq-v590ext
                                                                                                                                                      OPTIONAL,
        -- Physical channel IEs
```

```
dl-TPC-PowerOffsetPerRL-List DL-TPC-PowerOffsetPerRL-List
                                                                                        OPTIONAL
}
RRCConnectionSetup-r4-IEs ::= SEQUENCE {
    -- TABULAR: Integrity protection shall not be performed on this message.
                                            ActivationTime
         activationTime
         new-U-RNTI
                                              U-RNTI,
                                              C-RNTI
         new-c-RNTI
                                                                                          OPTIONAL,
         rrc-StateIndicator
                                              RRC-StateIndicator,
         utran-DRX-CycleLengthCoeff
                                              UTRAN-DRX-CycleLengthCoefficient,
         -- TABULAR: If capabilityUpdateRequirement is not present, the default value
         -- defined in 10.\overline{3}.3.2 shall be used.
         capabilityUpdateRequirement CapabilityUpdateRequirement-r4
                                                                                       OPTIONAL.
    -- Radio bearer IEs
         srb-InformationSetupList
                                            SRB-InformationSetupList2,
         Transport channel IEs
ul-CommonTransChInfo
ul-AddReconfTransChInfoList
UL-CommonTransChInfoList
UL-AddReconfTransChInfoList
UL-AddReconfTransChInfoList
UL-AddReconfTransChInfoList
UL-AddReconfTransChInfoList
UL-CommonTransChInfoList
UL-CommonTransChInfoList
    -- Transport channel IEs
                                                                                         OPTIONAL,
                                                                                         OPTIONAL,
         dl-AddReconfTransChInfoList
                                              DL-AddReconfTransChInfoList-r4
                                                                                         OPTIONAL,
    -- Physical channel IEs
        frequencyInfo FrequencyInfo
maxAllowedUL-TX-Power
ul-ChannelRequirement
dl-CommonInformation
                                                                                         OPTIONAL,
                                                                                         OPTIONAL.
         dl-CommonInformation
                                              DL-CommonInformation-r4
                                                                                         OPTIONAL.
         dl-InformationPerRL-List
                                              DL-InformationPerRL-List-r4
                                                                                          OPTIONAL
RRCConnectionSetup-r5-IEs ::= SEQUENCE {
     -- TABULAR: Integrity protection shall not be performed on this message.
                                                                                          OPTIONAL,
         activationTime
                                              ActivationTime
         new-U-RNTI
                                               U-RNTI,
         new-c-RNTI
                                              C-RNTI
                                                                                          OPTIONAL,
         rrc-StateIndicator
                                              RRC-StateIndicator,
         utran-DRX-CycleLengthCoeff UTRAN-DRX-CycleLengthCoefficient,
         -- TABULAR: If capabilityUpdateRequirement is not present, the default value
         -- defined in 10.3.3.2 shall be used.
                                              CapabilityUpdateRequirement-r5
         capabilityUpdateRequirement
                                                                                       OPTIONAL,
    -- Specification mode information
         specificationMode
                                               CHOICE {
              complete
                                              SEQUENCE {
                  -- Radio bearer IEs
                  srb-InformationSetupList SRB-InformationSetupList2,
-- Transport channel IEs
ul-CommonTransChInfo UL-CommonTransChInfo-r4
                  ul-CommonTransChInfo UL-CommonTransChInfo-r4
ul-AddReconfTransChInfoList UL-AddReconfTransChInfoList
dl-CommonTransChInfo DL-CommonTransChInfo-r4
dl-AddReconfTransChInfoList DL-AddReconfTransChInfoList-r4
                                                                                                   OPTIONAL,
                                                                                                   OPTIONAL.
                                                                                                  OPTIONAL
                                                   SEQUENCE {
              preconfiguration
                  -- 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
                       This sufficient.

CHOICE {

predefinedConfigIdentity defaultConfig defaultConfigMode defaultConfigIdentity defaultConfigIdentity }
}

SEQUENCE {

DefaultConfigMode, DefaultConfigIdentity }
}
                  -- FDD/TDD choice in this level is sufficient.
                  preConfigMode
                                                                 DefaultConfigIdentity-r5
                  }
             }
         },
    -- Physical channel IEs
                                          FrequencyInfo
MaxAllowedUL-TX-Power
UL-ChannelRequirement-r4
         frequencyInfo
                                                                                         OPTIONAL,
         maxAllowedUL-TX-Power
                                                                                         OPTIONAL,
         ul-ChannelRequirement
                                                                                         OPTIONAL,
         dl-CommonInformation
                                              DL-CommonInformation-r4
                                                                                         OPTIONAL,
         dl-InformationPerRL-List
                                              DL-InformationPerRL-List-r5bis
                                                                                         OPTIONAL
RRCConnectionSetup-v6xyext-IEs ::= SEQUENCE {
    -- Physical Channel IEs
        beaconPLEst
                                               BEACON-PL-Est
                                                                                         OPTIONAL
}
  *************
-- RRC CONNECTION SETUP COMPLETE
```

```
__ *******************************
RRCConnectionSetupComplete ::= SEQUENCE {
    -- TABULAR: Integrity protection shall not be performed on this message.
    -- User equipment IEs
       rrc-TransactionIdentifier
                                     RRC-TransactionIdentifier,
       startList.
                                      STARTList,
       ue-RadioAccessCapability
                                     UE-RadioAccessCapability
                                                                       OPTIONAL,
    -- Other IEs
       ue-RATSpecificCapability
                                     InterRAT-UE-RadioAccessCapabilityList OPTIONAL,
    -- Non critical extensions
                                          SEQUENCE {
       v370NonCriticalExtensions
           {\tt rrcConnectionSetupComplete-v370ext} \quad {\tt RRCConnectionSetupComplete-v370ext} \,,
           v380NonCriticalExtensions
                                             SEQUENCE {
               \verb|rrcConnectionSetupComplete-v380ext| RRCConnectionSetupComplete-v380ext-IEs|,
                  Reserved for future non critical extension
               v3a0NonCriticalExtensions
                                                SEQUENCE {
                   {\tt rrcConnectionSetupComplete-v3a0ext-IEs,}
                                                     SEQUENCE {
                   laterNonCriticalExtensions
                       -- Container for additional R99 extensions
                       {\tt rrcConnectionSetupComplete-r3-add-ext}
                                                                 BIT STRING
                               (CONTAINING RRCConnectionSetupComplete-r3-add-ext-IEs) OPTIONAL,
                       v3g0NonCriticalExtensions SEQUENCE {
                          \verb|rrcConnectionSetupComplete-v3g0ext-IEs||, \\
                           v4b0NonCriticalExtensions
                                                             SEQUENCE {
                              {\tt rrcConnectionSetupComplete-v4b0ext}
                                                         RRCConnectionSetupComplete-v4b0ext-IEs,
                              v590NonCriticalExtensions
                                                                SEQUENCE {
                                  {\tt rrcConnectionSetupComplete-v590ext}
                                                            RRCConnectionSetupComplete-v590ext-IEs,
                                  v5c0NonCriticalExtensions
                                                                    SEQUENCE {
                                      rrcConnectionSetupComplete-v5c0ext
                                                             RRCConnectionSetupComplete-v5c0ext-IEs,
                                      nonCriticalExtensions
                                                                         SEQUENCE {}
                                                                                        OPTIONAL
                                         OPTIONAL
                                      OPTIONAL
                                  OPTIONAL
                              OPTIONAL
                          OPTIONAL
                       OPTIONAL
                   OPTIONAL
           }
               OPTIONAL
}
RRCConnectionSetupComplete-v370ext ::= SEQUENCE {
   -- User equipment IEs
       ue-RadioAccessCapability-v370ext UE-RadioAccessCapability-v370ext OPTIONAL
}
RRCConnectionSetupComplete-v380ext-IEs ::= SEQUENCE {
   -- User equipment IEs
       ue-RadioAccessCapability-v380ext
                                          UE-RadioAccessCapability-v380ext
                                                                                OPTIONAL,
       dl-PhysChCapabilityFDD-v380ext
                                          DL-PhysChCapabilityFDD-v380ext
}
RRCConnectionSetupComplete-v3a0ext-IEs ::= SEQUENCE {
   -- User equipment IEs
       ue-RadioAccessCapability-v3a0ext UE-RadioAccessCapability-v3a0ext OPTIONAL
}
RRCConnectionSetupComplete-v3g0ext-IEs ::= SEQUENCE {
   -- User equipment IEs
       ue-RadioAccessCapability-v3g0ext UE-RadioAccessCapability-v3g0ext OPTIONAL
}
RRCConnectionSetupComplete-r3-add-ext-IEs ::= SEQUENCE {
      rrcConnectionSetupComplete-v650ext RRCConnectionSetupComplete-v650ext-IEs OPTIONAL,
                                      SEQUENCE {}
       nonCriticalExtensions
                                                     OPTIONAL
}
RRCConnectionSetupComplete-v4b0ext-IEs ::= SEQUENCE {
   -- User equipment IEs
       ue-RadioAccessCapability-v4b0ext
                                            UE-RadioAccessCapability-v4b0ext OPTIONAL
}
RRCConnectionSetupComplete-v590ext-IEs ::= SEQUENCE {
    -- User equipment IEs
```

```
ue-RadioAccessCapability-v590ext UE-RadioAccessCapability-v590ext OPTIONAL,
   -- Other IEs
      ue-RATSpecificCapability-v590ext InterRAT-UE-RadioAccessCapability-v590ext OPTIONAL
}
RRCConnectionSetupComplete-v5c0ext-IEs ::= SEQUENCE {
   -- User equipment IEs
      ue-RadioAccessCapability-v5c0ext UE-RadioAccessCapability-v5c0ext OPTIONAL
}
RRCConnectionSetupComplete-v650ext-IEs ::= SEQUENCE {
   -- User equipment IEs
      ue-RadioAccessCapability-v650ext UE-RadioAccessCapability-v650ext
}
  -- RRC FAILURE INFO
__ ***************************
RRC-FailureInfo ::= CHOICE {
       rRC-FailureInfo-r3
laterNonCriticalExtensions SEQUENCE {
                                           SEQUENCE {
                                              RRC-FailureInfo-r3-IEs,
           -- Container for additional R99 extensions
          rrc-FailureInfo-r3-add-ext BIT STRING
                                                     OPTIONAL,
          nonCriticalExtensions
                                                 SEQUENCE {} OPTIONAL
       } OPTIONAL
                                           SEQUENCE {}
   criticalExtensions
RRC-FailureInfo-r3-IEs ::= SEQUENCE {
   -- Non-RRC IEs
       failureCauseWithProtErr
                                                  FailureCauseWithProtErr
}
__ ***************************
-- RRC STATUS
__ ***************
RRCStatus ::= SEQUENCE {
   -- Other IEs
       -- TABULAR: Identification of received message is nested in
       -- ProtocolErrorMoreInformation
       -- Container for additional R99 extensions
          rrcStatus-r3-add-ext BIT STRING
nonCriticalExtensions SEQUENCE {
                                                 OPTIONAL,
                                      SEQUENCE {}
                                                   OPTIONAL
       } OPTIONAL
}
__ **************************
-- SECURITY MODE COMMAND
__ **************
SecurityModeCommand ::= CHOICE {
       SEQUENCE {
securityModeCommand-r3 SecurityModeCommand-r3-IEs,
laterNonCriticalExtensions SEQUENCE {
           -- Container for additional R99 extensions
          securityModeCommand-r3-add-ext BIT STRING OPTIC nonCriticalExtensions SEQUENCE {} OPTIONAL
                                                         OPTIONAL,
          nonCriticalExtensions
       } OPTIONAL
      er-than-r3 SEQUENCE {
rrc-TransactionIdentifier RRC-TransactionIdentifier,
criticalExtensions SEQUENCE {}
   later-than-r3
}
SecurityModeCommand-r3-IEs ::= SEQUENCE {
```

```
-- TABULAR: Integrity protection shall always be performed on this message.
   -- User equipment IEs
      rrc-TransactionIdentifier RRC-TransactionIdentifier,
securityCapability SecurityCapability,
cipheringModeInfo CipheringModeInfo
integrityProtectionModeInfo IntegrityProtectionModeInfo
                                                                         OPTIONAL,
                                                                        OPTIONAL,
    -- Core network IEs
       cn-DomainIdentity
                                     CN-DomainIdentity,
   -- Other IEs
       ue-SystemSpecificSecurityCap InterRAT-UE-SecurityCapList
                                                                         OPTIONAL
}
__ ****************
-- SECURITY MODE COMPLETE
__ ***************
SecurityModeComplete ::= SEQUENCE {
-- TABULAR: Integrity protection shall always be performed on this message.
   -- User equipment IEs
       rrc-TransactionIdentifier RRC-TransactionIdentifier, ul-IntegProtActivationInfo IntegrityProtActivationInfo
                                                                         OPTIONAL,
    -- Radio bearer IEs
       rb-UL-CiphActivationTimeInfo RB-ActivationTimeInfoList laterNonCriticalExtensions SEQUENCE {
                                                                         OPTIONAL,
           -- Container for additional R99 extensions
           securityModeComplete-r3-add-ext BIT STRING OPTIONAL,
           OPTIONAL
}
__ ****************
-- SECURITY MODE FAILURE
__ **************
SecurityModeFailure ::= SEQUENCE {
   -- User equipment IEs
       rrc-TransactionIdentifier RRC-TransactionIdentifier,
       failureCause
laterNonCriticalExtensions
FailureCauseWithProtErr,
SEQUENCE {
           -- Container for additional R99 extensions
           securityModeFailure-r3-add-ext BIT STRING OPTIONAL, nonCriticalExtensions SEQUENCE {} OPTIONAL
       } OPTIONAL
__ ***************
-- SIGNALLING CONNECTION RELEASE
__ ***************
SignallingConnectionRelease ::= CHOICE {
                              SEQUENCE {
       signallingConnectionRelease-r3 SignallingConnectionRelease-r3-IEs,
laterNonCriticalExtensions SEQUENCE {
           -- Container for additional R99 extensions
                                                     BIT STRING
           signallingConnectionRelease-r3-add-ext
                                                                     OPTIONAL,
                                         SEQUENCE { } OPTIONAL
           nonCriticalExtensions
       } OPTIONAL
                                 SEQUENCE {
   later-than-r3
       rrc-TransactionIdentifier RRC-TransactionIdentifier,
criticalExtensions SEQUENCE {}
       criticalExtensions
                                      SEQUENCE {}
}
SignallingConnectionRelease-r3-IEs ::= SEQUENCE {
   -- User equipment IEs
       rrc-TransactionIdentifier RRC-TransactionIdentifier,
   -- Core network IEs
                              CN-DomainIdentity
      cn-DomainIdentity
}
```

```
__ *******************************
-- SIGNALLING CONNECTION RELEASE INDICATION
__ ****************
SignallingConnectionReleaseIndication ::= SEQUENCE {
   -- Core network IEs
       -- Container for additional R99 extensions
          signallingConnectionReleaseIndication-r3-add-ext BIT STRING OPTIONAL,
          \verb"nonCriticalExtensions" & \verb"SEQUENCE" {} \\
          OPTIONAL
}
__ ***************
-- SYSTEM INFORMATION for BCH
__ *************************
SystemInformation-BCH ::= SEQUENCE {
   -- Other information elements
          sfn-Prime
                                   SFN-Prime,
       payload
                                             LastSegmentShort,
          lastAndCompleteAndFirst SEQUENCE {
  lastSegmentShort LastSeg
  completeSIB-List Complet
  firstSegment FirstSegment
                                       LastSegmentShort,
                                           CompleteSIB-List,
              firstSegment
                                          FirstSegmentShort
          completeSIB-List
completeAndFirst
completeSIB-List
completeSIB-List
firstSegment

CompleteSIB-List
firstSegment

CompleteSIB-List
firstSegment

CompleteSIB-List
firstSegment

CompleteSIB-List
firstSegment
          },
                                    CompleteSIB,
           completeSIB
          lastSegment
                                       LastSegment,
                                       NULL,
          spare5
                                       NULL,
          spare4
          spare3
                                       NULL,
          spare2
                                       NULL.
          spare1
                                       NULL
}
  **********
-- SYSTEM INFORMATION for FACH
__ *****************
SystemInformation-FACH ::= SEQUENCE {
   -- Other information elements
                                   CHOICE {
      payload
          noSegment
                                   NULÌ,
                                       SubsequentSegment,
                                       .
LastSegmentShort,
                                         FirstSegmentShort
             lastSegmentShort LastSegcompleteSIB-List
          lastAndComplete
                                       LastSegmentShort,
                                           CompleteSIB-List
```

```
lastAndCompleteAndFirst SEQUENCE {
  lastSegmentShort LastSeg
  completeSIB-List Complet
  firstSegment FirstSegment
                                         LastSegmentShort,
                                               CompleteSIB-List,
               firstSegment
                                               FirstSegmentShort
           },
           completeSIB-List
completeAndFirst
completeSIB-List
completeSIB-List
firstSegment
CompleteSIB-List
CompleteSIB-List
firstSegmentShort
           },
                                      CompleteSIB,
LastSegment,
           completeSIB
           lastSegment
           spare5
                                           NULL,
           spare4
                                           NULL,
           spare3
                                           NULL,
           spare2
                                           NULL.
           spare1
                                           NULL
}
__ ***************
-- First segment
__ ******************************
                                   SEQUENCE {
FirstSegment ::=
    -- Other information elements
       sib-Type
                                       SIB-Type,
       seg-Count
                                       SegCount,
       sib-Data-fixed
                                      SIB-Data-fixed
}
__ ***************
-- First segment (short)
__ ***************
FirstSegmentShort ::=
   -- Other information elements
sib-Type
seg-Count
sib-Data-variable
SIB-Data-variable
}
__ ****************
-- Subsequent segment
__ ****************
   sequentSegment ::= SEQUENCE {
-- Other information elements
    sib-Type SIB-Type,
    segmentIndex SegmentIndex,
SubsequentSegment ::=
       sib-Data-fixed
                                      SIB-Data-fixed
}
__ ***************
-- Last segment
__ *************************
                                   SEQUENCE {
LastSegment ::=
    -- Other information elements
                                      SIB-Type,
SegmentIndex,
       sib-Type
       segmentIndex
        -- For sib-Data-fixed, in case the SIB data is less than 222 bits, padding
        -- shall be used. The same padding bits shall be used as defined in clause 12.1
       sib-Data-fixed
                                      SIB-Data-fixed
}
LastSegmentShort ::=
                                          SEQUENCE {
    -- Other information elements
       sib-Type
                                       SIB-Type,
```

```
segmentIndex
                                      SegmentIndex,
       sib-Data-variable
                                      SIB-Data-variable
}
__ *******************************
-- Complete SIB
__ ***************
CompleteSIB-List ::=
                                 SEQUENCE (SIZE (1..maxSIBperMsg)) OF
                                      CompleteSIBshort
CompleteSIB ::=
                                  SEQUENCE {
   -- Other information elements
                                     SIB-Type,
       sib-Type
       -- For sib-Data-fixed, in case the SIB data is less than 226 bits, padding
       -- shall be used. The same padding bits shall be used as defined in clause 12.1
                                     BIT STRING (SIZE (226))
       sib-Data-fixed
}
CompleteSIBshort ::=
                                        SEQUENCE {
   -- Other information elements
sib-Type
SIB-Type,
gib-Data variable
       sib-Data-variable
                                     SIB-Data-variable
}
  ***************
-- SYSTEM INFORMATION CHANGE INDICATION
__ *****************************
{\tt SystemInformationChangeIndication} ::= {\tt SEQUENCE} \ \{
    -- Other IEs
       laterNonCriticalExtensions
                                         BCCH-ModificationInfo,
                                         SEQUENCE {
           -- Container for additional R99 extensions
           systemInformationChangeIndication-r3-add-ext BIT STRING OPTIONAL, nonCriticalExtensions SEQUENCE {} OPTIONAL
          OPTIONAL
}
__ ****************
-- TRANSPORT CHANNEL RECONFIGURATION
__ *****************************
TransportChannelReconfiguration ::= CHOICE {
                                  SEQUENCE {
       transportChannelReconfiguration-r3
       TransportChannelReconfiguration-r3-IEs, v3a0NonCriticalExtensions SEQUENCE {
           transportChannelReconfiguration-v3a0ext
                                        {\tt TransportChannelReconfiguration-v3a0ext,}
           laterNonCriticalExtensions
                                             SEQUENCE {
               -- Container for additional R99 extensions
               transportChannelReconfiguration-r3-add-ext BIT STRING OPTIONAL,
               v4b0NonCriticalExtensions SEOUENCE {
                   transportChannelReconfiguration-v4b0ext
                                             \label{transportChannelReconfiguration-v4b0ext-IEs,} \\ \text{SEQUENCE } \{ \\
                   v590NonCriticalExtensions
                      transport {\tt Channel Reconfiguration-v590ext}
                                                     TransportChannelReconfiguration-v590ext-IEs,
                      v6xyNonCriticalExtensions SEQUENCE {
                          transportChannelReconfiguration-v6xyext
                                                 TransportChannelReconfiguration-v6xyext-IEs,
                          nonCriticalExtensions
                                                        SEQUENCE {} OPTIONAL
                              OPTIONAL
                          OPTIONAL
                      OPTIONAL
                  OPTIONAL
       }
               OPTIONAL
   },
   later-than-r3
                                  SEQUENCE {
       rrc-TransactionIdentifier RRC-TransactionIdentifier,
       criticalExtensions
                                      CHOICE {
```

```
SEQUENCE {
           r4
                transportChannelReconfiguration-r4
                                               TransportChannelReconfiguration-r4-IEs,
                v4d0NonCriticalExtensions
                                                   SEQUENCE {
                     - Container for adding non critical extensions after freezing REL-5
                    transportChannelReconfiguration-r4-add-ext BIT STRING OPTIONAL,
                    v590NonCriticalExtensions
                                                  SEQUENCE {
                       transportChannelReconfiguration-v590ext
                                                   TransportChannelReconfiguration-v590ext-IEs,
                       v6xyNonCriticalExtensions
                                                       SEQUENCE {
                           transportChannelReconfiguration-v6xyext
                                                       TransportChannelReconfiguration-v6xyext-IEs,
                           nonCriticalExtensions
                                                           SEOUENCE {}
                                                                           OPTIONAL
                           OPTIONAL
                       OPTIONAL
                }
                   OPTIONAL
            },
                                           CHOICE {
            criticalExtensions
                                               SEQUENCE {
               r5
                    transportChannelReconfiguration-r5
                                                   TransportChannelReconfiguration-r5-IEs,
                    -- Container for adding non critical extensions after freezing REL-6
                    transportChannelReconfiguration-r5-add-ext BIT STRING
                                                                                   OPTIONAL,
                    transportChannelReconfiguration-v6xyext
                                                       TransportChannelReconfiguration-v6xyext-IEs,
                       nonCriticalExtensions
                                                       SEQUENCE {}
                                                                     OPTIONAL
                       OPTIONAL
                },
                criticalExtensions
                                               CHOICE {
                   rб
                                                   SEQUENCE {
                        transportChannelReconfiguration-r6
                                                       TransportChannelReconfiguration-r6-IEs,
                        -- Container for adding non critical extensions after freezing REL-7 \,
                                                                     BIT STRING
                        transportChannelReconfiguration-r6-add-ext
                       nonCriticalExtensions
                                                      SEQUENCE {}
                                                                       OPTIONAL
                                           SEQUENCE {}
                    criticalExtensions
               }
          }
       }
    }
}
TransportChannelReconfiguration-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
       rrc-TransactionIdentifier
                                     RRC-TransactionIdentifier,
        \verb|integrityProtectionModeInfo| IntegrityProtectionModeInfo|
                                                                           OPTIONAL.
        cipheringModeInfo
                                       CipheringModeInfo
                                                                           OPTIONAL,
       activationTime
                                       ActivationTime
                                                                           OPTIONAL,
       new-U-RNTI
                                                                           OPTIONAL,
                                       U-RNTI
       new-C-RNTT
                                       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,
       ul-AddRecommanschi
modeSpecificTransChInfo
                                       CHOICE {
                                           SEQUENCE {
                cpch-SetID
                                               CPCH-Set.ID
                                                                           OPTIONAL.
                addReconfTransChDRAC-Info
                                               DRAC-StaticInformationList OPTIONAL
           },
           tdd
                                           NULL
                                                                           OPTIONAL,
        dl-CommonTransChInfo
                                     DL-CommonTransChInfo
                                                                           OPTIONAL,
       dl-AddReconfTransChInfoList
                                       DL-AddReconfTransChInfoList
                                                                           OPTIONAL,
    -- Physical channel IEs
        {\tt frequencyInfo}
                                       FrequencyInfo
                                                                           OPTIONAL,
                                                                           OPTIONAL,
        maxAllowedUL-TX-Power
                                       MaxAllowedUL-TX-Power
        ul-ChannelRequirement
                                       UL-ChannelRequirement
                                                                           OPTIONAL,
        modeSpecificPhysChInfo
                                       CHOICE {
                                           SEQUENCE {
           fdd
```

```
-- dummy is not used in this version of specification, it should
 - not be sent and if received it should be ignored.
                dummydl PDSCH Information
                                                      DL-PDSCH-Information
                                                                                  OPTIONAL
            tdd
                                         NULL
        dl-CommonInformation
                                         DL-CommonInformation
                                                                               OPTIONAL,
        dl-CommonInformation DL-CommonInformation dl-InformationPerRL-List DL-InformationPerRL-List
                                                                              OPTIONAL
}
TransportChannelReconfiguration-v3a0ext ::= SEQUENCE {
  The IE "new-DSCH-RNTI" should not be included in FDD mode, and if received the UE behaviour
   is unspecified
    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
        ssdt-UL-r4
                                                                                   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
}
{\tt TransportChannelReconfiguration-v590ext-IEs} \ ::= \ {\tt 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,
                                         C-RNTI
                                                                               OPTIONAL,
        new-C-RNTI
  The IE "new-DSCH-RNTI" should not be included in FDD mode, and if received the UE behaviour
  is unspecified
        new-DSCH-RNTI
                                         DSCH-RNTI
        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
                                                                               OPTTONAL.
    -- Radio bearer IEs
        dl-CounterSynchronisationInfo DL-CounterSynchronisationInfo
                                                                               OPTIONAL,
    -- Transport channel IEs
        ul-CommonTransChInfo
                                         UL-CommonTransChInfo-r4
                                                                               OPTIONAL,
        ul-AddReconfTransChInfoList UL-AddRecondConfTransChInfo CHOICE {
                                         UL-AddReconfTransChInfoList
                                                                               OPTIONAL,
                                             SEQUENCE {
                                                  CPCH-SetID
                cpch-SetID
                                                                               OPTIONAL.
                {\tt addReconfTransChDRAC-Info}
                                                  DRAC-StaticInformationList OPTIONAL
            },
            tdd
                                              NULL
                                                                               OPTIONAL,
        dl-CommonTransChInfo DL-CommonTransChInfo-r4
dl-AddReconfTransChInfoList DL-AddReconfTransChInfoList-r4
                                                                               OPTIONAL.
                                                                               OPTIONAL,
    -- Physical channel IEs
        frequencyInfo
                                         FrequencyInfo
                                                                               OPTIONAL,
        maxAllowedUL-TX-Power ul-ChannelRequirement
                                         MaxAllowedUL-TX-Power
                                                                               OPTIONAL.
                                         UL-ChannelRequirement-r4
                                                                               OPTIONAL,
        modeSpecificPhysChInfo
                                         CHOICE {
            fdd
                                            SEQUENCE {
 - dummy is not used in this version of specification, it should
-- not be sent and if received it should be ignored.
                dl PDSCH Informationdummy
                                                      DL-PDSCH-Information OPTIONAL
            tdd
                                         NULL
        dl-CommonInformation DL-CommonInformation-r4 dl-InformationPerRL-List DL-InformationPerRL-List-r4
                                                                             OPTIONAL,
                                                                              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
  The IE "new-DSCH-RNTI" should not be included in FDD mode, and if received the UE behaviour
-- is unspecified
       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 {
                                           SEQUENCE {
           fdd
               cpch-SetID
                                               CPCH-Set.ID
               addReconfTransChDRAC-Info
                                               DRAC-StaticInformationList OPTIONAL
           },
           tdd
                                           NULL
                                                                           OPTIONAL,
       dl-CommonTransChInfo
                                     DL-CommonTransChInfo-r4
                                                                           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 {
 - dummy is not used in this version of specification, it should
-- not be sent and if received it should be ignored.
                                                  DL-PDSCH-Information
               dl PDSCH Informationdummy
                                                                               OPTIONAL
           tdd
       dl-HSPDSCH-Information
                                     DL-HSPDSCH-Information
                                                                          OPTIONAL,
       dl-CommonInformation
                                       DL-CommonInformation-r5
                                     DL-InformationPerRL-List-r5
       dl-InformationPerRL-List
                                                                          OPTIONAL
}
TransportChannelReconfiguration-v6xyext-IEs ::= SEQUENCE {
    -- Core network IEs
       primary-plmn-Identity
                                      PLMN-Identity
                                                                           OPTIONAL,
   -- Physical channel IEs
       harq-Preamble-Mode
                                       HARQ-Preamble-Mode
                                                                           OPTIONAL,
                                       BEACON-PL-Est
       beaconPLEst
                                                                           OPTIONAL,
    -- MBMS IEs
       mbms-PL-ServiceRestrictInfo
                                    MBMS-PL-ServiceRestrictInfo-r6
                                                                           OPTIONAL
}
TransportChannelReconfiguration-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,
  The IE "new-DSCH-RNTI" should not be included in FDD mode, and if received the UE behaviour
  is unspecified
       new-DSCH-RNTI
                                       DSCH-RNTI
                                                                           OPTIONAL,
       new-H-RNTI
                                                                           OPTIONAL,
                                       H-RNTI
       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,
```

```
-- Transport channel IEs
       ul-CommonTransChInfoUL-CommonTransChInfo-r4OPTIONAL,ul-AddReconfTransChInfoListUL-AddReconfTransChInfoList-r6OPTIONAL,
       modeSpecificTransChInfo CHOICE {
fdd SEQUENCE {
                                            CPCH-SetID
              cpch-SetID
               addReconfTransChDRAC-Info
                                               DRAC-StaticInformationList OPTIONAL
           },
           tdd
                                           NULL
       dl-CommonTransChInfo DL-CommonTransChInfo-r4
dl-AddReconfTransChInfoList DL-AddReconfTransChInfoList-r5
                                                                           OPTIONAL,
                                                                         OPTIONAL.
   -- Physical channel IEs
       FrequencyInfo
MaxAllowedUL-TX-Power
ul-ChannelRequirement
ul-EDCH-Information
modeSpecificPhysChInfo
                                                                          OPTIONAL,
                                       MaxAllowedUL-TX-Power
                                                                          OPTIONAL,
                                      UL-ChannelRequirement-r6
                                                                          OPTIONAL,
                                     UL-EDCH-Information-r6
                                                                          OPTIONAL,
                                          SEQUENCE {
               dl PDSCH Information
                                              DL PDSCH Information OPTIONAL
                                  NULL
       dl-HSPDSCH-Information DL-HSPDSCH-Information dl-CommonInformation DL-CommonInformation-r6 dl-InformationPerRL-List DL-InformationPerRL-List-r6
                                                                          OPTTONAL.
                                                                          OPTIONAL,
    -- MBMS IEs
       mbms-PL-ServiceRestrictInfo MBMS-PL-ServiceRestrictInfo-r6
}
__ ****************************
-- TRANSPORT CHANNEL RECONFIGURATION COMPLETE
__ **************************
TransportChannelReconfigurationComplete ::= SEQUENCE {
   -- User equipment IEs
       rrc-TransactionIdentifier RRC-TransactionIdentifier, ul-IntegProtActivationInfo IntegrityProtActivationInfo
                                                                          OPTIONAL,
        -- TABULAR: UL-TimingAdvance is applicable for TDD mode only.
                                     UL-TimingAdvance
       ul-TimingAdvance
                                                                           OPTIONAL.
   -- Radio bearer IEs
       count-C-ActivationTime
                                   ActivationTime
                                                                           OPTIONAL,
        -- dummy is not used in this version of the specification and
        -- it should be ignored by the receiver.
                                    RB-ActivationTimeInfoList
       dummy
                                                                          OPTTONAL.
       OPTIONAL,
           -- Container for additional R99 extensions
           transportChannelReconfigurationComplete-r3-add-ext BIT STRING OPTIONAL,
           nonCriticalExtensions
                                          SEQUENCE { } OPTIONAL
       } OPTIONAL
__ ****************
-- TRANSPORT CHANNEL RECONFIGURATION FAILURE
__ ***************
TransportChannelReconfigurationFailure ::= SEQUENCE {
   -- User equipment IEs
       User equipment IES
rrc-TransactionIdentifier
failureCause
laterNonCriticalExtensions
RRC-TransactionIdentifier,
FailureCauseWithProtErr,
SEQUENCE {
            -- Container for additional R99 extensions
           transportChannelReconfigurationFailure-r3-add-ext BIT STRING
                                                                                  OPTIONAL,
                                         SEQUENCE {} OPTIONAL
           nonCriticalExtensions
       } OPTIONAL
}
  **************
-- TRANSPORT FORMAT COMBINATION CONTROL in AM or UM RLC mode
__ *********************
```

```
TransportFormatCombinationControl ::= SEQUENCE {
         -- rrc-TransactionIdentifier is always included in this version of the specification
        rrc-TransactionIdentifier RRC-TransactionIdentifier modeSpecificInfo CHOICE {
                                                                                  OPTIONAL,
                                               CHOICE {
        modeSpecificInfo
            fdd
                                                    NULL,
             tdd
                                                    SEQUENCE {
                                                        TFCS-Identity OPTIONAL
                 tfcs-ID
             }
        dpch-TFCS-InUplink
                                               TFC-Subset,
                                             ActivationTime
        activationTimeForTFCSubset
                                                                                       OPTIONAL,
                                                                                       OPTIONAL,
        tfc-ControlDuration
                                               TFC-ControlDuration
        laterNonCriticalExtensions
                                               SEOUENCE {
             -- Container for additional R99 extensions
                                                  r3-add-ext BIT STRING SEQUENCE {} OPTIONAL
             transportFormatCombinationControl-r3-add-ext
                                                                                      OPTIONAL,
                nonCriticalExtensions
           OPTIONAL
}
__ ***************
-- TRANSPORT FORMAT COMBINATION CONTROL FAILURE
__ ****************
TransportFormatCombinationControlFailure ::= SEQUENCE {
    -- User equipment IEs
        Jser equipment IEs
rrc-TransactionIdentifier RRC-TransactionIdentifier,
failureCause FailureCauseWithProtErr,
laterNonCriticalExtensions SEQUENCE {
             -- Container for additional R99 extensions
             transportFormatCombinationControlFailure-r3-add-ext
                                                                        BIT STRING OPTIONAL,
             nonCriticalExtensions
                                       SEQUENCE {}
                                                              OPTIONAL
           OPTIONAL
}
__ ****************
-- UE CAPABILITY ENOUIRY
__ ***************
UECapabilityEnquiry ::= CHOICE {
        SEQUENCE {
ueCapabilityEnquiry-r3
laterNonCriticalExtensions
SEQUENCE {

UECapabilityEnquiry-r3-IEs,
SEQUENCE {
             -- Container for additional R99 extensions
            ueCapabilityEnquiry-r3-add-ext BIT STRING v4b0NonCriticalExtensions SEQUENCE {
                                                                   OPTIONAL,
                 ueCapabilityEnquiry-v4b0ext UECapabilityEnquiry-v4b0ext-IEs, v590NonCriticalExtensions SEQUENCE {
                     ONONCTITICALEXTENSIONS

ueCapabilityEnquiry-v590ext

nonCriticalExtensions

SEQUENCE {

UECapabilityEnquiry-v590ext-IEs,

SEQUENCE {}

OPTIONAL
                                          OPTIONAL
                 }
                     OPTIONAL
        ) OPTIONAL
    later-than-r3
                                     SEQUENCE {
        rrc-TransactionIdentifier RRC-TransactionIdentifier,
        criticalExtensions
                                          SEQUENCE {}
UECapabilityEnquiry-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
        User equipment les
rrc-TransactionIdentifier RRC-TransactionIdentifier,
capabilityUpdateRequirement CapabilityUpdateRequirement
}
UECapabilityEnquiry-v4b0ext-IEs ::= SEQUENCE {
        capabilityUpdateRequirement-r4-ext CapabilityUpdateRequirement-r4-ext
}
UECapabilityEnquiry-v590ext-IEs ::= SEQUENCE {
        systemSpecificCapUpdateReq SystemSpecificCapUpdateReq-v590ext
}
```

```
-- UE CAPABILITY INFORMATION
__ ****************************
UECapabilityInformation ::= SEQUENCE {
    -- User equipment IEs
                                     RRC-TransactionIdentifier
       rrc-TransactionIdentifier
                                                                          OPTIONAL.
       ue-RadioAccessCapability
                                     UE-RadioAccessCapability
                                                                           OPTIONAL,
    -- Other IEs
       ue-RATSpecificCapability
                                      InterRAT-UE-RadioAccessCapabilityList
    OPTIONAL.
                                           SEQUENCE {
        v370NonCriticalExtensions
            ueCapabilityInformation-v370ext UECapabilityInformation-v370ext,
           v380NonCriticalExtensions
                                              SEQUENCE {
               ueCapabilityInformation-v380ext UECapabilityInformation-v380ext-IEs, v3a0NonCriticalExtensions SEQUENCE {
                    ueCapabilityInformation-v3a0ext
                                                       UECapabilityInformation-v3a0ext-IEs,
                    laterNonCriticalExtensions
                                                       SEQUENCE {
                        -- Container for additional R99 extensions
                       ueCapabilityInformation-r3-add-ext
                                                              BIT STRING
                                   (CONTAINING UECapabilityInformation-r3-add-ext-IEs) OPTIONAL,
                        -- Reserved for future non critical extension
                       v4b0NonCriticalExtensions SEQUENCE {
                           {\tt ueCapabilityInformation-v4b0ext} \qquad {\tt UECapabilityInformation-v4b0ext},
                           v590NonCriticalExtensions
                                                               SEQUENCE {
                               {\tt ueCapabilityInformation-v590ext} \qquad {\tt UECapabilityInformation-v590ext},
                               v5c0NonCriticalExtensions
                                                                  SEQUENCE {
                                   ueCapabilityInformation-v5c0ext
                                                                   UECapabilityInformation-v5c0ext,
                                   nonCriticalExtensions
                                                                       SEQUENCE {}
                                                                                      OPTIONAL
                                       OPTIONAL
                                   OPTIONAL
                               OPTIONAL
                           OPTIONAL
                       OPTIONAL
           }
                    OPTIONAL
               OPTIONAL
}
UECapabilityInformation-v370ext ::= SEQUENCE {
    -- User equipment IEs
       ue-RadioAccessCapability-v370ext
                                             UE-RadioAccessCapability-v370ext
                                                                                      OPTIONAL
}
UECapabilityInformation-v380ext-IEs ::= SEQUENCE {
    -- User equipment IEs
        ue-RadioAccessCapability-v380ext
                                               UE-RadioAccessCapability-v380ext
                                                                                       OPTIONAL,
        dl-PhysChCapabilityFDD-v380ext
                                               DL-PhysChCapabilityFDD-v380ext
}
UECapabilityInformation-v3a0ext-IEs ::= SEQUENCE {
    -- User equipment IEs
       ue-RadioAccessCapability-v3a0ext
                                               UE-RadioAccessCapability-v3a0ext
                                                                                       OPTIONAL
}
UECapabilityInformation-r3-add-ext-IEs ::= SEQUENCE {
       ueCapabilityInformation-v650ext
                                         UECapabilityInformation-v650ext-IEs
                                                                                   OPTIONAL,
       nonCriticalExtensions
                                           SEQUENCE {}
                                                        OPTIONAL
}
UECapabilityInformation-v4b0ext ::= SEQUENCE {
    -- User equipment IEs
       ue-RadioAccessCapability-v4b0ext
                                           UE-RadioAccessCapability-v4b0ext
                                                                                       OPTIONAL
}
UECapabilityInformation-v590ext ::= SEQUENCE {
    -- User equipment IEs
       ue-RadioAccessCapability-v3g0ext
                                               UE-RadioAccessCapability-v3q0ext
                                                                                       OPTIONAL.
       ue-RadioAccessCapability-v590ext
                                               UE-RadioAccessCapability-v590ext
                                                                                       OPTIONAL,
       ue-RATSpecificCapability-v590ext InterRAT-UE-RadioAccessCapability-v590ext
}
UECapabilityInformation-v5c0ext ::= SEQUENCE {
    -- User equipment IEs
       ue-RadioAccessCapability-v5c0ext
                                             UE-RadioAccessCapability-v5c0ext
                                                                                      OPTIONAL
}
```

```
UECapabilityInformation-v650ext-IEs ::= SEQUENCE {
       ue-RadioAccessCapability-v650ext UE-RadioAccessCapability-v650ext
__ *******************************
-- UE CAPABILITY INFORMATION CONFIRM
__ *********************
UECapabilityInformationConfirm ::= CHOICE {
                                 SEQUENCE {
       UECapabilityInformationConfirm-r3-IEs, laterNonCriticalExtensions SEOUENCE [
       ueCapabilityInformationConfirm-r3
          -- Container for additional R99 extensions ueCapabilityInformationConfirm-r3-add-ext
          ueCapabilityInformationConfirm-r3-add-ext BIT STRING OPTIONAL, nonCriticalExtensions SEQUENCE {} OPTIONAL
       } OPTIONAL
                              SEQUENCE {
   later-than-r3
      criticalExtensions
}
UECapabilityInformationConfirm-r3-IEs ::= SEQUENCE {
   -- User equipment IEs
      rrc-TransactionIdentifier
                                  RRC-TransactionIdentifier
  ************
-- UPLINK DIRECT TRANSFER
__ ****************************
UplinkDirectTransfer ::= SEQUENCE {
                         CN-Doma....
NAS-Message,
   -- Core network IEs
       cn-DomainIdentity
                                    CN-DomainIdentity,
       nas-Message
   -- Measurement IEs
       measuredResultsOnRACH MeasuredResultsOnRACH OPTIONAL, laterNonCriticalExtensions SEQUENCE {
           -- Container for additional R99 extensions
           uplinkDirectTransfer-r3-add-ext BIT STRING OPTIONAL,
           nonCriticalExtensions
                                       SEQUENCE {} OPTIONAL
          OPTIONAL
}
__ ****************
-- UPLINK PHYSICAL CHANNEL CONTROL
__ ***************
UplinkPhysicalChannelControl ::= CHOICE {
                               SEQUENCE {
       uplinkPhysicalChannelControl-r3 UplinkPhysicalChannelControl-r3-IEs,
                                       SEQUENCE {
       laterNonCriticalExtensions
           -- Container for additional R99 extensions
           uplinkPhysicalChannelControl-r3-add-ext BIT STRING
           v4b0NonCriticalExtensions SEQUENCE { uplinkPysicalChannelControl-v4b0ext UplinkPhysicalChannelControl-v4b0ext-IEs,
               -- Extension mechanism for non-release 4 information
              noncriticalExtensions SEQUENCE {}
                                                                        OPTIONAL
              OPTIONAL
          ÓPTIONAL
       }
   later-than-r3
                               SEQUENCE {
       rrc-TransactionIdentifier RRC-TransactionIdentifier, criticalExtensions CHOICE {
    r4 SEQUENCE {
              uplinkPhysicalChannelControl-r4 UplinkPhysicalChannelControl-r4-IEs,
              v4d0NonCriticalExtensions
                                               SEQUENCE {
                  -- Container for adding non critical extensions after freezing REL-5
                  uplinkPhysicalChannelControl-r4-add-ext BIT STRING OPTIONAL,
```

```
SEQUENCE {
                    v6xyNonCriticalExtensions
                                                                 UplinkPhysicalChannelControl-v6xyext-IEs,
                        uplinkPhysicalChannelControl-v6xyext
                        nonCriticalExtensions
                                                        SEQUENCE {} OPTIONAL
                        OPTTONAL.
                    OPTIONAL
            },
                                        CHOICE {
            criticalExtensions
                                                SEOUENCE {
                r5
                    uplinkPhysicalChannelControl-r5 UplinkPhysicalChannelControl-r5-IEs,
                      - Container for adding non critical extensions after freezing REL-6
                                                               BIT STRING
                                                                               OPTIONAL,
                    uplinkPhysicalChannelControl-r5-add-ext
                                                    SEQUENCE {
                    v6xvNonCriticalExtensions
                        \verb"uplinkPhysicalChannelControl-v6xyext"
                                                                 UplinkPhysicalChannelControl-v6xyext-IEs,
                        nonCriticalExtensions
                                                         SEQUENCE { } OPTIONAL
                        OPTIONAL
                },
                criticalExtensions
                                               SEQUENCE {}
            }
       }
    }
}
UplinkPhysicalChannelControl-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
       rrc-TransactionIdentifier
                                       RRC-TransactionIdentifier.
    -- Physical channel IEs
        ccTrCH-PowerControlInfo
                                       CCTrCH-PowerControlInfo
                                                                             OPTIONAL,
        timingAdvance
                                        UL-TimingAdvanceControl
                                                                             OPTIONAL,
        alpha
                                        Alpha
                                                                            OPTIONAL,
        specialBurstScheduling
                                        SpecialBurstScheduling
                                                                            OPTTONAL.
        prach-ConstantValue
                                        ConstantValueTdd
                                                                             OPTIONAL.
        pusch-ConstantValue
                                        ConstantValueTdd
                                                                            OPTIONAL
}
UplinkPhysicalChannelControl-v4b0ext-IEs ::= SEQUENCE {
    -- In case of TDD, openLoopPowerControl-IPDL-TDD is included instead of IE
    -- up-IPDL-Parameters in up-OTDOA-AssistanceData
    openLoopPowerControl-IPDL-TDD
                                   OpenLoopPowerControl-IPDL-TDD-r4
                                                                         OPTIONAL
UplinkPhysicalChannelControl-r4-IEs ::= SEQUENCE {
    -- Physical channel IEs
        ccTrCH-PowerControlInfo
                                        CCTrCH-PowerControlInfo-r4
                                                                            OPTIONAL.
        specialBurstScheduling
                                        SpecialBurstScheduling
                                                                             OPTIONAL,
        tddOption
                                        CHOICE {
            tdd384
                                            SEQUENCE {
                timingAdvance
                                                UL-TimingAdvanceControl-r4 OPTIONAL,
                alpha
                                                Alpha
                                                                             OPTIONAL,
                prach-ConstantValue
                                                 ConstantValueTdd
                                                                             OPTIONAL,
                pusch-ConstantValue
                                                ConstantValueTdd
                                                                             OPTIONAL,
                openLoopPowerControl-IPDL-TDD OpenLoopPowerControl-IPDL-TDD-r4
                                                                                     OPTIONAL
            },
            tdd128
                                            SEQUENCE {
                                                UL-SynchronisationParameters-r4 OPTIONAL
                ul-SynchronisationParameters
            }
        }
}
UplinkPhysicalChannelControl-r5-IEs ::= SEQUENCE {
    -- Physical channel IEs
        ccTrCH-PowerControlInfo
                                        CCTrCH-PowerControlInfo-r5
                                                                             OPTIONAL,
        specialBurstScheduling
                                        SpecialBurstScheduling
                                                                             OPTIONAL,
        tddOption
                                        CHOICE {
            t.dd384
                                            SECUENCE {
                                                UL-TimingAdvanceControl-r4 OPTIONAL,
                timingAdvance
                                                                             OPTIONAL,
                alpha
                                                Alpha
                prach-ConstantValue
                                                {\tt ConstantValueTdd}
                                                                             OPTIONAL,
                pusch-ConstantValue
                                                ConstantValueTdd
                                                                             OPTIONAL,
                openLoopPowerControl-IPDL-TDD OpenLoopPowerControl-IPDL-TDD-r4
                                                                                     OPTIONAL.
                hs-SICH-PowerControl
                                                HS-SICH-Power-Control-Info-TDD384
                                                                                     OPTIONAL
            tdd128
                                            SEQUENCE {
                                                UL-SynchronisationParameters-r4 OPTIONAL
                ul-SynchronisationParameters
            }
        }
{\tt UplinkPhysicalChannelControl-v6xyext-IEs} \ ::= \ {\tt SEQUENCE} \ \left\{
```

```
-- Physical Channel IEs
        beaconPLEst
                                            BEACON-PL-Est
                                                                                    OPTIONAL
}
__ ****************
-- URA UPDATE
__ ***************
URAUpdate ::= SEQUENCE {
    -- User equipment IEs
        U-RNTI,
ura-UpdateCause
protocolErrorIndicator
laterNonCriticalExtensions
URA-UpdateCause,
ProtocolErrorIndicatorWithMoreInfo,
SEQUENCE {
             -- Container for additional R99 extensions
            OPTIONAL
}
__ ****************************
-- IIRA IIPDATE CONFIRM
__ ***************
URAUpdateConfirm ::= CHOICE {
        SEQUENCE {
uraUpdateConfirm-r3
laterNonCritical
    r3
        uraUpdateConfirm-r3
laterNonCriticalExtensions
URAUpdateConfirm-r3-IEs,
SEQUENCE {
             -- Container for additional R99 extensions
            -- Container for additional RYY EALERSTOND
uraUpdateConfirm-r3-add-ext BIT STRING OPTIONAL,
v6xyNonCriticalExtensions SEQUENCE {
   uraUpdateConfirm-v6xyext URAUpdateConfirm-v6xyext-IEs,
   nonCriticalExtensions SEQUENCE {} OPTIONAL
                OPTIONAL
            OPTIONAL
    later-than-r3
                                       SEQUENCE {
        rrc-TransactionIdentifier RRC-TransactionIdentifier, criticalExtensions CHOICE {
                 SEQUENCE {
uraUpdateConfirm-r5
v6xyNonCriticalExtensions
V6xyNonCriticalExtensions
SEQUENCE {
SEQUENCE {
                     uraUpdateConfirm-v6xyext URAUpdate nonCriticalExtensions SEQUENCE {}
                                                          URAUpdateConfirm-v6xyext-IEs,
                                                                         OPTIONAL
                    OPTIONAL
             },
             \verb| criticalExtensions | SEQUENCE | \{ \} \\
    }
}
URAUpdateConfirm-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier
                                         RRC-TransactionIdentifier,
                                                                                 OPTIONAL,
        integrityProtectionModeInfo IntegrityProtectionModeInfo
                               U-RNTI
        cipheringModeInfo
                                           CipheringModeInfo
                                                                                   OPTIONAL,
        new-U-RNTI
                                                                                   OPTIONAL,
        new-C-RNTI
                                           C-RNTI
                                                                                   OPTIONAL,
        rrc-StateIndicator RRC-StateIndicator, utran-DRX-CycleLengthCoeff UTRAN-DRX-CycleLengthCoefficient OPTIONAL,
    utran-DRX-Cycremon.
-- CN information elements
                                         CN-InformationInfo
                                                                                   OPTIONAL,
    -- UTRAN mobility IEs
                                          URA-Identity
                                                                                   OPTIONAL,
        ura-Identity
    -- Radio bearer IEs
        dl-CounterSynchronisationInfo DL-CounterSynchronisationInfo
                                                                                    OPTIONAL
}
URAUpdateConfirm-r5-IEs ::= SEQUENCE {
    -- User equipment IEs
        integrityProtectionModeInfo
                                          IntegrityProtectionModeInfo
                                                                                   OPTIONAL,
        cipheringModeInfo
                                           CipheringModeInfo
                                                                                   OPTIONAL,
                                            U-RNTI
                                                                                   OPTIONAL,
        new-U-RNTI
        new-C-RNTI
                                            C-RNTI
                                                                                    OPTIONAL,
```

```
rrc-StateIndicator RRC-StateIndicator,
utran-DRX-CycleLengthCoeff UTRAN-DRX-CycleLengthCoefficient
                                                                OPTIONAL,
   -- CN information elements
      cn-InformationInfo
                                  CN-InformationInfo
                                                                  OPTIONAL.
   -- UTRAN mobility IEs
      ura-Identity
                                URA-Identity
                                                                  OPTIONAL,
   -- Radio bearer IEs
      dl-CounterSynchronisationInfo DL-CounterSynchronisationInfo-r5
                                                                  OPTIONAL
}
URAUpdateConfirm-v6xyext-IEs ::= SEQUENCE {
   -- Core network IEs
      primary-plmn-Identity
                                    PLMN-Identity
                                                                OPTIONAL.
}
  **************
-- URA UPDATE CONFIRM for CCCH
__ ***************
URAUpdateConfirm-CCCH ::= CHOICE {
      URAUpdateConfirm-CCCH-r3-IEs, laterNonCriticalExtensions
                               SEQUENCE {
          -- Container for additional R99 extensions
          uraUpdateConfirm-CCCH-r3-add-ext BIT STRING OPTIONAL,
          OPTIONAL
      ) OPTIONAL
                     SEQUENCE {
U-RNTI
   later-than-r3
      u-RNTI U-RNTI, rrc-TransactionIdentifier RRC-TransactionIdentifier, criticalExtensions SEQUENCE {}
}
URAUpdateConfirm-CCCH-r3-IEs ::= SEQUENCE {
   -- User equipment IEs
                                  U-RNTI,
      u-RNTI
   \mbox{--} The rest of the message is identical to the one sent on DCCH.
                                 URAUpdateConfirm-r3-IEs
      uraUpdateConfirm
}
__ ****************
-- UTRAN MOBILITY INFORMATION
__ *******************************
UTRANMobilityInformation ::= CHOICE {
                         SEQUENCE {
  r3
      utranMobilityInformation-r3 UTRANMobilityInformation-r3-IEs, v3a0NonCriticalExtensions SEQUENCE {
          laterNonCriticalExtensions
                                         SEQUENCE {
              -- Container for additional R99 extensions
             utranMobilityInformation-r3-add-ext BIT STRING OPTIONAL,
             {\tt utranMobilityInformation-v6xyext} \qquad {\tt UtranMobilityInformation-v6xyext-IEs},
                                               SEQUENCE { } OPTIONAL
                 nonCriticalExtensions
                    OPTIONAL
                OPTIONAL
          }
      }
             OPTIONAL
                              SEQUENCE {
   later-than-r3
                             RRC-TransactionIdentifier,
CHOICE {
      rrc-TransactionIdentifier
      criticalExtensions
                                   SEQUENCE {
             utranMobilityInformation-r5 UTRANMobilityInformation-r5-IEs, v6xyNonCriticalExtensions SEQUENCE {
                 \verb"utranMobilityInformation-v6xyext" UtranMobilityInformation-v6xyext-IEs",
                 OPTIONAL
          },
```

```
criticalExtensions
                                         SEQUENCE {}
       }
   }
}
UTRANMobilityInformation-r3-IEs ::= SEQUENCE {
   -- User equipment IEs
       rrc-TransactionIdentifier
                                     RRC-TransactionIdentifier,
       rrc-TransactionIdentifier RRC-TransactionIdentifier, integrityProtectionModeInfo CipheringModeInfo CipheringModeInfo CipheringModeInfo
                                                                        OPTIONAL,
       cipheringModeInfo
                                     CipheringModeInfo
                                                                         OPTIONAL,
       new-U-RNTI
                                     U-RNTI
                                                                        OPTIONAL,
       new-C-RNTI
       ue-ConnTimersAndConstants UE-ConnTimersAndConstants
CN information elements
                                     C-RNTI
                                                                        OPTIONAL.
                                                                        OPTIONAL.
   -- CN information elements
       cn-InformationInfo
                                     CN-InformationInfoFull
                                                                        OPTIONAL,
   -- UTRAN mobility IEs
                                     URA-Identity
       ura-Identity
                                                                        OPTIONAL,
    -- Radio bearer IEs
       dl-CounterSynchronisationInfo DL-CounterSynchronisationInfo
                                                                       OPTIONAL,
    -- Extension mechanism for non- release99 information
                                     SEQUENCE {}
                                                     OPTIONAL
       nonCriticalExtensions
}
UTRANMobilityInformation-v3a0ext-IEs ::= SEQUENCE {
   ue-ConnTimersAndConstants-v3a0ext
                                         IJE-ConnTimersAndConstants-v3a0ext
UTRANMobilityInformation-r5-IEs ::= SEQUENCE {
   -- User equipment IEs
       integrityProtectionModeInfo IntegrityProtectionModeInfo
                                                                        OPTIONAL.
       cipheringModeInfo
                                      CipheringModeInfo
                                                                        OPTIONAL.
       new-U-RNTI
                                     U-RNTI
                                                                        OPTIONAL,
       new-C-RNTI
                                      C-RNTI
                                                                        OPTIONAL,
       ue-ConnTimersAndConstants UE-ConnTimersAndConstants-r5
                                                                        OPTIONAL,
   -- CN information elements
       cn-InformationInfo
                                     CN-InformationInfoFull
                                                                        OPTIONAL,
    -- UTRAN mobility IEs
       ura-Identity
                                     URA-Identity
                                                                        OPTIONAL,
   -- Radio bearer IEs
       dl-CounterSynchronisationInfo DL-CounterSynchronisationInfo-r5 OPTIONAL
}
UtranMobilityInformation-v6xyext-IEs ::= SEQUENCE {
    -- Core network IEs
       primary-plmn-Identity
                                          PLMN-Identity
                                                                           OPTIONAL
}
__ ****************
-- UTRAN MOBILITY INFORMATION CONFIRM
__ ****************
UTRANMobilityInformationConfirm ::= SEQUENCE {
   -- User equipment IEs
       rrc-TransactionIdentifier RRC-TransactionIdentifier, ul-IntegProtActivationInfo IntegrityProtActivationInfo
                                      IntegrityProtActivationInfo
                                                                        OPTIONAL,
    -- Radio bearer IEs
       count-C-ActivationTime
                                     ActivationTime
                                                                         OPTIONAL,
       -- dummy is not used in this version of the specification and
       -- it should be ignored by the receiver.
                                     RB-ActivationTimeInfoList
                                                                         OPTIONAL,
       dummy
       ul-CounterSynchronisationInfo UL-CounterSynchronisationInfo
                                                                        OPTIONAL,
                                         SEQUENCE {
       laterNonCriticalExtensions
           -- Container for additional R99 extensions
           nonCriticalExtensions SEQUENCE {} OPTIONAL

OPTIONAL
                                                                         OPTIONAL.
       } OPTIONAL
}
************
-- UTRAN MOBILITY INFORMATION FAILURE
__ ****************
UTRANMobilityInformationFailure ::= SEQUENCE {
   -- UE information elements
```

```
laterNonCriticalExtensions

-- Container (
               {\tt rrc-TransactionIdentifier} \qquad {\tt RRC-TransactionIdentifier},
                      -- Container for additional R99 extensions
                      utranMobilityInformationFailure-r3-add-ext
                                                                                                           BIT STRING
                                                                                                                                          OPTIONAL,
                      nonCriticalExtensions SEQUENCE {} OPTIONAL
               } OPTIONAL
}
__ ***************
-- MBMS ACCESS INFORMATION
__ **************************
MBMSAccessInformation ::= SEQUENCE {
       -- Access Information IEs
             mbms-ServiceAccessInfoList MBMS-ServiceAccessInfoList-r6,
       -- Non critical extensions
             nonCriticalExtensions
                                                                       SEQUENCE {} OPTIONAL
}
__ *****************************
-- MBMS COMMON PTM RB INFORMATION
__ ****************
MBMSCommonPTMRBInformation ::= SEQUENCE {
       -- Common PTM RB Information IEs
              \label{local_mbms-commonRBInformationList} $$ \mbox{MBMS-CommonRBInformationList-r6}, $$ \mbox{mbms-TranspChInfoForEachTrCh}$$ $$ \mbox{MBMS-TranspChInfoForEachTrCh-r6}, $$ \mbox{MBMS-TranspChInf
              \verb|mbms-TranspChInfoForEachCCTrCh-mbms-TranspChInfoForEachCCTrCh-r6|,
              mbms-PhyChInformationList MBMS-PhyChInformationList-r6,
       -- Non critical extensions
              nonCriticalExtensions
                                                                        SEQUENCE {}
}
__ *****************************
-- MBMS CURRENT CELL PTM RB INFORMATION
__ ****************
MBMSCurrentCellPTMRBInformation ::= SEQUENCE {
       -- Current Cell PTM RB Information IEs
            mbms-CurrentCell-SCCPCHList MBMS-CurrentCell-SCCPCHList-r6 OPTIONAL, mbms-SIBType5-SCCPCHList MBMS-SIBType5-SCCPCHList-r6 OPTIONAL, Non-critical extensions
       mbms-Sibiypes-Sec. --
-- Non critical extensions
            nonCriticalExtensions
                                                                      SEQUENCE {} OPTIONAL
}
__ ****************
-- MBMS GENERAL INFORMATION
__ ****************************
MBMSGeneralInformation ::= SEQUENCE {
       -- MBMS General Information IEs
             mbms-PreferredFrequencyInfo
mbms-TimersAndCouneters
michConfigurationInfo

mbms-TimersAndCouneters
michConfigurationInfo

mbms-TimersAndCouneters-r6,
michConfigurationInfo

mbms-MICHConfigurationInfo-r6,
mbms-CellGroupIdentity-r6
                                                                                                                                         OPTIONAL,
             cellGroupIdentity MBMS-CellGroupIdentity-r6,
mschDefaultConfigurationInfo MBMS-MSCHConfigurationInfo-r6 OPTIONAL,
       -- Non critical extensions
              nonCriticalExtensions
                                                                       SEQUENCE {}
}
__ ****************
-- MBMS MODIFICATION REQUEST
__ ****************
MBMSModificationRequest ::= SEQUENCE {
       -- MBMS Modification Request IEs
                                                                        MBMS-PreferredFreqRequest-r6
             mbms-PreferredFreqRequest
                                                                                                                                          OPTIONAL,
```

```
rb-InformationReleaseList
                                RB-InformationReleaseList
                                                                 OPTIONAL,
   -- Non critical extensions
                                  SEQUENCE {}
      nonCriticalExtensions
                                               OPTIONAL
}
__ ***************
-- MBMS MODIFIED SERVICES INFORMATION
__ ******************
MBMSModifiedServicesInformation ::= SEQUENCE {
   -- MBMS Modified Services Information IEs
                          MBMS-ModifedServiceList-r6
      modifedServiceList
                                                                 OPTIONAL,
      mbms-ReacquireMCCH
                                  BOOLEAN,
      endOfModifiedMCCHInformation INTEGER (1..15)
   OPTIONAL,
}
-- MBMS NEIGHBOURING CELL PTM RB INFORMATION
__ ***************
MBMSNeighbouringCellPTMRBInformation ::= SEQUENCE {
  -- MBMS Neighbouring Cell PTM RB Information IEs
   neighbouringCellIdentity INTEGER (1), -- FFS
neighbouringCellSCCPCHList MBMS-NeighbouringCellSCCPCHList-r6,
-- Non critical extensions
nonCriticalExtensions SEGUENCE {} OPTIONAL
      nonCriticalExtensions
                                 SEQUENCE {}
}
__ ***************
-- MBMS SCHEDULING INFORMATION
MBMSSchedulingInformation ::= SEQUENCE {
  -- MBMS Scheduling Information IEs
      serviceSchedulingInfoList MBMS-ServiceSchedulingInfoList-r6,
   -- Non critical extensions
     nonCriticalExtensions
                                 SEQUENCE {} OPTIONAL
}
__ ****************************
-- MBMS UNMODIFIED SERVICES INFORMATION
__ *******************************
MBMSUnmodifiedServicesInformation ::= SEQUENCE {
   -- IEs
                                 MBMS-UnmodifiedServiceList-r6
                                                                OPTIONAL,
      unmodifiedServiceList
   -- Non critical extensions
      nonCriticalExtensions
                                 SEQUENCE {}
                                               OPTIONAL
}
END
```

11.3 Information element definitions

```
hiPUSCHidentities,
hiRM,
maxAC
maxAdditionalMeas,
maxASC,
maxASCmap,
maxASCpersist,
maxCCTrCH,
maxCellMeas,
maxCellMeas-1,
maxCNdomains,
maxCPCHsets,
maxDPCH-DLchan.
maxDPDCH-UL,
maxDRACclasses,
maxE-DCHMACdFlow,
maxE-DCHMACdFlow-1,
maxFACHPCH,
maxFreq,
maxFreqBandsFDD,
maxFreqBandsTDD,
maxFreqBandsGSM,
maxGERAN-SI,
maxHarqRTT,
maxHProcesses,
maxHSDSCHTBIndex,
maxHSDSCHTBIndex-tdd384,
maxHSSCCHs,
maxInterSysMessages,
maxLoCHperRLC,
maxMAC-d-PDUsizes,
maxMBMS-CommonCCTrCh,
maxMBMS-CommonPhyCh,
maxMBMS-CommonRB,
maxMBMS-CommonTrCh,
maxMBMS-Freq,
maxMBMS-L1CP,
maxMBMSservCount,
maxMBMSservDedic,
maxMBMSservModif,
maxMBMSservSched,
maxMBMSservUnmodif,
maxMBMSTransmis,
maxMeasEvent,
maxMeasIntervals,
maxMeasParEvent,
maxNumCDMA2000Freqs,
maxNumFDDFreqs,
maxNumGSMFreqRanges,
maxGSMTargetCells,
maxNumTDDFreqs,
maxOtherRAT,
maxOtherRAT-16,
maxPage1,
maxPCPCH-APsig,
maxPCPCH-APsubCh,
maxPCPCH-CDsig,
maxPCPCH-CDsubCh,
maxPCPCH-SF,
maxPCPCHs,
maxPDCPAlgoType,
maxPDSCH,
maxPDSCH-TFCIgroups,
maxPRACH,
maxPRACH-FPACH,
maxPredefConfig,
maxPUSCH,
maxQueueIDs,
maxRABsetup,
maxRAT,
maxRB,
maxRBallRABs,
maxRBperTrCh,
maxRBMuxOptions,
maxRBperRAB,
maxReportedGSMCells,
maxRLCPDUsizePerLogChan,
maxSRBsetup,
maxRL,
```

```
maxRL-1,
    maxROHC-PacketSizes-r4,
    maxROHC-Profile-r4,
   maxSCCPCH,
   maxSat,
   maxSIB,
   maxSIB-FACH,
   maxSystemCapability,
    maxTF,
   maxTF-CPCH,
   maxTFC.
   maxTFCsub.
   maxTFCI-2-Combs,
   maxTGPS,
   maxTrCH,
   maxTrChperSCCPCH,
   maxTrCHpreconf,
   maxTS,
   maxTS-1,
   maxTS-2,
   maxTS-LCR,
   maxTS-LCR-1,
   maxURA,
   maxURNTI-Group
FROM Constant-definitions;
Ansi-41-IDNNS ::=
                                            BIT STRING (SIZE (14))
CN-DomainIdentity ::=
                                    ENTIMERATED {
                                        cs-domain,
                                        ps-domain }
                                    SEQUENCE {
CN-DomainInformation ::=
                                        CN-DomainIdentity,
    cn-DomainIdentity
    cn-DomainSpecificNAS-Info
                                       NAS-SystemInformationGSM-MAP
}
{\tt CN-DomainInformationFull} ::= \\ {\tt SEQUENCE} \ \{
                                    CN-DomainIdentity,
    cn-DomainIdentity
    cn-DomainSpecificNAS-Info
                                       NAS-SystemInformationGSM-MAP,
                                       CN-DRX-CycleLengthCoefficient
    cn-DRX-CycleLengthCoeff
CN-DomainInformationList ::=
                                    SEQUENCE (SIZE (1..maxCNdomains)) OF
                                        CN-DomainInformation
CN-DomainInformationListFull ::=
                                    SEQUENCE (SIZE (1..maxCNdomains)) OF
                                        CN-DomainInformationFull
CN-DomainSysInfo ::=
                                    SEQUENCE {
    {\tt cn-DomainIdentity}
                                        CN-DomainIdentity,
    cn-Type
                                        CHOICE {
                                            NAS-SystemInformationGSM-MAP,
       gsm-MAP
                                            NAS-SystemInformationANSI-41
       ansi-41
    cn-DRX-CycleLengthCoeff
                                        CN-DRX-CycleLengthCoefficient
                                    SEQUENCE (SIZE (1..maxCNdomains)) OF
CN-DomainSysInfoList ::=
                                        CN-DomainSysInfo
CN-InformationInfo ::=
                                    SEQUENCE {
   plmn-Identity
                                       PLMN-Identity
                                                                            OPTIONAL,
    cn-CommonGSM-MAP-NAS-SysInfo
                                       NAS-SystemInformationGSM-MAP
                                                                            OPTIONAL.
    cn-DomainInformationList
                                       CN-DomainInformationList
                                                                            OPTIONAL
}
CN-InformationInfoFull ::=
                                  SEQUENCE {
                                    PLMN-Identity
   plmn-Identity
                                                                            OPTIONAL,
    cn-CommonGSM-MAP-NAS-SysInfo
                                       NAS-SystemInformationGSM-MAP
                                                                           OPTIONAL,
    cn-DomainInformationListFull
                                       CN-DomainInformationListFull
                                                                            OPTIONAL
}
                                    INTEGER (0..9)
Digit ::=
Gsm-map-IDNNS ::=
                                            SEQUENCE {
                                                    CHOICE {
   routingbasis
       localPTMSI
                                                        SEQUENCE {
            routingparameter
                                                            RoutingParameter
```

```
tMSIofsamePLMN
                                                        SEQUENCE {
                                                            RoutingParameter
           routingparameter
        tMSIofdifferentPLMN
                                                        SEQUENCE {
           routingparameter
                                                            RoutingParameter
                                                        SEQUENCE {
        iMSIresponsetopaging
           routingparameter
                                                            RoutingParameter
        iMSIcauseUEinitiatedEvent
                                                        SEQUENCE {
                                                            RoutingParameter
           routingparameter
        iMEI
                                                        SEQUENCE {
           routingparameter
                                                            RoutingParameter
        },
        spare2
                                                        SEOUENCE {
           routingparameter
                                                            RoutingParameter
                                                        SEQUENCE {
        spare1
           routingparameter
                                                            RoutingParameter
    -- dummy is not used in this version of the specification and
    -- it should be ignored by the receiver.
                                            BOOLEAN
}
IMEI ::=
                                    SEQUENCE (SIZE (15)) OF
                                        IMEI-Digit
IMEI-Digit ::=
                                    INTEGER (0..15)
IMSI-GSM-MAP ::=
                                    SEQUENCE (SIZE (6..21)) OF
                                        Digit
IntraDomainNasNodeSelector ::=
                                                SEQUENCE {
                                                    CHOICE {
   version
       release99
                                                        SEQUENCE {
           cn-Type
                                                            CHOICE {
               gsm-Map-IDNNS
                                                                Gsm-map-IDNNS,
               ansi-41-IDNNS
                                                                Ansi-41-IDNNS
           }
       later
                                                        SEQUENCE {
           futurecoding
                                                            BIT STRING (SIZE (15))
}
                                    SEQUENCE {
LAI ::=
                                       PLMN-Identity,
   plmn-Identity
                                        BIT STRING (SIZE (16))
MCC ::=
                                    SEQUENCE (SIZE (3)) OF
                                        Digit
                                    SEQUENCE (SIZE (2..3)) OF
MNC ::=
                                       Digit
MultiplePLMN-List-r6 ::=
                                    SEQUENCE {
   mibPLMN-Identity
                                       BOOLEAN,
                                        SEQUENCE (SIZE (1..5)) OF
   multiplePLMNs
                                            PLMN-IdentityWithOptionalMCC-r6
}
NAS-Message ::=
                                    OCTET STRING (SIZE (1..4095))
NAS-Synchronisation-Indicator ::= BIT STRING(SIZE(4))
NAS-SystemInformationGSM-MAP ::=
                                    OCTET STRING (SIZE (1..8))
P-TMSI-GSM-MAP ::=
                                    BIT STRING (SIZE (32))
PagingRecordTypeID ::=
                                    ENUMERATED {
                                        imsi-GSM-MAP,
                                        tmsi-GSM-MAP-P-TMSI,
```

```
imsi-DS-41,
                                        tmsi-DS-41 }
PLMN-Identity ::=
                                    SEQUENCE {
   mcc
                                       MCC,
                                        MNC
}
PLMN-IdentityWithOptionalMCC-r6 ::= SEQUENCE {
                                                               OPTIONAL,
   mnc
}
PLMN-Type ::=
                                    CHOICE {
   gsm-MAP
                                    SEQUENCE {
      plmn-Identity
                                         PLMN-Identity
    ansi-41
                                    SEQUENCE {
                                      P-REV,
       p-REV
       min-P-REV
                                       Min-P-REV,
                                        SID,
       sid
       nid
                                       NID
   gsm-MAP-and-ANSI-41 SEQUENCE {
 plmn-Identity PLMN-Identity P-REV,
 min-P-REV Min-P-H
                                     PLMN-identity,
       min-P-REV
                                       Min-P-REV,
                                       SID,
       sid
       nid
                                       NID
    },
    spare
                                    NULL
RAB-Identity ::=
                                    CHOICE {
   gsm-MAP-RAB-Identity
ansi-41-RAB-Identity
                                    BIT STRING (SIZE (8)),
   ansi-41-RAB-Identity
                                       BIT STRING (SIZE (8))
}
RAI ::=
                                    SEQUENCE {
  lai
                                       LAI,
   rac
                                        RoutingAreaCode
}
                          BIT STRING (SIZE (8))
RoutingAreaCode ::=
RoutingParameter ::=
                                               BIT STRING (SIZE (10))
TMSI-GSM-MAP ::=
                                   BIT STRING (SIZE (32))
__ *****************
      UTRAN MOBILITY INFORMATION ELEMENTS (10.3.2)
__ ****************************
                                    ENUMERATED {
AccessClassBarred ::=
                                       barred, notBarred }
AccessClassBarredList ::=
                                    SEQUENCE (SIZE (maxAC)) OF
                                       AccessClassBarred
AllowedIndicator ::=
                                    ENUMERATED {
                                      allowed, notAllowed }
CellAccessRestriction ::= SEQUENCE {
   cellBarredCellBarred,cellReservedForOperatorUseReservedIndicator,cellReservationExtensionReservedIndicator,
    -- NOTE: IE accessClassBarredList should not be included if the IE CellAccessRestriction
   -- is included in the IE SysInfoType4
    accessClassBarredList
                                       AccessClassBarredList
                                                                           OPTIONAL
}
CellBarred ::=
                      CHOICE {
       SEQUENCE {
intraFreqCellReselectionInd Allower
t-Barred
   barred
                                       AllowedIndicator,
                                            T-Barred
```

```
notBarred
                                         NULL
}
CellIdentity ::=
                                    BIT STRING (SIZE (28))
CellIdentity-PerRL-List ::=
                                    SEQUENCE (SIZE (1..maxRL)) OF CellIdentity
CellSelectReselectInfoSIB-3-4 ::= SEQUENCE {
    mappingInfo
    mappingInto
cellSelectQualityMeasure
                                         MappingInfo
                                                                               OPTIONAL,
                                         CHOICE {
        cpich-Ec-NO
                                            SEOUENCE {
            -- Default value for q-HYST-2-S is q-HYST-1-S
            q-HYST-2-S
                                                  Q-Hyst-S
                                                                               OPTIONAL
            -- Default value for q-HYST-2-S is q-HYST-1-S
        },
        cpich-RSCP
    modeSpecificInfo
                                         CHOICE {
        fdd
                                             SEQUENCE {
                                                 S-SearchQual
                                                                          OPTIONAL,
            s-Intrasearch
            s-Intersearch
                                                  S-SearchQual
                                                 S-SearchRXLEV
            s-SearchHCS
            rat-List
                                                 RAT-FDD-InfoList
                                                                              OPTIONAL,
            q-OualMin
                                                  O-OualMin.
            q-RxlevMin
                                                  Q-RxlevMin
                                             SEQUENCE {
                                                                             OPTIONAL,
                                                S-SearchRXLEV
S-SearchRXLEV
            s-Intrasearch
            s-Intersearch
                                                                              OPTIONAL,
                                                 S-SearchRXLEV
            s-SearchHCS
                                                                              OPTIONAL,
                                                  RAT-TDD-InfoList
            rat-List
                                                                              OPTIONAL,
            q-RxlevMin
                                                  O-RxlevMin
        }
    q-Hyst-1-S
                                         Q-Hyst-S,
    t-Reselection-S
                                         T-Reselection-S,
   hcs-ServingCellInformation HCS-ServingCellInformation maxAllowedUL-TX-Power MaxAllowedUL-TX-Power
                                                                             OPTIONAL,
}
DomainSpecificAccessRestrictionForSharedNetwork-v6xyext ::= CHOICE {
                                                           {\tt DomainSpecificAccessRestrictionList-v6xyext,}
        domainSpecificAccessRestictionList
        domainSpecificAccessRestictionParametersForAll
                                                             DomainSpecificAccessRestrictionParam-v6xyext
}
DomainSpecificAccessRestrictionList-v6xyext ::= SEQUENCE {
        {\tt domainSpecificAccessRestrictionParametersForOperator1}
                                     DomainSpecificAccessRestrictionParam-v6xyext
                                                                                       OPTIONAL,
        domainSpecificAccessRestrictionParametersForOperator2
                                     DomainSpecificAccessRestrictionParam-v6xyext
                                                                                       OPTIONAL,
        {\tt domainSpecificAccessRestrictionParametersForOperator3}
                                     DomainSpecificAccessRestrictionParam-v6xyext
                                                                                        OPTIONAL,
        {\tt domainSpecificAccessRestrictionParametersForOperator 4}
                                     DomainSpecificAccessRestrictionParam-v6xyext
                                                                                       OPTIONAL.
        {\tt domainSpecificAccessRestrictionParametersForOperator5}
                                     DomainSpecificAccessRestrictionParam-v6xyext
                                                                                       OPTIONAL
}
DomainSpecificAccessRestrictionParam-v6xyext ::= SEQUENCE {
        cSDomainSpecificAccessRestriction DomainSpecificAccessRestriction-v6xyext, pSDomainSpecificAccessRestriction DomainSpecificAccessRestriction-v6xyext
}
DomainSpecificAccessRestriction-v6xyext ::= CHOICE {
        noRestriction NULL,
                            SEQUENCE {
        restriction
            domainSpecficAccessClassBarredList AccessClassBarredList OPTIONAL
}
MapParameter ::=
                                     INTEGER (0..99)
Mapping ::=
                                     SEQUENCE {
    mappingFunctionParameterList
                                         MappingFunctionParameterList
Mapping-LCR-r4 ::=
                                     SEQUENCE {
```

```
mappingFunctionParameterList
                                      MappingFunctionParameterList
}
MappingFunctionParameter ::= SEQUENCE {
   functionType
                                       MappingFunctionType,
   mapParameter1
                                        MapParameter
                                                                             OPTIONAL,
                                        MapParameter,
   mapParameter2
    -- The presence of upperLimit is conditional on the number of repetition
                                        UpperLimit
                                                                             OPTIONAL
}
{\tt MappingFunctionParameterList} ::= {\tt SEQUENCE} \ ({\tt SIZE} \ ({\tt 1..maxMeasIntervals})) \ {\tt OF}
                                        MappingFunctionParameter
MappingFunctionType ::=
                                    ENUMERATED {
                                       linear,
                                        functionType2,
                                        functionType3,
                                        functionType4 }
-- In MappingInfo list, mapping for FDD and 3.84 \text{Mcps} TDD is defined.
-- For 1.28Mcps TDD, Mapping-LCR-r4 is used instead.
                                   SEQUENCE (SIZE (1..maxRAT)) OF
MappingInfo ::=
                                        Mapping
-- Actual value Q-Hyst-S = IE value * 2
Q-Hyst-S ::=
                                    INTEGER (0..20)
Q-Hyst-S-Fine ::= INTEGER (0..40)
RAT ::=
                                    ENUMERATED {
                                       utra-FDD,
                                        utra-TDD,
                                        gsm,
                                        cdma2000 }
RAT-FDD-Info ::=
                                    SEQUENCE {
                                      RAT-Identifier,
   rat-Identifier
   s-SearchRAT
                                        S-SearchQual,
   s-HCS-RAT
                                        S-SearchRXLEV
                                                                                 OPTIONAL,
   s-Limit-SearchRAT
                                        S-SearchQual
                                    SEQUENCE (SIZE (1..maxOtherRAT)) OF
RAT-FDD-InfoList ::=
                                       RAT-FDD-Info
RAT-Identifier ::=
                                    ENUMERATED {
                                       gsm, cdma2000 }
RAT-TDD-Info ::=
                                    SEQUENCE {
   rat-Identifier
                                       RAT-Identifier,
    s-SearchRAT
                                        S-SearchRXLEV,
    s-HCS-RAT
                                        S-SearchRXLEV
                                                                             OPTIONAL,
                                        S-SearchRXLEV
   s-Limit-SearchRAT
}
RAT-TDD-InfoList ::=
                                    SEQUENCE (SIZE (1..maxOtherRAT)) OF
                                       RAT-TDD-Info
ReservedIndicator ::=
                                    ENTIMERATED {
                                        reserved,
                                        notReserved }
-- Actual value S-SearchQual = IE value * 2
S-SearchOual ::=
                                        INTEGER (-16..10)
-- Actual value S-SearchRXLEV = (IE value * 2) + 1
S-SearchRXLEV ::=
                                        INTEGER (-53..45)
-- Actual value ScalingFactor = IE value * 0.1
SpeedDependentScalingFactor ::=
                                   INTEGER (0..10)
T-Barred ::=
                                    ENUMERATED {
                                        s10, s20, s40, s80,
                                        s160, s320, s640, s1280 }
                                   INTEGER (0..31)
T-Reselection-S ::=
```

```
-- Actual value T-Reselection-S-Fine = IE value * 0.2
T-Reselection-S-Fine ::=
                                  INTEGER (0..31)
-- Actual value ScalingFactor = IE value * 0.25
TreselectionScalingFactor ::=
                                  INTEGER (4..19)
-- For UpperLimit, the used range depends on the RAT used.
UpperLimit ::=
                                  INTEGER (1..91)
URA-Identity ::=
                                  BIT STRING (SIZE (16))
URA-IdentityList ::=
                                  SEQUENCE (SIZE (1..maxURA)) OF
                                      URA-Identity
__ ***************
      USER EQUIPMENT INFORMATION ELEMENTS (10.3.3)
__ ***************************
AccessStratumReleaseIndicator ::= ENUMERATED {
                                      rel-4, rel-5, rel-6, spare13,
                                       spare12, spare11, spare10, spare9, spare8,
                                      spare7, spare6, spare5, spare4, spare3,
                                      spare2, spare1 }
-- TABULAR : for ActivationTime, value 'now' always appear as default, and is encoded
-- by absence of the field
ActivationTime ::=
                                  INTEGER (0..255)
BackoffControlParams ::=
                                 SEQUENCE {
   n-AP-RetransMax
                                     N-AP-RetransMax,
   n-AccessFails
                                      N-AccessFails,
   nf-BO-NoAICH
                                      NF-BO-NoAICH,
   ns-BO-Busy
                                      NS-BO-Busy,
   nf-BO-AllBusy
                                      NF-BO-AllBusy,
   nf-BO-Mismatch
                                      NF-BO-Mismatch,
   t-CPCH
                                      T-CPCH
}
C-RNTI ::=
                                  BIT STRING (SIZE (16))
CapabilityUpdateRequirement ::=
                                  SEQUENCE {
   ue-RadioCapabilityFDDUpdateRequirement BOOLEAN,
    -- ue-RadioCapabilityTDDUpdateRequirement is for 3.84Mcps TDD update requirement
   ue-RadioCapabilityTDDUpdateRequirement BOOLEAN,
                                     SystemSpecificCapUpdateReqList
                                                                        OPTIONAL
   systemSpecificCapUpdateReqList
}
CapabilityUpdateRequirement-r4-ext ::= SEQUENCE {
   ue-RadioCapabilityUpdateRequirement-TDD128 BOOLEAN
CapabilityUpdateRequirement-r4 ::= SEQUENCE {
   ue-RadioCapabilityFDDUpdateRequirement-FDD BOOLEAN,
   ue-RadioCapabilityTDDUpdateRequirement-TDD384 BOOLEAN,
   ue-RadioCapabilityTDDUpdateRequirement-TDD128
                                                  BOOLEAN
   systemSpecificCapUpdateReqList
                                     SystemSpecificCapUpdateReqList
                                                                         OPTIONAL
}
-- If the IE CellUpdateCause has the value 'cellUpdateCause-ext', the actual value is
-- defined in the IE CellUpdateCause-ext.
CellUpdateCause ::=
                                  ENUMERATED {
                                      cellReselection,
                                       periodicalCellUpdate,
                                      uplinkDataTransmission,
                                      utran-pagingResponse,
                                      re-enteredServiceArea,
                                      radiolinkFailure,
                                      rlc-unrecoverableError,
                                      cellUpdateCause-ext }
-- The IE CellUpdateCause-ext shall be present, if the IE CellUpdateCause has the
-- value 'cellUpdateCause-ext'.
CellUpdateCause-ext ::=
                                   ENUMERATED {
                                      mbms-Reception,
                                       spare3, spare2, spare1 }
```

```
ChipRateCapability ::=
                                   ENUMERATED {
                                       mcps3-84, mcps1-28 }
CipheringAlgorithm ::=
                                   ENUMERATED {
                                       uea0, uea1 }
                                   CHOICE {
CipheringModeCommand ::=
    startRestart
                                       CipheringAlgorithm,
                               NULL
    dummy
                                   SEQUENCE {
CipheringModeInfo ::=
    -- TABULAR: The ciphering algorithm is included in the Ciphering Mode Command.
    cipheringModeCommand CipheringModeCommand,
    activationTimeForDPCH
                                       ActivationTime
                                                                           OPTIONAL,
   rb-DL-CiphActivationTimeInfo
                                       RB-ActivationTimeInfoList
                                                                           OPTIONAL
}
CN-DRX-CycleLengthCoefficient ::= INTEGER (6..9)
CN-PagedUE-Identity ::=
                                  CHOICE {
    imsi-GSM-MAP
                                      IMSI-GSM-MAP,
    tmsi-GSM-MAP
                                       TMSI-GSM-MAP
   p-TMSI-GSM-MAP
                                       P-TMSI-GSM-MAP,
    imsi-DS-41
                                       TMST-DS-41.
    tmsi-DS-41
                                       TMSI-DS-41,
    spare3
                                       NULL,
    spare2
                                       NULL.
    spare1
                                       NULL
}
{\tt CompressedModeMeasCapability ::= SEQUENCE } \{
                                       BOOLEAN,
    fdd-Measurements
    -- TABULAR: The IEs tdd-Measurements, gsm-Measurements and multiCarrierMeasurements
    -- are made optional since they are conditional based on another information element.
    -- Their absence corresponds to the case where the condition is not true.
    tdd-Measurements
                                     BOOLEAN
                                       GSM-Measurements
                                                                           OPTIONAL,
    gsm-Measurements
    multiCarrierMeasurements
                                       BOOLEAN
                                                                           OPTIONAL
}
{\tt Compressed Mode Meas Capability-LCR-r4 ::= SEQUENCE } \{
    tdd128-Measurements
                                                                           OPTIONAL
CompressedModeMeasCapabFDDList ::= SEQUENCE (SIZE (1..maxFreqBandsFDD)) OF
                                       CompressedModeMeasCapabFDD
CompressedModeMeasCapabFDDList2 ::= SEQUENCE (SIZE (1..maxFreqBandsFDD)) OF
                                       CompressedModeMeasCapabFDD2
CompressedModeMeasCapabFDDList-ext ::= SEQUENCE (SIZE (1..maxFreqBandsFDD)) OF
                                       CompressedModeMeasCapabFDD-ext
CompressedModeMeasCapabFDD ::= SEQUENCE {
   radioFrequencyBandFDD
                                   RadioFrequencyBandFDD OPTIONAL,
    dl-MeasurementsFDD
                                       BOOLEAN,
    ul-MeasurementsFDD
                                       BOOLEAN
}
                                  SEQUENCE {
CompressedModeMeasCapabFDD2 ::=
   -- UE may omit both IEs if this IE indicates the compressed mode capability within the same
    -- frequency band. Otherwise, the UE shall include either one of the following OPTIONAL IEs.
   radioFrequencyBandFDD
                                       RadioFrequencyBandFDD
                                                               OPTIONAL.
                                       RadioFrequencyBandFDD2 OPTIONAL,
    radioFrequencyBandFDD2
    dl-MeasurementsFDD
                                       BOOLEAN,
    ul-MeasurementsFDD
                                       BOOLEAN
}
CompressedModeMeasCapabFDD-ext ::= SEQUENCE {
    radioFrequencyBandFDD2 RadioFrequencyBandFDD2,
    radioFrequencyBandFDD2
    dl-MeasurementsFDD
                                       BOOLEAN,
    ul-MeasurementsFDD
                                       BOOLEAN
}
CompressedModeMeasCapabTDDList ::= SEQUENCE (SIZE (1..maxFreqBandsTDD)) OF
                                       {\tt CompressedModeMeasCapabTDD}
```

```
CompressedModeMeasCapabTDD ::= SEQUENCE {
    radioFrequencyBandTDD
                                          RadioFrequencyBandTDD,
    dl-MeasurementsTDD
                                          BOOLEAN,
                                          BOOLEAN
    ul-MeasurementsTDD
CompressedModeMeasCapabGSMList ::= SEQUENCE (SIZE (1..maxFreqBandsGSM)) OF
                                          CompressedModeMeasCapabGSM
CompressedModeMeasCapabGSM ::= SEQUENCE {
                                      RadioFrequencyBandGSM,
    radioFrequencyBandGSM
    dl-MeasurementsGSM
                                          BOOLEAN.
    ul-MeasurementsGSM
                                          BOOLEAN
}
\label{eq:compressedModeMeasCapabMC} \texttt{::=} \qquad \qquad \texttt{SEQUENCE} \ \big\{
    dl-MeasurementsMC
                                         BOOLEAN,
    ul-MeasurementsMC
                                          BOOLEAN
}
    SEQUENCE {
initialPriorityDelayList
backoffControlParams
BackoffControlParams
BackoffControlParams
CPCH-Parameters ::=
                                                                               OPTIONAL,
    -- TABULAR: TPC step size nested inside PowerControlAlgorithm
    powerControlAlgorithm
                                          PowerControlAlgorithm,
    dl-DPCCH-BER
                                          DL-DPCCH-BER
}
DL-CapabilityWithSimultaneousHS-DSCHConfig ::= ENUMERATED{kbps32, kbps64, kbps128, kbps384}
DL-DPCCH-BER ::=
                                      INTEGER (0..63)
DL-PhysChCapabilityFDD ::=
DL-PhysChCapabilityFDD ::= SEQUENCE {
-- The IE "maxNoDPCH-PDSCH-Codes" only gives information on the maximum number of DPCH Codes.
    maxNoDPCH-PDSCH-Codes
                                          INTEGER (1..8),
    maxNoPhysChBitsReceived
                                           MaxNoPhysChBitsReceived,
    supportForSF-512
                                          BOOLEAN,
-- The RNC should ignore this IE on reception.
    supportOfPDSCHdummy
                                              BOOLEAN,
    simultaneousSCCPCH-DPCH-Reception SimultaneousSCCPCH-DPCH-Reception
}
DL-PhysChCapabilityFDD-v380ext ::= SEQUENCE {
    supportOfDedicatedPilotsForChEstimation SupportOfDedicatedPilotsForChEstimation
                                                                                                  OPTIONAL
}
                                                      ENUMERATED { true }
SupportOfDedicatedPilotsForChEstimation ::=
MaxTS-PerFrame,
                                          MaxPhysChPerFrame,
    minimumSF
                                          MinimumSF-DL,
    supportOfPDSCH
                                           BOOLEAN,
    maxPhysChPerTS
                                          MaxPhysChPerTS
}
DL-PhysChCapabilityTDD-LCR-r4 ::= SEQUENCE {
    maxTS-PerSubFrame
                                      MaxTS-PerSubFrame-r4,
    maxPhysChPerFrame
                                          MaxPhysChPerSubFrame-r4,
    minimumSF
                                          MinimumSF-DL.
    supportOfPDSCH
                                          BOOLEAN,
    maxPhysChPerTS
                                          MaxPhysChPerTS,
    supportOf8PSK
                                          BOOLEAN
}
DL-TransChCapability ::=
  maxNoBitsReceived
  maxConvCodeBitsReceived
                                   SEQUENCE {
                                     MaxNoBits,
                                          MaxNoBits,
                                        TurboSupport,
MaxSimultaneousTransChsDL,
    turboDecodingSupport
    maxSimultaneousTransChsMaxSimultaneousCCTrCH-Count,maxSimultaneousCCTrCH-Count,MaxSimultaneousCCTrCH-Count,maxReceivedTransportBlocksMaxTransportBlocksDL,maxNumberOfTFCMaxNumberOfTFC-DL,
    maxNumberOfTF
                                          MaxNumberOfTF
DRAC-SysInfo ::=
                                     SEQUENCE {
    transmissionProbability
                                          TransmissionProbability,
```

```
maximumBitRate
                                        MaximumBitRate
}
DRAC-SysInfoList ::=
                                    SEQUENCE (SIZE (1..maxDRACclasses)) OF
                                        DRAC-SysInfo
DSCH-RNTI ::=
                                    BIT STRING (SIZE (16))
E-RNTI ::=
                                    BIT STRING (SIZE (16))
ESN-DS-41 ::=
                                    BIT STRING (SIZE (32))
EstablishmentCause ::=
                                    ENUMERATED {
                                        originatingConversationalCall,
                                        originatingStreamingCall,
                                        originatingInteractiveCall,
                                        originatingBackgroundCall,
                                        originatingSubscribedTrafficCall,
                                        terminatingConversationalCall,
                                        terminatingStreamingCall,
                                        terminatingInteractiveCall,
                                        terminatingBackgroundCall,
                                        emergencyCall,
                                        interRAT-CellReselection,
                                        interRAT-CellChangeOrder,
                                        registration,
                                        detach,
                                        originatingHighPrioritySignalling,
                                        originatingLowPrioritySignalling,
                                        callRe-establishment,
                                        terminatingHighPrioritySignalling,
                                        terminatingLowPrioritySignalling,
                                        terminatingCauseUnknown,
                                        mbms-Reception,
                                        spare11,
                                        spare10,
                                        spare9,
                                        spare8,
                                        spare7,
                                        spare6,
                                        spare5,
                                        spare4,
                                        spare3,
                                        spare2,
                                        spare1 }
FailureCauseWithProtErr ::=
                                    CHOICE {
    configurationUnsupported
                                       NULL,
    physicalChannelFailure
                                        NULL,
    incompatibleSimultaneousReconfiguration
                                       NULL.
    compressedModeRuntimeError
                                        TGPSI,
   protocolError
                                      ProtocolErrorInformation,
    cellUpdateOccurred
                                       NULL,
    invalidConfiguration
                                       NULL,
    configurationIncomplete
                                       NULL,
    unsupportedMeasurement
                                        NULL,
    mbmsSessionAlreadyReceivedCorrectly NULL,
    lowerPriorityMBMSService
                                        NULL,
    spare5
                                        NULT.
    spare4
                                        NULL,
    spare3
                                        NULL,
    spare2
                                        NULL,
    spare1
                                        NULL
}
FailureCauseWithProtErrTrId ::=
                                    SEQUENCE {
       rrc-TransactionIdentifier
                                     RRC-TransactionIdentifier,
       failureCause
                                        FailureCauseWithProtErr
}
GroupIdentityWithReleaseInformation ::=
                                            SEQUENCE {
                                             RRC-ConnectionReleaseInformation,
       rrc-ConnectionReleaseInformation
                                                GroupReleaseInformation
        {\tt groupReleaseInformation}
GroupReleaseInformation ::=
                                  SEQUENCE {
                                        U-RNTI-Group
    uRNTI-Group
```

```
}
GSM-Measurements ::=
                                  SEQUENCE {
   gsm900
                                      BOOLEAN,
    dcs1800
                                        BOOLEAN,
   gsm1900
                                        BOOLEAN
}
H-RNTI ::=
                                    BIT STRING (SIZE (16))
HSDSCH-physical-layer-category ::=
                                      INTEGER (1..64)
UESpecificBehaviourInformationlidle ::= BIT STRING (SIZE (4))
UESpecificBehaviourInformationlinterRAT ::= BIT STRING (SIZE (8))
IMSI-and-ESN-DS-41 ::=
                                    SEQUENCE {
   imsi-DS-41
                                       IMSI-DS-41,
   esn-DS-41
                                        ESN-DS-41
}
IMSI-DS-41 ::=
                                   OCTET STRING (SIZE (5..7))
InitialPriorityDelayList ::=
                                 SEQUENCE (SIZE (1..maxASC)) OF
                                       NS-IP
InitialUE-Identity ::=
                                   CHOICE {
                                       IMSI-GSM-MAP,
   imsi
   tmsi-and-LAT
                                        TMSI-and-LAI-GSM-MAP,
   p-TMSI-and-RAI
                                        P-TMSI-and-RAI-GSM-MAP,
   imei
                                       IMEI,
   esn-DS-41
                                       ESN-DS-41,
   imsi-DS-41
                                       IMSI-DS-41.
    imsi-and-ESN-DS-41
                                        IMSI-and-ESN-DS-41,
    tmsi-DS-41
                                        TMSI-DS-41
}
   egrityCheckInfo ::=
messageAuthenticationCode
rrc-MessageSequenceNumber
IntegrityCheckInfo ::=
                                  SEQUENCE {
                                  MessageAuthenticationCode,
                                       RRC-MessageSequenceNumber
}
IntegrityProtActivationInfo ::= SEQUENCE {
   rrc-MessageSequenceNumberList RRC-MessageSequenceNumberList
}
IntegrityProtectionAlgorithm ::= ENUMERATED {
                                       uia1 }
IntegrityProtectionModeCommand ::= CHOICE {
   startIntegrityProtection SEQUENCE {
   integrityProtInitNumber Integr
                                         IntegrityProtInitNumber
   modify
                                       SEQUENCE {
      dl-IntegrityProtActivationInfo IntegrityProtActivationInfo
}
IntegrityProtectionModeInfo ::=
                                  SEQUENCE {
    -- TABULAR: DL integrity protection activation info and Integrity
    -- protection intialisation number have been nested inside
   -- IntegrityProtectionModeCommand IntegrityProtectionAlgorithm IntegrityProtectionAlgorithm
    -- IntegrityProtectionModeCommand.
                                        IntegrityProtectionModeCommand,
                                                                          OPTIONAL
}
IntegrityProtInitNumber ::= BIT STRING (SIZE (32))
-- dummy is not used in this version of the specification, it should
-- not be sent and if received it should be ignored.
MaxHcContextSpace ::=
                                       ENUMERATED {
                                            dummy, by1024, by2048, by4096,
                                            by8192 }
                                       ENUMERATED {
MaxHcContextSpace-r5-ext ::=
                                            by16384, by32768, by65536, by131072 }
```

```
MaxROHC-ContextSessions-r4 ::= ENUMERATED {
                                    s2, s4, s8, s12, s16, s24, s32, s48,
                                            s64, s128, s256, s512, s1024, s16384 }
MaximumAM-EntityNumberRLC-Cap ::= ENUMERATED {
                                       dummy, am4, am5, am6,
                                        am8, am16, am30 }
-- Actual value MaximumBitRate = IE value * 16
MaximumBitRate ::=
                                    INTEGER (0..32)
MaximumRLC-WindowSize ::=
                                   ENUMERATED { mws2047, mws4095 }
MaxNoDPDCH-BitsTransmitted ::=
                                    ENUMERATED {
                                        b600, b1200, b2400, b4800.
                                        b9600, b19200, b28800, b38400,
                                        b48000, b57600 }
MaxNoBits ::=
                                    ENUMERATED {
                                        b640, b1280, b2560, b3840, b5120,
                                        b6400, b7680, b8960, b10240,
                                        b20480, b40960, b81920, b163840 }
MaxNoPhysChBitsReceived ::=
                                    ENUMERATED {
                                       dummy, b1200, b2400, b3600,
                                        b4800, b7200, b9600, b14400,
                                       b19200, b28800, b38400, b48000,
                                       b57600, b67200, b76800 }
MaxNoSCCPCH-RL ::=
                                    ENUMERATED {
                                       rl1 }
                                    ENUMERATED {
MaxNumberOfTF ::=
                                        tf32, tf64, tf128, tf256,
                                        tf512, tf1024 }
MaxNumberOfTFC-DL ::=
                                    ENUMERATED {
                                        tfc16, tfc32, tfc48, tfc64, tfc96,
                                        tfc128, tfc256, tfc512, tfc1024 }
                                    ENUMERATED {
MaxNumberOfTFC-UL ::=
                                        dummy1, dummy2, tfc16, tfc32, tfc48, tfc64,
                                        tfc96, tfc128, tfc256, tfc512, tfc1024 }
-- the values 1 ...4 for MaxPhysChPerFrame are not used in this version of the protocol
                           INTEGER (1..224)
MaxPhysChPerFrame ::=
                                INTEGER (1..96)
MaxPhysChPerSubFrame-r4 ::=
MaxPhysChPerTimeslot ::=
                                  ENUMERATED {
                                       ts1, ts2 }
-- the values 1 ...4 for MaxPhysChPerTS are not used in this version of the protocol
MaxPhysChPerTS ::=
                                   INTEGER (1..16)
MaxSimultaneousCCTrCH-Count ::=
                                   INTEGER (1..8)
MaxSimultaneousTransChsDL ::=
                                    ENUMERATED {
                                        e4, e8, e16, e32 }
MaxSimultaneousTransChsUL ::=
                                    ENUMERATED {
                                       dummy, e4, e8, e16, e32 }
MaxTransportBlocksDL ::=
                                    ENUMERATED {
                                        tb4, tb8, tb16, tb32, tb48,
                                        tb64, tb96, tb128, tb256, tb512 }
MaxTransportBlocksUL ::=
                                    ENUMERATED {
                                        dummy, tb4, tb8, tb16, tb32, tb48, tb64, tb96, tb128, tb256, tb512 }
                                   INTEGER (1..14)
MaxTS-PerFrame ::=
MaxTS-PerSubFrame-r4 ::=
                                   INTEGER (1..6)
-- TABULAR: MeasurementCapability contains dependencies to UE-MultiModeRAT-Capability,
```

```
-- the conditional fields have been left mandatory for now.
MeasurementCapability ::= SEQUENCE {
    downlinkCompressedMode Compres
    downlinkCompressedMode
                                          CompressedModeMeasCapability,
                                           CompressedModeMeasCapability
    uplinkCompressedMode
    compressedModeMeasCapabFDDList CompressedModeMeasCapabFDDList
MeasurementCapabilityExt ::=
                                           CompressedModeMeasCapabFDDList,
                                           {\tt Compressed Mode Meas Capab TDD List \ OPTIONAL,}
                                           CompressedModeMeasCapabGSMList OPTIONAL,
CompressedModeMeasCapabMC OPTIONAL
    compressedModeMeasCapabGSMList
    compressedModeMeasCapabMC
                                           CompressedModeMeasCapabMC
}
MeasurementCapabilityExt2 ::=
                                       SEQUENCE {
    compressedModeMeasCapabFDDList
                                          CompressedModeMeasCapabFDDList2,
    compressedModeMeasCapabTDDList
                                           {\tt Compressed Mode Meas Capab TDD List \ OPTIONAL,}
                                           CompressedModeMeasCapabGSMList OPTIONAL,
    compressedModeMeasCapabGSMList
    {\tt compressedModeMeasCapabMC}
                                           CompressedModeMeasCapabMC
                                                                             OPTIONAL
}
MeasurementCapability-r4-ext ::=
                                       SEQUENCE {
    downlinkCompressedMode-LCR
                                           CompressedModeMeasCapability-LCR-r4,
    uplinkCompressedMode-LCR
                                           CompressedModeMeasCapability-LCR-r4
}
MessageAuthenticationCode ::=
                                     BIT STRING (SIZE (32))
MinimumSF-DL ::=
                                       ENUMERATED {
                                           sf1, sf16 }
MinimumSF-UL ::=
                                       ENUMERATED {
                                           sf1, sf2, sf4, sf8, dummy }
MultiModeCapability ::=
                                       ENUMERATED {
                                          tdd, fdd, fdd-tdd }
MultiRAT-Capability ::=
                                      SEQUENCE {
                                          BOOLEAN.
    supportOfGSM
                                           BOOLEAN
    supportOfMulticarrier
MultiModeRAT-Capability-v590ext ::= SEQUENCE {
    supportOfUTRAN-ToGERAN-NACC
                                           BOOLEAN
N-300 ::=
                                       INTEGER (0..7)
N-301 ::=
                                       INTEGER (0..7)
N-302 ::=
                                       INTEGER (0..7)
N-304 ::=
                                       INTEGER (0..7)
N-308 ::=
                                       INTEGER (1..8)
                                       INTEGER (0..7)
N-310 ::=
                                       ENUMERATED {
N-312 ::=
                                           s1, s50, s100, s200, s400,
                                           s600, s800, s1000 }
N-312ext ::=
                                       ENUMERATED {
                                           s2, s4, s10, s20 }
                                           ENUMERATED {
N-312-r5 ::=
                                           s1, s2, s4, s10, s20,
s50, s100, s200, s400,
                                           s600, s800, s1000 }
                                       ENUMERATED {
N-313 ::=
                                           s1, s2, s4, s10, s20, s50, s100, s200 }
                                       ENUMERATED {
N-315 ::=
                                           s1, s50, s100, s200, s400,
                                           s600, s800, s1000 }
```

```
N-315ext ::=
                                    ENUMERATED {
                                        s2, s4, s10, s20 }
N-315-r5 ::=
                                        ENUMERATED {
                                        s1, s2, s4, s10, s20,
                                        s50, s100, s200, s400,
                                        s600, s800, s1000 }
N-AccessFails ::=
                                    INTEGER (1..64)
N-AP-RetransMax ::=
                                    INTEGER (1..64)
                                    ENUMERATED {
NetworkAssistedGPS-Supported ::=
                                       networkBased,
                                        ue-Based,
                                        bothNetworkAndUE-Based,
                                        noNetworkAssistedGPS }
NF-BO-AllBusy ::=
                                    INTEGER (0..31)
NF-BO-NoAICH ::=
                                    INTEGER (0..31)
NF-BO-Mismatch ::=
                                    INTEGER (0..127)
NS-BO-Busy ::=
                                    INTEGER (0..63)
NS-IP ::=
                                    INTEGER (0..28)
P-TMSI-and-RAI-GSM-MAP ::=
                                    SECTIENCE {
   p-TMSI
                                        P-TMSI-GSM-MAP,
   rai
}
PagingCause ::=
                                    ENUMERATED {
                                        terminatingConversationalCall,
                                        terminatingStreamingCall,
                                        terminatingInteractiveCall,
                                        terminatingBackgroundCall,
                                        terminatingHighPrioritySignalling,
                                        terminatingLowPrioritySignalling,
                                        terminatingCauseUnknown,
                                        spare
 }
PagingRecord ::=
                                    CHOICE {
    cn-Identity
                                       SEQUENCE {
                                         PagingCause,
       pagingCause
       cn-DomainIdentity
                                            CN-DomainIdentity,
                                           CN-PagedUE-Identity
       cn-pagedUE-Identity
    utran-Identity
                                        SEQUENCE {
       u-RNTI
                                            U-RNTI,
        cn-OriginatedPage-connectedMode-UE SEQUENCE {
                                                PagingCause,
           pagingCause
            cn-DomainIdentity
                                                CN-DomainIdentity,
            pagingRecordTypeID
                                                PagingRecordTypeID
                                                                            OPTIONAL
    }
}
PagingRecord2-r5 ::=
                                    CHOICE {
                                    SEQUENCE {
   utran-SingleUE-Identity
                                            U-RNTI.
        u-RNTI
        cn-OriginatedPage-connectedMode-UE SEQUENCE {
           pagingCause
                                                PagingCause,
            cn-DomainIdentity
                                                CN-DomainIdentity,
           pagingRecordTypeID
                                                PagingRecordTypeID
                                                                            OPTIONAL.
        rrc-ConnectionReleaseInformation
                                               RRC-ConnectionReleaseInformation
    utran-GroupIdentity
                                            SEQUENCE ( SIZE (1 .. maxURNTI-Group) ) OF
                                                GroupIdentityWithReleaseInformation
}
                                    SEQUENCE (SIZE (1..maxPage1)) OF
PagingRecordList ::=
                                        PagingRecord
```

```
PagingRecord2List-r5 ::=
                                   SEQUENCE (SIZE (1..maxPage1)) OF
                                       PagingRecord2-r5
                                   SEQUENCE {
PDCP-Capability ::=
    losslessSRNS-RelocationSupport
                                      BOOLEAN,
    -- If present, the "maxHcContextSpace" in the IE "PDCP-Capability-r5-ext" overrides the
    -- "supported" value in this IE. The value in this IE may be used by a pre-REL-5 UTRAN.
    supportForRfc2507
                                       CHOICE {
       notSupported
                                           NULL,
       supported
                                           MaxHcContextSpace
}
PDCP-Capability-r4-ext ::=
                                   SEQUENCE {
    supportForRfc3095
                                   CHOICE {
       notSupported
                                           SEOUENCE {
        supported
                                               MaxROHC-ContextSessions-r4 DEFAULT s16,
           maxROHC-ContextSessions
                                               INTEGER (0..65535)
           reverseCompressionDepth
    }
}
PDCP-Capability-r5-ext ::= SEQUENCE {
    supportForRfc3095ContextRelocation
                                           BOOLEAN.
    maxHcContextSpace
                                           MaxHcContextSpace-r5-ext OPTIONAL
}
PDCP-Capability-r5-ext2 ::=
                                   SEQUENCE {
    losslessDLRLC-PDUSizeChange
                                       ENUMERATED { true }
                                                                          OPTIONAL
PhysicalChannelCapability ::= SEQUENCE {
        fddPhysChCapability
                                           SEQUENCE {
                                           DL-PhysChCapabilityFDD,
           downlinkPhysChCapability
           uplinkPhysChCapability
                                               UL-PhysChCapabilityFDD
        }
                                                  OPTIONAL,
        -- tddPhysChCapability describes the 3.84Mcps TDD physical channel capability
           PhysChCapability SEQUENCE {
downlinkPhysChCapability DL-Phys
        tddPhysChCapability
                                           DL-PhysChCapabilityTDD,
           uplinkPhysChCapability
                                               UL-PhysChCapabilityTDD
        }
                                                   OPTIONAL
}
-- PhysicalChannelCapability-LCR-r4 describes the 1.28Mcps TDD physical channel capability
PhysicalChannelCapability-LCR-r4 ::= SEQUENCE {
                                           SEQUENCE {
        tdd128-PhysChCapability
           l28-PhysChCapapııııy
downlinkPhysChCapability
                                               DL-PhysChCapabilityTDD-LCR-r4,
           uplinkPhysChCapability
                                               UL-PhysChCapabilityTDD-LCR-r4
        }
}
-- PhysicalChannelCapability-hspdsch-r5 describes the HS-PDSCH physical channel capability
{\tt PhysicalChannelCapability-hspdsch-r5} ::= \\ {\tt SEQUENCE} \ \{
    fdd-hspdsch
                                                   CHOICE {
                                                       SEQUENCE {
        supported
           hsdsch-physical-layer-category
                                                          HSDSCH-physical-layer-category,
           supportOfDedicatedPilotsForChannelEstimationOfHSDSCH BOOLEAN,
            -- simultaneousSCCPCH-DPCH-HSDSCH-Reception shall be true only if the
           -- IE SimultaneousSCCPCH-DPCH-Reception indicates support of simultaneous
            -- reception of S-CCPCH and DPCH
           simultaneousSCCPCH-DPCH-HSDSCH-Reception
                                                           BOOLEAN
        },
                                                       NULL
       unsupported
    tdd384-hspdsch
                                                   CHOICE {
                                                       HSDSCH-physical-layer-category,
        supported
       unsupported
                                                       NULL
    tdd128-hspdsch
                                                   CHOICE {
                                                       HSDSCH-physical-layer-category,
        supported
        unsupported
                                                       NULL
}
PNBSCH-Allocation-r4 ::=
                                       SEQUENCE {
       numberOfRepetitionsPerSFNPeriod ENUMERATED {
                                           c2, c3, c4, c5, c6, c7, c8, c9, c10,
```

```
c12, c14, c16, c18, c20, c24, c28, c32,
                                           c36, c40, c48, c56, c64, c72, c80 }
}
ProtocolErrorCause ::=
                                   ENUMERATED {
                                       asn1-ViolationOrEncodingError,
                                       messageTypeNonexistent,
                                       {\tt messageNotCompatibleWithReceiverState,}
                                       \verb"ie-ValueNotComprehended",\\
                                       informationElementMissing,
                                       messageExtensionNotComprehended,
                                       spare2, spare1 }
ProtocolErrorIndicator ::=
                                   ENUMERATED {
                                       noError, errorOccurred }
ProtocolErrorIndicatorWithMoreInfo ::=
                                   CHOICE {
   noError
                                       SEQUENCE {
    errorOccurred
       rrc-TransactionIdentifier
                                           RRC-TransactionIdentifier,
       protocolErrorInformation
                                           ProtocolErrorInformation
}
ProtocolErrorMoreInformation ::= SEQUENCE {
    diagnosticsType
                                   CHOICE {
                                           CHOICE {
       type1
           asn1-ViolationOrEncodingError
                                               NULL,
                                               NULL,
           messageTypeNonexistent
           {\tt messageNotCompatibleWithReceiverState}
                                              IdentificationOfReceivedMessage,
           ie-ValueNotComprehended
                                               IdentificationOfReceivedMessage,
           {\tt messageExtensionNotComprehended} \qquad {\tt IdentificationOfReceivedMessage},
           spare1
                                               NULL,
           spare2
                                               NULL
        },
                                           NULL
        spare
    }
}
                                  ENUMERATED {
RadioFrequencyBandFDD ::=
    -- fdd2100, fdd1900, fdd1800 correspond to Band I, Band II and Band III respectively
                                       fdd2100,
                                       fdd1900,
                                       fdd1800.
                                       bandVI,
                                       bandIV,
                                       bandV,
                                       bandVII,
                                       extension-indicator }
RadioFrequencyBandFDD2 ::=
                                   ENUMERATED {
                                       bandVIII,
                                       bandIX,
                                       bandX,
                                       bandXI,
                                       bandXII,
                                       bandXTTT.
                                       bandXIV,
                                       bandXV,
                                       bandXVI,
                                       bandXVII,
                                       bandXVIII
                                       bandXIX,
                                       bandXX,
                                       bandXXI,
                                       bandXXII,
                                       extension-indicator }
RadioFrequencyBandTDDList ::=
                                   ENUMERATED {
                                       a, b, c, ab, ac, bc, abc, spare }
RadioFrequencyBandTDD ::=
                                   ENUMERATED {a, b, c, spare}
                                   ENUMERATED {
RadioFrequencyBandGSM ::=
                                       qsm450,
```

```
gsm480,
                                           gsm850,
                                           gsm900P,
                                           gsm900E,
                                           gsm1800,
                                           gsm1900,
                                           spare9, spare8, spare7, spare6, spare5,
spare4, spare3, spare2, spare1}
Rb-timer-indicator ::=
                                      SEQUENCE {
   t314-expired
                                          BOOLEAN,
                                           BOOLEAN }
    t315-expired
Re-EstablishmentTimer ::=
                                      ENUMERATED {
                                          useT314, useT315
}
RedirectionInfo ::=
                                      CHOICE {
                                          FrequencyInfo,
    frequencyInfo
    interRATInfo
                                           InterRATInfo
}
RedirectionInfo-r6 ::=
                                      CHOICE {
    frequencyInfo
                                          FrequencyInfo,
    interRATInfo
                                           InterRATInfo-r6
                                      ENUMERATED {
RejectionCause ::=
                                          congestion,
                                           unspecified }
ReleaseCause ::=
                                       ENUMERATED {
                                          normalEvent,
                                           unspecified,
                                           pre-emptiveRelease,
                                           congestion,
                                           re-establishmentReject,
                                           {\tt directed signal ling connection re-establishment,}
                                           userInactivity,
                                           spare }
RF-Capability ::=
                                      SEQUENCE {
        fddRF-Capability
                                        SEQUENCE {
            ue-PowerClass
                                               UE-PowerClass,
            txRxFrequencySeparation
                                               TxRxFrequencySeparation
                                               OPTIONAL,
            RF-Capability

UE-PowerClass,

radioFrequencyTDDBandList

chipRateCapability

ChipRateCapability

CRITICAL
                                                       SEQUENCE {
        tddRF-Capability
                                               OPTIONAL
        }
}
                                        SEQUENCE {
RF-Capability-r4-ext ::=
        tddRF-Capability
                                                        SEQUENCE {
                                          UE-PowerClass,
            ue-PowerClass
             radioFrequencyBandTDDList
                                           RadioFrequencyBandTDDList,
             chipRateCapability
                                          ChipRateCapability
        }
                                               OPTIONAL
}
RLC-Capability ::=
                                     SEQUENCE {
   -- If present, the "totalRLC-AM-BufferSize" in the IE "RLC-Capability-r5-ext" overrides the
    -- corresponding value in this IE. The value in this IE may be used by a pre-REL-5 UTRAN.
    totalRLC-AM-BufferSize TotalRLC-AM-BufferSize,
maximumRLC-WindowSize MaximumRLC-WindowSize,
maximumAM-EntityNumber MaximumAM-EntityNumberR
    maximumAM-EntityNumber
                                          MaximumAM-EntityNumberRLC-Cap
}
RLC-Capability-r5-ext ::=
                                               SEOUENCE {
                                  TotalRLC-AM-BufferSize-r5-ext
    totalRLC-AM-BufferSize
                                                                                OPTIONAL
}
RRC-ConnectionReleaseInformation ::= CHOICE {
    noRelease
                                               NULL,
                                               SEQUENCE {
    release
                                                   ReleaseCause
        releaseCause
```

```
}
RRC-MessageSequenceNumber ::= INTEGER (0..15)
RRC-MessageSequenceNumberList ::= SEQUENCE (SIZE (4..5)) OF
                                        RRC-MessageSequenceNumber
                                  ENUMERATED {
RRC-StateIndicator ::=
                                        cell-DCH, cell-FACH, cell-PCH, ura-PCH }
RRC-TransactionIdentifier ::=
                                   INTEGER (0..3)
S-RNTI ::=
                                    BIT STRING (SIZE (20))
S-RNTI-2 ::=
                                    BIT STRING (SIZE (10))
SecurityCapability ::=
                                    SEQUENCE {
                                        BIT STRING {
   cipheringAlgorithmCap
                                        -- For each bit value "0" means false/ not supported
                                            spare15(0),
                                            spare14(1),
                                            spare13(2),
                                            spare12(3),
                                            spare11(4),
                                            spare10(5),
                                            spare9(6),
                                            spare8(7),
                                            spare7(8),
                                            spare6(9),
                                            spare5(10),
                                            spare4(11),
                                            spare3(12),
                                            spare2(13),
                                            ueal(14),
                                            uea0(15)
                                               (SIZE (16)),
                                        BIT STRING {
    integrityProtectionAlgorithmCap
                                        -- For each bit value "0" means false/ not supported
                                            spare15(0),
                                            spare14(1),
                                            spare13(2),
                                            spare12(3),
                                            spare11(4),
                                            spare10(5),
                                            spare9(6),
                                            spare8(7),
                                            spare7(8),
                                            spare6(9),
                                            spare5(10),
                                            spare4(11),
                                            spare3(12),
                                            spare2(13),
                                            uia1(14),
                                            spare0(15)
                                                 (SIZE (16))
SimultaneousSCCPCH-DPCH-Reception ::= CHOICE {
   notSupported
                                       NULT.
    supported
                                        SEQUENCE {
       maxNoSCCPCH-RL
                                            MaxNoSCCPCH-RL,
        -- simultaneousSCCPCH-DPCH-DPDCH-Reception is applicable only if
        -- the IE Support of PDSCH = TRUE
        -- Note: the reference to DPDCH in the element name below is incorrect (see tabular). The
        -- name is not changed, to keep it aligned with R99.
        simultaneousSCCPCH-DPCH-DPDCH-Reception
    }
}
SRNC-Identity ::=
                                   BIT STRING (SIZE (12))
START-Value ::=
                                   BIT STRING (SIZE (20))
                                    SEQUENCE (SIZE (1..maxCNdomains)) OF
STARTList ::=
                                        STARTSingle
```

```
SEQUENCE {
STARTSingle ::=
                                          CN-DomainIdentity,
    cn-DomainIdentity
    start-Value
                                           START-Value
}
CapabilityUpdateRequirement-r5 ::= SEQUENCE {
    ue-RadioCapabilityFDDUpdateRequirement-FDD BOOLEAN,
    ue-RadioCapabilityTDDUpdateRequirement-TDD384BOOLEAN,ue-RadioCapabilityTDDUpdateRequirement-TDD128BOOLEAN,
    systemSpecificCapUpdateReqList SystemSpecificCapUpdateReqList-r5
                                                                                    OPTIONAL
}
SystemSpecificCapUpdateReq ::= ENUMERATED {
                                              ENUMERATED {
SystemSpecificCapUpdateReq-v590ext ::=
                                          geranIu }
{\tt SystemSpecificCapUpdateReq-r5} ::= \\ {\tt ENUMERATED} \ \{
                                          gsm, geranIu }
SystemSpecificCapUpdateReqList ::= SEQUENCE (SIZE (1..maxSystemCapability)) OF
                                          SystemSpecificCapUpdateReq
SystemSpecificCapUpdateReqList-r5 ::= SEQUENCE (SIZE (1..maxSystemCapability)) OF
                                           SystemSpecificCapUpdateReq-r5
T-300 ::=
                                      ENUMERATED {
                                          ms100, ms200, ms400, ms600, ms800,
                                           ms1000, ms1200, ms1400, ms1600,
                                           ms1800, ms2000, ms3000, ms4000,
                                          ms6000, ms8000 }
T-301 ::=
                                      ENUMERATED {
                                           ms100, ms200, ms400, ms600, ms800,
                                           ms1000, ms1200, ms1400, ms1600,
                                           ms1800, ms2000, ms3000, ms4000, ms6000, ms8000, spare }
T-302 ::=
                                      ENUMERATED {
                                           ms100, ms200, ms400, ms600, ms800,
                                           ms1000, ms1200, ms1400, ms1600,
                                           {\tt ms1800,\ ms2000,\ ms3000,\ ms4000,}
                                           ms6000, ms8000, spare }
T-304 ::=
                                      ENUMERATED {
                                           ms100, ms200, ms400,
                                           ms1000, ms2000, spare3, spare2, spare1 }
T-305 ::=
                                       ENUMERATED {
                                          noUpdate, m5, m10, m30, m60, m120, m360, m720 }
T-307 ::=
                                       ENUMERATED {
                                          s5, s10, s15, s20,
                                           s30, s40, s50, spare }
                                       ENUMERATED {
T-308 ::=
                                          ms40, ms80, ms160, ms320 }
T-309 ::=
                                      INTEGER (1..8)
T-310 ::=
                                       ENUMERATED {
                                           ms40, ms80, ms120, ms160,
                                           ms200, ms240, ms280, ms320 }
T-311 ::=
                                       ENUMERATED {
                                          ms250, ms500, ms750, ms1000,
                                           ms1250, ms1500, ms1750, ms2000 }
-- The value 0 for T-312 is not used in this version of the specification
T-312 ::=
                                      INTEGER (0..15)
T-313 ::=
                                      INTEGER (0..15)
T-314 ::=
                                       ENUMERATED {
                                           s0, s2, s4, s6, s8,
s12, s16, s20 }
```

```
ENUMERATED {
    s0, s10, s30, s60, s180,
T-315 ::=
                                                                                                s600, s1200, s1800 }
                                                                                       ENUMERATED {
T-316 ::=
                                                                                               s0, s10, s20, s30, s40,
                                                                                                s50, s-inf, spare }
  -- All the values are changed to "infinity" in Rel-5
                                                                                      ENUMERATED {
                                                                                                infinity0, infinity1, infinity2, infinity3, infinity4,
infinity5, infinity6, infinity7}
T-318 ::=
                                                                                       ENUMERATED {
                                                                                              ms250, ms500, ms750, ms1000, ms1250, ms1500,
                                                                                                 {\tt ms1750}, {\tt ms2000}, {\tt ms3000}, {\tt ms4000}, {\tt ms6000}, {\tt ms8000},
                                                                                                ms10000, ms12000, ms16000 }
T-CPCH ::=
                                                                                       ENUMERATED {
                                                                                               ct0, ct1 }
TMSI-and-LAI-GSM-MAP ::=
                                                                                       SEQUENCE {
                                                                                                TMSI-GSM-MAP,
        tmsi
         lai
                                                                                                T.A.T
}
TMSI-DS-41 ::=
                                                                                      OCTET STRING (SIZE (2..17))
TotalRLC-AM-BufferSize ::=
                                                                                       ENUMERATED {
                                                                                               dummy, kb10, kb50, kb100,
                                                                                                kb150, kb500, kb1000, spare }
TotalRLC-AM-BufferSize-r5-ext ::= ENUMERATED {
                                                                                                kb200, kb300, kb400, kb750 }
-- Actual value TransmissionProbability = IE value * 0.125
TransmissionProbability ::=
                                                                          INTEGER (1..8)
TransportChannelCapability ::= SEQUENCE {
    dl-TransChCapability DL-TransChCapability UL-TransChCapability UL-Tr
                                                                                     DL-TransChCapability,
UL-TransChCapability
         ul-TransChCapability
}
TurboSupport ::=
                                                                                      CHOICE {
                                                                                               NULL,
         notSupported
                                                                                                MaxNoBits
          supported
}
TxRxFrequencySeparation ::=
                                                                                      ENUMERATED {
                                                                                               mhz190, mhz174-8-205-2,
                                                                                                mhz134-8-245-2 }
U-RNTI ::=
                                                                                       SEQUENCE {
                                                                                               SRNC-Identity,
       srnc-Identity
                                                                                                S-RNTI
         s-RNTI
}
U-RNTI-Group ::=
                                                                                      CHOICE {
-- TABULAR: not following the tabular strictly, but this will most likely save bits
         all
                                                                                               NULL,
         u-RNTI-BitMaskIndex-bl
                                                                                                BIT STRING (SIZE (31)),
                                                                                               BIT STRING (SIZE (30)),
         u-RNTI-BitMaskIndex-b2
                                                                                             BIT STRING (SIZE (29)),
BIT STRING (SIZE (28)),
         u-RNTI-BitMaskIndex-b3
                                                                     BIT STRING (SIZE (28)),
BIT STRING (SIZE (27)),
BIT STRING (SIZE (26)),
BIT STRING (SIZE (26)),
BIT STRING (SIZE (25)),
BIT STRING (SIZE (24)),
BIT STRING (SIZE (23)),
BIT STRING (SIZE (22)),
BIT STRING (SIZE (22)),
BIT STRING (SIZE (21)),
BIT STRING (SIZE (20)),
BIT STRING (SIZE (19)),
BIT STRING (SIZE (18)),
BIT STRING (SIZE (17)),
BIT STRING (SIZE (17)),
BIT STRING (SIZE (16)),
BIT STRING (SIZE (16)),
         u-RNTI-BitMaskIndex-b4
         u-RNTI-BitMaskIndex-b5
         u-RNTI-BitMaskIndex-b6
         u-RNTI-BitMaskIndex-b7
         u-RNTI-BitMaskIndex-b8
         u-RNTI-BitMaskIndex-b9
         u-RNTI-BitMaskIndex-b10
         u-RNTI-BitMaskIndex-b11
u-RNTI-BitMaskIndex-b12
         u-RNTI-BitMaskIndex-b13
         u-RNTI-BitMaskIndex-b14
         u-RNTI-BitMaskIndex-b15
          u-RNTI-BitMaskIndex-b16
         u-RNTI-BitMaskIndex-b17
```

```
u-RNTI-BitMaskIndex-b18
                                               BIT STRING (SIZE (14)),
                                                BIT STRING (SIZE (13)),
    u-RNTI-BitMaskIndex-b19
   u-RNTI-BitMaskIndex-b25
u-RNTI-BitMaskIndex-b26
u-RNTI-BitMaskIndex-b27
u-RNTI-BitMaskIndex-b25
u-RNTI-BitMaskIndex-b26
u-RNTI-BitMaskIndex-b26
u-RNTI-BitMaskIndex-b27
u-RNTI-BitMaskIndex-b27
u-RNTI-BitMaskIndex-b28
u-RNTI-BitMaskIndex-b28
u-RNTI-BitMaskIndex-b28
u-RNTI-BitMaskIndex-b28
u-RNTI-BitMaskIndex-b29
u-RNTI-BitMaskIndex-b29
u-RNTI-BitMaskIndex-b29
u-RNTI-BitMaskIndex-b30
u-RNTI-BitMaskIndex-b31
BIT STRING (SIZE (1))
                                              BIT STRING (SIZE (12)),
}
                                           SEQUENCE {
U-RNTI-Short ::=
    srnc-Identity
                                                SRNC-Identity,
    s-RNTI-2
                                                S-RNTI-2
}
UE-ConnTimersAndConstants ::= SEQUENCE {
-- Optional is used also for parameters for which the default value is the last one read in SIB1
-- t-301 and n-301 should not be used by the UE in this version of the specification
    t-301
                                                T-301
                                                                                             DEFAULT ms2000.
                                                N-301
    n-301
                                                                                             DEFAULT 2.
    t-302
                                                T-302
                                                                                             DEFAULT ms4000,
                                                 N-302
    n-302
                                                                                             DEFAULT 3,
    t-304
                                                T-304
                                                                                             DEFAULT ms2000,
    n - 304
                                                 N = 304
                                                                                             DEFAULT 2.
    t-305
                                                 T - 305
                                                                                             DEFAULT m30,
                                                 T-307
    t-307
                                                                                             DEFAULT s30,
    t-308
                                                 T-308
                                                                                             DEFAULT ms160,
    t.-309
                                                 T - 309
                                                                                             DEFAULT 5.
    t-310
                                                 T-310
                                                                                             DEFAULT ms160,
    n-310
                                                 N - 310
                                                                                             DEFAULT 4,
    t-311
                                                T-311
                                                                                             DEFAULT ms2000,
                                                T-312
                                                                                             DEFAULT 1,
    t-312
    -- n-312 shall be ignored if n-312 in UE-ConnTimersAndConstants-v3a0ext is present, and the
    -- value of that element shall be used instead.
                                                 N-312
                                                                                             DEFAULT s1.
    t-313
                                                 T-313
                                                                                             DEFAULT 3.
    n-313
                                                 N - 313
                                                                                             DEFAULT s20,
                                                                                             DEFAULT s12,
    t-314
                                                T-314
                                                T-315
                                                                                             DEFAULT s180,
    -- n-315 shall be ignored if n-315 in UE-ConnTimersAndConstants-v3a0ext is present, and the
    -- value of that element shall be used instead.
    n-315
                                                N-315
                                                                                             DEFAULT s1,
    t-316
                                                 T-316
                                                                                             DEFAULT s30,
    t-317
                                                 T-317
                                                                                             DEFAULT infinity4
}
UE-ConnTimersAndConstants-v3a0ext ::=
                                                     SEQUENCE {
    n - 312
                                                 N-312ext
                                                                                                  OPTIONAL.
                                                N-315ext
                                                                                                  OPTIONAL
    n-315
}
UE-ConnTimersAndConstants-r5 ::=
                                              SEQUENCE {
-- Optional is used also for parameters for which the default value is the last one read in SIB1
-- t-301 and n-301 should not be used by the UE in this version of the specification
                                                 T-301
                                                                                             DEFAULT ms2000,
    t - 301
    n-301
                                                 N - 301
                                                                                             DEFAULT 2,
    t-302
                                                 T-302
                                                                                             DEFAULT ms4000,
    n - 302
                                                 N - 302
                                                                                             DEFAULT 3.
                                                T-304
    t - 304
                                                                                             DEFAULT ms2000,
    n-304
                                                 N - 304
                                                                                             DEFAULT 2,
    t-305
                                                 T-305
                                                                                             DEFAULT m30,
    t-307
                                                 T-307
                                                                                             DEFAULT s30,
                                                                                             DEFAULT ms160,
    t - 308
                                                 T - 308
    t-309
                                                 T-309
                                                                                             DEFAULT 5,
    t-310
                                                 T-310
                                                                                             DEFAULT ms160,
    n-310
                                                N - 310
                                                                                             DEFAULT 4,
    t-311
                                                T-311
                                                                                             DEFAULT ms2000.
    t - 312
                                                T-312
                                                                                             DEFAULT 1,
    n-312
                                                N-312-r5
                                                                                             DEFAULT s1,
    t-313
                                                T-313
                                                                                             DEFAULT 3.
    n-313
                                                                                             DEFAULT s20.
                                                 N - 313
                                                 T-314
    t-314
                                                                                             DEFAULT s12,
```

```
t-315
                                       T-315
                                                                           DEFAULT s180,
   n-315
                                       N-315-r5
                                                                           DEFAULT s1,
    t-316
                                       T-316
                                                                           DEFAULT s30,
    t-317
                                       T-317
                                                                           DEFAULT infinity4
UE-IdleTimersAndConstants ::=
                                   SEQUENCE {
                                       T - 300.
   t - 300
   n-300
                                       N - 300
                                       T-312,
    -- n-312 shall be ignored if n-312 in UE-IdleTimersAndConstants-v3a0ext is present, and the
    -- value of that element shall be used instead.
   n-312
}
UE-IdleTimersAndConstants-v3a0ext ::=
                                           SEOUENCE {
                                       N-312ext
                                                                               OPTIONAL
    n-312
UE-MultiModeRAT-Capability ::=
                                 SEQUENCE {
   multiRAT-CapabilityList
                                   MultiRAT-Capability,
    multiModeCapability
                                       MultiModeCapability
IJE-PowerClass ::=
                                   INTEGER (1..4)
UE-PowerClassExt ::=
                                   ENUMERATED {class1, class2, class3, class4,
                                        spare4, spare3, spare2, spare1 }
                                   SEQUENCE {
UE-RadioAccessCapability ::=
    -- UE-RadioAccessCapability is compatible with R99, although accessStratumReleaseIndicator
    -- is removed from this IE, since its encoding did not does in bits. The
    -- accessStratumReleaseIndicator is provided in the relevant REL-4 extension IEs.
   pdcp-Capability
                                       PDCP-Capability,
   rlc-Capability
                                       RLC-Capability,
    transportChannelCapability
                                       TransportChannelCapability,
   rf-Capability
                                      RF-Capability,
   physicalChannelCapability
                                      PhysicalChannelCapability,
                                    UE-MultiModeRAT-Capability,
   ue-MultiModeRAT-Capability
    securityCapability
                                      SecurityCapability,
    ue-positioning-Capability
                                       UE-Positioning-Capability,
   measurementCapability
                                                                  OPTIONAL
                                      MeasurementCapability
}
                                SEQUENCE {
UE-RadioAccessCapabilityInfo ::=
   ue-RadioAccessCapability
                                       UE-RadioAccessCapability,
    ue-RadioAccessCapability-v370ext
                                       UE-RadioAccessCapability-v370ext
}
UE-RadioAccessCapability-v370ext ::=
                                       SEQUENCE {
   ue-RadioAccessCapabBandFDDList
                                       UE-RadioAccessCapabBandFDDList
UE-RadioAccessCapability-v380ext ::=
                                       SEQUENCE {
   ue-PositioningCapabilityExt-v380
                                           UE-PositioningCapabilityExt-v380
}
UE-RadioAccessCapability-v3a0ext ::=
                                       SEQUENCE {
   ue-PositioningCapabilityExt-v3a0
                                           UE-PositioningCapabilityExt-v3a0
}
UE-RadioAccessCapability-v3g0ext ::=
                                       SEQUENCE {
   ue-PositioningCapabilityExt-v3g0
                                           UE-PositioningCapabilityExt-v3g0
   ue-RadioAccessCapabBandFDDList2
UE-RadioAccessCapability-v650ext ::=
                                       SEQUENCE {
                                       UE-RadioAccessCapabBandFDDList2,
    -- This IE shall be included if the UE also supports Band I-VII
    ue-RadioAccessCapabBandFDDList-ext UE-RadioAccessCapabBandFDDList-ext OPTIONAL
UE-RadioAccessCapabBandFDDList2 ::= SEQUENCE (SIZE (1...maxFreqBandsFDD)) OF
                                           UE-RadioAccessCapabBandFDD2
UE-RadioAccessCapabBandFDD2 ::= SEQUENCE {
    radioFrequencyBandFDD2
                                      RadioFrequencyBandFDD2,
    fddRF-Capability
                                       SEQUENCE {
       ue-PowerClass
                                           UE-PowerClassExt,
```

```
txRxFrequencySeparation
                                            TxRxFrequencySeparation
           OPTIONAL,
    measurementCapability2
                                      MeasurementCapabilityExt2
}
                                      SEQUENCE {
UE-PositioningCapabilityExt-v380 ::=
                                            BOOLEAN
    rx-tx-TimeDifferenceType2Capable
}
UE-PositioningCapabilityExt-v3a0 ::= SEQUENCE {
    validity-CellPCH-UraPCH
                                             ENUMERATED { true }
UE-PositioningCapabilityExt-v3g0 ::=
                                        SEQUENCE {
   sfn-sfnType2Capability
                                        ENUMERATED { true }
UE-RadioAccessCapabBandFDDList ::= SEQUENCE (SIZE (1..maxFreqBandsFDD)) OF
                                            UE-RadioAccessCapabBandFDD
UE-RadioAccessCapabBandFDDList-ext ::= SEQUENCE (SIZE (1..maxFreqBandsFDD)) OF
                                        UE-RadioAccessCapabBandFDD-ext
UE-RadioAccessCapabBandFDD ::= SEQUENCE{
    radioFrequencyBandFDD
                                        RadioFrequencyBandFDD,
    fddRF-Capability
                                         SEQUENCE {
        ue-PowerClass
                                             UE-PowerClassExt,
        txRxFrequencySeparation
                                            TxRxFrequencySeparation
                                                                     OPTIONAL.
    measurementCapability
                                        MeasurementCapabilityExt
}
UE-RadioAccessCapabBandFDD-ext ::= SEQUENCE {
                                        RadioFrequencyBandFDD,
    radioFrequencyBandFDD
    \verb|compressed| ModeMeasCapabFDDList-ext| CompressedModeMeasCapabFDDList-ext|
}
UE-RadioAccessCapability-v4b0ext ::= SEQUENCE {
    pdcp-Capability-r4-ext
                                        PDCP-Capability-r4-ext,
    tdd-CapabilityExt
                                        SEQUENCE {
                                         RF-Capability-r4-ext,
        rf-Capability
        physicalChannelCapability-LCR
measurementCapability-r4-ext
                                            PhysicalChannelCapability-LCR-r4,
                                           MeasurementCapability-r4-ext
                                               OPTIONAL,
    -- IE " AccessStratumReleaseIndicator" is not needed in RRC CONNECTION SETUP COMPLETE
                                                AccessStratumReleaseIndicator OPTIONAL
    accessStratumReleaseIndicator
}
UE-RadioAccessCapabilityComp ::= SEQUENCE {
    totalAM-RLCMemoryExceeds10kB
                                             BOOLEAN,
    rf-CapabilityComp
                                            RF-CapabilityComp
}
RF-CapabilityComp ::= SEQUENCE {
                            CHOICE {
    fdd
        {\tt notSupported}
                                         NULL,
                                         RF-CapabBandListFDDComp
        supported
    tdd384-RF-Capability CHOICE {
        notSupported
                                         NULL,
        supported
                                         RadioFrequencyBandTDDList
    tdd128-RF-Capability CHOICE {
        notSupported
                                         NULL.
        supported
                                         RadioFrequencyBandTDDList
    }
}
-- NOTE: This IE is the frequency separation in MHz
RF-CapabBandFDDComp ::= ENUMERATED { notSupported, mhz190,
                                        mhz174-8-205-2, mhz134-8-245-2 }
{\tt RF-CapabBandListFDDComp} \ ::= \ {\tt SEQUENCE} \ ({\tt SIZE} \ ({\tt 1..maxFreqBandsFDD})) \ {\tt OF}
    -- the first entry corresponds with the first value of IE RadioFrequencyBandFDD,
    -- fdd2100, and so on
    RF-CapabBandFDDComp
```

```
UE-RadioAccessCapability-v590ext ::=
                                             SEQUENCE {
    dl-CapabilityWithSimultaneousHS-DSCHConfig DL-CapabilityWithSimultaneousHS-DSCHConfig
    OPTIONAL,
    pdcp-Capability-r5-ext PDCP-Capability-r5-ext, rlc-Capability-r5-ext RLC-Capability-r5-ext, physicalChannelCapability PhysicalChannelCapability-v590ext MultiModeRAT-Capability-v590ext
}
UE-RadioAccessCapability-v5c0ext ::= SEQUENCE {
                                            PDCP-Capability-r5-ext2
    pdcp-Capability-r5-ext2
    maxNoDPDCH-BitsTransmitted MaxNoDPDCH-BitsTransmitted, supportOfPCPCH BOOT.FAN
UL-PhysChCapabilityFDD ::=
}
MaxTS-PerFrame,
                                              MaxPhysChPerTimeslot,
    minimumSF
                                              MinimumSF-UL,
    supportOfPUSCH
                                               BOOLEAN
}
UL-PhysChCapabilityTDD-LCR-r4 ::= SEQUENCE {

    maxTS-PerSubFrame
    MaxTS-PerSubFrame-r4,

    maxPhysChPerTimeslot
    MaxPhysChPerTimeslot,

    minimumSF
    MinimumSF

    supportOfPUSCH
                                              BOOLEAN.
    supportOf8PSK
                                              BOOLEAN
UL-TransChCapability ::= SEQUENCE {
   maxNoBitsTransmitted MaxNoBits,
   maxConvCodeBitsTransmitted MaxNoBits,
   turboEncodingSupport TurboSupport,
   maxSimultaneousTransChs MaxSimultaneousTransChsUL,
   modeSpecificInfo
    modeSpecificInfo
                                              CHOICE {
         fdd
                                                  NULL,
         tdd
                                                   SEQUENCE {
              maxSimultaneousCCTrCH-Count
                                                        MaxSimultaneousCCTrCH-Count
         }
    maxTransmittedBlocks MaxTransportBlocksUL,
    maxNumberOfTFC
                                               MaxNumberOfTFC-UL,
    maxNumberOfTF
                                              MaxNumberOfTF
}
UE-Positioning-Capability ::= SEQUENCE {
    {\tt standaloneLocMethodsSupported} \qquad {\tt BOOLEAN}\,,
    ue-BasedOTDOA-SupportedBOOLEAN,networkAssistedGPS-SupportedNetworkAssistedGPS-Supported,supportForUE-GPS-TimingOfCellFramesBOOLEAN,
    ue-BasedOTDOA-Supported
                                                   BOOLEAN
    supportForIPDL
}
UE-SecurityInformation ::=
                                         SEQUENCE {
    start-CS
                                              START-Value
}
URA-UpdateCause ::=
                                          ENUMERATED {
                                              changeOfURA,
                                               periodicURAUpdate,
                                               dummy,
UTRAN-DRX-CycleLengthCoefficient ::= INTEGER (3..9)
WaitTime ::=
                                          INTEGER (0..15)
__ ***************
        RADIO BEARER INFORMATION ELEMENTS (10.3.4)
__ ****************
AlgorithmSpecificInfo ::=
                                         CHOICE {
```

```
rfc2507-Info
                                       RFC2507-Info
}
AlgorithmSpecificInfo-r4 ::= CHOICE {
    rfc2507-Info RFC2
    rfc3095-Info RFC3
                                        RFC2507-Info,
    rfc3095-Info
                                         RFC3095-Info-r4
}
CID-InclusionInfo-r4 ::=
                                   ENUMERATED {
                                        pdcp-Header,
                                         rfc3095-PacketFormat }
-- Upper limit of COUNT-C is 2^32 - 1
COUNT-C ::=
                                     INTEGER (0..4294967295)
-- Upper limit of COUNT-C-MSB is 2^25 - 1
COUNT-C-MSB ::=
                                    INTEGER (0..33554431)
DefaultConfigIdentity ::=
                                    INTEGER (0..10)
                                    INTEGER (0..12)
DefaultConfigIdentity-r4 ::=
DefaultConfigIdentity-r5 ::=
                                    INTEGER (0..13)
                                     ENUMERATED {
DefaultConfigMode ::=
                                         fdd,
                                         tdd }
DDI ::=
                                     INTEGER (0..62)
   AM-RLC-Mode ::=
inSequenceDelivery
receivingWindowSize
dl-RLC-StatusInfo
DL-AM-RLC-Mode ::=
                                     SEQUENCE {
   inSequenceDelivery
                                       BOOLEAN,
                                         ReceivingWindowSize,
                                        DL-RLC-StatusInfo
}
                            SEQUENCE {
OctetModeRLC-SizeInfoTypel,
BOOLEAN,
ReceivingWindowSize,
DL-RLC-StatusInfo
DL-AM-RLC-Mode-r5 ::=
   dl-RLC-PDU-size
   inSequenceDelivery
    receivingWindowSize
    dl-RLC-StatusInfo
                                        DL-RLC-StatusInfo
}
rB-WithPDCP-InfoList
                                          RB-WithPDCP-InfoList OPTIONAL
}
{\tt DL-CounterSynchronisationInfo-r5} \ ::= \ \ {\tt SEQUENCE} \ \big\{
   rb-WithPDCP-InfoList RB-WithPDCP-InfoList OPTIONAL, rb-PDCPContextRelocationList RB-PDCPContextRelocationList OPTIONAL
}
DL-LogicalChannelMapping ::= SEQUENCE {
     - TABULAR: DL-TransportChannelType contains TransportChannelIdentity as well.
    dl-TransportChannelType DL-TransportChannelType, logicalChannelIdentity LogicalChannelIdentity
                                                                             OPTIONAL
}
DL-LogicalChannelMapping-r5 ::= SEQUENCE {
    -- TABULAR: DL-TransportChannelType contains TransportChannelIdentity as well.
    dl-TransportChannelType DL-TransportChannelType-r5,
                                                                             OPTIONAL
    logicalChannelIdentity
                                        LogicalChannelIdentity
}
DL-LogicalChannelMappingList ::= SEQUENCE (SIZE (1..maxLoCHperRLC)) OF
                                         DL-LogicalChannelMapping
DL-LogicalChannelMappingList-r5 ::= SEQUENCE (SIZE (1..maxLoCHperRLC)) OF
                                         DL-LogicalChannelMapping-r5
DL-RFC3095-r4 ::=
                                     SEQUENCE {
   RFC3095-r4 ::= cid-InclusionInfo
                                        CID-InclusionInfo-r4,
                                         INTEGER (1..16383)
                                                                             DEFAULT 15,
    max-CID
   reverseDecompressionDepth
                                                                             DEFAULT 0
                                        INTEGER (0..65535)
DL-RLC-Mode ::=
                                   CHOICE {
    dl-AM-RLC-Mode
                                        DL-AM-RLC-Mode,
```

```
dl-UM-RLC-Mode
                                        NULL,
                                        DL-TM-RLC-Mode
    dl-TM-RLC-Mode
}
DL-RLC-Mode-r5 ::=
                                        CHOICE {
   dl-AM-RLC-Mode-r5
                                        DL-AM-RLC-Mode-r5,
   dl-UM-RLC-Mode-r5
                                        DL-UM-RLC-Mode-r5,
                                        DL-TM-RLC-Mode
   dl-TM-RLC-Mode
}
DL-RLC-Mode-r6 ::=
                                        CHOICE {
                                        DL-AM-RLC-Mode-r5,
    dl-AM-RLC-Mode-r5
    dl-UM-RLC-Mode-r5
                                        DL-UM-RLC-Mode-r6.
    dl-TM-RLC-Mode
                                        DL-TM-RLC-Mode
}
                                  SEQUENCE {
DL-RLC-StatusInfo ::=
   timerStatusProhibit
                                       TimerStatusProhibit
                                                                            OPTIONAL,
    -- dummy is not used in this version of the specification, it should not be sent
    -- and if received they should be ignored.
                           TimerEPC
   dummy
                                                                        OPTIONAL,
   missingPDU-Indicator
                                            BOOLEAN,
                                        TimerStatusPeriodic
    timerStatusPeriodic
                                                                             OPTIONAL
}
DL-TM-RLC-Mode ::=
                                   SEQUENCE {
    segmentationIndication
                                            BOOLEAN
DL-TransportChannelType ::=
                                    CHOICE {
    dch
                                        TransportChannelIdentity,
                                        NULL,
    dsch
                                        TransportChannelIdentity,
-- The choice "dsch" should not be used in FDD mode, and if received the UE behaviour is unspecified
   dch-and-dsch
                                        {\tt TransportChannelIdentityDCHandDSCH}
-- The choice "dch-and-dsch" should not be used in FDD mode, and if received the UE
-- behaviour is unspecified
DL-TransportChannelType-r5 ::=
                                        CHOICE {
                                        TransportChannelIdentity,
                                        NULL,
    fach
-- The choice "dsch" should not be used in FDD mode, and if received the UE behaviour is unspecified
                                        TransportChannelIdentity,
 -- The choice "dch-and-dsch" should not be used in FDD mode, and if received the UE
-- behaviour is unspecified
                                        TransportChannelIdentityDCHandDSCH,
   dch-and-dsch
   hadach
                                        MAC-d-FlowIdentity,
    dch-and-hsdsch
                                        MAC-d-FlowIdentityDCHandHSDSCH
}
DL-UM-RLC-LI-size ::=
                                        ENUMERATED {
                                        size7, size15 }
DL-UM-RLC-Mode-r5 ::=
                                        SEQUENCE {
   dl-UM-RLC-LI-size
                                        DL-UM-RLC-LI-size
DL-UM-RLC-Mode-r6 ::=
                                    SEQUENCE {
                                    DL-UM-RLC-LI-size,
   dl-UM-RLC-LT-size
                                        UM-RLC-DuplAvoid-Reord-Info-r6 OPTIONAL,
UM-RLC-OutOSeqDelivery-Info-r6 OPTIONAL
    dl-UM-RLC-DuplAvoid-Reord-Info
    dl-UM-RLC-OutOSeqDelivery-Info
}
                                    ENUMERATED {
ExpectReordering ::=
                                        reorderingNotExpected,
                                        reorderingExpected }
ExplicitDiscard ::=
                                    SEQUENCE {
    timerMRW
                                        TimerMRW,
    timerDiscard
                                        TimerDiscard,
   maxMRW
                                        MaxMRW
}
HeaderCompressionInfo ::= SEQUENCE {
   algorithmSpecificInfo
                                       AlgorithmSpecificInfo
}
```

```
HeaderCompressionInfoList ::=
                                 SEQUENCE (SIZE (1..maxPDCPAlgoType)) OF
                                      HeaderCompressionInfo
HeaderCompressionInfo-r4 ::=
                                SEQUENCE {
   algorithmSpecificInfo
                                     AlgorithmSpecificInfo-r4
HeaderCompressionInfoList-r4 ::= SEQUENCE (SIZE (1..maxPDCPAlgoType)) OF
                                      HeaderCompressionInfo-r4
LogicalChannelIdentity ::=
                                  INTEGER (1..15)
LosslessSRNS-RelocSupport ::=
                                  CHOICE {
   supported
                                      MaxPDCP-SN-WindowSize,
   notSupported
                                      NULL
}
MAC-d-HFN-initial-value ::=
                                  BIT STRING (SIZE (24))
MAC-LogicalChannelPriority ::=
                                  INTEGER (1..8)
MaxDAT ::=
                                  ENUMERATED {
                                      dat1, dat2, dat3, dat4, dat5, dat6,
                                      dat7, dat8, dat9, dat10, dat15, dat20,
                                      dat25, dat30, dat35, dat40 }
MaxDAT-Retransmissions ::=
                                   SEQUENCE {
   maxDAT
                                      MaxDAT,
   timerMRW
                                      TimerMRW,
   maxMRW
                                      MaxMRW
MaxMRW ::=
                                  ENUMERATED {
                                      mm1, mm4, mm6, mm8, mm12, mm16,
                                      mm24, mm32 }
MaxPDCP-SN-WindowSize ::=
                                  ENUMERATED {
                                      sn255, sn65535 }
MaxRST ::=
                                   ENUMERATED {
                                      rst1, rst4, rst6, rst8, rst12,
                                      rst16, rst24, rst32 }
NoExplicitDiscard ::=
                                   ENUMERATED {
                                      dt10, dt20, dt30, dt40, dt50,
                                      dt60, dt70, dt80, dt90, dt100 }
PDCP-Info ::=
                                 SEQUENCE {
   losslessSRNS-RelocSupport
                                      LosslessSRNS-RelocSupport
   -- TABULAR: pdcp-PDU-Header is MD in the tabular format and it can be encoded
   -- in one bit, so the OPTIONAL is removed for compactness.
   pdcp-PDU-Header
                                      PDCP-PDU-Header,
   headerCompressionInfoList
                                      HeaderCompressionInfoList
PDCP-Info-r4 ::=
                                SEQUENCE {
   losslessSRNS-RelocSupport
                                     LosslessSRNS-RelocSupport
    -- TABULAR: pdcp-PDU-Header is MD in the tabular format and it can be encoded
    -- in one bit, so the OPTIONAL is removed for compactness.
   pdcp-PDII-Header
                                      PDCP-PDII-Header.
                                      HeaderCompressionInfoList-r4 OPTIONAL
   headerCompressionInfoList
}
                        SEQUENCE {
PDCP-InfoReconfig ::=
                                     PDCP-Info,
   pdcp-Info
    -- dummy is not used in this version of the specification and
   -- it should be ignored.
                                      INTEGER (0..65535)
   dummy
}
PDCP-InfoReconfig-r4 ::=
                                  SEQUENCE {
   pdcp-Info
                                      PDCP-Info-r4
PDCP-PDU-Header ::=
                                  ENUMERATED {
                                      present, absent }
PDCP-SN-Info ::=
                                  INTEGER (0..65535)
```

```
Poll-PDU ::=
                                                                                                     ENUMERATED {
                                                                                                              pdu1, pdu2, pdu4, pdu8, pdu16,
                                                                                                               pdu32, pdu64, pdu128 }
                                                                                                     ENUMERATED {
Poll-SDU ::=
                                                                                                              sdul, sdu4, sdu16, sdu64 }
PollingInfo ::=
                                                                                                    SEQUENCE {
           timerPollProhibit
                                                                                                    TimerPollProhibit
                                                                                                                                                                                                                     OPTIONAL,
           timerPoll
                                                                                                              TimerPoll
                                                                                                                                                                                                                   OPTIONAL,
                                                                                                           Poll-PDU
Poll-SDU
          poll-PDU
                                                                                                                                                                                                                   OPTIONAL.
           poll-SDU
          roll-SDU
ROLLFAN,
ROLLFAN,
ROLLFAN,
ROLLFAN,
POLLWINDOW
LIMETPOLIPERIODIC

POLL-SDU
BOOLEAN,
POLLFAN,
POLLWINDOW
LIMETPOLIPERIODIC

POLL-SDU
BOOLEAN,
POLLFAN,
POLLFA
                                                                                                                                                                                                                    OPTIONAL.
                                                                                                                                                                                                                   OPTIONAL,
                                                                                                              TimerPollPeriodic
                                                                                                                                                                                                                   OPTIONAL
}
PollWindow ::=
                                                                                                     ENUMERATED {
                                                                                                              pw50, pw60, pw70, pw80, pw85,
                                                                                                                pw90, pw95, pw99 }
PredefinedConfigIdentity ::=
                                                                                                   INTEGER (0..15)
PredefinedConfigValueTag ::=
                                                                                                  INTEGER (0..15)
PredefinedRB-Configuration ::= SEQUENCE {
    re-EstablishmentTimer Re-EstablishmentTimer,
    srb-InformationList SRB-InformationSetupLicute RB-InformationSetupLicute RB-Inf
                                                                                                                SRB-InformationSetupList,
           rb-InformationList
                                                                                                               RB-InformationSetupList
-- Radio bearer IEs
                     predefinedRB-Configuration PredefinedRB-Configuration,
           -- Transport channel IEs
                     -- Physical channel IEs
                                                                                                                     PreDefPhyChConfiguration
                  preDefPhyChConfiguration
}
PredefinedConfigStatusList ::=
                                                                                                                           SEQUENCE (SIZE (maxPredefConfig)) OF
                                                                                                                           PredefinedConfigStatusInfo
PredefinedConfigStatusInfo ::= CHOICE {
           storedWithValueTagSameAsPrevius NULL,
           other
                                                                                                              CHOICE {
                                                                                                            NULL,
PredefinedConfigValueTag
                      notStored
                      storedWithDifferentValueTag
}
PredefinedConfigStatusListComp ::= SEQUENCE {
          setsWithDifferentValueTag PredefinedConfigSetsWithDifferentValueTag,
                                                                                                                                                                                                                                            OPTIONAL
                                                                                                              PredefinedConfigStatusListVarSz
           otherEntries
PredefinedConfigSetsWithDifferentValueTag ::= SEQUENCE (SIZE (1..2)) OF
                                                                                                                                      PredefinedConfigSetWithDifferentValueTag
PredefinedConfigSetWithDifferentValueTag ::= SEQUENCE {
        startPosition
                                                                                                                                     INTEGER (0..10)
                                                                                                                                                                                          DEFAULT 0,
                                                                                                                                      INTEGER (6..16),
            -- numberOfEntries
           -- numberOfEntries is covered by the size of the list in IE PredefinedConfigValueTagList
           valueTagList
                                                                                                                                      PredefinedConfigValueTagList
}
PredefinedConfigValueTagList ::= SEQUENCE (SIZE (1..maxPredefConfig)) OF
                                                                                                                          PredefinedConfigValueTag
                                                                                                           SEQUENCE (SIZE (1..maxPredefConfig)) OF
PredefinedConfigStatusListVarSz ::=
                                                                                                                         PredefinedConfigStatusInfo
RAB-Info ::=
                                                                                                     SEQUENCE {
          rab-Identity
                                                                                                              RAB-Identity.
           cn-DomainIdentity
                                                                                                                CN-DomainIdentity,
```

```
nas-Synchronisation-Indicator
                                        NAS-Synchronisation-Indicator OPTIONAL,
    re-EstablishmentTimer
                                        Re-EstablishmentTimer
}
RAB-Info-r6-ext ::=
                                    SEQUENCE {
                                                                            OPTIONAL
   mbms-SessionIdentity
                                        MBMS-SessionIdentity
RAB-Info-r6 ::=
                                    SEQUENCE {
   rab-Identity
                                        RAB-Identity,
   mbms-SessionIdentity
                                        MBMS-SessionIdentity
                                                                            OPTIONAL,
                                        CN-DomainIdentity,
    cn-DomainIdentity
   nas-Synchronisation-Indicator
                                        NAS-Synchronisation-Indicator
                                                                           OPTIONAL.
    re-EstablishmentTimer
                                        Re-EstablishmentTimer
RAB-InformationList ::=
                                   SEQUENCE (SIZE (1..maxRABsetup)) OF
                                        RAB-Info
RAB-InformationReconfigList ::=
                                    SEQUENCE (SIZE (1.. maxRABsetup)) OF
                                        RAB-InformationReconfig
RAB-InformationReconfig ::=
                                    SEQUENCE {
   rab-Identity
                                       RAB-Identity,
                                        CN-DomainIdentity,
    cn-DomainIdentity
   nas-Synchronisation-Indicator
                                        NAS-Synchronisation-Indicator
}
RAB-Info-Post ::=
                                        SEQUENCE {
                                        RAB-Identity,
   rab-Identity
    cn-DomainIdentity
                                        CN-DomainIdentity,
   nas-Synchronisation-Indicator
                                       NAS-Synchronisation-Indicator OPTIONAL
}
RAB-InformationSetup ::=
                                   SEQUENCE {
    rab-Info
                                       RAB-Info,
   rb-InformationSetupList
                                       RB-InformationSetupList
}
RAB-InformationSetup-r4 ::=
                                    SEQUENCE {
    rab-Info
                                       RAB-Info,
   rb-InformationSetupList
                                       RB-InformationSetupList-r4
}
RAB-InformationSetup-r5 ::=
                                    SEQUENCE {
                                       RAB-Info,
   rab-Info
    rb-InformationSetupList
                                       RB-InformationSetupList-r5
}
RAB-InformationSetup-r6-ext ::=
                                    SEQUENCE {
   rab-Info-r6-ext
                                       RAB-Info-r6-ext
                                    SEQUENCE {
RAB-InformationSetup-r6 ::=
                                        RAB-Info-r6,
   rab-Info
   rb-InformationSetupList
                                        RB-InformationSetupList-r6
RAB-InformationSetupList ::=
                                    SEQUENCE (SIZE (1..maxRABsetup)) OF
                                       RAB-InformationSetup
RAB-InformationSetupList-r4 ::=
                                    SEQUENCE (SIZE (1..maxRABsetup)) OF
                                       RAB-InformationSetup-r4
                                    SEQUENCE (SIZE (1..maxRABsetup)) OF
RAB-InformationSetupList-r5 ::=
                                        RAB-InformationSetup-r5
                                    SEQUENCE (SIZE (1..maxRABsetup)) OF
RAB-InformationSetupList-r6 ::=
                                        RAB-InformationSetup-r6
-- The IE 'RAB-InformationSetupList-r6-ext' provides elements of extension information, which
 -- are added to the corresponding elements of the IE 'RAB-InformationSetupList/-r4/-r5'.
RAB-InformationSetupList-r6-ext ::= SEQUENCE (SIZE (1..maxRABsetup)) OF
                                        RAB-InformationSetup-r6-ext
RB-ActivationTimeInfo ::=
                                    SEQUENCE {
   rb-Identity
                                        RB-Identity,
    rlc-SequenceNumber
                                        RLC-SequenceNumber
```

```
}
RB-ActivationTimeInfoList ::= SEQUENCE (SIZE (1..maxRB)) OF
                                     RB-ActivationTimeInfo
RB-COUNT-C-Information ::=
                                 SEQUENCE {
   rb-Identity
                                      RB-Identity,
                                      COUNT-C,
   count-C-UL
   count-C-DL
                                      COUNT-C
RB-COUNT-C-InformationList ::= SEQUENCE (SIZE (1..maxRBallRABs)) OF
                                      RB-COUNT-C-Information
RB-COUNT-C-MSB-Information ::=
                                  SEQUENCE {
                                   RB-Identity,
   rb-Identity
   count-C-MSB-UL
                                      COUNT-C-MSB,
   count-C-MSB-DL
                                      COUNT-C-MSB
RB-COUNT-C-MSB-InformationList ::= SEQUENCE (SIZE (1..maxRBallRABs)) OF
                                      RB-COUNT-C-MSB-Information
RB-Identity ::=
                                 INTEGER (1..32)
                                  SEQUENCE (SIZE (1..maxRB)) OF
RB-IdentityList ::=
                                     RB-Identity
RB-InformationAffected ::=
                                  SEQUENCE {
   rb-Identity
                                      RB-Identity,
   rb-MappingInfo
                                      RB-MappingInfo
RB-InformationAffected-r5 ::=
                                 SEQUENCE {
   rb-Identity
                                      RB-Identity,
   rb-MappingInfo
                                      RB-MappingInfo-r5
}
RB-InformationAffected-r6 ::=
                                  SEQUENCE {
   rb-Identity
                                      RB-Identity,
   rb-MappingInfo
                                      RB-MappingInfo-r6
}
RB-InformationAffectedList ::=
                                  SEQUENCE (SIZE (1..maxRB)) OF
                                     RB-InformationAffected
RB-InformationAffectedList-r5 ::= SEQUENCE (SIZE (1..maxRB)) OF
                                      RB-InformationAffected-r5
                                  SEQUENCE (SIZE (1..maxRB)) OF
RB-InformationAffectedList-r6 ::=
                                      RB-InformationAffected-r6
RB-InformationReconfig ::=
                                  SEQUENCE {
   rb-Identity
                                      RB-Identity,
                                      PDCP-InfoReconfig
                                                                       OPTIONAL,
   pdcp-Info
   pdcp-SN-Info
                                      PDCP-SN-Info
                                                                         OPTIONAL,
   rlc-Info
                                      RLC-Info
                                                                         OPTIONAL,
   rb-MappingInfo
                                     RB-MappingInfo
                                                                        OPTIONAL,
   rb-StopContinue
                                      RB-StopContinue
                                                                         OPTIONAL
}
RB-InformationReconfig-r4 ::=
                                  SEQUENCE {
                                    RB-Identity,
   rb-Identity
                                      PDCP-InfoReconfig-r4
   pdcp-Info
                                                                         OPTIONAL.
                                      PDCP-SN-Info
   pdcp-SN-Info
                                                                        OPTIONAL,
   rlc-Info
                                      RLC-Info
                                                                        OPTIONAL,
   rb-MappingInfo
                                      RB-MappingInfo
                                                                         OPTIONAL,
                                      RB-StopContinue
   rb-StopContinue
                                                                         OPTIONAL
}
RB-InformationReconfig-r5 ::= SEQUENCE {
   rb-Identity
                                      RB-Identity,
                                      PDCP-InfoReconfig-r4
   pdcp-Info
                                                                         OPTIONAL,
   pdcp-SN-Info
                                                                         OPTIONAL,
                                      PDCP-SN-Info
   rlc-Info
                                      RLC-Info-r5
                                                                         OPTIONAL,
   rb-MappingInfo
                                     RB-MappingInfo-r5
                                                                         OPTIONAL,
   rb-StopContinue
                                     RB-StopContinue
                                                                         OPTIONAL
```

```
RB-InformationReconfig-r6 ::=
                                  SEQUENCE {
   rb-Identity
                                      RB-Identity,
                                      PDCP-InfoReconfig-r4
                                                                          OPTIONAL,
   pdcp-Info
   pdcp-SN-Info
                                      PDCP-SN-Info
                                                                          OPTIONAL,
   rlc-Info
                                      RLC-Info-r5
                                                                          OPTIONAL,
   rb-MappingInfo
                                      RB-MappingInfo-r6
                                                                          OPTIONAL,
                                      RB-StopContinue
    rb-StopContinue
                                                                          OPTIONAL
RB-InformationReconfigList ::=
                                   SEQUENCE (SIZE (1..maxRB)) OF
                                       RB-InformationReconfig
RB-InformationReconfigList-r4 ::=
                                   SEQUENCE (SIZE (1..maxRB)) OF
                                      RB-InformationReconfig-r4
RB-InformationReconfigList-r5 ::=
                                   SEQUENCE (SIZE (1..maxRB)) OF
                                       RB-InformationReconfig-r5
RB-InformationReconfigList-r6 ::=
                                   SEQUENCE (SIZE (1..maxRB)) OF
                                       RB-InformationReconfig-r6
RB-InformationReleaseList ::=
                                   SEQUENCE (SIZE (1..maxRB)) OF
                                      RB-Identity
RB-InformationSetup ::=
                                   SEQUENCE {
   rb-Identity
                                     RB-Identity,
   pdcp-Info
                                       PDCP-Info
                                                                          OPTIONAL,
   rlc-InfoChoice
                                      RLC-InfoChoice,
   rb-MappingInfo
                                      RB-MappingInfo
}
RB-InformationSetup-r4 ::=
                                  SEQUENCE {
   rb-Identity
                                      RB-Identity,
   pdcp-Info
                                       PDCP-Info-r4
                                                                          OPTIONAL,
    rlc-InfoChoice
                                       RLC-InfoChoice,
   rb-MappingInfo
                                      RB-MappingInfo
}
RB-InformationSetup-r5 ::= SEQUENCE {
   rb-Identity
                                      RB-Identity,
                                       PDCP-Info-r4
                                                                          OPTIONAL.
   pdcp-Info
    rlc-InfoChoice
                                       RLC-InfoChoice-r5,
    rb-MappingInfo
                                       RB-MappingInfo-r5
}
RB-InformationSetup-r6 ::=
                                  SEQUENCE {
   rb-Identity
                                   RB-Identity,
   pdcp-Info
                                       PDCP-Info-r4
                                                                          OPTIONAL,
   rlc-InfoChoice
                                      RLC-InfoChoice-r5,
   rb-MappingInfo
                                      RB-MappingInfo-r6
                                   SEQUENCE (SIZE (1..maxRBperRAB)) OF
RB-InformationSetupList ::=
                                      RB-InformationSetup
RB-InformationSetupList-r4 ::=
                                   SEQUENCE (SIZE (1..maxRBperRAB)) OF
                                      RB-InformationSetup-r4
RB-InformationSetupList-r5 ::=
                                   SEQUENCE (SIZE (1..maxRBperRAB)) OF
                                       RB-InformationSetup-r5
RB-InformationSetupList-r6 ::=
                                   SEQUENCE (SIZE (1..maxRBperRAB)) OF
                                       RB-InformationSetup-r6
RB-MappingInfo ::=
                                   SEQUENCE (SIZE (1..maxRBMuxOptions)) OF
                                       RB-MappingOption
RB-MappingInfo-r5 ::=
                                       SEQUENCE (SIZE (1..maxRBMuxOptions)) OF
                                       RB-MappingOption-r5
RB-MappingInfo-r6 ::=
                                       SEQUENCE (SIZE (1..maxRBMuxOptions)) OF
                                       RB-MappingOption-r6
RB-MappingOption ::=
                                   SEQUENCE {
                                      UL-LogicalChannelMappings OPTIONAL, DL-LogicalChannelMappingList OPTIONAL
                                      UL-LogicalChannelMappings
   ul-LogicalChannelMappings
    dl-LogicalChannelMappingList
```

```
MappingOption-r5 ::= SEQUENCE {
ul-LogicalChannelMappings UL-LogicalChannelMappings OPTIONAL,
dl-LogicalChannelMappingList DL-LogicalChannelMappingList-r5 OPTIONAL
RB-MappingOption-r5 ::=
   MappingOption-r6 ::= SEQUENCE {
   ul-LogicalChannelMappings UL-LogicalChannelMappings OPTIONAL,
   dl-LogicalChannelMappingList DL-LogicalChannelMappingList-r5 OPTIONAL
RB-MappingOption-r6 ::=
RB-PDCPContextRelocation ::= SEQUENCE {
    rb-Identity RB-Identity,
    dl-RFC3095-Context-Relocation BOOLEAN,
    ul-RFC3095-Context-Relocation BOOLEAN
}
RB-PDCPContextRelocationList ::=
                                                   SEQUENCE (SIZE (1..maxRBallRABs)) OF
                                                    RB-PDCPContextRelocation
                                          ENUMERATED {
RB-StopContinue ::=
                                              stopRB, continueRB }
RB-WithPDCP-Info ::=
                                           SEQUENCE {
    rb-Identity
                                               RB-Identity.
    pdcp-SN-Info
                                               PDCP-SN-Info
RB-WithPDCP-InfoList ::=
                                          SEQUENCE (SIZE (1..maxRBallRABs)) OF
                                               RB-WithPDCP-Info
ReceivingWindowSize ::=
                                           ENUMERATED {
                                             rwl, rw8, rw16, rw32, rw64, rw128, rw256,
rw512, rw768, rw1024, rw1536, rw2047,
                                               rw2560, rw3072, rw3584, rw4095 }
RFC2507-Info ::=
                                           SEQUENCE {
                                               INTEGER (1..65535)
INTEGER (1..255)
    f-MAX-PERIOD
                                                                                          DEFAULT 256,
    f-MAX-TIME
                                                                                         DEFAULT 5,
                                               INTEGER (60..65535)
INTEGER (3..255)
INTEGER (3..65535)
    max-HEADER
                                                                                        DEFAULT 168,
    tcp-SPACE
                                                                                          DEFAULT 15,
    non-TCP-SPACE
                                                                                          DEFAULT 15,
     -- TABULAR: expectReordering has only two possible values, so using Optional or Default
    -- would be wasteful
    {\tt expectReordering}
                                               ExpectReordering
}
RFC3095-Info-r4 ::= SEQUENCE {
rohcProfileList ROH
ul-RFC3095 UL-
dl-RFC3095
                                               ROHC-ProfileList-r4,
                                               UL-RFC3095-r4
                                                                                         OPTIONAL,
    dl-RFC3095
                                               DL-RFC3095-r4
                                                                                          OPTIONAL
}
RLC-Info ::=
                                           SEQUENCE {
    ul-RLC-Mode
dl-RLC-Mode
                                               UL-RLC-Mode
                                                                                          OPTIONAL,
                                               DL-RLC-Mode
                                                                                          OPTIONAL
}
    - RLC-Mode
dl-RLC-Mode-r5
rlc-OneSidedReEst
RLC-Info-r5 ::=
                                           SEQUENCE {
                                              UL-RLC-Mode
                                                                                          OPTIONAL.
                                               DL-RLC-Mode-r5
                                                                                          OPTIONAL,
                                               BOOLEAN
}
RLC-Info-r6 ::=
                                           SEQUENCE {
    ul-RLC-Mode
                                              UL-RLC-Mode
                                                                                          OPTIONAL,
     dl-RLC-Mode-r5
                                               DL-RLC-Mode-r6
                                                                                          OPTIONAL,
    rlc-OneSidedReEst
                                               BOOLEAN
}
RLC-InfoChoice ::=
                                          CHOICE {
    rlc-Info
                                               RLC-Info,
    same-as-RB
                                               RB-Identity
}
RLC-InfoChoice-r5 ::= rlc-Info-r5
                                               CHOICE {
                                               RLC-Info-r5,
     same-as-RB
                                               RB-Identity
```

```
}
RLC-PDU-Size ::=
                                  OctetModeRLC-SizeInfoType1
RLC-PDU-SizeList ::=
                                   SEQUENCE (SIZE (1..maxRLCPDUsizePerLogChan)) OF
                                      RLC-PDU-Size
RLC-SequenceNumber ::=
                                  INTEGER (0..4095)
RLC-SizeInfo ::=
                                   SEQUENCE {
                                     INTEGER (1..maxTF)
  rlc-SizeIndex
RLC-SizeExplicitList ::= SEQUENCE (SIZE (1..maxTF)) OF
                                      RLC-SizeInfo
ROHC-Profile-r4 ::=
                                   INTEGER (1..3)
ROHC-ProfileList-r4 ::= SEQUENCE (SIZE (1..maxROHC-Profile-r4)) OF
                                       ROHC-Profile-r4
ROHC-PacketSize-r4 ::=
                                  INTEGER (2..1500)
ROHC-PacketSizeList-r4 ::= SEQUENCE (SIZE (1..maxROHC-PacketSizes-r4)) OF
                                      ROHC-PacketSize-r4
SRB-InformationSetup ::= SEQUENCE {
    -- The default value for rb-Identity is the smallest value not used yet.
                                      RB-Identity
                                                                          OPTIONAL,
   rb-Identity
   rlc-InfoChoice
                                       RLC-InfoChoice,
   rb-MappingInfo
                                       RB-MappingInfo
SRB-InformationSetup-r5 ::= SEQUENCE {
   -- The default value for rb-Identity is the smallest value not used yet.
                    RB-Identity
   rb-Identity
                                                           OPTIONAL,
   rlc-InfoChoice
                                      RLC-InfoChoice-r5,
   rb-MappingInfo
                                      RB-MappingInfo-r5
}
SRB-InformationSetup-r6 ::=
                                  SEQUENCE {
   -- The default value for rb-Identity is the smallest value not used yet.
                     RB-Identity
                                                                          OPTIONAL.
   rb-Identity
   rlc-InfoChoice
                                      RLC-InfoChoice-r5,
   rb-MappingInfo
                                      RB-MappingInfo-r6
}
SRB-InformationSetupList ::= SEQUENCE (SIZE (1..maxSRBsetup)) OF
                                      SRB-InformationSetup
SRB-InformationSetupList-r5 ::=
                                   SEQUENCE (SIZE (1..maxSRBsetup)) OF
                                      SRB-InformationSetup-r5
SRB-InformationSetupList-r6 ::=
                                   SEQUENCE (SIZE (1..maxSRBsetup)) OF
                                      SRB-InformationSetup-r6
SRB-InformationSetupList2 ::=
                                   SEQUENCE (SIZE (3..4)) OF
                                      SRB-InformationSetup
TimerDAR-r6 ::=
                                   ENTIMERATED {
                                       ms40, ms80, ms120, ms160, ms240, ms320, ms480, ms640,
                                       {\tt ms960}, {\tt ms1280}, {\tt ms1920}, {\tt ms2560}, {\tt ms3840}, {\tt ms5120} }
                                   ENUMERATED {
TimerDiscard ::=
                                       td0-1, td0-25, td0-5, td0-75,
                                       td1, td1-25, td1-5, td1-75,
td2, td2-5, td3, td3-5, td4,
td4-5, td5, td7-5 }
TimerEPC ::=
                                   ENUMERATED {
                                       te50, te60, te70, te80, te90,
                                       te100, te120, te140, te160, te180, te200, te300, te400, te500, te700,
                                       te900 }
TimerMRW ::=
                                   ENUMERATED {
                                       te50, te60, te70, te80, te90, te100,
                                       tel20, tel40, tel60, tel80, te200,
```

```
te300, te400, te500, te700, te900 }
TimerOSD-r6 ::=
                                     ENUMERATED {
                                          ms40, ms80, ms120, ms160, ms240, ms320, ms480, ms640,
                                          ms960, ms1280, ms1920, ms2560, ms3840, ms5120 }
TimerPoll ::=
                                     ENUMERATED {
                                          tp10, tp20, tp30, tp40, tp50,
                                          tp60, tp70, tp80, tp90, tp100,
                                          tp110, tp120, tp130, tp140, tp150,
                                          tp160, tp170, tp180, tp190, tp200,
                                          tp210, tp220, tp230, tp240, tp250, tp260, tp270, tp280, tp290, tp300,
                                          tp310, tp320, tp330, tp340, tp350,
                                          tp360, tp370, tp380, tp390, tp400,
                                          tp410, tp420, tp430, tp440, tp450,
                                          tp460, tp470, tp480, tp490, tp500,
                                          tp510, tp520, tp530, tp540, tp550,
                                          tp600, tp650, tp700, tp750, tp800,
                                          tp850, tp900, tp950, tp1000 }
                                     ENUMERATED {
TimerPollPeriodic ::=
                                          tper100, tper200, tper300, tper400,
                                          tper500, tper750, tper1000, tper2000 }
TimerPollProhibit ::=
                                     ENUMERATED {
                                          tpp10, tpp20, tpp30, tpp40, tpp50,
                                          tpp60, tpp70, tpp80, tpp90, tpp100,
                                          tpp110, tpp120, tpp130, tpp140, tpp150,
                                          tpp160, tpp170, tpp180, tpp190, tpp200,
                                          tpp210, tpp220, tpp230, tpp240, tpp250,
                                          tpp260, tpp270, tpp280, tpp290, tpp300,
                                          tpp310, tpp320, tpp330, tpp340, tpp350, tpp360, tpp370, tpp380, tpp390, tpp400,
                                          tpp410, tpp420, tpp430, tpp440, tpp450,
                                          tpp460, tpp470, tpp480, tpp490, tpp500,
                                          tpp510, tpp520, tpp530, tpp540, tpp550,
                                          tpp600, tpp650, tpp700, tpp750, tpp800, tpp850, tpp950, tpp950, tpp1000 }
TimerRST ::=
                                     ENUMERATED {
                                         tr50, tr100, tr150, tr200, tr250, tr300,
                                          tr350, tr400, tr450, tr500, tr550,
                                          tr600, tr700, tr800, tr900, tr1000 }
TimerStatusPeriodic ::=
                                     ENUMERATED {
                                          tsp100, tsp200, tsp300, tsp400, tsp500,
                                          tsp750, tsp1000, tsp2000 }
TimerStatusProhibit ::=
                                     ENUMERATED {
                                          tsp10,tsp20,tsp30,tsp40,tsp50,
                                          tsp60,tsp70,tsp80,tsp90,tsp100,
                                          tsp110,tsp120,tsp130,tsp140,tsp150,
                                          tsp160,tsp170,tsp180,tsp190,tsp200,
                                          tsp210,tsp220,tsp230,tsp240,tsp250,
                                          tsp260,tsp270,tsp280,tsp290,tsp300,
                                          tsp310,tsp320,tsp330,tsp340,tsp350,
                                          tsp360,tsp370,tsp380,tsp390,tsp400,
                                          tsp410, tsp420, tsp430, tsp440, tsp450,
                                          tsp460,tsp470,tsp480,tsp490,tsp500,
                                          tsp510,tsp520,tsp530,tsp540,tsp550,
                                          tsp600,tsp650,tsp700,tsp750,tsp800,
                                          tsp850,tsp900,tsp950,tsp1000 }
TransmissionRLC-Discard ::= CHOICE {
    timerBasedExplicit
                                         ExplicitDiscard,
    timerBasedNoExplicit
                                          NoExplicitDiscard,
   maxDAT-Retransmissions
                                         MaxDAT-Retransmissions,
                                         MaxDAT
   noDiscard
TransmissionWindowSize ::=
                                    ENUMERATED {
                                         tw1, tw8, tw16, tw32, tw64, tw128, tw256,
                                          tw512, tw768, tw1024, tw1536, tw2047,
                                          tw2560, tw3072, tw3584, tw4095 }
UL-AM-RLC-Mode ::=
                                     SEQUENCE {
    transmissionRLC-Discard
                                         TransmissionRLC-Discard,
```

```
transmissionWindowSize
                                         TransmissionWindowSize,
    timerRST
                                         TimerRST,
    max-RST
                                         MaxRST,
    pollingInfo
                                         PollingInfo
                                                                              OPTIONAL
{\tt UL-CounterSynchronisationInfo} ::= \\ {\tt SEQUENCE} \ \big\{
   rB-WithPDCP-InfoList
                                             RB-WithPDCP-InfoList OPTIONAL,
    startList
                                             STARTList
UL-LogicalChannelMapping ::= SEQUENCE {
    -- TABULAR: UL-TransportChannelType contains TransportChannelIdentity as well.
    ul-TransportChannelType UL-TransportChannelType, logicalChannelIdentity LogicalChannelIdentity rlc-SizeList CHOICE {
                                                                             OPTIONAL,
    rlc-SizeList
                                             NULL,
        allSizes
        configured
                                             NULL.
       explicitList
                                             RLC-SizeExplicitList
    mac-LogicalChannelPriority
                                       MAC-LogicalChannelPriority
}
UL-LogicalChannelMapping-r6 ::= SEQUENCE {
    ul-TrCH-Type CHOICE {
        dch-rach-cpch-usch SEQU
                                         SEQUENCE {
            -- TABULAR: UL-TransportChannelType contains TransportChannelIdentity as well.
            ul-TransportChannelType UL-TransportChannelType, logicalChannelIdentity LogicalChannelIdentity rlc-SizeList CHOICE {
                                                                                     OPTIONAL,
                allSizes
                                                     NULL,
                configured
                                                     NULL,
                explicitList
                                                     RLC-SizeExplicitList
            }
        },
        e-dch
                                            SEQUENCE {
           e-DCH-MAC-d-FlowIdentity
                                              E-DCH-MAC-d-FlowIdentity,
            ddi
                                                 DDI,
            rlc-PDU-SizeList
                                                 RLC-PDU-SizeList
    },
    mac-LogicalChannelPriority
                                       MAC-LogicalChannelPriority
}
UL-LogicalChannelMappingList ::= SEQUENCE {
    -- rlc-LogicalChannelMappingIndicator shall be set to TRUE in this version
    -- of the specification
    rlc-LogicalChannelMappingIndicator BOOLEAN,
                                         SEQUENCE (SIZE (maxLoCHperRLC)) OF
    ul-LogicalChannelMapping
                                         UL-LogicalChannelMapping
}
UL-LogicalChannelMappingList-r6 ::= SEQUENCE {
     -- rlc-LogicalChannelMappingIndicator shall be set to TRUE in this version
    -- of the specification
    rlc-LogicalChannelMappingIndicator BOOLEAN,
    ul-LogicalChannelMapping
                                         SEQUENCE (SIZE (maxLoCHperRLC)) OF
                                             UL-LogicalChannelMapping-r6
}
UL-LogicalChannelMappings ::= CHOICE {
    oneLogicalChannel
                                         UL-LogicalChannelMapping,
    twoLogicalChannels
                                         UL-LogicalChannelMappingList
}
UL-LogicalChannelMappings-r6 ::= CHOICE {
    oneLogicalChannel
                                         UL-LogicalChannelMapping-r6,
    twoLogicalChannels
                                         UL-LogicalChannelMappingList-r6
}
UL-RFC3095-r4 ::=
   cid-InclusionInfo
                                     SEQUENCE {
                                         CID-InclusionInfo-r4,
                                         INTEGER (1..16383)
    max-CID
                                                                             DEFAULT 15,
    rohcPacketSizeList
                                         ROHC-PacketSizeList-r4
UL-RLC-Mode ::=
                                   CHOICE {
    ul-AM-RLC-Mode
                                         UL-AM-RLC-Mode,
```

```
ul-UM-RLC-Mode
                                    UL-UM-RLC-Mode,
   ul-TM-RLC-Mode
                                     UL-TM-RLC-Mode,
   spare
                                    NULL
}
UL-TM-RLC-Mode ::=
                               SEQUENCE {
                                TransmissionRLC-Discard OPTIONAL,
BOOLEAN
   transmissionRLC-Discard
segmentationIndication
   segmentationIndication
}
   transmissionRLC-Discard SEQUENCE {
UL-UM-RLC-Mode ::=
                                   TransmissionRLC-Discard
                                                            OPTIONAL
UL-TransportChannelType ::= CHOICE {
   dch
                                   TransportChannelIdentity,
   rach
                                     NULL,
   cpch
                                     NULL.
                                     TransportChannelIdentity
   usch
}
UM-RLC-DuplAvoid-Reord-Info-r6 ::= SEQUENCE {
   timer-DAR
                                     TimerDAR-r6,
   widowSize-DAR
                                     WindowSizeDAR-r6
}
UM-RLC-OutOSeqDelivery-Info-r6 ::= SEQUENCE {
                                    TimerOSD-r6
   timer-OSD
                                                                     OPTIONAL,
   windowSize-OSD
                                    WindowSizeOSD-r6
}
WindowSizeDAR-r6 ::=
                                 ENUMERATED {
                                    ws4, ws8, ws16, ws32, ws40, ws48,
                                     ws56, ws64, spare1 }
WindowSizeOSD-r6 ::=
                                 ENUMERATED {
                                    ws8, ws16, ws32, ws40, ws48,
                                     ws56, ws64, spare1 }
__ *****************
     TRANSPORT CHANNEL INFORMATION ELEMENTS (10.3.5)
__ ***************
AddOrReconfMAC-dFlow ::=
                               SEQUENCE {
   mac-hs-AddReconfQueue-List
                                            MAC-hs-AddReconfQueue-List OPTIONAL,
   mac-hs-DelQueue-List
                                            MAC-hs-DelQueue-List OPTIONAL
AllowedTFC-List ::=
                                SEQUENCE (SIZE (1..maxTFC)) OF
                                    TFC-Value
AllowedTFI-List ::=
                                 SEQUENCE (SIZE (1..maxTF)) OF
                                    INTEGER (0..31)
BitModeRLC-SizeInfo ::=
                                 CHOICE {
                                    INTEGER (0..127),
   sizeTypel
    -- Actual value sizeType2 = (part1 * 8) + 128 + part2
                                     SEQUENCE {
   sizeTvpe2
                                        INTEGER (0..15),
       part1
       part2
                                        INTEGER (1..7)
                                                                     OPTIONAL
    -- Actual value sizeType3 = (part1 * 16) + 256 + part2
   sizeType3
                                     SEQUENCE {
                                        INTEGER (0..47),
       part1
                                        INTEGER (1..15)
                                                                     OPTIONAL
       part2
    -- Actual value sizeType4 = (part1 * 64) + 1024 + part2
   sizeType4
                                     SEQUENCE {
       part1
                                        INTEGER (0..62),
                                                                     OPTIONAL
       part2
                                         INTEGER (1..63)
   }
}
-- Actual value BLER-QualityValue = IE value * 0.1
BLER-QualityValue ::= INTEGER (-63..0)
```

```
ChannelCodingType ::=
                                   CHOICE {
   -- noCoding is only used for TDD in this version of the specification,
    -- otherwise it should be ignored
   noCoding
                                       NULL,
    convolutional
                                       CodingRate,
    turbo
                                       NULL
}
                                   ENUMERATED {
CodingRate ::=
                                       half,
                                       third }
                                   SEQUENCE {
CommonDynamicTF-Info ::=
    rlc-Size
                                       CHOICE {
       fdd
                                          SEQUENCE {
           octetModeRLC-SizeInfoType2
                                              OctetModeRLC-SizeInfoType2
        tdd.
                                         SEQUENCE {
               bitModeRLC-SizeInfo
           commonTDD-Choice
                                               BitModeRLC-SizeInfo,
               octetModeRLC-SizeInfoType1
                                                  OctetModeRLC-SizeInfoType1
   numberOfTbSizeList
                                   SEQUENCE (SIZE (1..maxTF)) OF
                                        NumberOfTransportBlocks,
    logicalChannelList
                                   LogicalChannelList
}
CommonDynamicTF-Info-DynamicTTI ::= SEQUENCE {
      bitModeRLC-SizeInfo
    commonTDD-Choice
       bitModeRLC-SizeInfo BitModeRLC-SizeInfo, octetModeRLC-SizeInfoTypel OctetModeRLC-SizeInfoTypel
                                  NumberOfTbSizeAndTTIList,
    numberOfTbSizeAndTTIList
    logicalChannelList
                                      LogicalChannelList
}
CommonDynamicTF-InfoList ::= SEQUENCE (SIZE (1..maxTF)) OF
                                       CommonDynamicTF-Info
CommonDynamicTF-InfoList-DynamicTTI ::= SEQUENCE (SIZE (1..maxTF)) OF
                                       CommonDynamicTF-Info-DynamicTTI
CommonTransChTFS ::=
                                   SEQUENCE {
                                       CHOICE {
    tti
       tti10
                                           CommonDynamicTF-InfoList,
       tti20
                                           CommonDynamicTF-InfoList,
        tti40
                                           CommonDynamicTF-InfoList,
                                           CommonDynamicTF-InfoList,
       tti80
                                           CommonDynamicTF-InfoList-DynamicTTI
       dynamic
    semistaticTF-Information
                                       SemistaticTF-Information
CommonTransChTFS-LCR ::=
                                       SEQUENCE {
    tti
                                       CHOICE {
        tti5
                                           CommonDynamicTF-InfoList,
       tti10
                                           CommonDynamicTF-InfoList,
                                           CommonDynamicTF-InfoList,
       tti20
                                           CommonDynamicTF-InfoList,
       tti40
        tti80
                                           CommonDynamicTF-InfoList,
                                           CommonDynamicTF-InfoList-DynamicTTI
       dynamic
    semistaticTF-Information
                                     SemistaticTF-Information
CPCH-SetID ::=
                                   INTEGER (1..maxCPCHsets)
CRC-Size ::=
                                   ENUMERATED {
                                       crc0, crc8, crc12, crc16, crc24 }
DedicatedDynamicTF-Info ::=
                                   SEOUENCE {
    rlc-Size
                                       CHOICE {
       bitMode
                                           BitModeRLC-SizeInfo,
       octetModeType1
                                           OctetModeRLC-SizeInfoType1
    },
```

```
numberOfTbSizeList
                                                                   SEQUENCE (SIZE (1..maxTF)) OF
       NumberOfTransportBlocks,
       logicalChannelList
                                                                   LogicalChannelList
}
DedicatedDynamicTF-Info-DynamicTTI ::= SEQUENCE {
       rlc-Size
               bit.Mode
                                                                                   BitModeRLC-SizeInfo,
               octetModeType1
                                                                                    OctetModeRLC-SizeInfoType1
       },
numberOfTbSizeAndTTIList
NumberOfTbSizeAndTTIList
LogicalChannelList
                                                                          NumberOfTbSizeAndTTIList,
DedicatedDynamicTF-InfoList ::= SEQUENCE (SIZE (1..maxTF)) OF
                                                                           DedicatedDynamicTF-Info
DedicatedDynamicTF-InfoList-DynamicTTI ::= SEQUENCE (SIZE (1..maxTF)) OF
                                                                            DedicatedDynamicTF-Info-DynamicTTI
DedicatedTransChTFS ::=
                                                                    SEQUENCE {
       tti
                                                                            CHOICE {
               tti10
                                                                                    DedicatedDynamicTF-InfoList,
                                                                                    DedicatedDynamicTF-InfoList,
               tti20
                                                                                    DedicatedDynamicTF-InfoList,
               tti40
               tti80
                                                                                    DedicatedDynamicTF-InfoList,
               dynamic
                                                                                    DedicatedDynamicTF-InfoList-DynamicTTI
       semistaticTF-Information
                                                                           SemistaticTF-Information
}
-- The maximum allowed size of DL-AddReconfTransChInfo2List sequence is 16
DL-AddReconfTransChInfo2List ::= SEQUENCE (SIZE (1..maxTrCHpreconf)) OF
                                                                            DL-AddReconfTransChInformation2
  -- The maximum allowed size of DL-AddReconfTransChInfoList sequence is 16
{\tt DL-AddReconfTransChInfoList} \ ::= \ {\tt SEQUENCE} \ ({\tt SIZE} \ ({\tt 1..maxTrCHpreconf})) \ {\tt OF}
                                                                            DL-AddReconfTransChInformation
-- The maximum allowed size of DL-AddReconfTransChInfoList-r4 sequence is 16
{\tt DL-AddReconfTransChInfoList-r4} \ ::= \ {\tt SEQUENCE} \ ({\tt SIZE} \ ({\tt 1..maxTrCHpreconf})) \ {\tt OF} \ {\tt Conformation} \ 
                                                                            DL-AddReconfTransChInformation-r4
-- The maximum allowed size of DL-AddReconfTransChInfoList-r5 sequence is 16
DL-AddReconfTransChInfoList-r5 ::= SEQUENCE (SIZE (1..maxTrCHpreconf)) OF
                                                                            DL-AddReconfTransChInformation-r5
-- ASN.1 for IE "Added or Reconfigured DL TrCH information"
-- in case of messages other than: Radio Bearer Release message and
-- Radio Bearer Reconfiguration message
{\tt DL-AddReconfTransChInformation} ::= {\tt SEQUENCE} \ \big\{
       d1-TransportChannelType DL-TrCH-Type, d1-transportChannelIdentity TransportChannelfs-SignallingMode
                                                                           TransportChannelIdentity,
       tfs-SignallingMode
                                                                           CHOICE {
               explicit-config
                                                                                    TransportFormatSet,
               {\tt sameAsULTrCH}
                                                                                    UL-TransportChannelIdentity
       dch-QualityTarget
                                                                           QualityTarget
                                                                                                                                                 OPTIONAL,
        -- dummy is not used in this version of the specification, it should
        -- not be sent and if received it should be ignored.
                                                                                                                                                 OPTIONAL
       dummy
                                                                            TM-SignallingInfo
{\tt DL-AddReconfTransChInformation-r4} ::= {\tt SEQUENCE} \ \big\{
       dl-TransportChannelType
dl-transportChannelIdentity
tfs-SignallingMode
                                                                            DL-TrCH-Type,
                                                                          TransportChannelIdentity,
                                                                           CHOICE {
               explicit-config
                                                                                    TransportFormatSet,
               {\tt sameAsULTrCH}
                                                                                    UL-TransportChannelIdentity
       dch-QualityTarget
                                                                           QualityTarget
                                                                                                                                                 OPTIONAL
}
DL-AddReconfTransChInformation-r5 ::= SEQUENCE {
       dl-TransportChannelType
                                                                            DL-TrCH-TypeId1-r5,
       tfs-SignallingMode
                                                                           CHOICE {
               explicit-config
                                                                                    TransportFormatSet,
                                                                                    {\tt UL-TransportChannelIdentity},\\
               sameAsULTrCH
```

```
hsdsch
                                            HSDSCH-Info
    dch-QualityTarget
                                        QualityTarget
                                                                             OPTIONAL
}
-- ASN.1 for IE "Added or Reconfigured DL TrCH information"
-- in case of Radio Bearer Release message and
-- Radio Bearer Reconfiguration message
DL-AddReconfTransChInformation2 ::= SEQUENCE {
    dl-TransportChannelType
                                        DL-TrCH-Type,
    transportChannelIdentity
                                        TransportChannelIdentity,
    tfs-SignallingMode
                                        CHOICE {
        explicit-config
                                            TransportFormatSet,
        sameAsULTrCH
                                             UL-TransportChannelIdentity
    qualityTarget
                                        QualityTarget
                                                                             OPTIONAL
}
DL-CommonTransChInfo ::=
                                   SEQUENCE {
                                                                             OPTIONAL,
    sccpch-TFCS
                                        TFCS
    -- modeSpecificInfo should be optional. A new version of this IE should be defined
    -- to be used in later versions of messages using this {\tt IE}
    {\tt modeSpecificInfo}
                                        CHOICE {
                                            SEQUENCE {
       fdd
                                                CHOICE {
            dl-Parameters
                dl-DCH-TFCS
                                                    TFCS,
                {\tt sameAsUL}
                                                     NULL
            }
                                                                             OPTIONAL
        },
        tdd.
                                            SECTIENCE {
            individualDL-CCTrCH-InfoList
                                            IndividualDL-CCTrCH-InfoList
                                                                             OPTIONAL
        }
    }
}
DL-CommonTransChInfo-r4 ::=
                                    SEQUENCE {
    sccpch-TFCS
                                        TFCS
                                                                             OPTIONAL,
    modeSpecificInfo
                                        CHOICE {
        fdd
                                             SEQUENCE {
            dl-Parameters
                                                CHOICE {
                                                    SEQUENCE {
                dl-DCH-TFCS
                    tfcs
                                                        TFCS
                                                                             OPTIONAL
                sameAsUL
                                                     NULL
            }
                                                                             OPTIONAL
        },
        tdd
                                            SEQUENCE {
            individualDL-CCTrCH-InfoList
                                            IndividualDL-CCTrCH-InfoList
                                                                             OPTIONAL
        OPTIONAL
DL-DeletedTransChInfoList ::=
                                    SEQUENCE (SIZE (1..maxTrCH)) OF
                                        DL-TransportChannelIdentity
DL-DeletedTransChInfoList-r5 ::=
                                    SEQUENCE (SIZE (1..maxTrCH)) OF
                                        DL-TransportChannelIdentity-r5
DL-TransportChannelIdentity ::=
                                        SEQUENCE {
    dl-TransportChannelType
                                        DL-TrCH-Type,
    dl-TransportChannelIdentity
                                        TransportChannelIdentity
}
DL-TransportChannelIdentity-r5 ::=
                                        SEQUENCE {
   dl-TransportChannelType
                                        DL-TrCH-TypeId2-r5
DL-TrCH-Type ::=
                                    ENUMERATED {dch, dsch}
-- The choice "dsch" should not be used in FDD mode, and if received the UE behaviour is unspecified
                                    CHOICE {
DL-TrCH-TypeId1-r5 ::=
                                        TransportChannelIdentity,
   dch
    dsch
                                         TransportChannelIdentity,
-- The choice "dsch" should not be used in FDD mode, and if received the UE behaviour is unspecified
                                        NULL
   hsdsch
```

```
CHOICE {
DL-TrCH-TypeId2-r5 ::=
                                       TransportChannelIdentity,
   dch
                                       TransportChannelIdentity,
   dsch
-- The choice "dsch" should not be used in FDD mode, and if received the UE behaviour is unspecified
                                       MAC-d-FlowIdentity
DRAC-ClassIdentity ::=
                                  INTEGER (1..maxDRACclasses)
DRAC-StaticInformation ::=
                                 SEQUENCE {
    transmissionTimeValidity
                                       TransmissionTimeValidity,
    timeDurationBeforeRetry
drac-ClassIdentity
                                       TimeDurationBeforeRetry,
                                      DRAC-ClassIdentity
}
DRAC-StaticInformationList ::= SEQUENCE (SIZE (1..maxTrCH)) OF
                                      DRAC-StaticInformation
E-DCH-MAC-d-FlowPowerOffset OPTIONAL,
                                                                          OPTIONAL,
}
E-DCH-Harq-Info ::=
                                  INTEGER (1..maxHarqRTT)
E-DCH-MAC-d-FlowIdentity ::=
                                  INTEGER (0..maxE-DCHMACdFlow)
E-DCH-MAC-d-FlowMaxRetrans ::=
                                   INTEGER (0)
                                                                           -- FFS
E-DCH-MAC-d-FlowMultiplexingList ::= BIT STRING (SIZE (maxE-DCHMACdFlow-1))
E-DCH-MAC-d-FlowPowerOffset ::=
                                                                           -- FFS
                                  INTEGER (0)
                                   ENUMERATED { tti2, tti10 }
E-DCH-TTI ::=
ExplicitTFCS-Configuration ::=
                                   CHOICE {
    complete
                                       TFCS-ReconfAdd,
    addition
                                       TFCS-ReconfAdd,
                                       TFCS-RemovalList.
   removal
                                       SEQUENCE {
   replacement
        tfcsRemoval
                                           TFCS-RemovalList,
        tfcsAdd
                                           TFCS-ReconfAdd
}
GainFactor ::=
                                  INTEGER (0..15)
GainFactorInformation ::=
                                  CHOICE {
    signalledGainFactors
                                      SignalledGainFactors,
    computedGainFactors
                                       ReferenceTFC-ID
}
HSDSCH-Info ::=
                                   SEQUENCE {
    harqInfo
                                       HARO-Info
                                                               OPTIONAL,
    addOrReconfMAC-dFlow
                                       AddOrReconfMAC-dFlow OPTIONAL
}
HARQ-Info ::=
                                   SEQUENCE {
   memoryPartitioning implicit
                                       INTEGER (1..8),
                                       CHOICE {
                                           NULL.
                                           SEQUENCE (SIZE (1..maxHProcesses)) OF
        explicit
                                               HARQMemorySize
    }
}
HARQMemorySize ::=
                                   ENUMERATED {
                                       hms800, hms1600, hms2400, hms3200, hms4000,
                                       hms4800, hms5600, hms6400, hms7200, hms8000, hms8800, hms9600, hms10400, hms11200, hms12000,
                                       hms17600, hms19200, hms20800, hms22400, hms24000,
                                       hms25600, hms27200, hms28800, hms30400, hms32000,
                                       hms36000, hms40000, hms44000, hms48000, hms52000, hms56000, hms60000, hms64000, hms68000, hms72000,
```

```
hms76000, hms80000, hms88000, hms96000, hms104000,
                                      hms112000, hms120000, hms128000, hms136000, hms144000,
                                      hms152000, hms160000, hms176000, hms192000, hms208000,
                                      hms304000 }
IndividualDL-CCTrCH-Info ::= SEQUENCE {
                                 TFCS-Identity,
   dl-TFCS-Identity
   dl-TFCS-Identity
tfcs-SignallingMode
explicit-config
                                     CHOICE {
       explicit-config
                                          TFCS,
       sameAsUL
                                          TFCS-Identity
}
IndividualDL-CCTrCH-InfoList ::= SEQUENCE (SIZE (1..maxCCTrCH)) OF
                                     IndividualDL-CCTrCH-Info
IndividualUL-CCTrCH-Info ::= SEQUENCE {
   ul-TFCS-Identity
                                      TFCS-Identity,
   ul-TFCS
                                      TFCS ,
                                      TFC-Subset
   tfc-Subset
}
IndividualUL-CCTrCH-InfoList ::= SEQUENCE (SIZE (1..maxCCTrCH)) OF
                                     IndividualUL-CCTrCH-Info
LogicalChannelByRB ::=
                                  SEQUENCE {
                                     RB-Identity,
   rb-Identity
   logChOfRb
                                      INTEGER (0..1)
                                                                       OPTIONAL
}
LogicalChannelList ::=
                                  CHOICE {
                                          NULL,
       allSizes
       configured
                                          NULL.
                                          SEQUENCE (SIZE (1..15)) OF
       explicitList
                                             LogicalChannelByRB
}
{\tt MAC-d-FlowIdentityDCHandHSDSCH} \ ::= \ {\tt SEQUENCE} \ \{
   dch-transport-ch-id TransportChannelIdentity, hsdsch-mac-d-flow-id MAC-d-FlowIdentity
}
                          INTEGER (0..7)
MAC-d-FlowIdentity ::=
MAC-d-PDU-SizeInfo-List ::=
                                SEQUENCE (SIZE(1.. maxMAC-d-PDUsizes)) OF
                                     MAC-d-PDUsizeInfo
--MAC-d-Pdu sizes need to be defined
MAC-d-PDUsizeInfo ::= SEQUENCE{
   mac-d-PDU-Size
                                      INTEGER (1..5000),
   mac-d-PDU-Index
                                      INTEGER(0..7)
}
MAC-hs-AddReconfQueue-List ::=
                                          SEQUENCE (SIZE(1..maxQueueIDs)) OF
                                    MAC-hs-AddReconfQueue
MAC-hs-AddReconfQueue ::=
                                SEQUENCE {
   mac-hsQueueId
                                     INTEGER(0..7),
                                      MAC-d-FlowIdentity,
   mac-dFlowId
   reorderingReleaseTimer
                                     T1-ReleaseTimer,
   mac-hsWindowSize
                                     MAC-hs-WindowSize,
   mac-d-PDU-SizeInfo-List
                                    MAC-d-PDU-SizeInfo-List
                                                                       OPTIONAL
}
MAC-hs-DelQueue-List ::=
                                     SEQUENCE (SIZE(1..maxQueueIDs)) OF
                                      MAC-hs-DelQueue
                                  SEQUENCE {
MAC-hs-DelOueue ::=
   mac-hsQueueId
                                      INTEGER(0..7)
MAC-hs-WindowSize ::=
                                  ENUMERATED {
                                      mws4, mws6, mws8, mws12, mws16, mws24, mws32 }
NumberOfTbSizeAndTTIList ::=
                                  SEQUENCE (SIZE (1..maxTF)) OF SEQUENCE {
       numberOfTransportBlocks
                                         NumberOfTransportBlocks,
       transmissionTimeInterval
                                          TransmissionTimeInterval
```

```
}
MessType ::=
                                                                               ENUMERATED {
                                                                                      transportFormatCombinationControl }
Non-allowedTFC-List ::=
                                                                             SEQUENCE (SIZE (1..maxTFC)) OF
                                                                                       TFC-Value
\label{eq:numberOfTransportBlocks} \mbox{\tt ::=} \qquad \qquad \mbox{\tt CHOICE } \{
        zero
                                                                                       NULL,
                                                                                        NULL,
        one
                                                                                        INTEGER (2..17),
INTEGER (18..512)
         small
         large
}
OctetModeRLC-SizeInfoType1 ::=
                                                                              CHOICE {
         -- Actual size = (8 * sizeType1) + 16
        sizeTypel
                                                                                        INTEGER (0..31),
        sizeType2
                                                                                        SEQUENCE {
                 -- Actual size = (32 * part1) + 272 + (part2 * 8)
                                                                                                INTEGER (0..23),
                 part1
                part2
                                                                                                 INTEGER (1..3)
                                                                                                                                                                     OPTIONAL
         sizeType3
                                                                                        SEQUENCE {
                 -- Actual size = (64 * part1) + 1040 + (part2 * 8)
                 part1
                                                                                               INTEGER (0..61),
                 part2
                                                                                                 INTEGER (1..7)
                                                                                                                                                                        OPTIONAL
}
OctetModeRLC-SizeInfoType2 ::=
                                                                              CHOICE {
       -- Actual size = (sizeType2 * 16) + 312
         sizeType2
                                                                                        INTEGER (0..63),
           -- Actual size = (sizeType3 *64) + 1384
                                                                                       INTEGER (0..56)
        sizeType3
}
PowerOffsetInformation ::= SEQUENCE { gainFactorInformation GainFac
                                                                                 GainFactorInformation,
         -- PowerOffsetPp-m is always absent in TDD
         powerOffsetPp-m
                                                                                       PowerOffsetPp-m
                                                                                                                                                                     OPTIONAL
}
PowerOffsetPp-m ::=
                                                                             INTEGER (-5..10)
PreDefTransChConfiguration ::= SEQUENCE {
   ul-CommonTransChInfo UL-CommonTransChInfo,
   ul-AddReconfTrChInfoList UL-AddReconfTransChInfoList,
   dl-CommonTransChInfo DL-CommonTransChInfo,
   dl-TrChInfoList DL-AddReconfTransChInfo,
                                                                                      DL-CommonTransChInfo,
DL-AddReconfTransChInfoList
        dl-TrChInfoList
}
       District the sequence of the s
QualityTarget ::=
                                                                                    BLER-QualityValue
RateMatchingAttribute ::= INTEGER (1..hiRM)
ReferenceTFC-ID ::=
                                                                             INTEGER (0..3)
       RestrictedTrChInfo ::=
                                                                                      TransportChannelIdentity,
        allowedTFI-List
                                                                                       AllowedTFI-List
                                                                                                                                                                     OPTIONAL
}
RestrictedTrChInfoList ::= SEQUENCE (SIZE (1..maxTrCH)) OF
                                                                                       RestrictedTrChInfo
SemistaticTF-Information ::= SEQUENCE {
        -- TABULAR: Transmission time interval has been included in the IE CommonTransChTFS.
       channelCodingType
rateMatchingAttribute
                                                                                       ChannelCodingType,
                                                                                       RateMatchingAttribute,
        crc-Size
                                                                                       CRC-Size
}
```

```
SignalledGainFactors ::=
                                     SEQUENCE {
   modeSpecificInfo
                                         CHOICE {
        fdd
                                           SEOUENCE {
            gainFactorBetaC
                                                  GainFactor
        tdd
                                              NULL
    gainFactorBetaD
                                         GainFactor,
    referenceTFC-ID
                                         ReferenceTFC-ID
                                                                               OPTIONAL
}
SplitTFCI-Signalling ::= SEQUENCE {
    splitType
                                       SplitType
                                                                          OPTIONAL,
                                         INTEGER (1..10) OPTIONAL,
ExplicitTFCS-Configuration OPTIONAL,
TFCI-Field2-Information OPTIONAL
    tfci-Field2-Length
   tfci-Field2-Length
tfci-Field1-Information
tfci-Field2-Information
SplitType ::=
                                     ENUMERATED {
                                         hardSplit, logicalSplit }
T1-ReleaseTimer ::=
                                     ENUMERATED {
                                         rt10, rt20, rt30, rt40, rt50,
                                          rt60, rt70, rt80, rt90, rt100,
                                          rt120, rt140, rt160, rt200, rt300,
                                         rt400 }
TFC-Subset ::=
                                     CHOICE {
   minimumAllowedTFC-Number
                                     TFC-Value,
    allowedTFC-List
                                         AllowedTFC-List,
   non-allowedTFC-List
                                        Non-allowedTFC-List,
   restrictedTrChInfoList
                                         RestrictedTrChInfoList,
    fullTFCS
                                         NULL
}
                                    INTEGER (0..7)
TFC-Subset-ID-With3b ::=
TFC-Subset-ID-With5b ::=
                                    INTEGER (0..31)
TFC-Subset-ID-With10b ::=
                                     INTEGER (0..1023)
TFC-SubsetList ::=
                                     SEQUENCE (SIZE (1.. maxTFCsub)) OF SEQUENCE {
    modeSpecificInfo
                                         CHOICE {
       fdd
                                            NULL,
        tdd
                                              SEQUENCE {
            tfcs-ID
                                                  TFCS-Identity
                                                                              OPTIONAL
        }
    tfc-Subset
                                         TFC-Subset
}
TFC-Value ::=
                                     INTEGER (0..1023)
TFCI-Field2-Information ::=
                                     CHOICE {
                                         TFCI-RangeList,
    tfci-Range
    explicit-config
                                          ExplicitTFCS-Configuration
}
   maxTFCIField2Value
tfcs-InfoForDSCH
                                    SEQUENCE {
TFCT-Range ::=
                                         INTEGER (1..1023),
                                          TFCS-InfoForDSCH
}
                                     SEQUENCE (SIZE (1..maxPDSCH-TFCIgroups)) OF
TFCI-RangeList ::=
                                         TFCI-Range
TFCS ::=
                                     CHOICE {
  normalTFCI-Signalling ExplicitTFCS-Configuration, dummy is not used in this version of specification, it should
-- not be sent and if received it should be ignored.
    splitTFCI Signallingdummy
                                              SplitTFCI-Signalling
}
TFCS-Identity ::=
                                    SEQUENCE {
                                       TFCS-IdentityPlain
    tfcs-ID
                                                                              DEFAULT 1,
    sharedChannelIndicator
                                         BOOLEAN
```

```
TFCS-IdentityPlain ::=
                                  INTEGER (1..8)
TFCS-InfoForDSCH ::=
                                  CHOICE {
   ctfc2bit
                                      INTEGER (0..3),
   ctfc4bit
                                       INTEGER (0..15),
   ctfc6bit
                                       INTEGER (0..63),
                                      INTEGER (0..255),
   ct.fc8bit
   ctfc12bit
                                      INTEGER (0..4095),
   ctfc16bit
                                       INTEGER (0..65535)
                                      INTEGER (0..16777215)
   ctfc24bit
}
TFCS-ReconfAdd ::=
                                  SEQUENCE {
   ctfcSize
                                    CHOICE {
       ctfc2Bit
                                        SEQUENCE (SIZE (1..maxTFC)) OF SEQUENCE {
           ctfc2
                                              INTEGER (0..3),
                                              PowerOffsetInformation
           powerOffsetInformation
                                                                             OPTIONAL
       ctfc4Bit
                                          SEQUENCE (SIZE (1..maxTFC)) OF SEQUENCE {
                                              INTEGER (0..15),
           ctfc4
           powerOffsetInformation
                                              PowerOffsetInformation
                                                                             OPTIONAL
                                          SEQUENCE (SIZE (1..maxTFC)) OF SEQUENCE {
                                              INTEGER (0..63),
           ctfc6
           powerOffsetInformation
                                              PowerOffsetInformation
                                                                             OPTIONAL
       ctfc8Bit
                                          SEQUENCE (SIZE (1..maxTFC)) OF SEQUENCE {
                                              INTEGER (0..255),
           ctfc8
                                              PowerOffsetInformation
           powerOffsetInformation
                                                                             OPTIONAL
                                           SEQUENCE (SIZE(1..maxTFC)) OF SEQUENCE {
           ctfc12
                                              INTEGER (0..4095),
           powerOffsetInformation
                                              PowerOffsetInformation
       ctfc16Bit
                                           SEQUENCE (SIZE (1..maxTFC)) OF SEQUENCE {
                                           INTEGER(0..65535),
          ctfc16
                                              PowerOffsetInformation
           powerOffsetInformation
                                                                            OPTIONAL
       ctfc24Bit
                                         SEQUENCE (SIZE (1..maxTFC)) OF SEQUENCE {
           ctfc24
                                              INTEGER(0..16777215),
                                             PowerOffsetInformation
           powerOffsetInformation
                                                                             OPTIONAL
   }
}
TFCS-Removal ::=
                                   SEOUENCE {
   tfci
                                     INTEGER (0..1023)
                                  SEQUENCE (SIZE (1..maxTFC)) OF
TFCS-RemovalList ::=
                                      TFCS-Removal
TimeDurationBeforeRetry ::=
                                  INTEGER (1..256)
TM-SignallingInfo ::=
                                   SEQUENCE {
   messType
                                      MessType,
   tm-SignallingMode
                                       CHOICE {
       mode1
                                          NULL,
                                          SEOUENCE {
       mode 2
           -- in ul-controlledTrChList, TrCH-Type is always DCH
           ul-controlledTrChList
                                              UL-ControlledTrChList
   }
}
TransmissionTimeInterval ::=
                                  ENUMERATED {
                                    tti10, tti20, tti40, tti80 }
TransmissionTimeValidity ::=
                               INTEGER (1..256)
TransportChannelIdentity ::=
                                  INTEGER (1..32)
TransportChannelIdentityDCHandDSCH ::= SEQUENCE {
   dch-transport-ch-id TransportChannelIdentity,
dsch-transport-ch-id TransportChannelIdentity
}
```

```
CHOICE {
TransportFormatSet ::=
   dedicatedTransChTFS
                                    DedicatedTransChTFS,
   commonTransChTFS
                                      CommonTransChTFS
TransportFormatSet-LCR ::=
                                      CHOICE {
                                      DedicatedTransChTFS,
   dedicatedTransChTFS
   commonTransChTFS-LCR
                                       CommonTransChTFS-LCR
-- The maximum allowed size of UL-AddReconfTransChInfoList sequence is 16
UL-AddReconfTransChInfoList ::= SEQUENCE (SIZE (1..maxTrCHpreconf)) OF
                                      UL-AddReconfTransChInformation
-- The maximum allowed size of UL-AddReconfTransChInfoList-r6 sequence is 32
UL-AddReconfTransChInfoList-r6 ::= SEQUENCE (SIZE (1..maxTrCH)) OF
                                       UL-AddReconfTransChInformation-r6
UL-AddReconfTransChInformation ::= SEQUENCE {
                              UL-TrCH-Type,
   ul-TransportChannelType
   transportChannelIdentity
                                      TransportChannelIdentity,
   transportFormatSet
                                      TransportFormatSet
}
UL-AddReconfTransChInformation-r6 ::= CHOICE {
   dch-usch
                               SEQUENCE {
                                       UL-TrCH-Type,
       ul-TransportChannelType
       transportChannelIdentity
                                           TransportChannelIdentity,
       transportFormatSet
                                          TransportFormatSet
   e-dch
                                       SEQUENCE {
                                          E-DCH-TTI,
       tti
       harg-Info
                                          E-DCH-Harg-Info,
       addReconf-MAC-d-Flow
                                          E-DCH-AddReconf-MAC-d-Flow
}
UL-CommonTransChInfo ::=
                                  SEQUENCE {
   -- TABULAR: tfc-subset is applicable to FDD only, TDD specifies tfc-subset in individual
    -- CCTrCH Info.
                                       TFC-Subset
   t.fc-Subset
                                                                          OPTIONAL.
   prach-TFCS
                                                                          OPTIONAL,
                                       TFCS
   {\tt modeSpecificInfo}
                                       CHOICE {
                                           SEQUENCE {
           ul-TFCS
                                           TFCS
       },
       tdd
                                           SEQUENCE {
           individualUL-CCTrCH-InfoList
                                              IndividualUL-CCTrCH-InfoList
                                                                          OPTIONAL
       }
   }
                                                                          OPTIONAL
UL-CommonTransChInfo-r4 ::=
                                  SEQUENCE {
   -- TABULAR: tfc-subset is applicable to FDD only, TDD specifies tfc-subset in individual
   -- CCTrCH Info.
   tfc-Subset
                                       TFC-Subset
                                                                          OPTIONAL,
   prach-TFCS
                                       TECS
                                                                          OPTIONAL.
   modeSpecificInfo
                                       CHOICE {
       fdd
                                           SEQUENCE {
           ul-TFCS
                                              TFCS
       },
                                           SEQUENCE {
       t.dd
           individualUL-CCTrCH-InfoList
                                              IndividualUL-CCTrCH-InfoList
                                                                                  OPTIONAL
                                                                          OPTIONAL,
                                      TFC-SubsetList
                                                                          OPTIONAL
   tfc-SubsetList
}
-- In UL-ControlledTrChList, TrCH-Type is always DCH
                             SEQUENCE (SIZE (1..maxTrCH)) OF
UL-ControlledTrChList ::=
                                       TransportChannelIdentity
UL-DeletedTransChInfoList ::= SEQUENCE (SIZE (1..maxTrCH)) OF
                                       UL-TransportChannelIdentity
```

```
UL-DeletedTransChInfoList-r6 ::=
                                SEQUENCE (SIZE (1..maxTrCH)) OF
                                     UL-TransportChannelIdentity-r6
UL-TransportChannelIdentity ::= SEQUENCE {
   ul-TransportChannelType
                                     UL-TrCH-Type,
   ul-TransportChannelIdentity
                                     TransportChannelIdentity
}
{\tt UL-TransportChannelIdentity-r6} ::= {\tt CHOICE} \ \{
     ul-TransportChannelType SEQUENCE {
   dch-usch
                                     UL-TrCH-Type,
       ul-TransportChannelIdentity
                                         TransportChannelIdentity
   e-dch
                                     E-DCH-MAC-d-FlowIdentity
}
                                 ENUMERATED {dch, usch}
UL-TrCH-Type ::=
USCH-TransportChannelsInfo ::= SEQUENCE (SIZE (1..maxTrCH)) OF
                                     SEQUENCE {
   usch-TransportChannelIdentity
                                      TransportChannelIdentity,
   usch-TFS
                                         TransportFormatSet
}
PHYSICAL CHANNEL INFORMATION ELEMENTS (10.3.6)
__ ***************
                                 INTEGER(1..4)
ACK-NACK-repetitionFactor ::=
AC-To-ASC-Mapping ::=
                                 INTEGER (0..7)
AC-To-ASC-MappingTable ::= SEQUENCE (SIZE (maxASCmap)) OF
                                     AC-To-ASC-Mapping
AccessServiceClass-FDD ::=
                                 SEQUENCE {
   availableSignatureStartIndex INTEGER (0..15), availableSignatureEndIndex INTEGER (0..15),
   assignedSubChannelNumber
                                     BIT STRING {
                                         b3(0),
                                         b2(1),
                                         b1(2),
                                         b0(3)
                                              (SIZE(4))
}
AccessServiceClass-TDD ::=
   essServiceClass-TDD ::=
channelisationCodeIndices
                                  SEQUENCE {
                                  BIT STRING {
                                         chCodeIndex7(0),
                                          chCodeIndex6(1),
                                          chCodeIndex5(2),
                                          chCodeIndex4(3),
                                          chCodeIndex3(4),
                                          chCodeIndex2(5),
                                          chCodeIndex1(6),
                                          chCodeIndex0(7)
                                          } (SIZE(8))
                                                                OPTIONAL,
                                      CHOICE {
   subchannelSize
       size1
                                         NULL,
                                          SEQUENCE {
       size2
           -- subch0 means bitstring '01' in the tabular, subch1 means bitsring '10'
                                             ENUMERATED { subch0, subch1 } OPTIONAL
           subchannels
       },
       size4
                                          SEQUENCE {
           subchannels
                                             BIT STRING {
                                                subCh3(0),
                                                 subCh2(1),
                                                 subCh1(2),
                                                 subCh0(3)
                                                 } (SIZE(4))
                                                               OPTIONAL
       },
                                          SEQUENCE {
       size8
           subchannels
                                             BIT STRING {
                                                subCh7(0),
                                                 subCh6(1),
                                                 subCh5(2),
```

```
subCh4(3),
                                                       subCh3(4),
                                                       subCh2(5),
                                                       subCh1(6),
                                                       subCh0(7)
                                                       } (SIZE(8))
                                                                       OPTIONAL
        }
}
AccessServiceClass-TDD-LCR-r4 ::= SEQUENCE {
    availableSYNC-UlCodesIndics
                                          BIT STRING {
                                              sulCodeIndex7(0),
                                              sulCodeIndex6(1),
                                              sulCodeIndex5(2),
                                              sulCodeIndex4(3),
                                              sulCodeIndex3(4),
                                              sulCodeIndex2(5),
                                              sulCodeIndex1(6),
                                              sulCodeIndex0(7)
                                              } (SIZE(8))
                                                                          OPTIONAL,
                                          CHOICE {
    subchannelSize
        size1
                                              NULL
                                              SEQUENCE {
        size2
             -- subch0 means bitstring '01' in the tabular, subch1 means bitsring '10'. subchannels ENUMERATED { subch0, subch1 } OPTIONAL
            subchannels
        size4
                                              SEQUENCE {
                                                  BIT STRING {
            subchannels
                                                       subCh3(0),
                                                       subCh2(1),
                                                       subCh1(2),
                                                       subCh0(3)
                                                                           OPTIONAL
                                                       } (SIZE(4))
        size8
                                              SEQUENCE {
            subchannels
                                                  BIT STRING {
                                                      subCh7(0),
                                                       subCh6(1),
                                                       subCh5(2),
                                                       subCh4(3),
                                                       subCh3(4),
                                                       subCh2(5),
                                                       subCh1(6),
                                                       subCh0(7)
                                                       } (SIZE(8))
                                                                            OPTIONAL
        }
    }
}
AICH-Info ::=
                                      SEQUENCE {
   channelisationCode256
                                      ChannelisationCode256,
    sttd-Indicator
                                          BOOLEAN,
    aich-TransmissionTiming
                                         AICH-TransmissionTiming
AICH-PowerOffset ::=
                                      INTEGER (-22..5)
AICH-TransmissionTiming ::=
                                      ENUMERATED {
                                          e0, e1 }
                                      SEQUENCE {
AllocationPeriodInfo ::=
                                          INTEGER (0..255),
INTEGER (1..256)
    allocationActivationTime
    allocationDuration
-- Actual value Alpha = IE value * 0.125
Alpha ::=
                                      INTEGER (0..8)
AP-AICH-ChannelisationCode ::=
                                     INTEGER (0..255)
AP-PreambleScramblingCode ::=
                                     INTEGER (0..79)
AP-Signature ::=
                                      INTEGER (0..15)
AP-Signature-VCAM ::=
                                      SEQUENCE {
    ap-Signature
                                          AP-Signature,
```

```
availableAP-SubchannelList
                                       AvailableAP-SubchannelList OPTIONAL
}
AP-Subchannel ::=
                                    INTEGER (0..11)
ASCSetting-FDD ::=
                                        SEQUENCE {
    -- TABULAR: accessServiceClass-FDD is MD in tabular description
    -- Default value is previous ASC
    -- If this is the first ASC, the default value is all available signature and sub-channels
    accessServiceClass-FDD
                                            AccessServiceClass-FDD OPTIONAL
}
ASCSetting-TDD ::=
                                        SEQUENCE {
    -- TABULAR: accessServiceClass-TDD is MD in tabular description
    -- Default value is previous ASC
    -- If this is the first ASC, the default value is all available channelisation codes and
    -- all available sub-channels with subchannelSize=size1.
    accessServiceClass-TDD
                                            AccessServiceClass-TDD OPTIONAL
}
ASCSetting-TDD-LCR-r4 ::=
                                                SEQUENCE {
    -- TABULAR: accessServiceClass-TDD-LCR is MD in tabular description
    -- Default value is previous ASC
    -- If this is the first ASC, the default value is all available SYNC_UL codes and
    -- all available sub-channels with subchannelSize=size1.
                                                AccessServiceClass-TDD-LCR-r4 OPTIONAL
    accessServiceClass-TDD-LCR
AvailableAP-Signature-VCAMList ::= SEQUENCE (SIZE (1..maxPCPCH-APsig)) OF
                                        AP-Signature-VCAM
AvailableAP-SignatureList ::=
                                  SEQUENCE (SIZE (1..maxPCPCH-APsig)) OF
                                        AP-Signature
AvailableAP-SubchannelList ::=
                                  SEQUENCE (SIZE (1..maxPCPCH-APsubCh)) OF
                                        AP-Subchannel
AvailableMinimumSF-ListVCAM ::= SEQUENCE (SIZE (1..maxPCPCH-SF)) OF
                                        AvailableMinimumSF-VCAM
AvailableMinimumSF-VCAM ::= SEQUENCE { minimumSpreadingFactor Minimum
                                    MinimumSpreadingFactor,
    nf-Max
                                        NF-Max,
   nf-Max, MF-Max, maxAvailablePCPCH-Number MaxAvailablePCPCH-Number, availableAP-Signature-VCAMList
}
AvailableSignatures ::=
                               BIT STRING {
                                    signature15(0),
                                    signature14(1),
                                    signature13(2),
                                    signature12(3),
                                    signature11(4),
                                    signature10(5),
                                    signature9(6),
                                    signature8(7),
                                    signature7(8),
                                    signature6(9),
                                    signature5(10),
                                    signature4(11),
                                    signature3(12),
                                    signature2(13),
                                    signature1(14),
                                    signature0(15)
                                     }
                                         (SIZE(16))
AvailableSubChannelNumbers ::=
                                    BIT STRING {
                                        subCh11(0),
                                         subCh10(1),
                                        subCh9(2),
                                        subCh8(3),
                                        subCh7(4),
                                        subCh6(5),
                                        subCh5(6),
                                        subCh4(7),
                                        subCh3(8),
                                         subCh2(9)
                                         subCh1(10),
```

```
subCh0(11)
                                      } (SIZE(12))
BEACON-PL-Est ::=
                                  ENUMERATED { true }
                                  ENUMERATED {
BurstType ::=
                                      type1, type2 }
-- Actual value Bler-Target = IE value * 0.05
Bler-Target ::=
                                 INTEGER (-63..0)
CCTrCH-PowerControlInfo ::= SEQUENCE {
                                     TFCS-Identity
   ul-DPCH-PowerControlInfo
                                                                        OPTIONAL.
                                     UL-DPCH-PowerControlInfo
}
CCTrCH-PowerControlInfo-r4 ::= SEQUENCE {
   tfcs-Identity TFCS-Identity ul-DPCH-PowerControlInfo UL-DPCH-PowerControlInfo-r4
                                                                        OPTIONAL,
}
CCTrCH-PowerControlInfo-r5 ::= SEQUENCE {
                                 TFCS-Identity
   tfcs-Identity
                                                                        OPTIONAL,
   ul-DPCH-PowerControlInfo
                                     UL-DPCH-PowerControlInfo-r5
}
CD-AccessSlotSubchannel ::= INTEGER (0..11)
CD-AccessSlotSubchannelList ::= SEQUENCE (SIZE (1..maxPCPCH-CDsubCh)) OF
                                      CD-AccessSlotSubchannel
CD-CA-ICH-ChannelisationCode ::= INTEGER (0..255)
                                 INTEGER (0..79)
CD-PreambleScramblingCode ::=
CD-SignatureCode ::=
                                  INTEGER (0..15)
CD-SignatureCodeList ::= SEQUENCE (SIZE (1..maxPCPCH-CDsig)) OF
                                      CD-SignatureCode
CellAndChannelIdentity ::=
                                 SEQUENCE {
    -- burstType may be set to either value and should be ignored by the receiver for 1.28 Mcps TDD.
   burstType
                                     BurstType,
   midambleShift
                                      MidambleShiftLong,
   timeslot
                                     TimeslotNumber,
    cellParametersID
                                      CellParametersID
                         INTEGER (0..127)
CellParametersID ::=
Cfntargetsfnframeoffset ::=
                                     INTEGER(0..255)
                               CHOICE {
ChannelAssignmentActive ::=
   notActive
                                      AvailableMinimumSF-ListVCAM
    isActive
}
ChannelisationCode256 ::=
                                 INTEGER (0..255)
ChannelReqParamsForUCSM ::=
availableAP-SignatureList
                                  SEQUENCE {
                                  AvailableAP-SignatureList,
   availableAP-SubchannelList
                                     AvailableAP-SubchannelList
                                                                       OPTIONAL
}
ClosedLoopTimingAdjMode ::=
                                  ENUMERATED {
                                      slot1, slot2 }
CodeNumberDSCH ::=
                                  INTEGER (0..255)
CodeRange ::=
                                  SEQUENCE {
   pdsch-CodeMapList
                                     PDSCH-CodeMapList
CodeWordSet ::=
                                  ENUMERATED {
                                      longCWS,
                                      mediumCWS,
                                      shortCWS.
                                      ssdtOff }
```

```
CommonTimeslotInfo ::=
                                       SEQUENCE {
   -- TABULAR: secondInterleavingMode is MD, but since it can be encoded in a single
    -- bit it is not defined as OPTIONAL.
    OPTIONAL,
    puncturingLimit
                                           PuncturingLimit,
    puncturingLimit PuncturingLimit,
repetitionPeriodAndLength RepetitionPeriodAndLength OPTIONAL
}
                                      SEQUENCE {
CommonTimeslotInfoSCCPCH ::=
    -- TABULAR: secondInterleavingMode is MD, but since it can be encoded in a single
    -- bit it is not defined as OPTIONAL.
    secondInterleavingMode
tfci-Coding
                                           SecondInterleavingMode,
                                           TFCI-Coding
                                                                                  OPTIONAL,
                                          PuncturingLimit,
    puncturingLimit
    repetitionPeriodLengthAndOffset RepetitionPeriodLengthAndOffset OPTIONAL
}
ConstantValue ::=
                                      INTEGER (-35..-10)
ConstantValueTdd ::=
                                      INTEGER (-35..10)
CPCH-PersistenceLevels ::= SEQUENCE {
    cpch-SetID
                                           CPCH-SetID.
    dynamicPersistenceLevelTF-List
                                           DynamicPersistenceLevelTF-List
CPCH-PersistenceLevelsList ::= SEQUENCE (SIZE (1..maxCPCHsets)) OF
                                           CPCH-PersistenceLevels
CPCH-SetInfo ::=
                                       SEQUENCE {
                                         CPCH-SetID,
    cpch-SetID
    transportFormatSet
                                           TransportFormatSet,
    tfcs
                                           TFCS,
   ap-PreambleScramblingCode ap-AICH-ChannelisationCode, cd-PreambleScramblingCode, cd-CA-ICH-ChannelisationCode CD-CA-ICH-ChannelisationCode, cd-AccessSlotSubchannelList Cd-SignatureCodeList CD-SignatureCodeList
                                                                                 OPTIONAL,
    cd-SignatureCodeList
                                           CD-SignatureCodeList
                                                                                   OPTIONAL,
    deltaPp-m
                                           DeltaPp-m,
    ul-DPCCH-SlotFormat
                                           UL-DPCCH-SlotFormat,
    n-StartMessage
                                           N-StartMessage,
                                          N-EOT,
    -- TABULAR: VCAM info has been nested inside ChannelAssignmentActive,
    \mbox{--} which in turn is mandatory since it's only a binary choice.
   channelAssignmentActive ChannelAssignmentActive, cpch-StatusIndicationMode CPCH-StatusIndicationMode, pcpch-ChannelInfoList PCPCH-ChannelInfoList
}
CPCH-SetInfoList ::=
                                      SEQUENCE (SIZE (1..maxCPCHsets)) OF
                                           CPCH-SetInfo
                                       ENUMERATED {
CPCH-StatusIndicationMode ::=
                                           pa-mode,
                                           pamsf-mode }
COI-RepetitionFactor ::=
                                      INTEGER (1..4)
CSICH-PowerOffset ::=
                                       INTEGER (-10..5)
-- DefaultDPCH-OffsetValueFDD and DefaultDPCH-OffsetValueTDD corresponds to -- IE "Default DPCH Offset Value" depending on the mode.
-- Actual value DefaultDPCH-OffsetValueFDD = IE value * 512
DefaultDPCH-OffsetValueFDD ::=
                                      INTEGER (0..599)
DefaultDPCH-OffsetValueTDD ::=
                                      INTEGER (0..7)
DeltaPp-m ::=
                                       INTEGER (-10..10)
                                       INTEGER (0..8)
DeltaCOI ::=
DeltaNACK ::=
                                       INTEGER (0..8)
DeltaACK ::=
                                       INTEGER (0..8)
```

```
-- Actual value DeltaSIR = IE value * 0.1
                                    INTEGER (0..30)
DeltaSIR ::=
                                    SEQUENCE {
DL-CCTrCh ::=
    tfcs-ID
                                       TFCS-IdentityPlain
                                                                            DEFAULT 1,
                                        TimeInfo,
    timeInfo
    commonTimeslotInfo
                                       CommonTimeslotInfo
                                                                           OPTIONAL,
   dl-CCTrCH-TimeslotsCodes
                                       DownlinkTimeslotsCodes
                                                                           OPTIONAL.
    ul-CCTrChTPCList
                                       UL-CCTrChTPCList
                                                                            OPTIONAL
                                   SEQUENCE {
   TFCS-IdentityPlain
DL-CCTrCh-r4 ::=
    tfcs-ID
                                                                           DEFAULT 1.
    timeInfo
                                        TimeInfo,
    commonTimeslotInfo
                                        CommonTimeslotInfo
                                                                            OPTIONAL,
    tddOption
                                        CHOICE {
        tdd384
                                            SEQUENCE {
           dl-CCTrCH-TimeslotsCodes
                                               DownlinkTimeslotsCodes OPTIONAL
        tdd128
                                           SEQUENCE {
                                               DownlinkTimeslotsCodes-LCR-r4 OPTIONAL
           {\tt dl-CCTrCH-TimeslotsCodes}
    ul-CCTrChTPCList
                                       UL-CCTrChTPCList
                                                               OPTIONAL
DL-CCTrChList ::=
                                    SEQUENCE (SIZE (1..maxCCTrCH)) OF
                                       DL-CCTrCh
DL-CCTrChList-r4 ::=
                                    SEQUENCE (SIZE (1..maxCCTrCH)) OF
                                       DL-CCTrCh-r4
DL-CCTrChListToRemove ::=
                                    SEQUENCE (SIZE (1..maxCCTrCH)) OF
                                       TFCS-IdentityPlain
DL-CCTrChTPCList ::=
                                    SEQUENCE (SIZE (0..maxCCTrCH)) OF
                                           TFCS-Identity
DL-ChannelisationCode ::=
                                    SEQUENCE {
   secondaryScramblingCode
                                       SecondaryScramblingCode
                                                                           OPTIONAL,
                                        SF512-AndCodeNumber,
    sf-AndCodeNumber
    scramblingCodeChange
                                       ScramblingCodeChange
                                                                            OPTIONAL
DL-ChannelisationCodeList ::=
                                    SEQUENCE (SIZE (1..maxDPCH-DLchan)) OF
                                       DL-ChannelisationCode
                                    SEQUENCE {
DL-CommonInformation ::=
                                        DL-DPCH-InfoCommon
    dl-DPCH-InfoCommon
                                                                  OPTIONAL,
    {\tt modeSpecificInfo}
                                        CHOICE {
        fdd
                                            SEQUENCE {
           defaultDPCH-OffsetValue
                                               DefaultDPCH-OffsetValueFDD OPTIONAL,
           dpch-CompressedModeInfo
                                               DPCH-CompressedModeInfo OPTIONAL,
            tx-DiversityMode
                                               TX-DiversityMode
                                                                           OPTIONAL.
           ssdt-Information
                                               SSDT-Information
                                                                           OPTIONAL
        tdd
                                           SEQUENCE {
           defaultDPCH-OffsetValue
                                               DefaultDPCH-OffsetValueTDD OPTIONAL
}
DL-CommonInformation-r4 ::=
                                    SEOUENCE {
    dl-DPCH-InfoCommon
                                        DL-DPCH-InfoCommon-r4
                                                                   OPTIONAL,
    modeSpecificInfo
                                        CHOICE {
                                           SEQUENCE {
           defaultDPCH-OffsetValue
                                               DefaultDPCH-OffsetValueFDD OPTIONAL,
                                               DPCH-CompressedModeInfo
            dpch-CompressedModeInfo
                                                                           OPTIONAL,
            tx-DiversityMode
                                               TX-DiversityMode
                                                                    OPTIONAL
            ssdt-Information
                                               SSDT-Information-r4
        F44
                                            SEOUENCE {
            tddOption
                                               CHOICE {
                tdd384
                                                  NULL,
                tdd128
                                                    SEQUENCE {
                    tstd-Indicator
                                                        BOOLEAN
            },
```

```
DefaultDPCH-OffsetValueTDD OPTIONAL
              defaultDPCH-OffsetValue
         }
     }
}
DL-CommonInformation-r5 ::=
                                         SEQUENCE {
    dl-DPCH-InfoCommon
                                     DL-DPCH-InfoCommon-r4 OPTIONAL,
     modeSpecificInfo
                                               CHOICE {
         fdd
                                               SEQUENCE {
              defaultDPCH-OffsetValue DefaultDPCH-OffsetValueFDD OPTIONAL, dpch-CompressedModeInfo DPCH-CompressedModeInfo OPTIONAL, tx-DiversityMode TX-DiversityMode OPTIONAL, ssdt-Information SSDT-Information-r4 OPTIONAL
          },
         t.dd
                                                   SEQUENCE {
              tddOption
                                                         CHOICE {
                   tdd384
                                                              NULL,
                   tdd128
                                                              SEQUENCE {
                                                                   BOOLEAN
                        tstd-Indicator
              defaultDPCH-OffsetValue DefaultDPCH-OffsetValueTDD OPTIONAL
     mac-hsResetIndicator
                                              ENUMERATED { true }
}
DL-CommonInformation-r6 ::= SEQUENCE {
    dl-dpchInfoCommon CHOICE
    dl-DPCH-InfoCommon DL-
    dl-FDPCH-InfoCommon DL-
                                       CHOICE {

DL-D

DL-F:
                                               DL-DPCH-InfoCommon-r4,
DL-FDPCH-InfoCommon-r6
                                                                                          OPTIONAL,
              cificInfo

CHOICE {
SEQUENCE {
defaultDPCH-OffsetValue dpch-CompressedModeInfo DPCH-Cotx-DiversityMode TX-DiversityMode SSDT-II
     modeSpecificInfo
         fdd
                                                   DefaultDPCH-OffsetValueFDD OPTIONAL,
                                                        DPCH-CompressedModeInfo OPTIONAL, TX-DiversityMode OPTIONAL, SSDT-Information-r4 OPTIONAL
                                                        TX-DiversityMode
         },
         tdd
                                                    SEQUENCE {
              tddOption
                                                     CHOICE {
                  tdd384
                                                             NULL,
                   tdd128
                                                              SEQUENCE {
                        tstd-Indicator
                                                                   BOOLEAN
              defaultDPCH-OffsetValue
                                                       DefaultDPCH-OffsetValueTDD OPTIONAL
    {\tt mac-hsResetIndicator}
                                             ENUMERATED { true } OPTIONAL
}
DL-CommonInformationPost ::=
                                       SEQUENCE {
    dl-DPCH-InfoCommon
                                               DL-DPCH-InfoCommonPost
}
DL-CommonInformationPredef ::= SEQUENCE {
     dl-DPCH-InfoCommon
                                             DL-DPCH-InfoCommonPredef OPTIONAL
DL-CompressedModeMethod ::=
                                           ENUMERATED {
                                                puncturing, sf-2,
                                                higherLayerScheduling }
DL-DPCH-InfoCommon ::=
                                           SEQUENCE {
     cfnHandling
                                               CHOICE {
         maintain
                                                NULL,
                                                    SEQUENCE {
         initialise
                                                         Cfntargetsfnframeoffset OPTIONAL
              cfntargetsfnframeoffset
         }
     modeSpecificInfo
                                               CHOICE {
              SEQUENCE {

dl-DPCH-PowerControlInfo DL-DPCH-PowerControlInfo OPTIONAL,
powerOffsetPilot-pdpdch PowerOffsetPilot-pdpdch,
dl-rate-matching-restriction Dl-rate-matching-restriction OPTIONAL,
         fdd
               -- TABULAR: The number of pilot bits is nested inside the spreading factor.
```

```
spreadingFactorAndPilot positionFixedOrFlexible
                                                 SF512-AndPilot,
                                                   PositionFixedOrFlexible,
            tfci-Existence
                                                   BOOLEAN
        },
        tdd
                                               SEQUENCE {
            dl-DPCH-PowerControlInfo
                                                  DL-DPCH-PowerControlInfo
                                                                                        OPTIONAL
    }
}
DL-DPCH-InfoCommon-r4 ::=
                                    SEQUENCE {
                                           CHOICE {
    cfnHandling
        maintain
                                               NULL,
        initialise
                                               SEQUENCE {
            cfntargetsfnframeoffset
                                                   Cfntargetsfnframeoffset
                                                                                          OPTIONAL
    modeSpecificInfo
                                          CHOICE {
            SEQUENCE {

dl-DPCH-PowerControlInfo DL-DPCH-PowerControlInfo OPTIONAL,
powerOffsetPilot-pdpdch PowerOffsetPilot-pdpdch,
dl-rate-matching-restriction Dl-rate-matching-restriction OPTIONAL,
        fdd
             -- TABULAR: The number of pilot bits is nested inside the spreading factor.
            spreadingFactorAndPilot SF512-AndPilot, positionFixedOrFlexible PositionFixedOrFlexible tfci-Existence BOOLEAN
                                                   PositionFixedOrFlexible,
                                             SEQUENCE {
        tdd
            dl-DPCH-PowerControlInfo
                                                  DL-DPCH-PowerControlInfo
        }
-- The IE mac-d-HFN-initial-value should be absent in the RRCConnectionSetup-r4-IEs or
-- RRCConnectionSetup-r5-IEs or HandoverToUTRANCommand-r4-IEs or HandoverToUTRANCommand-r5-IEs and
\mbox{--} if the IE is included, the general error handling for conditional IEs applies.
    mac-d-HFN-initial-value
                                          MAC-d-HFN-initial-value
}
DL-DPCH-InfoCommonPost ::=
                                      SEQUENCE {
    dl-DPCH-PowerControlInfo
                                        DL-DPCH-PowerControlInfo
                                                                                    OPTIONAL
DL-DPCH-InfoCommonPredef ::= SEQUENCE { modeSpecificInfo CHOICE
                                     CHOICÈ {
                                           SEQUENCE {
             -- TABULAR: The number of pilot bits is nested inside the spreading factor.
            spreadingFactorAndPilot SF512-AndPilot, positionFixedOrFlexible PositionFixedOr
                                                  PositionFixedOrFlexible, BOOLEAN
            tfci-Existence
        },
        t.dd
                                             SEQUENCE {
            commonTimeslotInfo
                                                CommonTimeslotInfo
    }
}
DL-DPCH-InfoPerRL ::=
                                      CHOICE {
                                       SEQUENCE {
                                          PCPICH-UsageForChannelEst,
DPCH-FrameOffset,
        pCPICH-UsageForChannelEst
        dpch-FrameOffset
                                              SecondaryCPICH-Info
        secondaryCPICH-Info
                                                                                  OPTIONAL,
        dl-ChannelisationCodeList
                                           DL-Channellsacl
TPC-CombinationIndex,
                                               DL-ChannelisationCodeList,
        tpc-CombinationIndex
        ssdt-CellIdentity
                                                                                  OPTIONAL.
        closedLoopTimingAdjMode
                                              ClosedLoopTimingAdjMode
                                                                                OPTIONAL
                                         SEQUENCE {
    tdd
        dl-CCTrChListToEstablish
                                              DL-CCTrChList
                                                                                OPTIONAL,
                                               DL-CCTrChListToRemove
        dl-CCTrChListToRemove
                                                                                OPTIONAL
}
DL-DPCH-InfoPerRL-r4 ::= CHOICE {
                                     SEQUENCE {
        pCPICH-UsageForChannelEst
                                              PCPICH-UsageForChannelEst,
        dpch-FrameOffset
                                               DPCH-FrameOffset,
        secondaryCPICH-Info
                                               SecondaryCPICH-Info
                                                                                OPTIONAL.
```

```
dl-ChannelisationCodeList DL-ChannelisationCodeList,
                 tpc-CombinationIndex
                                                                                        TPC-CombinationIndex,
                 ssdt-CellIdentity
                                                                                       SSDT-CellIdentity
                                                                                                                                                     OPTIONAL,
                                                                                       ClosedLoopTimingAdjMode OPTIONAL
                 closedLoopTimingAdjMode
         },
         tdd
                                                                            SEQUENCE {
                dl-CCTrChListToEstablish
dl-CCTrChListToRemove
                                                                                     DL-CCTrChList-r4
                                                                                       DL-CCTrChList-r4 OPTIONAL, DL-CCTrChListToRemove OPTIONAL
         }
 }
 DL-DPCH-InfoPerRL-r5 ::= CHOICE {
                pCPICH-UsageForChannelEst pcptcu
                                                                               PCPICH-UsageForChannelEst,
                 dpch-FrameOffset
                                                                                       DPCH-FrameOffset,
                secondaryCPICH-Info
dl-ChannelisationCodeList
tpc-CombinationIndex
powerOffsetTPC-pdpdch
TCLIFFORM Description
SECONDARY, CLIFFORM DL-ChannelisationCodeLis
TPC-CombinationIndex,
PowerOffsetTPC-pdpdch
SSDT-CellIdentity
This conditional description of the condition of the conditi
                                                                                      SecondaryCPICH-Info
                                                                                                                                                       OPTIONAL,
                                                                               DL-ChannelisationCodeList,
                                                                                                                                                   OPTIONAL,
                                                                                                                                                      OPTIONAL.
                 closedLoopTimingAdjMode
                                                                                       ClosedLoopTimingAdjMode
                                                                                                                                                       OPTIONAL
                dl-CCTrChListToEstablish dl-CCTrChListToRemove DL-CCTrChList-r4
                                                                                                                                                    OPTIONAL,
                                                                                       DL-CCTrChListToRemove
                                                                                                                                                    OPTIONAL
}
OPTIONAL,
        secondaryScramblingCode
dl-ChannelisationCode
tpc-CombinationIndex
                                                                                                                                            OPTIONAL,
 }
DL-DPCH-InfoPerRL-PostFDD ::=
                                                                                                                       SEQUENCE {
                -INITOPERRL-POSTFDD ::= SEQUENCE {
    pCPICH-UsageForChannelEst PCPICH-UsageForChannelEst,
    dl-ChannelisationCode DL-ChannelisationCode,
    tpc-CombinationIndex TPC-CombinationIndex
                tpc-CombinationIndex
                                                                                                TPC-CombinationIndex
 }
 DL-DPCH-InfoPerRL-PostTDD ::=
                                                                                        SEQUENCE {
        dl-DPCH-TimeslotsCodes
                                                                                               DownlinkTimeslotsCodes
 }
 DL-DPCH-InfoPerRL-PostTDD-LCR-r4 ::=
                                                                                    SEQUENCE {
                                                                                                DownlinkTimeslotsCodes-LCR-r4
        dl-CCTrCH-TimeslotsCodes
 }
 DL-DPCH-PowerControlInfo ::=
                                                                           SEQUENCE {
                                                                                  CHOICE {
        modeSpecificInfo
                                                                                                SEQUENCE {
                fdd
                                                                                                       DPC-Mode
                        dpc-Mode
                 },
                tdd
                                                                                                SEQUENCE {
                                                                                                      TPC-StepSizeTDD
                                                                                                                                                    OPTIONAL
                        tpc-StepSizeTDD
 }
 DL-FDPCH-InfoCommon-r6 ::=
                                                                    SEQUENCE {
         cfnHandling
                                                                                CHOICE {
                maintain
                                                                                        NULL,
                                                                                       SEQUENCE {
                initialise
                        cfntargetsfnframeoffset
                                                                                                Cfntargetsfnframeoffset
                                                                                                                                                                      OPTIONAL
         dl-FDPCH-PowerControlInfo
                                                                              DL-DPCH-PowerControlInfo
 -- Actual value dl-FDPCH-TPCcommandErrorRate = IE value * 0.005
 -- dl-FDPCH-TPCcommandErrorRate values 21..32 are spare and shall not be used in this version of
 -- the protocol
         dl-FDPCH-TPCcommandErrorRate
                                                                              INTEGER (1..32) OPTIONAL
 }
                                                                      ENUMERATED {
DL-FrameType ::=
                                                                                dl-FrameTypeA, dl-FrameTypeB }
```

```
DL-HSPDSCH-Information ::=
                                 SEQUENCE {
   hs-scch-Info
                                 HS-SCCH-Info
                                               OPTIONAL,
                             Measurement-Feedback-Info OPTIONAL,
   measurement-feedback-Info
   modeSpecificInfo
                                 CHOICE {
                                 CHOICE {
           tdd384
                                         SEQUENCE {
              dl-HSPDSCH-TS-Configuration DL-HSPDSCH-TS-Configuration OPTIONAL
           tdd128
              hs-PDSCH-Midamble-Configuration-TDD128
                      HS-PDSCH-Midamble-Configuration-TDD128
                                                                      OPTIONAL
           }
       fdd
                                  NULL
   }
}
-- The IE 'DL-HSPDSCH-TS-Configuration' applies to tdd-384 REL-5 onward
DL-HSPDSCH-TS-Configuration ::= SEQUENCE (SIZE (1..maxTS-1)) OF
                                  SEQUENCE {
   timeslot
                                         TimeslotNumber,
   midambleShiftAndBurstType
                                         MidambleShiftAndBurstType-DL
}
DL-InformationPerRL ::=
                                SEQUENCE {
   modeSpecificInfo
                                  CHOICE {
                                      SEQUENCE {
       fdd
                                            PrimaryCPICH-Info,
           primaryCPICH-Info
         dummy1 and dummy 2 are not used in this version of specification, they should
       -- not be sent and if received they should be ignored.
                                                     PDSCH-SHO-DCH-Info
           pdsch-SHO-DCH-Infodummy1
                                                                               OPTIONAL,
                                                 PDSCH-CodeMapping
           pdsch-CodeMappingdummy2
                                                                           OPTIONAL
       tdd
                                        PrimaryCCPCH-Info
   dl-DPCH-InfoPerRL
                                   DL-DPCH-InfoPerRL
                                                                      OPTIONAL,
   sccpch-InfoforFACH
                                     SCCPCH-InfoForFACH
                                                                       OPTIONAL
}
DL-InformationPerRL-r4 ::= SEQUENCE {
                                  CHOICÈ {
   modeSpecificInfo
                                      SEQUENCE {
       fdd
           primaryCPICH-Info
                                            PrimaryCPICH-Info,
        -- dummyl and dummy 2 are not used in this version of specification, they should
       -- not be sent and if received they should be ignored.
                                                    gnored.

PDSCH-SHO-DCH-Info
CH-CodeMapping

O
           pdsch SHO DCH Infodummy1
                                                                               OPTIONAL.
           pdsch CodeMappingdummy2
                                                 PDSCH-CodeMapping
                                                                          OPTIONAL
       },
       tdd
                                       PrimaryCCPCH-Info-r4
   dl-DPCH-InfoPerRL
                                     DL-DPCH-InfoPerRL-r4
                                                                       OPTIONAL,
                                     SCCPCH-InfoForFACH-r4
   sccpch-InfoforFACH
                                                                       OPTIONAL.
   cell-id
                                     CellIdentity
                                                                       OPTIONAL
DL-InformationPerRL-r5 ::= SEQUENCE {
                                 CHOICE {
   modeSpecificInfo
                                     SEQUENCE {
           primaryCPICH-Info
                                             PrimaryCPICH-Info,
         dummyl and dummy 2 are not used in this version of specification, they should
       -- not be sent and if received they should be ignored.
                                                    gnored.

PDSCH-SHO-DCH-Info OPTION
CH-CodeMapping OPTIONAL,
           pdsch SHO DCH Infodummy1
                                                                             OPTIONAL,
           pdsch CodeMappingdummy2
                                                 PDSCH-CodeMapping
           servingHSDSCH-RL-indicator BOOLEAN
       tdd
                                        PrimaryCCPCH-Info-r4
   dl-DPCH-InfoPerRL
                                    DL-DPCH-InfoPerRL-r5
                                                                       OPTIONAL,
   sccpch-InfoforFACH
                                     SCCPCH-InfoForFACH-r4
                                                                       OPTIONAL,
   cell-id
                                     CellIdentity
                                                                       OPTIONAL
}
                               SEQUENCE {
DL-InformationPerRL-r5bis ::=
                             CHOICE {
SEQUE
   modeSpecificInfo
                                     SEQUENCE {
       fdd
           primaryCPICH-Info
                                             PrimaryCPICH-Info,
       -- dummy1 and dummy 2 are not used in this version of specification, they should
```

```
-- not be sent and if received they should be ignored.
                    pdsch SHO DCH Infodummy1
                                                                                            PDSCH-SHO-DCH-Info OPTIONAL

PDSCH-CodeMapping OPTIONAL
                                                                                                                                                     OPTIONAL,
                     pdsch CodeMappingdummy2
              },
              tdd
                                                                            PrimaryCCPCH-Info-r4
                                                                   DL-DPCH-InfoPerRL-r5
       dl-DPCH-InfoPerRL
                                                                                                                                     OPTIONAL,
       sccpch-InfoforFACH
                                                                     SCCPCH-InfoForFACH-r4
                                                                                                                                     OPTIONAL.
       cell-id
                                                                     CellIdentity
                                                                                                                                     OPTIONAL
DL-InformationPerRL-r6 ::= SEQUENCE {
                                                             CHOICE {
      modeSpecificInfo
                                                                       SEQUENCE {
             fdd
                   primaryCPICH-Info
                                                                            PrimaryCPICH-Info,
                    pdsch-SHO-DCH-Info
                                                                                   PDSCH-SHO-DCH-Info OPTIONAL,
                                                                 PDSCH-CodeMapping
                     pdsch-CodeMapping
                                                                                                                                OPTIONAL,
                     servingHSDSCH-RL-indicator BOOLEAN,
                     servingEDCH-RL-indicator
                                                                                    BOOLEAN
              },
              tdd
                                                                           PrimaryCCPCH-Info-r4
             CHOICE {

CHOICE
       dl-dpchInfo
                                                                           DL-DPCH-InfoPerRL-r5,
                                                                             DL-FDPCH-InfoPerRL-r6
                                                                                                                                     OPTIONAL,
                                                             SCCPCH-InfoForFACH-r4
E-AGCH-Information
       sccpch-InfoforFACH
                                                                                                                                     OPTIONAL,
      e-AGCH-Information
e-HICH-Information
                                                                                                                                     OPTIONAL,
                                                                    E-HICH-Information
                                                                                                                                     OPTIONAL,
                                                                     E-RGCH-Information
       e-RGCH-Information
                                                                                                                                     OPTIONAL,
       cell-id
                                                                      CellIdentity
                                                                                                                                     OPTIONAL
DL-InformationPerRL-List ::= SEQUENCE (SIZE (1..maxRL)) OF
                                                                      DL-InformationPerRL
DL-InformationPerRL-List-r4 ::=
                                                              SEQUENCE (SIZE (1..maxRL)) OF
                                                                      DL-InformationPerRL-r4
DL-InformationPerRL-List-r5 ::=
                                                               SEQUENCE (SIZE (1..maxRL)) OF
                                                                      DL-InformationPerRL-r5
                                                               SEQUENCE (SIZE (1..maxRL)) OF
DL-InformationPerRL-List-r6 ::=
                                                                      DL-InformationPerRL-r6
DL-InformationPerRL-List-r5bis ::=
                                                                      SEQUENCE (SIZE (1..maxRL)) OF
                                                                             DL-InformationPerRL-r5bis
DL-InformationPerRL-ListPostFDD ::= SEQUENCE (SIZE (1..maxRL)) OF
                                                                      DL-InformationPerRL-PostFDD
DL-InformationPerRL-PostFDD ::=
                                                               SEQUENCE {
                   primaryCPICH-Info
                                                                                     PrimaryCPICH-Info,
      dl-DPCH-InfoPerRL
                                                                     DL-DPCH-InfoPerRL-PostFDD
}
DL-InformationPerRL-PostTDD ::= SEQUENCE {
                                                               PrimaryCCPCH-InfoPost,
     primaryCCPCH-Info
      dl-DPCH-InfoPerRL
                                                                      DL-DPCH-InfoPerRL-PostTDD
}
DL-InformationPerRL-PostTDD-LCR-r4 ::= SEQUENCE {
     primaryCCPCH-Info PrimaryCCPCH-InfoPostTDD-LCR-r4,
                                                                     DL-DPCH-InfoPerRL-PostTDD-LCR-r4
      dl-DPCH-InfoPerRL
}
DL-PDSCH-Information ::=
                                                               SEQUENCE {
-- dummyl and dummy 2 are not used in this version of specification, it should
-- not be sent and if received it should be ignored.
       dummy1pdsch-SHO-DCH-Info
                                                               PDSCH-CodeMapping
                                                                                    PDSCH-SHO-DCH-Info
                                                                                                                                                     OPTIONAL,
      pdsch-CodeMappingdummy2
                                                                                                                                             OPTIONAL
}
{\tt Dl-rate-matching-restriction} ::= \qquad {\tt SEQUENCE} \ \{
      restrictedTrCH-InfoList RestrictedTrCH-InfoList OPTIONAL
                                                     SEQUENCE {
DL-TPC-PowerOffsetPerRL ::=
```

```
powerOffsetTPC-pdpdch
                                            PowerOffsetTPC-pdpdch
                                                                            OPTIONAL
}
-- NOTE: The radio links in the following list have a one-to-one mapping with the
-- radio links in the message.
DL-TPC-PowerOffsetPerRL-List ::=
                                    SEQUENCE (SIZE (1..maxRL)) OF
                                        DL-TPC-PowerOffsetPerRL
DL-TS-ChannelisationCode ::=
                                    ENUMERATED {
                                        cc16-1, cc16-2, cc16-3, cc16-4,
                                        cc16-5, cc16-6, cc16-7, cc16-8,
                                        cc16-9, cc16-10, cc16-11, cc16-12,
                                        cc16-13, cc16-14, cc16-15, cc16-16 }
DL-TS-ChannelisationCodesShort ::= SEQUENCE {
                                        CHOICE {
   codesRepresentation
                                            SEQUENCE {
        consecutive
            firstChannelisationCode
                                                DL-TS-ChannelisationCode,
            lastChannelisationCode
                                                DL-TS-ChannelisationCode
        bitmap
                                            BIT STRING {
                                                chCode16-SF16(0),
                                                 chCode15-SF16(1),
                                                chCode14-SF16(2),
                                                 chCode13-SF16(3),
                                                chCode12-SF16(4),
                                                 chCode11-SF16(5),
                                                 chCode10-SF16(6),
                                                chCode9-SF16(7),
                                                 chCode8-SF16(8),
                                                 chCode7-SF16(9),
                                                chCode6-SF16(10),
                                                chCode5-SF16(11),
                                                chCode4-SF16(12),
                                                 chCode3-SF16(13),
                                                 chCode2-SF16(14),
                                                chCode1-SF16(15)
                                                    (SIZE (16))
                                                 }
DownlinkAdditionalTimeslots ::=
                                    SEQUENCE {
   parameters
                                        CHOICE {
                                            SEQUENCE {
        {\tt sameAsLast}
           timeslotNumber
                                                TimeslotNumber
        newParameters
                                            SEOUENCE {
                                              IndividualTimeslotInfo,
            individualTimeslotInfo
            dl-TS-ChannelisationCodesShort
                                                DL-TS-ChannelisationCodesShort
        }
    }
}
DownlinkAdditionalTimeslots-LCR-r4 ::= SEQUENCE {
   parameters
                                        CHOICE {
                                            SEQUENCE {
        sameAsLast
           timeslotNumber
                                                TimeslotNumber-LCR-r4
       newParameters
                                            SEQUENCE {
           individualTimeslotInfo
                                                IndividualTimeslotInfo-LCR-r4,
            dl-TS-ChannelisationCodesShort
                                                DL-TS-ChannelisationCodesShort
    }
}
DownlinkTimeslotsCodes ::=
                              SEQUENCE {
    firstIndividualTimeslotInfo
                                        IndividualTimeslotInfo,
   dl-TS-ChannelisationCodesShort
                                        DL-TS-ChannelisationCodesShort,
                                        CHOICE {
   moreTimeslots
       noMore
                                            NULL
        additionalTimeslots
                                            CHOICE {
            consecutive
                                                INTEGER (1..maxTS-1),
            timeslotList
                                                SEQUENCE (SIZE (1..maxTS-1)) OF
                                                     {\tt DownlinkAdditionalTimeslots}
    }
}
```

```
DownlinkTimeslotsCodes-LCR-r4 ::= SEQUENCE {
   firstIndividualTimeslotInfo IndividualTimeslotInfo-LCR-r4, dl-TS-ChannelisationCodesShort DL-TS-ChannelisationCodesShort,
    moreTimeslots
                                        CHOICE {
        noMore
                                            NULL.
        additionalTimeslots
                                            CHOICE {
                                                 INTEGER (1..maxTS-LCR-1),
            consecutive
                                                 SEQUENCE (SIZE (1..maxTS-LCR-1)) OF
            timeslotList
                                                     DownlinkAdditionalTimeslots-LCR-r4
        }
    }
}
DPC-Mode ::=
                                    ENUMERATED {
                                         singleTPC,
                                         tpcTripletInSoft }
-- Actual value DPCCH-PowerOffset = IE value * 2
DPCCH-PowerOffset ::=
                                    INTEGER (-82..-3)
-- Actual value DPCCH-PowerOffset2 = 2 + (IE value * 4)
DPCCH-PowerOffset2 ::=
                                   INTEGER (-28..-13)
{\tt DPCH-CompressedModeInfo} ::= \\ {\tt SEQUENCE} \ \{
    tgp-SequenceList
                                        TGP-SequenceList
DPCH-CompressedModeStatusInfo ::= SEQUENCE {
    tgps-Reconfiguration-CFN
                                        TGPS-Reconfiguration-CFN,
    tgp-SequenceShortList
                                            SEQUENCE (SIZE (1..maxTGPS)) OF
                                             TGP-SequenceShort
}
-- Actual value DPCH-FrameOffset = IE value * 256
DPCH-FrameOffset::=
                                    INTEGER (0..149)
                                    SEQUENCE {
DSCH-Mapping ::=
   H-Mapping ::=
maxTFCI-Field2Value
                                      MaxTFCI-Field2Value,
    spreadingFactor
                                         SF-PDSCH,
    codeNumber
                                         CodeNumberDSCH,
   multiCodeInfo
                                        MultiCodeInfo
DSCH-MappingList ::=
                                    SEQUENCE (SIZE (1..maxPDSCH-TFCIgroups)) OF
                                        DSCH-Mapping
                                    INTEGER (0..511)
DSCH-RadioLinkIdentifier ::=
                                    SEQUENCE (SIZE (1..maxTrCH)) OF
DSCH-TransportChannelsInfo ::=
                                        SEQUENCE {
    dsch-transport-channel-identity
                                             TransportChannelIdentity,
    dsch-TFS
                                             TransportFormatSet
DurationTimeInfo ::=
                                    INTEGER (1..4096)
DynamicPersistenceLevel ::=
                                   INTEGER (1..8)
DynamicPersistenceLevelList ::=
                                    SEQUENCE (SIZE (1..maxPRACH)) OF
                                         DynamicPersistenceLevel
DynamicPersistenceLevelTF-List ::= SEQUENCE (SIZE (1..maxTF-CPCH)) OF
                                        DynamicPersistenceLevel
E-AGCH-ChannelisationCode ::=
                                    INTEGER (0..255)
E-AGCH-Information ::=
                                    SEQUENCE {
                                                                            OPTIONAL,
    dl-ScramblingCode
                                         SecondaryScramblingCode
    e-AGCH-ChannelisationCode
                                         E-AGCH-ChannelisationCode
}
E-DPCCH-Info ::=
                                    SEQUENCE {
    e-DPCCH-DPCCH-PowerOffset
                                        E-DPCCH-DPCCH-PowerOffset
E-DPCCH-DPCCH-PowerOffset ::=
                                   INTEGER (0)
E-DPDCH-Info ::=
                                    SECTIENCE {
    e-TFCI-ReferencePowerOffset
                                        E-TFCI-ReferencePowerOffset,
```

```
e-TFCI-TableIndex E-TFCI-TableIndex, e-DPDCH-MaxNChannelisationCodes E-DPDCH-MaxNChannelisationCodes
}
E-DPDCH-MaxNChannelisationCodes ::= INTEGER (0)
                                                   -- FFS
E-HICH-ChannelisationCode ::=
                                   INTEGER (0..127)
E-HICH-Information ::=
                                   SEQUENCE {
    dl-ScramblingCode
                                        SecondaryScramblingCode
                                                                             OPTIONAL,
    channelisationCode
                                        E-HICH-ChannelisationCode,
    signatureSequence
                                        E-HICH-RGCH-SignatureSequence,
                                        E-HICH-RGCH-TimingOffset
    timingOffset
E-HICH-RGCH-SignatureSequence ::= INTEGER (0..39)
                                   INTEGER (0) -- FFS
E-HICH-RGCH-TimingOffset ::=
E-RGCH-CombinationIndex ::=
                                    INTEGER (0..5)
E-RGCH-Information ::=
                                    SEOUENCE {
   dl-ScramblingCode signatureSequence
                                        SecondaryScramblingCode
                                                                             OPTIONAL,
                                        E-HICH-RGCH-SignatureSequence,
    timingOffset
                                        E-HICH-RGCH-TimingOffset,
    rg-CombinationIndex
                                        E-RGCH-CombinationIndex
                                                                             OPTIONAL
E-TFCI-ReferencePowerOffset ::=
                                   INTEGER (0) -- FFS
E-TFCI-TableIndex ::=
                                    ENUMERATED { ncc1, ncc2, ncc4 }
FACH-PCH-Information ::=
                                    SEQUENCE {
                                        TransportFormatSet,
    transportFormatSet
    transportChannelIdentity
                                        TransportChannelIdentity,
    ctch-Indicator
                                        BOOLEAN
}
\texttt{FACH-PCH-InformationList} ::= \\ \texttt{SEQUENCE} \ (\texttt{SIZE} \ (\texttt{1..maxFACHPCH})) \ \texttt{OF}
                                       FACH-PCH-Information
                                    ENUMERATED {
Feedback-cycle ::=
                                        fc0, fc2, fc4, fc8, fc10, fc20, fc40, fc80, fc160}
FPACH-Info-r4 ::=
                                        SEQUENCE {
    timeslot
                                        TimeslotNumber-LCR-r4,
    channelisationCode
                                        TDD-FPACH-CCode16-r4.
    midambleShiftAndBurstType
                                        MidambleShiftAndBurstType-LCR-r4,
                                        Wi-LCR
}
FrequencyInfo ::=
                                    SEOUENCE {
   modeSpecificInfo
                                        CHOICE {
        fdd
                                             FrequencyInfoFDD,
        tdd
                                             FrequencyInfoTDD
}
FrequencyInfoFDD ::=
                                    SEQUENCE {
                                                          OPTIONAL,
   uarfcn-UL
                                        UARFCN
   uarfcn-DL
                                        HARFON
}
                                    SEQUENCE {
FrequencyInfoTDD ::=
                                        UARFCN
    uarfcn-Nt
HARQ-Preamble-Mode ::=
                                    INTEGER (0..1)
                                    ENUMERATED {
HS-ChannelisationCode-LCR ::=
                                         cc16-1, cc16-2, cc16-3, cc16-4,
                                         cc16-5, cc16-6, cc16-7, cc16-8,
                                         cc16-9, cc16-10, cc16-11, cc16-12,
                                         cc16-13, cc16-14, cc16-15, cc16-16 }
HS-PDSCH-Midamble-Configuration-TDD128 ::= SEQUENCE {
    midambleAllocationMode
                                        CHOICE {
        defaultMidamble
                                             NULL.
        commonMidamble
                                             NULL,
```

```
ueSpecificMidamble
                                            INTEGER (0..15)
    -- Actual value midambleConfiguration = IE value * 2
    midambleConfiguration
                                        INTEGER (1..8)
HS-SCCH-Info ::=
                                    SEQUENCE {
                                        CHOICE {
   modeSpecificInfo
        fdd
                                            SEQUENCE {
            hS-SCCHChannelisationCodeInfo
                                             SEQUENCE (SIZE (1..maxHSSCCHs)) OF
                                                   HS-SCCH-Codes,
            dl-ScramblingCode
                                                SecondaryScramblingCode
                                                                             OPTIONAL
        },
        tdd
                                             CHOICE {
            tdd384
                                                SEQUENCE {
                                                  INTEGER (-7..8),
                nack-ack-power-offset
                                                   HS-SICH-Power-Control-Info-TDD384,
                hs-SICH-PowerControl-Info
                hS-SCCH-SetConfiguration
                                                   SEQUENCE (SIZE (1..maxHSSCCHs)) OF
                       HS-SCCH-TDD384
                                                SEQUENCE (SIZE (1..maxHSSCCHs)) OF
            tdd128
                                                     HS-SCCH-TDD128
    }
}
HS-SCCH-Codes ::=
                                    INTEGER (0..127)
HS-SCCH-TDD128 ::=
                                SEQUENCE {
                                        TimeslotNumber-LCR-r4,
    timeslotNumber
    firstChannelisationCode
                                        HS-ChannelisationCode-LCR,
    {\tt secondChannelisationCode}
                                        HS-ChannelisationCode-LCR,
    midambleAllocationMode
                                        CHOICE {
        defaultMidamble
                                            NULL.
        commonMidamble
                                             NULL,
        ueSpecificMidamble
                                             INTEGER(0..15)
    -- Actual value midambleConfiguration = IE value * 2
   midambleConfiguration
                                        INTEGER (1..8),
   bler-target
                                        Bler-Target,
   hs-sich-configuration
                                        HS-SICH-Configuration-TDD128
}
HS-SICH-Configuration-TDD128 ::= SEQUENCE {
    timeslotNumber
                                        TimeslotNumber-LCR-r4,
    channelisationCode
                                        HS-ChannelisationCode-LCR,
    midambleAllocationMode
                                        CHOICE {
        defaultMidamble
                                            NULL
        ueSpecificMidamble
                                             SEQUENCE {
                                                 MidambleShiftLong
           midambleShift
    -- Actual value midambleConfiguration = IE value * 2
   midambleConfiguration INTEGER (1..8), nack-ack-power-offset INTEGER (-7.8)
                                        INTEGER (-7..8),
   nack-ack-power-offset
    power-level-HSSICH
                                        INTEGER (-120..-58),
    tpc-step-size
                                        ENUMERATED { s1, s2, s3 , spare1}
HS-SCCH-TDD384 ::=
                                SEQUENCE {
    timeslotNumber
                                        TimeslotNumber,
                                        DL-TS-ChannelisationCode,
    channelisationCode
                                        CHOICE {
    midambleAllocationMode
        defaultMidamble
                                            NULL,
        {\tt commonMidamble}
                                             NULL,
        ueSpecificMidamble
                                            SEQUENCE {
                                                MidambleShiftLong
            midambleShift
    midambleconfiguration
                                        MidambleConfigurationBurstTypeland3,
   bler-target
                                        Bler-Target,
    hs-sich-configuration
                                        HS-SICH-Configuration-TDD384
HS-SICH-Configuration-TDD384 ::=
                                  SEQUENCE {
    timeslotNumber
                                        TimeslotNumber,
```

```
channelisationCode
                                        DL-TS-ChannelisationCode,
    midambleAllocationMode
                                        CHOICE {
       defaultMidamble
                                           NULL.
       ueSpecificMidamble
                                            SEQUENCE {
            midambleShift
                                                MidambleShiftLong
    midambleconfiguration
                           MidambleConfigurationBurstTypeland3
}
HS-SICH-Power-Control-Info-TDD384 ::= SEQUENCE {
    -- Actual value ul-target-SIR = IE value * 0.5
                                        INTEGER (-22..40),
   ul-target-SIR
   hs-sich-ConstantValue
                                       ConstantValue
}
IndividualTimeslotInfo ::=
                                  SEQUENCE {
    timeslotNumber
                                       TimeslotNumber,
                                        BOOLEAN,
    tfci-Existence
   midambleShiftAndBurstType
                                        MidambleShiftAndBurstType
}
IndividualTimeslotInfo-LCR-r4 ::= SEQUENCE {
   timeslotNumber
                                        TimeslotNumber-LCR-r4.
    tfci-Existence
                                        BOOLEAN,
   midambleShiftAndBurstType
                                      MidambleShiftAndBurstType-LCR-r4,
                                       ENUMERATED { mod-QPSK, mod-8PSK },
ENUMERATED { zero, one, sixteenOverSF },
   modulation
   ss-TPC-Symbols
    additionalSS-TPC-Symbols
                                       INTEGER(1..15)
                                                           OPTIONAL
}
IndividualTimeslotInfo-LCR-r4-ext ::= SEQUENCE {
-- timeslotNumber and tfci-Existence is taken from IndividualTimeslotInfo.
-- midambleShiftAndBurstType in IndividualTimeslotInfo shall be ignored.
   midambleShiftAndBurstType
                                       MidambleShiftAndBurstType-LCR-r4,
                                        ENUMERATED { mod-QPSK, mod-8PSK },
ENUMERATED { zero, one, sixteenOverSF }
   modulation
    ss-TPC-Symbols
}
IndividualTS-Interference ::=
                                   SEQUENCE {
    timeslot
                                        TimeslotNumber.
    ul-TimeslotInterference
                                        TDD-UL-Interference
IndividualTS-InterferenceList ::=
                                   SEQUENCE (SIZE (1..maxTS)) OF
                                        IndividualTS-Interference
ITP ::=
                                    ENUMERATED {
                                       mode0, mode1 }
NidentifyAbort ::= INTEGER (1..128)
                                   INTEGER (-50..33)
MaxAllowedUL-TX-Power ::=
MaxAvailablePCPCH-Number ::=
                                  INTEGER (1..64)
MaxPowerIncrease-r4 ::=
                                    INTEGER (0..3)
                                    INTEGER (1..1023)
MaxTFCT-Field2Value ::=
Measurement-Feedback-Info ::=
                                    SEQUENCE {
   modeSpecificInfo
                                    CHOICE {
                                        SEQUENCE {
       fdd
            {\tt measurementPowerOffset}
                                         MeasurementPowerOffset,
            feedback-cycle
                                            Feedback-cycle,
            cqi-RepetitionFactor
                                           CQI-RepetitionFactor,
            deltaCOI
                                            DeltaCOI
        tdd
                                        NULL
    }
}
MidambleConfigurationBurstType1and3 ::= ENUMERATED {ms4, ms8, ms16}
MidambleConfigurationBurstType2 ::= ENUMERATED {ms3, ms6}
```

```
MidambleShiftAndBurstType ::=
                                                                                     SEQUENCE {
                                                                                              CHOICE {
         burstType
                                                                                                       SEQUENCE {
                  type1
                            \verb|midamble| Configuration \verb|BurstType| and \verb|3| Midamble| Configuration \verb|BurstType| and \verb|3|, and \verb|and \verb|3| and all a substitution \verb|BurstType| and \verb|3|, and all a substitution \verb|BurstType| and \verb|3|, and a substitution \verb|3|, and a substitutio
                            midambleAllocationMode
                                                                                                                 CHOICE {
                                     defaultMidamble
                                                                                                                          NULL,
                                      commonMidamble
                                                                                                                           NULL,
                                     {\tt ueSpecificMidamble}
                                                                                                                          SEQUENCE {
                                               {\tt midambleShift}
                                                                                                                                   MidambleShiftLong
                            }
                   },
                                                                                                        SEQUENCE {
                            midambleConfigurationBurstType2
                                                                                                                 MidambleConfigurationBurstType2,
                            midambleAllocationMode
                                                                                                                 CHOICE {
                                     defaultMidamble
                                                                                                                         NULL,
                                     commonMidamble
                                                                                                                          NULL,
                                      ueSpecificMidamble
                                                                                                                          SEQUENCE {
                                              midambleShift
                                                                                                                                   MidambleShiftShort
                            }
                   },
                                                                                                        SEQUENCE {
                            CHOICE {
                            midambleAllocationMode
                                     default Midamble
                                                                                                                         NULL.
                                      ueSpecificMidamble
                                                                                                                           SEQUENCE {
                                               midambleShift
                                                                                                                                    MidambleShiftLong
                            }
                   }
         }
}
                                                                                              SEQUENCE {
MidambleShiftAndBurstType-DL ::=
         burstType
                                                                                               CHOICE {
                                                                                                       SEQUENCE {
                  tvpe1
                            midambleAllocationMode
                                                                                                                 CHOICE {
                                      defaultMidamble
                                                                                                                          NULL,
                                      commonMidamble
                                                                                                                           NULL,
                                      ueSpecificMidamble
                                                                                                                          SEQUENCE {
                                               midambleShift
                                                                                                                                    MidambleShiftLong
                            }
                   },
                                                                                                        SEQUENCE {
                   type2
                            \verb|midambleConfigurationBurstType2|
                                                                                                                 MidambleConfigurationBurstType2,
                                                                                                                 CHOICE {
                            midambleAllocationMode
                                     defaultMidamble
                                                                                                                         NULL,
                                      commonMidamble
                                                                                                                          NULL,
                                     ueSpecificMidamble
                                                                                                                          SEQUENCE {
                                              midambleShift
                                                                                                                                    MidambleShiftShort
                            }
                  }
         }
}
                                                                                         SEQUENCE {
MidambleShiftAndBurstType-LCR-r4 ::=
         midambleAllocationMode
                                                                                              CHOICE {
                  defaultMidamble
                                                                                                       NULL,
                   common Midamble
                                                                                                       NULL,
                   ueSpecificMidamble
                                                                                                        SEQUENCE {
                                                                                                                 INTEGER (0..15)
                            midambleShift
          -- Actual value midambleConfiguration = IE value * 2
         {\tt midambleConfiguration}
                                                                                            INTEGER (1..8)
}
MidambleShiftLong ::=
                                                                                  INTEGER (0..15)
MidambleShiftShort ::=
                                                                                    INTEGER (0..5)
MinimumSpreadingFactor ::=
                                                                                     ENUMERATED {
                                                                                              sf4, sf8, sf16, sf32,
```

```
sf64, sf128, sf256 }
MultiCodeInfo ::=
                                    INTEGER (1..16)
N-EOT ::=
                                    INTEGER (0..7)
N-GAP ::=
                                    ENUMERATED {
                                        f2, f4, f8 }
N-PCH ::=
                                    INTEGER (1..8)
                                    INTEGER (1..8)
N-StartMessage ::=
NB01 ::=
                                    INTEGER (0..50)
NF-Max ::=
                                    INTEGER (1..64)
NumberOfDPDCH ::=
                                   INTEGER (1..maxDPDCH-UL)
NumberOfFBI-Bits ::=
                                   INTEGER (1..2)
OpenLoopPowerControl-TDD ::= SEQUENCE {
                                       PrimaryCCPCH-TX-Power,
   primaryCCPCH-TX-Power
    -- alpha, prach-ConstantValue, dpch-ConstantValue and pusch-ConstantValue
    -- shall be ignored in 1.28Mcps TDD mode.
                             Alpha
Consta
   alpha
                                                                   OPTIONAL,
                                       ConstantValueTdd,
ConstantValueTdd,
   prach-ConstantValue
   dpch-ConstantValue
                                       ConstantValueTdd
                                                                  OPTIONAL
   pusch-ConstantValue
}
OpenLoopPowerControl-IPDL-TDD-r4 ::= SEQUENCE {
    ipdl-alpha
                                        Alpha,
    maxPowerIncrease
                                        MaxPowerIncrease-r4
PagingIndicatorLength ::= ENUMERATED {
                                        pi4, pi8, pi16 }
PC-Preamble ::=
                                    INTEGER (0..7)
PCP-Length ::=
                                    ENUMERATED {
                                       as0, as8 }
PCPCH-ChannelInfo ::=
   cn-cnannelInto ::=
pcpch-UL-ScramblingCode
                                    SEQUENCE {
                                    INTEGER (0..79),
   pcpch-DL-ChannelisationCode
                                       INTEGER (0..511),
   pcpch-DL-ScramblingCode
                                       SecondaryScramblingCode OPTIONAL,
   pcp-Length
                                       PCP-Length,
   ucsm-Info
                                        UCSM-Info
                                                                            OPTIONAL
PCPCH-ChannelInfoList ::= SEQUENCE (SIZE (1..maxPCPCHs)) OF
                                        PCPCH-ChannelInfo
PCPICH-UsageForChannelEst ::=
                                    ENUMERATED {
                                       mayBeUsed,
                                        shallNotBeUsed }
PDSCH-CapacityAllocationInfo ::= SEQUENCE {
   -- pdsch-PowerControlInfo is conditional on new-configuration branch below, if this
    -- selected the IE is OPTIONAL otherwise it should not be sent
   puscin-PowerControlInfo
pdsch-AllocationPeriodInfo
configuration
old-Configuration
tfcs-ID

PDSCH-PowerControlInfo
AllocationPeriodInfo,
CHOICE {
SEQUENCE {
                                                                           OPTIONAL,
                                                TFCS-IdentityPlain
                                                                                     DEFAULT 1,
                                                PDSCH-Identity
           pdsch-Identity
       },
new-Configuration
                                          SEQUENCE {
                                                PDSCH-Info,
                                                                           OPTIONAL
            pdsch-Identity
                                                PDSCH-Identity
        }
    }
}
PDSCH-CapacityAllocationInfo-r4 ::= SEQUENCE {
```

```
pdsch-AllocationPeriodInfo
                                     AllocationPeriodInfo,
   configuration
                                     CHOICE {
       old-Configuration
                                         SEQUENCE {
                                            TFCS-IdentityPlain
                                                                              DEFAULT 1,
           tfcs-ID
           pdsch-Identity
                                             PDSCH-Identity
       },
                              SEQUENCE {
       new-Configuration
                                        PDSCH-Info-r4,
           pdsch-Info
                                             PDSCH-INTO-T4,
PDSCH-Identity OPTIONAL,
PDSCH-PowerControlInfo OPTIONAL
           pdsch-Identity
           pdsch-PowerControlInfo
   }
}
PDSCH-CodeInfo ::=
                                  SEQUENCE {
   spreadingFactor
                                  SF-PDSCH,
   codeNumber
                                     CodeNumberDSCH,
   multiCodeInfo
                                     MultiCodeInfo
PDSCH-CodeInfoList ::=
                                 SEQUENCE (SIZE (1..maxTFCI-2-Combs)) OF
                                     PDSCH-CodeInfo
PDSCH-CodeMap ::=
                                  SEQUENCE {
                                     SF-PDSCH.
   spreadingFactor
   multiCodeInfo
                                     MultiCodeInfo,
   codeNumberStart
                                     CodeNumberDSCH,
   codeNumberStop
                                     CodeNumberDSCH
}
PDSCH-CodeMapList ::=
                                 SEQUENCE (SIZE (1..maxPDSCH-TFCIgroups)) OF
                                     PDSCH-CodeMap
PDSCH-CodeMapping ::= dl-ScramblingCode
                                  SEQUENCE {
                                     SecondaryScramblingCode
                                                                      OPTIONAL,
   signallingMethod
                                     CHOICE {
                                       CodeRange,
       codeRange
                                         DSCH-MappingList,
       tfci-Range
       explicit-config
                                         PDSCH-CodeInfoList,
       replace
                                         ReplacedPDSCH-CodeInfoList
}
                                 INTEGER (1..hiPDSCHidentities)
PDSCH-Identity ::=
PDSCH-Info ::=
                                  SEOUENCE {
                                                                      DEFAULT 1,
   tfcs-ID
                                  TFCS-IdentityPlain
   commonTimeslotInfo
                                     CommonTimeslotInfo
   pdsch-TimeslotsCodes
                                    DownlinkTimeslotsCodes
}
PDSCH-Info-r4 ::=
                                     SEQUENCE {
                                                                      DEFAULT 1,
                                      TFCS-IdentityPlain
   tfcs-ID
   commonTimeslotInfo
                                      CommonTimeslotInfo
                                     CHOICE {
   tddOption
                                     SEQUENCE {
       tdd384
                                            DownlinkTimeslotsCodes OPTIONAL
          pdsch-TimeslotsCodes
                                     SEQUENCE {
       tdd128
           pdsch-TimeslotsCodes
                                            DownlinkTimeslotsCodes-LCR-r4 OPTIONAL
   }
}
PDSCH-Info-LCR-r4 ::=
                                  SEQUENCE {
                                     TFCS-IdentityPlain
   tfcs-ID
                                                                       DEFAULT 1,
   commonTimeslotInfo
                                      CommonTimeslotInfo
                                                                       OPTIONAL,
                                     DownlinkTimeslotsCodes-LCR-r4
   pdsch-TimeslotsCodes
                                                                      OPTIONAL
}
PDSCH-PowerControlInfo ::=
                                  SEQUENCE {
   tpc-StepSizeTDD
                                   TPC-StepSizeTDD
                                                                       OPTIONAL,
   ul-CCTrChTPCList
                                     UL-CCTrChTPCList
                                                                       OPTIONAL
}
   CH-SHO-DCH-Info ::=
dsch-RadioLinkIdentifier
PDSCH-SHO-DCH-Info ::=
                                 SEQUENCE {
                                    DSCH-RadioLinkIdentifier,
```

```
rl-IdentifierList
                                       RL-IdentifierList
                                                                             OPTIONAL
}
PDSCH-SysInfo ::=
                                    SEQUENCE {
   pdsch-Identity
                                        PDSCH-Identity,
    pdsch-Info
                                        PDSCH-Info,
    dsch-TFS
                                        TransportFormatSet
                                                                             OPTIONAL,
    dsch-TFCS
                                        TFCS
                                                                             OPTIONAL
}
PDSCH-SysInfo-HCR-r5 ::=
                                            SEQUENCE {
                                    SEQUENCE \{ PDSCH-Identity,
    pdsch-Identity
    pdsch-Info
                                        PDSCH-Info.
    dsch-TransportChannelsInfo
                                        DSCH-TransportChannelsInfo
                                                                             OPTIONAL,
   dsch-TFCS
                                        TFCS
}
PDSCH-SysInfo-LCR-r4 ::= SEQUENCE {
   pdsch-Identity
                                        PDSCH-Identity,
   pdsch-Info
                                        PDSCH-Info-LCR-r4,
    dsch-TFS
                                                                             OPTIONAL.
                                        TransportFormatSet
   dsch-TFCS
                                        TFCS
                                                                             OPTIONAL
}
                                    SEQUENCE (SIZE (1..maxPDSCH)) OF
PDSCH-SysInfoList ::=
                                        PDSCH-SysInfo
PDSCH-SysInfoList-HCR-r5 ::=
                                        SEQUENCE (SIZE (1..maxPDSCH)) OF PDSCH-SysInfo-HCR-r5
PDSCH-SysInfoList-LCR-r4 ::= SEQUENCE (SIZE (1..maxPDSCH)) OF
                                        PDSCH-SysInfo-LCR-r4
PDSCH-SysInfoList-SFN ::=
                                    SEQUENCE (SIZE (1..maxPDSCH)) OF
                                        SEQUENCE {
    pdsch-SysInfo
                                            PDSCH-SysInfo,
    sfn-TimeInfo
                                            SFN-TimeInfo
                                                                            OPTIONAL
}
PDSCH-SysInfoList-SFN-HCR-r5 ::=
                                            SEQUENCE (SIZE (1..maxPDSCH)) OF
                                        SEOUENCE {
    pdsch-SysInfo
                                            PDSCH-SysInfo-HCR-r5,
                                            SFN-TimeInfo
                                                                             OPTIONAL
    sfn-TimeInfo
}
PDSCH-SysInfoList-SFN-LCR-r4 ::= SEQUENCE (SIZE (1..maxPDSCH)) OF
                                        SEQUENCE {
    pdsch-SysInfo
                                            PDSCH-SysInfo-LCR-r4,
    sfn-TimeInfo
                                            SFN-TimeInfo
                                                                             OPTIONAL
                                    ENUMERATED {
PersistenceScalingFactor ::=
                                        psf0-9, psf0-8, psf0-7, psf0-6,
                                        psf0-5, psf0-4, psf0-3, psf0-2 }
                                    SEQUENCE (SIZE (1..maxASCpersist)) OF
PersistenceScalingFactorList ::=
                                        PersistenceScalingFactor
                                    ENUMERATED {
PI-CountPerFrame ::=
                                        e18, e36, e72, e144 }
PichChannelisationCodeList-LCR-r4 ::= SEQUENCE (SIZE (1..2)) OF
                                            DL-TS-ChannelisationCode
PICH-Info ::=
                                    CHOICE {
                                        SEQUENCE {
    fdd
        channelisationCode256
                                          ChannelisationCode256,
        pi-CountPerFrame
                                            PI-CountPerFrame,
        sttd-Indicator
                                            BOOLEAN
    t dd
                                        SEQUENCE {
                                           TDD-PICH-CCode
        channelisationCode
                                                                             OPTIONAL,
        timeslot
                                            TimeslotNumber
                                                                             OPTIONAL.
        midambleShiftAndBurstType MidambleShiftAndBurstType, repetitionPeriodLengthOffset RepPerLengthOffset-PICH pagingIndicatorLength PagingIndicatorLength
        midambleShiftAndBurstType
                                                                             OPTIONAL,
                                            PagingIndicatorLength
        pagingIndicatorLength
                                                                             DEFAULT pi4,
                                                                             DEFAULT f4,
        n-GAP
                                            N-GAP
        n-PCH
                                            N-PCH
                                                                             DEFAULT 2
    }
```

```
}
PICH-Info-LCR-r4 ::=
                                      SEQUENCE {
    timeslot TimeslotNumber-LCR-r4
pichChannelisationCodeList-LCR-r4 PichChannelisationCodeList-LCR-r4,
                                                                               OPTIONAL.
   pichChannelisationCodeList-LCR-74
midambleShiftAndBurstType
midambleShiftAndBurstType
repetitionPeriodLengthOffset
pagingIndicatorLength
n-GAP
MidambleShiftAndBurstType-LCR-74,
RepPerLengthOffset-PICH
PagingIndicatorLength
N-GAP
DEFAULT pi4,
DEFAULT pi4,
    n-PCH
                                          N-PCH
                                                                            DEFAULT 2
}
                                     INTEGER (-10..5)
PTCH-PowerOffset ::=
PilotBits128 ::=
                                      ENUMERATED {
                                         pb4, pb8 }
PilotBits256 ::=
                                      ENUMERATED {
                                          pb2, pb4, pb8 }
    -- Actual measurement power offset value = IE value * 0.5
MeasurementPowerOffset ::=
                                     INTEGER (-12..26)
PositionFixedOrFlexible ::=
                                     ENUMERATED {
                                          fixed.
                                          flexible }
                                      CHOICE {
PowerControlAlgorithm ::=
                                         TPC-StepSizeFDD,
   algorithm1
    algorithm2
                                          NULL
PowerOffsetPilot-pdpdch ::=
                                     INTEGER (0..24)
PowerOffsetTPC-pdpdch ::=
                                     INTEGER (0..24)
PowerRampStep ::=
                                     INTEGER (1..8)
PRACH-ChanCodes-LCR-r4 ::= SEQUENCE (SIZE (1..4)) OF
                                         TDD-PRACH-CCode-LCR-r4
PRACH-Definition-LCR-r4 ::=
                                    SEQUENCE {
                                     TimeslotNumber-PRACH-LCR-r4, PRACH-ChanCodes-LCR-r4,
   timeslot
    prach-ChanCodes-LCR
   midambleShiftAndBurstType
                                      MidambleShiftAndBurstType-LCR-r4,
    fpach-Info
                                         FPACH-Info-r4
                                      ENUMERATED {
PRACH-Midamble ::=
                                         direct,
                                          direct-Inverted }
PRACH-Partitioning ::=
                                      CHOICE {
                                          SEQUENCE (SIZE (1..maxASC)) OF
    -- TABULAR: If only "NumASC+1" (with, NumASC+1 < maxASC) ASCSetting-FDD are listed,
    -- the remaining (NumASC+2 through maxASC) ASCs are unspecified.
                                             ASCSetting-FDD,
                                          SEQUENCE (SIZE (1..maxASC)) OF
    -- TABULAR: If only "NumASC+1" (with, NumASC+1 < maxASC) ASCSetting-TDD are listed,
    -- the remaining (NumASC+2 through maxASC) ASCs are unspecified.
                                              ASCSetting-TDD
}
                                     SEQUENCE (SIZE (1..maxASC)) OF
PRACH-Partitioning-LCR-r4 ::=
    -- TABULAR: If only "NumASC+1" (with, NumASC+1 < maxASC) ASCSetting-TDD-LCR-r4 are listed,
    -- the remaining (NumASC+2 through maxASC) ASCs are unspecified.
                                              ASCSetting-TDD-LCR-r4
PRACH-PowerOffset ::=
                                      SEQUENCE {
    powerRampStep
                                         PowerRampStep,
    preambleRetransMax
                                         PreambleRetransMax
}
                          SEQUENCE {
CHOICE
PRACH-RACH-Info ::=
                                    CHOICE {
    modeSpecificInfo
                                          SEQUENCE {
            availableSignatures
                                                  AvailableSignatures,
                                                   SF-PRACH,
            availableSF
```

```
preambleScramblingCodeWordNumber
                                                PreambleScramblingCodeWordNumber,
                                                PuncturingLimit,
            puncturingLimit
            availableSubChannelNumbers
                                                AvailableSubChannelNumbers
        },
        tdd
                                            SEQUENCE {
                                            TimeslotNumber,
            timeslot
            channelisationCodeList
                                                TDD-PRACH-CCodeList,
            prach-Midamble
                                                PRACH-Midamble
    }
}
PRACH-RACH-Info-LCR-r4 ::=
                                   SEQUENCE {
    sync-UL-Info
                                        SYNC-UL-Info-r4,
   prach-DefinitionList
                                        SEQUENCE (SIZE (1..maxPRACH-FPACH)) OF
                                            PRACH-Definition-LCR-r4
}
PRACH-SystemInformation ::=
                                    SEQUENCE {
   prach-RACH-Info
                                        PRACH-RACH-Info,
    transportChannelIdentity
                                        TransportChannelIdentity,
    rach-TransportFormatSet
                                       TransportFormatSet
                                                                            OPTIONAL,
    rach-TFCS
                                        TFCS
                                                                            OPTIONAL,
   prach-Partitioning
                                       PRACH-Partitioning
                                                                            OPTIONAL,
                                    PersistenceScalingFactorList
    persistenceScalingFactorList
                                                                            OPTIONAL.
    ac-To-ASC-MappingTable
                                       AC-To-ASC-MappingTable
                                                                            OPTIONAL,
                                       CHOICE {
    modeSpecificInfo
                                            SEQUENCE {
                                                PRACH-PowerOffset PACH-Transmission
        fdd
            primaryCPICH-TX-Power
            constantValue
            prach-PowerOffset
            rach-TransmissionParameters
                                               RACH-TransmissionParameters OPTIONAL,
            aich-Info
                                                AICH-Info
                                                                            OPTIONAL
        },
        tdd
                                            NULL
    }
}
PRACH-SystemInformation-LCR-r4 ::= SEQUENCE {
   rach-TransportFormatSet-LCR prach-Partitioning-LCR PRACH-RACH-Info-LCR-r4, TransportFormatSet-LCR prach-Partitioning-LCR
   prach-RACH-Info-LCR
                                                                        OPTIONAL,
                                       PRACH-Partitioning-LCR-r4
                                                                        OPTIONAL
}
PRACH-SystemInformationList ::=
                                    SEQUENCE (SIZE (1..maxPRACH)) OF
                                        PRACH-SystemInformation
PRACH-SystemInformationList-LCR-r4 ::= SEQUENCE (SIZE (1..maxPRACH)) OF
                                            PRACH-SystemInformation-LCR-r4
PreambleRetransMax ::=
                                    INTEGER (1..64)
PreambleScramblingCodeWordNumber ::= INTEGER (0..15)
PreDefPhyChConfiguration ::=
                                    SEQUENCE {
    ul-DPCH-InfoPredef
                                       UL-DPCH-InfoPredef,
    dl-CommonInformationPredef
                                        DL-CommonInformationPredef OPTIONAL
}
PrimaryCCPCH-Info ::=
                                    CHOICE {
                                        SEQUENCE {
    fdd
        tx-DiversityIndicator
                                            BOOLEAN
                                        SEQUENCE {
    t.dd
        -- syncCase should be ignored for 1.28Mcps TDD mode
        syncCase
                                            CHOICE {
                                                SEQUENCE {
            syncCase1
                                                    TimeslotNumber
               timeslot
            },
            syncCase2
                                                SEQUENCE {
               timeslotSync2
                                                    TimeslotSync2
            }
                                                                            OPTIONAL.
        cellParametersID
                                            CellParametersID
                                                                            OPTIONAL,
        sctd-Indicator
                                            BOOLEAN
    }
}
```

```
PrimaryCCPCH-Info-r4 ::=
                                   CHOICE {
                                      SEQUENCE {
   fdd
       tx-DiversityIndicator
                                          BOOLEAN
   tdd
                                       SEQUENCE {
       tddOption
                                         CHOICE {
           tdd384
                                              SEQUENCE {
                                                  CHOICE {
               syncCase
                   syncCase1
                                                      SEQUENCE {
                      timeslot
                                                          TimeslotNumber
                   syncCase2
                                                      SEQUENCE {
                       timeslotSync2
                                                          TimeslotSync2
               }
                                                                          OPTIONAL
           },
           tdd128
                                              SEQUENCE {
               tstd-Indicator
                                                  BOOLEAN
       cellParametersID
                                          CellParametersID
                                                                         OPTIONAL,
       sctd-Indicator
                                          BOOLEAN
   }
}
PrimaryCCPCH-Info-LCR-r4 ::= SEQUENCE {
   tstd-Indicator
                                      BOOLEAN,
                                       CellParametersID
                                                          OPTIONAL,
   cellParametersID
   sctd-Indicator
                                       BOOLEAN
}
-- For 1.28Mcps TDD, the following IE includes elements for the PCCPCH Info additional to those
-- in PrimaryCCPCH-Info
                                 SEQUENCE {
PrimaryCCPCH-Info-LCR-r4-ext ::=
   tstd-Indicator
}
PrimaryCCPCH-InfoPost ::=
                                 SEQUENCE {
                                      CHOICE {
   syncCase
                                          SEQUENCE {
       syncCase1
                                              TimeslotNumber
           timeslot
       syncCase2
                                           SEQUENCE {
                                              TimeslotSync2
           timeslotSync2
       }
   cellParametersID
                                       CellParametersID,
   sctd-Indicator
                                      BOOLEAN
}
PrimaryCCPCH-InfoPostTDD-LCR-r4 ::= SEQUENCE {
   tstd-Indicator
                                      BOOLEAN,
   cellParametersID
                                       CellParametersID,
   sctd-Indicator
                                      BOOLEAN
}
PrimaryCCPCH-TX-Power ::=
                                 INTEGER (6..43)
PrimaryCPICH-Info ::=
                                  SEQUENCE {
   primaryScramblingCode
                                      PrimaryScramblingCode
PrimaryCPICH-TX-Power ::=
                                  INTEGER (-10..50)
PrimaryScramblingCode ::=
                                   INTEGER (0..511)
                                   ENUMERATED {
PuncturingLimit ::=
                                       pl0-40, pl0-44, pl0-48, pl0-52, pl0-56,
                                       pl0-60, pl0-64, pl0-68, pl0-72, pl0-76,
                                       pl0-80, pl0-84, pl0-88, pl0-92, pl0-96, pl1 }
PUSCH-CapacityAllocationInfo ::= SEQUENCE {
       pusch-AllocationPending CHOICE {
pusch-AllocationPending
   pusch-Allocation
       pusch-AllocationAssignment SFOUR
                                          SEQUENCE {
           pusch-AllocationPeriodInfo
                                              AllocationPeriodInfo,
           pusch-PowerControlInfo
                                              UL-TargetSIR
                                                                         OPTIONAL,
           configuration
                                              CHOICE {
```

```
old-Configuration
                                                  SEQUENCE {
                                                      TFCS-IdentityPlain DEFAULT 1,
                   tfcs-ID
                   pusch-Identity
                                                     PUSCH-Identity
               new-Configuration
                                                  SEQUENCE {
                                                  PUSCH-Info,
                  pusch-Info
                   pusch-Identity
                                                      PUSCH-Identity OPTIONAL
               }
           }
       }
   }
}
PUSCH-CapacityAllocationInfo-r4 ::= SEQUENCE {
       pusch-AllocationPending pusch-Allocation
       pusch-AllocationPending pusch-AllocationPeriodInfo pusch-PowerControlInfo configuration old-Configuration
   pusch-Allocation
                                              PUSCH-PowerControlInfo-r4 OPTIONAL,
              figuration old-Configuration
                                              SEQUENCE {
                                                      TFCS-IdentityPlain DEFAULT 1,
                   tfcs-ID
                   pusch-Identity
                                                      PUSCH-Identity
                                              SEQUENCE {
               new-Configuration
                                                  PUSCH-Info-r4,
                  pusch-Info
                                                     PUSCH-Identity
                   pusch-Identity
               }
           }
       }
   }
PUSCH-Identity ::=
                                  INTEGER (1..hiPUSCHidentities)
PUSCH-Info ::=
                                  SEQUENCE {
                                      TFCS-IdentityPlain
                                                                        DEFAULT 1,
   t.fcs-ID
                                                                   OPTIONAL,
OPTIONAL
   commonTimeslotInfo
                                      CommonTimeslotInfo
   pusch-TimeslotsCodes
                                      UplinkTimeslotsCodes
}
PUSCH-Info-r4 ::=
                                  SEQUENCE {
   tfcs-ID
                                   TFCS-IdentityPlain
                                                                       DEFAULT 1,
   commonTimeslotInfo
                                      CommonTimeslotInfo
                                                                         OPTIONAL,
                                      CHOICE {
   tdd0ption
                                       SEQUENCE {
       tdd384
                                          UplinkTimeslotsCodes
         pusch-TimeslotsCodes
                                                                        OPTIONAL
                                      SEQUENCE {
       tdd128
           pusch-TimeslotsCodes
                                              UplinkTimeslotsCodes-LCR-r4 OPTIONAL
   }
}
PUSCH-Info-LCR-r4 ::= SEQUENCE {
   tfcs-ID
                                     TFCS-IdentityPlain
                                                                        DEFAULT 1,
   commonTimeslotInfo
                                      CommonTimeslotInfo
                                                                         OPTIONAL,
                                    UplinkTimeslotsCodes-LCR-r4
   pusch-TimeslotsCodes
                                                                        OPTIONAL
}
PUSCH-PowerControlInfo-r4 ::=
                                 SEQUENCE {
   -- The IE ul-TargetSIR corresponds to PRX-PUSCHdes for 1.28Mcps \ensuremath{\text{TDD}}
   -- Actual value PRX-PUSCHdes = (value of IE "ul-TargetSIR" - 120)
   ul-TargetSIR
                                      UL-TargetSIR,
   tddOption
                                      CHOICE {
       tdd384
                                          NULL,
                                          SEQUENCE {
       tdd128
          tpc-StepSize
                                              TPC-StepSizeTDD
                                                                     OPTIONAL
       }
   }
}
PUSCH-SysInfo ::=
                                  SEQUENCE {
   pusch-Identity
                                      PUSCH-Identity,
   pusch-Info
                                      PUSCH-Info,
   usch-TFS
                                                                         OPTIONAL,
                                      TransportFormatSet
   usch-TFCS
                                      TFCS
                                                                         OPTIONAL
```

```
}
                                  PUSCH-Identity,
PUSCH-Info,
PUSCH-SysInfo-HCR-r5 ::=
                                          SEQUENCE {
   pusch-Identity
    pusch-Info
                                   PUSCH-INIO,
USCH-TransportChannelsInfo
    usch-TransportChannelsInfo
                                                                          OPTIONAL,
   usch-TFCS
                                       TFCS
                                                                           OPTIONAL
}
PUSCH-SysInfo-LCR-r4 ::= pusch-Identity
                                SEQUENCE {
                                   PUSCH-Identity,
    pusch-Info
                                        PUSCH-Info-LCR-r4,
   usch-TFS
                                                                           OPTIONAL.
                                        TransportFormatSet
    usch-TFCS
                                                                           OPTIONAL
}
                                  SEQUENCE (SIZE (1..maxPUSCH)) OF
PUSCH-SysInfoList ::=
                                       PUSCH-SysInfo
PUSCH-SysInfoList-HCR-r5 ::=
                                       SEQUENCE (SIZE (1..maxPUSCH)) OF PUSCH-SysInfo-HCR-r5
PUSCH-SysInfoList-LCR-r4 ::=
                                  SEQUENCE (SIZE (1..maxPUSCH)) OF
                                       PUSCH-SysInfo-LCR-r4
PUSCH-SysInfoList-SFN ::=
                                    SEQUENCE (SIZE (1..maxPUSCH)) OF
                                       SEQUENCE {
    pusch-SysInfo
                                           PUSCH-SysInfo,
    sfn-TimeInfo
                                           SFN-TimeInfo
                                                                          OPTIONAL
}
PUSCH-SysInfoList-SFN-HCR-r5 ::=
                                           SEQUENCE (SIZE (1..maxPUSCH)) OF
                                       SEQUENCE {
                                           PUSCH-SysInfo-HCR-r5,
    pusch-SysInfo
    sfn-TimeInfo
                                           SFN-TimeInfo
                                                                          OPTIONAL
}
PUSCH-SysInfoList-SFN-LCR-r4 ::= SEQUENCE (SIZE (1..maxPUSCH)) OF
                                       SEQUENCE {
    pusch-SysInfo
                                           PUSCH-SysInfo-LCR-r4,
    sfn-TimeInfo
                                            SFN-TimeInfo
                                                                           OPTIONAL
}
                                  SEQUENCE {
RACH-TransmissionParameters ::=
                                       INTEGER (1..32),
   nb01Min
                                        NB01,
   nb01Max
                                        NB01
}
ReducedScramblingCodeNumber ::=
                                   INTEGER (0..8191)
RepetitionPeriodAndLength ::= CHOICE {
                                       NULL,
   repetitionPeriod1
    -- repetitionPeriod2 could just as well be NULL also.
                                      INTEGER (1..1),
INTEGER (1..3),
   repetitionPeriod2
repetitionPeriod4
                                       INTEGER (1..7),
   repetitionPeriod8
   repetitionPeriod16
repetitionPeriod32
                                       INTEGER (1..15),
                                     INTEGER (1..31),
                                       INTEGER (1..63)
   repetitionPeriod64
}
RepetitionPeriodLengthAndOffset ::= CHOICE {
   repetitionPeriod1
                                        SEQUENCE {
    repetitionPeriod2
       length
                                           NULL,
       offset
                                           INTEGER (0..1)
                                        SEQUENCE {
    repetitionPeriod4
       length
                                           INTEGER (1..3),
       offset
                                            INTEGER (0..3)
    repetitionPeriod8
                                        SEQUENCE {
                                           INTEGÈR (1..7),
       length
       offset
                                           INTEGER (0..7)
    repetitionPeriod16
                                        SEQUENCE {
                                            INTEGER (1..15),
       length
                                            INTEGER (0..15)
        offset
```

```
repetitionPeriod32
                                               SEQUENCE {
         length
                                                    INTEGER (1..31),
                                                    INTEGER (0..31)
         offset
     repetitionPeriod64
                                             SEQUENCE {
                                                    INTEGER (1..63),
         length
                                                    INTEGER (0..63)
         offset
}
\label{eq:ReplacedPDSCH-CodeInfo} \begin{tabular}{ll} ReplacedPDSCH-CodeInfo ::= & SEQUENCE & \\ \end{tabular}
                                         MaxTFCI-Field2Value,
SF-PDSCH,
     tfci-Field2
     tfci-Field2
spreadingFactor
     codeNumber
                                               CodeNumberDSCH,
    multiCodeInfo
                                               MultiCodeInfo
}
ReplacedPDSCH-CodeInfoList ::= SEQUENCE (SIZE (1..maxTFCI-2-Combs)) OF
                                              ReplacedPDSCH-CodeInfo
                                       CHOICE {
RepPerLengthOffset-PICH ::=
                                           INTEGER (0..3),
INTEGER (0..7),
    rpp4-2
    rpp8-2
                                               INTEGER (0..7),
INTEGER (0..15),
    rpp8-4
     rpp16-2
    rpp16-4
                                               INTEGER (0..15),
                                               INTEGER (0..31),
    rpp32-2
                                               INTEGER (0..31),
    rpp32-4
                                                INTEGER (0..63),
    rpp64-2
     rpp64-4
                                               INTEGER (0..63)
RepPerLengthOffset-MICH ::= CHOICE {
                                               INTEGER (0..3),
    rpp4-2
     rpp8-2
                                                INTEGER (0..7),
                                               INTEGER (0..7),
    rpp8-4
                                               INTEGER (0..15),
INTEGER (0..15),
    rpp16-2
    rpp16-4
    rpp32-2
                                               INTEGER (0..31),
                                                INTEGER (0..31),
    rpp32-4
                                               INTEGER (0..63),
    rpp64-2
     rpp64-4
                                               INTEGER (0..63)
}
    dl-restrictedTrCh-Type DL-TrCH-Type, restrictedDL-TrCH-Identity allowedTFIList SEQUENCE {
    dl-restrictedTrCh-Type DL-TrCH-Type, TransportCham
RestrictedTrCH ::=
                                              TransportChannelIdentity,
                                               AllowedTFI-List
}
\label{eq:control} {\tt RestrictedTrCH-InfoList} \ ::= \qquad \qquad {\tt SEQUENCE} \ ({\tt SIZE(1..maxTrCH)}) \ {\tt OF}
                                             RestrictedTrCH
RL-AdditionInformation ::= SEQUENCE {
    primaryCPICH-Info Primary
     primaryCPICH-Info
                                             PrimaryCPICH-Info,
     dl-DPCH-InfoPerRL
                                               DL-DPCH-InfoPerRL,
\hspace{-0.1cm} -- dummy is not used in this version of specification
-- and it should be ignored.

tfci CombiningIndicatordummy

SCCP
                                                         BOOLEAN.
                                             SCCPCH-InfoForFACH
                                                                                         OPTIONAL
     sccpch-InfoforFACH
}
RL-AdditionInformation-r6 ::= SEQUENCE {
   primaryCPICH-Info PrimaryCPICH-Info, CHOICE {

                                         DL-DPCH-InfoPerRL-r5,
DL-FDPCH-InfoPerRL-r6
         dl-DPCH-InfoPerRL
         dl-FDPCH-InfoPerRL
                                                    DL-FDPCH-InfoPerRL-r6
                                             BOOLEAN,
     tfci CombiningIndicator
                                    SCCPCH-InfoForFACH
                                                                                         OPTIONAL
     sccpch-InfoforFACH
}
{\tt RL-AdditionInformationList} ::= \\ {\tt SEQUENCE} \ ({\tt SIZE} \ ({\tt 1..maxRL-1})) \ {\tt OF} \\
                                               RL-AdditionInformation
RL-AdditionInformationList-r6 ::= SEQUENCE (SIZE (1..maxRL-1)) OF
                                                RL-AdditionInformation-r6
```

```
RL-IdentifierList ::=
                                     SEQUENCE (SIZE (1..maxRL)) OF
                                         PrimaryCPICH-Info
RL-RemovalInformationList ::=
                                     SEQUENCE (SIZE (1..maxRL)) OF
                                         PrimaryCPICH-Info
RPP ::=
                                     ENUMERATED {
                                          mode0, mode1 }
S-Field ::=
                                      ENUMERATED {
                                          elbit, e2bits }
                                      ENUMERATED {
SCCPCH-ChannelisationCode ::=
                                          cc16-1, cc16-2, cc16-3, cc16-4,
                                          cc16-5, cc16-6, cc16-7, cc16-8,
                                          cc16-9, cc16-10, cc16-11, cc16-12,
                                          cc16-13, cc16-14, cc16-15, cc16-16 }
SCCPCH-ChannelisationCodeList ::=
                                     SEQUENCE (SIZE (1..16)) OF
                                          SCCPCH-ChannelisationCode
SCCPCH-InfoForFACH ::=
                                     SEQUENCE {
    secondaryCCPCH-Info
                                          SecondaryCCPCH-Info,
    tfcs
                                          TFCS,
    modeSpecificInfo
                                     CHOICE {
                                         SEQUENCE {
        fdd
            fach-PCH-InformationList
                                                  FACH-PCH-InformationList,
            sib-ReferenceListFACH
                                                  SIB-ReferenceListFACH
        },
                                         SEQUENCE {
        tdd
            fach-PCH-InformationList
                                                FACH-PCH-InformationList
    }
}
SCCPCH-InfoForFACH-r4 ::=
                                         SEQUENCE {
                                         SecondaryCCPCH-Info-r4,
    secondaryCCPCH-Info
    tfcs
                                         TFCS,
    fach-PCH-InformationList
                                         FACH-PCH-InformationList,
    {\tt modeSpecificInfo}
                                     CHOICE {
                                         SEQUENCE {
       fdd
            sib-ReferenceListFACH
                                            SIB-ReferenceListFACH
        tdd
                                          NULL
    }
}
SCCPCH-SystemInformation ::=
                                     SEQUENCE {
   secondaryCCPCH-Info
                                         SecondaryCCPCH-Info,
    tfcs
                                          TFCS
                                                                               OPTIONAL,
    fach-PCH-InformationList
                                          FACH-PCH-InformationList
                                                                               OPTIONAL.
                                                                               OPTIONAL
   pich-Info
                                          PICH-Info
{\tt SCCPCH-SystemInformation-LCR-r4-ext} \; ::= \; {\tt SEQUENCE} \; \left\{ \right. \\
    {\tt secondaryCCPCH-LCR-Extensions} \quad {\tt SecondaryCCPCH-Info-LCR-r4-ext},
    -- pich-Info in the SCCPCH-SystemInformation IE shall be absent,
    -- and instead the following used.
   pich-Info
                                     PTCH-Info-LCR-r4
                                                                               OPTIONAL
}
SCCPCH-SystemInformation-MBMS-r6-ext ::= SEQUENCE {
                                                                              OPTIONAL
    mcch-ConfigurationInfo
                                        MBMS-MCCH-ConfigurationInfo-r6
SCCPCH-SystemInformationList ::= SEQUENCE (SIZE (1..maxSCCPCH)) OF
                                         SCCPCH-SystemInformation
-- SCCPCH-SystemInformationList-LCR-r4-ext includes elements additional to those in
-- SCCPCH-SystemInformationList for the 1.28Mcps TDD. The order of the IEs
-- indicates which SCCPCH-SystemInformation-LCR-r4-ext IE extends which
-- SCCPCH-SystemInformation IE.
\texttt{SCCPCH-SystemInformationList-LCR-r4-ext} \ ::= \ \texttt{SEQUENCE} \ (\texttt{SIZE} \ (\texttt{1..maxSCCPCH})) \ \texttt{OF}
                                                  SCCPCH-SystemInformation-LCR-r4-ext
-- The SCCPCH-SystemInformationList-MBMS-r6-ext includes elements additional to those in the
-- SCCPCH-SystemInformationList for the mapping of MCCH onto an S-CCPCH common for both MBMS
```

```
-- and non-MBMS purposes. The order of the IEs indicates which SCCPCH-SystemInformation-MBMS-r6-ext
-- IE extends which SCCPCH-SystemInformation IE.
SCCPCH-SystemInformationList-MBMS-r6-ext ::= SEQUENCE (SIZE (1..maxSCCPCH)) OF
                                        SCCPCH-SystemInformation-MBMS-r6-ext
-- The SCCPCH-SystemInformation-MBMS-r6 is used for an S-CCPCH dedicated for MBMS purposes.
SCCPCH-SystemInformation-MBMS-r6 ::= SEQUENCE {
    secondaryCCPCHInfo-MBMS
                                        SecondaryCCPCHInfo-MBMS-r6,
    transportFormatCombinationSet
                                        TFCS,
    fachCarryingMCCH
                                        SEQUENCE {
       transportFormatSet
                                            TransportFormatSet,
       mcch-ConfigurationInfo
                                            MBMS-MCCH-ConfigurationInfo-r6
    fachCarryingMTCH-List
                                        MBMS-FACHCarryingMTCH-List
                                                                             OPTIONAL,
    schedulingInformation
fachCarryingMSCH
                                        SEQUENCE {
                                           TransportFormatSet,
                                            MBMS-MSCHConfigurationInfo-r6
       mschConfigurationInfo
            OPTIONAL
}
                                    ENUMERATED {
ScramblingCodeChange ::=
                                        codeChange, noCodeChange }
                                    ENUMERATED {
ScramblingCodeType ::=
                                        shortSC,
                                         longSC }
SecondaryCCPCH-Info ::=
                                    SEQUENCE {
   modeSpecificInfo
                                    CHOICE {
                                        SEQUENCE {
        fdd
            -- dummyl is not used in this version of the specification and should be ignored.
                                            PCPICH-UsageForChannelEst,
            -- dummy2 is not used in this version of the specification. It should not
            -- be sent and if received it should be ignored.
                                            SecondaryCPICH-Info
            dummy2
                                                                             OPTIONAL.
            secondaryScramblingCode
                                            SecondaryScramblingCode
                                                                             OPTIONAL,
                                          BOOLEAN,
            sttd-Indicator
            sf-AndCodeNumber
                                            SF256-AndCodeNumber,
            pilotSymbolExistence
                                            BOOLEAN,
            tfci-Existence
                                            BOOLEAN,
                                            PositionFixedOrFlexible,
            positionFixedOrFlexible
                                            TimingOffset
                                                                             DEFAULT 0
            timingOffset
        },
                                       SEQUENCE {
            -- TABULAR: the offset is included in CommonTimeslotInfoSCCPCH
            commonTimeslotInfo CommonTimeslotInfoSCCPCH, individualTimeslotInfo IndividualTimeslotInfo, channelisationCode SCCPCH-ChannelisationCode
            channelisationCode
                                           SCCPCH-ChannelisationCodeList
    }
}
SecondaryCCPCH-Info-r4 ::=
                                SEQUENCE {
    modeSpecificInfo
                                        SEQUENCE {
        fdd
            secondaryScramblingCode
                                            SecondaryScramblingCode
                                                                            OPTIONAL,
            sttd-Indicator
                                            BOOLEAN,
            sf-AndCodeNumber
                                            SF256-AndCodeNumber,
            pilotSymbolExistence
                                            BOOLEAN,
            tfci-Existence
                                            BOOLEAN.
            positionFixedOrFlexible
                                            PositionFixedOrFlexible,
            timingOffset
                                            TimingOffset
                                                                             DEFAULT 0
        },
                                        SEQUENCE {
            -- TABULAR: the offset is included in CommonTimeslotInfoSCCPCH
            commonTimeslotInfo
                                             CommonTimeslotInfoSCCPCH,
            tddOption
                                             CHOICE {
                tdd384
                                                SEQUENCE {
                                                    IndividualTimeslotInfo
                    individualTimeslotInfo
                tdd128
                                                SEQUENCE {
                    individualTimeslotInfo
                                                    IndividualTimeslotInfo-LCR-r4
            channelisationCode
                                SCCPCH-ChannelisationCodeList
       }
    }
```

```
SecondaryCCPCH-Info-LCR-r4-ext ::= SEQUENCE {
   individualTimeslotLCR-Ext IndividualTimeslotInfo-LCR-r4-ext
SEQUENCE {
secondaryScramblingCode
sttd-Indicator
sf-AndCodeNumber

SEQUENCE {
SecondaryScramblingCode
BOOLEAN,
SecondaryScramblingCode
BOOLEAN,
SecondaryScramblingCode
        fdd
                                                                           OPTIONAL,
           tfci-Existence
                                          BOOLEAN,
PositionFixedOrFlexible,
           positionFixedOrFlexible
           timingOffset
                                           TimingOffset
                                                                            DEFAULT 0
        },
        tdd384
                                       DownlinkTimeslotsCodes,
        tdd128
                                       DownlinkTimeslotsCodes-LCR-r4
}
                                   SEQUENCE {
SecondaryCPICH-Info ::=
                                    SecondaryScramblingCode
    secondaryDL-ScramblingCode
                                                                           OPTIONAL,
                                       ChannelisationCode256
    channelisationCode
}
SecondaryScramblingCode ::=
                                   INTEGER (1..15)
SecondInterleavingMode ::= ENUMERATED {
                                        frameRelated, timeslotRelated }
-- SF256-AndCodeNumber encodes both "Spreading factor" and "Code Number"
SF256-AndCodeNumber ::= CHOICE {
                                        INTEGER (0..3),
   sf4
                                        INTEGER (0..7),
   sf8
   sf16
                                        INTEGER (0..15),
                                        INTEGER (0..31),
   sf32
                                        INTEGER (0..63),
   sf64
   sf128
                                        INTEGER (0..127),
    sf256
                                        INTEGER (0..255)
}
-- SF512-AndCodeNumber encodes both "Spreading factor" and "Code Number"
SF512-AndCodeNumber ::= CHOICE {
                                        INTEGER (0..3),
   sf8
                                        INTEGER (0..7),
   sf16
                                        INTEGER (0..15),
                                        INTEGER (0..31),
   sf32
   sf64
                                        INTEGER (0..63),
   sf128
                                        INTEGER (0..127),
                                        INTEGER (0..255),
   sf256
                                        INTEGER (0..511)
    sf512
}
-- SF512-AndPilot encodes both "Spreading factor" and "Number of bits for Pilot bits"
                                    CHOICE {
SF512-AndPilot ::=
   sfd4
                                        NULL,
    sfd8
                                        NULL,
   sfd16
                                        NULL,
   sfd32
                                        NULL,
   sfd64
                                       NULL.
    sfd128
                                       PilotBits128,
    sfd256
                                        PilotBits256,
   sfd512
                                        NULL
SF-PDSCH ::=
                                    ENUMERATED {
                                       sfp4, sfp8, sfp16, sfp32,
                                        sfp64, sfp128, sfp256 }
                                    ENUMERATED {
SF-PRACH ::=
                                       sfpr32, sfpr64, sfpr128, sfpr256 }
SFN-TimeInfo ::=
                                    SEQUENCE {
                                       INTEGÈR (0..4095),
   activationTimeSFN
   physChDuration
                                    DurationTimeInfo
-- actual scheduling value = 2^{(\text{signalled value }+1)} and is the periodicity of sending special burst frames
                               INTEGER (0..7)
SpecialBurstScheduling ::=
```

```
SpreadingFactor ::=
                                    ENUMERATED {
                                       sf4, sf8, sf16, sf32,
                                        sf64, sf128, sf256 }
SRB-delay ::=
                                    INTEGER (0..7)
SSDT-CellIdentity ::=
                                    ENUMERATED {
                                       ssdt-id-a, ssdt-id-b, ssdt-id-c,
                                        ssdt-id-d, ssdt-id-e, ssdt-id-f,
                                        ssdt-id-g, ssdt-id-h }
SSDT-Information ::=
                                    SEQUENCE {
   s-Field
                                       S-Field,
   codeWordSet
                                       CodeWordSet
}
SSDT-Information-r4 ::= SEQUENCE {
                                      S-Field,
   s-Field
   codeWordSet
                                        CodeWordSet,
                                        SSDT-UL
                                                                                OPTIONAL
    ssdt-UL-r4
}
SSDT-UL ::=
                                    ENUMERATED {
                                       ul, ul-AndDL }
SynchronisationParameters-r4 ::=
                                    SEQUENCE {
   sync-UL-CodesBitmap
                                   BIT STRING {
                                           code7(0),
                                            code6(1),
                                            code5(2),
                                            code4(3),
                                            code3(4),
                                            code2(5),
                                            code1(6),
                                            code0(7)
                                            } (SIZE (8)),
   fpach-Info
                                       FPACH-Info-r4,
    -- Actual value prxUpPCHdes = IE value - 120
   prxUpPCHdes
                                        INTEGER (0..62),
    sync-UL-Procedure
                                        SYNC-UL-Procedure-r4
                                                                                OPTIONAL
}
SYNC-UL-Procedure-r4 ::= SEQUENCE {
max-SYNC-UL-Transmissions ENUMERATED { tr1, tr2, tr4, tr8 },
powerRampStep INTEGER (0..3)
}
   NC-UL-Info-r4 ::=
sync-UL-Codes-Bitmap
SYNC-UL-Info-r4 ::=
                                   SEQUENCE {
                                    BIT STRING {
                                            code7(0),
                                            code6(1),
                                            code5(2),
                                            code4(3),
                                            code3(4),
                                            code2(5),
                                            code1(6),
                                            code0(7)
   } ( SIZE (8)),
-- Actual value prxUpPCHdes = IE value - 120
   prxUpPCHdes
                                       INTEGER (0..62),
                                        INTEGER (0..3),
   powerRampStep
                                       ENUMERATED { tr1, tr2, tr4, tr8 } ,
   max-SYNC-UL-Transmissions
                                       INTEGER(1..32)
   mmax
}
TDD-FPACH-CCode16-r4 ::=
                                    ENUMERATED {
                                       cc16-1, cc16-2, cc16-3, cc16-4,
                                        cc16-5, cc16-6, cc16-7, cc16-8,
                                        cc16-9, cc16-10, cc16-11, cc16-12,
                                        cc16-13, cc16-14, cc16-15, cc16-16 }
                                    INTEGER (-110..-52)
TDD-UL-Interference ::=
TDD-PICH-CCode ::=
                                    ENUMERATED {
                                       cc16-1, cc16-2, cc16-3, cc16-4,
                                        cc16-5, cc16-6, cc16-7, cc16-8,
                                        cc16-9, cc16-10, cc16-11, cc16-12,
```

```
cc16-13, cc16-14, cc16-15, cc16-16 }
TDD-PRACH-CCode8 ::=
                                     ENUMERATED {
                                         cc8-1, cc8-2, cc8-3, cc8-4,
                                         cc8-5, cc8-6, cc8-7, cc8-8 }
TDD-PRACH-CCode16 ::=
                                     ENUMERATED {
                                        cc16-1, cc16-2, cc16-3, cc16-4,
                                         cc16-5, cc16-6, cc16-7, cc16-8,
                                         cc16-9, cc16-10, cc16-11, cc16-12,
                                         cc16-13, cc16-14, cc16-15, cc16-16 }
TDD-PRACH-CCode-LCR-r4 ::=
                                     ENUMERATED {
                                         cc4-1, cc4-2, cc4-3, cc4-4,
                                         cc8-1, cc8-2, cc8-3, cc8-4,
                                         cc8-5, cc8-6, cc8-7, cc8-8,
                                         cc16-1, cc16-2, cc16-3, cc16-4,
                                         cc16-5, cc16-6, cc16-7, cc16-8,
                                         cc16-9, cc16-10, cc16-11, cc16-12,
                                         cc16-13, cc16-14, cc16-15, cc16-16 }
TDD-PRACH-CCodeList ::=
                                     CHOICE {
                                         SEQUENCE (SIZE (1..8)) OF
  sf8
                                            TDD-PRACH-CCode8,
-- Channelisation codes cc16-9, cc16-10, cc16-11, cc16-12, cc16-13, cc16-14,
-- cc16-15 and cc16-16 shall not be used
                                         SEQUENCE (SIZE (1..8)) OF
                                             TDD-PRACH-CCode16
}
TFC-ControlDuration ::=
                                     ENUMERATED {
                                         tfc-cd1, tfc-cd2, tfc-cd4, tfc-cd8,
                                         tfc-cd16, tfc-cd24, tfc-cd32, tfc-cd48, tfc-cd64, tfc-cd128,
                                         tfc-cd192, tfc-cd256, tfc-cd512 }
TFCI-Coding ::=
                                     ENUMERATED {
                                        tfci-bits-4, tfci-bits-8,
                                         tfci-bits-16, tfci-bits-32 }
TGCFN ::=
                                     INTEGER (0..255)
-- In TGD, value 270 represents "undefined" in the tabular description.
TGD ::=
                                     INTEGER (15..270)
TGL ::=
                                     INTEGER (1..14)
TGMP ::=
                                     ENUMERATED {
                                         tdd-Measurement, fdd-Measurement,
                                         gsm-CarrierRSSIMeasurement,
                                         gsm-initialBSICIdentification, gsmBSICReconfirmation,
                                         multi-carrier }
                                     SEQUENCE {
TGP-Sequence ::=
                                        TGPSI,
    tapsi
    tgps-Status
                                         CHOICE {
       activate
                                            SEQUENCE {
          tgcfn
                                                 TGCFN
       deactivate
                                            NITIT.
    tgps-ConfigurationParams
                                       TGPS-ConfigurationParams
                                                                            OPTIONAL
}
TGPS-Reconfiguration-CFN ::=
                                    INTEGER (0..255)
TGP-SequenceList ::=
                                     SEQUENCE (SIZE (1..maxTGPS)) OF
                                         TGP-Sequence
TGP-SequenceShort ::=
                                     SEQUENCE {
    tapsi
                                         TGPSI,
    tgps-Status
                                         CHOICE {
                                           SEQUENCE {
       activate
            tgcfn
                                                TGCFN
        deactivate
                                            NULL
    }
}
```

```
INTEGER (1..144)
TGPL ::=
-- TABULAR: In TGPRC, value 0 represents "infinity" in the tabular description.
TGPRC ::=
                                   INTEGER (0..511)
TGPS-ConfigurationParams ::=
                                   SEQUENCE {
                                       TGMP.
    tamp
    tgprc
                                        TGPRC,
    tgsn
                                        TGSN,
    tql1
                                        TGL,
                                                                           OPTIONAL,
    tgl2
                                        TGL
   tgd
                                        TGD
                                       TGPL,
   tgpl1
    -- dummy is not used in this version of the specification, it should
    -- not be sent and if received it shall be ignored.
                                                                        OPTIONAL.
   dummy
                                    TGPL
                                       RPP.
   rpp
   itp
                                       ITP,
    -- TABULAR: Compressed mode method is nested inside UL-DL-Mode
   ul-DL-Mode
                                       UL-DL-Mode,
   dl-FrameType
                                       DL-FrameType,
   deltaSIR1
                                       DeltaSIR,
   deltaSIRAfter1
                                       DeltaSIR,
   deltaSTR2
                                       DeltaSTR
                                                                           OPTIONAL.
   deltaSIRAfter2
                                       DeltaSIR
                                                                           OPTIONAL,
   nidentifyAbort
                                       NidentifyAbort
                                                                           OPTIONAL,
                                       TreconfirmAbort
   treconfirmAbort
                                                                           OPTIONAL
}
TGPSI ::=
                                   INTEGER (1..maxTGPS)
TGSN ::=
                                    INTEGER (0..14)
                                    SEQUENCE {
TimeInfo ::=
   activationTime
                                       ActivationTime
                                                                           OPTIONAL,
   durationTimeInfo
                                       DurationTimeInfo
                                                                           OPTIONAL
}
TimeslotList ::=
                                    SEQUENCE (SIZE (1..maxTS)) OF
                                       TimeslotNumber
                                    CHOICE {
TimeslotList-r4 ::=
                                       SEQUENCE (SIZE (1..maxTS)) OF
   tdd384
                                           TimeslotNumber,
   tdd128
                                        SEQUENCE (SIZE (1..maxTS-LCR)) OF
                                           TimeslotNumber-LCR-r4
}
-- If TimeslotNumber is included for a 1.28Mcps TDD description, it shall take values from 0..6
TimeslotNumber ::=
                                       INTEGER (0..14)
TimeslotNumber-LCR-r4 ::=
                                       INTEGER (0..6)
TimeslotNumber-PRACH-LCR-r4 ::= INTEGER (1..6)
TimeslotSync2 ::=
                               INTEGER (0..6)
-- Actual value TimingOffset = IE value * 256
TimingOffset ::=
                                   INTEGER (0..149)
TPC-CombinationIndex ::=
                                   INTEGER (0..5)
-- Actual value TPC-StepSizeFDD = IE value + 1
TPC-StepSizeFDD ::=
                                   INTEGER (0..1)
TPC-StepSizeTDD ::=
                                   INTEGER (1..3)
-- Actual value TreconfirmAbort = IE value * 0.5 seconds
TreconfirmAbort ::= INTEGER (1..20)
TX-DiversityMode ::=
                                    ENUMERATED {
                                       noDiversity,
                                        closedLoopMode1,
                                       closedLoopMode2 }
UARFCN ::=
                               INTEGER (0..16383)
```

```
SEQUENCE {
UCSM-Info ::=
                                     MinimumSpreadingFactor,
   minimumSpreadingFactor
                                     NF-Max,
   nf-Max
   channelReqParamsForUCSM
                                     ChannelReqParamsForUCSM
}
UL-CCTrCH ::=
                                 SEQUENCE {
   tfcs-ID
                                    TFCS-IdentityPlain
                                                                       DEFAULT 1,
   ul-TargetSIR
                                      UL-TargetSIR,
   timeInfo
                                     TimeInfo,
   commonTimeslotInfo
                                     CommonTimeslotInfo
                                                                       OPTIONAL.
                                     UplinkTimeslotsCodes
   ul-CCTrCH-TimeslotsCodes
                                                                        OPTIONAL
}
                                  SEQUENCE {
UL-CCTrCH-r4 ::=
                                     TFCS-IdentityPlain
                                                                        DEFAULT 1,
   tfcs-ID
   -- The IE ul-TargetSIR corresponds to PRX-DPCHdes for 1.28Mcps TDD
   -- Actual value PRX-DPCHdes = (value of IE "ul-TargetSIR" - 120)
                                      UL-TargetSIR,
   ul-TargetSIR
   timeInfo
                                      TimeInfo,
   commonTimeslotInfo
                                      CommonTimeslotInfo
                                                                        OPTIONAL,
                                      CHOICE {
   tddOption
                                         SEQUENCE {
       tdd384
          ul-CCTrCH-TimeslotsCodes
                                            UplinkTimeslotsCodes
                                                                       OPTIONAL
       tdd128
                                        SEQUENCE {
          ul-CCTrCH-TimeslotsCodes
                                             UplinkTimeslotsCodes-LCR-r4 OPTIONAL
   }
}
UL-CCTrCHList ::=
                                 SEQUENCE (SIZE (1..maxCCTrCH)) OF
                                      UL-CCTrCH
UL-CCTrCHList-r4 ::=
                                  SEQUENCE (SIZE (1..maxCCTrCH)) OF
                                     UL-CCTrCH-r4
UL-CCTrCHListToRemove ::=
                                  SEQUENCE (SIZE (1..maxCCTrCH)) OF
                                     TFCS-IdentityPlain
                                  SEQUENCE (SIZE (0..maxCCTrCH)) OF
UL-CCTrChTPCList ::=
                                         TFCS-Identity
UL-ChannelRequirement ::=
                                  CHOICE {
   ul-DPCH-Info
                                     UL-DPCH-Info,
   cpch-SetInfo
                                     CPCH-SetInfo
}
UL-ChannelRequirement-r4 ::= CHOICE {
                                     UL-DPCH-Info-r4,
   ul-DPCH-Info
   cpch-SetInfo
                                     CPCH-SetInfo
}
UL-DPCH-Info-r5,
   ul-DPCH-Info
   cpch-SetInfo
                                      CPCH-SetInfo
}
UL-ChannelRequirement-r6 ::=
                                  CHOICE {
   ul-DPCH-Info
                                      UL-DPCH-Info-r6,
   cpch-SetInfo
                                      CPCH-SetInfo
}
UL-ChannelRequirementWithCPCH-SetID ::= CHOICE {
   ul-DPCH-Info
                                      UL-DPCH-Info,
                                      CPCH-SetInfo,
   cpch-SetInfo
                                      CPCH-SetID
   cpch-SetID
}
UL-ChannelRequirementWithCPCH-SetID-r4 ::= CHOICE {
   ul-DPCH-Info
                                     UL-DPCH-Info-r4,
   cpch-SetInfo
                                      CPCH-SetInfo,
   cpch-SetID
                                      CPCH-SetID
}
UL-ChannelRequirementWithCPCH-SetID-r5 ::= CHOICE {
   ul-DPCH-Info
                                      UL-DPCH-Info-r5,
```

```
cpch-SetInfo
                                        CPCH-SetInfo,
    cpch-SetID
                                        CPCH-SetID
}
UL-ChannelRequirementWithCPCH-SetID-r6 ::= CHOICE {
   ul-DPCH-Info
                                       UL-DPCH-Info-r6,
                                        CPCH-SetInfo,
    cpch-Set.Info
                                        CPCH-Set.ID
    cpch-SetID
}
                                    ENUMERATED {
UL-CompressedModeMethod ::=
                                        sf-2.
                                        higherLayerScheduling }
UL-DL-Mode ::=
                                    CHOICE {
                                        UL-CompressedModeMethod,
   ul
                                        DL-CompressedModeMethod,
    dl
    ul-and-dl
                                            SEQUENCE {
                                            UL-CompressedModeMethod,
       ul
        dl
                                            DL-CompressedModeMethod
    }}
UL-DPCCH-SlotFormat ::=
                                    ENUMERATED {
                                       slf0, slf1, slf2 }
UL-DPCH-Info ::=
                                    SEQUENCE {
    ul-DPCH-PowerControlInfo
                                     UL-DPCH-PowerControlInfo
                                                                          OPTIONAL,
    modeSpecificInfo
                                        CHOICE {
                                            SEQUENCE {
        fdd
                                                ScramblingCodeType,
            scramblingCodeType
            scramblingCode
                                                UL-ScramblingCode,
           numberOfDPDCH
                                                NumberOfDPDCH
                                                                            DEFAULT 1.
            spreadingFactor
                                                SpreadingFactor,
           tfci-Existence
                                                BOOLEAN,
            -- numberOfFBI-Bits is conditional based on history
            numberOfFBI-Bits
                                                NumberOfFBI-Bits
                                                                           OPTIONAL,
            puncturingLimit
                                                PuncturingLimit
        },
        tdd
                                           SEQUENCE {
            ul-TimingAdvance
                                              UL-TimingAdvanceControl OPTIONAL,
            ul-CCTrCHList
                                                UL-CCTrCHList
                                                                            OPTIONAL,
            ul-CCTrCHListToRemove
                                                UL-CCTrCHListToRemove
                                                                            OPTIONAL
        }
    }
}
UL-DPCH-Info-r4 ::=
                                    SEOUENCE {
    ul-DPCH-PowerControlInfo
                                        UL-DPCH-PowerControlInfo-r4
                                                                          OPTIONAL,
    modeSpecificInfo
                                        CHOICE {
        fdd
                                           SEQUENCE {
            scramblingCodeType
                                                ScramblingCodeType,
            scramblingCode
                                                UL-ScramblingCode,
            numberOfDPDCH
                                                NumberOfDPDCH
                                                                            DEFAULT 1,
            spreadingFactor
                                                SpreadingFactor,
           tfci-Existence
                                                BOOLEAN,
            -- numberOfFBI-Bits is conditional based on history
            numberOfFBI-Bits
                                                NumberOfFBI-Bits
                                                                            OPTIONAL,
                                                PuncturingLimit
            puncturingLimit
        },
        tdd.
                                           SEQUENCE {
            ul-TimingAdvance
                                               UL-TimingAdvanceControl-r4 OPTIONAL,
            ul-CCTrCHList
                                                UL-CCTrCHList-r4
                                                                           OPTIONAL,
            ul-CCTrCHListToRemove
                                                UL-CCTrCHListToRemove
                                                                            OPTIONAL
    }
}
UL-DPCH-Info-r5 ::=
                                    SEQUENCE {
    ul-DPCH-PowerControlInfo
                                       UL-DPCH-PowerControlInfo-r5
                                                                           OPTIONAL,
    modeSpecificInfo
                                        CHOICE {
        fdd
                                            SEQUENCE {
                                                ScramblingCodeType,
            scramblingCodeType
            scramblingCode
                                                UL-ScramblingCode,
           numberOfDPDCH
                                                NumberOfDPDCH
                                                                            DEFAULT 1.
            spreadingFactor
                                                SpreadingFactor,
            tfci-Existence
                                                BOOLEAN,
            -- numberOfFBI-Bits is conditional based on history
                                                                            OPTIONAL,
            numberOfFBI-Bits
                                                NumberOfFBI-Bits
```

```
puncturingLimit
                                               PuncturingLimit
        },
                                         SEQUENCE {
        tdd.
           ul-TimingAdvance
                                              UL-TimingAdvanceControl-r4 OPTIONAL,
                                                                    OPTIONAL,
           ul-CCTrCHList
                                               UL-CCTrCHList-r4
           ul-CCTrCHListToRemove
                                               UL-CCTrCHListToRemove
                                                                          OPTIONAL
    }
}
UL-DPCH-Info-r6 ::=
                                   SEQUENCE {
                                   UL-DPCH-PowerControlInfo-r6
    ul-DPCH-PowerControlInfo
                                                                          OPTIONAL,
    modeSpecificInfo
                                       CHOICE {
        fdd
                                           SEQUENCE {
                                               ScramblingCodeType,
           scramblingCodeType
           scramblingCode
                                               UL-ScramblingCode,
           numberOfDPDCH
                                               NumberOfDPDCH
                                                                           DEFAULT 1,
           spreadingFactor
                                               SpreadingFactor,
           tfci-Existence
                                               BOOLEAN,
            -- numberOfFBI-Bits is conditional based on history
           numberOfFBI-Bits
                                               NumberOfFBI-Bits
                                                                          OPTIONAL,
           puncturingLimit
                                               PuncturingLimit
        },
        tdd
                                         SEQUENCE {
           ul-TimingAdvance
                                             UL-TimingAdvanceControl-r4 OPTIONAL,
                                               UL-CCTrCHList-r4 OPTIONAL,
UL-CCTrCHListToRemove OPTIONAL
           ul-CCTrCHList
           ul-CCTrCHListToRemove
    }
}
UL-DPCH-InfoPostFDD ::=
                                   SEQUENCE {
                                  \stackrel{\cdot}{\text{UL-DPCH-PowerControlInfoPostFDD}} ,
   ul-DPCH-PowerControlInfo
           scramblingCodeType
                                               ScramblingCodeType,
           reducedScramblingCodeNumber
                                               ReducedScramblingCodeNumber,
           spreadingFactor
                                               SpreadingFactor
}
UL-DPCH-InfoPostTDD ::=
                                   SEQUENCE {
                                   UL-DPCH-PowerControlInfoPostTDD,
    ul-DPCH-PowerControlInfo
                                       UL-TimingAdvanceControl
    ul-TimingAdvance
                                                                               OPTIONAL,
    ul-CCTrCH-TimeslotsCodes
                                      UplinkTimeslotsCodes
}
UL-DPCH-InfoPostTDD-LCR-r4 ::= SEQUENCE {
    ul-DPCH-PowerControlInfo
                                      UL-DPCH-PowerControlInfoPostTDD-LCR-r4,
                                       UL-TimingAdvanceControl-LCR-r4
    ul-TimingAdvance
                                                                                   OPTIONAL,
                                      UplinkTimeslotsCodes-LCR-r4
    ul-CCTrCH-TimeslotsCodes
}
UL-DPCH-InfoPredef ::=
                                   SEQUENCE {
                                   UL-DPCH-PowerControlInfoPredef,
   ul-DPCH-PowerControlInfo
                                      CHOICE {
    modeSpecificInfo
        fdd
                                           SEQUENCE {
           tfci-Existence
                                               BOOLEAN,
           puncturingLimit
                                               PuncturingLimit
        },
       tdd
                                           SEQUENCE {
           commonTimeslotInfo
                                               CommonTimeslotInfo
        }
    }
}
UL-DPCH-PowerControlInfo ::=
                                   CHOICE {
                                       SEQUENCE {
    fdd
       dpcch-PowerOffset
                                           DPCCH-PowerOffset,
        pc-Preamble
                                           PC-Preamble,
                                           SRB-delay,
        -- TABULAR: TPC step size nested inside PowerControlAlgorithm
       powerControlAlgorithm
                                           PowerControlAlgorithm
    tdd
                                       SEQUENCE {
       ul-TargetSIR
                                       UL-TargetSIR
                                                                       OPTIONAL,
       ul-OL-PC-Signalling
                                           CHOICE {
                                      NULL,
           broadcast-UL-OL-PC-info
            individuallySignalled
                                               SEQUENCE {
               individualTS-InterferenceList
                                                   IndividualTS-InterferenceList,
```

```
dpch-ConstantValue
                                                   ConstantValueTdd,
               primaryCCPCH-TX-Power
                                                   PrimaryCCPCH-TX-Power
           }
       }
                                                                       OPTIONAL
    }
}
UL-DPCH-PowerControlInfo-r4 ::=
                                CHOICE {
                                        SEQUENCE {
       dpcch-PowerOffset
                                           DPCCH-PowerOffset,
       pc-Preamble
                                            PC-Preamble,
                                           SRB-delay,
       sRB-delay
        -- TABULAR: TPC step size nested inside PowerControlAlgorithm
       powerControlAlgorithm
                                           PowerControlAlgorithm
    },
    tdd
                                       SEQUENCE {
        -- The IE ul-TargetSIR corresponds to PRX-DPCHdes for 1.28Mcps \ensuremath{\text{TDD}}
        -- Actual value PRX-DPCHdes = (value of IE "ul-TargetSIR" - 120)
       ul-TargetSIR
                                          UL-TargetSIR
                                           CHOICE {
        ul-OL-PC-Signalling
           broadcast-UL-OL-PC-info
                                               NULL
            individuallySignalled
                                               SEQUENCE {
                tddOption
                                                   CHOICE {
                                                       SEQUENCE {
                    t.dd384
                                                       IndividualTS-InterferenceList,
                       individualTS-InterferenceList
                        dpch-ConstantValue
                                                           ConstantValue
                    },
                    tdd128
                                                       SEQUENCE {
                       tpc-StepSize
                                                           TPC-StepSizeTDD
               primaryCCPCH-TX-Power
                                                  PrimaryCCPCH-TX-Power
           }
       }
    }
}
                                   CHOICE {
UL-DPCH-PowerControlInfo-r5 ::=
                                       SEQUENCE {
        dpcch-PowerOffset
                                           DPCCH-PowerOffset,
       pc-Preamble
                                           PC-Preamble,
                                           SRB-delay,
        sRB-delay
        -- TABULAR: TPC step size nested inside PowerControlAlgorithm
        powerControlAlgorithm PowerControlAlgorithm,
        deltaACK
                                           DeltaACK
                                                       OPTIONAL,
       deltaNACK
                                           DeltaNACK
                                                      OPTIONAL,
                                          ACK-NACK-repetitionFactor OPTIONAL
       ack-NACK-repetition-factor
    t dd
                                       SEQUENCE {
        -- The IE ul-TargetSIR corresponds to PRX-DPCHdes for 1.28Mcps TDD
        -- Actual value PRX-DPCHdes = (value of IE "ul-TargetSIR" - 120)
        ul-TargetSIR
                                           UL-TargetSIR
                                                                       OPTIONAL,
        ul-OL-PC-Signalling
                                           CHOICE {
           broadcast-UL-OL-PC-info
                                               NULL.
            individuallySignalled
                                               SEQUENCE {
                tddOption
                                                   CHOICE {
                                                       SEQUENCE {
                       individualTS-InterferenceList
                                                           IndividualTS-InterferenceList,
                                                           ConstantValue
                       dpch-ConstantValue
                    },
                    tdd128
                                                       SEQUENCE {
                       tpc-StepSize
                                                            TPC-StepSizeTDD
               primaryCCPCH-TX-Power
                                                  PrimaryCCPCH-TX-Power
           }
       }
    }
}
UL-DPCH-PowerControlInfo-r6 ::=
                                CHOICE {
                                       SEQUENCE {
       dpcch-PowerOffset
                                           DPCCH-PowerOffset,
        pc-Preamble
                                            PC-Preamble,
        sRB-delay
                                            SRB-delay,
        -- TABULAR: TPC step size nested inside PowerControlAlgorithm
                                           PowerControlAlgorithm,
        powerControlAlgorithm
       deltaACK
                                           DeltaACK
                                                       OPTIONAL,
```

```
deltaNACK DeltaNACK OPTIONAL, ack-NACK-repetition-factor ACK-NACK-repetitionFactor OPTIONAL, hard-Dreamble-Mode HARQ-Preamble-Mode OPTIONAL
    tdd
                                      SEQUENCE {
        -- The IE ul-TargetSIR corresponds to PRX-DPCHdes for 1.28Mcps TDD
        -- Actual value PRX-DPCHdes = (value of IE "ul-TargetSIR" - 120)
                                           UL-TargetSIR
                                                                         OPTIONAL.
       ul-TargetSIR
        ul-OL-PC-Signalling
                                           CHOICE {
           broadcast-UL-OL-PC-info NULL, individuallySignalled SEQUE
                                                SEQUENCE {
                                               CHOICE {
                tddOption
                                                        SEQUENCE {
                    t.dd384
                        individualTS-InterferenceList
                                                       IndividualTS-InterferenceList,
                        dpch-ConstantValue
                                                            ConstantValue
                    },
                    tdd128
                                                       SEQUENCE {
                       tpc-StepSize
                                                            TPC-StepSizeTDD
                primaryCCPCH-TX-Power
                                                   PrimaryCCPCH-TX-Power
           }
   }
}
UL-DPCH-PowerControlInfoPostFDD ::= SEQUENCE {
   -- DPCCH-PowerOffset2 has a smaller range to save bits
                                        DPCCH-PowerOffset2,
   dpcch-PowerOffset
    pc-Preamble
                                        PC-Preamble,
    sRB-delay
                                        SRB-delay
UL-DPCH-PowerControlInfoPostTDD ::= SEQUENCE {
    ul-TargetSIR
                                      UL-TargetSIR,
    ul-TimeslotInterference
                                        TDD-UL-Interference
}
UL-DPCH-PowerControlInfoPostTDD-LCR-r4 ::= SEQUENCE {
   -- The IE ul-TargetSIR corresponds to PRX-DPCHdes for 1.28Mcps TDD
    -- Actual value PRX-DPCHdes = (value of IE "ul-TargetSIR" - 120)
                                        UL-TargetSIR
   ul-TargetSIR
}
UL-DPCH-PowerControlInfoPredef ::= CHOICE {
                                        SEQUENCE {
        -- TABULAR: TPC step size nested inside PowerControlAlgorithm
       powerControlAlgorithm
                                          PowerControlAlgorithm
                                        SEQUENCE {
        -- dpch-ConstantValue shall be ignored if in 1.28Mcps TDD mode.
       dpch-ConstantValue
                                            ConstantValueTdd
}
\mbox{UL-EDCH-Information-r6} ::= \mbox{SEQUENCE } \{
    e-DPCCH-Info
                                       E-DPCCH-Info
                                                                             OPTIONAL,
    e-DPDCH-Info
                                        E-DPDCH-Info
                                                                             OPTIONAL
}
UL-Interference ::=
                                   INTEGER (-110..-70)
UL-ScramblingCode ::=
                                   INTEGER (0..16777215)
UL-SynchronisationParameters-r4 ::= SEQUENCE {
   stepSize
                                        INTEGER (1..8),
                                        INTEGER (1..8)
   frequency
-- Actual value UL-TargetSIR = (IE value * 0.5) - 11
                                    INTEGER (0..62)
UL-TargetSIR ::=
UL-TimingAdvance ::=
                                   INTEGER (0..63)
UL-TimingAdvanceControl ::=
                                   CHOICE {
                                        NULL,
   disabled
    enabled
                                        SEQUENCE {
```

```
ul-TimingAdvance
                                             UL-TimingAdvance
                                                                              OPTIONAL,
        activationTime
                                             ActivationTime
                                                                              OPTIONAL
    }
}
UL-TimingAdvanceControl-r4 ::=
                                    CHOICE {
    disabled
    enabled
                                         SEQUENCE {
        tddOption
                                             CHOICE {
            tdd384
                                                 SEQUENCE {
                ul-TimingAdvance
                                                     UL-TimingAdvance
                                                                                      OPTIONAL,
                activationTime
                                                     ActivationTime
                                                                                      OPTIONAL
            tdd128
                                                 SEQUENCE {
                ul-SynchronisationParameters
                                                     UL-SynchronisationParameters-r4 OPTIONAL,
                synchronisationParameters
                                                     SynchronisationParameters-r4 OPTIONAL
        }
    }
}
UL-TimingAdvanceControl-LCR-r4 ::= CHOICE {
    disabled
                                        NULL.
    enabled
                                         SEQUENCE {
        ul-SynchronisationParameters
                                             UL-SynchronisationParameters-r4 OPTIONAL,
        synchronisationParameters
                                             SynchronisationParameters-r4
}
UL-TS-ChannelisationCode ::=
                                     ENUMERATED {
                                        cc1-1, cc2-1, cc2-2,
                                         cc4-1, cc4-2, cc4-3, cc4-4,
                                         cc8-1, cc8-2, cc8-3, cc8-4,
                                         cc8-5, cc8-6, cc8-7, cc8-8,
                                         cc16-1, cc16-2, cc16-3, cc16-4,
                                         cc16-5, cc16-6, cc16-7, cc16-8,
                                         cc16-9, cc16-10, cc16-11, cc16-12,
                                         cc16-13, cc16-14, cc16-15, cc16-16 }
UL-TS-ChannelisationCodeList ::=
                                    SEQUENCE (SIZE (1..2)) OF
                                        UL-TS-ChannelisationCode
UplinkAdditionalTimeslots ::=
                                    SEQUENCE {
   parameters
                                        CHOICE {
                                             SEQUENCE {
        sameAsLast.
            {\tt timeslotNumber}
                                                 TimeslotNumber
       newParameters
                                             SEQUENCE {
            individualTimeslotInfo
                                                         IndividualTimeslotInfo,
            ul-TS-ChannelisationCodeList
                                                         UL-TS-ChannelisationCodeList
    }
}
UplinkAdditionalTimeslots-LCR-r4 ::=
                                         SEQUENCE {
   parameters
        sameAsLast
                                             SEQUENCE {
            timeslotNumber
                                                 TimeslotNumber
                                             SEQUENCE {
        newParameters
            individualTimeslotInfo
                                                         IndividualTimeslotInfo-LCR-r4,
            ul-TS-ChannelisationCodeList
                                                         UL-TS-ChannelisationCodeList
    }
}
UplinkTimeslotsCodes ::=
                                    SEQUENCE {
    dynamicSFusage
                                        BOOLEAN,
    firstIndividualTimeslotInfo
                                         IndividualTimeslotInfo,
    ul-TS-ChannelisationCodeList
                                        UL-TS-ChannelisationCodeList,
    moreTimeslots
                                        CHOICE {
       noMore
                                            NULL,
        additionalTimeslots
                                             CHOICE {
            consecutive
                                                 SEQUENCE {
                numAdditionalTimeslots
                                                     INTEGER (1..maxTS-1)
            timeslotList
                                                 SEQUENCE (SIZE (1..maxTS-1)) OF
                                                     UplinkAdditionalTimeslots
```

```
}
    }
}
UplinkTimeslotsCodes-LCR-r4 ::= SEQUENCE {
   dynamicSFusage BOOLEAN,
firstIndividualTimeslotInfo IndividualTimeslotInfo-LCR-r4,
ul-TS-ChannelisationCodeList
moreTimeslots CHOICE (
       noMore
                                          NULL,
       additionalTimeslots
                                           CHOICE {
                                             SEQUENCE {
           consecutive
               {\tt numAdditionalTimeslots}
                                                  INTEGER (1..maxTS-LCR-1)
           timeslotList
                                             SEQUENCE (SIZE (1..maxTS-LCR-1)) OF
                                                  UplinkAdditionalTimeslots-LCR-r4
       }
}
Wi-LCR ::=
                                                                        INTEGER(1..4)
__ ****************************
___
      MEASUREMENT INFORMATION ELEMENTS (10.3.7)
__ ****************
AcquisitionSatInfo ::=
                                   SEQUENCE {
                                       SatID,
    -- Actual value dopplerOthOrder = IE value * 2.5
                                      INTEGER (-2048..2047),
   doppler0thOrder
    extraDopplerInfo
                                      ExtraDopplerInfo
                                                                          OPTIONAL,
                                       INTEGER (0..1022),
    codePhase
                                      INTEGER (0..19),
   integerCodePhase
                                       INTEGER (0..3),
   qps-BitNumber
    codePhaseSearchWindow
                                      CodePhaseSearchWindow,
                            AzimuthAndElevation
    azimuthAndElevation
                                                                          OPTIONAL
AcquisitionSatInfoList ::= SEQUENCE (SIZE (1..maxSat)) OF
                                      AcquisitionSatInfo
AdditionalMeasurementID-List ::= SEQUENCE (SIZE (1..maxAdditionalMeas)) OF
                                      MeasurementIdentity
                                   SEQUENCE {
AlmanacSatInfo ::=
                                       INTEGER (0..3),
    dataID
    satID
                                       SatID,
                                      BIT STRING (SIZE (16)),
    t-oa
                                       BIT STRING (SIZE (8)),
                                      BIT STRING (SIZE (16)),
   deltaI
   omegaDot
                                      BIT STRING (SIZE (16)),
                                      BIT STRING (SIZE (8)),
   satHealth
   a-Sqrt
                                      BIT STRING (SIZE (24)),
   omega0
                                       BIT STRING (SIZE (24)),
                                       BIT STRING (SIZE (24)),
   m0
    omega
                                       BIT STRING (SIZE (24)),
    af0
                                       BIT STRING (SIZE (11)),
                                       BIT STRING (SIZE (11))
    af1
}
AlmanacSatInfoList ::=
                                  SEQUENCE (SIZE (1..maxSat)) OF
                                      AlmanacSatInfo
AverageRLC-BufferPayload ::=
                                   ENUMERATED {
                                       pla0, pla4, pla8, pla16, pla32,
                                       pla64, pla128, pla256, pla512,
                                       pla1024, pla2k, pla4k, pla8k, pla16k, pla32k, pla64k, pla128k, pla256k,
                                       pla512k, pla1024k, spare12, spare11,
                                       spare10, spare9, spare8, spare7, spare6,
                                       spare5, spare4, spare3, spare2, spare1 }
                                  SEOUENCE {
AzimuthAndElevation ::=
    -- Actual value azimuth = IE value * 11.25
                                       INTEGER (0..31),
    azimuth
```

```
-- Actual value elevation = IE value * 11.25
    elevation
                                            INTEGER (0..7)
}
BadSatList ::=
                                       SEQUENCE (SIZE (1..maxSat)) OF
                                           INTEGER (0..63)
Frequency-Band ::=
                                       ENUMERATED {
                                            dcs1800BandUsed, pcs1900BandUsed }
BCCH-ARFCN ::=
                                       INTEGER (0..1023)
BLER-MeasurementResults ::= transportChannelIdentity
                                       SEQUENCE {
                                        TransportChannelIdentity,
    dl-TransportChannelBLER
                                           DL-TransportChannelBLER
                                                                                  OPTIONAL
}
{\tt BLER-MeasurementResultsList} ::= {\tt SEQUENCE} ({\tt SIZE} \ ({\tt 1..maxTrCH})) \ {\tt OF}
                                           BLER-MeasurementResults
BLER-TransChIdList ::=
                                       SEQUENCE (SIZE (1..maxTrCH)) OF
                                           TransportChannelIdentity
                                       ENUMERATED {
BSIC-VerificationRequired ::=
                                           required, notRequired }
BSICReported ::=
                                       CHOICE {
     -- Value maxCellMeas is not allowed for verifiedBSIC
    verifiedBSIC
                                            INTEGER (0..maxCellMeas),
                                            BCCH-ARFCN
    nonVerifiedBSTC
}
BurstModeParameters ::=
                                      SEQUENCE {
                                            INTEGER (0..15),
    burstStart
    burstLength
                                            INTEGER (10..25),
    burstFreq
                                            INTEGER (1..16)
}
CellDCH-ReportCriteria ::= CHOICE {
   intraFreqReportingCriteria IntraFreqReportingCriteria,
   periodicalReportingCriteria PeriodicalReportingCriteria
                                           PeriodicalReportingCriteria
}
CellDCH-ReportCriteria-LCR-r4 ::= CHOICE {
   intraFreqReportingCriteria IntraFreqReportingCriteria-LCR-r4, periodicalReportingCriteria PeriodicalReportingCriteria
-- Actual value CellIndividualOffset = IE value * 0.5
CellIndividualOffset ::=
                                      INTEGER (-20..20)
    cellIndividualOffset
CellInfo ::=
    cellIndividualOffset CellIndividualOffset DEFAULT 0, referenceTimeDifferenceToCell ReferenceTimeDifferenceToCell OPTIONAL, modeSpecificInfo CHOTCE {
            cificInfo

primaryCPICH-Info
                                           SEQUENCE {
        fdd
                                                  PrimaryCPICH-Info OPTIONAL,
PrimaryCPICH-TX-Power OPTIONAL,
             primaryCPICH-TX-Power
             readSFN-Indicator
                                                    BOOLEAN.
                                                    BOOLEAN
             tx-DiversityIndicator
         },
         tdd
             primaryCCPCH-Info
primaryCCPCH-TX-Power
                                              SEQUENCE {
                                               PrimaryCCPCH-Info,
                                                    PrimaryCCPCH-TX-Power OPTIONAL,
TimeslotInfoList OPTIONAL,
                                                    TimeslotInfoList
                                                                                  OPTIONAL,
             readSFN-Indicator
                                                    BOOLEAN
         }
    }
}
    cellIndividualOffset
CellInfo-r4 ::=
                                       SEQUENCE {
                                        CellIndividualOffset
                                                                                   DEFAULT 0,
                                           ReferenceTimeDifferenceToCell
    referenceTimeDifferenceToCell
                                                                                  OPTIONAL,
                            CHOICE (
SEQUENCE {

Info
Primary
    modeSpecificInfo
             primaryCPICH-Info
                                                    PrimaryCPICH-Info
                                                                                   OPTIONAL.
                                                     PrimaryCPICH-TX-Power
             primaryCPICH-TX-Power
                                                                                    OPTIONAL,
```

```
readSFN-Indicator
                                                  BOOLEAN,
            tx-DiversityIndicator
                                                  BOOLEAN
        },
        bb†
                                            SEQUENCE {
            primaryCCPCH-Info SEQUENCE {
primaryCCPCH-Info-r4,
primaryCCPCH-TX-Power PrimaryCCPCH-TX-Power
                                                  PrimaryCCPCH-TX-Power
                                                                             OPTIONAL,
            timeslotInfoList
                                                  TimeslotInfoList-r4
                                                                              OPTIONAL,
            readSFN-Indicator
                                                 BOOLEAN
    }
}
    cellIndividualOffset
CellInfoSI-RSCP ::=
                                     SEQUENCE {
                                         CellIndividualOffset
                                                                               DEFAULT 0,
    referenceTimeDifferenceToCell
                                          ReferenceTimeDifferenceToCell
                                                                               OPTIONAL,
    modeSpecificInfo
                                         CHOICE {
        fdd
                                             SEQUENCE {
            primaryCPICH-Info
                                                  PrimaryCPICH-Info
                                                                              OPTIONAL.
                                                  PrimaryCPICH-TX-Power
            primaryCPICH-TX-Power
                                                                               OPTIONAL,
            readSFN-Indicator
                                                  BOOLEAN.
            tx-DiversityIndicator
                                                 BOOLEAN
                                            SEQUENCE {
        t.dd
            primaryCCPCH-Info
primaryCCPCH-TX-Power
                                                 PrimaryCCPCH-Info,
                                                  PrimaryCCPCH-TX-Power
                                                                               OPTIONAL,
            timeslotInfoList
                                                  TimeslotInfoList
                                                                              OPTIONAL,
            readSFN-Indicator
                                                  BOOLEAN
    cellSelectionReselectionInfo
                                       CellSelectReselectInfoSIB-11-12-RSCP
                                                                                        OPTIONAL
CellInfoSI-RSCP-LCR-r4 ::= SEQUENCE {
   cellIndividualOffset CellIndividualOffset referenceTimeDifferenceToCell primaryCCPCH-Info PrimaryCCPCH-Info-LCR-r4, primaryCCPCH-TX-Power PrimaryCCPCH-TY-Downs
                                                                              DEFAULT 0,
                                         ReferenceTimeDifferenceToCell
                                                                               OPTIONAL,
                                       PrimaryCCPCH-TX-Power
TimeslotInfoList-LCR-r4
                                                                              OPTIONAL,
    timeslotInfoList
                                                                               OPTIONAL,
    readSFN-Indicator
                                         BOOLEAN,
    cellSelectionReselectionInfo
                                         CellSelectReselectInfoSIB-11-12-RSCP
                                                                                        OPTIONAL
}
    cellIndividualOffset
CellInfoSI-ECN0 ::=
                                         CellIndividualOffset
                                                                              DEFAULT 0.
    referenceTimeDifferenceToCell
                                          ReferenceTimeDifferenceToCell
                                                                               OPTIONAL,
    modeSpecificInfo
                                         CHOICE {
        fdd
                                          SEQUENCE {
                                                  PrimaryCPICH-Info OPTIONAL,
PrimaryCPICH-TX-Power OPTIONAL,
            primaryCPICH-Info
                                                  PrimaryCPICH-Info
            primaryCPICH-TX-Power
            readSFN-Indicator
                                                  BOOLEAN.
            tx-DiversityIndicator
                                                  BOOLEAN
                                             SEQUENCE {
            primaryCCPCH-Info
                                                  PrimaryCCPCH-Info,
                                                                             OPTIONAL,
            primaryCCPCH-TX-Power
                                                  PrimaryCCPCH-TX-Power
                                                  TimeslotInfoList
            timeslotInfoList
                                                                               OPTIONAL,
            readSFN-Indicator
                                                  BOOLEAN
    cellSelectionReselectionInfo
                                       CellSelectReselectInfoSIB-11-12-ECN0
                                                                                   OPTIONAL
}
CellInfoSI-ECN0-LCR-r4 ::= SEQUENCE {
    cellIndividualOffset
                                         CellIndividualOffset
                                                                               DEFAULT 0.
    cellIndividualOffset CellIndividualOffset
referenceTimeDifferenceToCell ReferenceTimeDifferenceToCell
primaryCCPCH-Info PrimaryCCPCH-Info-LCR-r4.
                                                                              OPTIONAL,
                                         PrimaryCCPCH-Info-LCR-r4,
    primaryCCPCH-Info
    primaryCCPCH-TX-Power
                                         PrimaryCCPCH-TX-Power
                                                                               OPTIONAL,
    timeslotInfoList
                                         TimeslotInfoList-LCR-r4
                                                                              OPTIONAL,
    readSFN-Indicator
                                         BOOLEAN,
    cellSelectionReselectionInfo CellSelectReselectInfoSIB-11-12-ECNO OPTIONAL
}
                          SEQUENCE {
CellInfoSI-HCS-RSCP ::=
                                   CellIndividualOffset
                                         CellIndividualOffset DEFAULT 0,
ReferenceTimeDifferenceToCell OPTIONAL,
    cellIndividualOffset
    referenceTimeDifferenceToCell
    modeSpecificInfo
                                         CHOICE {
        fdd
                                              SEOUENCE {
```

```
primaryCPICH-Info
                                              PrimaryCPICH-Info
                                                                         OPTIONAL.
           primaryCPICH-TX-Power
                                              PrimaryCPICH-TX-Power
                                                                        OPTIONAL,
           readSFN-Indicator
                                              BOOLEAN,
                                             BOOLEAN
           tx-DiversityIndicator
       tdd
                                          SEQUENCE {
                                             PrimaryCCPCH-Info,
           primaryCCPCH-Info
           primaryCCPCH-TX-Power
                                                                        OPTIONAL.
                                              PrimaryCCPCH-TX-Power
           timeslotInfoList
                                              TimeslotInfoList
                                                                         OPTIONAL,
           readSFN-Indicator
                                              BOOLEAN
   cellSelectionReselectionInfo CellSelectReselectInfoSIB-11-12-HCS-RSCP
                                                                                OPTIONAL.
}
CellInfoSI-HCS-RSCP-LCR-r4 ::=
                                SEQUENCE {
   cellIndividualOffset
                                      CellIndividualOffset
                                                                         DEFAULT 0.
                                      ReferenceTimeDifferenceToCell
   referenceTimeDifferenceToCell
                                                                        OPTIONAL,
   primaryCCPCH-Info
                                     PrimaryCCPCH-Info-LCR-r4,
   primaryCCPCH-TX-Power
                                      PrimaryCCPCH-TX-Power
                                                                         OPTIONAL,
   timeslotInfoList
                                     TimeslotInfoList-LCR-r4
                                                                         OPTIONAL,
   readSFN-Indicator
                                     BOOLEAN,
                                                                                OPTIONAL
   cellSelectionReselectionInfo
                                      CellSelectReselectInfoSIB-11-12-HCS-RSCP
}
   cellIndividualOffset
CellInfoSI-HCS-ECN0 ::=
                                  CellIndividualOffset
                                                                         DEFAULT 0,
   referenceTimeDifferenceToCell
                                      ReferenceTimeDifferenceToCell
                                                                   OPTIONAL,
   modeSpecificInfo
                                      CHOICE {
       fdd
                                          SEQUENCE {
           primaryCPICH-Info
                                             PrimaryCPICH-Info
                                                                        OPTIONAL.
           primaryCPICH-TX-Power
                                              PrimaryCPICH-TX-Power
           readSFN-Indicator
                                             BOOLEAN,
           tx-DiversityIndicator
                                             BOOLEAN
       },
       tdd
                                          SEQUENCE {
           primaryCCPCH-Info
                                            PrimaryCCPCH-Info,
           primaryCCPCH-TX-Power
                                              PrimaryCCPCH-TX-Power
                                                                        OPTIONAL,
           timeslotInfoList
                                             TimeslotInfoList
                                                                         OPTIONAL,
           readSFN-Indicator
                                             BOOLEAN
   }.
   cellSelectionReselectionInfo CellSelectReselectInfoSIB-11-12-HCS-ECNO
                                                                                OPTIONAL
}
CellinfoSi-HCS-ECN0-LCR-r4 ::= SEQUENCE {
   cellIndividualOffset
                                     CellIndividualOffset
                                                                         DEFAULT 0.
   referenceTimeDifferenceToCell
                                      ReferenceTimeDifferenceToCell
                                                                        OPTIONAL,
                                     PrimaryCCPCH-Info-LCR-r4,
   primaryCCPCH-TX-Power
   primaryCCPCH-Info
                                     PrimaryCCPCH-TX-Power
                                                                         OPTIONAL,
   timeslotInfoList
                                     TimeslotInfoList-LCR-r4
                                                                         OPTIONAL,
                                     BOOLEAN.
   readSFN-Indicator
   cellSelectionReselectionInfo
                                     CellSelectReselectInfoSIB-11-12-HCS-ECN0
                                                                                OPTIONAL
CellMeasuredResults ::=
                                 SEQUENCE {
   cellIdentity
                                     CellIdentity
                                                                         OPTIONAL,
    -- dummy is not used in this version of the specification, it should
   -- not be sent and if received it should be ignored.
                 SFN-SFN-ObsTimeDifference
                                                     OPTIONAL,
   cellSynchronisationInfo
                                CellSynchronisationInfo
                                                                 OPTIONAL,
   modeSpecificInfo
                                      CHOICE {
                                          SEQUENCE {
           primaryCPICH-Info
                                              PrimaryCPICH-Info,
           cpich-Ec-N0
                                              CPICH-Ec-NO
                                                                        OPTIONAL.
                                                                         OPTIONAL,
           cpich-RSCP
                                              CPICH-RSCP
           pathloss
                                              Pathloss
                                                                         OPTIONAL
       },
                                          SEQUENCE {
           cellParametersID
                                             CellParametersID,
           proposedTGSN
                                                                        OPTIONAL,
                                              TGSN
           primaryCCPCH-RSCP
                                             PrimaryCCPCH-RSCP
                                                                        OPTIONAL,
           pathloss
                                             Pathloss
                                                                        OPTIONAL,
           timeslotISCP-List
                                             TimeslotISCP-List
                                                                       OPTIONAL
       }
   }
}
```

```
CellMeasurementEventResults ::=
                                    CHOICE {
                                        SEQUENCE (SIZE (1..maxCellMeas)) OF
                                           PrimaryCPICH-Info,
    t dd
                                        SEQUENCE (SIZE (1..maxCellMeas)) OF
                                            PrimaryCCPCH-Info
}
CellMeasurementEventResults-LCR-r4 ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
                                            PrimaryCCPCH-Info-LCR-r4
CellReportingQuantities ::=
                                   SEQUENCE {
    -- dummy is not used in this version of the specification, it should
    \mbox{--} not be sent and if received it should be ignored.
                           SFN-SFN-OTD-Type,
    cellIdentity-reportingIndicator
                                                        BOOLEAN,
    cellSynchronisationInfoReportingIndicator
                                                        BOOLEAN,
    {\tt modeSpecificInfo}
                                       CHOICE {
        fdd
                                            SEQUENCE {
            cpich-Ec-N0-reportingIndicator
            cpich-RSCP-reportingIndicator
                                                                    BOOLEAN,
            {\tt pathloss-reportingIndicator}
                                                                BOOLEAN
        },
                                            SEQUENCE {
            timeslotISCP-reportingIndicator
                                                                BOOLEAN,
            proposedTGSN-ReportingRequired
                                                                BOOLEAN.
            primaryCCPCH-RSCP-reportingIndicator
                                                                 BOOLEAN,
            pathloss-reportingIndicator
                                                                BOOLEAN
    }
}
CellSelectReselectInfoSIB-11-12 ::= SEQUENCE {
    q-Offset1S-N
                                        Q-OffsetS-N
                                                                            DEFAULT 0,
    q-Offset2S-N
                                        O-OffsetS-N
                                                                            OPTIONAL,
                                                                            OPTIONAL,
    maxAllowedUL-TX-Power
                                       MaxAllowedUL-TX-Power
    hcs-NeighbouringCellInformation-RSCP
                                                HCS-NeighbouringCellInformation-RSCP
    OPTIONAL,
    modeSpecificInfo
                                        CHOICE {
                                            SEQUENCE {
        fdd
            q-QualMin
                                                Q-QualMin
                                                                            OPTIONAL,
            q-RxlevMin
                                                Q-RxlevMin
                                                                            OPTIONAL
        },
        tdd
                                            SEQUENCE {
            q-RxlevMin
                                                Q-RxlevMin
                                                                            OPTIONAL
        },
                                            SEQUENCE {
        gsm
                                                Q-RxlevMin
           q-RxlevMin
                                                                           OPTIONAL
}
CellSelectReselectInfoSIB-11-12-RSCP ::=
                                           SEQUENCE {
                          Q-OffsetS-N
    q-OffsetS-N
                                                                    DEFAULT 0,
    maxAllowedUL-TX-Power
                                                                            OPTIONAL,
                                        MaxAllowedUL-TX-Power
    modeSpecificInfo
                                        CHOICE {
                                            SEQUENCE {
        fdd
            q-QualMin
                                                Q-QualMin
                                                                             OPTIONAL,
            q-RxlevMin
                                                Q-RxlevMin
        tdd.
                                            SECUENCE {
            q-RxlevMin
                                                Q-RxlevMin
                                                                            OPTIONAL
        },
                                            SEQUENCE {
        gsm
            q-RxlevMin
                                                Q-RxlevMin
                                                                           OPTIONAL
CellSelectReselectInfoSIB-11-12-ECN0 ::=
                                           SEQUENCE {
    q-Offset1S-N
                                        Q-OffsetS-N
                                                                        DEFAULT 0,
    q-Offset2S-N
                                        Q-OffsetS-N
                                                                        DEFAULT 0,
    maxAllowedUL-TX-Power
                                        MaxAllowedUL-TX-Power
                                                                         OPTIONAL,
    modeSpecificInfo
                                        CHOICE {
        fdd
                                            SEQUENCE {
                                                Q-QualMin
            q-QualMin
                                                                            OPTIONAL,
            q-RxlevMin
                                                Q-RxlevMin
                                                                            OPTIONAL
        },
                                            SEQUENCE {
        tdd
```

```
q-RxlevMin
                                                   Q-RxlevMin
                                                                                  OPTIONAL
        },
                                               SEQUENCE {
        gsm
             q-RxlevMin
                                                   Q-RxlevMin
                                                                                 OPTIONAL
    }
}
CellSelectReselectInfoSIB-11-12-HCS-RSCP ::=
                                                  SEQUENCE {
    maxAllowedUL-TX-Power
                                                                         DEFAULT 0,
                                          MaxAllowedUL-TX-Power
                                                                                 OPTIONAL,
    hcs-NeighbouringCellInformation-RSCP
                                                   HCS-NeighbouringCellInformation-RSCP
    OPTIONAL.
    modeSpecificInfo
                                           CHOICE {
        fdd
                                               SEQUENCE {
            σ-OualMin
                                                   O-OualMin
                                                                                  OPTIONAL,
            q-RxlevMin
                                                   O-RxlevMin
                                                                                  OPTIONAL
                                               SEQUENCE {
        tdd
            q-RxlevMin
                                                   Q-RxlevMin
                                                                                 OPTIONAL
        },
        gsm
                                               SEQUENCE {
            q-RxlevMin
                                                   Q-RxlevMin
                                                                                OPTIONAL
        }
    }
}
CellSelectReselectInfoSIB-11-12-HCS-ECN0 ::=
                                                   SEQUENCE {
    q-Offset1S-N
                                          Q-OffsetS-N
                                                                            DEFAULT 0,
    q-Offset2S-N
                                           MaxAllowedUL-TX-Power
                                           O-OffsetS-N
                                                                             DEFAULT 0.
    maxAllowedUL-TX-Power
                                                                              OPTIONAL.
    hcs-NeighbouringCellInformation-ECN0
                                                 HCS-NeighbouringCellInformation-ECN0
    OPTIONAL,
                                           CHOICE {
    modeSpecificInfo
                                               SEQUENCE {
        fdd
            q-QualMin
                                                   Q-QualMin
                                                                                  OPTIONAL,
            q-RxlevMin
                                                   Q-RxlevMin
                                                                                  OPTIONAL
        },
                                               SEOUENCE {
        tdd
             q-RxlevMin
                                                  Q-RxlevMin
                                                                                OPTIONAL
        },
                                               SEQUENCE {
        gsm
            q-RxlevMin
                                                                                OPTIONAL
                                                   Q-RxlevMin
        }
    }
}
CellSelectReselectInfo-v590ext ::= SEQUENCE {
    deltaQrxlevmin
                                      DeltaQrxlevmin
                                                                         OPTIONAL,
    deltaQhcs
                                      DeltaRSCP
                                                                         OPTIONAL
}
CellSelectReselectInfoPCHFACH-v5b0ext ::= SEQUENCE {

        q-Hyst-1-S-PCH
        Q-Hyst-S-Fine

        q-Hyst-1-S-FACH
        Q-Hyst-S-Fine

                                                                         OPTIONAL,
    q-Hyst-l-S-FACH
                                                                         OPTIONAL,
    q-Hyst-2-S-PCH Q-Hyst-S-Fine
q-Hyst-2-S-FACH Q-Hyst-S-Fine
t-Reselection-S-PCH T-Reselection-S
t-Reselection-S-FACH T-Reselection-S-
                                                                         OPTIONAL,
                                                                         OPTIONAL,
                                                                         OPTIONAL,
                                 T-Reselection-S-Fine
                                                                         OPTIONAL
}
CellSelectReselectInfoTreselectionScaling-v5c0ext ::= SEQUENCE {
    -- For speed detection, the same HCS parameters are utilised
                                                  T-CRMax
    non-HCS-t-CR-Max
                                                                                               OPTIONAL.
                                                                                              OPTIONAL,
    speedDependentScalingFactor
                                                   SpeedDependentScalingFactor
    interFrequencyTreselectionScalingFactor TreselectionScalingFactor TreselectionScalingFactor TreselectionScalingFactor
                                                                                               OPTIONAL,
                                                                                               OPTIONAL
}
CellsForInterFreqMeasList ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
                                       InterFreqCellID
CellsForInterRATMeasList ::=
                                           SEQUENCE (SIZE (1..maxCellMeas)) OF
                                          InterRATCellID
                                      SEQUENCE (SIZE (1..maxCellMeas)) OF
CellsForIntraFreqMeasList ::=
                                          IntraFreqCellID
CellSynchronisationInfo ::=
                                      SEQUENCE {
                                          CHOICE {
    modeSpecificInfo
```

```
SEQUENCE {
            countC-SFN-Frame-difference
                                                CountC-SFN-Frame-difference
                                                                             OPTIONAL,
                                                INTEGER(0..38399)
        tdd
                                            SEQUENCE {
            countC-SFN-Frame-difference
                                               CountC-SFN-Frame-difference OPTIONAL
}
CellToReport ::=
                                    SEQUENCE {
   bsicReported
                                        BSICReported
CellToReportList ::=
                                    SEQUENCE (SIZE (1..maxCellMeas)) OF
                                        CellToReport
CodePhaseSearchWindow ::=
                                    ENUMERATED {
                                        w1023, w1, w2, w3, w4, w6, w8, w12, w16, w24, w32, w48, w64,
                                        w96, w128, w192 }
CountC-SFN-Frame-difference ::= SEQUENCE {
    -- Actual value countC-SFN-High = IE value * 256
    countC-SFN-High
                                    INTEGER(0..15),
   off
                                    INTEGER(0..255)
}
-- SPARE: CPICH-Ec-No, Max = 49
-- Values above Max are spare
CPICH-Ec-N0 ::=
                                    INTEGER (0..63)
-- SPARE: CPICH- RSCP, Max = 91
-- Values above Max are spare
                                    INTEGER (0..127)
CPICH-RSCP ::=
DeltaPRC ::=
                                    INTEGER (-127..127)
--Actual value DeltaQrxlevmin = IE value * 2
DeltaQrxlevmin ::= INTEGER (-2..-1)
DeltaRSCP ::= INTEGER (-5..-1)
DeltaRSCPPerCell ::= SEQUENCE {
   deltaRSCP
                                    DeltaRSCP OPTIONAL
-- Actual value DeltaRRC = IE value * 0.032
DeltaRRC ::=
                                    INTEGER (-7..7)
                                    SEQUENCE {
DGPS-CorrectionSatInfo ::=
   satID
                                        SatID,
    iode
   udre
                                        UDRE,
   prc
                                        PRC,
                                        RRC,
-- dummy1 and dummy2 are not used in this version of the specification and should be ignored.
                                    DeltaPRC,
   dummv1
   dummv2
                                   DeltaRRC
    -- dummy3 and dummy4 are not used in this version of the specification. They should not
    -- be sent and if received they should be ignored.
                                    DeltaPRC
                                                        OPTIONAL
    dummy4
                                    DeltaRRC
}
DGPS-CorrectionSatInfoList ::=
                                    SEQUENCE (SIZE (1..maxSat)) OF
                                       DGPS-CorrectionSatInfo
DiffCorrectionStatus ::=
                                    ENUMERATED {
                                        udre-1-0, udre-0-75, udre-0-5, udre-0-3,
                                        udre-0-2, udre-0-1, noData, invalidData }
                                    INTEGER (0..63)
DL-TransportChannelBLER ::=
DopplerUncertainty ::=
                                    ENUMERATED {
                                        hz12-5, hz25, hz50, hz100, hz200,
                                        spare3, spare2, spare1 }
```

```
EllipsoidPoint ::= SEQUENCE {
latitudeSign ENUMERATED { north, south },
latitude INTEGER (0..8388607),
longitude INTEGER (-8388608..8388607)
EllipsoidPointAltitude ::=
                                          SEQUENCE {
    latitudeSign ENUMERATED { north, south }, latitude INTEGER (0..8388607), longitude INTEGER (-8388608..8388607), altitude INTEGER (0..32767)
}
EllipsoidPointAltitudeEllipsoide ::=
                                              SEQUENCE {
     latitudeSign ENUMERATED { north, south }, latitude INTEGER (0.8388607), longitude INTEGER (-8388608.8388607).
                                INTEGER (-8388608..8388607),
     longitude
    altitude INTEGER (-030000..030000/)
altitude INTEGER (0 32767)
    altitude INTEGER (0..32767), uncertaintySemiMajor INTEGER (0..127), uncertaintySemiMinor INTEGER (0..127),
     -- Actual value orientationMajorAxis = IE value * 2
    orientationMajorAxis INTEGER (0..89), uncertaintyAltitude INTEGER (0..127)
                                INTEGER (0..127),
                                INTEGER (0..100)
     confidence
}
EllipsoidPointUncertCircle ::=
                                          SEQUENCE {
     latitude
                                INTEGER (0..8388607),
                                INTEGER (-8388608..8388607),
     longitude
     uncertaintyCode
                                INTEGER (0..127)
}
EllipsoidPointUncertEllipse ::=
                                         SEQUENCE {
     latitude
                                INTEGER (0..8388607),
    longitude INTEGER (-8388608..8388607), uncertaintySemiMajor INTEGER (0..127), uncertaintySemiMinor INTEGER (0..127),
     -- Actual value orientationMajorAxis = IE value * 2
     orientationMajorAxis INTEGER (0..89),
     confidence
                                 INTEGER (0..100)
}
EnvironmentCharacterisation ::=
                                          ENUMERATED {
                                               possibleHeavyMultipathNLOS,
                                               lightMultipathLOS,
                                               notDefined,
                                               spare }
Eventla ::=
                                          SEQUENCE {
    triggeringCondition
                                              TriggeringCondition2,
     reportingRange
                                               ReportingRange,
     forbiddenAffectCellList
                                               ForbiddenAffectCellList
                                                                                         OPTIONAL,
    reportDeactivationThreshold
                                               ReportDeactivationThreshold,
     reportingAmount
                                               ReportingAmount,
     reportingInterval
                                               ReportingInterval
Eventla-r4 ::=
                                          SEQUENCE {
     triggeringCondition
                                              TriggeringCondition2,
     reportingRange
                                               ReportingRange,
     forbiddenAffectCellList
                                               ForbiddenAffectCellList-r4
                                                                                         OPTIONAL,
     reportDeactivationThreshold
                                              ReportDeactivationThreshold,
     reportingAmount
                                               ReportingAmount,
     reportingInterval
                                              ReportingInterval
}
```

```
Eventla-LCR-r4 ::=
                                    SEQUENCE {
    triggeringCondition
                                        TriggeringCondition2,
    reportingRange
                                        ReportingRange,
    {\tt forbiddenAffectCellList}
                                        ForbiddenAffectCellList-LCR-r4
                                                                              OPTIONAL,
   reportDeactivationThreshold
                                       ReportDeactivationThreshold,
   reportingAmount
                                        ReportingAmount,
                                       ReportingInterval
    reportingInterval
}
                                    SEQUENCE {
Event1b ::=
   triggeringCondition
                                       TriggeringCondition1,
   reportingRange
                                        ReportingRange,
   forbiddenAffectCellList
                                        ForbiddenAffectCellList
                                                                          OPTIONAL,
}
Event1b-r4 ::=
                                    SEQUENCE {
                                       TriggeringCondition1,
   triggeringCondition
                                        ReportingRange,
   reportingRange
    forbiddenAffectCellList
                                                                          OPTIONAL,
                                       ForbiddenAffectCellList-r4
}
                                   SEQUENCE {
Event1b-LCR-r4 ::=
    triggeringCondition
                                       TriggeringCondition1,
    reportingRange
                                        ReportingRange,
    forbiddenAffectCellList
                                        ForbiddenAffectCellList-LCR-r4
                                                                         OPTIONAL,
}
                                    SEQUENCE {
Event1c ::=
   replacementActivationThreshold
                                        {\tt ReplacementActivationThreshold,}
    reportingAmount
                                        ReportingAmount,
   reportingInterval
                                        ReportingInterval
}
                               SEQUENCE {
Eventle ::=
    triggeringCondition
                                        TriggeringCondition2,
    thresholdUsedFrequency
                                        ThresholdUsedFrequency
}
Event1f ::=
                               SEQUENCE {
    triggeringCondition
                                        TriggeringCondition1,
    thresholdUsedFrequency
                                        ThresholdUsedFrequency
}
Event2a ::=
                                    SEQUENCE {
    -- dummy is not used in this version of the specification and should be ignored
   dummy
                                        Threshold,
   usedFreqW
                                        W,
   hysteresis
                                        HysteresisInterFreq,
   timeToTrigger
                                        TimeToTrigger,
   reportingCellStatus
                                        ReportingCellStatus
                                                                           OPTIONAL.
                                       NonUsedFreqParameterList
                                                                           OPTIONAL
   nonUsedFreqParameterList
}
Event2b ::=
                                    SEQUENCE {
   usedFreqThreshold
                                        Threshold,
   usedFreqW
                                       HysteresisInterFreq,
   hysteresis
    timeToTrigger
                                       TimeToTrigger,
   reportingCellStatus
                                       ReportingCellStatus
                                                                           OPTIONAL,
                                       {\tt NonUsedFreqParameterList}
   nonUsedFreqParameterList
                                                                           OPTIONAL
                                    SEQUENCE {
Event2c ::=
                                       HysteresisInterFreq,
   hysteresis
    timeToTrigger
                                        TimeToTrigger,
    reportingCellStatus
                                        ReportingCellStatus
                                                                            OPTIONAL,
   nonUsedFreqParameterList
                                       NonUsedFreqParameterList
                                                                            OPTIONAL
}
Event2d ::=
                                    SEQUENCE {
   usedFreqThreshold
                                        Threshold,
   usedFreqW
   hysteresis
                                        HysteresisInterFreq,
    timeToTrigger
                                        TimeToTrigger,
```

```
reportingCellStatus
                                           ReportingCellStatus
                                                                                   OPTIONAL
}
Event2e ::=
                                       SEQUENCE {
   hysteresis
                                       HysteresisInterFreq,
    timeToTrigger
                                           TimeToTrigger,
                                                                            OPTIONAL,
OPTIONAL
    reportingCellStatus
                                           ReportingCellStatus
                                         NonUsedFreqParameterList
   nonUsedFreqParameterList
}
Event2f ::=
                                      SEQUENCE {
    usedFreqThreshold
                                           Threshold,
    usedFreqW
                                           W,
   hysteresis
                                           HysteresisInterFreq,
    timeToTrigger
                                           TimeToTrigger,
   reportingCellStatus
                                                                                  OPTIONAL
                                           ReportingCellStatus
}
Event3a ::=
                                       SEQUENCE {
    thresholdOwnSystem
                                           Threshold,
                                            W,
    thresholdOtherSystem
                                           Threshold,
    hysteresis
                                           Hysteresis,
    timeToTrigger
                                           TimeToTrigger,
   reportingCellStatus
                                           ReportingCellStatus
                                                                                  OPTIONAL
}
Event3b ::=
                                       SEQUENCE {
   thresholdOtherSystem
                                       Threshold,
   hvsteresis
                                           Hysteresis,
    timeToTrigger
                                           TimeToTrigger,
   reportingCellStatus
                                          ReportingCellStatus
                                                                                  OPTIONAL
}
Event3c ::=
                                       SEQUENCE {
   thresholdOtherSystem
                                       Threshold,
                                           Hysteresis,
    hysteresis
                                           TimeToTrigger,
    timeToTrigger
   reportingCellStatus
                                         ReportingCellStatus
                                                                                  OPTIONAL
}
                                       SEQUENCE {
Event3d ::=
   hysteresis
                                           Hysteresis,
   timeToTrigger
reportingCellStatus
                                           TimeToTrigger,
                                           ReportingCellStatus
                                                                                   OPTIONAL
EventIDInterFreq ::=
                                       ENUMERATED {
                                           e2a, e2b, e2c, e2d, e2e, e2f, spare2, spare1 }
EventIDInterRAT ::=
                                       ENUMERATED {
                                           e3a, e3b, e3c, e3d }
EventIDIntraFreq ::=
                                       ENUMERATED {
                                            ela, elb, elc, eld, ele,
                                            elf, elg, elh, eli, spare7,
                                            spare6, spare5, spare4, spare3, spare2,
                                           spare1 }
                                       CHOICE {
EventResults ::=
   intraFreqEventResults
interFreqEventResults
interRATEventResults
                                      IntraFreqEventResults,
InterFreqEventResults,
   Interral EventResults,

trafficVolumeEventResults
qualityEventResults
ue-positioning-Measures

Interral EventResults,
TrafficVolumeEventResults,
QualityEventResults,
UE-Internal EventPositioning-Measures

UE-Internal EventPositioning-Measures
    ue-positioning-MeasurementEventResults
                                                       UE-Positioning-MeasurementEventResults,
                                           NULL
    spare
}
ExtraDopplerInfo ::=
                                       SEQUENCE {
    -- Actual value doppler1stOrder = IE value * 0.023
    doppler1stOrder
                                           INTEGER (-42..21),
    dopplerUncertainty
                                           DopplerUncertainty
FACH-MeasurementOccasionInfo ::= SEQUENCE {
```

```
fACH-meas-occasion-coeff
                                     INTEGER (1..12)
                                                                        OPTIONAL,
   inter-freq-FDD-meas-ind
                                      BOOLEAN,
   -- inter-freq-TDD-meas-ind is for 3.84Mcps TDD. For 1.28Mcps TDD, the IE in
   -- FACH-MeasurementOccasionInfo-LCR-r4-ext is used.
   inter-freq-TDD-meas-ind
                                     BOOLEAN,
   inter-RAT-meas-ind
                                      SEQUENCE (SIZE (1..maxOtherRAT)) OF
                                         RAT-Type
                                                                        OPTIONAL
}
FACH-MeasurementOccasionInfo-LCR-r4-ext ::= SEQUENCE {
   inter-freq-TDD128-meas-ind
FilterCoefficient ::=
                                  ENUMERATED {
                                     fc0, fc1, fc2, fc3, fc4, fc5,
                                      fc6, fc7, fc8, fc9, fc11, fc13,
                                      fc15, fc17, fc19, spare1 }
-- Actual value FineSFN-SFN = IE value * 0.0625
FineSFN-SFN ::=
                                  INTEGER (0..15)
ForbiddenAffectCell ::=
                                  CHOICE {
                                     PrimaryCPICH-Info,
   fdd
   tdd
                                     PrimaryCCPCH-Info
}
ForbiddenAffectCell-r4 ::=
                                  CHOICE {
                                     PrimaryCPICH-Info,
   t.dd
                                      PrimaryCCPCH-Info-r4
}
ForbiddenAffectCell-LCR-r4 ::=
                                 SEQUENCE {
                                     PrimaryCCPCH-Info-LCR-r4
ForbiddenAffectCellList ::=
                                 SEQUENCE (SIZE (1..maxCellMeas)) OF
                                     ForbiddenAffectCell
ForbiddenAffectCellList-r4 ::=
                                      SEQUENCE (SIZE (1..maxCellMeas)) OF
                                     ForbiddenAffectCell-r4
ForbiddenAffectCellList-LCR-r4 ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
                                      ForbiddenAffectCell-LCR-r4
cpich-Ec-N0,
                                      cpich-RSCP }
FreqQualityEstimateQuantity-TDD ::= ENUMERATED {
                                     primaryCCPCH-RSCP }
GPS-MeasurementParam ::=
                                  SEQUENCE {
   satelliteID
                                    INTEGER (0..63),
                                      INTEGER (0..63),
   c-N0
                                      INTEGER (-32768..32768),
   doppler
   wholeGPS-Chips
                                     INTEGER (0..1022),
   fractionalGPS-Chips
                                      INTEGER (0..1023),
   multipathIndicator
                                     MultipathIndicator,
   pseudorangeRMS-Error
                                     INTEGER (0..63)
}
                               SEQUENCE (SIZE (1..maxSat)) OF
GPS-MeasurementParamList ::=
                                     GPS-MeasurementParam
GSM-CarrierRSSI ::=
                                  BIT STRING (SIZE (6))
GSM-MeasuredResults ::=
                                  SEQUENCE {
   gsm-CarrierRSSI
                                     GSM-CarrierRSSI
                                                                        OPTIONAL,
    -- dummy is not used in this version of the specification, it should
   -- not be sent and if received it should be ignored.
                                     INTEGER (46..173)
   dummy
                                                                        OPTIONAL.
   bsicReported
                                     BSICReported,
   observedTimeDifferenceToGSM
                                    ObservedTimeDifferenceToGSM
                                                                       OPTIONAL
}
GSM-MeasuredResultsList ::= SEQUENCE (SIZE (1..maxReportedGSMCells)) OF
                                      GSM-MeasuredResults
```

```
INTEGER (0..604799999)
GPS-TOW-1msec ::=
GPS-TOW-Assist ::=
                                    SEQUENCE {
    satID
                                        SatID,
    tlm-Message
                                         BIT STRING (SIZE (14)),
    tlm-Reserved
                                        BIT STRING (SIZE (2)),
                                        BOOLEAN.
   alert.
    antiSpoof
                                        BOOLEAN
                                   SEQUENCE (SIZE (1..maxSat)) OF
GPS-TOW-AssistList ::=
                                        GPS-TOW-Assist
HCS-CellReselectInformation-RSCP ::=
                                            SEQUENCE {
   -- TABULAR: The default value for penaltyTime is "notUsed"
    -- Temporary offset is nested inside PenaltyTime-RSCP
   penaltyTime
                                                PenaltyTime-RSCP
}
HCS-CellReselectInformation-ECN0 ::=
                                            SEOUENCE {
    -- TABULAR: The default value for penaltyTime is "notUsed"
    -- Temporary offset is nested inside PenaltyTime-ECN0
    penaltyTime
                                        PenaltyTime-ECN0
}
\verb|HCS-NeighbouringCellInformation-RSCP| ::= SEQUENCE \\ \{
                                                                             DEFAULT 0,
   hcs-PRIO
                                        HCS-PRIO
    q-HCS
                                         O-HCS
                                                                             DEFAULT 0,
   hcs-CellReselectInformation
                                        HCS-CellReselectInformation-RSCP
}
HCS-NeighbouringCellInformation-ECN0 ::= SEQUENCE {
   hcs-PRIO
                                                                             DEFAULT 0.
                                        HCS-PRIO
    q-HCS
                                         O-HCS
                                                                             DEFAULT 0,
    hcs-CellReselectInformation
                                        HCS-CellReselectInformation-ECN0
}
HCS-PRIO ::=
                                    INTEGER (0..7)
HCS-ServingCellInformation ::=
                                    SEQUENCE {
                                        HCS-PRIO
                                                                             DEFAULT 0,
   hcs-PRIO
                                                                             DEFAULT 0,
    q-HCS
                                         O-HCS
    t-CR-Max
                                         T-CRMax
                                                                             OPTIONAL
}
-- Actual value Hysteresis = IE value * 0.5
Hysteresis ::=
                                    INTEGER (0..15)
-- Actual value HysteresisInterFreq = IE value * 0.5
                                   INTEGER (0..29)
HysteresisInterFreq ::=
InterFreqCell ::=
                                   SEQUENCE {
    frequencyInfo
                                        FrequencyInfo,
   nonFreqRelatedEventResults
                                        CellMeasurementEventResults
}
InterFreqCell-LCR-r4 ::=
                            SEQUENCE {
    frequencyInfo
                                        FrequencyInfo,
    nonFreqRelatedEventResults
                                        CellMeasurementEventResults-LCR-r4
InterFreqCellID ::=
                                    INTEGER (0..maxCellMeas-1)
    InterFreqCellInfoList ::=
                                    SEQUENCE {
                                    RemovedInterFreqCellList
                                                                           OPTIONAL,
                                        NewInterFreqCellList
                                                                             OPTIONAL,
    cellsForInterFreqMeasList
                                        CellsForInterFreqMeasList
                                                                             OPTIONAL
}
InterFreqCellInfoList-r4 ::=
    removedInterFreqCellList
    newInterFreqCellList
    cellsForInterFreqMeasList
                                    SEQUENCE {
                                    RemovedInterFreqCellList
                                                                            OPTIONAL,
                                        NewInterFreqCellList-r4
                                                                             OPTIONAL.
                                        CellsForInterFreqMeasList
                                                                            OPTIONAL
}
InterFreqCellInfoSI-List-RSCP ::= SEQUENCE {
    removedInterFreqCellList RemovedInt
                                                                            OPTIONAL,
    removedInterFreqCellList
                                        RemovedInterFreqCellList
```

```
newInterFreqCellList
                                                                    NewInterFreqCellSI-List-RSCP
                                                                                                                                 OPTIONAL
}
InterFreqCellInfoSI-List-ECN0 ::= SEQUENCE {
   removedInterFreqCellList RemovedInterFreqCellList NewInterFreqCellList
                                                                     RemovedInterFreqCellList
                                                                                                                                   OPTIONAL,
                                                                    NewInterFreqCellSI-List-ECN0
       newInterFreqCellList
}
InterFreqCellInfoSI-List-HCS-RSCP ::=
    removedInterFreqCellList
                                                                         SEQUENCE {
                                                                    RemovedInterFreqCellList
                                                                                                                                    OPTIONAL,
                                                                    NewInterFreqCellSI-List-HCS-RSCP OPTIONAL
      newInterFreqCellList
InterFreqCellInfoSI-List-HCS-ECN0 ::=
                                                                        SEQUENCE {
     removedInterFreqCellList
                                                                 RemovedInterFreqCellList
                                                                                                                                 OPTIONAL,
                                                                    NewInterFreqCellSI-List-HCS-ECN0 OPTIONAL
      newInterFreqCellList
}
InterFreqCellInfoSI-List-RSCP-LCR ::= SEQUENCE {
     removedInterFreqCellList

newInterFreqCellList

NewInterFreqCellList

NewInterFreqCellSILIST

NewInter
      newInterFreqCellList
                                                                    NewInterFreqCellSI-List-RSCP-LCR-r4 OPTIONAL
}
OPTIONAL,
                                                                    NewInterFreqCellSI-List-ECN0-LCR-r4 OPTIONAL
}
InterFreqCellInfoSI-List-HCS-RSCP-LCR ::= SEQUENCE {
      removedInterFreqCellList RemovedInterFreqCellList OPTIONAL,
newInterFreqCellList NewInterFreqCellSI-List-HCS-RSCP-LCR-r4 OPTIONAL
      newInterFreqCellList
InterFreqCellInfoSI-List-HCS-ECNO-LCR ::=
                                                                                   SEQUENCE {
     removedInterFreqCellList RemovedInterFreqCellList OPTIONAL, newInterFreqCellList NewInterFreqCellSI-List-HCS-ECNO-LCR-r4 OPTIONAL
}
                                                           SEQUENCE (SIZE (1..maxFreq)) OF
InterFreqCellList ::=
                                                                     InterFreqCell
InterFreqCellList-LCR-r4-ext ::= SEQUENCE (SIZE (1..maxFreq)) OF
                                                                     InterFreqCell-LCR-r4
InterFreqCellMeasuredResultsList ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
                                                                     CellMeasuredResults
                                                              CHOICE {
InterFregEvent ::=
      event2a
                                                                    Event2a,
       event2b
                                                                     Event2b,
      event2c
                                                                     Event2c,
                                                                    Event2d,
      event2d
                                                                     Event2e,
       event2e
       event2f
                                                                     Event2f
}
InterFreqEventList ::= SEQUENCE (SIZE (1..maxMeasEvent)) OF
                                                                     InterFreqEvent
--Following IE shall be used regardless of CPICH RSCP(FDD) or Primary CCPCH RSCP(TDD)
--The order of the list corresponds to the order of the cells in Inter-FrequencyMeasuredResultsList
InterFrequencyMeasuredResultsList-v590ext ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
                                                                                   DeltaRSCPPerCell
Inter-FreqEventCriteria-v590ext ::= SEQUENCE {
      threholdUsedFrequency-delta DeltaRSCP, threholdNonUsedFrequency-deltaList ThreholdNo
                                                                           ThreholdNonUsedFrequency-deltaList OPTIONAL
--The order of the list corresponds to the order of the events in Inter-FreqEventList
Inter-FreqEventCriteriaList-v590ext ::= SEQUENCE (SIZE (1..maxMeasEvent)) OF
                                                                            Inter-FreqEventCriteria-v590ext
--The order of the list corresponds to the order of relevant events in Intra-FreqEventCriteriaList
--i.e. the first element of the list corresponds to the first occurance of event le, lf, lh, li,
--the second element of the list corresponds to the second occurance of event 1e, 1f, 1h, 1i
Intra-FreqEventCriteriaList-v590ext ::= SEQUENCE (SIZE (1..maxMeasEvent)) OF
                                                                            DeltaRSCP
--Following IE shall be used regardless of CPICH RSCP(FDD) or Primary CCPCH RSCP(TDD)
```

```
--The order of the list corresponds to the order of the cells in Intra-FrequencyMeasuredResultsList
IntraFrequencyMeasuredResultsList-v590ext ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
                                          DeltaRSCPPerCell
IntraFreqReportingCriteria-1b-r5 ::= SEQUENCE {
                                  PeriodicReportingInfo-1b
  periodicReportingInfo-1b
PeriodicReportingInfo-1b ::= SEQUENCE {
   reportingAmount
                                    ReportingAmount,
   reportingInterval
                                   ReportingInterval
}
InterFreqEventResults ::=
                               SEQUENCE {
   eventID
                                   EventIDInterFreq,
                                                                   OPTIONAL
   interFreqCellList
                                    InterFreqCellList
}
InterFreqEventResults-LCR-r4-ext ::= SEQUENCE {
                                    EventIDInterFreq,
   eventID
                                   InterFreqCellList-LCR-r4-ext
                                                                  OPTIONAL
   interFreqCellList
InterFreqMeasQuantity ::= SEQUENCE {
                                CHOICÈ {
   reportingCriteria
       intraFreqReportingCriteria SEQUENCE {
          intraFreqMeasQuantity
                                         IntraFreqMeasQuantity
       interFreqReportingCriteria SEQUENCE {
    filterCoefficient Filter
          filterCoefficient
                                          FilterCoefficient
                                                                  DEFAULT fc0,
          modeSpecificInfo
                                           CHOICE {
                                             SEQUENCE {
                  freqQualityEstimateQuantity-FDD
                                                 FreqQualityEstimateQuantity-FDD
              tdd
                                              SEQUENCE {
                  freqQualityEstimateQuantity-TDD
                                                 FreqQualityEstimateQuantity-TDD
          }
       }
}
                              SEQUENCE {
InterFreqMeasuredResults ::=
   frequencyInfo
                                   FrequencyInfo
                                                                    OPTIONAL,
   utra-CarrierRSSI
                                    UTRA-CarrierRSSI
                                                                    OPTIONAL,
   {\tt interFreqCellMeasuredResultsList} \qquad {\tt InterFreqCellMeasuredResultsList}
                                                                   OPTIONAL
InterFreqMeasuredResultsList ::= SEQUENCE (SIZE (1..maxFreq)) OF
                                   InterFreqMeasuredResults
InterFreqMeasurementSysInfo-RSCP ::= SEQUENCE {
   interFreqCellInfoSI-List
                                       InterFreqCellInfoSI-List-RSCP OPTIONAL
}
InterFreqMeasurementSysInfo-HCS-RSCP ::= SEQUENCE {
   interFreqCellInfoSI-List InterFreqCellInfoSI-List-HCS-RSCP OPTIONAL
interFreqCellInfoSI-List
                                  InterFreqCellInfoSI-List-HCS-ECN0 OPTIONAL
}
InterFreqMeasurementSysInfo-RSCP-LCR-r4 ::= SEQUENCE {
   interFreqCellInfoSI-List
                                       InterFreqCellInfoSI-List-RSCP-LCR OPTIONAL
InterFreqMeasurementSysInfo-ECN0-LCR-r4 ::=
                                         SEQUENCE {
   interFreqCellInfoSI-List
                                   InterFreqCellInfoSI-List-ECN0-LCR
                                                                      OPTIONAL
InterFreqMeasurementSysInfo-HCS-RSCP-LCR-r4 ::= SEQUENCE {
                                   InterFreqCellInfoSI-List-HCS-RSCP-LCR OPTIONAL
   interFreqCellInfoSI-List
```

```
}
InterFreqMeasurementSysInfo-HCS-ECN0-LCR-r4 ::=
                                                  SEOUENCE {
    PeriodicalWithReportingCellStatus,
}
InterFreqReportCriteria-r4 ::= CHOICE {
  intraFreqReportingCriteria IntraFreqReportingCriteria-r4,
  interFreqReportingCriteria InterFreqReportingCriteria,
                                    PeriodicalWithReportingCellStatus,
    periodicalReportingCriteria
    noReporting
                                       ReportingCellStatusOpt
}
InterFreqReportingCriteria ::= SEQUENCE {
    interFreqEventList
                                      InterFreqEventList
                                                                           OPTIONAL
InterFreqReportingQuantity ::= SEQUENCE {
    utra-Carrier-RSSI
frequencyQualityEstimate
                                   BOOLEAN,
BOOLEAN,
   utra-Carrier-RSSI
                                    CellReportingQuantities
   nonFreqRelatedQuantities
}
OPTIONAL,
                                                                           OPTIONAL,
                                                                            OPTIONAL,
    reportCriteria
                                       InterFreqReportCriteria
}
interFreqCellInfoList InterFreqCellInfoList-r4,
interFreqReasQuantity InterFreqReportingQuantity
interFreqReportingQuantity InterFreqReportingQuantity
measurementValidity MeasurementValidity
interFreqSetUpdate UE-AutonomousUpdateMode
                                                                           OPTIONAL.
                                                                          OPTIONAL,
                                                                            OPTIONAL,
                                                                           OPTIONAL,
    reportCriteria
                                        InterFreqReportCriteria-r4
}
InterRAT-TargetCellDescription ::= SEQUENCE {
    technologySpecificInfo CHOICE {
    gsm SEQUIT
                                            SEQUENCE {
        qsm
           bsic
                                                BSIC,
            frequency-band
                                                Frequency-Band,
                                                BCCH-ARFCN,
           bcch-ARFCN
                                                NC-Mode
           ncMode
                                                                  OPTIONAL
        },
        is-2000
                                            NULL,
        spare2
                                            NULL,
        spare1
                                            NULL
}
InterRATCellID ::=
                               INTEGER (0..maxCellMeas-1)
InterRATCellInfoIndicator ::=
                                   INTEGER (0..3)
   erRATCellInfoList ::= SEQUENCE {
  removedInterRATCellList RemovedInterRATCellList,
InterRATCellInfoList ::=
    -- NOTE: Future revisions of dedicated messages including IE newInterRATCellList
    -- should use a corrected version of this \ensuremath{\text{IE}}
    CellsForInterRATMeasList CellsForInterRATM
                                   CellsForInterRATMeasList
                                                                          OPTIONAL
}
InterRATCellInfoList-B ::= SEQUENCE {
  removedInterRATCellList RemovedInterRATCellList,
    -- NOTE: IE newInterRATCellList should be optional. However, system information
    -- does not support message versions. Hence, this can not be corrected
```

```
newInterRATCellList NewInterRATCellList-B
}
InterRATCellInfoList-r4 ::= removedInterRATCellList newInterRATCellList newInterRATCellList cellsForInterRATMeasList
SEQUENCE {
RemovedInterRATCellList,
NewInterRATCellList
CellsForInterRATMeasList
                                                                           OPTIONAL,
OPTIONAL
                                              CellsForInterRATMeasList
}
InterRATCellIndividualOffset ::=
                                             INTEGER (-50..50)
InterRATEvent ::=
                                 CHOICE {
                                          Event3a,
    event.3a
    event3b
                                          Event3b,
    event3c
                                          Event3c,
    event3d
                                          Event3d
}
InterRATEventList ::= SEQUENCE (SIZE (1..maxMeasEvent)) OF
                                          InterRATEvent
InterRATEventResults ::=
                                      SEQUENCE {
                                      EventIDInterRAT,
   eventID
    cellToReportList
                                          CellToReportList
}
InterRATInfo ::=
                                      ENUMERATED {
                                        gsm }
InterRATInfo-r6 ::=
                                      SEQUENCE {
                                      InterRATInfo,
    rat
                                          GSM-TargetCellInfoList OPTIONAL
    gsm-TargetCellInfoList
}
                                        SEQUENCE {
InterRATMeasQuantity ::=
                                            IntraFreqMeasQuantity
    measQuantityUTRAN-QualityEstimate
                                                                               OPTIONAL,
                                          CHOICE {
    ratSpecificInfo
                                                   SEQUENCE {
        gsm
            measurementQuantity
                                                       MeasurementQuantityGSM,
FilterCoefficient DEFAULT fc0,
            filterCoefficient
            bsic-VerificationRequired
                                                       BSIC-VerificationRequired
        },
        is-2000
                                                   SEQUENCE {
                                                      INTEGER (0..63),
            tadd-EcIo
            tcomp-EcIo
                                                       INTEGER (0..15),
                                                       INTEGER (U..15),
INTEGER (0..63) OPTIONAL,
INTEGER (0..63) OPTIONAL
            softSlope
            addIntercept
        }
    }
}
InterRATMeasuredResults ::= CHOICE {
                                           GSM-MeasuredResultsList,
    spare
                                          NULL
}
InterRATMeasuredResultsList ::= SEQUENCE (SIZE (1..maxOtherRAT-16)) OF
                                         InterRATMeasuredResults
    erRATMeasurement ::= SEQUENCE {
interRATCellInfoList InterRATCellInfoList OPTIONAL,
interRATMeasQuantity InterRATMeasQuantity OPTIONAL,
interRATReportingQuantity InterRATReportingQuantity OPTIONAL,
reportCriteria InterRATReportCriteria
InterRATMeasurement ::=
                                         InterRATReportCriteria
    reportCriteria
}
}
InterRATMeasurementSysInfo ::= SEQUENCE {
    interRATCellInfoList InterRATCellInfoList OPTIONAL
}
InterRATMeasurementSysInfo-B ::= SEQUENCE {
```

```
interRATCellInfoList
                                          InterRATCellInfoList-B OPTIONAL
}
noReporting
                                  ReportingCellStatusOpt
}
InterRATReportingCriteria ::= SEQUENCE {
                                  InterRATEventList
   interRATEventList
                                                                       OPTIONAL
InterRATReportingQuantity ::= SEQUENCE {
   utran-EstimatedQuality BOOLEAN,
ratSpecificInfo CHOICE {
gsm SEQUI
                                             SEQUENCE {
             dummy
                                                   BOOLEAN,
             observedTimeDifferenceGSM
                                                    BOOLEAN.
            gsm-Carrier-RSSI
                                                    BOOLEAN
        }
}
IntraFreqCellID ::=
                                      INTEGER (0..maxCellMeas-1)
IntraFreqCellInfoList ::= SEQUENCE {
    removedIntraFreqCellList RemovedIntraFreqCellList OPTIONAL,
    newIntraFreqCellList NewIntraFreqCellList OPTIONAL,
    cellsForIntraFreqMeasList CellsForIntraFreqMeasList OPTIONAL
}
IntraFreqCellInfoList-r4 ::= SEQUENCE {
   removedIntraFreqCellList RemovedIntraFreqCellList OPTIONAL,
   newIntraFreqCellList NewIntraFreqCellList-r4 OPTIONAL,
   cellsForIntraFreqMeasList CellsForIntraFreqMeasList OPTIONAL
}
IntraFreqCellInfoSI-List-RSCP ::= SEQUENCE {
   removedIntraFreqCellList

newIntraFreqCellList

NewIntraFreqCellSI-List-F
                                                                                 OPTIONAL,
    newIntraFreqCellList
                                          NewIntraFreqCellSI-List-RSCP
}
IntraFreqCellInfoSI-List-ECN0 ::= SEQUENCE {
   removedIntraFreqCellList
   newIntraFreqCellList NewIntraFreqCellSI-List-F
                                                                                OPTIONAL,
    newIntraFreqCellList
                                          NewIntraFreqCellSI-List-ECN0
}
OPTIONAL,
}
OPTIONAL,
}
IntraFreqCellInfoSI-List-RSCP-LCR-r4 ::= SEQUENCE {
   removedIntraFreqCellList RemovedIntraFreqCellList newIntraFreqCellList NewIntraFreqCellSI-List-RSCP-LCR-r4
                                                                                  OPTIONAL.
}
                                                   SEQUENCE {
IntraFreqCellInfoSI-List-ECN0-LCR-r4 ::=
    removedIntraFreqCellList RemovedIntraFreqCellList NewIntraFreqCellSI-List-ECN0-LCR-r4
                                                                                  OPTIONAL.
}
IntraFreqCellInfoSI-List-HCS-RSCP-LCR-r4 ::=
                                                       SEQUENCE {
   removedIntraFreqCellList RemovedIntraFreqCellList
                                                                                OPTIONAL,
    newIntraFreqCellList
                                          NewIntraFreqCellSI-List-HCS-RSCP-LCR-r4
}
IntraFreqCellInfoSI-List-HCS-ECN0-LCR-r4 ::=
                                                       SEQUENCE {
   removedIntraFreqCellList RemovedIntraFreqCellList OPT:
newIntraFreqCellList NewIntraFreqCellSI-List-HCS-ECN0-LCR-r4
                                                                                  OPTIONAL,
}
```

```
CHOICE {
IntraFreqEvent ::=
                                       Eventla,
    e1a
    e1b
                                       Event1b,
                                       Event1c,
    e1c
    e1d
                                       NULL,
                                       Eventle,
   e1e
   e1f
                                       Event1f,
                                       NULL.
   e1q
    e1h
                                       ThresholdUsedFrequency,
    eli
                                       ThresholdUsedFrequency
}
                                  CHOICE {
IntraFreqEvent-r4 ::=
    e1a
                                       Eventla-r4,
    e1b
                                       Event1b-r4,
                                       Event1c,
   e1c
    e1d
                                       NULL,
   e1e
                                       Eventle,
   e1f
                                       Event1f,
                                       NULL,
    e1q
                                       ThresholdUsedFrequency,
    e1h
    eli
                                       ThresholdUsedFrequency
}
IntraFreqEvent-LCR-r4 ::=
                                  CHOICE {
    e1a
                                      Eventla-LCR-r4,
    e1b
                                       Event1b-LCR-r4,
                                       Event1c,
    e1c
   e1d
                                       NULL,
   e1e
                                       Eventle,
    e1f
                                       Event1f,
   e1g
                                       NULL,
    e1h
                                       ThresholdUsedFrequency,
    eli
                                       ThresholdUsedFrequency
}
                              SEQUENCE {
IntraFreqEvent-1d-r5 ::=
                                       TriggeringCondition2 OPTIONAL,
    triggeringCondition
    useCI0
                                       BOOLEAN
                                                               OPTIONAL
}
                                  SEQUENCE {
IntraFreqEventCriteria ::=
                                   IntraFreqEvent,
    event
   hysteresis
                                       Hysteresis,
   timeToTrigger
                                      TimeToTrigger,
   reportingCellStatus
                                      ReportingCellStatus
                                                                          OPTIONAL
}
IntraFreqEventCriteria-r4 ::= SEQUENCE {
                                   IntraFreqEvent-r4,
   event
   hysteresis
                                       Hysteresis,
    timeToTrigger
                                       TimeToTrigger,
   reportingCellStatus
                                      ReportingCellStatus
                                                                          OPTIONAL
IntraFreqEventCriteria-LCR-r4 ::= SEQUENCE {
    event
                                       IntraFreqEvent-LCR-r4,
    hysteresis
                                       Hysteresis,
    timeToTrigger
                                       TimeToTrigger,
                                                                         OPTIONAL
    reportingCellStatus
                                      ReportingCellStatus
IntraFreqEventCriteriaList ::=
                                  SEQUENCE (SIZE (1..maxMeasEvent)) OF
                                       IntraFreqEventCriteria
IntraFreqEventCriteriaList-r4 ::=
                                   SEQUENCE (SIZE (1..maxMeasEvent)) OF
                                       IntraFreqEventCriteria-r4
IntraFreqEventCriteriaList-LCR-r4 ::= SEQUENCE (SIZE (1..maxMeasEvent)) OF
                                       IntraFreqEventCriteria-LCR-r4
IntraFreqEventResults ::=
                                   SECUENCE {
    eventID
                                      EventIDIntraFreq,
    cellMeasurementEventResults
                                      CellMeasurementEventResults
}
IntraFreqMeasQuantity ::=
                                  SEQUENCE {
    filterCoefficient
                                       FilterCoefficient
                                                                           DEFAULT fc0,
```

```
modeSpecificInfo
                                                 CHOICE {
         fdd
                                                 SEQUENCE {
              intraFreqMeasQuantity-FDD
                                                     IntraFreqMeasQuantity-FDD
         },
         tdd
                                                 SEQUENCE {
              intraFreqMeasQuantity-TDDList
                                                     IntraFreqMeasQuantity-TDDList
    }
}
-- If IntraFreqMeasQuantity-FDD is used in InterRATMeasQuantity, then only
-- cpich-Ec-NO and cpich-RSCP are allowed.
-- dummy is not used in this version of the specification, it should
-- not be sent and if received it should be ignored.
IntraFreqMeasQuantity-FDD ::=
                                        ENUMERATED {
                                                 cpich-Ec-N0,
                                                 cpich-RSCP,
                                                 pathloss,
                                                 dummy }
-- dummy is not used in this version of the specification, it should
-- not be sent and if received it should be ignored.
IntraFreqMeasQuantity-TDD ::=
                                            ENUMERATED {
                                                 primaryCCPCH-RSCP,
                                                 pathloss,
                                                 timeslotISCP,
                                                 dummy }
IntraFreqMeasOuantity-TDDList ::=
                                            SEQUENCE (SIZE (1..4)) OF
                                                 IntraFreqMeasQuantity-TDD
IntraFreqMeasuredResultsList ::=
                                            SEQUENCE (SIZE (1..maxCellMeas)) OF
                                                 CellMeasuredResults
IntraFreqMeasurementSysInfo-RSCP ::=
                                                 SEQUENCE {
                                                 MeasurementIdentity DEFAULT 1,
     intraFreqMeasurementID
                                                IntraFreqCellInfoSI-List-RSCP OPTIONAL,
IntraFreqMeasQuantity OPTIONAL,
    intraFreqCellInfoSI-List
    intraFreqMeasQuantity
    intraFreqReportingQuantityForRACH IntraFreqReportingQuantityForRACH OPTIONAL,
    maxReportedCellsOnRACH
                                                                                             OPTIONAL,
                                                 MaxReportedCellsOnRACH
    reportingInfoForCellDCH
                                                ReportingInfoForCellDCH
                                                                                             OPTIONAL
}
IntraFreqMeasurementSysInfo-ECN0 ::=
    intraFreqMeasurementSysinio Lond
intraFreqMeasurementID MeasurementIdentity
intraFreqCellInfoSI-List IntraFreqCellInfoSI-List

IntraFreqMeasQuantity

IntraFreqMeasQuantity
                                                   SEQUENCE {
                                                 MeasurementIdentity DEFAULT 1,
                                                IntraFreqCellInfoSI-List-ECNO OPTIONAL,
                                                                                             OPTIONAL,
    intra Freq Reporting Quantity For RACH \qquad Intra Freq Reporting Quantity For RACH \qquad OPTIONAL\,,
    maxReportedCellsOnRACH
                                    MaxReportedCellsOnRACH
ReportingInfoForCellDCH
                                                MaxReportedCellsOnRACH
                                                                                            OPTIONAL,
    reportingInfoForCellDCH
}
IntraFreqMeasurementSysInfo-HCS-RSCP ::= SEQUENCE {
    intraFreqMeasurementID MeasurementIdentity DEFAULT 1, intraFreqCellInfoSI-List IntraFreqCellInfoSI-List OPTIONAL,
                                                                                             OPTIONAL,
    intraFreqMeasQuantity
                                                IntraFreqMeasQuantity
    intraFreqReportingQuantityForRACH IntraFreqReportingQuantityForRACH MaxReportedCellsOnRACH MaxReportedCellsOnRACH ReportingInfoForCellDCH ReportingInfoForCellDCH OPTIONAL,
}
IntraFreqMeasurementSysInfo-HCS-ECN0 ::= SEQUENCE {
    intraFreqMeasurementID MeasurementIdentity DEFAULT 1, intraFreqCellInfoSI-List IntraFreqCellInfoSI-List-HCS-ECNO OPTIONAL, intraFreqMeasQuantity IntraFreqMeasOuantity OPTIONAL.
    intraFreqMeasQuantity
                                                IntraFreqMeasQuantity
    intra Freq Reporting Quantity For RACH \qquad Intra Freq Reporting Quantity For RACH \qquad OPTIONAL\,,
    maxReportedCellsOnRACH MaxReportedCellsOnkach ReportingInfoForCellDCH
                                                                                             OPTIONAL,
                                                                                             OPTIONAL
}
IntraFreqMeasurementSysInfo-RSCP-LCR-r4 ::= SEQUENCE {
    intraFreqMeasurementID MeasurementIdentity
intraFreqCellInfoSI-List IntraFreqCellInfoSI-
intraFreqMeasOuantity IntraFreqMeasOuantit
                                                                                   DEFAULT 1,
                                               IntraFreqCellInfoSI-List-RSCP-LCR-r4
                                                                                                  OPTIONAL,
    intraFreqMeasQuantity IntraFreqMeasQuantity OPTIONAL, intraFreqReportingQuantityForRACH IntraFreqReportingQuantityForRACH OPTIONAL, maxReportedCellsOnRACH MaxReportedCellsOnRACH OPTIONAL, reportingInfoForCellDCH ReportingInfoForCellDCH-LCR-r4 OPTIONAL
```

```
IntraFreqMeasurementSysInfo-ECN0-LCR-r4 ::=
                                                   SEQUENCE {
    intraFreqMeasurementID MeasurementIdentity DEFAULT 1
intraFreqCellInfoSI-List IntraFreqCellInfoSI-List-ECN0-LCR-r4
intraFreqMeasQuantity IntraFreqMeasQuantity
                                                                        DEFAULT 1.
                                                                                      OPTIONAL,
    intraFreqMeasQuantity
                                          IntraFreqMeasQuantity
                                                                                 OPTIONAL,
    intra Freq Reporting Quantity For RACH \\ Intra Freq Reporting Quantity For RACH \\ OPTIONAL, \\
                                MaxReportedCellsOnRACH
ReportingInfoForCellDCH-LCR-r4
                                                                                OPTIONAL,
    maxReportedCellsOnRACH
    reportingInfoForCellDCH
}
IntraFreqMeasurementSysInfo-HCS-RSCP-LCR-r4 ::= SEQUENCE {
                                MeasurementIdentity
    intraFreqMeasurementID
                                                                        DEFAULT 1.
    intraFreqCellInfoSI-List
                                          IntraFreqCellInfoSI-List-HCS-RSCP-LCR-r4
                                                                                          OPTIONAL,
                                          IntraFreqMeasQuantity
    intraFreqMeasQuantity
                                                                                 OPTIONAL,
    intraFreqReportingQuantityForRACH IntraFreqReportingQuantityForRACH OPTIONAL,
maxReportedCellsOnRACH MaxReportedCellsOnRACH OPTIONAL,
reportingInfoForCellDCH PerortingInfoForCellDCH OPTIONAL
    reportingInfoForCellDCH
                                        ReportingInfoForCellDCH-LCR-r4
                                                                                OPTIONAL
}
IntraFreqMeasurementSysInfo-HCS-ECN0-LCR-r4 ::= SEQUENCE {
                                MeasurementIdentity
                                                                        DEFAULT 1.
    intraFreqMeasurementID
                                         IntraFreqCellInfoSI-List-HCS-ECN0-LCR-r4
    intraFreqCellInfoSI-List
                                                                                          OPTIONAL,
    intraFreqMeasQuantity
                                          IntraFreqMeasQuantity
                                                                                  OPTIONAL,
    intraFreqReportingQuantityForRACH IntraFreqReportingQuantityForRACH OPTIONAL,
    maxReportedCellsOnRACH
                                          MaxReportedCellsOnRACH
                                                                                  OPTIONAL.
    reportingInfoForCellDCH
                                          ReportingInfoForCellDCH-LCR-r4
                                                                                  OPTIONAL
                                   CHOICE {
IntraFreqReportCriteria ::=
    intraFreqReportingCriteria
                                         IntraFreqReportingCriteria,
    periodicalReportingCriteria
                                           PeriodicalWithReportingCellStatus,
                                          ReportingCellStatusOpt
    noReporting
}
IntraFreqReportCriteria-r4 ::=
                                      CHOICE {
    intraFreqReportingCriteria
                                          IntraFreqReportingCriteria-r4,
    periodicalReportingCriteria
                                           PeriodicalWithReportingCellStatus,
    noReporting
                                          ReportingCellStatusOpt
}
IntraFreqReportingCriteria ::=
                                      SEQUENCE {
    eventCriteriaList
                                          IntraFreqEventCriteriaList
                                                                             OPTIONAL
IntraFreqReportingCriteria-r4 ::=
                                      SEQUENCE {
    eventCriteriaList
                                          IntraFregEventCriteriaList-r4
                                                                             OPTIONAL
IntraFreqReportingCriteria-LCR-r4 ::=
                                          SEQUENCE {
    eventCriteriaList
                                           IntraFreqEventCriteriaList-LCR-r4 OPTIONAL
IntraFreqReportingQuantity ::=
                                     SEQUENCE {
    activeSetReportingQuantities
                                           CellReportingQuantities,
    monitoredSetReportingQuantities
                                           CellReportingQuantities,
    detectedSetReportingQuantities
                                          CellReportingQuantities
                                                                                OPTIONAL
{\tt IntraFreqReportingQuantityForRACH} \ ::= \ {\tt SEQUENCE} \ \big\{
    sfn-SFN-OTD-Type
                                           SFN-SFN-OTD-Type,
    modeSpecificInfo
        fdd
                                               SEQUENCE {
             intraFreqRepQuantityRACH-FDD
                                                   IntraFreqRepQuantityRACH-FDD
        },
        tdd
                                               SEQUENCE {
            intraFreqRepQuantityRACH-TDDList
                                                  IntraFreqRepQuantityRACH-TDDList
        }
    }
}
                                      ENUMERATED {
IntraFreqRepQuantityRACH-FDD ::=
                                           cpich-EcNO, cpich-RSCP,
                                           pathloss, noReport }
IntraFreqRepOuantityRACH-TDD ::=
                                      ENUMERATED {
                                           timeslotISCP,
                                           primaryCCPCH-RSCP,
                                           noReport }
```

```
IntraFreqRepQuantityRACH-TDDList ::= SEQUENCE (SIZE (1..2)) OF
                                         IntraFreqRepQuantityRACH-TDD
IntraFrequencyMeasurement ::=
                                  SEQUENCE {
                                    IntraFreqCellInfoList
    intraFreqCellInfoList
                                                                             OPTIONAL,
    intraFreqMeasQuantity
                                         IntraFreqMeasQuantity
                                                                             OPTIONAL,
                                                                           OPTIONAL,
    intraFreqReportingQuantity
                                       IntraFreqReportingQuantity
    measurementValidity
                                        MeasurementValidity
                                                                             OPTIONAL,
    reportCriteria
                                        IntraFreqReportCriteria
                                                                             OPTIONAL
}
IntraFrequencyMeasurement-r4 ::= SEQUENCE {
    intraFreqCellInfoList
                                     IntraFreqCellInfoList-r4
                                                                            OPTIONAL,
    intraFreqMeasQuantity
                                         IntraFreqMeasQuantity
                                                                             OPTIONAL,
                                         IntraFreqReportingQuantity
                                                                             OPTIONAL,
    intraFreqReportingQuantity
                                                                             OPTIONAL,
    measurementValidity
                                         MeasurementValidity
                                         IntraFreqReportCriteria-r4
    reportCriteria
                                                                             OPTIONAL
}
IODE ::=
                                     INTEGER (0..255)
IP-Length ::=
                                     ENUMERATED {
                                         ip15, ip110 }
IP-PCCPCH-r4 ::=
                                     BOOLEAN
                                     ENUMERATED {
    e5, e7, e10, e15, e20,
IP-Spacing ::=
                                         e30, e40, e50 }
IP-Spacing-TDD ::=
                                         ENUMERATED {
                                         e30, e40, e50, e70, e100}
IS-2000SpecificMeasInfo ::=
                                     ENUMERATED {
                                         frequency, timeslot, colourcode,
                                         outputpower, pn-Offset }
MaxNumberOfReportingCellsType1 ::= ENUMERATED {
                                         e1, e2, e3, e4, e5, e6}
MaxNumberOfReportingCellsType2 ::= ENUMERATED {
                                         e1, e2, e3, e4, e5, e6, e7, e8, e9, e10, e11, e12}
MaxNumberOfReportingCellsType3 ::= ENUMERATED {
                                         viactCellsPlus1,
                                         viactCellsPlus2.
                                         viactCellsPlus3,
                                         viactCellsPlus4,
                                         viactCellsPlus5,
                                         viactCellsPlus6 }
MaxReportedCellsOnRACH ::=
                                     ENUMERATED {
                                         noReport,
                                         currentCell,
                                         currentAnd-1-BestNeighbour,
                                         currentAnd-2-BestNeighbour,
                                         currentAnd-3-BestNeighbour,
                                         currentAnd-4-BestNeighbour,
                                         current And-5-Best Neighbour.
                                         currentAnd-6-BestNeighbour }
MeasuredResults ::=
                                     CHOICE {
    intraFreqMeasuredResultsList
                                         IntraFreqMeasuredResultsList,
    interFreqMeasuredResultsList
                                         InterFreqMeasuredResultsList,
    interRATMeasuredResultsList
                                    InterRATMeasuredResultsList,
    {\tt trafficVolumeMeasuredResultsList} \qquad {\tt TrafficVolumeMeasuredResultsList},
    qualityMeasuredResults
                                        QualityMeasuredResults,
    ue-positioning-MeasuredResults
spare

Line France SuredResults
UE-InternalMeasuredResults,
UE-Positioning-MeasuredResults
                                        UE-Positioning-MeasuredResults,
    spare
}
MeasuredResults-v390ext ::=
                                             SEQUENCE {
    ue-positioning-MeasuredResults-v390ext
                                                             UE-Positioning-MeasuredResults-v390ext
```

```
MeasuredResults-v590ext ::= CHOICE {
    intraFrequencyMeasuredResultsList
                                               IntraFrequencyMeasuredResultsList-v590ext,
    interFrequencyMeasuredResultsList
                                               InterFrequencyMeasuredResultsList-v590ext
}
MeasuredResults-LCR-r4 ::=
                                     CHOICE {
    intraFreqMeasuredResultsList
                                           IntraFreqMeasuredResultsList,
    \label{lem:interFreqMeasuredResultsList} interFreqMeasuredResultsList & InterFreqMeasuredResultsList, \\ interFreqMeasuredResultsList & InterFreqMeasuredResultsList, \\ \end{tabular}
                                          InterFreqMeasuredResultsList,
    {\tt trafficVolumeMeasuredResultsList} \qquad {\tt TrafficVolumeMeasuredResultsList},
    qualityMeasuredResults
                                          QualityMeasuredResults,
    ue-InternalMeasuredResults
                                          UE-InternalMeasuredResults-LCR-r4,
                                        UE-Positioning-MeasuredResults,
    ue-positioniing-MeasuredResults
                                          NULL
MeasuredResultsList ::=
                                      SEQUENCE (SIZE (1..maxAdditionalMeas)) OF
                                           MeasuredResults
MeasuredResultsList-LCR-r4-ext ::= SEQUENCE (SIZE (1..maxAdditionalMeas)) OF
                                           MeasuredResults-LCR-r4
MeasuredResultsOnRACH ::=
                                      SEQUENCE {
    currentCell
                                           SEQUENCE {
                                               CHOICE {
        modeSpecificInfo
            fdd
                                                   SEQUENCE {
                                                       CHOICE {
                 measurementQuantity
                     cpich-Ec-N0
                                                            CPICH-Ec-N0,
                     cpich-RSCP
                                                            CPICH-RSCP,
                     pathloss
                                                            Pathloss,
                     spare
                                                            NULL
             },
            tdd
                                                   SEQUENCE {
                 timeslotISCP
                                                       TimeslotISCP-List
                                                                                 OPTIONAL,
                 primaryCCPCH-RSCP
                                                       PrimaryCCPCH-RSCP
                                                                                 OPTIONAL
             }
    monitoredCells
                                           MonitoredCellRACH-List
                                                                                 OPTIONAL
}
                                      CHOICE {
MeasurementCommand ::=
                                           MeasurementType,
    setup
                                           SEQUENCE {
                                               MeasurementType
                                                                                 OPTIONAL
        measurementType
    release
                                          NULL
}
MeasurementCommand-r4 ::=
                                      CHOICE {
    setup
                                           MeasurementType-r4,
    modify
                                           SEQUENCE {
                                                                               OPTIONAL
        measurementType
                                               MeasurementType-r4
                                          NULL
    release
MeasurementControlSysInfo ::= SEQUENCE {
    -- CHOICE cellSelectQualityMeasure represents PCCPCH-RSCP in TDD mode.
                                           CHOICE {
    use-of-HCS
        hcs-not-used
                                           SEQUENCE
                                                        {
            cellSelectQualityMeasure
                                          CHOICE {
                                          SEQUENCE
                 cpich-RSCP
                     intraFreqMeasurementSysInfo
                                                            IntraFreqMeasurementSysInfo-RSCP
    OPTIONAL,
                     interFreqMeasurementSysInfo
                                                           InterFreqMeasurementSysInfo-RSCP
                                                                                                  OPTIONAL
                 },
                 cpich-Ec-N0
                                           SEOUENCE
                     intraFreqMeasurementSysInfo
                                                            {\tt IntraFreqMeasurementSysInfo-ECN0}
    OPTIONAL.
                     interFreqMeasurementSysInfo
                                                           InterFreqMeasurementSysInfo-ECN0
                                                                                                  OPTIONAL
                 }
            interRATMeasurementSysInfo
                                            InterRATMeasurementSysInfo-B
                                                                                    OPTIONAL
        hcs-used
                                           SECUENCE
            cellSelectQualityMeasure
                                           CHOICE {
```

```
cpich-RSCP
                                        SEQUENCE
                   intraFreqMeasurementSysInfo
                                                       IntraFreqMeasurementSysInfo-HCS-RSCP
    OPTIONAL,
                    interFreqMeasurementSysInfo
                                                       InterFreqMeasurementSysInfo-HCS-RSCP
    OPTIONAL
               cpich-Ec-N0
                                       SEQUENCE
                   intraFreqMeasurementSysInfo
                                                       IntraFreqMeasurementSysInfo-HCS-ECN0
    OPTIONAL,
                    interFreqMeasurementSysInfo
                                                      InterFreqMeasurementSysInfo-HCS-ECN0
    OPTIONAL
                           }
            interRATMeasurementSysInfo InterRATMeasurementSysInfo
                                                                          OPTIONAL
    },
                                       TrafficVolumeMeasSysInfo
    trafficVolumeMeasSysInfo
                                                                           OPTIONAL,
    -- dummy is not used in this version of specification and it shall be ignored by the UE.
               UE-InternalMeasurementSysInfo
                                                   OPTIONAL
}
MeasurementControlSysInfo-LCR-r4-ext ::= SEQUENCE {
     -- CHOICE use-of-HCS shall have the same value as the use-of-HCS
    -- in MeasurementControlSysInfo
    -- CHOICE cellSelectQualityMeasure represents PCCPCH-RSCP in TDD mode.
                                       CHOICE {
    use-of-HCS
                                        SEQUENCE
       hcs-not-used
            -- CHOICE cellSelectQualityMeasure shall have the same value as the
            \operatorname{--} cellSelectQualityMeasure in MeasurementControlSysInfo
            cellSelectQualityMeasure CHOICE {
                cpich-RSCP
                                       SEQUENCE
                    intra Freq Measurement SysInfo-RSCP-LCR-r4~OPTIONAL\ ,
                    \verb|interFreqMeasurementSysInfo-RSCP-LCR-r4| | \texttt{OPTIONAL}| \\
                cpich-Ec-N0
                                       SEOUENCE
                    intraFreqMeasurementSysInfo IntraFreqMeasurementSysInfo-ECN0-LCR-r4 OPTIONAL,
                    interFreqMeasurementSysInfo InterFreqMeasurementSysInfo-ECN0-LCR-r4 OPTIONAL
                }
            }
        hcs-used
                                        SEQUENCE
            -- CHOICE cellSelectQualityMeasure shall have the same value as the
            -- cellSelectQualityMeasure in MeasurementControlSysInfo
            {\tt cellSelectQualityMeasure}
                                        CHOICE {
                cpich-RSCP
                                        SEQUENCE
                   intraFreqMeasurementSysInfo IntraFreqMeasurementSysInfo-HCS-RSCP-LCR-r4
    OPTIONAL.
                    interFreqMeasurementSysInfo InterFreqMeasurementSysInfo-HCS-RSCP-LCR-r4 OPTIONAL
                },
                cpich-Ec-N0
                                        SEOUENCE
                    intra \texttt{FreqMeasurementSysInfo-IntraFreqMeasurementSysInfo-HCS-ECN0-LCR-r4}
    OPTIONAL,
                    interFreqMeasurementSysInfo InterFreqMeasurementSysInfo-HCS-ECN0-LCR-r4 OPTIONAL
           }
        }
    }
}
MeasurementIdentity ::= INTEGER (1..16)
MeasurementQuantityGSM ::=
                                    ENUMERATED {
                                        gsm-CarrierRSSI,
                                        dummy }
MeasurementReportingMode ::=
                                   SEQUENCE {
   measurementReportTransferMode
                                       TransferMode,
   periodicalOrEventTrigger
                                        PeriodicalOrEventTrigger
}
MeasurementType ::=
                                    CHOICE {
    intraFrequencyMeasurement
                                       IntraFrequencyMeasurement,
    interFrequencyMeasurement
                                        InterFrequencyMeasurement,
    interRATMeasurement
                                      InterRATMeasurement,
    ue-positioning-Measurement
                                       UE-Positioning-Measurement,
                                      TrafficVolumeMeasurement,
    trafficVolumeMeasurement
    qualityMeasurement
                                       QualityMeasurement,
    ue-InternalMeasurement
                                       UE-InternalMeasurement
```

```
}
   MeasurementType-r4 ::=
}
\label{eq:measurement} \mbox{MeasurementValidity} ::= \mbox{SEQUENCE } \{
   ue-State
                                     ENUMERATED {
                                           cell-DCH, all-But-Cell-DCH, all-States }
}
MonitoredCellRACH-List ::= SEQUENCE (SIZE (1..8)) OF
                                       MonitoredCellRACH-Result
    sfn-SFN-ObsTimeDifference SFN-SFN modeSpecificInfo
MonitoredCellRACH-Result ::=
                                   SFN-SFN-ObsTimeDifference OPTIONAL,
                                       CHOICE {
                                       SEQUENCE {
           primaryCPICH-Info
measurementQuantity
cpich-Ec-N0
cpich-RSCP
                                               PrimaryCPICH-Info,
                                               CHOICE {
                                                   CPICH-Ec-N0,
                                                   CPICH-RSCP,
               pathloss
                                                   Pathloss,
                spare
                                                   NULL
            }
                                                                          OPTIONAL
        },
        tdd
                                      SEQUENCE {
                                          CellParametersID,
           cellParametersID
           primaryCCPCH-RSCP
                                              PrimaryCCPCH-RSCP
    }
}
MultipathIndicator ::=
                                  ENUMERATED {
                                       nm,
                                       low.
                                       medium,
                                       high }
N-CR-T-CRMaxHyst ::=
                                   SEQUENCE {
                                       INTEGER (1..16)
                                                                          DEFAULT 8,
   n-CR
    t-CRMaxHyst
                                       T-CRMaxHyst
{\tt Navigation Model Sat Info} ::= \\ {\tt SEQUENCE} \ \{
    satID
                                       SatID,
    satelliteStatus
                                        SatelliteStatus,
                                       EphemerisParameter OPTIONAL
    ephemerisParameter
}
NavigationModelSatInfoList ::= SEQUENCE (SIZE (1..maxSat)) OF
                                      NavigationModelSatInfo
EphemerisParameter ::=
                                           SEQUENCE {
                                       BIT STRING (SIZE (2)),
    codeOnL2
    uraIndex
                                       BIT STRING (SIZE (4)),
                                       BIT STRING (SIZE (6)),
    satHealth
                                       BIT STRING (SIZE (10)),
BIT STRING (SIZE (1)),
    iodc
    12Pflag
    sf1Revd
                                       SubFrame1Reserved,
                                       BIT STRING (SIZE (8)),
    t-GD
    t-oc
                                       BIT STRING (SIZE (16)),
                                       BIT STRING (SIZE (8)),
    af2
   af1
                                       BIT STRING (SIZE (16)),
   af0
                                       BIT STRING (SIZE (22)),
    c-rs
                                       BIT STRING (SIZE (16)),
                                       BIT STRING (SIZE (16)),
   delta-n
   m0
                                       BIT STRING (SIZE (32)),
                                       BIT STRING (SIZE (16)),
    c-uc
                                       BIT STRING (SIZE (32)),
    c-us
                                       BIT STRING (SIZE (16)),
                                       BIT STRING (SIZE (32)),
    a-Sgrt
```

```
t-oe
                                       BIT STRING (SIZE (16)),
   fitInterval
                                       BIT STRING (SIZE (1)),
   aodo
                                      BIT STRING (SIZE (5)),
   c-ic
                                      BIT STRING (SIZE (16)),
   omega0
                                       BIT STRING (SIZE (32)),
   c-is
                                      BIT STRING (SIZE (16)),
   i0
                                      BIT STRING (SIZE (32)),
                                      BIT STRING (SIZE (16)),
   c-rc
   omega
                                      BIT STRING (SIZE (32)),
   omegaDot
                                       BIT STRING (SIZE (24)),
                                       BIT STRING (SIZE (14))
   iDot
NC-Mode ::=
                                   BIT STRING (SIZE (3))
Neighbour ::=
                                   SEQUENCE {
                                   CHOICE {
   modeSpecificInfo
                                       SEQUENCE {
       fdd
           neighbourIdentity
                                               PrimaryCPICH-Info
                                                                                  OPTIONAL,
           uE-RX-TX-TimeDifferenceType2Info
                                               UE-RX-TX-TimeDifferenceType2Info
                                                                                  OPTIONAL
       },
       tdd
                                      SEQUENCE {
           neighbourAndChannelIdentity CellAndChannelIdentity
                                                                                  OPTIONAL
                                      NeighbourQuality,
   neighbourOuality
   sfn-SFN-ObsTimeDifference2
                                      SFN-SFN-ObsTimeDifference2}
Neighbour-v390ext ::=
                                          SEQUENCE {
                                  CHOICE {
   modeSpecificInfo
       fdd
                                      SEQUENCE {
           frequencyInfo
                                              FrequencyInfo
       tdd
                                     NULL
   }
}
NeighbourList ::=
                                  SEQUENCE (SIZE (1..maxCellMeas)) OF
                                       Neighbour
-- The order of the cells in IE NeighbourList-v390ext shall be the
-- same as the order in IE NeighbourList
                                           SEQUENCE (SIZE (1..maxCellMeas)) OF
NeighbourList-v390ext ::=
                              Snyonne.
Neighbour-v390ext
NeighbourQuality ::=
                                  SEQUENCE {
   ue-Positioning-OTDOA-Quality
                                      UE-Positioning-OTDOA-Quality
NewInterFreqCell ::=
                                   SEQUENCE {
                                      InterFreqCellID
   interFreqCellID
                                                                          OPTIONAL,
   frequencyInfo
                                                                          OPTIONAL,
                                       FrequencyInfo
   cellInfo
                                       CellInfo
}
NewInterFreqCell-r4 ::=
                                   SEQUENCE {
   interFreqCellID
                                       InterFreqCellID
                                                                          OPTIONAL.
   frequencyInfo
                                       FrequencyInfo
                                                                          OPTIONAL,
   cellInfo
                                       CellInfo-r4
NewInterFreqCellList ::=
                                   SEQUENCE (SIZE (1..maxCellMeas)) OF
                                      NewInterFreqCell
                                 SEQUENCE (SIZE (1..maxCellMeas)) OF
NewInterFreqCellList-r4 ::=
                                       NewInterFreqCell-r4
NewInterFreqCellSI-RSCP ::=
                                       SEQUENCE {
   interFreqCellID
                                       InterFreqCellID
                                                                          OPTIONAL,
                                                                          OPTIONAL,
   frequencyInfo
                                       FrequencyInfo
   cellInfo
                                       CellInfoSI-RSCP
NewInterFreqCellSI-ECN0 ::=
                                     SEQUENCE {
                                      InterFreqCellID
                                                                          OPTIONAL,
   interFreqCellID
   frequencyInfo
                                      FrequencyInfo
                                                                          OPTIONAL,
   cellInfo
                                      CellInfoSI-ECN0
}
```

```
SEQUENCE (
InterFreqCellID
NewInterFreqCellSI-HCS-RSCP ::=
    interFreqCellID
                                                                           OPTIONAL,
    frequencyInfo
                                     FrequencyInfo
                                                                           OPTIONAL,
                                       CellInfoSI-HCS-RSCP
    cellInfo
                                SEQUENCE {
InterFreqCellID
NewInterFreqCellSI-HCS-ECN0 ::=
                                                                          OPTIONAL.
    interFreqCellID
    frequencyInfo
                                     FrequencyInfo
                                                                           OPTIONAL,
    cellInfo
                                       CellInfoSI-HCS-ECN0
}
NewInterFreqCellSI-RSCP-LCR-r4 ::= SEQUENCE {
    InterFreqCellID
                                                                           OPTIONAL,
    frequencyInfo
                                       FrequencyInfo
                                                                           OPTIONAL,
    cellInfo
                                       CellInfoSI-RSCP-LCR-r4
}
NewInterFreqCellSI-ECNO-LCR-r4 ::=
                                          SEQUENCE {
                                       InterFreqCellID
                                                                           OPTIONAL,
    interFreqCellID
                                     FrequencyInfo
                                                                           OPTIONAL,
    frequencyInfo
    cellInfo
                                       CellInfoSI-ECN0-LCR-r4
}
NewInterFreqCellSI-HCS-RSCP-LCR-r4 ::=
                                           SECUENCE {
    interFreqCellID
                                       InterFreqCellID
                                                                           OPTIONAL,
    frequencyInfo
                                       FrequencyInfo
                                                                           OPTIONAL,
                                       CellInfoSI-HCS-RSCP-LCR-r4
    cellInfo
}
NewInterFreqCellSI-HCS-ECN0-LCR-r4 ::=
                                           SEQUENCE {
    interFreqCellID
                                       InterFreqCellID
                                                                           OPTIONAL,
    frequencyInfo
                                                                           OPTIONAL,
                                       FrequencyInfo
    cellInfo
                                       CellInfoSI-HCS-ECN0-LCR-r4
NewInterFreqCellSI-List-ECN0 ::=
                                           SEQUENCE (SIZE (1..maxCellMeas)) OF
                                       NewInterFreqCellSI-ECN0
NewInterFreqCellSI-List-HCS-RSCP ::=
                                               SEQUENCE (SIZE (1..maxCellMeas)) OF
                                       NewInterFreqCellSI-HCS-RSCP
NewInterFreqCellSI-List-HCS-ECN0 ::=
                                               SEQUENCE (SIZE (1..maxCellMeas)) OF
                                       NewInterFreqCellSI-HCS-ECN0
NewInterFreqCellSI-List-RSCP ::=
                                       SEQUENCE (SIZE (1..maxCellMeas)) OF
                                       NewInterFreqCellSI-RSCP
                                           SEQUENCE (SIZE (1..maxCellMeas)) OF
NewInterFreqCellSI-List-ECN0-LCR-r4 ::=
                                       NewInterFreqCellSI-ECN0-LCR-r4
NewInterFreqCellSI-List-HCS-RSCP-LCR-r4 ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
                                       NewInterFreqCellSI-HCS-RSCP-LCR-r4
NewInterFreqCellSI-List-HCS-ECN0-LCR-r4 ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
                                       NewInterFreqCellSI-HCS-ECN0-LCR-r4
NewInterFreqCellSI-List-RSCP-LCR-r4 ::=
                                           SEQUENCE (SIZE (1..maxCellMeas)) OF
                                       NewInterFreqCellSI-RSCP-LCR-r4
NewInterRATCell ::=
                               SEQUENCE {
                                       InterRATCellID
    interRATCellID
                                                              OPTIONAL,
    technologySpecificInfo
                                       CHOICE {
                                         SEQUENCE {
            cellSelectionReselectionInfo
                                               CellSelectReselectInfoSIB-11-12
                                                                                   OPTIONAL,
            interRATCellIndividualOffset
                                               InterRATCellIndividualOffset,
            bsic
                                               BSIC,
            frequency-band
                                               Frequency-Band,
            bcch-ARFCN
                                               BCCH-ARFCN,
            -- dummy is not used in this version of the specification, it should
            -- not be sent and if received it should be ignored.
                                               NULL
                                                                   OPTIONAL
           dummy
        is-2000
                                           SEQUENCE {
           is-2000SpecificMeasInfo
                                               IS-2000SpecificMeasInfo
        -- ASN.1 inconsistency: NewInterRATCellList should be optional within
        -- InterRATCellInfoList. The UE shall consider IE NewInterRATCell with
```

```
-- technologySpecificInfo set to "absent" as valid and handle the
        -- message as if the IE NewInterRATCell was absent
        absent
                                             NULL,
                                             NIII.I.
        spare1
    }
}
NewInterRATCell-B ::= SEQUENCE {
  interRATCellID
  technologySpecificInfo CHOICE {
                                                                   OPTIONAL,
    technologySpecificInfo
                                       CHOICE {
                                         SEQUENCE {
        qsm
            cellSelectionReselectionInfo CellSelectReselectInfoSIB-11-12 OPTIONAL, interRATCellIndividualOffset InterRATCellIndividualOffset,
                                               BSIC,
            bsic
            frequency-band
                                                Frequency-Band,
            bcch-ARFCN
                                                BCCH-ARFCN,
            \operatorname{\mathsf{--}} dummy is not used in this version of the specification, it should
            -- not be sent and if received it should be ignored.
                                                 NULL
        is-2000
                                            SEQUENCE {
           is-2000SpecificMeasInfo
                                                IS-2000SpecificMeasInfo
        -- ASN.1 inconsistency: NewInterRATCellList-B should be optional within
        -- InterRATCellInfoList-B. The UE shall consider IE NewInterRATCell-B with
        -- technologySpecificInfo set to "absent" as valid and handle the
        -- message as if the IE NewInterRATCell-B was absent
                                             NULL,
        spare1
                                             NULL
    }
}
NewInterRATCellList ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
                                        NewInterRATCell
NewInterRATCellList-B ::=
                                    SEQUENCE (SIZE (1..maxCellMeas)) OF
                                       NewInterRATCell-B
NewIntraFreqCell::= SEQUENCE {
   intraFreqCellID
                                        IntraFreqCellID
                                                                            OPTIONAL,
    cellInfo
                                         CellInfo
}
NewIntraFreqCell-r4 ::= SEQUENCE {
  intraFreqCellID IntraFr
                                    IntraFreqCellID
                                                                            OPTIONAL,
    cellInfo
                                        CellInfo-r4
NewIntraFreqCellList ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
                                       NewIntraFreqCell
NewIntraFreqCellList-r4 ::=
                                 SEQUENCE (SIZE (1..maxCellMeas)) OF
                                       NewIntraFreqCell-r4
NewIntraFreqCellSI-RSCP ::=
                                    SEQUENCE {
                                        IntraFreqCellID
    intraFreqCellID
                                                                             OPTIONAL,
    cellInfo
                                         CellInfoSI-RSCP
}
\label{eq:new_new_new_problem} \mbox{NewIntraFreqCellSI-ECNO} ::= \qquad \qquad \mbox{SEQUENCE} \ \big\{ \\
                                     IntraFreqCellID
   intraFreqCellID
                                                                              OPTIONAL,
    cellInfo
                                        CellInfoSI-ECN0
NewIntraFreqCellSI-HCS-RSCP ::= SEQUENCE {
                                        IntraFreqCellID
   intraFreqCellID
                                                                             OPTIONAL,
    cellInfo
                                        CellInfoSI-HCS-RSCP
}
NewIntraFreqCellSI-HCS-ECNO ::= SEQUENCE {
                                    IntraFreqCellID
    intraFreqCellID
                                                                             OPTIONAL,
    cellInfo
                                        CellInfoSI-HCS-ECN0
}
NewIntraFreqCellSI-RSCP-LCR-r4 ::= SEQUENCE {
                                         IntraFreqCellID
    intraFreqCellID
                                                                              OPTIONAL,
    cellInfo
                                        CellInfoSI-RSCP-LCR-r4
}
```

```
NewIntraFreqCellSI-ECN0-LCR-r4 ::=
                                        SEQUENCE {
    intraFreqCellID
                                        IntraFreqCellID
                                                                            OPTIONAL,
    cellInfo
                                        CellInfoSI-ECN0-LCR-r4
NewIntraFreqCellSI-HCS-RSCP-LCR-r4 ::= SEQUENCE {
                                        IntraFreqCellID
   intraFreqCellID
                                                                            OPTIONAL,
   cellInfo
                                        CellInfoSI-HCS-RSCP-LCR-r4
}
NewIntraFreqCellSI-HCS-ECN0-LCR-r4 ::= SEQUENCE {
   intraFreqCellID
                                        IntraFreqCellID
                                                                            OPTIONAL,
    cellInfo
                                       CellInfoSI-HCS-ECNO-LCR-r4
NewIntraFreqCellSI-List-RSCP ::=
                                       SEQUENCE (SIZE (1..maxCellMeas)) OF
                                            NewIntraFreqCellSI-RSCP
NewIntraFreqCellSI-List-ECN0 ::=
                                        SEQUENCE (SIZE (1..maxCellMeas)) OF
                                        NewIntraFreqCellSI-ECN0
NewIntraFreqCellSI-List-HCS-RSCP ::=
                                       SEQUENCE (SIZE (1..maxCellMeas)) OF
                                       NewIntraFreqCellSI-HCS-RSCP
NewIntraFreqCellSI-List-HCS-ECN0 ::=
                                       SEQUENCE (SIZE (1..maxCellMeas)) OF
                                       NewIntraFreqCellSI-HCS-ECN0
NewIntraFreqCellSI-List-RSCP-LCR-r4 ::=
                                            SEQUENCE (SIZE (1..maxCellMeas)) OF
                                            NewIntraFreqCellSI-RSCP-LCR-r4
NewIntraFreqCellSI-List-ECN0-LCR-r4 ::=
                                           SEQUENCE (SIZE (1..maxCellMeas)) OF
                                        NewIntraFreqCellSI-ECN0-LCR-r4
NewIntraFreqCellSI-List-HCS-RSCP-LCR-r4 ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
                                        NewIntraFreqCellSI-HCS-RSCP-LCR-r4
NewIntraFreqCellSI-List-HCS-ECN0-LCR-r4 ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
                                       NewIntraFreqCellSI-HCS-ECN0-LCR-r4
    -- IE "nonUsedFreqThreshold" is not needed in case of event 2a
    -- In case of event 2a UTRAN should include value 0 within IE "nonUsedFreqThreshold"
    -- In case of event 2a, the UE shall be ignore IE "nonUsedFreqThreshold"
    -- In later versions of the message including this IE, a special version of
    -- IE "NonUsedFreqParameterList" may be defined for event 2a, namely a
    -- version not including IE "nonUsedFreqThreshold"
NonUsedFreqParameter ::=
                                 SEQUENCE {
    nonUsedFreqThreshold
                                        Threshold,
    nonUsedFreqW
                                        W
NonUsedFreqParameterList ::=
                                    SEQUENCE (SIZE (1..maxFreq)) OF
                                        NonUsedFreqParameter
ObservedTimeDifferenceToGSM ::=
                                    INTEGER (0..4095)
OTDOA-SearchWindowSize ::=
                                    ENUMERATED {
                                        c20, c40, c80, c160, c320,
                                        c640, c1280, moreThan1280 }
-- SPARE: Pathloss, Max = 158
-- Values above Max are spare
Pathloss ::=
                                    INTEGER (46..173)
PenaltyTime-RSCP ::=
                                    CHOICE {
   notUsed
    pt10
                                        TemporaryOffset1,
   pt20
                                        TemporaryOffset1,
                                        TemporaryOffset1,
   pt30
                                        TemporaryOffset1,
   pt40
   pt50
                                        TemporaryOffset1,
                                        TemporaryOffset1
    pt60
                                    CHOICE {
PenaltyTime-ECN0 ::=
   notUsed
   pt10
                                        TemporaryOffsetList,
   pt20
                                        TemporaryOffsetList,
                                        TemporaryOffsetList,
    pt30
    pt40
                                        TemporaryOffsetList,
```

```
pt50
                                             TemporaryOffsetList,
                                             TemporaryOffsetList
    pt60
}
PendingTimeAfterTrigger ::=
                                         ENUMERATED {
                                           ptat0-25, ptat0-5, ptat1,
                                             ptat2, ptat4, ptat8, ptat16 }
PeriodicalOrEventTrigger ::=
                                         ENUMERATED {
                                             periodical,
                                             eventTrigger }
PeriodicalReportingCriteria ::=
                                        SEQUENCE {
    reportingAmount
                                           ReportingAmount
                                                                                DEFAULT ra-Infinity,
    reportingInterval
                                             ReportingIntervalLong
}
{\tt PeriodicalWithReportingCellStatus} ::= {\tt SEQUENCE} \ \{
    periodicalReportingCriteria PeriodicalReportingCriteria,
    reportingCellStatus
                                                                                      OPTIONAL
                                            ReportingCellStatus
}
PLMNIdentitiesOfNeighbourCells ::= SEQUENCE {
    plmnsOfIntraFreqCellsList
    plmnsOfInterFreqCellsList
    plmnsOfInterRATCellsList
    plmnsOfInterRATCellsList
}

PLMNSOfInterFreqCellsList
PLMNSOfInterRATCellsList
                                                                                    OPTIONAL,
                                                                                    OPTIONAL,
                                                                                     OPTIONAL
}
PLMNsOfInterFreqCellsList ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
                                                 SEQUENCE {
    plmn-Identity
                                                     PLMN-Identity
                                                                                     OPTIONAL
PLMNsOfIntraFreqCellsList ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
                                                 SEQUENCE {
    plmn-Identity
                                                     PLMN-Identity
                                                                                     OPTIONAL
}
PLMNsOfInterRATCellsList ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
                                                SEQUENCE {
                                                      PLMN-Identity
    plmn-Identity
                                                                                    OPTIONAL
}
    itionEstimate ::= CHOICE {
ellipsoidPoint EllipsoidPoint,
ellipsoidPointUncertCircle EllipsoidPointUncertEllipse
ellipsoidPointAltitude EllipsoidPointAltitudeEllipse
ellipsoidPointAltitudeEllipse
PositionEstimate ::=
   ellipsoidPoint
}
                                        ENUMERATED {
PositioningMethod ::=
                                            otdoa,
                                             qps,
                                             otdoaOrGPS, cellID }
-- Actual value PRC = IE value * 0.32
                                        INTEGER (-2047..2047)
-- SPARE: PrimaryCCPCH-RSCP, Max = 91
-- Values above Max are spare
PrimaryCCPCH-RSCP ::=
                                        INTEGER (0..127)
O-HCS ::=
                                        INTEGER (0..99)
Q-OffsetS-N ::=
                                       INTEGER (-50..50)
Q-QualMin ::=
                                        INTEGER (-24..0)
-- Actual value Q-RxlevMin = (IE value * 2) + 1
                                        INTEGER (-58..-13)
QualityEventResults ::=
                                        SEQUENCE (SIZE (1..maxTrCH)) OF
                                            TransportChannelIdentity
QualityMeasuredResults ::= SEQUENCE {
    blerMeasurementResultsList BLER-Me
                                            BLER-MeasurementResultsList OPTIONAL,
    modeSpecificInfo
                                             CHOICE {
```

```
fdd
                                              NULL,
        tdd
                                              SEQUENCE {
            sir-MeasurementResults
                                                  SIR-MeasurementList
                                                                              OPTIONAL
        }
    }
}
    lityMeasurement ::=
qualityReportingQuantity
QualityMeasurement ::=
                                     SEQUENCE {
                                          QualityReportingQuantity
                                                                              OPTIONAL,
    reportCriteria
                                          QualityReportCriteria
}
QualityReportCriteria ::= CHOICE {
   qualityReportingCriteria Qual
   periodicalReportingCriteria Perio
                                      QualityReportingCriteria,
                                          PeriodicalReportingCriteria,
    noReporting
                                          NULL
}
QualityReportingCriteria ::= SEQUENCE (SIZE (1..maxTrCH)) OF
                                          QualityReportingCriteriaSingle
QualityReportingCriteriaSingle ::= SEQUENCE {
    transportChannelIdentity
                                          TransportChannelIdentity,
                                         INTEGER (1..512),
    totalCRC
    badCRC
                                          INTEGER (1..512),
                                          INTEGER (1..512)
    pendingAfterTrigger
\label{eq:QualityReportingQuantity} \mbox{\tt :=} \qquad \qquad \mbox{\tt SEQUENCE } \{
    dl-TransChBLER
                                          BOOLEAN.
    bler-dl-TransChIdList
                                          BLER-TransChIdList
                                                                               OPTIONAL,
    modeSpecificInfo
                                         CHOICE {
        fdd
                                            NULĹ,
                                              SEQUENCE {
        t.dd
                                                  SIR-TFCS-List
            sir-TFCS-List
                                                                              OPTIONAL
    }
}
RAT-Type ::=
                                      ENUMERATED {
                                        gsm, is2000 }
                                      CHOICE {
ReferenceCellPosition ::=
    ellipsoidPoint
                                         EllipsoidPoint,
    ellipsoidPointWithAltitude
                                         EllipsoidPointAltitude
}
-- ReferenceLocation, as defined in 23.032
                                 SEQUENCE {
ReferenceLocation ::=
    ellipsoidPointAltitudeEllipsoide
                                              EllipsoidPointAltitudeEllipsoide
}
ReferenceTimeDifferenceToCell ::= CHOICE {
     -- Actual value accuracy40 = IE value *
   accuracy40
                                          INTEGER (0..960),
    -- Actual value accuracy256 = IE value * 256
    accuracy256
                                          INTEGER (0..150),
    -- Actual value accuracy2560 = IE value * 2560
    accuracy2560
                                          INTEGER (0..15)
}
RemovedInterFreqCellList ::=
                                      CHOICE {
                                      NULL,
   removeAllInterFreqCells
                                          SEQUENCE (SIZE (1..maxCellMeas)) OF
    removeSomeInterFreqCells
                                              InterFreqCellID,
    removeNoInterFreqCells
                                          NULL
}
RemovedInterRATCellList ::= CHOICE { removeAllInterRATCells NULL
    removeAllInterRATCells NULL,
removeSomeInterRATCells SEQUENCE (SIZE (1..maxCellMeas)) OF
                                            InterRATCellID,
                                    NULL
    removeNoInterRATCells
}
RemovedIntraFreqCellList ::=
removeAllIntraFreqCells
                                     CHOICE {
                                         NULL.
                                          SEQUENCE (SIZE (1..maxCellMeas)) OF
    removeSomeIntraFreqCells
```

```
IntraFreqCellID,
           removeNoIntraFreqCells
                                                                                                             NULL
}
ReplacementActivationThreshold ::= ENUMERATED {
                                                                                                             notApplicable, t1, t2,
                                                                                                             t3, t4, t5, t6, t7 }
ReportDeactivationThreshold ::=
                                                                                                  ENUMERATED {
                                                                                                             notApplicable, t1, t2,
                                                                                                             t3, t4, t5, t6, t7 }
                                                                                                  ENUMERATED {
ReportingAmount ::=
                                                                                                             ral, ra2, ra4, ra8, ra16, ra32,
                                                                                                             ra64, ra-Infinity }
ReportingCellStatus ::=
                                                                                                  CHOICE {
          withinActiveSet
                                                                                                             MaxNumberOfReportingCellsType1,
                                                                                                             MaxNumberOfReportingCellsType1,
          withinMonitoredSetUsedFreq
           within \verb|ActiveAndOrMonitoredUsedFreq| MaxNumber Of Reporting Cells Type 1, and the following continuous con
           withinDetectedSetUsedFreq
                                                                                                            MaxNumberOfReportingCellsType1,
           {\tt within Monitored And Or Detected Used Freq}
                                                                                                             MaxNumberOfReportingCellsType1,
           allActiveplusMonitoredSet
                                                                                                            MaxNumberOfReportingCellsType3,
           allActivePlusDetectedSet
                                                                                                            MaxNumberOfReportingCellsType3,
           allActivePlusMonitoredAndOrDetectedSet
                                                                                                          MaxNumberOfReportingCellsType3,
           withinVirtualActSet
                                                                                                MaxNumberOfReportingCellsType1,
           withinMonitoredSetNonUsedFreq MaxNumberOfReportingCellsType1,
           within \verb|Monitored| And \verb|OrVirtual| Active SetNon \verb|UsedFreq|
                                                                                                             MaxNumberOfReportingCellsType1,
           \verb|allVirtualActSetplusMonitoredSetNonUsedFreq|\\
                                                                                                             MaxNumberOfReportingCellsType3,
           within {\tt ActSetOrVirtualActSet-InterRATcells}
                                                                                                             MaxNumberOfReportingCellsType2,
           within {\tt ActSetAndOrMonitoredUsedFreqOrVirtualActSetAndOrMonitoredNonUsedFreqOrVirtualActSetAndOrMonitoredNonUsedFreqOrVirtualActSetAndOrMonitoredNonUsedFreqOrVirtualActSetAndOrMonitoredNonUsedFreqOrVirtualActSetAndOrMonitoredNonUsedFreqOrVirtualActSetAndOrMonitoredNonUsedFreqOrVirtualActSetAndOrMonitoredNonUsedFreqOrVirtualActSetAndOrMonitoredNonUsedFreqOrVirtualActSetAndOrMonitoredNonUsedFreqOrVirtualActSetAndOrMonitoredNonUsedFreqOrVirtualActSetAndOrMonitoredNonUsedFreqOrVirtualActSetAndOrMonitoredNonUsedFreqOrVirtualActSetAndOrMonitoredNonUsedFreqOrVirtualActSetAndOrMonitoredNonUsedFreqOrVirtualActSetAndOrMonitoredNonUsedFreqOrVirtualActSetAndOrMonitoredNonUsedFreqOrVirtualActSetAndOrMonitoredNonUsedFreqOrVirtualActSetAndOrMonitoredNonUsedFreqOrVirtualActSetAndOrMonitoredNonUsedFreqOrVirtualActSetAndOrMonitoredNonUsedFreqOrVirtualActSetAndOrMonitoredNonUsedFreqOrVirtualActSetAndOrMonitoredNonUsedFreqOrVirtualActSetAndOrMonitoredNonUsedFreqOrVirtualActSetAndOrMonitoredNonUsedFreqOrVirtualActSetAndOrMonitoredNonUsedFreqOrVirtualActSetAndOrMonitoredNonUsedFreqOrVirtualActSetAndOrMonitoredNonUsedFreqOrVirtualActSetAndOrMonitoredNonUsedFreqOrVirtualActSetAndOrMonitoredNonUsedFreqOrVirtualActSetAndOrMonitoredNonUsedFreqOrVirtualActSetAndOrMonitoredNonUsedFreqOrVirtualActSetAndOrMonitoredNonUsedFreqOrVirtualActSetAndOrMonitoredNonUsedFreqOrVirtualActSetAndOrMonitoredNonUsedFreqOrVirtualActSetAndOrMonitoredNonUsedFreqOrVirtualActSetAndOrMonitoredNonUsedFreqOrVirtualActSetAndOrMonitoredNonUsedFreqOrVirtualActSetAndOrMonitoredNonUsedFreqOrVirtualActSetAndOrMonitoredNonUsedFreqOrVirtualActSetAndOrMonitoredNonUsedFreqOrVirtualActSetAndOrMonitoredNonUsedFreqOrVirtualActSetAndOrMonitoredNonUsedFreqOrVirtualActSetAndOrMonitoredNonUsedFreqOrVirtualActSetAndOrMonitoredNonUsedFreqOrVirtualActSetAndOrMonitoredNonUsedFreqOrVirtualActSetAndOrMonitoredNonUsedFreqOrVirtualActSetAndOrMonitoredNonUsedFreqOrVirtualActSetAndOrMonitoredNonUsedFreqOrVirtualActSetAndOrMonitoredNonUsedFreqOrVirtualActSetAndOrMonitoredNonUsedFreqOrVirt
                                                                                                           MaxNumberOfReportingCellsType2
}
ReportingCellStatusOpt ::=
                                                                                                 SEQUENCE {
          reportingCellStatus
                                                                                                           ReportingCellStatus
                                                                                                                                                                                                              OPTIONAL
ReportingInfoForCellDCH ::=
                                                                                                  SEQUENCE {
          intraFreqReportingQuantity
                                                                                                  IntraFreqReportingQuantity,
          measurementReportingMode
                                                                                                             MeasurementReportingMode,
           reportCriteria
                                                                                                           CellDCH-ReportCriteria
ReportingInfoForCellDCH-LCR-r4 ::= SEQUENCE {
          \label{lem:continuous} intraFreqReportingQuantity & IntraFreqReportingQuantity, \\ measurementReportingMode & MeasurementReportingMode, \\ \end{cases}
          reportCriteria
                                                                                                           CellDCH-ReportCriteria-LCR-r4
}
ReportingInterval ::=
                                                                                                  ENUMERATED {
                                                                                                           noPeriodicalreporting, ri0-25,
                                                                                                            ri0-5, ri1, ri2, ri4, ri8, ri16 }
                                                                                                  ENUMERATED {
ReportingIntervalLong ::=
                                                                                                           ril0, ril0-25, ril0-5, ril1,
                                                                                                             ril2, ril3, ril4, ril6, ril8,
                                                                                                             ril12, ril16, ril20, ril24,
                                                                                                             ril28, ril32, ril64 }
                                                                                                   -- When the value "ril0" is used, the UE behaviour is not
                                                                                                   -- defined.
-- Actual value ReportingRange = IE value * 0.5
ReportingRange ::=
                                                                                                  INTEGER (0..29)
RL-AdditionInfoList ::=
                                                                                                 SEQUENCE (SIZE (1..maxRL)) OF
                                                                                                            PrimaryCPICH-Info
                                                                                          SEQUENCE {
RL-InformationLists ::=
          RL-AdditionInfoList RL-RemovalInformationList RL-RemovalInformation
          rl-AdditionInfoList
                                                                                                                                                                                                            OPTIONAL,
                                                                                                           RL-RemovalInformationList
                                                                                                                                                                                                            OPTIONAL
```

```
ENUMERATED {
RLC-BuffersPayload ::=
                                        pl0, pl4, pl8, pl16, pl32,
                                        pl64, pl128, pl256, pl512, pl1024,
                                        pl2k, pl4k, pl8k, pl16k, pl32k,
                                        pl64k, pl128k, pl256k, pl512k, pl1024k,
                                        spare12, spare11, spare10, spare9, spare8,
                                        spare7, spare6, spare5, spare4, spare3,
                                        spare2, spare1 }
-- Actual value RRC = IE value * 0.032
                                    INTEGER (-127..127)
RRC ::=
SatData ::=
                                    SEQUENCE {
   satID
                                        SatID,
   iode
                                        IODE
}
                                    SEQUENCE (SIZE (0..maxSat)) OF
SatDataList ::=
                                        SatData
                                    ENUMERATED {
SatelliteStatus ::=
                                       ns-NN-U,
                                        es-SN,
                                        es-NN-U.
                                        rev2,
                                        rev }
-- Identifies the satellite and is equal to (SV ID No - 1) where SV ID No is defined in [12].
SatID ::=
                                    INTEGER (0..63)
SFN-Offset-Validity ::=
                              ENUMERATED { false }
SFN-SFN-Drift ::=
                                    ENUMERATED {
                                        sfnsfndrift0, sfnsfndrift1, sfnsfndrift2,
                                        sfnsfndrift3, sfnsfndrift4, sfnsfndrift5,
                                        sfnsfndrift8, sfnsfndrift10, sfnsfndrift15
                                        sfnsfndrift25, sfnsfndrift35, sfnsfndrift50,
                                        sfnsfndrift65, sfnsfndrift80, sfnsfndrift100,
                                        sfnsfndrift-1, sfnsfndrift-2, sfnsfndrift-3,
                                        sfnsfndrift-4, sfnsfndrift-5, sfnsfndrift-8,
                                        sfnsfndrift-10, sfnsfndrift-15, sfnsfndrift-25,
                                        sfnsfndrift-35, sfnsfndrift-50, sfnsfndrift-65,
                                        sfnsfndrift-80, sfnsfndrift-100}
SFN-SFN-ObsTimeDifference ::= CHOICE {
                                       SEN-SEN-ObsTimeDifference1.
   type1
    type2
                                        SFN-SFN-ObsTimeDifference2
-- SPARE: SFN-SFN-ObsTimeDifference1, Max = 9830399
-- For 1.28Mcps TDD, Max value of SFN-SFN-ObsTimeDifference1 is 3276799.
-- Values above Max are spare
SFN-SFN-ObsTimeDifference1 ::=
                                    INTEGER (0..16777215)
-- SPARE: SFN-SFN-ObsTimeDifference2, Max = 40961
-- For 1.28Mcps TDD, Max value of SFN-SFN-ObsTimeDifference2 is 27649.
-- Values above Max are spare
SFN-SFN-ObsTimeDifference2 ::=
                                   INTEGER (0..65535)
SFN-SFN-OTD-Type ::=
                                    ENUMERATED {
                                       noReport,
                                        type1,
                                        type2 }
SFN-SFN-RelTimeDifference1 ::=
                                    SEQUENCE {
   sfn-Offset
                                        INTEGER (0 .. 4095),
    sfn-sfn-Reltimedifference
                                        INTEGER (0.. 38399)
SFN-TOW-Uncertainty ::=
                                    ENUMERATED {
                                        lessThan10,
                                        moreThan10 }
                                    INTEGER (0..63)
SIR ::=
```

```
SIR-MeasurementList ::=
                                    SEQUENCE (SIZE (1..maxCCTrCH)) OF
                                       SIR-MeasurementResults
SIR-MeasurementResults ::=
                                    SEQUENCE {
   tfcs-ID
                                    TFCS-IdentityPlain,
   sir-TimeslotList
                                        SIR-TimeslotList
}
SIR-TFCS ::=
                                    TFCS-IdentityPlain
                                    SEQUENCE (SIZE (1..maxCCTrCH)) OF
SIR-TFCS-List ::=
                                        SIR-TFCS
                                    SEQUENCE (SIZE (1..maxTS)) OF
SIR-TimeslotList ::=
-- SubFramelReserved, reserved bits in subframe 1 of the GPS navigation message
SubFrame1Reserved ::=
                                    SEQUENCE {
                                       BIT STRING (SIZE (23)),
   reserved1
   reserved2
                                        BIT STRING (SIZE (24)),
   reserved3
                                        BIT STRING (SIZE (24)),
                                        BIT STRING (SIZE (16))
   reserved4
}
T-ADVinfo ::=
                                    SEQUENCE {
                                       INTEGER(0..2047),
                t-ADV
                                        INTEGER(0..4095)
               sfn
}
T-CRMax ::=
                                    CHOICE {
   notUsed
                                       NULL,
                                       N-CR-T-CRMaxHyst,
   t.30
                                       N-CR-T-CRMaxHyst,
   t60
    t120
                                        N-CR-T-CRMaxHyst,
   t180
                                       N-CR-T-CRMaxHyst,
                                        N-CR-T-CRMaxHyst
   t240
T-CRMaxHyst ::=
                                    ENUMERATED {
                                       notUsed, t10, t20, t30,
                                        t40, t50, t60, t70 }
                                    ENUMERATED {
TemporaryOffset1 ::=
                                        to3, to6, to9, to12, to15,
                                        to18, to21, infinite }
TemporaryOffset2 ::=
                                    ENUMERATED {
                                       to2, to3, to4, to6, to8,
                                        to10, to12, infinite }
TemporaryOffsetList ::=
                                    SEQUENCE {
                                        TemporaryOffset1,
        temporaryOffset1
                                       TemporaryOffset2
        temporaryOffset2
}
Threshold ::=
                                    INTEGER (-115..0)
-- The order of the list corresponds to the order of frequency defined in Inter-FreqEventCriteria
ThreholdNonUsedFrequency-deltaList ::= SEQUENCE (SIZE (1..maxFreq)) OF
                                            DeltaRSCPPerCell
ThresholdPositionChange ::=
                                    ENUMERATED {
                                        pc10, pc20, pc30, pc40, pc50,
                                        pc100, pc200, pc300, pc500,
                                        pc1000, pc2000, pc5000, pc10000, pc20000, pc50000, pc100000 }
ThresholdSFN-GPS-TOW ::=
                                    ENUMERATED {
                                        ms1, ms2, ms3, ms5, ms10,
                                        ms20, ms50, ms100 }
                                    ENUMERATED {
ThresholdSFN-SFN-Change ::=
                                        c0-25, c0-5, c1, c2, c3, c4, c5,
                                        c10, c20, c50, c100, c200, c500,
                                        c1000, c2000, c5000 }
```

```
ThresholdUsedFrequency ::=
                                       INTEGER (-115..165)
-- Actual value TimeInterval = IE value * 20.
TimeInterval ::=
                                         INTEGER (1..13)
    timeslotNumber
burstType
TimeslotInfo ::=
                                        SEQUENCE {
                                          TimeslotNumber,
    burstType
                                             BurstType
}
TimeslotInfo-LCR-r4 ::= SEQUENCE {
   timeslotNumber
                                           TimeslotNumber-LCR-r4
                           SEQUENCE (SIZE (1..maxTS)) OF
TimeslotInfoList ::=
                                             TimeslotInfo
\label{eq:continuous} \mbox{TimeslotInfoList-LCR-r4} ::= \qquad \qquad \mbox{SEQUENCE (SIZE (1..maxTS-LCR)) OF}
                                             TimeslotInfo-LCR-r4
TimeslotInfoList-r4 ::= CHOICE {
                                           SEQUENCE (SIZE (1..maxTS)) OF
   tdd384
                                                 TimeslotInfo,
    tdd128
                                             SEQUENCE (SIZE (1..maxTS-LCR)) OF
                                                 TimeslotInfo-LCR-r4
}
-- SPARE: TimeslotISCP, Max = 91
-- Values above Max are spare
TimeslotISCP ::=
                                        INTEGER (0..127)
-- TimeslotISCP-List shall not include more than 6 elements in 1.28Mcps TDD mode.
TimeslotISCP-List ::= SEQUENCE (SIZE (1..maxTS)) OF
                                             TimeslotISCP
TimeslotListWithISCP ::= SEQUENCE (SIZE (1..maxTS)) OF
                                            TimeslotWithISCP
TimeslotWithISCP ::=
                                        SEOUENCE {
                                         TimeslotNumber,
    timeslot
    timeslotISCP
                                             TimeslotISCP
}
TimeToTrigger ::=
                                         ENUMERATED {
                                             ttt0, ttt10, ttt20, ttt40, ttt60,
                                             ttt80, ttt100, ttt120, ttt160,
ttt200, ttt240, tt320, ttt640,
                                             ttt1280, ttt2560, ttt5000 }
TrafficVolumeEventParam ::=
                                      SEQUENCE {
                                       TrafficVolumeEventType,
TrafficVolumeThreshold,
    eventID
    eventID
reportingThreshold
timeToTrigger
pendingTimeAfterTrigger
                                            TimeToTrigger
                                                                                     OPTIONAL,
                                            PendingTimeAfterTrigger
TX-InterruptionAfterTrigger
    tx-InterruptionAfterTrigger
                                                                                      OPTIONAL,
                                                                                     OPTIONAL
TrafficVolumeEventResults ::= SEQUENCE {
    ul-transportChannelCausingEvent UL-TrCH-Identity,
trafficVolumeEventIdentity TrafficVolumeEven
                                            TrafficVolumeEventType
}
                                       ENUMERATED {
TrafficVolumeEventType ::=
                                          e4a,
                                             e4b }
TrafficVolumeMeasQuantity ::= CHOICE {
    rlc-BufferPayload NULL,
    averageRLC-BufferPayload TimeI:
    varianceOfRLC-BufferPayload TimeI:
                                             TimeInterval.
                                            TimeInterval
}
TrafficVolumeMeasSysInfo ::= SEQUENCE {
    trafficVolumeMeasurementID Measure
    trafficVolumeMeasurementID MeasurementIdentity DEFAULT 4, trafficVolumeMeasurementObjectList TrafficVolumeMeasurementObjectList OPTIONAL,
```

```
trafficVolumeMeasQuantity TrafficVolumeMeasQuantity trafficVolumeReportingQuantity TrafficVolumeReportingQuantity
                                                                                            OPTIONAL,
                                                                                           OPTIONAL,
    -- dummy is not used in this version of specification, it should
    -- not be sent and if received it should be ignored.
                                               TrafficVolumeReportingCriteria
                                                                                           OPTIONAL,
    measurementValidity
                                               MeasurementValidity
                                                                                            OPTIONAL,
    measurementReportingMode
                                               MeasurementReportingMode,
                                               TrafficVolumeReportCriteriaSysInfo
    reportCriteriaSysInf
TrafficVolumeMeasuredResults ::= SEQUENCE {
    rb-Identity RB-Identity,
rlc-BuffersPayload RLC-BuffersPayload
averageRLC-BufferPayload AverageRLC-BufferPa
varianceOfRLC-BufferPayload VarianceOfRLC-Buffer
                                                                                          OPTIONAL,
                                               AverageRLC-BufferPayload
VarianceOfRLC-BufferPayload
                                                                                           OPTIONAL,
                                                                                           OPTIONAL
}
TrafficVolumeMeasuredResultsList ::= SEQUENCE (SIZE (1..maxRB)) OF
                                                TrafficVolumeMeasuredResults
TrafficVolumeMeasurement ::= SEQUENCE {
    trafficVolumeMeasurementObjectList TrafficVolumeMeasurementObjectList OPTIONAL, trafficVolumeMeasQuantity TrafficVolumeMeasQuantity OPTIONAL, trafficVolumeReportingQuantity TrafficVolumeReportingQuantity OPTIONAL, measurementValidity MeasurementValidity OPTIONAL, reportOritoria
    reportCriteria
                                               TrafficVolumeReportCriteria
}
TrafficVolumeMeasurementObjectList ::= SEQUENCE (SIZE (1..maxTrCH)) OF
                                                     UL-TrCH-Identity
TrafficVolumeReportCriteria ::= CHOICE {
    trafficVolumeReportingCriteria TrafficVolumeReportingCriteria,
    periodicalReportingCriteria
                                               PeriodicalReportingCriteria,
    noReporting
}
TrafficVolumeReportCriteriaSysInfo ::= CHOICE {
    trafficVolumeReportingCriteria TrafficVolumeReportingCriteria, periodicalReportingCriteria PeriodicalReportingCriteria
}
TrafficVolumeReportingCriteria ::= SEQUENCE {
     -- NOTE: transChCriteriaList should be mandatory in later versions of this message
    transChCriteriaList
                                                TransChCriteriaList
}
TrafficVolumeReportingQuantity ::= SEQUENCE {
    rlc-RB-BufferPayload BOOLEAN, rlc-RB-BufferPayloadAverage BOOLEAN, rlc-RB-BufferPayloadVariance BOOLEAN
   rlc-RB-BufferPayload
}
TrafficVolumeThreshold ::=
                                           ENUMERATED {
                                                th8, th16, th32, th64, th128,
                                                th256, th512, th1024, th2k, th3k,
                                                th4k, th6k, th8k, th12k, th16k,
                                                th24k, th32k, th48k, th64k, th96k,
                                                th128k, th192k, th256k, th384k,
                                                th512k, th768k }
TransChCriteria ::=
                                          SEQUENCE {
    ul-transportChannelID
eventSpecificParameters
                                               UL-TrCH-Identity
                                                                                            OPTIONAL.
                                                SEQUENCE (SIZE (1..maxMeasParEvent)) OF
                                                    TrafficVolumeEventParam
                                                                                            OPTIONAL
}
TransChCriteriaList ::= SEQUENCE (SIZE (1..maxTrCH)) OF
                                                TransChCriteria
TransferMode ::=
                                           ENUMERATED {
                                               acknowledgedModeRLC,
                                                unacknowledgedModeRLC }
TransmittedPowerThreshold ::=
                                          INTEGER (-50..33)
TriggeringCondition1 ::=
                                          ENUMERATED {
```

```
activeSetCellsOnly,
                                        monitoredSetCellsOnly,
                                        activeSetAndMonitoredSetCells }
TriggeringCondition2 ::=
                                    ENUMERATED {
                                       activeSetCellsOnly,
                                        monitoredSetCellsOnly,
                                        activeSetAndMonitoredSetCells,
                                         detectedSetCellsOnly,
                                        detectedSetAndMonitoredSetCells }
                                    ENUMERATED {
TX-InterruptionAfterTrigger ::=
                                        txiat0-25, txiat0-5, txiat1,
                                        txiat2, txiat4, txiat8, txiat16 }
UDRE ::=
                                    ENUMERATED {
                                        lessThan1,
                                        between1-and-4,
                                        between4-and-8,
                                        over8 }
                                    SEQUENCE {
UE-6AB-Event ::=
    timeToTrigger
                                        TimeToTrigger,
    transmittedPowerThreshold
                                        TransmittedPowerThreshold
}
UE-6FG-Event ::=
                                    SEQUENCE {
                                        TimeToTrigger,
   timeToTrigger
    -- in 1.28 Mcps TDD ue-RX-TX-TimeDifferenceThreshold corresponds to T<sub>ADV</sub> Threshold
   \verb"ue-RX-TX-TimeDifferenceThreshold" UE-RX-TX-TimeDifferenceThreshold"
}
-- dummy and dummy2 are not used in this version of the specification, they should
-- not be sent and if received the UE behaviour is not specified.
UE-AutonomousUpdateMode ::= CHOICE {
    dummy
                                        NULL,
    onWithNoReporting
                                        NULL,
                                        RL-InformationLists
    dummy2
UE-InternalEventParam ::=
                                    CHOICE {
                                        UE-6AB-Event,
   event.6a
                                        UE-6AB-Event,
    event6b
    event6c
                                        TimeToTrigger,
   event6d
                                        TimeToTrigger,
    event6e
                                        TimeToTrigger,
    event6f
                                        IIE-6FG-Event.
    event6g
                                        UE-6FG-Event
                                    SEQUENCE (SIZE (1..maxMeasEvent)) OF
UE-InternalEventParamList ::=
                                        UE-InternalEventParam
UE-InternalEventResults ::=
                                    CHOICE {
   event6a
                                        NULL,
                                        NULL,
   event.6b
    event6c
                                        NULL,
    event6d
                                        NULL,
   event6e
                                        NULL,
                                        PrimaryCPICH-Info,
    event6f
    event6g
                                        PrimaryCPICH-Info,
    spare
                                        NULL
}
\mbox{ UE-InternalMeasQuantity } ::= \mbox{ SEQUENCE } \{ \mbox{ }
    measurementQuantity
                                        UE-MeasurementQuantity,
    filterCoefficient
                                        FilterCoefficient
                                                                             DEFAULT fc0
}
UE-InternalMeasuredResults ::=
                                    SEQUENCE {
   modeSpecificInfo
                                      SEQUENCE {
            ue-TransmittedPowerFDD
                                                UE-TransmittedPower
                                                                            OPTIONAL,
                                                UE-RX-TX-ReportEntryList OPTIONAL
            ue-RX-TX-ReportEntryList
        tdd
                                            SEQUENCE {
            ue-TransmittedPowerTDD-List
                                                UE-TransmittedPowerTDD-List OPTIONAL,
                                                UL-TimingAdvance
            appliedTA
                                                                             OPTIONAL
```

```
}
    }
}
UE-InternalMeasuredResults-LCR-r4 ::=
                                       SEQUENCE {
       ue-TransmittedPowerTDD-List
                                           UE-TransmittedPowerTDD-List
                                                                            OPTIONAL,
       t-ADVinfo
                                            T-ADVinfo
                                                                            OPTIONAL
}
UE-InternalMeasurement ::=
                                   SEQUENCE {
   ue-InternalMeasQuantity
                                    UE-InternalMeasQuantity
                                                                           OPTIONAL,
    ue-InternalReportingQuantity
                                        UE-InternalReportingQuantity
                                                                           OPTIONAL,
    reportCriteria
                                       UE-InternalReportCriteria
}
                                    SEQUENCE {
UE-InternalMeasurement-r4 ::=
    ue-InternalMeasQuantity
                                        UE-InternalMeasQuantity
                                                                            OPTIONAL,
    ue-InternalReportingQuantity
                                        UE-InternalReportingQuantity-r4
                                                                           OPTIONAL,
   reportCriteria
                                       UE-InternalReportCriteria
}
UE-InternalMeasurementSysInfo ::=
                                    SEQUENCE {
    ue-InternalMeasurementID
                                       MeasurementIdentity
                                                                   DEFAULT 5,
   ue-InternalMeasQuantity
                                       UE-InternalMeasQuantity
}
UE-InternalReportCriteria ::=
                                   CHOICE {
    ue-InternalReportingCriteria
                                        UE-InternalReportingCriteria,
    periodicalReportingCriteria
                                        PeriodicalReportingCriteria,
   noReporting
                                       NULL
}
                                   SEQUENCE {
UE-InternalReportingCriteria ::=
                                                                          OPTIONAL
    ue-InternalEventParamList
                                       UE-InternalEventParamList
UE-InternalReportingQuantity ::=
                                    SEQUENCE {
    ue-TransmittedPower
                                       BOOLEAN
    modeSpecificInfo
                                        CHOICE {
                                           SEQUENCE {
        fdd
            ue-RX-TX-TimeDifference
                                               BOOLEAN
        },
       tdd
                                           SEQUENCE {
            appliedTA
                                               BOOLEAN
        }
    }
}
UE-InternalReportingQuantity-r4 ::= SEQUENCE {
    ue-TransmittedPower
                                       BOOLEAN,
    modeSpecificInfo
                                        CHOICE {
        fdd
                                            SEQUENCE {
            ue-RX-TX-TimeDifference
                                               BOOLEAN
        },
        tdd
                                            SEOUENCE {
            tddOption
                                                CHOICE {
                tdd384
                                                    SEQUENCE {
                   appliedTA
                                                       BOOLEAN
                tdd128
                                                    SEQUENCE {
                    t-ADVinfo
                                                       BOOLEAN
                }
           }
       }
    }
}
-- TABULAR: UE-MeasurementQuantity, for 3.84 Mcps TDD only the first two values
-- ue-TransmittedPower and utra-Carrier-RSSI are used.
-- For 1.28 Mcps TDD ue-RX-TX-TimeDifference corresponds to T-ADV in the tabular
UE-MeasurementQuantity ::=
                                    ENUMERATED {
                                        ue-TransmittedPower,
                                        utra-Carrier-RSSI,
                                       ue-RX-TX-TimeDifference }
UE-RX-TX-ReportEntry ::=
                                    SEQUENCE {
   primaryCPICH-Info
                                       PrimaryCPICH-Info,
    ue-RX-TX-TimeDifferenceType1
                                       UE-RX-TX-TimeDifferenceType1
```

```
}
UE-RX-TX-ReportEntryList ::= SEQUENCE (SIZE (1..maxRL)) OF
                                         UE-RX-TX-ReportEntry
-- SPARE: UE-RX-TX-TimeDifferenceType1, Max = 1280
-- Values above Max are spare
UE-RX-TX-TimeDifferenceType1 ::=
                                           INTEGER (768..1791)
UE-RX-TX-TimeDifferenceType2 ::= INTEGER (0..8191)
UE-RX-TX-TimeDifferenceType2Info ::=
                                        SEQUENCE {
   \verb"ue-RX-TX-TimeDifferenceType2" UE-RX-TX-TimeDifferenceType2",
   neighbourQuality
                                             NeighbourQuality
}
-- In 1.28 Mcps TDD, actual value for
-- T-ADV Threshold = (UE-RX-TX-TimeDifferenceThreshold - 768) * 0.125
UE-RX-TX-TimeDifferenceThreshold ::= INTEGER (768..1280)
UE-TransmittedPower ::=
                                     INTEGER (0..104)
UE-TransmittedPowerTDD-List ::= SEQUENCE (SIZE (1..maxTS)) OF
                                         UE-TransmittedPower
UL-TrCH-Identity ::=
                                         CHOICE {
                                         TransportChannelIdentity,
    -- Default transport channel in the UL is either RACH or CPCH, but not both.
    rachorcpch
                                         NULTITAL.
    usch
                                         TransportChannelIdentity
                                   BIT STRING (SIZE (7))
UE-Positioning-Accuracy ::=
UE-Positioning-CipherParameters ::=
    cipheringKeyFlag
    cipheringSerialNumber
                                          SEQUENCE {
                                         BIT STRING (SIZE (1)),
                                        INTEGER (0..65535)
}
UE-Positioning-Error ::=
                                                 SEQUENCE {
    errorReason
                                        UE-Positioning-ErrorCause,
    ue-positioning-GPS-additionalAssistanceDataRequest UE-Positioning-GPS-
AdditionalAssistanceDataRequest OPTIONAL
UE-Positioning-ErrorCause ::=
                                                 ENUMERATED {
                                         notEnoughOTDOA-Cells,
                                         notEnoughGPS-Satellites,
                                         assistanceDataMissing,
                                         notAccomplishedGPS-TimingOfCellFrames,
                                         undefinedError,
                                         requestDeniedByUser,
                                         notProcessedAndTimeout,
                                         referenceCellNotServingCell }
UE-Positioning-EventParam ::=
                                                 SEQUENCE {
    reportingAmount
                                         ReportingAmount,
    reportFirstFix
                                         BOOLEAN.
    measurementInterval
                                         UE-Positioning-MeasurementInterval,
    eventSpecificInfo
                                         UE-Positioning-EventSpecificInfo
}
                                                 SEQUENCE (SIZE (1..maxMeasEvent)) OF
UE-Positioning-EventParamList ::=
                                         UE-Positioning-EventParam
UE-Positioning-EventSpecificInfo ::=
                                                 CHOICE {
                                         ThresholdPositionChange,
    e7a
    e7b
                                         ThresholdSFN-SFN-Change,
                                         ThresholdSFN-GPS-TOW
}
UE-Positioning-GPS-AcquisitionAssistance ::= SEQUENCE {
    gps-ReferenceTime INTEGER (0..604799999), utran-GPSReferenceTime utran-GPSReferenceTime satelliteInformationList AcquisitionSatInfoList
                                                                         OPTIONAL,
}
```

```
UE-Positioning-GPS-AdditionalAssistanceDataRequest ::=
                                                             SEQUENCE {
                                         BOOLEAN,
    almanacRequest
    utcModelRequest
                                         BOOLEAN,
    ionosphericModelRequest
                                         BOOLEAN,
                                       BOOLEAN,
    navigationModelRequest
                                    BOOLEAN,
BOOLEAN,
BOOLEAN,
    dgpsCorrectionsRequest
    referenceLocationRequest
    referenceTimeRequest
    referenceTimeRequest
aquisitionAssistanceRequest
realTimeIntegrityRequest
navModelAddDataRequest
BOOLEAN,
DE-Positioning-GPS-NavModelAddDataReq
OPTIONAL
}
UE-Positioning-GPS-Almanac ::= SEQUENCE {
  wn-a BIT STRING (SIZE (8)),
  almanacSatInfoList AlmanacSatInfoList,
  sy-GlobalHealth BIT STRING (SIZE (364))
                                                                              OPTIONAL
    sv-GlobalHealth
                                          BIT STRING (SIZE (364))
}
UE-Positioning-GPS-AssistanceData ::=
                                                  SEQUENCE {
    ue-positioning-GPS-ReferenceTime
                                                     UE-Positioning-GPS-ReferenceTime
    OPTIONAL,
    ue-positioning-GPS-ReferenceLocation
                                                  ReferenceLocation
                                                     UE-Positioning-GPS-DGPS-Corrections
    ue-positioning-GPS-DGPS-Corrections
    OPTIONAL,
    ue-positioning-GPS-NavigationModel
                                                     UE-Positioning-GPS-NavigationModel
    OPTIONAL,
    ue-positioning-GPS-IonosphericModel
                                                     UE-Positioning-GPS-IonosphericModel
    OPTIONAL,
    ue-positioning-GPS-UTC-Model
                                                      UE-Positioning-GPS-UTC-Model
    OPTIONAL,
    ue-positioning-GPS-Almanac
                                                      UE-Positioning-GPS-Almanac
    OPTIONAL,
    ue-positioning-GPS-AcquisitionAssistance
                                                     UE-Positioning-GPS-AcquisitionAssistance
    OPTIONAL,
    ue-positioning-GPS-Real-timeIntegrity
                                                     BadSatList
                                                                                            OPTIONAL,
    -- dummy is not used in this version of the specification, it should
    -- not be sent and if received it should be ignored.
                   UE-Positioning-GPS-ReferenceCellInfo
                                                                 OPTIONAL
}
                                            SEQUENCE {
UE-Positioning-GPS-DGPS-Corrections ::=
    gps-TOW
                                         INTEGER (0..604799),
    statusHealth
                                          DiffCorrectionStatus,
    dgps-CorrectionSatInfoList
                                         DGPS-CorrectionSatInfoList
}
UE-Positioning-GPS-IonosphericModel ::=
                                              SEQUENCE {
                                          BIT STRING (SIZE (8)),
   alfa0
    alfa1
                                          BIT STRING (SIZE (8)),
                                          BIT STRING (SIZE (8)),
    alfa2
    alfa3
                                          BIT STRING (SIZE (8)),
                                          BIT STRING (SIZE (8)),
    beta0
                                          BIT STRING (SIZE (8)),
    beta1
                                          BIT STRING (SIZE (8)),
    beta2
    beta3
                                          BIT STRING (SIZE (8))
}
UE-Positioning-GPS-MeasurementResults ::=
                                                  SEOUENCE {
                                        CHOICE {
    referenceTime
        erenceTime
utran-GPSReferenceTimeResult
                                             UTRAN-GPSReferenceTimeResult,
                                              INTEGER (0..604799999)
        gps-ReferenceTimeOnly
    gps-MeasurementParamList
                                       GPS-MeasurementParamList
}
UE-Positioning-GPS-NavigationModel ::=
                                                  SEQUENCE {
    navigationModelSatInfoList
                                       NavigationModelSatInfoList
UE-Positioning-GPS-NavModelAddDataReg ::=
                                                  SEQUENCE {
    gps-Week
                                         INTEGER (0..1023),
    -- SPARE: gps-Toe, Max = 167
    -- Values above Max are spare
    gps-Toe
                                         INTEGER (0..255),
    -- SPARE: tToeLimit, Max = 10
    -- Values above Max are spare
```

```
tToeLimit
                                        INTEGER (0..15),
                                        SatDataList
    satDataList
}
UE-Positioning-GPS-ReferenceCellInfo ::=
                                                SEOUENCE {
   modeSpecificInfo CHOICE {
        fdd
                                      SEQUENCE {
                                            PrimaryCPICH-Info
            referenceIdentity
        },
        tdd
                                        SEQUENCE {
           referenceIdentity
                                            CellParametersID
    }
}
                                                SEQUENCE {
UE-Positioning-GPS-ReferenceTime ::=
                                        INTEGER (0..1023),
    gps-Week
    gps-tow-1msec
                                        GPS-TOW-1msec, utran-GPSReferenceTime
                                                                                             UTRAN-
GPSReferenceTime
                               OPTIONAL,
                                       SFN-TOW-Uncertainty
                                                                            OPTIONAL,
   sfn-tow-Uncertainty
   utran-GPS-DriftRate
                                        UTRAN-GPS-DriftRate
                                                                            OPTIONAL,
    gps-TOW-AssistList
                                       GPS-TOW-AssistList
                                                                            OPTIONAL
}
                                                SEQUENCE {
UE-Positioning-GPS-UTC-Model ::=
   a1
                                       BIT STRING (SIZE (24)),
   a0
                                       BIT STRING (SIZE (32)),
                                        BIT STRING (SIZE (8)),
    t-ot
   wn-t
                                       BIT STRING (SIZE (8)),
   delta-t-LS
                                       BIT STRING (SIZE (8)),
    wn-lsf
                                        BIT STRING (SIZE (8)),
                                       BIT STRING (SIZE (8)),
   delta-t-LSF
                                       BIT STRING (SIZE (8))
}
                                                SEQUENCE {
UE-Positioning-IPDL-Parameters ::=
   ip-Spacing
                                       IP-Spacing,
    ip-Length
                                        IP-Length,
    ip-Offset
                                        INTEGER (0..9),
    seed
                                        INTEGER (0..63),
    burstModeParameters
                                        BurstModeParameters
                                                                    OPTIONAL
}
UE-Positioning-IPDL-Parameters-r4 ::=
                                                SEQUENCE {
   modeSpecificInfo
                                        CHOICE {
        fdd
                                            SEQUENCE {
                                                IP-Spacing,
            ip-Spacing
            ip-Length
                                                IP-Length,
            ip-Offset
                                                INTEGER (0..9),
                                                INTEGER (0..63)
            seed
        },
        tdd.
                                            SEQUENCE {
            ip-Spacing-TDD
                                                IP-Spacing-TDD,
            ip-slot
                                                INTEGER (0..14),
                                                INTEGER (0..4095),
            ip-Start
            ip-PCCPCG
                                                IP-PCCPCH-r4
                                                                        OPTIONAL
    burstModeParameters
                                       BurstModeParameters
                                                                        OPTIONAL
}
UE-Positioning-IPDL-Parameters-TDD-r4-ext ::=
                                               SEQUENCE {
   ip-Spacing
                                       IP-Spacing-TDD,
                                        INTEGER (0..14),
    ip-slot
                                        INTEGER (0..4095),
    ip-Start
    ip-PCCPCG
                                        IP-PCCPCH-r4
                                                                        OPTIONAL,
                                        BurstModeParameters
    burstModeParameters
}
UE-Positioning-MeasuredResults ::=
                                                SEQUENCE {
    ue-positioning-OTDOA-Measurement
                                                   UE-Positioning-OTDOA-Measurement
    OPTIONAL,
    ue-positioning-PositionEstimateInfo
                                                   UE-Positioning-PositionEstimateInfo
       OPTIONAL,
    \hbox{\tt ue-positioning-GPS-Measurement}
                                                   UE-Positioning-GPS-MeasurementResults
       OPTIONAL,
    ue-positioning-Error
                                                    UE-Positioning-Error
    OPTIONAL
```

```
}
UE-Positioning-MeasuredResults-v390ext ::=
                                             SEQUENCE {
   ue-Positioning-OTDOA-Measurement-v390ext
                                                UE-Positioning-OTDOA-Measurement-v390ext
                                     SEQUENCE {
UE-Positioning-Measurement ::=
                                             UE-Positioning-ReportingQuantity,
   ue-positioning-ReportingQuantity
   reportCriteria
                                     UE-Positioning-ReportCriteria,
   ue-positioning-OTDOA-AssistanceData UE-Positioning-OTDOA-AssistanceData
   OPTIONAL,
   ue-positioning-GPS-AssistanceData
                                                 UE-Positioning-GPS-AssistanceData
   OPTIONAL
}
UE-Positioning-Measurement-v390ext ::=
                                            SEQUENCE {
   ue-positioning-ReportingQuantity-v390ext
                                                UE-Positioning-ReportingQuantity-v390ext
   OPTIONAL,
                         MeasurementValidity
   measurementValidity
   ue-positioning-OTDOA-AssistanceData-UEB
                                                 UE-Positioning-OTDOA-AssistanceData-UEB
   OPTIONAL
}
UE-Positioning-Measurement-r4 ::=
                                             SEQUENCE {
   Positioning-Measurement-r4 ::=
ue-positioning-ReportingQuantity
                                                 UE-Positioning-ReportingQuantity-r4,
   measurementValidity
                                                 MeasurementValidity
   OPTIONAL,
   reportCriteria
                                                 UE-Positioning-ReportCriteria,
   ue-positioning-OTDOA-AssistanceData
                                                UE-Positioning-OTDOA-AssistanceData-r4
   OPTIONAL.
   ue-positioning-GPS-AssistanceData
                                                UE-Positioning-GPS-AssistanceData
   OPTIONAL
}
UE-Positioning-MeasurementEventResults ::=
                                            CHOICE {
                                      UE-Positioning-PositionEstimateInfo,
   event7b
                                      UE-Positioning-OTDOA-Measurement,
   event7c
                                      UE-Positioning-GPS-MeasurementResults,
   spare
                                      NULL
}
                                             ENUMERATED {
UE-Positioning-MeasurementInterval ::=
                                      e5, e15, e60, e300,
                                      e900, e1800, e3600, e7200 }
UE-Positioning-MethodType ::=
                                             ENUMERATED {
                                      ue-Assisted,
                                      ue-Based.
                                      ue-BasedPreferred,
                                      ue-AssistedPreferred }
UE-Positioning-OTDOA-AssistanceData ::=
                                        SEOUENCE {
   ue-positioning-OTDOA-ReferenceCellInfo UE-Positioning-OTDOA-ReferenceCellInfo
   OPTIONAL.
   ue-positioning-OTDOA-NeighbourCellList
                                                    UE-Positioning-OTDOA-NeighbourCellList
       OPTIONAL
}
OPTIONAL,
   ue-positioning-OTDOA-NeighbourCellList
                                                UE-Positioning-OTDOA-NeighbourCellList-r4
       OPTIONAL
}
UE-Positioning-OTDOA-AssistanceData-r4ext ::= SEQUENCE {
   -- In case of TDD these IPDL parameters shall be used for the reference cell instead of
    -- IPDL Parameters in IE UE-Positioning-OTDOA-ReferenceCellInfo
                                                 UE-Positioning-IPDL-Parameters-TDD-r4-ext
   ue-Positioning-IPDL-Parameters-TDD-r4-ext
   OPTIONAL,
   -- These IPDL parameters shall be used for the neighbour cells in case of TDD instead of
   -- IPDL Parameters in IE UE-Positioning-OTDOA-NeighbourCellInfoList. The cells shall be
   -- listed in the same order as in IE UE-Positioning-OTDOA-NeighbourCellInfoList
   \verb|ue-Positioning-IPDL-Parameters-TDDList-r4-ext| UE-Positioning-IPDL-Parameters-TDDList-r4-ext| \\
   OPTIONAL
UE-Positioning-OTDOA-AssistanceData-UEB ::=
                                             SEQUENCE {
```

```
ue-positioning-OTDOA-ReferenceCellInfo-UEB
                                                     UE-Positioning-OTDOA-ReferenceCellInfo-UEB
               OPTIONAL,
    ue-positioning-OTDOA-NeighbourCellList-UEB
                                                          UE-Positioning-OTDOA-NeighbourCellList-
UEB
               OPTIONAL
UE-Positioning-IPDL-Parameters-TDDList-r4-ext ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
                                           UE-Positioning-IPDL-Parameters-TDD-r4-ext
UE-Positioning-OTDOA-Measurement ::=
                                               SEQUENCE {
                                       INTEGER (0..4095),
   sfn
    modeSpecificInfo
                                   CHOICE {
                                       SEQUENCE {
        fdd
           referenceCellIDentity
                                               PrimaryCPICH-Info,
           ue-RX-TX-TimeDifferenceType2Info
                                             UE-RX-TX-TimeDifferenceType2Info
        },
       tdd
                                           SEQUENCE {
           referenceCellIdentity
                                           CellParametersID
        }
                                       NeighbourList
    neighbourList
                                                                           OPTIONAL
}
UE-Positioning-OTDOA-Measurement-v390ext ::=
                                                      SEQUENCE {
   neighbourList-v390ext
                                               NeighbourList-v390ext
UE-Positioning-OTDOA-NeighbourCellInfo ::= SEQUENCE {
   modeSpecificInfo CHOICE {
       fdd
                                       SEOUENCE {
           primaryCPICH-Info
                                               PrimaryCPICH-Info
       tdd
                                       SEQUENCE {
           cellAndChannelIdentity
                                               CellAndChannelIdentity
        }
    frequencyInfo
                                       FrequencyInfo
    ue-positioning-IPDL-Paremeters
                                                  UE-Positioning-IPDL-Parameters
    OPTIONAL,
    sfn-SFN-RelTimeDifference
                                       SFN-SFN-RelTimeDifferencel,
    sfn-SFN-Drift
                                       SFN-SFN-Drift
                                                                           OPTIONAL,
    searchWindowSize
                                       OTDOA-SearchWindowSize.
                      CHOICE {
    positioningMode
       ueBased
                                               SEQUENCE { },
       ueAssisted
                                               SEQUENCE {}
}
UE-Positioning-OTDOA-NeighbourCellInfo-r4 ::= SEQUENCE {
   modeSpecificInfo CHOICE {
       fdd
                                       SEOUENCE {
           primaryCPICH-Info
                                               PrimaryCPICH-Info
        t.dd
                                       SEQUENCE {
           cellAndChannelIdentity
                                               CellAndChannelIdentity
        }
    frequencyInfo
                                       FrequencyInfo
                                                                           OPTIONAL,
    ue-positioning-IPDL-Paremeters
                                       UE-Positioning-IPDL-Parameters-r4 OPTIONAL,
    sfn-SFN-RelTimeDifference
                                       SFN-SFN-RelTimeDifference1,
    sfn-Offset-Validity
                                       SFN-Offset-Validity
                                                                           OPTIONAL,
    sfn-SFN-Drift
                                       SFN-SFN-Drift
                                                                           OPTIONAL,
    searchWindowSize
                                       OTDOA-SearchWindowSize,
    positioningMode CHOICE {
       ueBased
                                               SEQUENCE {
                                               INTEGER (-20000..20000)
           relativeNorth
                                                                                   OPTIONAL,
                                               INTEGER (-20000..20000)
           relativeEast
                                                                                   OPTIONAL,
           relativeAltitude
                                               INTEGER (-4000..4000)
                                                                                   OPTIONAL,
                                               FineSFN-SFN
                                                                                   OPTIONAL,
           fineSFN-SFN
           -- actual value roundTripTime = (IE value * 0.0625) + 876
                                               INTEGER (0.. 32766)
                                                                                   OPTIONAL
           roundTripTime
                                               SEQUENCE {}
        ueAssisted
    }
}
UE-Positioning-OTDOA-NeighbourCellInfo-UEB ::= SEQUENCE {
    modeSpecificInfo CHOICE {
```

```
SEQUENCE {
        fdd
           primaryCPICH-Info
                                               PrimaryCPICH-Info
        },
       tdd
                                       SEQUENCE {
           cellAndChannelIdentity
                                               CellAndChannelIdentity
    frequencyInfo
                                                                           OPTIONAL.
                                       FrequencyInfo
    ue-positioning-IPDL-Paremeters
                                      UE-Positioning-IPDL-Parameters
                                                                           OPTIONAL,
    sfn-SFN-RelTimeDifference
                                       SFN-SFN-RelTimeDifference1,
   sfn-SFN-Drift
                                      SFN-SFN-Drift
                                                                           OPTIONAL,
                                      OTDOA-SearchWindowSize,
    searchWindowSize
                                      INTEGER (-20000..20000)
                                                                          OPTIONAL.
   relativeNorth
   relativeEast
                                      INTEGER (-20000..20000)
                                                                          OPTIONAL,
   relativeAltitude
                                       INTEGER (-4000..4000)
                                                                          OPTIONAL,
                                       FineSFN-SFN,
   fineSFN-SFN
    -- actual value roundTripTime = (IE value * 0.0625) + 876
    roundTripTime
                                       INTEGER (0..32766)
                                                                         OPTIONAL
}
UE-Positioning-OTDOA-NeighbourCellList ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
                                           UE-Positioning-OTDOA-NeighbourCellInfo
UE-Positioning-OTDOA-NeighbourCellList-r4 ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
                                               UE-Positioning-OTDOA-NeighbourCellInfo-r4
UE-Positioning-OTDOA-NeighbourCellList-UEB ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
                                           UE-Positioning-OTDOA-NeighbourCellInfo-UEB
UE-Positioning-OTDOA-Quality ::=
                                           SEOUENCE {
    stdResolution
                                      BIT STRING (SIZE (2)),
    numberOfOTDOA-Measurements
                                     BIT STRING (SIZE (3)),
    stdOfOTDOA-Measurements
                                      BIT STRING (SIZE (5))
UE-Positioning-OTDOA-ReferenceCellInfo ::=
                                      INTEGER (0..4095)
    OPTIONAL,
    modeSpecificInfo CHOICE {
       fdd
                                               SEQUENCE {
          primaryCPICH-Info
                                               PrimaryCPICH-Info
       tdd
                                               SEQUENCE {
           cellAndChannelIdentity
                                               {\tt CellAndChannelIdentity}
                                     FrequencyInfo
    frequencyInfo
                                                                         OPTTONAL.
    positioningMode CHOICE {
                                               SEQUENCE {},
       ueBased
       ueAssisted
                                               SEQUENCE {}
    ue-positioning-IPDL-Paremeters
                                               UE-Positioning-IPDL-Parameters OPTIONAL
}
UE-Positioning-OTDOA-ReferenceCellInfo-r4 ::= SEQUENCE {
                                       INTEGER (0..4095)
    OPTIONAL,
    modeSpecificInfo CHOICE {
                                               SEQUENCE {
       fdd
           primaryCPICH-Info
                                               PrimaryCPICH-Info
        tdd
                                               SEQUENCE {
           cellAndChannelIdentity
                                               CellAndChannelIdentity
    frequencyInfo
                                       FrequencyInfo
                                                                           OPTIONAL,
    positioningMode CHOICE {
                                               SEQUENCE {
       ueBased
                                                      ReferenceCellPosition OPTIONAL,
           cellPosition
            -- actual value roundTripTime = (IE value * 0.0625) + 876
                                               INTEGER (0..32766)
           roundTripTime
        },
                                               SEQUENCE {}
       ueAssisted
    ue-positioning-IPDL-Paremeters
                                          UE-Positioning-IPDL-Parameters-r4 OPTIONAL
UE-Positioning-OTDOA-ReferenceCellInfo-UEB ::=
                                                       SEQUENCE {
```

```
sfn
                                       INTEGER (0..4095)
                                                                          OPTIONAL,
   modeSpecificInfo CHOICE {
                                               SEOUENCE {
       fdd
           primaryCPICH-Info
                                              PrimaryCPICH-Info
       tdd
                                               SEOUENCE {
           cellAndChannelIdentity
                                              CellAndChannelIdentity
       }
   frequencyInfo
                                       FrequencyInfo
                                                                          OPTIONAL,
   cellPosition
                                       ReferenceCellPosition
                                                                          OPTIONAL,
    -- actual value roundTripTime = (IE value * 0.0625) + 876
                                       INTEGER (0..32766)
                                                                          OPTIONAL.
   roundTripTime
   ue-positioning-IPDL-Paremeters
                                      UE-Positioning-IPDL-Parameters
                                                                          OPTIONAL
}
UE-Positioning-PositionEstimateInfo ::=
                                                      SEQUENCE {
   referenceTime
                                  CHOICE {
       utran-GPSReferenceTimeResult
                                           UTRAN-GPSReferenceTimeResult,
       gps-ReferenceTimeOnly
                                           INTEGER (0..604799999),
       cell-Timing
                                           SEQUENCE {
                                                       INTEGER (0..4095),
           sfn
                                           CHOICE {
           modeSpecificInfo
               fdd
                                                   SEQUENCE {
                   primaryCPICH-Info
                                                      PrimaryCPICH-Info
               tdd
                                                   SEQUENCE {
                   cellAndChannelIdentity
                                                      CellAndChannelIdentity
               }
           }
   },
                                      PositionEstimate
   positionEstimate
}
UE-Positioning-ReportCriteria ::=
                                               CHOICE {
   ue-positioning-ReportingCriteria
                                                 UE-Positioning-EventParamList,
   periodicalReportingCriteria
                                      PeriodicalReportingCriteria,
   noReporting
                                      NULL
}
UE-Positioning-ReportingQuantity ::=
                                              SEQUENCE {
   methodType
                                       UE-Positioning-MethodType,
   positioningMethod
                                       PositioningMethod,
   -- dummyl is not used in this version of specification and it should
   -- be ignored.
   dummy1
                                       UE-Positioning-ResponseTime,
   gps-TimingOfCellWanted
                                       UE-Positioning-Accuracy
                                                                          OPTIONAL,
                                       BOOLEAN,
   -- dummy2 is not used in this version of specification and it should
   -- be ignored.
                                       BOOLEAN,
   dummy2
   additionalAssistanceDataRequest BOOLEAN,
                                      EnvironmentCharacterisation
                                                                        OPTIONAL
   environmentCharacterisation
}
UE-Positioning-ReportingQuantity-v390ext ::=
                                                  SEQUENCE {
                                             UE-Positioning-Accuracy
   vertical-Accuracy
UE-Positioning-ReportingQuantity-r4 ::=
                                              SEQUENCE {
   methodType
                                      UE-Positioning-MethodType,
   positioningMethod
                                      PositioningMethod,
   horizontalAccuracy
                                      UE-Positioning-Accuracy
                                                                          OPTIONAL.
                                      UE-Positioning-Accuracy
   verticalAccuracy
                                                                          OPTIONAL,
   gps-TimingOfCellWanted
                                      BOOLEAN,
   additionalAssistanceDataReq
                                      BOOLEAN,
   environmentCharacterisation
                                      EnvironmentCharacterisation
                                                                        OPTIONAL
}
UE-Positioning-ResponseTime ::=
                                          ENUMERATED {
                                       s1, s2, s4, s8, s16,
                                       s32, s64, s128 }
-- SPARE: UTRA-CarrierRSSI, Max = 76
-- Values above Max are spare
UTRA-CarrierRSSI ::=
                                  INTEGER (0..127)
```

```
UTRAN-GPS-DriftRate ::=
                                   ENUMERATED {
                                   utran-GPSDrift0, utran-GPSDrift1, utran-GPSDrift2,
                                   utran-GPSDrift5, utran-GPSDrift10, utran-GPSDrift15,
                                   utran-GPSDrift25, utran-GPSDrift50, utran-GPSDrift-1,
                                   utran-GPSDrift-2, utran-GPSDrift-5, utran-GPSDrift-10,
                                   utran-GPSDrift-15, utran-GPSDrift-25, utran-GPSDrift-50}
                                      SEQUENCE {
UTRAN-GPSReferenceTime ::=
   -- For utran-GPSTimingOfCell values above 2322431999999 are not
   -- used in this version of the specification
    -- Actual value utran-GPSTimingOfCell = (ms-part * 4294967296) + ls-part
                                  SEQUENCE {
   utran-GPSTimingOfCell
                                      INTEGER (0..1023),
       ms-part
       ls-part
                                      INTEGER (0..4294967295)
   modeSpecificInfo
                                  CHOICE {
                                      SEQUENCE {
       fdd
           referenceIdentity
                                          PrimaryCPICH-Info
       tdd
                                      SEQUENCE {
           referenceIdentity
                                         CellParametersID
                   OPTIONAL,
                                      INTEGER (0..4095)
   sfn
}
UTRAN-GPSReferenceTimeResult ::=
                                              SEQUENCE {
   -- For ue-GPSTimingOfCell values above 37158911999999 are not
   -- used in this version of the specification
    -- Actual value ue-GPSTimingOfCell = (ms-part * 4294967296) + ls-part
   ue-GPSTimingOfCell
                           SEQUENCE {
                                      INTEGER (0.. 16383),
       ms-part
                                       INTEGER (0..4294967295)
       ls-part
   modeSpecificInfo
                                   CHOICE {
                                      SEQUENCE {
          referenceIdentity
                                         PrimaryCPICH-Info
       },
       tdd
                                      SEQUENCE {
           referenceIdentity
                                          CellParametersID
   },
   sfn
                                      INTEGER (0..4095)
}
VarianceOfRLC-BufferPayload ::=
                                  ENUMERATED {
                                      plv0, plv4, plv8, plv16, plv32, plv64,
                                      plv128, plv256, plv512, plv1024,
                                      plv2k, plv4k, plv8k, plv16k, spare2, spare1 }
-- Actual value W = IE value * 0.1
                                   INTEGER (0..20)
__ ****************************
      OTHER INFORMATION ELEMENTS (10.3.8)
__ ******************************
                                   INTEGER (0..7)
BCC ::=
BCCH-ModificationInfo ::=
                                   SEQUENCE {
                                     MIB-ValueTag,
   mib-ValueTag
                                      BCCH-ModificationTime
   bcch-ModificationTime
                                                                        OPTIONAL
}
-- Actual value BCCH-ModificationTime = IE value * 8
BCCH-ModificationTime ::=
                                 INTEGER (0..511)
BSIC ::=
                                   SEQUENCE {
   ncc
                                      NCC.
   bcc
                                       BCC
}
CBS-DRX-LevellInformation ::=
                                  SEQUENCE {
                                      INTEGER (1..256),
   ctch-AllocationPeriod
   cbs-FrameOffset
                                      INTEGER (0..255)
```

```
SEQUENCE {
CDMA2000-Message ::=
   msg-Type
                                      BIT STRING (SIZE (8)),
   payload
                                       BIT STRING (SIZE (1..512))
                           SEQUENCE (SIZE (1..maxInterSysMessages)) OF
CDMA2000-MessageList ::=
                                           CDMA2000-Message
CDMA2000-UMTS-Frequency-List ::=
                                      SEQUENCE (SIZE (1..maxNumCDMA2000Freqs)) OF
                                          FrequencyInfoCDMA2000
                                      INTEGER (1..4)
CellValueTag ::=
--Actual value = 2^(IE value)
ExpirationTimeFactor ::=
                                      INTEGER (1..8)
FDD-UMTS-Frequency-List ::=
                                     SEQUENCE (SIZE (1..maxNumFDDFreqs)) OF
                                           FrequencyInfoFDD
                                       SEQUENCE {
FrequencyInfoCDMA2000 ::=
                                           band-Class BIT STRING (SIZE (5)), cdma-Freq BIT STRING (SIZE(11))
}
                                      OCTET STRING (SIZE (1..23))
GERAN-SystemInfoBlock ::=
GERAN-SystemInformation ::=
                                       SEQUENCE (SIZE (1..maxGERAN-SI)) OF GERAN-SystemInfoBlock
                                       SEQUENCE {
GSM-BA-Range ::=
                                           UENCE (
gsmLowRangeUARFCN
                                                                  UARFCN.
                                           gsmUpRangeUARFCN
                                                                 UARFCN
}
                                       SEQUENCE (SIZE (1..maxNumGSMFreqRanges)) OF
GSM-BA-Range-List ::=
                                           GSM-BA-Range
-- This IE is formatted as 'TLV' and is coded in the same way as the Mobile Station Classmark 2
-- information element in [5]. The first octet is the Mobile station classmark 2 IEI and its value
-- shall be set to 33H. The second octet is the Length of mobile station classmark 2 and its value
-- shall be set to 3. The octet 3 contains the first octet of the value part of the Mobile Station
-- Classmark 2 information element, the octet 4 contains the second octet of the value part of the
-- Mobile Station Classmark 2 information element and so on. For each of these octets, the first/
-- leftmost/ most significant bit of the octet contains b8 of the corresponding octet of the Mobile
-- Station Classmark 2.
GSM-Classmark2 ::=
                                   OCTET STRING (SIZE (5))
-- This IE is formatted as 'V' and is coded in the same way as the value part in the Mobile station
-- classmark 3 information element in [5]
-- The value part is specified by means of CSN.1, which encoding results in a bit string, to which
-- final padding may be appended upto the next octet boundary [5]. The first/ leftmost bit of the
-- CSN.1 bit string is placed in the first/ leftmost/ most significant bit of the first
-- octet. This continues until the last bit of the CSN.1 bit string, which is placed in the last/
-- rightmost/ least significant bit of the last octet.
GSM-Classmark3 ::=
                                   OCTET STRING (SIZE (1..32))
GSM-MessageList ::=
                                   SEQUENCE (SIZE (1..maxInterSysMessages)) OF
                                       BIT STRING (SIZE (1..512))
GsmSecurityCapability ::=
                                   BIT STRING {
                                        -- For each bit value "0" means false/ not supported
                                       a5-6(1),
                                       a5-5(2),
                                       a5-4(3),
                                       a5-3(4),
                                       a5-2(5),
                                       a5-1(6)
                                          (SIZE (7))
GSM-TargetCellInfoList ::=
                              SEQUENCE (SIZE (1..maxGSMTargetCells)) OF
                                           GSM-TargetCellInfo
GSM-TargetCellInfo ::=
                                 SEQUENCE {
   bcch-ARFCN
                                       BCCH-ARFCN,
```

```
frequency-band
                                         Frequency-Band,
                                                         OPTIONAL
    bsic
}
IdentificationOfReceivedMessage ::= SEQUENCE {
       rrc-TransactionIdentifier RRC-TransactionIdentifier, receivedMessageType ReceivedMessageType
}
InterRAT-ChangeFailureCause ::= CHOICE {
   configurationUnacceptable NULL
                                   NULL,
    physicalChannelFailure
                                        NITIT.
    protocolError
                                        ProtocolErrorInformation,
    unspecified
                                        NULL,
    spare4
                                        NULL,
    spare3
                                        NULL,
    spare2
                                         NULL
    spare1
                                         NULL
}
                                   SEQUENCE (SIZE (1..maxInterSysMessages)) OF
GERANIu-MessageList ::=
                                         BIT STRING (SIZE (1..32768))
GERANIu-RadioAccessCapability ::= BIT STRING (SIZE (1..170))
InterRAT-UE-RadioAccessCapability ::= CHOICE {
                                        SEQUENCE {
        gsm-Classmark2
                                             GSM-Classmark2,
                                             GSM-Classmark3
        gsm-Classmark3
    cdma2000
                                         SEQUENCE {
       cdma2000-MessageList
                                            CDMA2000-MessageList
}
InterRAT-UE-RadioAccessCapabilityList ::= SEQUENCE (SIZE(1..maxInterSysMessages)) OF
                                             InterRAT-UE-RadioAccessCapability
InterRAT-UE-RadioAccessCapability-v590ext ::= SEQUENCE {
   geranIu-RadioAccessCapability
                                   GERANIu-RadioAccessCapability
}
InterRAT-UE-SecurityCapability ::= CHOICE {
                                         SEQUENCE {
        gsmSecurityCapability
                                        GsmSecurityCapability
}
InterRAT-UE-SecurityCapList ::= SEQUENCE (SIZE(1..maxInterSysMessages)) OF
                                        InterRAT-UE-SecurityCapability
                                    CHOICE {
InterRAT-HO-FailureCause ::=
                                    NULÌ,
    configurationUnacceptable
    physicalChannelFailure
                                        NULL.
    protocolError
                                        ProtocolErrorInformation,
    interRAT-ProtocolError
                                        NULL,
    unspecified
                                        NULL,
    spare11
                                        NULL,
    spare10
                                        NULL,
    spare9
                                        NULT.
    spare8
                                        NULL,
    spare7
                                         NULL,
    spare6
                                        NULL,
    spare5
                                         NULL.
    spare4
                                         NULL.
    spare3
                                         NULL,
    spare2
                                         NULL
                                         NULL
    spare1
}
{\tt MasterInformationBlock ::= SEQUENCE } \{
        mib-ValueTag
                                        MIB-ValueTag,
        -- TABULAR: The PLMN identity and ANSI-41 core network information
        -- are included in PLMN-Type.
                                         PLMN-Type,
        plmn-Type
        sibSb-ReferenceList
                                        SIBSb-ReferenceList,
    -- Extension mechanism for non- release99 information
        v6xyNonCriticalExtensions
                                            SEOUENCE {
```

```
masterInformationBlock-v6xyext
                                                 MasterInformationBlock-v6xyext
                                                                                       OPTIONAL,
                                                  SEQUENCE {}
                                                                                       OPTIONAL
            nonCriticalExtensions
        }
           OPTIONAL
}
MasterInformationBlock-v6xyext ::= SEQUENCE {
    multiplePLMN-List
                                         MultiplePLMN-List-r6
                                                                        OPTIONAL
MIB-ValueTag ::=
                                     INTEGER (1..8)
NCC ::=
                                     INTEGER (0..7)
PLMN-ValueTag ::=
                                     INTEGER (1..256)
PredefinedConfigIdentityAndValueTag ::= SEQUENCE {
    predefinedConfigIdentity
                                             PredefinedConfigIdentity,
    predefinedConfigValueTag
                                             PredefinedConfigValueTag
}
                                    SEQUENCE {
ProtocolErrorInformation ::=
    diagnosticsType
                                        CHOICE {
        type1
                                             SEQUENCE {
            protocolErrorCause
                                                 ProtocolErrorCause
        },
        spare
                                             NULL
}
ReceivedMessageType ::=
                                     ENUMERATED {
                                         activeSetUpdate,
                                         cellChangeOrderFromUTRAN,
                                         cellUpdateConfirm,
                                         counterCheck,
                                         downlinkDirectTransfer,
                                         interRATHandoverCommand,
                                         measurementControl,
                                         pagingType2,
                                         physicalChannelReconfiguration,
                                         physicalSharedChannelAllocation,
                                         radioBearerReconfiguration,
                                         radioBearerRelease,
                                         radioBearerSetup,
                                         rrcConnectionRelease,
                                         rrcConnectionReject,
                                         rrcConnectionSetup,
                                         securityModeCommand,
                                         signallingConnectionRelease,
                                         transportChannelReconfiguration,
                                         transportFormatCombinationControl,
                                         ueCapabilityEnquiry,
                                         ueCapabilityInformationConfirm,
                                         uplinkPhysicalChannelControl,
                                         uraUpdateConfirm,
                                         \verb"utranMobilityInformation",
                                         assistanceDataDelivery,
                                         spare6, spare5, spare4, spare3, spare2,
                                         spare1
}
Rplmn-Information ::=
                                         SEQUENCE {
                                             gsm-BA-Range-List
                                                                      GSM-BA-Range-List OPTIONAL,
                                              fdd-UMTS-Frequency-List FDD-UMTS-Frequency-List
    OPTIONAL,
                                             tdd-UMTS-Frequency-List TDD-UMTS-Frequency-List
    OPTIONAL,
                                             cdma2000-UMTS-Frequency-List CDMA2000-UMTS-Frequency-
        OPTIONAL
List
}
OPTIONAL,
    fdd-UMTS-Frequency-List FDD-UMTS-Frequency-List tdd384-UMTS-Frequency-List TDD-UMTS-Frequency-List tdd128-UMTS-Frequency-List TDD-UMTS-Frequency-List
                                                                              OPTIONAL,
                                                                              OPTIONAL,
                                                                              OPTIONAL,
    cdma2000-UMTS-Frequency-List CDMA2000-UMTS-Frequency-List
                                                                              OPTIONAL
}
```

```
SEQUENCE {
SchedulingInformation ::=
                                       SEQUENCE {
    scheduling
                                           SegCount
        segCount
                                                                             DEFAULT 1.
        sib-Pos
                                            CHOICE {
           -- The element name indicates the repetition period and the value
            -- (multiplied by two) indicates the position of the first segment.
                                                INTEGER (0..1),
           rep4
            rep8
                                                INTEGER (0..3),
            rep16
                                                INTEGER (0..7),
            rep32
                                                INTEGER (0..15),
            rep64
                                                INTEGER (0..31),
                                                INTEGER (0..63),
            rep128
            rep256
                                               INTEGER (0..127),
            rep512
                                               INTEGER (0..255),
            rep1024
                                               INTEGER (0..511),
                                               INTEGER (0..1023),
            rep2048
            rep4096
                                               INTEGER (0..2047)
        sib-PosOffsetInfo
                                            SibOFF-List
                                                                            OPTIONAL
    }
}
                                    SEQUENCE {
SchedulingInformationSIB ::=
    sib-Type
                                       SIB-TypeAndTag,
    scheduling
                                       SchedulingInformation
}
SchedulingInformationSIBSb ::= SEQUENCE {
                                       SIBSb-TypeAndTag,
    sibSb-Type
    scheduling
                                        SchedulingInformation
                                   INTEGER (1..16)
SegCount ::=
SegmentIndex ::=
                                    INTEGER (1..15)
-- Actual value SFN-Prime = 2 * IE value
                                    INTEGER (0..2047)
SFN-Prime ::=
SIB-Data-fixed ::=
                                  BIT STRING (SIZE (222))
SIB-Data-variable ::=
                               BIT STRING (SIZE (1..214))
                               INTEGER (0..15)
SIBOccurIdentity ::=
SIBOccurrenceIdentityAndValueTag ::= SEQUENCE {
   sibOccurIdentity SIBOccurIdentity,
sibOccurValueTag SIBOccurValueTag
    sibOccurValueTag
                                    SIBOccurValueTag
}
SIBOccurValueTag ::= INTEGER (0..15)
SIB-ReferenceList ::=
                                    SEQUENCE (SIZE (1..maxSIB)) OF
                                       SchedulingInformationSIB
SIBSb-ReferenceList ::=
                                    SEQUENCE (SIZE (1..maxSIB)) OF
                                       SchedulingInformationSIBSb
SIB-ReferenceListFACH ::=
                                    SEQUENCE (SIZE (1..maxSIB-FACH)) OF
                                       SchedulingInformationSIB
                                    ENUMERATED {
SIB-Type ::=
                                        masterInformationBlock,
                                        systemInformationBlockType1,
                                        systemInformationBlockType2,
                                        systemInformationBlockType3,
                                        systemInformationBlockType4,
                                        systemInformationBlockType5,
                                        systemInformationBlockType6,
                                        systemInformationBlockType7,
                                        systemInformationBlockType8,
                                        systemInformationBlockType9,
                                        systemInformationBlockType10,
                                        systemInformationBlockType11,
                                        systemInformationBlockType12,
```

systemInformationBlockType13,

```
systemInformationBlockType13-1,
                                         systemInformationBlockType13-2,
                                         systemInformationBlockType13-3,
                                         systemInformationBlockType13-4,
                                         systemInformationBlockType14,
                                         systemInformationBlockType15,
                                         systemInformationBlockType15-1,
                                         systemInformationBlockType15-2,
                                         systemInformationBlockType15-3,
                                         systemInformationBlockType16,
                                         systemInformationBlockType17,
                                         systemInformationBlockType15-4,
                                         systemInformationBlockType18,
                                         schedulingBlock1,
                                         schedulingBlock2,
                                         systemInformationBlockType15-5,
                                         systemInformationBlockType5bis,
                                         spare1 }
                                     CHOICE {
SIB-TypeAndTag ::=
                                         PLMN-ValueTag,
    sysInfoTypel
    sysInfoType2
                                         CellValueTag,
    sysInfoType3
                                         CellValueTag,
    sysInfoType4
                                         CellValueTag,
    sysInfoType5
                                         CellValueTag,
    sysInfoType6
                                         CellValueTag,
    sysInfoType7
                                         NULL,
    sysInfoType8
                                        CellValueTag,
                                         NULL,
    sysInfoType9
    sysInfoType10
                                         NULL,
                                        CellValueTag,
    sysInfoType11
    sysInfoType12
                                         CellValueTag,
    sysInfoType13
                                         CellValueTag,
    sysInfoType13-1
                                         CellValueTag,
                                         CellValueTag,
    sysInfoType13-2
    sysInfoType13-3
                                         CellValueTag,
    sysInfoType13-4
                                         CellValueTag,
    sysInfoType14
                                         NULL,
    sysInfoType15
                                         CellValueTag,
    sysInfoType16
                                         PredefinedConfigIdentityAndValueTag,
    sysInfoType17
                                        NULL.
                                         CellValueTag,
    sysInfoType15-1
    sysInfoType15-2
                                         SIBOccurrenceIdentityAndValueTag,
    sysInfoType15-3
                                        SIBOccurrenceIdentityAndValueTag,
    sysInfoType15-4
                                         CellValueTag,
                                         CellValueTag,
    sysInfoType18
    sysInfoType15-5
                                         CellValueTag,
    sysInfoType5bis
                                         CellValueTag,
    spare4
                                         NULL,
    spare3
                                         NULL,
    spare2
                                         NULTITA .
                                         NULL
    spare1
SIBSb-TypeAndTag ::=
                                         CHOICE {
    sysInfoType1
                                         PLMN-ValueTag,
    sysInfoType2
                                         CellValueTag,
    sysInfoType3
                                         CellValueTag,
    svsInfoTvpe4
                                         CellValueTag,
    sysInfoType5
                                         CellValueTag,
    sysInfoType6
                                         CellValueTag,
    sysInfoType7
                                         NULL,
    sysInfoType8
                                         CellValueTag,
    sysInfoType9
                                         NULL,
    sysInfoType10
                                        NULL,
    sysInfoType11
                                         CellValueTag,
                                         CellValueTag,
    sysInfoType12
    sysInfoType13
                                         CellValueTag,
    sysInfoType13-1
                                         CellValueTag,
                                         CellValueTag,
    sysInfoType13-2
    sysInfoType13-3
                                         CellValueTag,
    sysInfoType13-4
                                         CellValueTag,
    {\tt sysInfoType14}
                                         NULL,
    sysInfoType15
                                         CellValueTag,
    sysInfoType16
                                         PredefinedConfigIdentityAndValueTag,
                                         NULL.
    sysInfoType17
                                         CellValueTag,
    sysInfoTypeSB1
```

```
sysInfoTypeSB2
                                                                                          CellValueTag,
         sysInfoType15-1
                                                                                          CellValueTag,
         sysInfoType15-2
                                                                                         SIBOccurrenceIdentityAndValueTag,
         sysInfoType15-3
                                                                                         SIBOccurrenceIdentityAndValueTag,
         sysInfoType15-4
                                                                                          CellValueTag,
         sysInfoType18
                                                                                         CellValueTag,
         sysInfoType15-5
                                                                                         CellValueTag,
         sysInfoType5bis
                                                                                         CellValueTag,
         spare2
                                                                                          NULL,
         spare1
                                                                                          NULL
}
SibOFF ::=
                                                                                 ENUMERATED {
                                                                                           so2, so4, so6, so8, so10,
                                                                                           so12, so14, so16, so18,
                                                                                           so20, so22, so24, so26,
                                                                                           so28, so30, so32 }
                                                                                 SEQUENCE (SIZE (1..15)) OF
SibOFF-List ::=
                                                                                           SibOFF
                                                                                 SEQUENCE {
SysInfoType1 ::=
         -- Core network IEs
                 cn-CommonGSM-MAP-NAS-SysInfo NAS-SystemInformationGSM-MAP,
                 cn-DomainSysInfoList
                                                                                        CN-DomainSysInfoList,
         -- User equipment IEs

    ue-ConnTimersAndConstants
    UE-ConnTimersAndConstants

    ue-IdleTimersAndConstants
    UE-IdleTimersAndConstants

                                                                                                                                                                         OPTIONAL,
                                                                                                                                                                          OPTIONAL,
         -- Extension mechanism for non- release99 information
                 v3a0NonCriticalExtensions SEQUENCE {
sysInfoType1-v3a0ext SysInfoType1-v3a0ext-IEs,
nonCriticalExtensions SEQUENCE {} OPTIONAL
                  }
                                                                             OPTIONAL
}
SysInfoType1-v3a0ext-IEs ::= SEQUENCE {
        ue-ConnTimersAndConstants-v3a0ext
ue-IdleTimersAndConstants-v3a0ext
                                                                                                   UE-ConnTimersAndConstants-v3a0ext,
                                                                                                  UE-IdleTimersAndConstants-v3a0ext
}
SysInfoType2 ::=
                                                                                SEQUENCE {
        -- UTRAN mobility IEs
                 ura-IdentityList
                                                                                          URA-IdentityList,
         -- Extension mechanism for non- release99 information
                                                                                        SEQUENCE {}
                nonCriticalExtensions
                                                                                                                                                                            OPTIONAL
}
SysInfoType3 ::=
                                                                              SEQUENCE {
         nroType3 ::=
sib4indicator
-- UTRAN mobility IEs
                                                                                BOOLEAN,
                 cellIdentity CellIdentity, cellSelectReselectInfo CellSelectReselectInfoSIB-3-4, cellAccessRestriction CellAccessRestriction,
                 cellIdentity
         -- Extension mechanism for non- release99 information
                 v4b0NonCriticalExtensions SEQUENCE {
   sysInfoType3-v4b0ext SysInfoType3-v4b0ext-IEs,
   v590NonCriticalExtension SEQUENCE {
    sysInfoType3-v590ext SysInfoType3-v590ext,
   v5c0NoncriticalExtension SEQUENCE {
    sysInfoType3-v5c0ext SysInfoType3-v5c0
                                             SEQUENCE {

SEQUENCE {

SysInf

nonCriticalExtensions

Sequence {

SysInf

                                                                                                                                       SysInfoType3-v6xyext,
                                                                                                                            SEQUENCE {}
                                                                                                                                                                                                        OPTIONAL
                                             }
                                    }
                                                                                                  OPTIONAL
                          }
                                                                                         OPTIONAL
                                                                                 OPTIONAL
}
SysInfoType3-v4b0ext-IEs ::= SEQUENCE {
                                                                                Mapping-LCR-r4
                                                                                                                                                                            OPTIONAL
        mapping-LCR
}
SysInfoType3-v590ext ::= SEQUENCE {
                                                                                     CellSelectReselectInfo-v590ext OPTIONAL
         cellSelectReselectInfo-v590ext
SysInfoType3-v5c0ext-IEs ::= SEQUENCE {
```

```
cellSelectReselectInfoTreselectionScaling-v5c0ext
                                             CellSelectReselectInfoTreselectionScaling-v5c0ext OPTIONAL
}
SysInfoType3-v6xyext ::= SEQUENCE {
         {\tt domainSpecificAccessRestrictionParametersForPLMNOfMIB}
                                         DomainSpecificAccessRestrictionParam-v6xyext
                                                                                                OPTIONAL.
         {\tt domainSpecificAccessRestictionForSharedNetwork}
                                         DomainSpecificAccessRestrictionForSharedNetwork-v6xyext OPTIONAL
                                       SEQUENCE {
SysInfoType4 ::=
    -- UTRAN mobility IEs
        cellIdentity CellIdentity,
cellSelectReselectInfo CellSelectReselectInfoSIB-3-4,
cellAccessRestriction CellAccessRestriction,
    -- Extension mechanism for non- release99 information
         DNONCriticalExtensions SEQUENCE {

sysInfoType4-v4b0ext SysInfoType4-v4b0ext-IEs,

v590NonCriticalExtension SEQUENCE {

sysInfoType4-v590ext SysInfoType4-v590ext,

v5b0NonCriticalExtension SEQUENCE {

sysInfoType4-v5b0ext SysInfoType4-v5b0ext-IEs,

v5c0NonCriticalExtension SEQUENCE {

sysInfoType4-v5c0ext SysInfoType4-v5c0ext

nonCriticalExtensions SEQUENCE {}

} OPTIONAL
                                                                    SysInfoType4-v5c0ext-IEs,
                                                                                                     OPTIONAL
                           OPTIONAL
                       OPTIONAL
                  OPTIONAL
             OPTIONAL
}
SysInfoType4-v4b0ext-IEs ::= SEQUENCE {
                                                                                       OPTIONAL
    mapping-LCR
                                         Mapping-LCR-r4
}
SysInfoType4-v590ext ::= SEQUENCE {
                                           CellSelectReselectInfo-v590ext
    cellSelectReselectInfo-v590ext
                                                                                       OPTIONAL
}
SysInfoType4-v5b0ext-IEs ::= SEQUENCE {
    cellSelectReselectInfoPCHFACH-v5b0ext CellSelectReselectInfoPCHFACH-v5b0ext
                                                                                                   OPTIONAL
SysInfoType4-v5c0ext-IEs ::= SEQUENCE {
    {\tt cellSelectReselectInfoTreselectionScaling-v5c0ext}
                                             CellSelectReselectInfoTreselectionScaling-v5c0ext OPTIONAL
SysInfoType5 ::=
                                         SEQUENCE {
        sib6indicator
                                             BOOLEAN,
    -- Physical channel IEs
        pich-PowerOffset
                                             PICH-PowerOffset,
        modeSpecificInfo
                                             CHOICE {
                                                 SEQUENCE {
             fdd
                  aich-PowerOffset
                                                      AICH-PowerOffset
                                                  SEQUENCE {
             tdd
    -- If PDSCH/PUSCH is configured for 1.28Mcps TDD, the following IEs should be absent
         and the info included in the tdd128SpecificInfo instead.
    -- If PDSCH/PUSCH is configured for 3.84Mcps TDD in R5, HCR-r5-SpecificInfo should also be
    -- included.
                  pusch-SysInfoList-SFN
                                                      PUSCH-SysInfoList-SFN
                                                                                       OPTIONAL.
                  pdsch-SysInfoList-SFN
                                                      PDSCH-SysInfoList-SFN
                                                                                       OPTIONAL,
                  openLoopPowerControl-TDD
                                                      OpenLoopPowerControl-TDD
             }
         },
                                             PrimaryCCPCH-Info
         primaryCCPCH-Info
                                                                                       OPTIONAL.
         prach-SystemInformationList
                                             PRACH-SystemInformationList,
         sCCPCH-SystemInformationList SCCPCH-SystemInformationList,
         -- cbs-DRX-LevellInformation is conditional on any of the CTCH indicator IEs in
         -- sCCPCH-SystemInformationList
         cbs-DRX-LevellInformation
                                            CBS-DRX-LevellInformation
                                                                                     OPTIONAL,
    -- Extension mechanism for non- release99 information
        v4b0NonCriticalExtensions SEQUENCE {
    sysInfoType5-v4b0ext SysInf
                                             SysInfoType5-v4b0ext-IEs
                                                                                    OPTIONAL,
         -- Extension mechanism for non- rel-4 information
```

```
v590NonCriticalExtensions
                                            SEQUENCE {
                                                SysInfoType5-v590ext-IEs
                sysInfoType5-v590ext
                                                                                OPTIONAL,
                v650NonCriticalExtensions
                                                SEQUENCE {
                                                  SysInfoType5-v650ext-IEs
                    sysInfoType5-v650ext
                                                                                    OPTIONAL,
                    v6xyNonCriticalExtensions
                                                    SEQUENCE {
                                                   SysInfoType5-v6xyext-IEs,
                       sysInfoType5-v6xyext
                       nonCriticalExtensions
                                                       SEQUENCE {}
                                                                                        OPTIONAL
                            OPTIONAL
                       OPTIONAL
           }
                    OPTIONAL
        }
                OPTIONAL
SysInfoType5-v4b0ext-IEs ::= SEQUENCE {
    -- The following IE PNBSCH-Allocation-r4 shall be used for 3.84Mcps TDD only.
                                  PNBSCH-Allocation-r4
   pNBSCH-Allocation-r4
                                                                 OPTIONAL,
    -- In case of TDD, the following IE is included instead of the
   -- IE up-IPDL-Parameter in up-OTDOA-AssistanceData.
   openLoopPowerControl-IPDL-TDD OpenLoopPowerControl-IPDL-TDD-r4
                                                                        OPTIONAL.
-- If SysInfoType5 is sent to describe a 1.28Mcps TDD cell, the IE PRACH-RACH-Info included in
\operatorname{\mathsf{--}} PRACH-SystemInformationList shall be ignored, the IE PRACH-Partitioning and the
-- IE rach-TransportFormatSet shall be absent and the corresponding IE in the following
-- PRACH-SystemInformationList-LCR-r4 shall be used
   prach-SystemInformationList-LCR-r4 PRACH-SystemInformationList-LCR-r4 OPTIONAL,
                                   SEQUENCE {
   tdd128SpecificInfo
                                       PUSCH-SysInfoList-SFN-LCR-r4
       pusch-SysInfoList-SFN
                                                                        OPTIONAL,
       pdsch-SysInfoList-SFN
                                       PDSCH-SysInfoList-SFN-LCR-r4
       pCCPCH-LCR-Extensions
                                       PrimaryCCPCH-Info-LCR-r4-ext
       sCCPCH-LCR-ExtensionsList
                                       SCCPCH-SystemInformationList-LCR-r4-ext
                                                                   OPTIONAL,
   frequencyBandIndicator
                                   RadioFrequencyBandFDD
                                                                    OPTIONAL
}
SysInfoType5-v590ext-IEs ::= SEQUENCE {
                             SEQUENCE {
   hcr-r5-SpecificInfo
       pusch-SysInfoList-SFN
                                       PUSCH-SysInfoList-SFN-HCR-r5
                                                                        OPTIONAL.
                                       PDSCH-SysInfoList-SFN-HCR-r5
       pdsch-SysInfoList-SFN
                                                                        OPTIONAL
                                                                        OPTIONAL
}
SysInfoType5-v650ext-IEs ::= SEQUENCE {
   frequencyBandIndicator2
                               RadioFrequencyBandFDD2
SysInfoType5-v6xyext-IEs ::=
                                    SEQUENCE {
   sccpch-SystemInformation-MBMS
                                        CHOICE {
       sccpch-CommonForMBMSAndNonMBMS
                                           SCCPCH-SystemInformationList-MBMS-r6-ext,
        sccpch-DedicatedForMBMS
                                            SCCPCH-SystemInformation-MBMS-r6
           OPTIONAL
}
-- SysInfoType5bis uses the same structure as SysInfoType5
SysInfoType5bis ::= SysInfoType5
SysInfoType6 ::=
                                   SEQUENCE {
    -- Physical channel IEs
       pich-PowerOffset
                                        PICH-PowerOffset,
       modeSpecificInfo
                                        CHOICE {
           fdd
                                           SEOUENCE {
                aich-PowerOffset
                                               AICH-PowerOffset,
                -- dummy is not used in this version of specification, it should
                -- not be sent and if received it should be ignored.
                dummy
                                               CSICH-PowerOffset
                                                                            OPTIONAL
            },
            t.dd
                                            SEQUENCE {
                -- If PDSCH/PUSCH is configured for 1.28Mcps TDD, pusch-SysInfoList-SFN,
                -- pdsch-SysInfoList-SFN and openLoopPowerControl-TDD should be absent
                \mbox{--} and the info included in the tdd128SpecificInfo instead.
                -- If PDSCH/PUSCH is configured for 3.84Mcps TDD in R5, HCR-r5-SpecificInfo should
                -- also be included.
                pusch-SysInfoList-SFN
                                               PUSCH-SysInfoList-SFN
                                                                            OPTIONAL.
                pdsch-SysInfoList-SFN
                                               PDSCH-SysInfoList-SFN
                                                                            OPTIONAL.
                openLoopPowerControl-TDD
                                               OpenLoopPowerControl-TDD
           }
        },
       primaryCCPCH-Info
                                        PrimaryCCPCH-Info
                                                                            OPTIONAL.
        prach-SystemInformationList
                                        PRACH-SystemInformationList
                                                                            OPTIONAL,
        sCCPCH-SystemInformationList
                                        SCCPCH-SystemInformationList
                                                                            OPTIONAL,
```

```
cbs-DRX-LevellInformation
                                              CBS-DRX-LevellInformation
                                                                                            OPTIONAL,
          -- Conditional on any of the CTCH indicator IEs in
         -- sCCPCH-SystemInformationList
     -- Extension mechanism for non- release99 information
         v4b0NonCriticalExtensions SEQUENCE {
    sysInfoType6-v4b0ext SysInfoType6-v4b0ext-IEs
              Extension mechanism for non- rel-4 information
v590NonCriticalExtensions SEQUENCE {
   sysInfoType6-v590ext SysInfoType6-v590ext-IES OPTIONAL,
   v650nonCriticalExtensions SEQUENCE {
    sysInfoType6-v650ext SysInfoType6-v650ext-IES OPTIONAL,
   nonCriticalExtensions SEQUENCE {} OPTIONAL
   } OPTIONAL
}

OPTIONAL
          -- Extension mechanism for non- rel-4 information
}
SysInfoType6-v4b0ext-IEs ::= SEQUENCE {
     -- openLoopPowerControl-IPDL-TDD is present only if IPDLs are applied for TDD
    openLoopPowerControl-IPDL-TDD OpenLoopPowerControl-IPDL-TDD-r4 OPTIONAL,
     -- If SysInfoType6 is sent to describe a 1.28Mcps TDD cell, the IE PRACH-RACH-Info included
    -- in PRACH-SystemInformationList shall be ignored, the IE PRACH-Partitioning and the
    -- IE rach-TransportFormatSet shall be absent and the corresponding IEs in the following
    -- PRACH-SystemInformationList-LCR-r4 shall be used
    prach-SystemInformationList-LCR-r4 PRACH-SystemInformationList-LCR-r4 OPTIONAL,
    tdd128SpecificInfo SEQUENCE {
   pusch-SysInfoList-SFN PUSCH-SysInfoList-SFN-LCR-r4 OPTIONAL,
   pdsch-SysInfoList-SFN PDSCH-SysInfoList-SFN-LCR-r4 OPTIONAL,
   pCCPCH-LCR-Extensions PrimaryCCPCH-Info-LCR-r4-ext OPTIONAL,
   sCCPCH-LCR-ExtensionsList SCCPCH-SystemInformationList-LCR-r4-ext OPTIONAL
                                                                                   OPTIONAL,
                                       RadioFrequencyBandFDD
                                                                                   OPTIONAL
    frequencyBandIndicator
}
SysInfoType6-v590ext-IEs ::= SEQUENCE {
         -r5-SpecificInfo SEQUENCE {
  pusch-SysInfoList-SFN PUSCH-SysInfoList-SFN-HCR-r5 OPTIONAL,
  pdsch-SysInfoList-SFN PDSCH-SysInfoList-SFN-HCR-r5 OPTIONAL
    hcr-r5-SpecificInfo
                                                                                         OPTIONAL
}
SysInfoType6-v650ext-IEs ::= SEQUENCE {
    frequencyBandIndicator2 RadioFrequencyBandFDD2
    InfoType7 ::=
-- Physical channel IEs
-- SecurificInfo CHOICE {
SEQUE
SysInfoType7 ::=
                                                SEQUENCE {
                 ul-Interference
                                                       UL-Interference
                                                    NULL
              tdd
         prach-Information-SIB5-List DynamicPersistenceLevelList,
prach-Information-SIB6-List DynamicPersistenceLevelList
                                                                                             OPTIONAL,
         expirationTimeFactor
                                                ExpirationTimeFactor
                                                                                              OPTIONAL,
     -- Extension mechanism for non- release99 information
                                                SEQUENCE {}
                                                                                            OPTIONAL
         nonCriticalExtensions
}
SysInfoType8 ::=
                                          SEQUENCE {
    -- User equipment IEs
    cpch-Parameters CPCH-Parameters,
-- Physical channel IEs
cpch-SetInfoList CPCH-SetInfoList,
csich-PowerOffset CSICH-PowerOffset
                                              CPCH-Parameters,
         csich-PowerOffset
                                                CSICH-PowerOffset,
     -- Extension mechanism for non- release99 information
        nonCriticalExtensions SEQUENCE {}
                                                                                              OPTIONAL
}
    SysInfoType9 ::=
        cpch-PersistenceLevelsList
                                                CPCH-PersistenceLevelsList,
    -- Extension mechanism for non- release99 information
         nonCriticalExtensions
                                                SEQUENCE {}
                                                                                            OPTIONAL
SysInfoType10 ::=
                                            SEQUENCE {
```

```
-- User equipment IEs
       drac-SysInfoList
                                        DRAC-SysInfoList,
    -- Extension mechanism for non- release99 information
                                        SEQUENCE {}
        nonCriticalExtensions
                                                                              OPTIONAL
                                   SEQUENCE {
SysInfoType11 ::=
       sib12indicator
                                        BOOLEAN,
    -- Measurement IEs
       fach-MeasurementOccasionInfo FACH-MeasurementOccasionInfo measurementControlSysInfo MeasurementControlSysInfo,
                                                                             OPTIONAL,
    -- Extension mechanism for non- release99 information
        OPTIONAL,
                sysInfoTyperr vol. nonCriticalExtensions OPTIONAL
                                                                                 OPTIONAL
                                                 SEQUENCE {}
        }
                                    OPTIONAL
}
SysInfoType11-v4b0ext-IEs ::= SEQUENCE {
    fach-MeasurementOccasionInfo-LCR-Ext
                                             FACH-MeasurementOccasionInfo-LCR-r4-ext OPTIONAL,
    measurementControlSysInfo-LCR
                                             MeasurementControlSysInfo-LCR-r4-ext
}
SysInfoType11-v590ext-IEs ::= SEQUENCE {
    --The order of the list corresponds to the order of cell in newIntraFrequencyCellInfoList
    newIntraFrequencyCellInfoList-v590ext SEQUENCE (SIZE (1..maxCellMeas)) OF
                                                CellSelectReselectInfo-v590ext OPTIONAL.
    --The order of the list corresponds to the order of cell in newInterFrequencyCellInfoList
    newInterFrequencyCellInfoList-v590ext SEQUENCE (SIZE (1..maxCellMeas)) OF
                                                 CellSelectReselectInfo-v590ext OPTIONAL,
    --The order of the list corresponds to the order of cell in newInterRATCellInfoList
   newInterRATCellInfoList-v590ext
                                            SEQUENCE (SIZE (1..maxCellMeas)) OF
                                                CellSelectReselectInfo-v590ext OPTIONAL,
    intraFreqEventCriteriaList-v590ext
                                           Intra-FregEventCriteriaList-v590ext
                                                                                     OPTIONAL,
    intraFreqReportingCriteria-1b-r5
                                             IntraFreqReportingCriteria-1b-r5 OPTIONAL,
    intraFreqEvent-1d-r5
                                             IntraFreqEvent-1d-r5
                                                                                  OPTIONAL
}
SysInfoType12 ::=
                                   SEQUENCE {
    -- Measurement IEs
        fach-MeasurementOccasionInfo
                                        FACH-MeasurementOccasionInfo
                                                                             OPTIONAL,
                                       MeasurementControlSysInfo,
        measurementControlSysInfo
    -- Extension mechanism for non- release99 information
        v4b0NonCriticalExtensions SEQUENCE {
    sysInfoType12-v4b0ext SysInfoType12-v4b0ext
            sysInfoType12-v4b0ext SysInfoType12-v4b0ext-IEs OPTIONAL, v590NonCriticalExtension SEQUENCE {
    sysInfoType12-v590ext SysInfoType12-v590ext-IEs, nonCriticalExtensions SEQUENCE {} OPTIONAL
}
                                                                                  OPTIONAL
                                    OPTIONAL
SysInfoType12-v4b0ext-IEs ::= SEQUENCE {
    fach-MeasurementOccasionInfo-LCR-Ext
                                             FACH-MeasurementOccasionInfo-LCR-r4-ext OPTIONAL,
    {\tt measurementControlSysInfo-LCR}
                                             {\tt MeasurementControlSysInfo-LCR-r4-ext}
}
SysInfoType12-v590ext-IEs ::= SEQUENCE {
    --The order of the list corresponds to the order of cell in newIntraFrequencyCellInfoList
    newIntraFrequencyCellInfoList-v590ext SEQUENCE (SIZE (1..maxCellMeas)) OF
                                                 CellSelectReselectInfo-v590ext OPTIONAL,
    --The order of the list corresponds to the order of cell in newInterFrequencyCellInfoList
    CellSelectReselectInfo-v590ext OPTIONAL,
    --The order of the list corresponds to the order of cell in newInterRATCellInfoList
                                           SEQUENCE (SIZE (1..maxCellMeas)) OF
    newInterRATCellInfoList-v590ext
                                          Intra-FreqEventCriteriaList-v590ext IntraFregReportingCrit
                                                 CellSelectReselectInfo-v590ext OPTIONAL,
    intraFreqEventCriteriaList-v590ext
    intraFreqReportingCriteria-1b-r5
                                             IntraFreqReportingCriteria-lb-r5 OPTIONAL, IntraFreqEvent-ld-r5 OPTIONAL
    intraFreqEvent-1d-r5
}
SysInfoType13 ::=
                                   SEQUENCE {
    -- Core network IEs
        cn-DomainSysInfoList
                                        CN-DomainSysInfoList,
```

```
-- User equipment IEs

    ue-IdleTimersAndConstants
    UE-IdleTimersAndConstants

    capabilityUpdateRequirement
    CapabilityUpdateRequirement

                                                                          OPTIONAL,
                                                                        OPTIONAL,
    -- Extension mechanism for non- release99 information
       v3a0NonCriticalExtensions SEQUENCE {
    sysInfoType13-v3a0ext SysInfoType13-v3a0ext-IEs,
           v4b0NonCriticalExtensions SEQUENCE {
sysInfoType13-v4b0ext SysInfoType13-v4b0ext-IEs,
           -- Extension mechanism for non- release99 information
               nonCriticalExtensions
                                            SEQUENCE {}
                                                                              OPTIONAL
                                       OPTIONAL
                                  OPTIONAL
        }
}
SysInfoType13-v3a0ext-IEs ::= SEQUENCE {
   ue-IdleTimersAndConstants-v3a0ext
                                           UE-IdleTimersAndConstants-v3a0ext
SysInfoType13-v4b0ext-IEs ::= SEQUENCE {
    capabilityUpdateRequirement-r4Ext CapabilityUpdateRequirement-r4-ext OPTIONAL
SysInfoType13-1 ::=
                                 SEQUENCE {
   -- ANSI-41 IEs
       ansi-41-RAND-Information
                                      ANST-41-RAND-Information.
    -- Extension mechanism for non- release99 information
       nonCriticalExtensions
                                     SEQUENCE {}
                                                                          OPTIONAL
}
SysInfoType13-2 ::=
                                  SEQUENCE {
    -- ANSI-41 IEs
       ansi-41-UserZoneID-Information ANSI-41-UserZoneID-Information,
    -- Extension mechanism for non- release99 information
                               SEQUENCE {}
                                                                          OPTIONAL
       nonCriticalExtensions
}
                                  SEQUENCE {
SysInfoType13-3 ::=
    -- ANSI-41 IEs
       ansi-41-PrivateNeighbourListInfo ANSI-41-PrivateNeighbourListInfo,
    -- Extension mechanism for non- release99 information
       OPTIONAL
}
                                  SEQUENCE {
SysInfoType13-4 ::=
   -- ANSI-41 IEs
       ansi-41-GlobalServiceRedirectInfo
                                      ANSI-41-GlobalServiceRedirectInfo,
    -- Extension mechanism for non- release99 information
       nonCriticalExtensions SEQUENCE {}
                                                                          OPTIONAL
}
   -- Physical channel IEs individuals -
SysInfoType14 ::=
       individualTS-InterferenceList IndividualTS-InterferenceList, expirationTimeFactor ExpirationTimeFactor
                                                                          OPTIONAL,
    -- Extension mechanism for non- release99 information
       nonCriticalExtensions
                                      SEQUENCE {}
                                                                          OPTIONAL
}
SysInfoType15 ::=
                                  SEQUENCE {
    -- Measurement IEs
       ue-positioning-GPS-CipherParameters
                                             UE-Positioning-CipherParameters
                                                                                  OPTIONAL,
       ue-positioning-GPS-ReferenceLocation
                                               ReferenceLocation,
        ue-positioning-GPS-ReferenceTime
                                               UE-Positioning-GPS-ReferenceTime,
       ue-positioning-GPS-Real-timeIntegrity
                                                                                      OPTIONAL,
                                                  BadSatList
    -- Extension mechanism for non- release99 information
       v4b0NonCriticalExtensions SEQUENCE {
    sysInfoType15-v4b0ext SysInfoType15-v4b0ext-IEs,
        -- Extension mechanism for non- release4 information
                                              SEQUENCE {}
           nonCriticalExtensions
                                                                     OPTIONAL
        } OPTIONAL
}
SysInfoType15-v4b0ext-IEs ::= SEQUENCE {
```

```
SEQUENCE {
SysInfoType15-1 ::=
   -- DGPS corrections
       ue-positioning-GPS-DGPS-Corrections
                                                UE-Positioning-GPS-DGPS-Corrections,
   -- Extension mechanism for non- release99 information
      nonCriticalExtensions
                                      SEQUENCE {}
                                                             OPTIONAL
}
SysInfoType15-2 ::=
                                  SEQUENCE {
   -- Ephemeris and clock corrections
       transmissionTOW
                                      INTEGER (0..604799),
       sat.ID
                                      SatID.
       ephemerisParameter
                                      EphemerisParameter,
   -- Extension mechanism for non- release99 information
       nonCriticalExtensions
                                                        OPTIONAL
                                      SEQUENCE {}
}
SysInfoType15-3 ::=
                                 SEQUENCE {
   -- Almanac and other data
                                     INTEGER (0.. 604799),
       transmissionTOW
       ue-positioning-GPS-Almanac
                                                  UE-Positioning-GPS-Almanac
   OPTIONAL,
       ue-positioning-GPS-IonosphericModel
                                                UE-Positioning-GPS-IonosphericModel
   OPTIONAL,
       ue-positioning-GPS-UTC-Model
                                                 UE-Positioning-GPS-UTC-Model
   OPTIONAL,
       satMask
                                    BIT STRING (SIZE (1..32)) OPTIONAL,
                                      BIT STRING (SIZE (8))
                                                               OPTIONAL,
       lsbTOW
    -- Extension mechanism for non- release99 information
                                   SEQUENCE {}
      nonCriticalExtensions
                                                                OPTIONAL
}
SysInfoType15-4 ::=
                                 SEOUENCE {
    -- Measurement IEs
       ue-positioning-OTDOA-CipherParametersUE-Positioning-CipherParametersue-positioning-OTDOA-AssistanceDataUE-Positioning-OTDOA-AssistanceData,
                                                                                    OPTIONAL,
       v3a0NonCriticalExtensions SEQUENCE {
    sysInfoType15-4-v3a0ext SysInf
                                             SysInfoType15-4-v3a0ext,
        -- Extension mechanism for non- release99 information
          SEQUENCE {} OPTIONAL
              OPTIONAL
          OPTIONAL
}
SysInfoType15-4-v3a0ext ::= SEQUENCE {
   sfn-Offset-Validity SFN-Offset-Validity OPTIONAL
}
SysInfoType15-4-v4b0ext ::= SEQUENCE {
   ue-Positioning-OTDOA-AssistanceData-r4ext UE-Positioning-OTDOA-AssistanceData-r4ext OPTIONAL
                                 SEQUENCE {
SysInfoType15-5 ::=
    -- Measurement IEs
       ue-positioning-OTDOA-AssistanceData-UEB UE-Positioning-OTDOA-AssistanceData-UEB,
       v3a0NonCriticalExtensions SEQUENCE {
    sysInfoType15-5-v3a0ext SysInfoType15-5-v3a0ext,
        -- Extension mechanism for non- release99 information
          nonCriticalExtensions
                                            SEQUENCE {}
       } OPTIONAL
}
SysInfoType15-5-v3a0ext ::= SEQUENCE {
   sfn-Offset-Validity SFN-Offset-Validity
                                                    OPTIONAL
SysInfoType16 ::=
                                 SEQUENCE {
   -- Radio bearer IEs
       preDefinedRadioConfiguration PreDefRadioConfiguration,
   -- Extension mechanism for non- release99 information
       nonCriticalExtensions
                                    SEQUENCE {}
                                                                        OPTIONAL
SysInfoType17 ::=
                                  SEQUENCE {
```

```
-- Physical channel IEs
                -- If PDSCH/PUSCH is configured for 1.28Mcps TDD, pusch-SysInfoList and
                -- pdsch-SysInfoList should be absent and the info included in the
                -- tdd128SpecificInfo instead.
                -- If PDSCH/PUSCH is configured for 3.84Mcps TDD in R5, HCR-r5-SpecificInfo should also be
                -- included.
               pusch-SysInfoList
                                                                             PUSCH-SysInfoList
                                                                                                                                            OPTIONAL,
                                                                          PDSCH-SysInfoList
                                                                                                                                         OPTIONAL,
               pdsch-SysInfoList
        -- Extension mechanism for non- release99 information
               v4b0NonCriticalExtensions SEQUENCE {
    sysInfoType17-v4b0ext SysInf
                                                                             SysInfoType17-v4b0ext-IEs,
                       v590NonCriticalExtensions SEQUENCE {
   sysInfoType17-v590ext SysInfoType17-v590ext-IEs OPTIONAL,
   nonCriticalExtensions SEQUENCE {} OPTIONAL
}
                       }
                }
                                                                    OPTIONAL
}
SysInfoType17-v4b0ext-IEs ::= SEQUENCE {
       tdd128SpecificInfo SEQUENCE {
   pusch-SysInfoList PUSCH-SysInfoList-LCR-r4 OPTIONAL,
   pdsch-SysInfoList PDSCH-SysInfoList-LCR-r4 OPTIONAL
   controlled the second of t
                                                                                                                                           OPTIONAL
}
SysInfoType17-v590ext-IEs ::= SEQUENCE {
      hcr-r5-SpecificInfo SEQUENCE {
   pusch-SysInfoList PUSCH-SysInfoList-HCR-r5 OPTIONAL,
   pdsch-SysInfoList PDSCH-SysInfoList-HCR-r5 OPTIONAL
                                                                                                                            OPTIONAL
}
              Type18 ::= SEQUENCE {
idleModePLMNIdentities PLMNIdentitiesOfNeighbourCells OPTIONAL,
SysInfoType18 ::=
               connectedModePLMNIdentities PLMNIdentitiesOfNeighbourCells OPTIONAL,
        -- Extension mechanism for non- release99 information
             nonCriticalExtensions
                                                                           SEQUENCE { } OPTIONAL
}
SysInfoTypeSB1 ::=
                                                                    SEQUENCE {
       -- Other IEs
              sib-ReferenceList
                                                                            SIB-ReferenceList.
        -- Extension mechanism for non- release99 information
              OPTIONAL
}
SysInfoTypeSB2 ::=
                                                                   SEQUENCE {
      -- Other IEs
                                                      SIB-ReferenceList,
              sib-ReferenceList
        -- Extension mechanism for non- release99 information
              nonCriticalExtensions SEQUENCE {}
                                                                                                                                                    OPTIONAL
}
TDD-UMTS-Frequency-List ::=
                                                                         SEQUENCE (SIZE (1..maxNumTDDFreqs)) OF
                                                                                    FrequencyInfoTDD
__ ***************
             ANSI-41 INFORMATION ELEMENTS (10.3.9)
__ ***************
ANSI-41-GlobalServiceRedirectInfo ::= ANSI-41-NAS-Parameter
ANSI-41-PrivateNeighbourListInfo ::= ANSI-41-NAS-Parameter
ANSI-41-RAND-Information ::= ANSI-41-NAS-Parameter
ANSI-41-NAS-Parameter
ANSI-41-NAS-Parameter
ANSI-41-NAS-Parameter
ANSI-41-NAS-Parameter
ANSI-41-NAS-Parameter
ANSI-41-NAS-Parameter ::=
                                                                            BIT STRING (SIZE (1..2048))
Min-P-REV ::=
                                                                            BIT STRING (SIZE (8))
{\tt NAS-SystemInformationANSI-41} ::= \\ {\tt ANSI-41-NAS-Parameter}
                                                                             BIT STRING (SIZE (16))
NID ::=
P-REV ::=
                                                                             BIT STRING (SIZE (8))
                                                                             BIT STRING (SIZE (15))
__ ****************
```

```
MBMS INFORMATION ELEMENTS (10.3.9a)
MBMS-AccessProbabilityFactor ::=
                                ENUMERATED {
                                    apf0, apf32, apf64, apf96, apf128, apf160, apf192,
                                    apf224, apf256, apf288, apf320, apf352, apf384, apf416,
                                    apf448, apf480, apf512, apf544, apf576, apf608, apf640,
                                    apf672, apf704, apf736, apf768, apf800, apf832, apf864,
                                    apf896, apf928, apf960, apf1000 }
MBMS-CellGroupIdentity-r6 ::=
                               BIT STRING (SIZE (12))
MBMS-CommonCCTrChIdentity ::=
                                INTEGER (1..32)
MBMS-CommonPhyChIdentity ::=
                                INTEGER (1..32)
MBMS-CommonRBIdentity ::=
                               INTEGER (1..32)
MBMS-CommonRBInformation-r6 ::=
                                SEQUENCE {
   commonRBIdentity
                                   MBMS-CommonRBIdentity,
   pdcp-Info
                                    PDCP-Info-r4,
   rlc-Info
                                    RLC-Info-r6
}
MBMS-CommonRBInformationList-r6 ::= SEQUENCE (SIZE (1..maxMBMS-CommonRB)) OF
                                    MBMS-CommonRBInformation-r6
                               INTEGER (1..32)
MBMS-CommonTrChIdentity ::=
OPTIONAL,
   transpCh-InfoCommonForAllTrCh transpCHInformation MBMS-CommonCCTrChIdentity, MBMS-TrCHInformation-CommL
                                    MBMS-TrCHInformation-CommList
}
MBMS-CurrentCell-SCCPCHList-r6 ::= SEQUENCE (SIZE (1..maxSCCPCH)) OF
                                    MBMS-CurrentCell-SCCPCH-r6
MBMS-FACHCarryingMTCH-List ::=
                               SEQUENCE (SIZE (1..maxFACHPCH)) OF
                                        TransportFormatSet
MBMS-JoinedInformation-r6 ::= SEQUENCE {
                                  P-TMSI-GSM-MAP
                                                                     OPTIONAL
  p-TMSI
MBMS-L1CombiningSchedule-32 ::= SEQUENCE {
  -- Actual L1 combining schedule values (offset, start, duration) = IE value * 4
   cycleOffset INTEGER (0..7)
mtch-LlCombiningPeriodList SEQUENCE (SIZE
periodStart INTEGER (0.
periodDuration INTEGER (1.
                                                                    OPTIONAL,
                                   SEQUENCE (SIZE (1..maxMBMS-L1CP)) OF SEQUENCE {
                                    INTEGER (0..7),
                                        INTEGER (1..8)
   }
}
MBMS-L1CombiningSchedule-64 ::= SEQUENCE {
   OPTIONAL.
                                   SEQUENCE (SIZE (1..maxMBMS-L1CP)) OF SEQUENCE {
                                       INTEGER (1..16)
       periodDuration
   }
}
MBMS-L1CombiningSchedule-128 ::= SEQUENCE {
   }
MBMS-L1CombiningSchedule-256 ::= SEQUENCE {
   -- Actual L1 combining schedule values (offset, start, duration) = IE value * 4
   cycleOffset
                                   INTEGER (0..63)
                                                                     OPTIONAL,
```

```
mtch-L1CombiningPeriodList
                                          SEQUENCE (SIZE (1..maxMBMS-L1CP)) OF SEQUENCE {
        periodStart
                                              INTEGER (0..63),
        periodDuration
                                              INTEGER (1..64)
}
MBMS-L1CombiningSchedule-512 ::= SEQUENCE {
    -- Actual L1 combining schedule values (offset, start, duration) = IE value * 4
   mtch-L1CombiningPeriodList SEQUENCE (SIZE (1 periodStart periodDuration INTEGER (0..127)
                                                                                    OPTIONAL,
                                         SEQUENCE (SIZE (1..maxMBMS-L1CP)) OF SEQUENCE {
                                          INTEGER (0..127),
                                              INTEGER (1..128)
}
MBMS-L1CombiningSchedule-1024 ::= SEQUENCE {
    -- Actual L1 combining schedule values (offset, start, duration) = IE value * 4 cycleOffset INTEGER (0..255) OPT
                                                                                    OPTIONAL,
   mtch-L1CombiningPeriodList
periodStart
                                         SEQUENCE (SIZE (1..maxMBMS-L1CP)) OF SEQUENCE {
                                              INTEGER (0..255),
                                              INTEGER (1..256)
        periodDuration
}
MBMS-L1CombiningSchedule ::= CHOICE {
                                     MBMS-L1CombiningSchedule-32,
    cycleLength-32
    cycleLength-64
                                         MBMS-L1CombiningSchedule-64,
    cycleLength-128
                                         MBMS-L1CombiningSchedule-128,
    cycleLength-256
                                         MBMS-L1CombiningSchedule-256,
    cycleLength-512
                                         MBMS-L1CombiningSchedule-512,
    cycleLength-1024
                                          MBMS-L1CombiningSchedule-1024
MBMS-L1CombiningTransmTimeDiff ::= INTEGER (0..3)
MBMS-L23Configuration ::=
                                      SEQUENCE {
    sameAsCurrent
        mschConfigurationInfo
                                              MBMS-SCCPCHIdentity,
                                              MBMS-MSCHConfigurationInfo-r6
                                          SEQUENCE {
    different
       transpCh-InfoCommonForAllTrCh
                                          MBMS-CommonCCTrChIdentity,
        {\tt transpCHInformation}
                                              MBMS-TrCHInformation-NeighbList
}
                                    INTEGER (1..15)
MBMS-LogicalChIdentity ::=
MBMS-MCCH-ConfigurationInfo-r6 ::= SEQUENCE {
   accessInfoPeriodCoefficient INTEGER (0..3), repetitionPeriodCoefficient INTEGER (0..3),
   repetitionPeriodCoefficient INTEGER (7...
modificationPeriodCoefficient INTEGER (7...
RLC-Info-r6,
                                          INTEGER (0..3),
                                         INTEGER (7..10),
                                         MBMS-TCTF-Presence
                                                                                OPTIONAL
    tctf-Presence
}
{\tt MBMS-MICHConfigurationInfo-r6} ::= {\tt SEQUENCE} \ \{
    michPowerOffset
                                      MBMS-MICHPowerOffset,
                                          CHOICE {
    mode
                                              SEQUENCE {
        fdd
            channelisationCode256
                                                  ChannelisationCode256,
            ni-CountPerFrame
                                                  MBMS-NI-CountPerFrame,
            sttd-Indicator
                                                  BOOLEAN
        £44384
                                              SEQUENCE {
            timeslot
                                                  TimeslotNumber,
            midambleShiftAndBurstType
                                                  MidambleShiftAndBurstType,
                                                  DL-TS-ChannelisationCode,
            channelisationCode
                                                  RepPerLengthOffset-MICH
            repetitionPeriodLengthOffset
                                                                               OPTIONAL.
            mbmsNotificationIndLength
                                                  MBMS-MICHNotificationIndLength DEFAULT mn4
        tdd128
                                              SEQUENCE {
            timeslot
                                                 TimeslotNumber-LCR-r4,
            midambleShiftAndBurstType
                                                  MidambleShiftAndBurstType-LCR-r4,
            channelisationCodeList
                                                  SEQUENCE (SIZE (1..2)) OF
                                                    DL-TS-ChannelisationCode,
            repetitionPeriodLengthOffset
                                                  RepPerLengthOffset-MICH OPTIONAL,
            mbmsNotificationIndLength
                                                  MBMS-MICHNotificationIndLength DEFAULT mn4
```

```
}
    }
}
MBMS-MICHNotificationIndLength ::= ENUMERATED { mn4, mn8, mn16 }
MBMS-MICHPowerOffset ::=
                                        INTEGER (-10..5)
MBMS-ModifedService-r6 ::=
                                      SEQUENCE {
    mbms-TransmissionIdentity
mbms-RequiredUEAction
mbms-PreferredFrequency
                                        MBMS-TransmissionIdentity,
                                            MBMS-RequiredUEAction-Mod,
                                            CHOICE {
                                                 MBMS-PFLIndex.
        mach
        dcch
                                                 MBMS-PFLInfo
            OPTIONAL,
                                            BOOLEAN
    continueMCCHReading
}
MBMS-ModifedServiceList-r6 ::= SEQUENCE (SIZE (1..maxMBMSservModif)) OF
                                            MBMS-ModifedService-r6
MBMS-MSCHConfigurationInfo-r6 ::= SEQUENCE {
                                            MBMS-MSCHSchedulingInfo OPTIONAL, RLC-Info-r6 OPTIONAL,
    mschShedulingInfo
    rlc-Info
                                                                                    OPTIONAL
    tctf-Presence
                                            MBMS-TCTF-Presence
}
MBMS-MSCHSchedulingInfo ::= CHOICE {
    schedulingPeriod-32-Offset INTEGER (0..31),
    schedulingPeriod-64-Offset INTEGER (0..63),
    schedulingPeriod-128-Offset INTEGER (0..127),
    schedulingPeriod-256-Offset INTEGER (0..255),
    schedulingPeriod-512-Offset INTEGER (0..511),
    schedulingPeriod-1024-Offset INTEGER (0..1023)
}
MBMS-NeighbouringCellSCCPCH-r6 ::= SEQUENCE {
    secondaryCCPCH-Info
                                            MBMS-CommonPhyChIdentity,
    secondaryCCPCH-Info
rakeCombinableGroupId
                                            MBMS-RakeCombinableGroupId OPTIONAL,
    layer1Combining
                                            CHOICE {
                                             SEQUENCE {
         fdd
             mbms-LlCombiningSchedule MBMS-LlCombiningSchedule
                                                     MBMS-L1CombiningSchedule OPTIONAL
                                                 NULL
             OPTIONAL,
    mbms-L23Configuration
                                            MBMS-L23Configuration
}
MBMS-NeighbouringCellSCCPCHList-r6 ::= SEQUENCE (SIZE (1..maxSCCPCH)) OF
                                            MBMS-NeighbouringCellSCCPCH-r6
MBMS-NI-CountPerFrame ::=
                                       ENUMERATED { ni18, ni36, ni72, ni144 }
MBMS-PFLIndex ::=
                                       INTEGER (1..maxMBMS-Freq)
MBMS-PFLInfo ::=
                                        FrequencyInfo
MBMS-PhyChInformation-r6 ::=
                                        SEQUENCE {
    mbms-CommonPhyChIdentity
                                            MBMS-CommonPhyChIdentity,
    secondaryCCPCHInfo-MBMS
                                            SecondaryCCPCHInfo-MBMS-r6
MBMS-PhyChInformationList-r6 ::=
                                      SEQUENCE (SIZE (1..maxMBMS-CommonPhyCh)) OF
                                            MBMS-PhyChInformation-r6
MBMS-PL-ServiceRestrictInfo-r6 ::= ENUMERATED { true }
MBMS-PreferredFreqRequest-r6 ::=
                                        SEQUENCE {
    preferredFreqRequest
                                            FrequencyInfo
MBMS-PreferredFrequencyInfo-r6 ::= SEQUENCE {
    mbms-Qoffset
                                                INTEGER (0..7),
        mbms-HCSoffset
                                                 INTEGER (0..7)
```

```
}
MBMS-PreferredFrequencyList-r6 ::= SEQUENCE (SIZE (1..maxMBMS-Freq)) OF
                                         MBMS-PreferredFrequencyInfo-r6
MBMS-PTM-RBInformation-C ::=
                                   SEQUENCE {
                                     MBMS-CommonRBIdentity,
    rbInformation
    shortTransmissionID
                                          MBMS-ShortTransmissionID,
    logicalChIdentity
                                         MBMS-LogicalChIdentity
MBMS-PTM-RBInformation-CList ::= SEQUENCE (SIZE (1..maxRBperTrCh)) OF
                                         MBMS-PTM-RBInformation-C
MBMS-PTM-RBInformation-N ::=
                                     SEQUENCE {
                                      MBMS-ShortTransmissionID,
    shortTransmissionID
                                         MBMS-LogicalChIdentity,
    logicalChIdentity
    layer1-CombiningStatus
                                         ENUMERATED { true }
                                                                               OPTIONAL
MBMS-PTM-RBInformation-NList ::= SEQUENCE (SIZE (1..maxRBperTrCh)) OF
                                         MBMS-PTM-RBInformation-N
MBMS-PTM-RBInformation-S ::=
                                     SEQUENCE {
                                         MBMS-CommonRBIdentity,
    rbInformation
    shortTransmissionID
                                          MBMS-ShortTransmissionID,
    logicalChIdentity
                                         MBMS-LogicalChIdentity
}
MBMS-PTM-RBInformation-SList ::=
                                     SEQUENCE (SIZE (1..maxRBperTrCh)) OF
                                          MBMS-PTM-RBInformation-S
MBMS-RakeCombinableGroupId ::=
                                     INTEGER (0..15)
MBMS-RequiredUEAction-Mod ::=
                                      ENUMERATED {
                                         none,
                                          acquireCountingInfo,
                                          acquirePTM-RBInfo,
                                          establishPMMConnection,
                                          releasePTM-RB }
                                      ENUMERATED {
MBMS-RequiredUEAction-UMod ::=
                                         none,
                                          acquirePTM-RBInfo,
                                          establishPMMConnection }
                                      INTEGER (1..maxSCCPCH)
MBMS-SCCPCHIdentity ::=
MBMS-ServiceAccessInfo-r6 ::= SEQUENCE {
    shortTransmissionID MBMS-ShortTransmissionID,
    accessprobabilityFactor-Idle MBMS-AccessProbabilityFac
                                         MBMS-AccessProbabilityFactor,
    accessprobabilityFactor-UraPCH
                                                                              OPTIONAL
                                         MBMS-AccessProbabilityFactor
}
MBMS-ServiceAccessInfoList-r6 ::= SEQUENCE (SIZE (1..maxMBMSservCount)) OF
                                         MBMS-ServiceAccessInfo-r6
MBMS-ServiceIdentity ::=
                                     SEQUENCE {
    serviceIdentity
                                         OCTET STRING (SIZE (3)),
    plmn-Identity
                                         CHOICE {
        -- The 'sameAsMIB-PLMN-Id' choice refers to the 'PLMN Identity' (R99) in MIB.
        sameAsMIB-PLMN-Id
                                              NULL,
                                             CHOICE {
            -- The 'sameAsMIB-MultiPLMN-Id' choice refers to one of the (1..5) PLMN Identities -- provided in the 'Multiple PLMN List' (REL-6) in MIB.
            sameAsMIB-MultiPLMN-Id
                                                  INTEGER (1..5),
            explicitPLMN-Id
                                                  PLMN-Identity
        }
    }
}
MBMS-ServiceSchedulingInfo-r6 ::= SEQUENCE {
   mbms-TransmissionIdentity MBMS-TransmissionIdentity, mbms-ServiceTransmInfoList MBMS-ServiceTransmInfoList
                                         MBMS-ServiceTransmInfoList
                                                                              OPTIONAL,
    nextSchedulingperiod
                                         INTEGER (0..31)
MBMS-ServiceSchedulingInfoList-r6 ::= SEQUENCE (SIZE (1..maxMBMSservSched)) OF
```

```
MBMS-ServiceSchedulingInfo-r6
MBMS-ServiceTransmInfo ::=
                                  SEOUENCE {
   -- Actual values (start, duration) = IE values * 4
   start
                                      INTEGER (0..255),
                                      INTEGER (1..256)
   duration
}
MBMS-ServiceTransmInfoList ::= SEQUENCE (SIZE (1..maxMBMSTransmis)) OF
                                      MBMS-ServiceTransmInfo
MBMS-SessionIdentity ::=
                                  OCTET STRING (SIZE (1))
MBMS-ShortTransmissionID ::=
                                 INTEGER (1..32)
                                  SEQUENCE {
MBMS-SIBType5-SCCPCH-r6 ::=
   sccpchIdentity
                                      MBMS-SCCPCHIdentity,
   transpCHInformation
                                      MBMS-TrCHInformation-SIB5List
                                  SEQUENCE (SIZE (1..maxSCCPCH)) OF
MBMS-SIBType5-SCCPCHList-r6 ::=
                                      MBMS-SIBType5-SCCPCH-r6
MBMS-TCTF-Presence ::=
                                  ENUMERATED { false }
MBMS-TimersAndCouneters-r6 ::=
                                  SEQUENCE {
                                      T-318
                                                                         DEFAULT ms1000
   t-318
MBMS-TransmissionIdentity ::=
                                  SEOUENCE {
                                  MBMS-ServiceIdentity,
   mbms-ServiceIdentity
                                                                        OPTIONAL
   mbms-SessionIdentity
                                     MBMS-SessionIdentity
}
MBMS-TranspChInfoForCCTrCh-r6 ::= SEQUENCE {
   commonCCTrChIdentity
                                     MBMS-CommonCCTrChIdentity,
   transportFormatCombinationSet
                                      TFCS
}
MBMS-TranspChInfoForEachCCTrCh-r6 ::= SEQUENCE (SIZE (1..maxMBMS-CommonCCTrCh)) OF
                                      MBMS-TranspChInfoForCCTrCh-r6
MBMS-TranspChInfoForEachTrCh-r6 ::= SEQUENCE (SIZE (1..maxMBMS-CommonTrCh)) OF
                                      MBMS-TranspChInfoForTrCh-r6
{\tt MBMS-TranspChInfoForTrCh-r6} ::= \\ {\tt SEQUENCE} \ \{
                                     MBMS-CommonTrChIdentity,
   commonTrChIdentity
   transportFormatSet
                                      TransportFormatSet
transpCh-Info
                                     MBMS-CommonTrChIdentity,
   rbInformation
                                      MBMS-PTM-RBInformation-CList
                                                                       OPTIONAL,
   mschConfigurationInfo
                                      MBMS-MSCHConfigurationInfo-r6
                                                                        OPTIONAL
}
MBMS-TrCHInformation-CommList ::= SEQUENCE (SIZE (1..maxTrChperSCCPCH)) OF
                                     MBMS-TrCHInformation-Comm
MBMS-TrCHInformation-Neighb ::= SEQUENCE {
   transpCh-Info
                                    MBMS-CommonTrChIdentity,
   transpCh-CombiningStatus
                                      BOOLEAN,
   rbInformation
                                      MBMS-PTM-RBInformation-NList
                                                                        OPTIONAL,
                                     MBMS-MSCHConfigurationInfo-r6
   mschConfigurationInfo
                                                                        OPTIONAL
}
MBMS-TrCHInformation-NeighbList ::= SEQUENCE (SIZE (1..maxFACHPCH)) OF
                                      MBMS-TrCHInformation-Neighb
MBMS-TrCHInformation-SIB5 ::= SEQUENCE {
   transpCh-Identity
                                      INTEGER (1..maxFACHPCH),
   rbInformation
                                      MBMS-PTM-RBInformation-SList
                                                                        OPTIONAL,
   mschConfigurationInfo
                                      MBMS-MSCHConfigurationInfo-r6
                                                                         OPTIONAL
}
MBMS-TrCHInformation-SIB5List ::= SEQUENCE (SIZE (1..maxTrChperSCCPCH)) OF
                                      MBMS-TrCHInformation-SIB5
```

```
MBMS-TypeOfL1Combining ::=
                                    CHOICE {
                                        NULL,
    rake
                                        MBMS-L1CombiningTransmTimeDiff
    soft
MBMS-UnmodifiedService-r6 ::=
                                    SEQUENCE {
   mbms-TransmissionIdentity
mbms-RequiredIPAction
                                    MBMS-TransmissionIdentity,
    mbms-RequiredUEAction
                                        MBMS-RequiredUEAction-UMod,
                                       MBMS-PFLIndex
                                                                             OPTIONAL
    mbms-PreferredFrequency
}
MBMS-UnmodifiedServiceList-r6 ::= SEQUENCE (SIZE (1..maxMBMSservUnmodif)) OF
                                        MBMS-UnmodifiedService-r6
```

END

11.4 Constant definitions

Constant-definitions DEFINITIONS AUTOMATIC TAGS ::= BEGIN hiPDSCHidentities INTEGER ::= 64 hiPDSCHidentities hiPUSCHidentities INTEGER ::= 64 INTEGER ::= 256 hiRM INTEGER ::= 16 maxAC maxAdditionalMeas INTEGER ::= 4 INTEGER ::= 8
INTEGER ::= 7 maxASC maxASCmap INTEGER ::= 6
INTEGER ::= 8 maxASCpersist maxCCTrCH maxCellMeas INTEGER ::= 32 maxCellMeas-1 INTEGER ::= 31 INTEGER ::= 4 maxCNdomains INTEGER ::= 16
INTEGER ::= 8
INTEGER ::= 6 maxCPCHsetsINTEGER::=8maxDPCH-DLchanINTEGER::=6maxDRACclassesINTEGER::=8maxE-DCHMACdFlowINTEGER::=1maxE-DCHMACdFlow-1INTEGER::=0INTEGER::=8 maxCPCHsets -- FFS -- FFS INTEGER ::= 8
INTEGER ::= 8 maxFreqINTEGER::=8maxFreqBandsFDDINTEGER::=8maxFreqBandsTDDINTEGER::=4maxFreqBandsGSMINTEGER::=16maxGERAN-SIINTEGER::=8maxGSMTargetCellsINTEGER::=32maxHarqRTTINTEGER::=1maxHProcessesINTEGER::=64maxHSDSCHTBIndexINTEGER::=512maxHSSCCHsINTEGER::=4maxInterSysMessagesINTEGER::=4maxLoCHperRLCINTEGER::=2 maxFreq -- FFS maxIntersysMessagesINTEGER::=4maxLoCHperRLCINTEGER::=8maxMAC-d-PDUsizesINTEGER::=8maxMBMS-CommonCCTrChINTEGER::=32maxMBMS-CommonPhyChINTEGER::=32maxMBMS-CommonTrChINTEGER::=32maxMBMS-FreqINTEGER::=4 maxMBMS-L1CP INTEGER ::= 4
maxMBMSservCount INTEGER ::= 4
maxMBMSservDedic INTEGER ::= 4
maxMBMSservModif INTEGER ::= 4
maxMBMSservSched INTEGER ::= 16
maxMBMSservUnmodif INTEGER ::= 32
maxMBMSTransmis INTEGER ::= 4 INTEGER ::= 8 maxMeasEvent maxMeasIntervalsINTEGER::= 3maxMeasParEventINTEGER::= 2maxNumCDMA2000FreqsINTEGER::= 3maxNumGSMFreqRangesINTEGER::= 3maxNumFDDFreqsINTEGER::= 3maxNumTDDFreqsINTEGER::= 3 INTEGER ::= 3 INTEGER ::= 2 INTEGER ::= 32 INTEGER ::= 8 INTEGER ::= 8 INTEGER ::= 16 INTEGER ::= 15 maxNoOfMeas maxOtherRAT maxOtherRAT-16 INTEGER ::= 16 INTEGER ::= 8 maxPage1

```
maxPCPCH-APsigINTEGER::=16maxPCPCH-APsubChINTEGER::=12maxPCPCH-CDsigINTEGER::=16maxPCPCH-CDsubChINTEGER::=12maxPCPCH-SFINTEGER::=7
 maxPCPCH-SF
                                                                        INTEGER ::= 64
 maxPCPCHs
 maxPCPCHs
maxPDCPAlgoType
                                                                       INTEGER ::= 8
INTEGER ::= 8
maxPDSCH INTEGER ..= 0
maxPDSCH-TFCIgroups INTEGER ::= 256
maxPRACH INTEGER ::= 16
maxPRACH-FPACH INTEGER ::= 8
maxPredefConfig INTEGER ::= 16
maxPUSCH INTEGER ::= 8
                                                                      INTEGER ::= 8
 maxQueueIDs
                                                                      INTEGER ::= 16
INTEGER ::= 16
 maxRABsetup

        maxRAT
        INTEGER ::= 16

        maxRB
        INTEGER ::= 32

        maxRBallRABS
        INTEGER ::= 27

        maxRBMuxOptions
        INTEGER ::= 8

        maxRBperRAB
        INTEGER ::= 16

        maxReportedGSMCells
        INTEGER ::= 8

        maxRL
        INTEGER ::= 8

        maxRL-1
        INTEGER ::= 7

        maxRLCPDUsizePerLogChan
        INTEGER ::= 16384

        maxROHC-PacketSizes-r4
        INTEGER ::= 16

        maxROHC-Profile-r4
        INTEGER ::= 16

        maxSCCPCH
        INTEGER ::= 16

 maxRAT
                                                                                                                       -- FFS
maxSCCPCH INTEGER ::= 16
maxSIB INTEGER ::= 32
maxSIB-FACH INTEGER ::= 8
maxSIBperMsg INTEGER ::= 16
maxSRBsetup INTEGER ::= 8
maxSystemCapability INTEGER ::= 16
maxTF INTEGER ::= 32
maxTF-CPCH INTEGER ::= 126
maxTFC
maxTFC INTEGER := 1024
maxTFCsub INTEGER := 1024
maxTFCI-2-Combs INTEGER := 512
maxTGPS INTEGER := 6
 maxTrCH INTEGER ::= 32
maxTrChperSCCPCH INTEGER ::= 8
  -- maxTrCHpreconf should be 16 but has been set to 32 for compatibility
 maxTrCHpreconf INTEGER ::= 32 maxTS INTEGER ::= 14
 maxTS
                                                                          INTEGER ::= 14
                                                                         INTEGER ::= 13
 maxTS-1
                                                                     INTEGER ::= 12
INTEGER ::= 6
INTEGER ::= 5
 maxTS-2
 maxTS-LCR
 maxTS-LCR-1
                                                                       INTEGER ::= 8
INTEGER ::= 8
 maxURA
 maxURNTI-Group
 END
```

11.5 RRC information between network nodes

```
Internode-definitions DEFINITIONS AUTOMATIC TAGS ::=
BEGIN

IMPORTS

    HandoverToUTRANCommand,
    MeasurementReport,
    PhysicalChannelReconfiguration,
    RadioBearerReconfiguration,
    RadioBearerRelease,
    RadioBearerSetup,
    RRC-FailureInfo,
    TransportChannelReconfiguration
FROM PDU-definitions
-- Core Network IEs :
```

CN-DomainIdentity,
CN-DomainInformationList,
CN-DomainInformationListFull,

```
CN-DRX-CycleLengthCoefficient,
   NAS-SystemInformationGSM-MAP,
-- UTRAN Mobility IEs :
   CellIdentity,
   URA-Identity,
-- User Equipment IEs :
   AccessStratumReleaseIndicator,
   C-RNTI.
   ChipRateCapability,
   DL-CapabilityWithSimultaneousHS-DSCHConfig,
   DL-PhysChCapabilityFDD-v380ext,
   DL-PhysChCapabilityTDD,
   {\tt DL-PhysChCapabilityTDD-LCR-r4,}
   GSM-Measurements,
   HSDSCH-physical-layer-category,
   FailureCauseWithProtErr,
   MaxHcContextSpace,
   MaximumAM-EntityNumberRLC-Cap,
   MaximumRLC-WindowSize,
   MaxNoPhysChBitsReceived,
   MaxPhysChPerFrame,
   MaxPhysChPerSubFrame-r4,
   MaxPhysChPerTS,
   MaxROHC-ContextSessions-r4,
   MaxTS-PerFrame.
   MaxTS-PerSubFrame-r4,
   MinimumSF-DL,
   MultiModeCapability,
   MultiRAT-Capability,
   NetworkAssistedGPS-Supported,
   RadioFrequencyBandTDDList,
   RLC-Capability,
   RRC-MessageSequenceNumber,
   SecurityCapability,
   SimultaneousSCCPCH-DPCH-Reception,
   STARTList,
   STARTSingle,
   START-Value,
   SupportOfDedicatedPilotsForChEstimation,
   TransportChannelCapability,
   TxRxFrequencySeparation,
   U-RNTI.
   UE-MultiModeRAT-Capability,
   UE-PowerClassExt,
   UE-RadioAccessCapabBandFDDList,
   UE-RadioAccessCapabBandFDDList2,
   UE-RadioAccessCapabBandFDDList-ext,
   UE-RadioAccessCapability,
   UE-RadioAccessCapability-v370ext,
   UE-RadioAccessCapability-v380ext,
   UE-RadioAccessCapability-v3a0ext,
   UE-RadioAccessCapability-v3g0ext,
   UE-RadioAccessCapability-v4b0ext,
   UE-RadioAccessCapability-v590ext,
   UE-RadioAccessCapability-v5c0ext,
   UE-RadioAccessCapability-v650ext,
   UL-PhysChCapabilityFDD,
   UL-PhysChCapabilityTDD,
   UL-PhysChCapabilityTDD-LCR-r4,
-- Radio Bearer IEs :
   PredefinedConfigStatusList,
   PredefinedConfigValueTag,
   RAB-InformationSetupList,
   RAB-InformationSetupList-r4,
   RAB-InformationSetupList-r5,
   RAB-InformationSetupList-r6-ext,
   RAB-InformationSetupList-r6,
   RB-Identity,
   SRB-InformationSetupList,
   SRB-InformationSetupList-r5,
   SRB-InformationSetupList-r6,
-- Transport Channel IEs :
   CPCH-SetID,
   DL-CommonTransChInfo,
   DL-CommonTransChInfo-r4,
   DL-AddReconfTransChInfoList,
   DL-AddReconfTransChInfoList-r4.
   DL-AddReconfTransChInfoList-r5,
```

```
DRAC-StaticInformationList,
    UL-CommonTransChInfo,
    UL-CommonTransChInfo-r4,
    UL-AddReconfTransChInfoList,
    UL-AddReconfTransChInfoList-r6,
-- Physical Channel IEs :
    PrimaryCPICH-Info,
    TPC-CombinationIndex,
    ScramblingCodeChange,
    TGCFN,
    TGPSI,
    TGPS-ConfigurationParams,
-- Measurement IEs :
    Inter-FreqEventCriteriaList-v590ext,
    Intra-FreqEventCriteriaList-v590ext,
    IntraFreqEvent-1d-r5,
    IntraFreqReportingCriteria-1b-r5,
    InterRATCellInfoIndicator,
    MeasurementIdentity,
    MeasurementReportingMode,
    MeasurementType,
    MeasurementType-r4,
    AdditionalMeasurementID-List,
    PositionEstimate,
-- MBMS IEs :
   MBMS-JoinedInformation-r6,
-- Other IEs :
    GERANIu-RadioAccessCapability,
    InterRAT-UE-RadioAccessCapabilityList,
    InterRAT-UE-RadioAccessCapability-v590ext,
    UESpecificBehaviourInformationlidle,
    UESpecificBehaviourInformationlinterRAT
FROM InformationElements
    maxCNdomains,
   maxNoOfMeas,
   maxRB,
    maxRBallRABs,
   maxRFC3095-CID,
   maxSRBsetup,
   maxRL,
    maxTGPS
FROM Constant-definitions
-- Part 1: Class definitions similar to what has been defined in 11.1 for RRC messages
-- Information that is tranferred in the same direction and across the same path is grouped
__ ***************
-- RRC information, to target RNC
-- RRC Information to target RNC sent either from source RNC or from another RAT
ToTargetRNC-Container ::= CHOICE {
    interRATHandoverInfo
                                         InterRATHandoverInfoWithInterRATCapabilities-r3,
    srncRelocation
                                        SRNC-RelocationInfo-r3.
    rfc3095-ContextInfo
                                        RFC3095-ContextInfo-r5,
    extension
                                         NULL
}
__ **************************
-- RRC information, target RNC to source RNC
__ **************************
TargetRNC-ToSourceRNC-Container ::= CHOICE {
    radioBearerSetup RadioBearerSetup, radioBearerReconfiguration RadioBearerReconfiguration, radioBearerRelease RadioBearerPelosso
   radioBearerSetup
   radioBearerRelease RadioBearerRelease, transportChannelReconfiguration physicalChannelReconfiguration rrc-FailureInfo RRC-FailureInfo,
```

```
-- IE dl-DCCHmessage consists of an octet string that includes the IE DL-DCCH-Message
   dL-DCCHmessage
                                    OCTET STRING,
                                    NIII.I.
   extension
}
-- Part 2: Container definitions, similar to the PDU definitions in 11.2 for RRC messages
-- In alphabetical order
__ *******************
-- Handover to UTRAN information
__ *******************************
InterRATHandoverInfoWithInterRATCapabilities-r3 ::= CHOICE {
                                SEQUENCE {
       -- IE InterRATHandoverInfoWithInterRATCapabilities-r3-IEs also
       -- includes non critical extensions
       interRATHandoverInfoWithInterRATCapabilities-v390ext
   InterRATHandoverInfoWithInterRATCapabilities-v390ext-IEs,
          -- Reserved for future non critical extension
          nonCriticalExtensions
                                       SEQUENCE { } OPTIONAL
       }
              OPTIONAL
   criticalExtensions
                               SEQUENCE {}
}
InterRATHandoverInfoWithInterRATCapabilities-r3-IEs ::=
                                                      SEQUENCE {
      -- The order of the IEs may not reflect the tabular format
       -- but has been chosen to simplify the handling of the information in the BSC
   -- Other IEs
       ue-RATSpecificCapability
                                   InterRAT-UE-RadioAccessCapabilityList OPTIONAL,
       -- interRATHandoverInfo, Octet string is used to obtain 8 bit length field prior to
       -- actual information. This makes it possible for BSS to transparently handle information
       -- received via GSM air interface even when it includes non critical extensions.
       -- The octet string shall include the {\tt InterRATHandoverInfo} information
       -- The BSS can re-use the 04.18 length field received from the MS
       interRATHandoverInfo
                                    OCTET STRING (SIZE (0..255))
}
InterRATHandoverInfoWithInterRATCapabilities-v390ext-IEs ::= SEQUENCE {
   -- User equipment IEs
      failureCauseWithProtErr
                                                                            OPTIONAL
                                        FailureCauseWithProtErr
}
__ *******************
-- RFC3095 context, source RNC to target RNC
__ *****************************
RFC3095-ContextInfo-r5 ::= CHOICE {
       SEQUENCE {
rFC3095-ContextInfoList-r5
RFC3095-ContextInfoList-r5,
       -- Reserved for future non critical extension
       nonCriticalExtensions
                                   SEQUENCE {} OPTIONAL
   criticalExtensions
                               SEQUENCE {}
}
RFC3095-ContextInfoList-r5 ::= SEQUENCE (SIZE (1..maxRBallRABs)) OF
                                    RFC3095-ContextInfo
__ ****************************
-- SRNC Relocation information
__ ***************
SRNC-RelocationInfo-r3 ::= CHOICE {
                                SEQUENCE {
       SEQUENCE {

SRNC-RelocationInfo-r3 SRNC-RelocationInfo-r3-IEs,

v380NonCriticalExtensions SEQUENCE {
           sRNC-RelocationInfo-v380ext SRNC-RelocationInfo-v380ext-IEs,
```

```
-- Reserved for future non critical extension
                                        SEQUENCE {
       v390NonCriticalExtensions
           sRNC-RelocationInfo-v390ext
                                           SRNC-RelocationInfo-v390ext-IEs,
                                              SEQUENCE {
           v3a0NonCriticalExtensions
               sRNC-RelocationInfo-v3a0ext
                                                  SRNC-RelocationInfo-v3a0ext-IEs,
               v3b0NonCriticalExtensions
                                                  SEQUENCE {
                   sRNC-RelocationInfo-v3b0ext
                                                      SRNC-RelocationInfo-v3b0ext-IEs,
                                                      SEQUENCE {
                   v3c0NonCriticalExtensions
                       sRNC-RelocationInfo-v3c0ext
                                                          SRNC-RelocationInfo-v3c0ext-IEs,
                       laterNonCriticalExtensions
                                                          SEQUENCE {
                           sRNC-RelocationInfo-v3d0ext
                                                             SRNC-RelocationInfo-v3d0ext-IEs,
                            -- Container for additional R99 extensions
                           sRNC-RelocationInfo-r3-add-ext
                                                             BIT STRING
                                           (CONTAINING SRNC-RelocationInfo-v3h0ext-IEs)
                                                                                           OPTIONAL,
                           v3g0NonCriticalExtensions
                                                           SEQUENCE {
                                                            SRNC-RelocationInfo-v3g0ext-IEs,
                               sRNC-RelocationInfo-v3g0ext
                               v4b0NonCriticalExtensions
                                                                  SEQUENCE {
                                   sRNC-RelocationInfo-v4b0ext
                                                                      SRNC-RelocationInfo-v4b0ext-IEs,
                                   v590NonCriticalExtensions
                                                                      SEQUENCE {
                                       sRNC-RelocationInfo-v590ext
                                                                      SRNC-RelocationInfo-v590ext-IEs,
                                       v5a0NonCriticalExtensions
                                                                          SEQUENCE {
                                           sRNC-RelocationInfo-v5a0ext
                                                                      SRNC-RelocationInfo-v5a0ext-IEs,
                                                                              SEQUENCE {
                                           v5b0NonCriticalExtensions
                                              sRNC-RelocationInfo-v5b0ext
                                                                     SRNC-RelocationInfo-v5b0ext-IEs,
                                                  v5c0NonCriticalExtensions
                                                                                     SEOUENCE {
                                                      sRNC-RelocationInfo-v5c0ext
                                                                          SRNC-RelocationInfo-v5c0ext-IE
                                                      v6xyNonCriticalExtensions
                                                                                     SEQUENCE {
                                                          sRNC-RelocationInfo-v6xyext
                                                                      SRNC-RelocationInfo-v6xyext-IEs,
                                                           -- Reserved for future non critical extension
                                                          OPTIONAL
                                                          OPTIONAL
                                                  OPTIONAL
                                              OPTIONAL
                                           OPTIONAL
                                       OPTIONAL
                                   OPTIONAL
                               OPTIONAL
                           OPTIONAL
                       OPTIONAL
                   OPTIONAL
               OPTIONAL
   }
           OPTIONAL.
later-than-r3
                               CHOICE {
                                  SEQUENCE {
                                   SRNC-RelocationInfo-r4-IEs,
       sRNC-RelocationInfo-r4
       v4d0NonCriticalExtensions
                                      SEQUENCE {
                                          SRNC-RelocationInfo-v4d0ext-IEs,
           sRNC-RelocationInfo-v4d0ext
           -- Container for adding non critical extensions after freezing REL-5
           sRNC-RelocationInfo-r4-add-ext
                                             BIT STRING
                           (CONTAINING SRNC-RelocationInfo-v650ext1-IEs)
                                                                              OPTIONAL,
           v590NonCriticalExtensions
                                           SEQUENCE {
               sRNC-RelocationInfo-v590ext
                                                  SRNC-RelocationInfo-v590ext-IEs,
               v5a0NonCriticalExtensions
                                                  SEOUENCE {
                   sRNC-RelocationInfo-v5a0ext
                                                      SRNC-RelocationInfo-v5a0ext-IEs,
                   v5b0NonCriticalExtensions
                                                      SEQUENCE {
                                                      SRNC-RelocationInfo-v5b0ext-IEs,
                       sRNC-RelocationInfo-v5b0ext
                                                          SEQUENCE {
                       v5c0NonCriticalExtensions
                           sRNC-RelocationInfo-v5c0ext
                                                              SRNC-RelocationInfo-v5c0ext-IEs,
                           v6xyNonCriticalExtensions
                                                              SEQUENCE {
                               sRNC-RelocationInfo-v6xyext
                                          SRNC-RelocationInfo-v6xyext-IEs,
                                                                  SEQUENCE {} OPTIONAL
                               nonCriticalExtensions
                               OPTIONAL
                           OPTIONAL
                       OPTIONAL
                   OPTIONAL
               OPTIONAL
           OPTIONAL
   criticalExtensions
                                  CHOICE {
                                       SEOUENCE {
       r5
```

```
sRNC-RelocationInfo-r5
                                                SRNC-RelocationInfo-r5-IEs,
                sRNC-RelocationInfo-r5-add-ext BIT STRING
                                                                 OPTIONAL,
                v5a0NonCriticalExtensions
                                                SEOUENCE {
                    {\tt SRNC-RelocationInfo-v5a0ext} \qquad {\tt SRNC-RelocationInfo-v5a0ext-IEs}\,,
                    v5b0NonCriticalExtensions
                                                    SEQUENCE {
                        sRNC-RelocationInfo-v5b0ext SRNC-RelocationInfo-v5b0ext-IEs,
                        v5c0NonCriticalExtensions
                                                            SEQUENCE {
                            sRNC-RelocationInfo-v5c0ext
                                                                SRNC-RelocationInfo-v5c0ext-IEs,
                            v650NonCriticalExtensions
                                                            SEQUENCE {
                                {\tt SRNC-RelocationInfo-v650ext2} \qquad {\tt SRNC-RelocationInfo-v650ext2-IEs}\,,
                                                                 SEQUENCE {
                                v6xyNonCriticalExtensions
                                    sRNC-RelocationInfo-v6xyext
                                                                     SRNC-RelocationInfo-v6xvext-IEs.
                                    nonCriticalExtensions
                                                                     SEQUENCE {}
                                                                                     OPTIONAL
                                    OPTIONAL
                                OPTIONAL
                            OPTIONAL
                        OPTTONAL.
                    OPTIONAL
            criticalExtensions
                                            CHOICE {
                                                SEQUENCE {
                rб
                    sRNC-RelocationInfo-r6
                                                    SRNC-RelocationInfo-r6-IEs,
                    sRNC-RelocationInfo-r6-add-ext
                                                    BIT STRING
                                                                    OPTIONAL,
                    nonCriticalExtensions
                                                    SEQUENCE {}
                                                                    OPTIONAL
                                                    SEQUENCE {}
                criticalExtensions
            }
       }
    }
}
                                    SEQUENCE {
SRNC-RelocationInfo-r3-IEs ::=
    -- 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
        integrityProtectionStatus
                                        IntegrityProtectionStatus,
         -- In the IE srb-SpecificIntegrityProtInfo, the first information listed corresponds to
         -- signalling radio bearer RBO 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".
        \verb|srb-SpecificIntegrityProtInfo| SRB-SpecificIntegrityProtInfoList|,\\
        implementationSpecificParams
                                      ImplementationSpecificParams
                                                                             OPTIONAL,
    -- User equipment IEs
       u-RNTI
                                        U-RNTI,
        C-RNTI
                                        C-RNTI
                                                                             OPTIONAL.
        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,
                                        CHOICE {
        modeSpecificInfo
            fdd
                                            SEQUENCE {
                cpch-Set.ID
                                                CPCH-Set.ID
                                                                             OPTIONAL.
                transChDRAC-Info
                                                DRAC-StaticInformationList OPTIONAL
```

```
tdd
                                             NULL
       dl-CommonTransChInfo

DL-CommonTransChInfo
                                                                              OPTIONAL,
                                        DL-AddReconfTransChInfoList
        dl-TransChInfoList
                                                                              OPTIONAL,
    -- Measurement report
       measurementReport
                                       MeasurementReport
                                                                              OPTIONAL
}
SRNC-RelocationInfo-v380ext-IEs ::= SEQUENCE {
   -- Ciphering related information IEs
        cn-DomainIdentity
                                             CN-DomainIdentity.
        cipheringStatusList
                                             CipheringStatusList
}
SRNC-RelocationInfo-v390ext-IEs ::= SEQUENCE {
        cn-DomainInformationList-v390ext CN-DomainInformationList-v390ext
                                                                                       OPTIONAL,
        ue-RadioAccessCapability-v370ext
                                             UE-RadioAccessCapability-v370ext
                                                                                       OPTIONAL,
        ue-RadioAccessCapability-v380ext UE-RadioAccessCapability-v380ext
        ue-RadioAccessCapability votal
dl-PhysChCapabilityFDD-v380ext
DL-PhysChCapabilityFDD-v380ext
FailureCauseWithProtErr
                                                                                       OPTIONAL,
                                            DL-PhysChCapabilityFDD-v380ext,
                                                                                       OPTIONAL
}
SRNC-RelocationInfo-v3a0ext-IEs ::= SEQUENCE {
       cipheringInfoForSRB1-v3a0ext CipheringInfoPerRB-List-v3a0ext, ue-RadioAccessCapability-v3a0ext UE-RadioAccessCapability-v3a0ext
                                                                                       OPTIONAL,
        -- cn-domain identity for IE startValueForCiphering-v3a0ext is specified
        -- in subsequent extension (SRNC-RelocationInfo-v3b0ext-IEs)
        startValueForCiphering-v3a0ext
                                            START-Value
}
SRNC-RelocationInfo-v3b0ext-IEs ::= SEQUENCE {
        -- cn-domain identity for IE startValueForCiphering-v3a0ext included in previous extension
                                        CN-DomainIdentity,
        cn-DomainIdentity
        -- the IE startValueForCiphering-v3b0ext contains the start values for each CN Domain. The
        -- value of start indicated by the IE startValueForCiphering-v3a0ext should be set to the
        -- same value as the start-Value for the corresponding cn-DomainIdentity in the IE
        -- startValueForCiphering-v3b0ext
        startValueForCiphering-v3b0ext
                                             STARTList2
                                                                                       OPTIONAL
}
SRNC-RelocationInfo-v3c0ext-IEs ::= SEQUENCE {
        \operatorname{\mathsf{--}} 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
}
SRNC-RelocationInfo-v3d0ext-IEs ::= SEQUENCE {
   -- User equipment IEs
       uESpecificBehaviourInformation1idleUESpecificBehaviourInformation1idleuESpecificBehaviourInformation1interRATUESpecificBehaviourInformation1interRAT
                                                                                          OPTIONAL,
                                                    UESpecificBehaviourInformationlinterRAT
}
SRNC-RelocationInfo-v3q0ext-IEs ::= SEQUENCE {
        ue-RadioAccessCapability-v3g0ext UE-RadioAccessCapability-v3g0ext
                                                                                      OPTIONAL
SRNC-RelocationInfo-v3h0ext-IEs ::= SEQUENCE {
        ue-RadioAccessCapability-v650ext UE-RadioAccessCapability-v650ext
                                                                                       OPTIONAL,
                                                 SEQUENCE {}
                                                                                       OPTIONAL
            nonCriticalExtension
    } OPTIONAL
}
SRNC-RelocationInfo-v4d0ext-IEs ::= SEQUENCE {
        tpc-CombinationInfoList TPC-CombinationInfoList OPTIONAL
}
TPC-CombinationInfoList ::= SEQUENCE (SIZE (1..maxRL)) OF
       TPC-Combination-Info
STARTList2 ::=
                                     SEQUENCE (SIZE (2..maxCNdomains)) OF
                                         STARTSingle
SRNC-RelocationInfo-v4b0ext-IEs ::= SEQUENCE {
```

```
ue-RadioAccessCapability-v4b0ext UE-RadioAccessCapability-v4b0ext
                                                                                  OPTIONAL
}
SRNC-RelocationInfo-v590ext-IEs ::= SEQUENCE {
       ue-RadioAccessCapability-v590extUE-RadioAccessCapability-v590extOPTIONAL,ue-RATSpecificCapability-v590extInterRAT-UE-RadioAccessCapability-v590extOPTIONAL
}
SRNC-RelocationInfo-v5a0ext-IEs ::= SEQUENCE {
       storedCompressedModeInfo StoredCompressedModeInfo OPTIONAL
SRNC-RelocationInfo-v5b0ext-IEs ::= SEQUENCE {
   interRATCellInfoIndicator
                                      InterRATCellInfoIndicator OPTIONAL
SRNC-RelocationInfo-v5c0ext-IEs ::= SEQUENCE {
       ue-RadioAccessCapability-v5c0ext UE-RadioAccessCapability-v5c0ext OPTIONAL
SRNC-RelocationInfo-v650ext1-IEs ::= SEQUENCE {
    ue-RadioAccessCapability-v650ext UE-RadioAccessCapability-v650ext OPTIONAL,
   nonCriticalExtension
                                       SEQUENCE {} OPTIONAL
}
SRNC-RelocationInfo-v650ext2-IEs ::= SEQUENCE \{
      ue-RadioAccessCapability-v650ext
                                               UE-RadioAccessCapability-v650ext
}
CipheringInfoPerRB-List-v3a0ext ::= SEQUENCE {
       dl-UM-SN
                                       BIT STRING (SIZE (7))
CipheringStatusList ::= SEQUENCE (SIZE (1..maxCNdomains)) OF
                                       CipheringStatusCNdomain
SEQUENCE {
                                       CN-DomainIdentity,
       cipheringStatus
                                       CipheringStatus
}
CodeChangeStatusList ::= SEQUENCE (SIZE (1..maxRL)) OF
       CodeChangeStatus
CodeChangeStatus ::= SEQUENCE {
    primaryCPICH-Info
                                           PrimaryCPICH-Info,
       scramblingCodeChange
                                           ScramblingCodeChange
}
StoredCompressedModeInfo ::= SEQUENCE {
       storedTGP-SequenceList StoredTGP-SequenceList, codeChangeStatusList CodeChangeStatusList OPTIONAL
}
StoredTGP-SequenceList ::= SEQUENCE (SIZE (1..maxTGPS)) OF
                                       StoredTGP-Sequence
StoredTGP-Sequence ::=
                                SEQUENCE {
                                    TGPSI,
    tapsi
    current-tgps-Status
                                        CHOICE {
                                           SEQUENCE {
       active
          tgcfn
                                               TGCFN
       inactive
                                           NULL
    tgps-ConfigurationParams TGPS-ConfigurationParams
                                                                          OPTIONAL
}
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 stateOfRRC StateOfRRC, stateOfRRC-Procedure StateOfRRC-Procedure,
                                                                           OPTIONAL,
    -- Ciphering related information IEs
        cipheringStatusList
                                       CipheringStatusList-r4,
```

```
CN-DomainIdentity,
            latestContigureuch Domain CalculationTimeForCiphering CalculationTimeForCiphering COUNT-C-List
             latestConfiguredCN-Domain
                                                               CalculationTimeForCiphering
                                                                                                                           OPTIONAL,
                                                                                                                           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".
             \verb|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 ue-Positioning-LastKnownPos UE-Positioning-LastKnownPos
                                                                                                                           OPTIONAL,
                                                                                                                           OPTIONAL,
                                                                            UESpecificBehaviourInformationlidle
             uESpecificBehaviourInformationlidle
                                                                                                                                               OPTIONAL.
             uESpecificBehaviourInformationlinterRAT
                                                                                   UESpecificBehaviourInformationlinterRAT
      -- Other IEs
                                                               InterRAT-UE-RadioAccessCapabilityList OPTIONAL,
            ue-RATSpecificCapability
      -- 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,
                                                                CHOICE {
             modeSpecificInfo
                   fdd
                                                                      SEQUENCE {
                          cpch-SetID
                                                                             CPCH-SetID
                                                                                                                           OPTIONAL,
                          transChDRAC-Info
                                                                              DRAC-StaticInformationList OPTIONAL
                   },
                   tdd
                                                                       NULL
                                                                                                                           OPTIONAL,
             dl-CommonTransChInfo
                                                                DL-CommonTransChInfo-r4
                                                                                                                           OPTIONAL,
             dl-TransChInfoList
                                                                DL-AddReconfTransChInfoList-r4
                                                                                                                           OPTIONAL,
      -- Measurement report
            measurementReport
                                                                 Measurement.Report
                                                                                                                           OPTIONAL.
                                                                FailureCauseWithProtErr
             failureCause
                                                                                                                           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-Identity
             rb-IdentityForHOMessage
                                                                                                                           OPTIONAL,
             stateOfRRC
                                                                StateOfRRC,
                                                                StateOfRRC-Procedure,
             stateOfRRC-Procedure
      -- Ciphering related information IEs
            calculation Time CipheringStatusList-r4, CN-Domain CN-Do
             calculationTimeForCiphering CalculationTimeForCiphering
             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
                                                                                                                           OPTIONAL,
             implementationSpecificParams
      -- User equipment IEs
             u-RNTI
                                                                U-RNTI,
             c-RNTI
                                                                 C-RNTI
                                                                                                                           OPTIONAL,
             ue-RadioAccessCapability
                                                                 UE-RadioAccessCapability-r5,
                                                                {\tt UE-RadioAccessCapabBandFDDList}
             ue-RadioAccessCapability-ext
                                                                                                                           OPTIONAL.
             ue-Positioning-LastKnownPos
                                                                 UE-Positioning-LastKnownPos
                                                                                                                           OPTIONAL,
             uESpecificBehaviourInformation1idle
                                                                 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
        \verb"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-InformationSetupList-r5
        rab-InformationList
                                                                                OPTIONAL.
    -- Transport channel IEs
        ul-CommonTransChInfo
                                         UL-CommonTransChInfo-r4
                                                                                OPTIONAL,
        ul-TransChInfoList
                                          UL-AddReconfTransChInfoList
                                                                                OPTIONAL,
        modeSpecificInfo
                                         CHOICE {
            fdd
                                              SEQUENCE {
                 cpch-SetID
                                                  CPCH-Set ID
                                                                                OPTIONAL.
                transChDRAC-Info
                                                  DRAC-StaticInformationList OPTIONAL
            },
            tdd
                                              NULL
                                                                                OPTIONAL,
        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 stateOfRRC StateOfRRC, stateOfRRC-Procedure StateOfRRC-
                                                                                OPTIONAL,
        stateOfRRC-Procedure
                                         StateOfRRC-Procedure,
    -- Ciphering related information IEs
        cipheringStatusList CipheringStatusList-r4, latestConfiguredCN-Domain CN-DomainIdentity,
        calculationTimeForCiphering CalculationTimeForCiphering count-C-List COUNT-C-List CipheringInfoPerRB-List CipheringInfoPerRB-List-r4
                                                                                OPTIONAL,
                                                                                OPTIONAL,
    -- Integrity protection related information IEs
        integrityProtectionStatus
                                       IntegrityProtectionStatus,
        {\tt srb-SpecificIntegrityProtInfo} \qquad {\tt SRB-SpecificIntegrityProtInfoList} \qquad {\tt OPTIONAL},
                                         ImplementationSpecificParams
        implementationSpecificParams
    -- User equipment IEs
                                         U-RNTI,
        11-RNTT
        C-RNTT
                                         C-RNTT
                                                                                OPTIONAL,
        ue-RadioAccessCapability
                                         UE-RadioAccessCapability-r5,
        ue-RadioAccessCapability-ext
                                         UE-RadioAccessCapabBandFDDList
                                                                                OPTIONAL,
        ue-Positioning-LastKnownPos
                                         UE-Positioning-LastKnownPos
                                                                                OPTIONAL,
        uESpecificBehaviourInformation1idle
                                          UESpecificBehaviourInformation1idle
                                                                                    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-r5
        ongoingMeasRepList
                                                                                OPTIONAL.
        interRATCellInfoIndicator
                                        InterRATCellInfoIndicator
                                                                                OPTIONAL,
    -- Radio bearer IEs
```

```
{\tt predefinedConfigStatusList} \qquad {\tt PredefinedConfigStatusList},
        srb-InformationList
rab-InformationList
                                         SRB-InformationSetupList-r6,
                                        RAB-InformationSetupList-r6
                                                                            OPTIONAL,
    -- Transport channel IEs
ul-CommonTransChInfo
ul-TransChInfoList
                                       UL-CommonTransChInfo-r4
                                                                              OPTIONAL,
                                       UL-AddReconfTransChInfoList-r6
                                                                             OPTIONAL,
        modeSpecificInfo
                                        CHOICE {
                                            SEQUENCE {
            fdd
                cpch-SetID
                                                 CPCH-SetID
                                                                              OPTIONAL,
                transChDRAC-Info
                                                 DRAC-StaticInformationList OPTIONAL
            },
            t.dd
                                             NULL
                                                                             OPTIONAL,
        dl-CommonTransChInfo DL-CommonTransChInfo-r4
                                                                              OPTIONAL,
                                        DL-AddReconfTransChInfoList-r5
        dl-TransChInfoList
                                                                             OPTIONAL,
    -- PhyCH IEs
        tpc-CombinationInfoList storedCompressedModeInfo
                                      TPC-CombinationInfoList
StoredCompressedModeInfo
                                                                             OPTIONAL,
                                        StoredCompressedModeInfo
                                                                             OPTIONAL,
    -- Measurement report
       measurementReport
                                        MeasurementReport
                                                                              OPTIONAL,
    -- Other IEs
        failureCause
                                       FailureCauseWithProtErr
                                                                              OPTIONAL,
    -- MBMS IEs
       mbms-JoinedInformation
                                      MBMS-JoinedInformation-r6
                                                                              OPTIONAL
}
-- IE definitions
CalculationTimeForCiphering ::=
                                    SEQUENCE {
                                         CellIdentity,
    cell-Id
    sfn
                                         INTEGER (0..4095)
}
CipheringInfoPerRB ::=
                                    SEQUENCE {
                                         BIT STRING (SIZE (20..25)),
    dl-HFN
    ul-HFN
                                         BIT STRING (SIZE (20..25))
}
CipheringInfoPerRB-r4 ::=
                                    SEQUENCE {
                                         RB-Identity,
    rb-Identity
    dl-HFN
                                         BIT STRING (SIZE (20..25)),
    dl-UM-SN
                                         BIT STRING (SIZE (7))
                                                                            OPTIONAL.
    ul-HFN
                                         BIT STRING (SIZE (20..25))
-- TABULAR: CipheringInfoPerRB-List, multiplicity value numberOfRadioBearers
-- has been replaced with maxRB.
CipheringInfoPerRB-List ::=
                                     SEQUENCE (SIZE (1..maxRB)) OF
                                         CipheringInfoPerRB
CipheringInfoPerRB-List-r4 ::=
                                    SEQUENCE (SIZE (1..maxRB)) OF
                                        CipheringInfoPerRB-r4
                                     ENUMERATED {
CipheringStatus ::=
                                         started, notStarted }
CipheringStatusList-r4 ::=
                                    SEQUENCE (SIZE (1..maxCNdomains)) OF
                                        CipheringStatusCNdomain-r4
                                    SEQUENCE {
CipheringStatusCNdomain-r4 ::=
        cn-DomainIdentity
                                        CN-DomainIdentity,
        cipheringStatus
                                         CipheringStatus,
        start-Value
                                        START-Value
}
CN-DomainInformation-v390ext ::=
                                         SEQUENCE {
   cn-DRX-CycleLengthCoeff
                                         CN-DRX-CycleLengthCoefficient
CN-DomainInformationList-v390ext ::= SEQUENCE (SIZE (1..maxCNdomains)) OF
                                        CN-DomainInformation-v390ext
CompressedModeMeasCapability-r4 ::= SEQUENCE {
                                        BOOLEAN,
    fdd-Measurements
    -- TABULAR: The IEs tdd-Measurements, gsm-Measurements and multiCarrierMeasurements
    -- are made optional since they are conditional based on another information element.
    -- Their absence corresponds to the case where the condition is not true.
```

```
tdd384-Measurements
                                        BOOLEAN
                                                                              OPTIONAL,
    tdd128-Measurements
                                        BOOLEAN
                                                                              OPTIONAL,
    gsm-Measurements
                                        GSM-Measurements
                                                                              OPTIONAL,
    multiCarrierMeasurements
                                        BOOLEAN
                                                                              OPTIONAL
COUNT-C-List ::=
                                        SEQUENCE (SIZE (1..maxCNdomains)) OF
                                         COUNT-CSingle
COUNT-CSingle ::=
                                         SEQUENCE {
    cn-DomainIdentity
                                         CN-DomainIdentity,
                                         BIT STRING (SIZE (32))
    count.-C
}
DL-PhysChCapabilityFDD-r4 ::=
                                    SEQUENCE {
-- The IE "maxNoDPCH-PDSCH-Codes" only gives information on the maximum number of DPCH Codes.
    maxNoDPCH-PDSCH-Codes
                                         INTEGER (1..8),
    maxNoPhysChBitsReceived
                                         MaxNoPhysChBitsReceived,
    supportForSF-512
                                         BOOLEAN.
  The RNC should ignore this IE on reception.
    supportOfPDSCHdummy
                                            BOOLEAN,
    {\tt simultaneousSCCPCH-DPCH-Reception} \qquad {\tt SimultaneousSCCPCH-DPCH-Reception},
    supportOfDedicatedPilotsForChEstimation
                                                SupportOfDedicatedPilotsForChEstimation OPTIONAL
}
DL-PhysChCapabilityFDD-r5 ::=
                                    SEQUENCE {
-- The IE "maxNoDPCH-PDSCH-Codes" only gives information on the maximum number of DPCH Codes.
    maxNoDPCH-PDSCH-Codes
                                         INTEGER (1..8),
    maxNoPhysChBitsReceived
                                         MaxNoPhysChBitsReceived,
    supportForSF-512
                                        BOOLEAN.
  The RNC should ignore this IE on reception.
    supportOfPDSCHdummy
                                             BOOLEAN,
    simultaneousSCCPCH-DPCH-Reception SimultaneousSCCPCH-DPCH-Reception,
    {\tt supportOfDedicatedPilotsForChEstimation}
                                                 SupportOfDedicatedPilotsForChEstimation
                                                                                              OPTIONAL.
    fdd-hspdsch
                                        CHOICE {
        supported
                                           SEQUENCE {
                                                HSDSCH-physical-layer-category,
            hsdsch-physical-layer-category
            supportOfDedicatedPilotsForChannelEstimationOfHSDSCH
                                                                     BOOLEAN,
            -- simultaneousSCCPCH-DPCH-HSDSCH-Reception shall be true only if the
            -- IE SimultaneousSCCPCH-DPCH-Reception indicates support of simultaneous
            -- reception of S-CCPCH and DPCH
            simultaneousSCCPCH-DPCH-HSDSCH-Reception
                                                         BOOLEAN
        },
        unsupported
                                             NULL
    }
}
DL-PhysChCapabilityTDD-r5 ::=
                                   SEQUENCE {
    maxTS-PerFrame
                                        MaxTS-PerFrame,
    maxPhysChPerFrame
                                        MaxPhysChPerFrame,
    minimumSF
                                        MinimumSF-DL,
    {\tt supportOfPDSCH}
                                        BOOLEAN,
    {\tt maxPhysChPerTS}
                                        MaxPhysChPerTS,
    tdd384-hspdsch
                                        CHOICE {
                                             HSDSCH-physical-layer-category,
        supported
        unsupported
                                             NULL
    }
}
DL-PhysChCapabilityTDD-LCR-r5 ::= SEQUENCE {
    maxTS-PerSubFrame
                                        MaxTS-PerSubFrame-r4,
    maxPhysChPerFrame
                                         MaxPhysChPerSubFrame-r4,
    minimumSF
                                        MinimumSF-DL,
    supportOfPDSCH
                                         BOOLEAN.
    {\tt maxPhysChPerTS}
                                        MaxPhysChPerTS,
    supportOf8PSK
                                         BOOLEAN,
    tdd128-hspdsch
                                             {\tt HSDSCH-physical-layer-category,}
        supported
        unsupported
                                             NULL
}
DL-RFC3095-Context ::=
                                    SEQUENCE {
    rfc3095-Context-Identity
                                        INTEGER (0..16383),
    dl-mode
                                         ENUMERATED \{u, o, r\},
                                        OCTET STRING ( SIZE (1..3000)),
    dl-ref-ir
    dl-ref-time
                                         INTEGER (0..4294967295)
                                                                     OPTIONAL.
                                         INTEGER (0..4294967295)
    dl-curr-time
                                                                     OPTIONAL,
```

```
dl-syn-offset-id
                                            INTEGER (0..65535)
                                                                            OPTIONAL,
                                             INTEGER (0..4294967295)
    dl-syn-slope-ts
                                                                           OPTIONAL,
    dl-dyn-changed
                                            BOOLEAN
}
ImplementationSpecificParams ::=
                                      BIT STRING (SIZE (1..512))
IntegrityProtectionStatus ::=
                                        ENUMERATED {
                                            started, notStarted }
InterRAT-UE-RadioAccessCapabilityList-r5 ::=
                                                     SEQUENCE {
    interRAT-UE-RadioAccessCapability InterRAT-UE-RadioAccessCapabilityList, geranIu-RadioAccessCapability GERANIu-RadioAccessCapability
    geranIu-RadioAccessCapability
                                                                                              OPTIONAL
}
\mbox{--}\mbox{ dummy} is not used in this version of the specification, it should
-- not be sent and if received it should be ignored.
MaxHcContextSpace-r5 ::=
                                            ENUMERATED {
                                                 dummy, by1024, by2048, by4096, by8192,
                                                 by16384, by32768, by65536, by131072 }
MeasurementCapability-r4 ::=
                                     SEQUENCE {
                                            CompressedModeMeasCapability-r4,
    downlinkCompressedMode
    uplinkCompressedMode
                                            CompressedModeMeasCapability-r4
}
MeasurementCommandWithType ::=
                                        CHOICE {
                                            MeasurementType,
    setup
    modify
                                             NULT.
    release
                                             NULL
MeasurementCommandWithType-r4 ::=
                                        CHOICE {
    setup
                                             MeasurementType-r4,
    modify
                                             NULL,
    release
                                            NULL
}
OngoingMeasRep ::=
                                      SEQUENCE {
    measurementIdentity
                                            MeasurementIdentity,
    -- TABULAR: The CHOICE Measurement in the tabular description is included
    -- in MeasurementCommandWithType
    measurementCommandWithType MeasurementCommandWithType,
measurementReportingMode MeasurementReportingMode
additionalMeasurementID-List AdditionalMeasurementID-List
                                                                                    OPTIONAL,
                                                                                     OPTIONAL
}
                             SEQUENCE {
OngoingMeasRep-r4 ::=
   measurementIdentity
                                        MeasurementIdentity,
    -- TABULAR: The CHOICE Measurement in the tabular description is included
    -- in MeasurementCommandWithType-r4.
    measurementCommandWithType MeasurementCommandWithType-r4,
measurementReportingMode MeasurementReportingMode OPTIONAL
additionalMeasurementID-List AdditionalMeasurementID-List OPTIONAL
                                                                                   OPTIONAL.
}
OngoingMeasRep-r5 ::=
                                       SEQUENCE {
    measurementIdentity
                                            MeasurementIdentity,
    -- TABULAR: The CHOICE Measurement in the tabular description is included
    -- in MeasurementCommandWithType-r4.
    measurementCommandWithType MeasurementCommandWithType-r4, measurementReportingMode AdditionalMeasurementID-List measurementCommand-v590ext CHOICE {
                                                                                     OPTIONAL,
                                                                                    OPTIONAL,
         -- the choice "intra-frequency" shall be used for the case of intra-frequency measurement,
         -- as well as when intra-frequency events are configured for inter-frequency measurement
        intra-frequency
                                                 Intra-FreqEventCriteriaList-v590ext,
        inter-frequency
                                                 Inter-FreqEventCriteriaList-v590ext
            OPTIONAL,
    intraFreqReportingCriteria-lb-r5
IntraFreqReportingCriteria-lb-r5
                                                                                              OPTIONAL,
    intraFreqEvent-1d-r5
                                                 IntraFreqEvent-1d-r5
                                                                                              OPTIONAL
}
                          SEQUENCE (SIZE (1..maxNoOfMeas)) OF
OngoingMeasRepList ::=
                                            OngoingMeasRep
OngoingMeasRepList-r4 ::=
                                       SEQUENCE (SIZE (1..maxNoOfMeas)) OF
```

OngoingMeasRep-r4

```
OngoingMeasRepList-r5 ::=
                                    SEQUENCE (SIZE (1..maxNoOfMeas)) OF
                                        OngoingMeasRep-r5
PDCP-Capability-r4 ::=
                                    SEQUENCE {
    losslessSRNS-RelocationSupport
                                        BOOLEAN,
    supportForRfc2507
                                        CHOICE {
        notSupported
                                            NULL,
        supported
                                            MaxHcContextSpace
    },
                                        CHOICE {
    supportForRfc3095
       notSupported
                                           NULL.
        supported
                                            SEQUENCE {
           maxROHC-ContextSessions
                                                MaxROHC-ContextSessions-r4 DEFAULT s16,
                                                INTEGER (0..65535)
           reverseCompressionDepth
                                                                           DEFAULT 0
        }
}
PDCP-Capability-r5 ::=
                                    SEOUENCE {
    {\tt losslessSRNS-RelocationSupport}
                                        BOOLEAN,
    supportForRfc2507
                                        CHOICE {
       notSupported
                                            NULL,
                                            MaxHcContextSpace-r5
        supported
    supportForRfc3095
                                        CHOICE {
       notSupported
                                            NULL.
                                            SEQUENCE {
        supported
           maxROHC-ContextSessions reverseCompressionDepth
                                                MaxROHC-ContextSessions-r4 DEFAULT s16,
                                                INTEGER (0..65535) DEFAULT 0,
            supportForRfc3095ContextRelocation BOOLEAN
    }
}
PhysicalChannelCapability-r4 ::=
                                        SEQUENCE {
        fddPhysChCapability
                                           SEQUENCE {
                                           DL-PhysChCapabilityFDD-r4,
UL-PhysChCapabilityFDD
            downlinkPhysChCapability
            uplinkPhysChCapability
                                                   OPTIONAL,
        tdd384-PhysChCapability
                                           SEQUENCE {
                                           DL-PhysChCapabilityTDD,
            downlinkPhysChCapability
            {\tt uplinkPhysChCapability}
                                                UL-PhysChCapabilityTDD
                                                   OPTIONAL,
        tdd128-PhysChCapability
                                            SEQUENCE {
            downlinkPhysChCapability
                                            DL-PhysChCapabilityTDD-LCR-r4,
            uplinkPhysChCapability
                                                UL-PhysChCapabilityTDD-LCR-r4
                                                    OPTIONAL
}
PhysicalChannelCapability-r5 ::=
                                        SEQUENCE {
        {\tt fddPhysChCapability}
                                         SEQUENCE {
            downlinkPhysChCapability
                                                DL-PhysChCapabilityFDD-r5,
            uplinkPhysChCapability
                                                UL-PhysChCapabilityFDD
                                                   OPTIONAL,
        tdd384-PhysChCapability
                                            SEQUENCE {
                                            DL-PhysChCapabilityTDD-r5,
            downlinkPhysChCapability
            uplinkPhysChCapability
                                               UL-PhysChCapabilityTDD
                                                   OPTIONAL,
                                           SEQUENCE {
        tdd128-PhysChCapability
                                           DL-PhysChCapabilityTDD-LCR-r5,
           downlinkPhysChCapability
            uplinkPhysChCapability
                                               UL-PhysChCapabilityTDD-LCR-r4
                                                    OPTIONAL
        }
}
RF-Capability-r4 ::=
                                    SEQUENCE {
        fddRF-Capability
                                       SEQUENCE {
                                            UE-PowerClassExt,
            ue-PowerClass
            txRxFrequencySeparation
                                            {\tt TxRxFrequencySeparation}
                                                                        OPTIONAL,
        tdd384-RF-Capability
                                        SEQUENCE {
           ue-PowerClass
                                           UE-PowerClassExt,
            radioFrequencyBandTDDList
                                            RadioFrequencyBandTDDList,
            chipRateCapability
                                            ChipRateCapability
                                                                        OPTIONAL,
        tdd128-RF-Capability SEQUENCE {
                                           UE-PowerClassExt,
            ue-PowerClass
```

```
radioFrequencyBandTDDList
                                           RadioFrequencyBandTDDList,
                                           ChipRateCapability
            chipRateCapability
        }
                                                                       OPTIONAL
}
RFC3095-ContextInfo ::=
                                   SEQUENCE {
    rb-Identity
                                       RB-Identity,
    rfc3095-Context-List
                                       RFC3095-Context-List
}
RFC3095-Context-List ::=
                                  SEQUENCE (SIZE (1..maxRFC3095-CID)) OF SEQUENCE {
                                        DL-RFC3095-Context
    dl-RFC3095-Context
                                                               OPTIONAL,
    ul-RFC3095-Context
                                       UL-RFC3095-Context
                                                               OPTIONAL.
}
RLC-Capability-r5 ::=
                                   SEQUENCE {
    totalRLC-AM-BufferSize
                                       TotalRLC-AM-BufferSize-r5,
    maximumRLC-WindowSize
                                        MaximumRLC-WindowSize,
    maximumAM-EntityNumber
                                       MaximumAM-EntityNumberRLC-Cap
}
SRB-SpecificIntegrityProtInfo ::= SEQUENCE {
    ul-RRC-HFN
                                       BIT STRING (SIZE (28)),
   dl-RRC-HFN
                                       BIT STRING (SIZE (28)),
    ul-RRC-SequenceNumber
                                       RRC-MessageSeguenceNumber,
    dl-RRC-SequenceNumber
                                       RRC-MessageSequenceNumber
SRB-SpecificIntegrityProtInfoList ::= SEQUENCE (SIZE (4..maxSRBsetup)) OF
                                       SRB-SpecificIntegrityProtInfo
StateOfRRC ::=
                                    ENUMERATED {
                                        cell-DCH, cell-FACH,
                                        cell-PCH, ura-PCH }
StateOfRRC-Procedure ::=
                                    ENUMERATED {
                                       awaitNoRRC-Message,
                                        awaitRB-ReleaseComplete,
                                        awaitRB-SetupComplete,
                                        await \verb"RB-ReconfigurationComplete",
                                        awaitTransportCH-ReconfigurationComplete,
                                        awaitPhysicalCH-ReconfigurationComplete,
                                        awaitActiveSetUpdateComplete,
                                        awaitHandoverComplete,
                                        sendCellUpdateConfirm,
                                        sendUraUpdateConfirm,
                                        -- dummy is not used in this version of specification
                                        -- It should not be sent
                                        dummy,
                                        otherStates
}
TotalRLC-AM-BufferSize-r5 ::=
                                   ENUMERATED {
                                        kb10, kb50, kb100, kb150, kb200,
                                        kb300, kb400, kb500, kb750, kb1000 }
TPC-Combination-Info ::= SEQUENCE {
       primaryCPICH-Info
                                            PrimaryCPICH-Info,
       tpc-CombinationIndex
                                           TPC-CombinationIndex
}
UE-MultiModeRAT-Capability-r5 ::=
                                   SEQUENCE {
   multiRAT-CapabilityList
                                   MultiRAT-Capability,
                                       MultiModeCapability,
    multiModeCapability
    supportOfUTRAN-ToGERAN-NACC
                                       BOOLEAN
}
UE-Positioning-Capability-r4 ::=
                                   SEQUENCE {
    {\tt standaloneLocMethodsSupported}
                                           BOOLEAN.
    ue-BasedOTDOA-Supported
                                           BOOLEAN,
    networkAssistedGPS-Supported
                                           NetworkAssistedGPS-Supported,
    supportForUE-GPS-TimingOfCellFrames
                                           BOOLEAN,
    supportForIPDL
                                           BOOLEAN,
    rx-tx-TimeDifferenceType2Capable
                                           BOOLEAN,
                                           ENUMERATED { true }
    validity-CellPCH-UraPCH
                                                                   OPTIONAL,
                                           ENUMERATED { true }
    sfn-sfnType2Capability
                                                                   OPTIONAL
}
```

```
UE-Positioning-LastKnownPos ::=
                                     SEQUENCE {
                                         INTEGER (0..4095),
        sfn
        cell-id
                                         CellIdentity,
        positionEstimate
                                         PositionEstimate
UE-RadioAccessCapability-r4 ::=
                                     SEQUENCE {
                                         AccessStratumReleaseIndicator,
    accessStratumReleaseIndicator
    pdcp-Capability
                                         PDCP-Capability-r4,
    rlc-Capability
                                         RLC-Capability,
    transportChannelCapability
                                         TransportChannelCapability,
                                         RF-Capability-r4,
    rf-Capability
    physicalChannelCapability
                                         PhysicalChannelCapability-r4,
    ue-MultiModeRAT-Capability
                                         UE-MultiModeRAT-Capability,
    securityCapability
                                         SecurityCapability,
                                         UE-Positioning-Capability-r4,
    ue-positioning-Capability
                                                                          OPTIONAL
    measurementCapability
                                         MeasurementCapability-r4
UE-RadioAccessCapability-r5 ::=
                                     SEQUENCE {
    {\tt accessStratumReleaseIndicator}
                                         {\tt AccessStratumReleaseIndicator},
    dl-CapabilityWithSimultaneousHS-DSCHConfig
                                         DL-CapabilityWithSimultaneousHS-DSCHConfig OPTIONAL,
    pdcp-Capability
                                         PDCP-Capability-r5,
                                         RLC-Capability-r5,
    rlc-Capability
    transportChannelCapability
                                         TransportChannelCapability,
    rf-Capability
                                         RF-Capability-r4,
    physicalChannelCapability
                                         PhysicalChannelCapability-r5,
    ue-MultiModeRAT-Capability
                                         UE-MultiModeRAT-Capability-r5,
                                         SecurityCapability,
    securityCapability
    ue-positioning-Capability
                                         UE-Positioning-Capability-r4,
                                                                          OPTIONAL
    measurementCapability
                                         MeasurementCapability-r4
UL-RFC3095-Context ::=
                                     SEOUENCE {
    rfc3095-Context-Identity
                                         INTEGER (0..16383),
                                         ENUMERATED {u, o, r},
    ul-mode
    ul-ref-ir
                                         OCTET STRING ( SIZE (1..3000)),
    ul-ref-time
                                         INTEGER (0..4294967295)
                                                                     OPTIONAL,
    ul-curr-time
                                         INTEGER (0..4294967295)
                                                                     OPTIONAL,
    ul-syn-offset-id
                                         INTEGER (0..65535)
                                                                     OPTIONAL,
                                         INTEGER (0..4294967295)
    ul-syn-slope-ts
                                                                     OPTIONAL.
    ul-ref-sn-1
                                         INTEGER (0..65535)
                                                                     OPTIONAL
}
END
```

13.4.3a DSCH_RNTI

In TDD this variable stores the assigned DSCH-RNTI for this UE when in CELL_DCH state.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
DSCH-RNTI	OP		DSCH-RNTI 10.3.3.9a	Cleared when entering UTRA RRC connected mode when not otherwise stated in the procedure. Cleared when leaving UTRA RRC connected mode.

B.3.1 CELL_DCH state

The CELL_DCH state is characterised by

- For 3.84 Mcps TDD: A dedicated physical channel is allocated to the UE in uplink and downlink or a dedicated physical channel is allocated to the UE in the uplink and HS_DSCH_RECEPTION is set to TRUE.

- A dedicated physical channel is allocated to the UE in uplink and downlink.
- The UE is known on cell level according to its current active set.
- Dedicated transport channels, downlink and uplink (TDD) shared transport channels, and a combination of these transport channels can be used by the UE.

The CELL_DCH-state is entered from the Idle Mode through the setup of an RRC connection, or by establishing a dedicated physical channel from the CELL_FACH state.

<u>In TDD aA</u> PDSCH may be assigned to the UE in this state, to be used for a DSCH. <u>In TDD aA</u> PUSCH may also be assigned to the UE in this state, to be used for a USCH. If PDSCH or PUSCH are used for TDD, a FACH transport channel may be assigned to the UE for reception of physical shared channel allocation messages.

3GPP TSG-RAN2 Meeting #47 Athens, Greece, Mai 9th to 13th 2005

CHANGE REQUEST							
器	25.331 CR 2587						

For **HELP** on using this form, see bottom of this page or look at the pop-up text over the \mathbb{H} symbols.

ME X Radio Access Network X Core Network UICC apps# Proposed change affects: Title: Feature Clean-up: Removal of DSCH (FDD) Source: 第 RAN WG2 Date: # 25/04/2005 **ℋ** C Release: 第 Rel-5 Category: Use one of the following releases: Use <u>one</u> of the following categories: **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 Rel-4 (Release 4) Rel-5 be found in 3GPP TR 21.900. (Release 5) Rel-6 (Release 6) Rel-7 (Release 7)

Reason for change: # Removal of DSCH for FDD

Summary of change: ₩

Removal of the IEs and their associated handling for FDD:

- "PDSCH code mapping"
- "PDSCH with SHO DCH Info"
- "New DSCH-RNTI"
- "TFCI combining indicator"
- "TFCI FIELD 2 Information"
- "PDSCH with SHO DCH Info"
- "PDSCH code mapping"
- "Downlink PDSCH information"
- "Support of PDSCH"
- "Simultaneous reception of SCCPCH, DPCH and PDSCH"
- "TFCS Information for DSCH (TFCI range method)"

Specifying that in the case the IE "RB mapping info" is set to "DCH+DSC"H or "DSCH" the UE behaviour is unspecified.

Removal of unnecessary calculation of the TB size for FDD DSCH.

Renaming of the IE "Max no DPCH/PDSCH codes" into Max no DPCH codes.

Specifying that the UE behaviour in the case the transport channel type in the IE "Added or Reconfigured DL TrCH information" or "Deleted DL TrCH information" is set to "DSCH" is unspecified.

ĺ		Removal of the TFCS split mode.					
		Transfer and Transfer model					
Consequences if	\mathbb{H}	DSCH for FDD mode will remain specified					
not approved:							
Clauses affected:	\mathfrak{H}	8.2.2.3, 8.2.11.3, 8.3.4.3, 8.5.21, 8.6.3.1, 8.6.3.9a, 8.6.4.8, 8.6.5.1, 8.6.5.12,					
		8.6.5.14, 8.6.6.9, 8.6.6.10, 10.2.8, 10.2.16a, 10.2.22, 10.2.27, 10.2.30, 10.2.33,					
		10.2.50, 10.3.3.9a, 10.3.3.25, 10.3.4.21, 10.3.5.1, 10.3.5.4, 10.3.5.12, 10.3.5.13,					
		10.3.5.14, 10.3.5.20, 10.3.6.27, 10.3.6.30, 10.3.6.31, 10.3.6.43, 10.3.6.47,					
		10.3.6.68, 10.3.6.81, 10.3.10, 11.1, 11.2, 11.3, 11.4, 11.5, 13.4.3a, B.3.1					
	1						
		YN					
Other specs	\mathfrak{R}	Y Other core specifications # 25.211, 25.212, 25.213, 25.214, 25.301,					
		25.302, 25.303, 25.306, 25.321, 25.331,					
		25.401, 25.402, 25.420, 25.423, 25.424,					
		25.425, 25.427, 25.430, 25.433, 25.434,					
		25.435					
affected:		Y Test specifications 34.108, 34.123					
		N O&M Specifications					
Other comments:	\mathfrak{H}						

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:

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

8.2 Radio Bearer control procedures

8.2.1 Radio bearer establishment

See subclause 8.2.2 Reconfiguration procedures.

8.2.2 Reconfiguration procedures

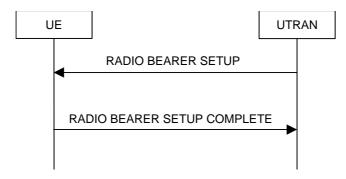


Figure 8.2.2-1: Radio Bearer Establishment, normal case

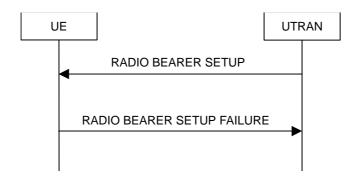


Figure 8.2.2-2: Radio Bearer Establishment, failure case

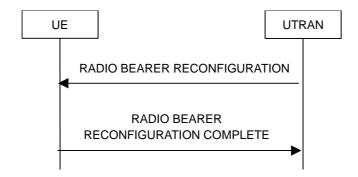


Figure 8.2.2-3: Radio bearer reconfiguration, normal flow

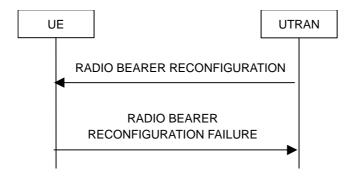


Figure 8.2.2-4: Radio bearer reconfiguration, failure case

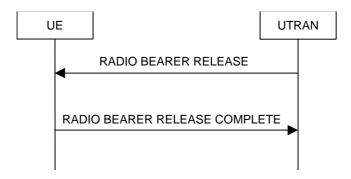


Figure 8.2.2-5: Radio Bearer Release, normal case

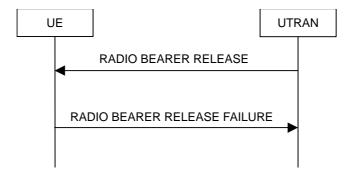


Figure 8.2.2-6: Radio Bearer Release, failure case

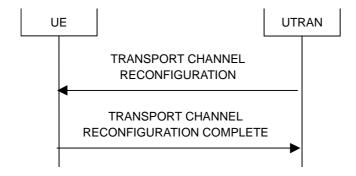


Figure 8.2.2-7: Transport channel reconfiguration, normal flow

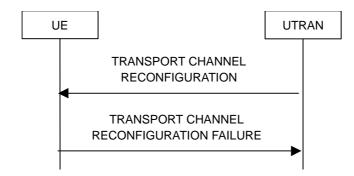


Figure 8.2.2-8: Transport channel reconfiguration, failure case

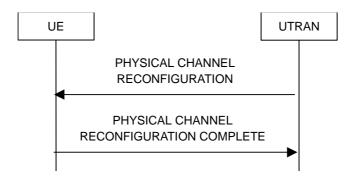


Figure 8.2.2-9: Physical channel reconfiguration, normal flow

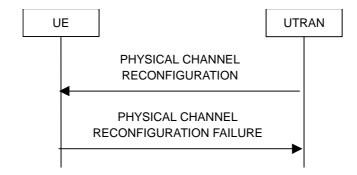


Figure 8.2.2-10: Physical channel reconfiguration, failure case

8.2.2.1 General

Reconfiguration procedures include the following procedures:

- the radio bearer establishment procedure;
- radio bearer reconfiguration procedure;
- the radio bearer release procedure;
- the transport channel reconfiguration procedure; and
- the physical channel reconfiguration procedure.

The radio bearer establishment procedure is used to establish new radio bearer(s).

The radio bearer reconfiguration procedure is used to reconfigure parameters for a radio bearer.

The radio bearer release procedure is used to release radio bearer(s).

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

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

While performing any of the above procedures, these procedures may perform a hard handover (subclause 8.3.5) and/or an HS-DSCH cell change. The reconfiguration procedures are also used to change the feedback configuration for HS-DSCH.

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) 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.

8.2.2.2a Initiation of handover from GERAN *lu mode*

To initiate the handover from GERAN *Iu mode*, UTRAN should:

- 1> provide a RADIO BEARER RECONFIGURATION message to be encapsulated in INTERSYSTEM HANDOVER TO UTRAN COMMAND message, sent on the downlink SRB2 in GERAN *Iu mode*, as specified in [53].
- 1> in case UTRAN decides to use a predefined or default radio configuration that is stored in the UE, it should include the following information in the RADIO BEARER RECONFIGURATION message:
 - PhyCH information elements; and
 - either:
 - the IE "Predefined configuration identity", to indicate which pre-defined configuration of RB, transport channel and physical channel parameters shall be used; or
 - the IE "Default configuration mode" and IE "Default configuration identity", to indicate which default configuration of RB, transport channel and physical channel parameters shall be used.

8.2.2.3 Reception of RADIO BEARER SETUP or RADIO BEARER RECONFIGURATION or RADIO BEARER RELEASE or TRANSPORT CHANNEL RECONFIGURATION or PHYSICAL CHANNEL RECONFIGURATION message by the UE

The UE shall:

- 1> be able to receive any of the following messages:
 - 2> RADIO BEARER SETUP message; or
 - 2> RADIO BEARER RECONFIGURATION message; or

- 2> RADIO BEARER RELEASE message; or
- 2> TRANSPORT CHANNEL RECONFIGURATION message; or
- 2> PHYSICAL CHANNEL RECONFIGURATION message;
- 1> be able to perform a hard handover and apply physical layer synchronisation procedure A as specified in [29], even if no prior UE measurements have been performed on the target cell and/or frequency.

In case the reconfiguration procedure is used to remove all existing RL(s) in the active set while new RL(s) are established the UE shall:

- 1> if the UE has a pending "TGPS reconfiguration CFN" at the activation time received in the reconfiguration message and the reconfiguration requests a timing re-initialised hard handover (see subclause 8.3.5.1), the UE may:
 - 2> abort the pending CM activation;
 - 2> set the CM_PATTERN_ACTIVATION_ABORTED to TRUE.
- 1> otherwise:
 - 2> set the CM_PATTERN_ACTIVATION_ABORTED to FALSE.

If the UE receives:

- a RADIO BEARER SETUP message; or
- a RADIO BEARER RECONFIGURATION message; or
- a RADIO BEARER RELEASE message; or
- a TRANSPORT CHANNEL RECONFIGURATION message; or
- a PHYSICAL CHANNEL RECONFIGURATION message:

it shall:

- 1> set the variable ORDERED_RECONFIGURATION to TRUE;
- 1> if the UE will enter the CELL_DCH state from any state other than CELL_DCH state at the conclusion of this procedure:
 - 2> perform the physical layer synchronisation procedure A as specified in [29] (FDD only).
- 1> act upon all received information elements as specified in subclause 8.6, unless specified in the following and perform the actions below.

The UE may:

1> maintain a list of the set of cells to which the UE has Radio Links if the IE "Cell ID" is present.

The UE may first release the physical channel configuration used at reception of the reconfiguration message. The UE shall then:

- 1> in FDD, if the IE "PDSCH code mapping" is included but the IE "PDSCH with SHO DCH Info" is not included and if the DCH has only one link in its active set:
 - 2> act upon the IE "PDSCH code mapping" as specified in subclause 8.6; and
 - 2> infer that the PDSCH will be transmitted from the cell from which the downlink DPCH is transmitted.
- 1> enter a state according to subclause 8.6.3.3.

In case the UE receives a RADIO BEARER RECONFIGURATION message including the IE "RB information to reconfigure" that only includes the IE "RB identity", the UE shall:

1> handle the message as if IE "RB information to reconfigure" was absent.

NOTE: The RADIO BEARER RECONFIGURATION message always includes the IE "RB information to reconfigure". UTRAN has to include it even if it does not require the reconfiguration of any RB.

In case the UE receives a RADIO BEARER RECONFIGURATION message with the IE "Specification mode" set to "Preconfiguration" while the message is not sent through GERAN *Iu mode*, the UE behaviour is unspecified.

If after state transition the UE enters CELL_DCH state, the UE shall, after the state transition:

- 1> in FDD: or
- 1> in TDD when "Primary CCPCH Info" is included indicating a new target cell and "New C-RNTI" is not specified:
 - 2> remove any C-RNTI from MAC;
 - 2> clear the variable C_RNTI.

If after state transition the UE leaves CELL_DCH state, the UE shall, after the state transition:

- 1> clear any stored IE "Downlink HS-PDSCH information";
- 1> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25.

In FDD, if after state transition the UE leaves CELL DCH state, the UE shall, after the state transition:

- 1> remove any DSCH RNTI from MAC;
- 1> clear the variable DSCH_RNTI.

If the UE was in CELL_DCH state upon reception of the reconfiguration message and remains in CELL_DCH state, the UE shall:

- 1> if the IE "Uplink DPCH Info" is absent, not change its current UL Physical channel configuration;
- 1> in TDD:
 - 2> if "Primary CCPCH Info" is included indicating a new target cell and "New C-RNTI" is not specified:
 - 3> remove any C-RNTI from MAC;
 - 3> clear the variable C_RNTI.
 - 2> if "Primary CCPCH Info" is included indicating a new target cell and "New H-RNTI" is not specified:
 - 3> remove any H-RNTI from MAC;
 - 3> clear the variable H RNTI;
 - 3> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25.
- 1> if "DPCH frame offset" is included for one or more RLs in the active set:
 - 2> use its value to determine the beginning of the DPCH frame in accordance with the following:
 - 3> if the received IE "DPCH frame offset" is across the value range border compared to the DPCH frame offset currently used by the UE:
 - 4> consider it to be a request to adjust the timing with 256 chips across the frame border (e.g. if the UE receives value 0 while the value currently used is 38144 consider this as a request to adjust the timing with +256 chips).
 - 3> if after taking into account value range borders, the received IE "DPCH frame offset" corresponds to a request to adjust the timing with a step exceeding 256 chips:
 - 4> set the variable INVALID_CONFIGURATION to TRUE.

- 3> and the procedure ends.
- 2> adjust the radio link timing accordingly.

If after state transition the UE enters CELL_FACH state, the UE shall, after the state transition:

- 1> if the IE "Frequency info" is included in the received reconfiguration message:
 - 2> select a suitable UTRA cell according to [4] on that frequency;
 - 2> if the UE finds a suitable UTRA cell on that frequency:
 - 3> if the received reconfiguration message included the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD), and the UE selects another cell than indicated by this IE or the received reconfiguration message did not include the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD):
 - 4> initiate a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";
 - 4> when the cell update procedure completed successfully:
 - 5> if the UE is in CELL_PCH or URA_PCH state, initiate a cell update procedure according to subclause 8.3.1 using the cause "Uplink data transmission" and proceed as below.
 - 2> else, if the UE can not find a suitable UTRA cell on that frequency but it finds a suitable UTRA cell on another frequency:
 - 3> initiate a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";
 - 3> when the cell update procedure completed successfully:
 - 4> if the UE is in CELL_PCH or URA_PCH state, initiate a cell update procedure according to subclause 8.3.1 using the cause "Uplink data transmission" and proceed as below.
- 1> if the IE "Frequency info" is not included in the received reconfiguration message:
 - 2> select a suitable UTRA cell according to [4];
 - 2> if the UE finds a suitable UTRA cell on the current frequency:
 - 3> if the received reconfiguration message included the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD), and the UE selects another cell than indicated by this IE or the received reconfiguration message did not include the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD):
 - 4> initiate a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";
 - 4> when the cell update procedure completed successfully:
 - 5> if the UE is in CELL_PCH or URA_PCH state, initiate a cell update procedure according to subclause 8.3.1 using the cause "Uplink data transmission" and proceed as below.
 - 2> else, if the UE can not find a suitable UTRA cell on the current frequency but it finds a suitable UTRA cell on another frequency:
 - 3> initiate a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";
 - 3> when the cell update procedure completed successfully:
 - 4> if the UE is in CELL_PCH or URA_PCH state, initiate a cell update procedure according to subclause 8.3.1 using the cause "Uplink data transmission" and proceed as below.
- 1> start timer T305 using its initial value if timer T305 is not running and if periodical update has been configured by T305 in the IE "UE Timers and constants in connected mode" set to any other value than "infinity" in the variable TIMERS_AND_CONSTANTS;
- 1> select PRACH according to subclause 8.5.17;

- 1> select Secondary CCPCH according to subclause 8.5.19;
- 1> use the transport format set given in system information;
- 1> if the IE "UTRAN DRX cycle length coefficient" is included in the same message:
 - 2> ignore that IE and stop using DRX.
- 1> if the contents of the variable C_RNTI is empty:
 - 2> perform a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";
 - 2> when the cell update procedure completed successfully:
 - 3> if the UE is in CELL_PCH or URA_PCH state:
 - 4> initiate a cell update procedure according to subclause 8.3.1 using the cause "Uplink data transmission";
 - 4> proceed as below.

If the UE was in CELL_FACH state upon reception of the reconfiguration message and remains in CELL_FACH state, the UE shall:

- 1> if the IE "Frequency info" is included in the received reconfiguration message:
 - 2> select a suitable UTRA cell according to [4] on that frequency;
 - 2> if the UE finds a suitable UTRA cell on that frequency:
 - 3> if the received reconfiguration message included the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD), and the UE selected another cell than indicated by this IE or the received reconfiguration message did not include the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD):
 - 4> initiate a cell update procedure according to subclause 8.3.1 using the cause "cell reselection";
 - 4> when the cell update procedure completed successfully:
 - 5> if the UE is in CELL_PCH or URA_PCH state, initiate a cell update procedure according to subclause 8.3.1 using the cause "Uplink data transmission" and proceed as below.
 - 2> else, if the UE can not find a suitable UTRA cell on that frequency but it finds a suitable UTRA cell on another frequency:
 - 3> initiate a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";
 - 3> when the cell update procedure completed successfully:
 - 4> if the UE is in CELL_PCH or URA_PCH state, initiate a cell update procedure according to subclause 8.3.1 using the cause "Uplink data transmission" and proceed as below.
- 1> if the IE "Frequency info" is not included in the received reconfiguration message:
 - 2> if the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD) is included the UE shall either:
 - 3> ignore the content of the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD) and proceed as below;
 - 2> or:
 - 3> if the received reconfiguration message included the IE "Primary CPICH info" (for FDD) or "Primary CPCH info" (for TDD), and it is different from the current cell:
 - 4> initiate a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";
 - 4> when the cell update procedure completed successfully:

5> if the UE is in CELL_PCH or URA_PCH state, initiate a cell update procedure according to subclause 8.3.1 using the cause "Uplink data transmission" and proceed as below.

If after state transition the UE leaves CELL_FACH state, the UE shall:

1> stop timer T305.

If after state transition the UE enters CELL_PCH or URA_PCH state, the UE shall:

- 1> if the IE "UTRAN DRX cycle length coefficient" is not included in the same message:
 - 2> set the variable INVALID_CONFIGURATION to TRUE.

The UE shall transmit a response message as specified in subclause 8.2.2.4, setting the information elements as specified below. The UE shall:

- 1> if the received reconfiguration message included the IE "Downlink counter synchronisation info"; or
- 1> if the received reconfiguration message is a RADIO BEARER RECONFIGURATION and the IE "New U-RNTI" is included:
 - 2> if the variable PDCP_SN_INFO is empty:
 - 3> configure the corresponding RLC entity for all AM and UM radio bearers and AM and UM signalling radio bearers except RB2 to "stop".
 - 2> else:
 - 3> configure the RLC entity for signalling radio bearers RB1, RB3 and RB4 to "stop";
 - 3> configure the RLC entity for UM and AM radio bearers for which the IE "PDCP SN Info" is not included to "stop".
 - 2> re-establish the RLC entity for RB2;
 - 2> for the downlink and the uplink, apply the ciphering configuration as follows:
 - 3> if the received re-configuation message included the IE "Ciphering Mode Info":
 - 4> use the ciphering configuration in the received message when transmitting the response message.
 - 3> if the ciphering configuration for RB2 from a previously received SECURITY MODE COMMAND has not yet been applied because the activation times not having been reached:
 - 4> if the previous SECURITY MODE COMMAND was received due to new keys being received:
 - 5> consider the new ciphering configuration to include the received new keys;
 - 5> initialise the HFN component of the uplink COUNT-C and downlink COUNT-C of SRB2 as indicated in subclause 8.1.12.3.1.
 - 4> if the ciphering configuration for RB2 from a previously received SECURITY MODE COMMAND has not yet been applied because of the corresponding activation times not having been reached and the previous SECURITY MODE COMMAND caused a change in LATEST_CONFIGURED_CN_DOMAIN:
 - 5> consider the new ciphering configuration to include the keys associated with the LATEST_CONFIGURED_CN_DOMAIN;
 - 5> initialise the HFN component of the uplink COUNT-C and downlink COUNT-C of SRB2 to the most recently transmitted IE "START list" or IE "START" for the LATEST_CONFIGURED_CN_DOMAIN at the reception of the previous SECURITY MODE COMMAND.
 - 4> apply the new ciphering configuration immediately following RLC re-establishment.

3> else:

- 4> continue using the current ciphering configuration.
- 2> set the new uplink and downlink HFN component of COUNT-C of RB2 to MAX(uplink HFN component of COUNT-C of RB2, downlink HFN component of COUNT-C of RB2);
- 2> increment by one the downlink and uplink values of the HFN of COUNT-C for RB2;
- 2> calculate the START value according to subclause 8.5.9;
- 2> include the calculated START values for each CN domain in the IE "START list" in the IE "Uplink counter synchronisation info".
- 1> if the received reconfiguration message did not include the IE "Downlink counter synchronisation info":
 - 2> if the variable START_VALUE_TO_TRANSMIT is set:
 - 3> include and set the IE "START" to the value of that variable.
 - 2> if the variable START_VALUE_TO_TRANSMIT is not set and the IE "New U-RNTI" is included:
 - 3> calculate the START value according to subclause 8.5.9;
 - 3> include the calculated START values for each CN domain in the IE "START list" in the IE "Uplink counter synchronisation info".
 - 2> if the received reconfiguration message caused a change in the RLC size for any RB using RLC-AM:
 - 3> calculate the START value according to subclause 8.5.9;
 - 3> include the calculated START values for the CN domain associated with the corresponding RB identity in the IE "START list" in the IE "Uplink counter synchronisation info".
- 1> if the received reconfiguration message contained the IE "Ciphering mode info" or contained the IE "Integrity protection mode info":
 - 2> set the IE "Status" in the variable SECURITY_MODIFICATION for all the CN domains in the variable SECURITY_MODIFICATION to "Affected".
- 1> if the received reconfiguration message contained the IE "Ciphering mode info":
 - 2> if the reconfiguration message is not used to perform SRNS relocation with change of ciphering algorithm:
 - 3> the UE behaviour is not specified.
 - 2> if the message is used to perform a timing re-initialised hard handover:
 - 3> if IE "Ciphering activation time for DPCH" is included:
 - 4> the UE behaviour is not specified.
 - 2> else:
 - 3> if the reconfiguration message is used to setup radio bearer(s) using RLC-TM; or
 - 3> if radio bearer(s) using RLC-TM already exist:
 - 4> if IE "Ciphering activation time for DPCH" is not included:
 - 5> the UE behaviour is not specified.
 - 2> the UE may include and set the IE "Radio bearer uplink ciphering activation time info" to the value of the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO.
- 1> if the received reconfiguration message did not contain the IE "Ciphering activation time for DPCH" in IE "Ciphering mode info":
 - 2> if prior to this procedure there exist no transparent mode RLC radio bearers:

- 3> if, at the conclusion of this procedure, the UE will be in CELL_DCH state; and
- 3> if, at the conclusion of this procedure, at least one transparent mode RLC radio bearer exists:
 - 4> include the IE "COUNT-C activation time" and specify a CFN value for this IE that is a multiple of 8 frames (CFN mod 8 = 0) and lies at least 200 frames ahead of the CFN in which the response message is first transmitted.
- NOTE: UTRAN should not include the IE "Ciphering mode info" in any reconfiguration message unless it is also used to perform an SRNS relocation with change of ciphering algorithm.
- 1> set the IE "RRC transaction identifier" to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and
- 1> clear that entry;
- 1> if the variable PDCP_SN_INFO is not empty:
 - 2> include the IE "RB with PDCP information list" and set it to the value of the variable PDCP_SN_INFO.
- 1> in TDD, if the procedure is used to perform a handover to a cell where timing advance is enabled, and the UE can calculate the timing advance value in the new cell (i.e. in a synchronous TDD network):
 - 2> set the IE "Uplink Timing Advance" according to subclause 8.6.6.26.
- 1> if the IE "Integrity protection mode info" was present in the received reconfiguration message:
 - 2> start applying the new integrity protection configuration in the uplink for signalling radio bearer RB2 from and including the transmitted response message.

If after state transition the UE enters URA_PCH state, the UE shall, after the state transition and transmission of the response message:

- 1> if the IE "Frequency info" is included in the received reconfiguration message:
 - 2> select a suitable UTRA cell according to [4] on that frequency.
 - 2> if the UE can not find a suitable UTRA cell on that frequency but it finds a suitable UTRA cell on another frequency:
 - 3> proceed as below.
- 1> if the IE "Frequency info" is not included in the received reconfiguration message:
 - 2> select a suitable UTRA cell according to [4].
- 1> prohibit periodical status transmission in RLC;
- 1> remove any C-RNTI from MAC;
- 1> clear the variable C RNTI;
- 1> start timer T305 using its initial value if timer T305 is not running and if periodical update has been configured by T305 in the IE "UE Timers and constants in connected mode" set to any other value than "infinity" in the variable TIMERS_AND_CONSTANTS;
- 1> select Secondary CCPCH according to subclause 8.5.19;
- 1> if the IE "UTRAN DRX cycle length coefficient" is included in the same message:
 - 2> use the value in the IE "UTRAN DRX Cycle length coefficient" for calculating Paging occasion and PICH Monitoring Occasion as specified in subclause 8.6.3.2.
- 1> if the criteria for URA update caused by "URA reselection" according to subclause 8.3.1 are fulfilled after cell selection:
 - 2> initiate a URA update procedure according to subclause 8.3.1 using the cause "URA reselection";

- 2> when the URA update procedure is successfully completed:
 - 3> the procedure ends.

If after state transition the UE enters CELL_PCH state from CELL_DCH state, the UE shall, after the state transition and transmission of the response message:

- 1> if the IE "Frequency info" is included in the received reconfiguration message:
 - 2> select a suitable UTRA cell according to [4] on that frequency.
 - 2> if the UE finds a suitable UTRA cell on that frequency:
 - 3> if the received reconfiguration message included the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD), and the UE selects another cell than indicated by this IE or the received reconfiguration message did not include the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD):
 - 4> initiate a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";
 - 4> proceed as below.
 - 2> else, if the UE can not find a suitable UTRA cell on that frequency but it finds a suitable UTRA cell on another frequency:
 - 3> initiate a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";
 - 3> proceed as below.
- 1> if the IE "Frequency info" is not included in the received reconfiguration message:
 - 2> select a suitable UTRA cell according to [4].
 - 2> if the UE finds a suitable UTRA cell on the current frequency:
 - 3> if the received reconfiguration message included the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD), and the UE selects another cell than indicated by this IE or the received reconfiguration message did not include the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD):
 - 4> initiate a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";
 - 4> proceed as below.
 - 2> else, if the UE can not find a suitable UTRA cell on the current frequency but it finds a suitable UTRA cell on another frequency:
 - 3> initiate a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";
 - 3> proceed as below.
- 1> prohibit periodical status transmission in RLC;
- 1> remove any C-RNTI from MAC;
- 1> clear the variable C_RNTI;
- 1> start timer T305 using its initial value if timer T305 is not running and if periodical update has been configured by T305 in the IE "UE Timers and constants in connected mode" set to any other value than "infinity" in the variable TIMERS_AND_CONSTANTS;
- 1> select Secondary CCPCH according to subclause 8.5.19;
- 1> if the IE "UTRAN DRX cycle length coefficient" is included in the same message:
 - 2> use the value in the IE "UTRAN DRX Cycle length coefficient" for calculating Paging occasion and PICH Monitoring Occasion as specified in subclause 8.6.3.2.

1> the procedure ends.

If after state transition the UE enters CELL_PCH state from CELL_FACH state, the UE shall, after the state transition and transmission of the response message:

- 1> if the IE "Frequency info" is included in the received reconfiguration message:
 - 2> select a suitable UTRA cell according to [4] on that frequency.
 - 2> if the UE finds a suitable UTRA cell on that frequency:
 - 3> if the received reconfiguration message included the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD), and the UE selected another cell than indicated by this IE or the received reconfiguration message did not include the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD):
 - 4> initiate a cell update procedure according to subclause 8.3.1 using the cause "cell reselection";
 - 4> proceed as below.
 - 2> else, if the UE can not find a suitable UTRA cell on that frequency but it finds a suitable UTRA cell on another frequency:
 - 3> initiate a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";
 - 3> proceed as below.
- 1> if the IE "Frequency info" is not included in the received reconfiguration message:
 - 2> if the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD) is included the UE shall either:
 - 3> ignore the content of the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD) and proceed as below;

2> or:

- 3> if the received reconfiguration message included the IE "Primary CPICH info" (for FDD) or "Primary CPCH info" (for TDD), and it is different from the current cell:
 - 4> initiate a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";
 - 4> proceed as below.
- 1> prohibit periodical status transmission in RLC;
- 1> remove any C-RNTI from MAC;
- 1> clear the variable C_RNTI;
- 1> start timer T305 using its initial value if timer T305 is not running and if periodical update has been configured by T305 in the IE "UE Timers and constants in connected mode" set to any other value than "infinity" in the variable TIMERS_AND_CONSTANTS;
- 1> select Secondary CCPCH according to subclause 8.5.19;
- 1> if the IE "UTRAN DRX cycle length coefficient" is included in the same message:
 - 2> use the value in the IE "UTRAN DRX Cycle length coefficient" for calculating Paging occasion and PICH Monitoring Occasion as specified in subclause 8.6.3.2.
- 1> the procedure ends.

Next modified section ***

8.2.11.3 Runtime error due to overlapping compressed mode configuration and PDSCH reception Void

If UE is scheduled to receive a PDSCH frame at the same time instant as a compressed mode gap, UE shall perform the measurements according to the measurement purpose of the pattern sequence.

*** Next modified section ***

8.3.4 Active set update



Figure 8.3.4-1: Active Set Update procedure, successful case

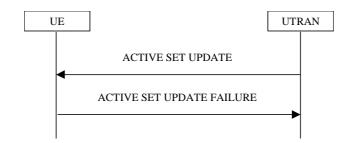


Figure 8.3.4-2: Active Set Update procedure, failure case

8.3.4.1 General

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

8.3.4.2 Initiation

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

- a) Radio link addition;
- b) Radio link removal:
- c) Combined radio link addition and removal.

In case a) and c), UTRAN should:

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

In all cases, UTRAN should:

- 1> send an ACTIVE SET UPDATE message on downlink DCCH using AM or UM RLC;
- 1> create active sets that contain at least one common radio link across a DPCH frame boundary as the result of one or multiple (parallel) active set update procedures.

UTRAN should include the following information:

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

8.3.4.3 Reception of an ACTIVE SET UPDATE message by the UE

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

The UE may:

1> maintain a list of the set of cells to which the UE has Radio Links if the IE "Cell ID" is present.

The UE shall:

- 1> first add the RLs indicated in the IE "Radio Link Addition Information";
- 1> remove the RLs indicated in the IE "Radio Link Removal Information". If the UE active set is full or becomes full, an RL, which is included in the IE "Radio Link Removal Information" for removal, shall be removed before adding RL, which is included in the IE "Radio Link Addition Information" for addition;
- 1> perform the physical layer synchronisation procedure B as specified in [29];
- 1> if the IE "TFCI combining indicator" associated with a radio link to be added is set to TRUE:
 - 2> if a DSCH transport channel is assigned and there is a 'hard' split in the TFCI field:
 - 3> configure Layer 1 to soft combine TFCI (field 2) of this new link with those links already in the TFCI (field 2) combining set.
- 1> if the radio link currently considered to be the serving HS-DSCH radio link is indicated in the IE "Radio Link Removal Information":
 - 2> no longer consider any radio link as the serving HS-DSCH radio link;
 - 2> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25.
- 1> set the IE "RRC transaction identifier" in the ACTIVE SET UPDATE COMPLETE message to the value of "RRC transaction identifier" in the entry for the ACTIVE SET UPDATE message in the table "Accepted transactions" in the variable TRANSACTIONS; and
- 1> clear that entry;
- 1> transmit an ACTIVE SET UPDATE COMPLETE message on the uplink DCCH using AM RLC without waiting for the completion of the Physical Layer synchronisation B, as specified in [29];
- 1> the procedure ends on the UE side.

* Next modified section ***

8.5.21 Actions related to Radio Bearer mapping

When the UE receives the IE "RB mapping info" and/or the IE "Transport format set", when transport channels or MAC-d flows are added or deleted, when the UE performs a cell reselection or a state transition, or when the UE releases a RB, the UE shall for each of the configured Radio Bearers:

- 1> upon moving to CELL_FACH state from CELL_DCH state to initiate a cell update procedure and upon subsequent cell reselections until the first successfully completed cell update procedure, perform the actions defined in the remainder of this subclause only for SRB1, SRB2, SRB3 and SRB4;
- 1> for FDD, select the multiplexing option according to the following:

- 2> if the UE is in CELL_FACH state:
 - 3> if the RB has a multiplexing option with transport channel type "FACH" for the DL and transport channel type "RACH" for the UL:
 - 4> select this multiplexing option.
- 2> if the UE is in CELL_DCH state:
 - 3> if the RB has a multiplexing option with transport channel type "DCH + HS-DSCH" for the DL, and both the corresponding DCH transport channel and MAC-d flow are configured, and with transport channel type "DCH" for the UL, and the corresponding DCH transport channel is configured:
 - 4> select this multiplexing option; else
 - 3> if the RB has a multiplexing option with transport channel type "DCH + DSCH" for the DL, and both the corresponding DCH and DSCH transport channels are configured, and with transport channel type "DCH" for the UL, and the corresponding DCH transport channel is configured:
 - 4> select this multiplexing option the UE behaviour is unspecified; else
 - 3> if the RB has a multiplexing option with transport channel type "HS-DSCH" for the DL, and the corresponding MAC-d flow is configured, and with transport channel type "DCH" for the UL, and the corresponding DCH transport channel is configured:
 - 4> select this multiplexing option; else
 - 3> if the RB has a multiplexing option with transport channel type "DSCH" for the DL, and the corresponding DSCH transport channel is configured, and with transport channel type "DCH" for the UL, and the corresponding DCH transport channel is configured:
 - 4> select this multiplexing option the UE behaviour is unspecified; else
 - 3> if the RB has a multiplexing option with transport channel type "DCH" for the DL, and the corresponding DCH transport channel is configured, and with transport channel type "DCH" for the UL, and the corresponding DCH transport channel is configured:
 - 4> select this multiplexing option.
- 1> for TDD, select the multiplexing option according to the following:
 - 2> if the UE is in CELL FACH state:
 - 3> if the RB has the multiplexing options with the transport channel types "FACH" and "DSCH" for the DL, and the corresponding FACH and DSCH transport channels are configured, and with the transport channel types "RACH" and "USCH" for the UL, and the corresponding RACH and USCH transport channels are configured:
 - 4> if both PUSCH and PDSCH are allocated:
 - $5\!\!>$ select the multiplexing option "DSCH" for DL and "USCH" for UL; else
 - 4> if only PUSCH is allocated:
 - 5> select the multiplexing option "FACH" for DL and "USCH" for UL; else
 - 4> if only PDSCH is allocated:
 - 5> select the multiplexing option "DSCH" for DL and "RACH" for UL; else
 - 4> if neither PUSCH nor PDSCH is allocated:
 - 5> select the multiplexing option "FACH" for DL and "RACH" for UL.
 - 3> if the RB has a single multiplexing option with the transport channel type "FACH" for the DL and the transport channel type "RACH" for the UL:

- 4> select this multiplexing option; else
- 3> if the RB has a single multiplexing option with the transport channel type "DSCH" for the DL, and the corresponding DSCH transport channel is configured, and with the transport channel type "USCH" for the UL, and the corresponding USCH transport channel is configured:
 - 4> select this multiplexing option; else
- 2> if the UE is in CELL DCH state:
 - 3> if the RB has a multiplexing option with transport channel type "DCH + HS-DSCH" for the DL, and both the corresponding DCH transport channel and MAC-d flow are configured, and with transport channel type "DCH" for the UL, and the corresponding DCH transport channel is configured:
 - 4> select this multiplexing option; else
 - 3> if the RB has a multiplexing option with transport channel type "DCH + DSCH" for the DL, and both the corresponding DCH and DSCH transport channels are configured, and with transport channel type "DCH" for the UL, and the corresponding DCH transport channel is configured:
 - 4> select this multiplexing option; else
 - 3> if the RB has a multiplexing option with transport channel type "HS-DSCH" for the DL, and the corresponding MAC-d flow is configured, and with transport channel type "DCH" for the UL, and the corresponding DCH transport channel is configured:
 - 4> select this multiplexing option; else
 - 3> if the RB has a multiplexing option with transport channel type "DCH" for the DL, and the corresponding DCH transport channel is configured, and with transport channel type "DCH" for the UL, and the corresponding DCH transport channel is configured:
 - 4> select this multiplexing option; else
 - 3> if theRB has a multiplexing option with transport channel type "DSCH" for the DL, and the corresponding DSCH transport channel is configured, and with transport channel "USCH" for the UL, and the corresponding USCH transport channel is configured:
 - 4> select this multiplexing option.
- 1> configure the MAC with the appropriate transport format set (with computed transport block sizes) for the transport channel used by that RB;
- 1> determine the sets of RLC sizes that apply to the logical channels used by that RB, based on the IEs "RLC size list" and/or the IEs "Logical Channel List" included in the applicable "Transport format set" (either the ones received in the same message or the ones stored if none were received);
- 1> in case the selected multiplexing option is a multiplexing option on RACH:
 - 2> ignore the RLC size indexes that do not correspond to any RLC size within the Transport Format Set stored for RACH.
 - 2> if there is no remaining RLC size index corresponding to an RLC size within the Transport Format Set stored for RACH:
 - 3> set the variable INVALID_CONFIGURATION to TRUE.
- 1> if RACH is the transport channel to be used on the uplink, if that RB has a multiplexing option on RACH and if it is using AM:
 - 2> apply the largest size amongst the ones derived according to the previous bullet for the RLC size (or RLC sizes in case the RB is realised using two logical channels) for the corresponding RLC entity.
- NOTE: The IE "RB mapping info" is only included in the IE "Predefined RB configurations" in system information when used for Inter-RAT handover to UTRAN and there is no AM RLC size change involved in this case.

- 1> if that RB is using AM and the RLC size applicable to the uplink logical channel transporting data PDUs is different from the one derived from the previously stored configuration; and
- 1> none of the following conditions is met:
 - The RLC size change is caused by a CELL UPDATE CONFIRM and the CELL UPDATE CONFIRM message includes the IE "Downlink counter synchronisation info";
 - The RLC size change is caused by a reconfiguration message, and a cell update procedure occurs during this reconfiguration procedure and the CELL UPDATE CONFIRM message includes the IE "RLC re-establish indicator" being set to TRUE for the corresponding radio bearer.
 - 2> if the RLC size change is caused by a reconfiguration message or a CELL UPDATE CONFIRM; and
 - 2> the IE "one sided RLC re-establishment" is included in that message and is set to TRUE:
 - 3> re-establish the transmitting side of the corresponding RLC entity.
 - 2> else:
 - 3> re-establish the corresponding RLC entity.
 - 2> configure the corresponding RLC entity with the new uplink RLC size;
 - 2> for each AM RLC radio bearer in the CN domain as indicated in the IE "CN domain identity" in the IE "RAB info" in the variable ESTABLISHED_RABS whose RLC size is changed; and
 - 2> for each AM RLC signalling radio bearer in the CN domain as indicated in the IE "CN domain identity" in the variable LATEST_CONFIGURED_CN_DOMAIN whose RLC size is changed:
 - 3> if the IE "Status" in the variable CIPHERING_STATUS of this CN domain is set to "Started":
 - 4> if the information causing the RLC re-establishment was included in system information:
 - 5> set the HFN values for the corresponding RLC entity equal to the value of the IE "START" for this CN domain that will be included in the CELL UPDATE message following cell reselection.
- NOTE: Since the UE cannot predict the START value at the time of the next CELL UPDATE transmission in the future, UTRAN should desist from changing the RLC size for a signalling radio bearer within a cell. Other than this case the change in RLC size for a signalling radio bearer is known to the UE when reading system information following cell reselection.
 - 4> if the RLC re-establishment is caused by a CELL UPDATE CONFIRM:
 - 5> if the whole RLC entity was re-established:
 - 6> set the HFN values for the corresponding RLC entity in uplink and downlink equal to the value of the IE "START" included in the latest transmitted CELL UPDATE message for this CN domain.
 - 5> if only the transmitting side of the RLC entity was re-established:
 - 6> set the HFN value for the corresponding RLC entity in the uplink equal to the value of the IE "START" included in the latest transmitted CELL UPDATE message for this CN domain.
 - 4> if the RLC re-establishment is caused by a reconfiguration message:
 - 5> if the whole RLC entity was re-established:
 - 6> set the HFN values for the corresponding RLC entity in uplink and downlink equal to the value of the IE "START" that will be included in the reconfiguration complete message for this CN domain.
 - 5> if only the transmitting side of the RLC entity was re-established:

6> set the HFN value for the corresponding RLC entity in the direction uplink equal to the value of the IE "START" that will be included in the reconfiguration complete message for this CN domain.

- NOTE1: If the UTRAN modifies the RLC size for RB2 on any reconfiguration message or Cell Update Confirm message, the UE behaviour is unspecified in this version of the specification.
- NOTE2: The UE cannot rely on the configured Transport Formats to determine the RLC sizes to be used in downlink for a particular logical channel. This size can be signalled explicitly in the RLC Info IE.
- 1> if that RB is using UM:
 - 2> indicate the largest RLC size applicable for uplink to the corresponding RLC entity.
- 1> configure MAC multiplexing according to the selected multiplexing option (MAC multiplexing shall only be configured for a logical channel if the transport channel it is mapped on according to the selected multiplexing option is the same as the transport channel another logical channel is mapped on according to the multiplexing option selected for it);
- 1> configure the MAC with the logical channel priorities according to selected multiplexing option;
- 1> configure the MAC with the set of applicable RLC Sizes for each of the logical channels used for that RB;
- 1> if there is no multiplexing option applicable for the transport channels and MAC-d flows to be used:
 - 2> set the variable INVALID_CONFIGURATION to TRUE.
- 1> if there is more than one multiplexing option applicable for the transport channels or MAC-d flows to be used:
 - 2> set the variable INVALID_CONFIGURATION to TRUE.

If upon cell re-selection or upon moving to CELL_FACH state from CELL_DCH state to initiate cell update procedure the UE sets variable INVALID_CONFIGURATION to TRUE as a result of the actions defined in this subclause, the UE should:

- 1> move to idle mode;
- 1> release (locally) the established signalling connections (as stored in the variable ESTABLISHED_SIGNALLING_CONNECTIONS) and the established radio access bearers (as stored in the variable ESTABLISHED_RABS) and indicate this to upper layers;
- 1> perform other actions when entering idle mode from connected mode as specified in subclause 8.5.2.

8.6.3.1 Activation time

If the UE receives a message in which presence is needed for the IE "Activation time", and the value is other than the default value "Now", the UE shall:

- 1> let the "reference CCTrCH" be defined as the CCTrCh that includes any transport channel or is associated with any physical channel which is being added, re-configured or removed, or, in the case of DSCH (FDD only) or HS-DSCH, the CCTrCh including the associated DCH;
- 1> if the frame boundary immediately before the frame with the CFN (Connection Frame Number) value indicated by the IE "Activation Time" is at the TTI boundary common to all the transport channels that are multiplexed onto the reference CCTrCh:
 - 2> select that frame boundary as the activation time T.
- 1> else:
 - 2> select the next TTI boundary, which is common to all the transport channels that are multiplexed onto the reference CCTrCh, after the frame with the CFN (Connection Frame Number) value indicated by the IE "Activation Time", as the activation time T.

- 1> at the activation time T:
 - 2> for a physical channel reconfiguration other than an HS-DSCH related reconfiguration, caused by the received message:
 - 3> release the physical channel configuration, which was present before T;
 - 3> initiate the establishment of the physical channel configuration as specified for the physical channel information elements in the received message as specified elsewhere.
 - 2> for an HS-DSCH related reconfiguration in FDD or 1.28 Mcps TDD caused by the received message:
 - 3> select the HS-SCCH subframe boundary immediately before the first HS-SCCH subframe, which entirely falls within the 10 ms frame following T;
 - 3> start using, at that HS-SCCH subframe boundary, the new HS-DSCH configuration in the received message, replacing any old HS-DSCH configuration.
 - 2> for an HS-DSCH related reconfiguration in 3.84 Mcps TDD caused by the received message:
 - 3> start using, at activation time T, the new HS-DSCH configuration in the received message, replacing any old HS-DSCH configuration.
 - 2> for actions, other than a physical channel reconfiguration, caused by the received message:
 - 3> perform the actions for the information elements in the received message as specified elsewhere.
- NOTE: In FDD an "HS-DSCH related reconfiguration" includes, in particular, reconfigurations that need to be time-aligned with the 2ms subframe of the HS-SCCH, HS-PDSCH and/or HS-DPCCH. For example, start and stop of HS-SCCH reception and serving HS-DSCH cell change.

If the UE receives a message in which presence is needed for the IE "Activation time", and the value is the default value "Now", the UE shall:

- 1> choose an activation time T as soon as possible after the reception of the message, respecting the performance requirements in subclause 13.5;
- 1> at the activation time T:
 - 2> perform the actions for the information elements in the received message as specified elsewhere.
- NOTE: In FDD, if the UE was in idle mode or CELL_FACH state upon reception of the message, regardless of the state the UE enters after reception of the message, and the value of the IE "Activation time" in the received message is different from "Now", the UE behaviour is unspecified. In TDD, if the UE was in idle mode or CELL_FACH state upon reception of the message, the value of the IE "Activation time" in the received message is relative to the CFN associated with the cell from which the message was received.

**** Next modified section ***

8.6.3.9a New DSCH-RNTI

In TDD If the IE "New DSCH-RNTI" is included, the UE shall:

1> in FDD:

- 2> if the UE will be in CELL_DCH at the end of the procedure where the received message included this IE:
 - 3> if the UE supports DSCH as indicated in the IE "Physical Channel Capability" included in the IE "UE Radio Access Capability":
 - 4> store the value in the variable DSCH_RNTI, replacing any old stored value;
 - 4> use that DSCH RNTI when using common transport channels of type DSCH in the current cell.

1> in TDD:

- 21> if the UE will be in CELL_DCH or CELL_FACH at the end of the procedure where the received message included this IE:
 - 32> if the UE supports DSCH or USCH as indicated in the IE "Physical Channel Capability" included in the IE "UE Radio Access Capability":
 - 43> store the value in the variable DSCH_RNTI, replacing any old stored value;
 - 43> use that DSCH-RNTI when using SHCCH signalling in the current cell.

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 (only for TDD) 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 behavour is unspecified in this version of the specification.

8.6.5.1 Transport Format Set

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

- 1> if the transport format set is a RACH TFS received in System Information Block type 5 or 6, and CHOICE "Logical Channel List" has a value different from "Configured":
 - 2> ignore that System Information Block.
- 1> if the transport format set for a downlink transport channel is received in a System Information Block, and CHOICE "Logical Channel List" has a value different from 'ALL':
 - 2> ignore that System Information Block.
- 1> if the transport format set for a downlink transport channel is received in a message on a DCCH, and CHOICE "Logical Channel List" has a value different from 'ALL':
 - 2> keep the transport format set if this exists for that transport channel;
 - 2> set the variable INVALID_CONFIGURATION to TRUE.
- 1> if the value of any IE "RB identity" (and "Logical Channel" for RBs using two UL logical channels) in the IE "Logical channel list" does not correspond to a logical channel indicated to be mapped onto this transport channel in any RB multiplexing option (either included in the same message or previously stored and not changed by this message); or
- 1> if the "Logical Channel List" for any of the RLC sizes defined for that transport channel is set to "Configured" while it is set to "All" or given as an "Explicit List" for any other RLC size; or
- 1> if the "Logical Channel List" for any of the RLC sizes defined for that transport channel is set to "All" and for any logical channel mapped to this transport channel, the value of the "RLC size list" (either provided in the IE "RB mapping info" if included in the same message, or stored) is not set to "Configured"; or
- 1> if the "Logical Channel List" for any of the RLC sizes defined for that transport channel is given as an "Explicit List" that contains a logical channel for which the value of the "RLC size list" (either provided in the IE "RB mapping info" if included in the same message, or stored) is not set to "Configured"; or
- 1> if the "Logical Channel List" for all the RLC sizes defined for that transport channel are given as "Explicit List" and if one of the logical channels mapped onto this transport channel is not included in any of those lists; or
- 1> if the "Logical Channel List" for the RLC sizes defined for that transport channel is set to "Configured" and for any logical channel mapped onto that transport channel, the value of the "RLC size list" (either provided in the IE "RB mapping info" if included in the same message, or stored) is also set to "Configured"; or
- 1> if the IE "Transport Format Set" was not received within the IE "PRACH system information list" and if the "Logical Channel List" for the RLC sizes defined for that transport channel is set to "Configured" and for any

logical channel mapped onto that transport channel, the "RLC size list" (either provided in the IE "RB mapping info" if included in the same message, or stored) is given as an "Explicit List" that includes an "RLC size index" that does not correspond to any RLC size in this "Transport Format Set"; or

- 1> if the IE "Transport Format Set" was not received within the IE "PRACH system information list", and if that RB is using AM and the set of RLC sizes applicable to the logical channel transferring data PDUs has more than one element not equal to zero:
 - 2> keep the transport format set if this exists for that transport channel;
 - 2> set the variable INVALID_CONFIGURATION to TRUE.
- 1> if the total number of configured transport formats for the transport channel exceeds maxTF:
 - 2> keep the transport format set if this exists for that transport channel;
 - 2> set the variable INVALID_CONFIGURATION to TRUE.
- 1> if the IE "Transport format set" is considered as valid according to the rules above:
 - 2> remove a previously stored transport format set if this exists for that transport channel;
 - 2> store the transport format set for that transport channel;
 - 2> consider the first instance of the parameter *Number of TBs and TTI List* within the *Dynamic transport format information* to correspond to transport format 0 for this transport channel, the second to transport format 1 and so on;
 - 2> if the IE "Transport format Set" has the choice "Transport channel type" set to "Dedicated transport channel":
 - 3> calculate the transport block size for all transport formats in the TFS using the following

TB size = RLC size + MAC header size if "RLC size"
$$<> 0$$
,
TB size = 0 if "RLC size" = 0,

where:

- MAC header size is calculated according to [15] if MAC multiplexing is used. Otherwise it is 0 bits;
- 'RLC size' reflects the RLC PDU size.
- 2> if the IE "Transport format Set" has the choice "Transport channel type" set to "Common transport channel":

3> in FDD:

34> for transport channels other than DSCH calculate the transport block size for all transport formats in the TFS using the following:

TB size =
$$RLC$$
 size.

4> for DSCH transport channels calculate the transport block size for all transport formats in the TFS using the following:

```
TB size = RLC size + MAC header size if "RLC size" \Leftrightarrow 0,

TB size = 0 if "RLC size" = 0.
```

where:

- MAC header size is calculated according to [15];
- 'RLC size' reflects the RLC PDU size.

3> for TDD calculate the transport block size for all transport formats in the TFS using the following:

2> if the IE "Number of Transport blocks" <> 0 and IE "RLC size" = 0, no RLC PDU data exists but only parity bits exist for that transport format;

- 2> if the IE "Number of Transport blocks" = 0, neither RLC PDU neither data nor parity bits exist for that transport format;
- 2> perform the actions as specified in subclause 8.5.21.

For configuration restrictions on Blind Transport Format Detection, see [27].

** Next modified section ***

8.6.5.12 TFCS Reconfiguration/Addition Information

If the IE "TFCS Reconfiguration/Addition Information" is included the UE shall:

- 1> store the TFCs to be reconfigured/added indicated in the IE "CTFC information" as specified below;
- 1> if the IE "Power offset information" is included:
 - 2> perform actions as specified in [29].

In order to identify the TFCs included in this IE the UE shall calculate the CTFC as specified in subclause 14.10-and

- 1> if the IE "TFCS Reconfiguration/Addition Information" was included in the IE "TFCI Field 1 Information":
 - 2> ignore for the CTFC calculation any DSCH transport channel that may be assigned.
- 1> if the IE "TFCS Reconfiguration/Addition Information" was included in the IE "TFCI Field 2 Information":
 - 2> ignore for the CTFC calculation any DCH transport channel that may be assigned.

If the IE "TFCS Reconfiguration/Addition Information" is used in case of TFCS "Complete reconfiguration" the UE shall:

- 1> remove a previously stored transport format combination set if this exists;
- 1> consider the first instance of the IE "CTFC information" as Transport Format Combination 0 in FDD (TFCI=0) and 1 in TDD (TFCI=1), the second instance as Transport Format Combination 1 in FDD (TFCI=1) and 2 in TDD (TFCI=2) and so on. In TDD the TFCI value = 0 is reserved for physical layer use.

If the IE "TFCS Reconfiguration/Addition Information" is used in case of TFCS "Addition" the UE shall insert the new additional(s) TFC into the first available position(s) in ascending TFCI order in the TFCS.

8.6.5.13 TFCS Removal Information

If the IE "TFCS Removal Information" is included the UE shall:

1> remove the TFC indicated by the IE "TFCI" from the current TFCS, and regard this position (TFCI) in the TFCS as vacant.

8.6.5.14 TFCI Field 2 Information Void

If the IE "TFCI Field 2 Information" is included the UE shall:

- 1> if the IE choice "Signalling method" is set to 'TFCI range':
 - 2> for the first group in the IE "TFCI(field 2) range":
 - 3> apply the Transport Format Combination indicated by the value of the IE "TFCS Information for DSCH (TFCI range method)" to the group of values of TFCI(field 2) between 0 and the IE "Max TFCI(field2) value".
 - 2> for the following groups in the IE "TFCI(field 2) range":
 - 3> apply the Transport Format Combination indicated by the value of the IE "TFCS Information for DSCH (TFCI range method)" to the group of values of TFCI(field 2) between the largest value reached in the previous group plus one and the IE "Max TFCI(field2) value".

```
1> if the IE choice "Signalling method" is set to 'Explicit':
```

2> perform actions for the IE "TFCS explicit configuration" as specified in subclause 8.6.5.15.

8.6.5.15 TFCS Explicit Configuration

If the IE "TFCS Explicit Configuration" is included the UE shall:

- 1> if the IE choice "TFCS representation" is set to 'complete reconfiguration':
 - 2> perform the actions for the IE "TFCS Reconfiguration/Addition Information" as specified in subclause 8.6.5.12.
- 1> if the IE choice "TFCS representation" is set to 'addition':
 - 2> perform the actions for the IE "TFCS Reconfiguration/Addition Information" as specified in subclause 8.6.5.12.
- 1> if the IE choice "TFCS representation" is set to 'removal':
 - 2> perform the actions for the IE "TFCS Removal Information" as specified in subclause 8.6.5.13.
- 1> if the IE choice "TFCS representation" is set to 'replace':
 - 2> perform first the actions for the IE "TFCS Removal Information" as specified in subclause 8.6.5.13; and then
 - 2> perform the actions for the IE "TFCS Reconfiguration/Addition Information" as specified in subclause 8.6.5.12.

*** Next modified section *

8.6.6.9 VoidPDSCH with SHO DCH Info (FDD only)

If the IE "PDSCH with SHO DCH Info" is included, the UE shall:

- 1> if the variable DSCH_RNTI is empty:
 - 2> set the variable INVALID_CONFIGURATION to TRUE.
- 1> configure itself to receive the PDSCH from the specified radio link within the active set identified by the IE "DSCH radio link identifier";
- 1> if the TFCI has a 'hard' split:
 - 2> if the IE "TFCI(field2) combining set" is included:
 - 3> configure the Layer 1 to combine soft only the DPCCH TFCI(field 2) of the radio links within the active set which are identified by the IE "Radio link identifier" in the IE "TFCI(field2) Combining set".
 - 2> if the IE "TFCI(field2) combining set" is not included:
 - 3> configure the L1 to combine soft the DPCCH TFCI(field 2) of all radio links within the active set.

8.6.6.10 VoidPDSCH code mapping (FDD only)

If the IE "PDSCH code mapping" is included, the UE shall:

- 1> if the variable DSCH_RNTI is empty:
 - 2> set the variable INVALID_CONFIGURATION to TRUE.
- 1> use the scrambling code defined by the IE "DL Scrambling Code" to receive the PDSCH;
- 1> if the IE choice "signalling method" is set to 'code range':
 - 2> map the TFCI(field2) values to PDSCH codes in the following way:

- 2> for the first group of the IE "PDSCH code mapping":
 - 3> if the value of the IE "multi-code info" equals 1:
 - 4> map the TFCI(field 2) = 0 to the PDSCH code specified by the IE "Spreading factor" and the code number given by the IE "Code number (for PDSCH code) start";
 - 4> map TFCI(field 2) = 1 to the PDSCH code specified by the IE "Spreading factor" and the code number given by the IE "Code number (for PDSCH code) start"+1;
 - 4> continue this process with unit increments in the value of TFCI(field 2) mapped to unit increments in code number until the code number equals the value of the IE "Code number (for PDSCH code) stop".
 - 3> if the value of the IE "multi-code info" is greater than 1:
 - 4> if the value of the difference between the IE "Code number (for PDSCH code) start" and the IE "Code number (for PDSCH code) stop" + 1 is not a multiple of the value of the IE "multi code info":
 - 5> set the variable INVALID CONFIGURATION to TRUE.
 - 4> map TFCI (field 2)=0 to a set of PDSCH contiguous codes. This code set is specified by the IE

 "Spreading factor" and code numbers between 'code number start' denoted by the IE "Code number

 (for PDSCH code) start" and 'code number stop' given by IE "Code number (for PDSCH code) start"

 1 + the value of the IE "multi-code info";
 - 4> continue this process with unit increments in the value of TFCI(field 2) mapped to a set of contiguous codes. This code set is specified by the IE "Spreading factor" and code numbers between 'code number start' = 'code number stop' +1 of the previous TFCI(field2) and 'code number stop'='code number start' -1 + the value of the IE "multi-code info";
 - 4> stop this process when the 'code number stop' associated to the last TFCI(field2) equals the value of the IE "Code number (for PDSCH code) stop".
- 2> for each of the next groups included in the IE "PDSCH code mapping":
 - 3> continue the process in the same way as for the first group with the TFCI(field 2) value used by the UE to construct its mapping table starting at the largest TFCI(field 2) value reached in the previous group plus one.
- 2> if the value of the IE "Code number (for PDSCH code) start" equals the value of the IE "Code number (for PDSCH code) stop" (as may occur when mapping the PDSCH root code to a TFCI (field 2) value):
 - 3> consider this as defining the mapping between the channelisation code and a single TFCI (i.e., TFCI(field 2) shall not be incremented twice).
- 1> if the IE choice "signalling method" is set to 'TFCI range':
 - 2> map the TFCI(field2) values to PDSCH codes in the following way:
 - 2> for the first group of the IE "DSCH mapping":
 - 3> map each of the TFCI(field 2) between 0 and the value of the IE "Max TFCI(field2)" to the PDSCH code specified by the IE "Spreading factor (for PDSCH code)" and the code number given by the IE "Code number (for PDSCH code)".
 - 2> for each of the next groups included in the IE "DSCH mapping":
 - 3> map each of the TFCI(field 2) between the IE "Max TFCI(field2) value" specified in the last group plus one and the specified IE "Max TFCI(field2)" in the current group to the PDSCH code specified by the IE "Spreading factor (for PDSCH code)" and the code number given by the IE "Code number (for PDSCH code)".
 - 2> if the value of the IE "multi-code info" is greater than 1:

- 3> map each value of TFCI (field 2) to a set of PDSCH contiguous codes starting at the channelisation code denoted by the 'code number' parameter and including all codes with code numbers up to and including 'code number' 1 + the value of the IE "multi-code info".
- 1> if the IE choice "signalling method" is set to 'Explicit'
 - 2> map the TFCI(field2) values to PDSCH codes in the following way:
 - 2> for the first instance on the IE "PDSCH code info":
 - 3> apply the PDSCH code specified by the IE "Spreading factor (for PDSCH code)" and the code number given by the IE "Code number (for PDSCH code)" for TFCI(field2)=0.
 - 2> for the second instance of the IE "PDSCH code info":
 - 3> apply the PDSCH code specified by the IE "Spreading factor (for PDSCH code)" and the code number given by the IE "Code number (for PDSCH code)" for TFCI(field2)=1.
 - 2> continue in a similar way for each next instance of the IE "PDSCH code info";
 - 2> if the value of the IE "multi-code info" is greater than 1, then
 - 3> map each value of TFCI (field 2) to a set of PDSCH contiguous codes starting at the channelisation code denoted by the 'code number' parameter and including all codes with code numbers up to and including 'code number' 1 + the value of the IE "multi-code info".
- 1> if the IE choice "signalling method" is set to 'Replace':
 - 2> map the TFCI(field2) values to PDSCH codes in the following way:
 - 2> for each instance of the IE "Replaced PDSCH code":
 - 3> replace the corresponding PDSCH code for the TFCI(field2) identified by the IE "TFCI(field2)" with the new code specified by the IE "Spreading factor (for PDSCH code)" and the code number given by the IE "Code number (for PDSCH code)".
 - 2> if the value of the IE "multi-code info" is greater than 1:
 - 3> map each value of TFCI (field 2) to a set of PDSCH contiguous codes starting at the channelisation code denoted by the 'code number' parameter and including all codes with code numbers up to and including 'code number' 1 + the value of the IE "multi-code info".

** 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	Need	Multi	Type and reference	Semantics description	Version
name				description	
Message Type	MP		Message		
			Туре		
UE Information Elements					
U-RNTI	CV-CCCH		U-RNTI		
			10.3.3.47		
RRC transaction identifier	MP		RRC		
			transaction		
			identifier		
			10.3.3.36		

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
Integrity check info	СН		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>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 cell reselection 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 10.3.3.47	-	
New C-RNTI	OP		C-RNTI 10.3.3.8		
New DSCH-RNTI	OP		DSCH-RNTI 10.3.3.9a	Should not be set in FDD. If received The UE should ignore it	
New H-RNTI	OP		H-RNTI 10.3.3.14a	Should ignore it	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		
	UP		Information info 10.3.1.3		
UTRAN Information Elements	OD		LIDA :-I- **		
URA identity	OP		URA identity 10.3.2.6		
RB information elements RB information to release list	OP	1 to			
		<maxrb></maxrb>	DD		
>RB information to release	MP		RB information to release		

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
RB information to reconfigure list	OP	1 to	10.5.4.19		
		<maxrb></maxrb>			
>RB information to reconfigure	MP		RB information to		
			reconfigure 10.3.4.18		
RB information to be affected list	OP	1 to <maxrb></maxrb>	10.0.4.10		
>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></maxrball 			
>>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 ></maxtrch 			
>Deleted UL TrCH information	MP		Deleted UL TrCH information 10.3.5.5		
Added or Reconfigured TrCH information list	ОР	1 to <maxtrch ></maxtrch 			
>Added or Reconfigured UL TrCH information	MP		Added or Reconfigure d UL TrCH information 10.3.5.2		
CHOICE mode	MP				
>FDD >>CPCH set ID	OP		CPCH set ID		
>>Added or Reconfigured TrCH information for DRAC list	OP	1 to <maxtrch< td=""><td>10.3.5.3</td><td></td><td></td></maxtrch<>	10.3.5.3		
>>>DRAC static information	MP	> <	DRAC static		
DIVUO SIGIIC IIIIOIIIIGIIOII	IVII		information		

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
>TDD			10.0.0.7	(no data)	1
Downlink transport channels				(1.0 data)	
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 ></maxtrch 			
>Deleted DL TrCH information	MP		Deleted DL TrCH information 10.3.5.4		
Added or Reconfigured TrCH information list	OP	1 to <maxtrch ></maxtrch 			
>Added or Reconfigured DL TrCH information	MP		Added or Reconfigure d 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 channel requirement	OP		10.0.0.00	power	
>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				
>>Downlink PDSCH information	QP		Downlink PDSCH information 40.3.6.30		
Downlink HS-PDSCH Information	OP		Downlink HS_PDSCH Information 10.3.6.23a	(no data)	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></maxrl>		Send downlink information for each radio link to be set-up	
>Downlink information for each radio link	MP		Downlink information for each		

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
			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.

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 \rightarrow UE

*** Next modified section ****

Information Element/Group name	Need	Multi	Type and reference	Semantics description
New U-RNTI	MP		U-RNTI Short 10.3.3.48	
Ciphering algorithm	OP		Ciphering algorithm 10.3.3.4	
CHOICE specification mode	MP			
>Complete specification				
RB information elements				
>>Signalling RB information to setup list	MP	1 to <maxsrbs etup></maxsrbs 		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	ОР	1 to <maxrabs etup></maxrabs 		For each RAB established
>>>RAB information for setup	MP		RAB information for setup 10.3.4.10	
Uplink transport channels				
>>UL Transport channel information common for all transport channels	MP		UL Transport channel information common for all transport channels 10.3.5.24	
>>Added or Reconfigured TrCH information	MP	1 to <maxtrch ></maxtrch 		
>>>Added or Reconfigured UL TrCH information	MP		Added or Reconfigure d UL TrCH information 10.3.5.2	
Downlink transport channels				

Information Element/Group name	Need	Multi	Type and reference	Semantics description
>>DL Transport channel	MP		DL Transport	
information common for all			channel	
transport channels			information	
			common for	
			all transport channels	
			10.3.5.6	
>>Added or Reconfigured TrCH	MP	1 to		
information		<maxtrch< td=""><td></td><td></td></maxtrch<>		
		>		
>>>Added or Reconfigured DL	MP		Added or	
TrCH information			Reconfigure d DL TrCH	
			information	
			10.3.5.1	
Uplink radio resources				
>>Uplink DPCH info	MP		Uplink DPCH	
			info	
0110105			10.3.6.88	
>>CHOICE mode >>>FDD	MP			
>>>CPCH SET Info	OP		CPCH SET	
>>>>C C G 	01-		Info	
			10.3.6.13	
Downlink radio resources				
>>>>Downlink PDSCH	OP		Downlink	
information			PDSCH	
			information	
>>>TDD			10.3.6.30	(no data)
>>Downlink information	MP		Downlink	(110 data)
common for all radio links	1411		information	
			common for	
			all radio links	
			10.3.6.24	
>>Downlink information per	MP	1 to		
radio link >>>Downlink information for	MP	<maxrl></maxrl>	Downlink	
each radio link	IVIE		information	
Caon radio iinix			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	MP		Enumerated.	Indicates whather the CDD -
>>>Default configuration mode	MP		Enumerated (FDD, TDD)	Indicates whether the FDD or TDD version of the default
			(FDD, TDD)	configuration shall be used
>>>Default configuration	MP		Default	Tamigation of the policy
identity			configuration	
			identity	
			10.3.4.0	
>>RAB info	OP		RAB info	One RAB is established
			Post 10.3.4.9	
>>Uplink DPCH info	MP		Uplink DPCH	
Opinic Di Ori inio			info Post	
			10.3.6.89	
Downlink radio resources				
>>Downlink information common	MP		Downlink	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
for all radio links			information common for all radio links Post 10.3.6.25	
>>Downlink information per radio link	MP	1 to <maxrl></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 information for each radio link Post 10.3.6.28	
>>CHOICE mode	MP			
>>>FDD				(no data)
>>>TDD				
>>>Primary CCPCH Tx Power	MP		Primary CCPCH Tx Power 10.3.6.59	
Frequency info	MP		Frequency info 10.3.6.36	
Maximum allowed UL TX power	MP		Maximum allowed UL TX power 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

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	

Information Element/Group	Need	Multi	Type and reference	Semantics	Version
name Ciphoring mode into	OP			description The UTRAN	
Ciphering mode info	UP		Ciphering mode info	should not include	
			10.3.3.5	this IE unless it is	
			10.3.3.3	performing an	
				SRNS relocation	
				and a change in	
				ciphering	
				algorithm	
Activation time	MD		Activation	Default value is	
, touvalion line	5		time 10.3.3.1	"now"	
New U-RNTI	OP		U-RNTI	11011	
1100 6 11111			10.3.3.47		
New C-RNTI	OP		C-RNTI		
11011 0 111111	0.		10.3.3.8		
New DSCH-RNTI	OP		DSCH-RNTI	Should not be set	
now Been have	0.		10.3.3.9a	in FDD. If	
			10.0.0.0	received The UE	
				should ignore it	
New H-RNTI	OP		H-RNTI	<u>one and righter one</u>	REL-5
			10.3.3.14a		
RRC State Indicator	MP		RRC State		
			Indicator		
			10.3.3.35a		
UTRAN DRX cycle length	OP		UTRAN DRX		
coefficient			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	OP				
synchronisation info					
>RB with PDCP information list	OP	1 to			
		<maxrball< td=""><td></td><td></td><td></td></maxrball<>			
		RABs>			
>>RB with PDCP information	MP		RB with	This IE is needed	
			PDCP	for each RB	
			information	having PDCP in	
			10.3.4.22	the case of	
				lossless SRNS	
				relocation	
	OP				REL-5
>>PDCP context relocation info	OP		PDCP	This IE is needed	REL-5
			context	for each RB	
			relocation	having PDCP and	
			info	performing PDCP	
			10.3.4.1a	context relocation	
PhyCH information elements	ļ				<u> </u>
Frequency info	OP		Frequency		
			info		
H.P.L. P.	-		10.3.6.36		
Uplink radio resources	145			5.0	
Maximum allowed UL TX power	MD		Maximum	Default value is	
			allowed UL	the existing value	
			TX power	of the maximum	
			10.3.6.39	allowed UL TX	
OHOLOG shares !	OD			power	-
CHOICE channel requirement	OP		The Part Brown		
>Uplink DPCH info			Uplink DPCH		

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
			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	QP		Downlink		
			PDSCH		
			information		
			10.3.6.30		
>TDD				(no data)	
Downlink HS-PDSCH	OP		Downlink		REL-5
Information			HS_PDSCH		
			Information		
			10.3.6.23a		
Downlink information common	OP		Downlink		
for all radio links			information		
			common for		
			all radio links		
			10.3.6.24		
Downlink information per radio	OP	1 to		Send downlink	
link list		<maxrl></maxrl>		information for	
				each radio link	
>Downlink information for each	MP		Downlink		
radio link			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

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		

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
Integrity protection mode info	OP		Integrity	The UTRAN	
			protection	should not include	
			mode info	this IE unless it is	
			10.3.3.19	performing an	
				SRNS relocation	
				or a handover	
				from GERAN Iu	
Oinh anima and info	OD		Oire le renire re	mode The UTRAN	
Ciphering mode info	OP		Ciphering		
			mode info 10.3.3.5	should not include this IE unless it is	
			10.3.3.3	performing either	
				an SRNS	
				relocation or a	
				handover from	
				GERAN lu mode	
				and a change in	
				ciphering	
				algorithm	
Activation time	MD		Activation	Default value is	
			time 10.3.3.1	"now"	<u> </u>
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	Should not be set	
			10.3.3.9a	in FDD. If	
				received The UE	
				should ignore it	
New H-RNTI	OP		H-RNTI		REL-5
DDO Otata la dia atau	MD		10.3.3.14a		
RRC State Indicator	MP		RRC State		
			Indicator 10.3.3.35a		
UTRAN DRX cycle length	OP		UTRAN DRX		
coefficient	OF		cycle length		
Coemcient			coefficient		
			10.3.3.49		
CN information elements			10.0.0.10		
CN Information info	OP		CN		
			Information		
			info 10.3.1.3		
UTRAN mobility information					
elements					
URA identity	OP		URA identity		
			10.3.2.6		
CHOICE specification mode	MP				REL-5
>Complete specification	1				
RB information elements	<u> </u>	1			
>>RAB information to	OP	1 to <			
reconfigure list		maxRABse			
DAD int	ME	tup >	DAR		
>>>RAB information to	MP		RAB		
reconfigure			information to		
			reconfigure		
			10.3.4.11		
>>RB information to reconfigure	MP	1to	10.0.7.11	Although this IE is	
list	IVII	<maxrb></maxrb>		not always	
				required, need is	
				MP to align with	
				ASN.1	
	OP				REL-4
>>>RB information to reconfigure	OP MP		RB information		REL-4

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
			to reconfigure 10.3.4.18		
>>RB information to be affected list	OP	1 to <maxrb></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></maxrball 		This IE is needed for each RB having PDCP and performing PDCP context relocation	REL-5
>>>PDCP context relocation info TrCH Information Elements	MP		PDCP context relocation info 10.3.4.1a		REL-5
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 ></maxtrch 			
>>>Deleted UL TrCH information	MP		Deleted UL TrCH information 10.3.5.5		
>>Added or Reconfigured TrCH information list	OP	1 to <maxtrch ></maxtrch 			
>>>Added or Reconfigured UL TrCH information	MP		Added or Reconfigure d UL TrCH information 10.3.5.2		
>>CHOICE mode	OP				
>>>FDD	OD		ODOLL LID		
>>>>CPCH set ID	OP	4.4-	CPCH set ID 10.3.5.3		
>>>>Added or Reconfigured TrCH information for DRAC list	OP	1 to <maxtrch< td=""><td></td><td></td><td></td></maxtrch<>			
>>>>DRAC static information	MP		DRAC static information 10.3.5.7		
>>>TDD				(no data)	
>>Dunlink 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< td=""><td></td><td></td><td></td></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 ></maxtrch 			
>>>Added or Reconfigured DL TrCH information	MP		Added or Reconfigure d DL TrCH information 10.3.5.1		
>Preconfiguration					REL-5
>>CHOICE Preconfiguration mode	MP			This value only applies in case the message is sent through GERAN <i>Iu 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		
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 channel requirement	OP				
>Uplink DPCH info			Uplink DPCH info 10.3.6.88		
>CPCH SET Info			CPCH SET Info 10.3.6.13		
Downlink radio resources		+	10.0.0.13		
CHOICE mode	MP				
>FDD					
>>Downlink PDSCH information	OP		Downlink PDSCH information		
>TDD			10.3.6.30	(no data)	
Downlink HS-PDSCH Information	OP		Downlink HS-PDSCH Information 10.3.6.23a	(no data)	REL-5
Downlink information common for all radio links	ОР		Downlink information common for		

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
			all radio links 10.3.6.24		
Downlink information per radio link list	MP	1 to <maxrl></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		

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 \rightarrow UE

*** Next modified section ****

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
********	MP				
Message Type	MP		Message		
UE Information Elements			Туре		
RRC transaction identifier	MP		RRC		
RRC transaction identifier	IVIP		transaction		
			identifier		
late sets also also fets	OLL		10.3.3.36		
Integrity check info	CH		Integrity		
			check info		
			10.3.3.16		
Integrity protection mode info	OP		Integrity	The UTRAN should not	
			protection	include this IE unless it is	
			mode info	performing an SRNS	
			10.3.3.19	relocation.	
Ciphering mode info	OP		Ciphering	The UTRAN should not	
			mode info	include this IE unless it is	
			10.3.3.5	performing an SRNS	
				relocation and a change in	
				ciphering algorithm.	
Activation time	MD		Activation	Default value is "now"	
			time 10.3.3.1		
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	Should not be set in FDD. If	
]		10.3.3.9a	received The UE should ignore	
			10.0.0.0	it	
New H-RNTI	OP	1	H-RNTI		REL-5
]		10.3.3.14a		3
RRC State Indicator	MP		RRC State		
Tito State indicates	1		Indicator		
			10.3.3.35a		

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
UTRAN DRX cycle length	OP		UTRAN DRX		
coefficient			cycle length		
			coefficient		
			10.3.3.49		
CN Information Elements					
CN Information info	OP		CN		
			Information		
			info 10.3.1.3		
Signalling Connection release	OP		CN domain		
indication			identity		
			10.3.1.1		
UTRAN mobility information			10.0		
elements					
URA identity	OP		URA identity		
,			10.3.2.6		
RB Information Elements					
RAB information to reconfigure	OP	1 to <			
list		maxRABse			
		tup >			
>RAB information to reconfigure	MP		RAB		
3			information		
			to		
			reconfigure		
			10.3.4.11		
RB information to release list	MP	1 to			
		<maxrb></maxrb>			
>RB information to release	MP		RB		
			information		
			to release		
			10.3.4.19		
RB information to be affected list	OP	1 to			
		<maxrb></maxrb>			
>RB information to be affected	MP		RB		
			information		
			to be		
			affected		
			10.3.4.17		
Downlink counter	OP				
synchronisation info					
>RB with PDCP information list	OP	1 to			
		<maxrball< td=""><td></td><td></td><td></td></maxrball<>			
		RABs>			
>>RB with PDCP information	MP		RB with	This IE is needed for each RB	
			PDCP	having PDCP in the case of	
			information	lossless SRNS relocation	
	0.0		10.3.4.22		DEL E
DD 31 DDOD 1 1	OP	4.			REL-5
>RB with PDCP context	OP	1 to			REL-5
relocation info list		<maxrball< td=""><td></td><td></td><td></td></maxrball<>			
DDCD context value at the first	MD	RABs>	DDCD	This IT is product for a set DD	ם בי ב
>>PDCP context relocation info	MP		PDCP	This IE is needed for each RB	REL-5
			context	having PDCP and performing	
			relocation	PDCP context relocation	
			info		
TrCH Information Elements	-		10.3.4.1a		
Uplink transport channels	+	+	+		
	OP		III Transport		
UL Transport channel	UP		UL Transport		
information common for all			channel		
transport channels			information		
			common for		
			all transport		
			channels		
D.L. ITOUL	0.0	+	10.3.5.24		
Deleted TrCH information list	OP	1 to	<u> </u>		

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
		<maxtrch< td=""><td></td><td></td><td></td></maxtrch<>			
>Deleted UL TrCH information	MP		Deleted UL TrCH information 10.3.5.5		
Added or Reconfigured TrCH information list	OP	1 to <maxtrch ></maxtrch 	76.6.6.6		
>Added or Reconfigured UL TrCH information	MP		Added or Reconfigure d UL TrCH information 10.3.5.2		
CHOICE mode	OP				
>FDD	<u> </u>		05011		
>>CPCH set ID	OP		CPCH set ID 10.3.5.3		
>>Added or Reconfigured TrCH information for DRAC list	OP	1 to <maxtrch></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></maxtrch>			
>Deleted DL TrCH information	MP		Deleted DL TrCH information 10.3.5.4		
Added or Reconfigured TrCH information list	OP	1 to <maxtrch></maxtrch>	10.0.0.1		
>Added or Reconfigured DL TrCH information	MP		Added or Reconfigure d 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 channel requirement	OP				1
>Uplink DPCH info			Uplink DPCH info 10.3.6.88		
>CPCH SET Info			CPCH SET Info 10.3.6.13		
Downlink radio resources	1				

Information Element/Group	Need	Multi	Type and	Semantics description	Version
name			reference		
CHOICE mode	MP				
>FDD					
>>Downlink PDSCH information	OP		Downlink		
			PDSCH		
			information		
			10.3.6.30		
>TDD				(no data)	
Downlink HS-PDSCH	OP		Downlink		REL-5
Information			HS-PDSCH		
			Information		
			10.3.6.23a		
Downlink information common	OP		Downlink		
for all radio links			information		
			common for		
			all radio links		
			10.3.6.24		
Downlink information per radio	OP	1 to		Send downlink information for	
link list		<maxrl></maxrl>		each radio link to be set-up	
>Downlink information for each	MP		Downlink		
radio link			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

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	СН		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"	

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
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	Should not be set in FDD. If received The UE	
New H-RNTI	OP		H-RNTI 10.3.3.14a	should ignore it	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					
Signalling RB information to setup list	OP	1 to <maxsrbs etup></maxsrbs 		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></maxrabs 		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></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></maxrball 			
>>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 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 REL-5

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
TrCH Information Elements					
Uplink transport channels	OD		111 Turner and		
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< td=""><td></td><td></td><td></td></maxtrch<>			
>Deleted UL TrCH information	MP		Deleted UL TrCH information 10.3.5.5		
Added or Reconfigured TrCH information list	OP	1 to <maxtrch ></maxtrch 			
>Added or Reconfigured UL TrCH information	MP		Added or Reconfigure d UL TrCH information 10.3.5.2		
CHOICE mode	OP				
>FDD >>CPCH set ID	OD		ODOLL LID		
>>CPCH Set ID	OP		CPCH set ID 10.3.5.3		
>>Added or Reconfigured TrCH information for DRAC list	OP	1 to <maxtrch ></maxtrch 			
>>>DRAC static information	MP		DRAC static information 10.3.5.7		
>TDD				(no data)	
Downlink transport channels	OD		DI Transment		
DL Transport channel information common for all transport channels	OP		DL Transport channel information common for all transport channels10. 3.5.6		
Deleted TrCH information list	OP	1 to <maxtrch ></maxtrch 			
>Deleted DL TrCH information	MP		Deleted DL TrCH information 10.3.5.4		
Added or Reconfigured TrCH information list	OP	1 to <maxtrch ></maxtrch 			
>Added or Reconfigured DL TrCH information	MP		Added or Reconfigure d DL TrCH information 10.3.5.1		
PhyCH information elements					
Frequency info	OP		Frequency info 10.3.6.36		
Uplink radio resources	MD		Maxima	Default value	
Maximum allowed UL TX power	MD		Maximum allowed UL	Default value is the existing	

Information Element/Group	Need	Multi	Type and	Semantics	Version
name			reference	description	
			TX power 10.3.6.39	maximum UL TX	
CHOICE channel requirement	OP		10.3.6.39	power	
>Uplink DPCH info	UP		Uplink DPCH		
Subillik DPCH illio			info		
			10.3.6.88		
>CPCH SET Info			CPCH SET		
201 011 021 11110			Info		
			10.3.6.13		
Downlink radio resources			10.0.0.10		
CHOICE mode	MP				
>FDD					
>>Downlink PDSCH information	OP		Downlink		
			PDSCH		
			information		
			10.3.6.30		
>TDD				(no data)	
Downlink HS-PDSCH	OP		Downlink		REL-5
Information			HS-PDSCH		
			Information		
D. P. L. C.	0.0		10.3.6.23a		
Downlink information common	OP		Downlink		
for all radio links			information common for		
			all radio links		
			10.3.6.24		
Downlink information per radio	OP	1 to	10.0.0.24	Send downlink	
link list		<maxrl></maxrl>		information for	
mik not		VIII CANCES		each radio link	
>Downlink information for each	MP		Downlink	Cacil ladio iiiii	
radio link			information		
			for each		
			radio link		
			10.3.6.27		

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

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	СН		Integrity check info 10.3.3.16		
Integrity protection mode info	OP		Integrity protection	The UTRAN should not include	

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
			mode info	this IE unless it is	
			10.3.3.19	performing an	
Ciphering mode info	OP		Ciphering	SRNS relocation The UTRAN	
Cipiteting mode into	OI OI		mode info	should not include	
			10.3.3.5	this IE unless it is	
				performing an	
				SRNS relocation	
				and a change in ciphering	
				algorithm	
Activation time	MD		Activation	Default value is	
			time 10.3.3.1	"now"	
New U-RNTI	OP		U-RNTI		
N. O. DALTI			10.3.3.47		
New C-RNTI	OP		C-RNTI 10.3.3.8		
New DSCH-RNTI	OP		DSCH-RNTI	Should not be set	
Now Booth Kith	0.		10.3.3.9a	in FDD. If	
				received The UE	
				should ignore it	
New H-RNTI	OP		H-RNTI		REL-5
RRC State Indicator	MP		10.3.3.14a RRC State		
RRC State Indicator	IVIE		Indicator		
			10.3.3.35a		
UTRAN DRX cycle length	OP		UTRAN DRX		
coefficient			cycle length		
			coefficient 10.3.3.49		
CN Information Elements	 		10.3.3.49		
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			
FIED WILLT DOT INFORMACION IICC		<maxrball< td=""><td></td><td></td><td></td></maxrball<>			
		RABs>			
>>RB with PDCP information	MP		RB with	This IE is needed	
			PDCP information	for each RB having PDCP in	
			10.3.4.22	the case of	
				lossless SRNS	
				relocation	
DDOD 1 1 1 1 1 1 1	OP		BBCS	TI. 15.	REL-5
>>PDCP context relocation info	OP		PDCP	This IE is needed	REL-5
			context relocation	for each RB having PDCP and	
			info	performing PDCP	
			10.3.4.1a	context relocation	
TrCH Information Elements					
Uplink transport channels			III Tronsmort		
UL Transport channel information common for all	OP		UL Transport channel		
transport channels			information		
			common for		
			all transport		
			channels		
			10.3.5.24		

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
Added or Reconfigured TrCH information list	OP	1 to <maxtrch ></maxtrch 			
>Added or Reconfigured UL TrCH information	MP		Added or Reconfigure d UL TrCH information 10.3.5.2		
CHOICE mode	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 ></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 ></maxtrch 			
>Added or Reconfigured DL TrCH information	MP		Added or Reconfigure d 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 channel requirement	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 mode >FDD	MP				
>>Downlink PDSCH information	OP		Downlink PDSCH information 10.3.6.30	(a a data)	
Downlink HS-PDSCH Information	OP		Downlink HS-PDSCH Information 10.3.6.23a	(no data)	REL-5
Downlink information common for all radio links	OP		Downlink information		

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
			common for all radio links 10.3.6.24		
Downlink information per radio link list	OP	1 to <maxrl></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		

10.3.3.9a DSCH-RNTI

* Next modified section ****

** Next modified section ****

In FDD, the DSCH RNTI identifies a UE in CELL_DCH using a DSCH within a cell. In TDD, the DSCH-RNTI identifies a UE in CELL_DCH or CELL_FACH using a DSCH or USCH within the cell.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
DSCH-RNTI	MP		bit string(16)	

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- fdd_req_su p				
>Max no DPCH/ PDSCH codes	MP		Integer (18)	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 Support of HS- PDSCH	CV- not_iRAT_ HoInfo				REL-5
>>Supported					REL-5
>>>HS-DSCH physical layer category	MP		Integer (164)		REL-5

Information Element/Group name	Need	Multi	Type and Reference	Semantics description	Version
>>>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 (114)		
>Maximum number of physical channels per frame	MP		Integer (5224)		
>Minimum SF	MP		Integer (1, 16)		
>Support of PDSCH	MP		Boolean	TRUE means supported	
>CHOICE Support of HS- PDSCH	CV- not_iRAT_ HoInfo				REL-5
>>Supported					REL-5
>>>HS-DSCH physical layer category	MP		Integer (164)		REL-5
>>Unsupported				(no data)	REL-5
>Maximum number of physical channels per timeslot	MP		Integer (516)		
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 (16)		REL-4
>Maximum number of physical channels per subframe	MP		Integer (196)		REL-4
>Minimum SF	MP		Integer (1, 16)		REL-4

Information Element/Group name	Need	Multi	Type and Reference	Semantics description	Version
>Support of PDSCH	MP		Boolean	TRUE means supported	REL-4
>CHOICE Support of HS- PDSCH	CV- not_iRAT_ HoInfo				REL-5
>>Supported					REL-5
>>>HS-DSCH physical layer category	MP		Integer (164)		REL-5
>>Unsupported				(no data)	REL-5
>Maximum number of physical channels per timeslot	MP		Integer (116)		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 up				Name changed in REL-4
>Maximum Number of timeslots per frame	MP		Integer (114)		
>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- 1.28_Mcps _tdd_req_s up				REL-4
>Maximum Number of timeslots per subframe	MP		Integer (16)		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

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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></maxrbm 	Totololloc	decomplian	
>RLC logical channel mapping indicator	CV-UL- RLCLogica IChannels		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 MaxLoCHp erRLC		1 or 2 logical channels per RLC entity or radio bearer RLC [16]	
>>Uplink transport channel type	MP		Enumerated(DCH,RACH, CPCH,USC H)	CPCH is FDD only USCH is TDD only	
>>ULTransport channel identity	CV-UL-		Transport	This is the ID of a	

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
	DCH/USC H		channel identity 10.3.5.18	DCH or USCH (TDD only) that this RB could be mapped onto.	
>>Logical channel identity	OP		Integer(115)	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 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></maxtf>		Lists the RLC sizes that are valid for the logical channel.	
>>>>RLC size index	MP		Integer(1m axTF)	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	
>>MAC logical channel priority	MP		Integer(18)	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 MaxLoCHp erRLC		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 multiplexing options are specified for the UL, the first	

Note 2:

DL-HS-DSCH

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version			
				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	Note 2				
			, 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(115	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. [Style changed]							

The IE "Downlink transport channel type" values " DSCH" and "DCH+DSCH " should not be used

for FDD. If received the UE behaviour is unspecified.

Condition Explanation If "CHOICE Uplink RLC mode" in the IE "RLC info" **UL-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 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.

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 **

10.3.5.1 Added or Reconfigured DL TrCH information

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
Downlink transport channel type	MP		Enumerated(DCH,DSCH	Note 2	
			,HS-DSCH)	Note 1	REL-5
DL Transport channel identity	MP		Transport channel identity 10.3.5.18		
	CV-not HS-DSCH				REL-5
CHOICE DL parameters					
>Explicit					
>>TFS	MP		Transport Format Set 10.3.5.23		
>SameAsUL					
>>Uplink transport channel type	MP		Enumerated(DCH,USCH)	USCH is TDD only	
>>UL TrCH identity	MP		Transport channel identity 10.3.5.18	Same TFS applies as specified for indicated UL TrCH	
>HS-DSCH				Note 1	REL-5
>>HARQ Info	OP		HARQ info 10.3.5.7a		REL-5
>>Added or reconfigured MAC-d flow	OP		Added or reconfigured MAC-d flow 10.3.5.1a		REL-5
DCH quality target	OP		Quality target 10.3.5.10	Li. 11 DDG 00N	

Note 1: The IE "Downlink transport channel type" value "HS-DSCH" is not used in the RRC CONNECTION
—SETUP message, nor is the CHOICE DL parameters = "HS-DSCH". Style changed

Note 2: The IE "Downlink transport channel type" value "DSCH" should not be used for FDD. If received the UE behaviour is unspecified.

Condition	Explanation
NotHS-DSCH	If the downlink transport channel type is DCH or DSCH then this IE is mandatory otherwise it is not needed.

10.3.5.4 Deleted DL TrCH information

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
Downlink transport channel type	MP		Enumerated(DCH,DSCH	Note 1	
			,HS-DSCH)		REL-5
DL Transport channel identity	MP		Transport channel identity 10.3.5.18		
	CV-notHS- DSCH				REL-5
DL HS-DSCH MAC-d flow identity	CV-HS- DSCH		MAC-d flow identity 10.3.5.7c		REL-5

Note 1: The IE "Downlink transport channel type" value " DSCH " should not be used for FDD. If received the UE behaviour is unspecified.

Condition	Explanation
NotHS-DSCH	If the downlink transport channel type is DCH or DSCH then this IE is mandatory otherwise it is not needed.
HS-DSCH	If the downlink transport channel type is HSDSCH then this IE is mandatory otherwise it is not needed.

Tione modified section

10.3.5.12 TFCI Field 2 Information Void

This IE is used for signalling the mapping between TFCI (field 2) values and the corresponding TFC.

Information Element/Group	Need	Multi	IE type and	Semantics description
name			reference	
CHOICE Signalling method	MP			
>TFCI range				
>>TFCI(field 2) range	MP	1 to		
		<maxpds< td=""><td></td><td></td></maxpds<>		
		CH-		
		TFClgroup		
		S>		
>>>Max TFCI(field2) value	MP		Integer(1 10	This is the Maximum value in
>>>ividx 11 Oi(ii0iu2) valuo	IVIF-		Integer(110	
			23)	the range of TFCI(field2)
				values for which the specified
				CTFC(field2) applies
>>>TFCS Information for DSCH	MP		TECS	
(TFCI range method)			Information	
(· · · · · · · · · · · · · · · · · · ·			for DSCH	
			(TFCI range	
			method)	
			10.3.5.14	
<u>>Explicit</u>				
>>TFCS explicit configuration	MP		TFCS	
			explicit	
			configuration	
			10.3.5.13	
	1	l	10.0.0.13	

10.3.5.13 TFCS Explicit Configuration

Information Element/Group name	Need	Multi	IE type and reference	Semantics description
CHOICE TFCS representation	MP			
>Complete reconfiguration				
>>TFCS complete	MP		TFCS	
reconfiguration information			Reconfigurat	
			ion/Addition	
			information	
A 1 Per			10.3.5.15	
>Addition	ļ <u>.</u>			
>>TFCS addition information	MP		TFCS	
			Reconfigurat ion/Addition	
			information	
			10.3.5.15	
>Removal			10.0.0.10	
>>TFCS removal information	MP		TFCS	
			Removal	
			Information	
			10.3.5.16	
>Replace				
>>TFCS removal information	MP		TFCS	
			Removal	
			Information	
	<u> </u>		10.3.5.16	
>>TFCS addition information	MP		TFCS	
			Reconfigurat	
			ion/Addition	
			information	
			10.3.5.15	

10.3.5.14 TFCS Information for DSCH (TFCI range method) Void

Information Element/Group	Need	Multi	IE type and	Semantics description
name			reference	
CHOICE CTFC Size	MP			
>2 bit CTFC				
>>2bit CTFC	MP		Integer(03)	
>4 bit CTFC				
>>4bit CTFC	MP		Integer(015	
)	
>6 bit CTFC				
>>6 bit CTFC	MP		Integer(063	
)	
>8 bit CTFC				
>>8 bit CTFC	MP		Integer(025	
			5)	
>12 bit CTFC				
>>12 bit CTFC	MP		Integer(040	
			95)	
>16 bit CTFC				
>>16 bit CTFC	MP		Integer(065	
			535)	
>24 bit CTFC				
>>24 bit CTFC	MP		Integer(016	
			777215)	

* Next modified section **

10.3.5.20 Transport Format Combination Set

Indicates the allowed combinations of already defined Transport formats and the mapping between these allowed TFCs and the corresponding TFCI values.

For TDD, different coded composite transport channels have independent transport format combination sets and thus independent TFCI values.

For FDD, Where the UE is assigned access to one or more DSCH transport channels, a TFCI(field2) is used to signal the transport format combination for the DSCH. The following two cases exist:

Case 1

Using one TFCI word on the physical layer. A logical split determines the available number of transport format combinations for DCH and DSCH.

Case 2.

Using split TFCI on the physical layer. Two TFCI words, TFCI (field1) and TFCI (field2), are used and they are block coded separately.

Information Element/Group	Need	Multi	IE type and	Semantics description
name			reference	
CHOICE TFCI signalling	MP			'Normal': meaning no split in the TFCI field (either 'Logical' or 'Hard') 'Split': meaning there is a split in the TFCI field (either 'Logical' or 'Hard'). This value is only valid for FDD downlink when using DSCH.
>Normal				
→ TFCI Field 1 Information	MP		TFCS explicit Configuratio n 10.3.5.13	
>Split				
⇒>Split type	OP		Enumerated ('Hard', 'Logical')	'Hard': meaning that TFCI (field 1) and TFCI (field 2) are block coded separately. 'Logical': meaning that on the physical layer TFCI (field 1) and TFCI (field 2) are concatenated, field 1 taking the most significant bits and field 2 taking the least significant bits). The whole is then encoded with a single block code.
>>Length of TFCI(field2)	OP		Integer (110)	This IE indicates the length measured in number of bits of TFCI(field2)
>>TFCI Field 1 Information	OP		TFCS explicit Configuratio n 10.3.5.13	
>>TFCI Field 2 Information	OP		TFCI field 2 information 10.3.5.12	

CHOICE TFCI signalling	Condition under which TFCI signalling type is chosen
Normal	It is chosen when no split in the TFCI field.
Split	It is chosen when split in the TFCI field. This value is only valid for FDD downlink when using DSCH.

*** Next modified section ****

10.3.6.27 Downlink information for each radio link

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
Choice mode	MP				
>FDD					
>>Primary CPICH info	MP		Primary CPICH info 10.3.6.60		
>>Cell ID	OP		Cell ID 10.3.2.2		REL-4
>>PDSCH with SHO DCH Info	OP		PDSCH with SHO DCH Info 10.3.6.47		
>>PDSCH code mapping	OP		PDSCH code mapping 10.3.6.43		
>>Serving HS-DSCH radio link indicator	CV- not_rrcCon nectionSet up		Boolean	The value "TRUE" indicates that this radio link is the serving HS-DSCH radio link	REL-5
>TDD					
>>Primary CCPCH info	MP		Primary CCPCH info 10.3.6.57		
Downlink DPCH info for each RL	OP		Downlink DPCH info for each RL 10.3.6.21		
SCCPCH Information for FACH	OP		SCCPCH Information for FACH 10.3.6.70		

Condition	Explanation			
not_rrcConnectionSetup	This IE is not needed in the RRC CONNECTION			
·	SETUP message. Otherwise it is mandatory present.			

* Next modified section ***

10.3.6.30 Downlink PDSCH information Void

NOTE: Only for FDD.

Information Element/Group	Need	Multi	Type and	Semantics description
name			reference	
PDSCH with SHO DCH Info	OP		PDSCH with	
			SHO DCH	
			Info	
			10.3.6.47	
PDSCH code mapping	OP		PDSCH	
			code	
			mapping	
			10.3.6.43	

10.3.6.31 Downlink rate matching restriction information

This IE indicates which TrCH is restricted in TFI.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Restricted TrCH information	OP	1 to <maxtrch></maxtrch>		
>Downlink transport channel type	MP		Enumerated(DCH ,DSCH)	
>Restricted DL TrCH identity	MP		Transport channel identity 10.3.5.18	
>Allowed TFIs	MP	1 to <maxtf></maxtf>		
>>Allowed TFI	MP		Integer(031	

** Next modified section ***

10.3.6.43 PDSCH code mapping Void

NOTE: Only for FDD.

This IE indicates the association between each possible value of TFCI(field 2) and the corresponding PDSCH channelisation code(s). The following signalling methods are specified:

- -- 'code range': the mapping is described in terms of a number of groups, each group associated with a given spreading factor;
- 'TFCI range': the mapping is described in terms of a number of groups, each group corresponding to a given PDSCH channelisation code;
- 'Explicit': the mapping between TFCI(field 2) value and PDSCH channelisation code is spelt out explicitly for each value of TFCI (field2);
- 'Removal': replace individual entries in the TFCI(field 2) to PDSCH code mapping table with new PDSCH code values.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
DL-Scrambling Code	MD		Secondary scrambling code 10.3.6.74	Scrambling code on which PDSCH is transmitted. Default is the same scrambling code as for the Primary CPICH
Choice signalling method	MP			
>code range				
>>PDSCH code mapping	MP	1 to ← maxPDSC H- TFClgroup 8→		
>>>Spreading factor	MP		Integer(4, 8, 16, 32, 64, 128, 256)	
>>>multi-code info	MP		Integer(116	
>>>Code number (for PDSCH code) start	MP		Integer(0Sp reading factor-1)	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
>>>Code number (for PDSCH code) stop	MP		Integer(0Sp reading factor-1)	
>TFCI range				
>>DSCH mapping	MP	1-to -< maxPDSC H- TFClgroup S→		
>>>Max TFCI(field2) value	MP		Integer(110 23)	This is the maximum value in the range of TFCI(field 2) values for which the specified PDSCH code applies
>>>Spreading factor (for PDSCH code)	MP		Integer(4, 8, 16, 32, 64, 128, 256)	
>>>Code number (for PDSCH code)	MP		Integer(0Sp reading factor-1)	
>>>multi-code info	MP		Integer(116	
>Explicit				
>>PDSCH code info	MP	1-to-< maxTFCI- 2-Combs >		The first instance of the parameter PDSCH code corresponds to TFCI (field2) = 0, the second to TFCI(field 2) = 1 and so on.
>>>Spreading factor (for PDSCH code)	MP		Integer(4, 8, 16, 32, 64, 128, 256)	
>>>Code number (for PDSCH code)	MP		Integer(0Sp reading factor-1)	
>>>multi-code info	MP		Integer(116	
>Replace				This choice is made if the PDSCH code(s) associated with a given value of TFCI(field 2) is to be replaced.
>>Replaced PDSCH code	MP	1 to < maxTFCI- 2-Combs >		Identity of the PDSCH code(s) to be used for the specified value of TFCI(field 2). These code identity(s) replace any that had been specified before
>>>TFCI (field 2)	MP		Integer (01023)	Value of TFCI(field 2) for which PDSCH code mapping will be changed
>>> Spreading factor (for PDSCH code)	MP		Integer(4, 8, 16, 32, 64, 128, 256)	
>>>Code number (for PDSCH code)	MP		Integer(0Sp reading factor-1)	
>>>multi-code info	MP		Integer(116	

10.3.6.47 PDSCH with SHO DCH Info Void

NOTE: Only for FDD

*** Next modified section ****

Information Element/Group name	Need	Multi	Type and reference	Semantics description
DSCH radio link identifier	MP		Primary CPICH info 10.3.6.60	This parameter indicates on which radio link the user will be allocated resource on the DSCH.
TFCI(field2) Combining set	OP	1-to <maxrl></maxrl>		This is used to indicate which of the downlink TFCI(field 2) transmissions made on the DPCCHs within the active set should be soft combined on the physical layer. This parameter may only be sent if there is a 'hard' split of the TFCI field and in this case the sending of the parameter is optional.
>Radio link identifier	MP		Primary CPICH info 10.3.6.60	

10.3.6.68 Radio link addition information

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
Primary CPICH info	MP		Primary CPICH info 10.3.6.60		
Cell ID	OP		Cell ID 10.3.2.2		REL-4
Downlink DPCH info for each RL	MP		Downlink DPCH info for each RL 10.3.6.21		
TFCI combining indicator	MP		TFCI combining indicator 10.3.6.81		
SCCPCH Information for FACH	OP		SCCPCH Information for FACH 10.3.6.70	Note 1	

NOTE 1: These IEs are present when the UE needs to listen to system information on FACH in CELL_DCH state.

10.3.6.81 TFCI Combining Indicator Void

NOTE: Only for FDD.

This IE indicates whether the TFCI (field 2), which will be transmitted on the DPCCH of a newly added radio link, should be soft combined with the others in the TFCI (field 2) combining set. This IE is relevant only when the UE is in CELL_DCH state with a DSCH transport channel assigned and when there is a 'hard' split in the TFCI field (such that TFCI1 and TFCI2 have their own separate block coding).

Information Element/Group	Need	Multi	Type and	Semantics description
name			reference	
TFCI combining indicator	MP		Boolean	TRUE means that TFCI is
				combined, FALSE means that
				TFCI is not combined or that
				this IE is not applicable to the
				added radio link.

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	Constant Explanation		Version	
CN information				
maxCNdomains	Maximum number of CN domains	4		
UTRAN mobility				
information				
maxRAT	Maximum number or Radio Access Technologies	maxOtherRAT + 1		
maxOtherRAT	Maximum number or 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		
UE information				
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	
RB information				
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	
TrCH information				
MaxHProcesses	Maximum number of H-ARQ processes	8	REL-5	

Constant	Explanation	Value	Version
MaxHSDSCH_TB_index	Maximum number of TB set size configurations for the HS-DSCH.	64 (FDD and 1.28 MCPS TDD); 512	REL-5
maxMACdPDUSizes	Maximum number of MAC-d PDU sizes per queue	(3.84 Mcps TDD)	REL-5
	permitted for MAC-hs		INCL 0
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	
maxTF-CPCH	Maximum number of TFs in a CPCH set	16	
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	
maxCPCHsets	Maximum number of CPCH sets per cell	16	
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	
PhyCH information			
maxHS-SCCHs	Maximum number of HSSCCH codes that can be assigned to a UE	4	REL-5
maxPCPCH-APsubCH	Maximum number of available sub-channels for AP signature on PCPCH	12	
maxPCPCH-CDsubCH	Maximum number of available sub-channels for CD signature on PCPCH	12	
maxPCPCH-APsig	Maximum number of available signatures for AP on PCPCH	16	
maxPCPCH-CDsig	Maximum number of available signatures for CD on PCPCH	16	
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-TFClgroups	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	

Constant	Explanation	Value	Version
maxTS	Maximum number of timeslots used in one direction (UL or DL)	14 (3.84 Mcps TDD)	
		6 (1.28 Mcps TDD)	REL-4
hiPUSCHidentities	Maximum number of PUSCH Identities	64	
hiPDSCHidentities	Maximum number of PDSCH Identities	64	
Measurement information		-	
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	
Frequency information			
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	
Other information			
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 **

11.1 General message structure

Class-definitions DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

ActiveSetUpdate, ActiveSetUpdateComplete, ActiveSetUpdateFailure, AssistanceDataDelivery,

```
CellChangeOrderFromUTRAN,
    CellChangeOrderFromUTRANFailure,
    CellUpdate,
    CellUpdateConfirm-CCCH,
    CellUpdateConfirm,
    CounterCheck,
    CounterCheckResponse,
    DownlinkDirectTransfer,
    HandoverToUTRANComplete,
    InitialDirectTransfer,
    HandoverFromUTRANCommand-GERANIu,
    HandoverFromUTRANCommand-GSM,
    HandoverFromUTRANCommand-CDMA2000,
    HandoverFromUTRANFailure,
    MeasurementControl,
    MeasurementControlFailure,
    MeasurementReport,
    PagingType1,
    PagingType2,
    PhysicalChannelReconfiguration,
    PhysicalChannelReconfigurationComplete,
    PhysicalChannelReconfigurationFailure,
    PhysicalSharedChannelAllocation,
    PUSCHCapacityRequest,
    RadioBearerReconfiguration,
    RadioBearerReconfigurationComplete,
    RadioBearerReconfigurationFailure,
    RadioBearerRelease,
    RadioBearerReleaseComplete,
    RadioBearerReleaseFailure,
    RadioBearerSetup,
    RadioBearerSetupComplete,
    RadioBearerSetupFailure,
    RRCConnectionReject,
    RRCConnectionRelease,
    RRCConnectionRelease-CCCH,
    RRCConnectionReleaseComplete,
    RRCConnectionRequest,
    RRCConnectionSetup,
    RRCConnectionSetupComplete,
    RRCStatus,
    SecurityModeCommand,
    SecurityModeComplete,
    SecurityModeFailure,
    SignallingConnectionRelease,
    SignallingConnectionReleaseIndication,
    SystemInformation-BCH,
    SystemInformation-FACH,
    SystemInformationChangeIndication,
    TransportChannelReconfiguration,
    TransportChannelReconfigurationComplete,
    {\tt TransportChannelReconfigurationFailure,}
    {\tt TransportFormatCombinationControl}\,,
    TransportFormatCombinationControlFailure,
    UECapabilityEnquiry,
    UECapabilityInformation,
    UECapabilityInformationConfirm,
    UplinkDirectTransfer,
    UplinkPhysicalChannelControl,
    URAUpdate,
    URAUpdateConfirm,
    URAUpdateConfirm-CCCH,
    UTRANMobilityInformation,
    {\tt UTRANMobilityInformationConfirm,}
    UTRANMobilityInformationFailure
FROM PDU-definitions
-- User Equipment IEs :
    {\tt IntegrityCheckInfo}
FROM InformationElements;
__**********************
-- Downlink DCCH messages
__*********************
DL-DCCH-Message ::= SEQUENCE {
```

```
integrityCheckInfo
                           IntegrityCheckInfo
                                                    OPTIONAL,
                           DL-DCCH-MessageType
   message
}
DL-DCCH-MessageType ::= CHOICE {
   activeSetUpdate
                                       ActiveSetUpdate,
   assistanceDataDelivery
                                       AssistanceDataDelivery,
   cellChangeOrderFromUTRAN
                                       CellChangeOrderFromUTRAN,
   {\tt cellUpdateConfirm}
                                       CellUpdateConfirm,
   counterCheck
                                        CounterCheck,
   downlinkDirectTransfer
                                       DownlinkDirectTransfer,
   handoverFromUTRANCommand-GSM
                                       HandoverFromUTRANCommand-GSM,
   handoverFromUTRANCommand-CDMA2000 HandoverFromUTRANCommand-CDMA2000,
   measurementControl
                                        MeasurementControl,
   pagingType2
                                        PagingType2,
   physicalChannelReconfiguration
                                        PhysicalChannelReconfiguration,
   physicalSharedChannelAllocation
                                        PhysicalSharedChannelAllocation,
   radioBearerReconfiguration
                                        RadioBearerReconfiguration,
   radioBearerRelease
                                        RadioBearerRelease,
   radioBearerSetup
                                        RadioBearerSetup,
   {\tt rrcConnectionRelease}
                                        RRCConnectionRelease,
   securityModeCommand
                                        SecurityModeCommand,
   \verb|signallingConnectionRelease|\\
                                        SignallingConnectionRelease,
   transportChannelReconfiguration
                                        TransportChannelReconfiguration,
   transportFormatCombinationControl
                                        TransportFormatCombinationControl,
   ueCapabilityEnquiry
                                        UECapabilityEnquiry,
   {\tt ueCapabilityInformationConfirm}
                                        UECapabilityInformationConfirm,
   uplinkPhysicalChannelControl
                                        UplinkPhysicalChannelControl,
   uraUpdateConfirm
                                        URAUpdateConfirm,
   {\tt utranMobilityInformation}
                                        UTRANMobilityInformation,
   handoverFromUTRANCommand-GERANIu
                                        HandoverFromUTRANCommand-GERANIu,
   spare6
                                        NULL,
   spare5
                                        NULL,
   spare4
                                        NULL.
   spare3
                                        NULL,
   spare2
                                        NULL.
   spare1
                                        NULL
}
__*******************
-- Uplink DCCH messages
__********************
UL-DCCH-Message ::= SEQUENCE {
   integrityCheckInfo IntegrityCheckInfo
                                                  OPTIONAL,
   message
                           UL-DCCH-MessageType
}
UL-DCCH-MessageType ::= CHOICE {
   activeSetUpdateComplete
                                       ActiveSetUpdateComplete,
   activeSetUpdateFailure
                                       ActiveSetUpdateFailure,
   cellChangeOrderFromUTRANFailure
                                       CellChangeOrderFromUTRANFailure,
   counterCheckResponse
                                        CounterCheckResponse,
   handoverToUTRANComplete
                                       HandoverToUTRANComplete,
   initialDirectTransfer
                                        InitialDirectTransfer,
   {\tt handoverFromUTRANFailure}
                                        HandoverFromUTRANFailure,
   measurementControlFailure
                                        MeasurementControlFailure,
   measurementReport
                                        MeasurementReport,
   physicalChannelReconfigurationComplete
                                        {\tt PhysicalChannelReconfigurationComplete,}
   physicalChannelReconfigurationFailure
                                        PhysicalChannelReconfigurationFailure,
   radioBearerReconfigurationComplete RadioBearerReconfigurationComplete,
   radioBearerReconfigurationFailure
                                        RadioBearerReconfigurationFailure,
   radioBearerReleaseComplete
                                        RadioBearerReleaseComplete,
   radioBearerReleaseFailure
                                        RadioBearerReleaseFailure,
   {\tt radioBearerSetupComplete}
                                        RadioBearerSetupComplete,
   radioBearerSetupFailure
                                        RadioBearerSetupFailure,
   rrcConnectionReleaseComplete
                                        RRCConnectionReleaseComplete,
   rrcConnectionSetupComplete
                                        RRCConnectionSetupComplete,
   rrcStatus
                                       RRCStatus,
   {\tt security} {\tt ModeComplete}
                                        SecurityModeComplete,
   securityModeFailure
                                        SecurityModeFailure,
   signallingConnectionReleaseIndication
                                        SignallingConnectionReleaseIndication,
   transportChannelReconfigurationComplete
```

```
{\tt TransportChannelReconfigurationComplete,}
   transportChannelReconfigurationFailure
                                 TransportChannelReconfigurationFailure,
   transport {\tt FormatCombinationControlFailure}
                                 TransportFormatCombinationControlFailure,
   ueCapabilityInformation
                                 UECapabilityInformation,
   uplinkDirectTransfer
                                 UplinkDirectTransfer,
                                 UTRANMobilityInformationConfirm,
   utranMobilityInformationConfirm
   \verb"utranMobilityInformationFailure" UTRANMobilityInformationFailure",
   spare2
                                 NULL,
   spare1
                                 NULL
}
__*********************
-- Downlink CCCH messages
___*******************
DL-CCCH-Message ::= SEQUENCE {
   integrityCheckInfo IntegrityCheckInfo
                                          OPTIONAL,
   message
                      DL-CCCH-MessageType
}
DL-CCCH-MessageType ::= CHOICE {
   cellUpdateConfirm
                                CellUpdateConfirm-CCCH,
   rrcConnectionReject
                                RRCConnectionReject,
   rrcConnectionRelease
                                 RRCConnectionRelease-CCCH,
   rrcConnectionSetup
                                RRCConnectionSetup,
   uraUpdateConfirm
                                 URAUpdateConfirm-CCCH,
   spare3
                                 NULL,
   spare2
                                 NULL,
                                 NULL
   spare1
}
__***********************
-- Uplink CCCH messages
UL-CCCH-Message ::= SEQUENCE {
   \begin{tabular}{ll} integrity Check Info & Integrity Check Info & OPTIONAL, \\ \end{tabular}
   message
                       UL-CCCH-MessageType
}
UL-CCCH-MessageType ::= CHOICE {
  cellUpdate
                                 CellUpdate,
   rrcConnectionRequest
                                 RRCConnectionRequest,
   uraUpdate
                                 URAUpdate,
                                 NULL
   spare
}
__*********************
-- PCCH messages
__*********************
PCCH-Message ::= SEQUENCE {
   message
                   PCCH-MessageType
PCCH-MessageType ::= CHOICE {
   pagingType1
                                 PagingType1,
                                 NULL
}
__***********************
-- Downlink SHCCH messages
__*********************
DL-SHCCH-Message ::= SEQUENCE {
                      DL-SHCCH-MessageType
   message
}
```

```
DL-SHCCH-MessageType ::= CHOICE {
  physicalSharedChannelAllocation
                              PhysicalSharedChannelAllocation,
                              NULL
   spare
}
-- Uplink SHCCH messages
__*********************
UL-SHCCH-Message ::= SEQUENCE {
                     UL-SHCCH-MessageType
  message
UL-SHCCH-MessageType ::= CHOICE {
                              PUSCHCapacityRequest,
   puschCapacityRequest
   spare
                              NULL
}
__*********************
-- BCCH messages sent on FACH
__*********************
BCCH-FACH-Message ::= SEQUENCE {
                 BCCH-FACH-MessageType
  message
}
BCCH-FACH-MessageType ::= CHOICE {
  systemInformation
                              SystemInformation-FACH,
   {\tt systemInformationChangeIndication} \qquad {\tt SystemInformationChangeIndication},
   spare2
                              NULL,
   spare1
                              NULL
}
__*******************
-- BCCH messages sent on BCH
__******************
BCCH-BCH-Message ::= SEQUENCE {
                 SystemInformation-BCH
  message
END
```

11.2 PDU definitions

```
NAS-Message,
   PagingRecordTypeID,
-- UTRAN Mobility IEs :
   {\tt CellIdentity,}
   CellIdentity-PerRL-List,
   URA-Identity,
-- User Equipment IEs :
   AccessStratumReleaseIndicator,
   ActivationTime,
   C-RNTI,
   CapabilityUpdateRequirement,
   CapabilityUpdateRequirement-r4,
   CapabilityUpdateRequirement-r4-ext,
   CapabilityUpdateRequirement-r5,
   CellUpdateCause,
   CipheringAlgorithm,
   CipheringModeInfo,
   DSCH-RNTI,
   EstablishmentCause,
   FailureCauseWithProtErr,
   FailureCauseWithProtErrTrId,
   GroupReleaseInformation,
   H-RNTI,
   UESpecificBehaviourInformation1idle,
   UESpecificBehaviourInformationlinterRAT,
   InitialUE-Identity,
   IntegrityProtActivationInfo,
   IntegrityProtectionModeInfo,
   N-308,
   PagingCause,
   PagingRecordList,
   PagingRecord2List-r5,
   ProtocolErrorIndicator,
   ProtocolErrorIndicatorWithMoreInfo,
   RadioFrequencyBandTDDList,
   Rb-timer-indicator,
   RedirectionInfo,
   RejectionCause,
   ReleaseCause,
   RF-CapabilityComp,
   RRC-StateIndicator,
   RRC-TransactionIdentifier,
   SecurityCapability,
   START-Value,
   STARTList,
   SystemSpecificCapUpdateReq-v590ext,
   U-RNTI,
   U-RNTI-Short,
   UE-RadioAccessCapability,
   UE-RadioAccessCapability-v370ext,
   UE-RadioAccessCapability-v380ext,
   UE-RadioAccessCapability-v3a0ext,
   UE-RadioAccessCapability-v3g0ext,
   UE-RadioAccessCapability-v4b0ext,
   UE-RadioAccessCapability-v590ext,
   UE-RadioAccessCapability-v5c0ext,
   UE-RadioAccessCapabilityComp,
   DL-PhysChCapabilityFDD-v380ext,
   UE-ConnTimersAndConstants,
   IJE-ConnTimersAndConstants-v3a0ext.
   UE-ConnTimersAndConstants-r5,
   UE-SecurityInformation,
   URA-UpdateCause,
   UTRAN-DRX-CycleLengthCoefficient,
   WaitTime,
-- Radio Bearer IEs :
   DefaultConfigIdentity,
   DefaultConfigIdentity-r4,
   DefaultConfigIdentity-r5,
   DefaultConfigMode,
   DL-CounterSynchronisationInfo,
   DL-CounterSynchronisationInfo-r5,
   {\tt PredefinedConfigIdentity,}
   PredefinedConfigStatusList,
   PredefinedConfigStatusListComp,
   PredefinedConfigSetWithDifferentValueTag,
   RAB-Info.
   RAB-Info-Post,
```

```
RAB-InformationList,
   RAB-InformationReconfigList,
   RAB-InformationSetupList,
   RAB-InformationSetupList-r4,
   RAB-InformationSetupList-r5,
   RB-ActivationTimeInfoList,
   RB-COUNT-C-InformationList
   RB-COUNT-C-MSB-InformationList,
   RB-IdentityList,
   RB-InformationAffectedList,
   RB-InformationAffectedList-r5,
   RB-InformationReconfigList,
   RB-InformationReconfigList-r4,
   RB-InformationReconfigList-r5,
   RB-InformationReleaseList,
   RB-PDCPContextRelocationList,
   SRB-InformationSetupList,
   SRB-InformationSetupList-r5,
   SRB-InformationSetupList2,
   UL-CounterSynchronisationInfo,
-- Transport Channel IEs:
   CPCH-SetID,
   DL-AddReconfTransChInfo2List,
   DL-AddReconfTransChInfoList,
   DL-AddReconfTransChInfoList-r4.
   DL-AddReconfTransChInfoList-r5,
   DL-CommonTransChInfo,
   DL-CommonTransChInfo-r4,
   DL-DeletedTransChInfoList,
   DL-DeletedTransChInfoList-r5,
   DRAC-StaticInformationList,
   TFC-Subset,
   TFCS-Identity,
   UL-AddReconfTransChInfoList,
   UL-CommonTransChInfo,
   UL-CommonTransChInfo-r4,
   UL-DeletedTransChInfoList,
-- Physical Channel IEs :
   Alpha,
   CCTrCH-PowerControlInfo,
   CCTrCH-PowerControlInfo-r4,
   CCTrCH-PowerControlInfo-r5,
   Constant Value,
   ConstantValueTdd,
   CPCH-SetInfo,
   DL-CommonInformation,
   DL-CommonInformation-r4,
   DL-CommonInformation-r5,
   DL-CommonInformationPost,
   DL-HSPDSCH-Information,
   DL-InformationPerRL-List,
   DL-InformationPerRL-List-r4,
   DL-InformationPerRL-List-r5,
   DL-InformationPerRL-List-r5bis,
   DL-InformationPerRL-ListPostFDD,
   DL-InformationPerRL-PostTDD,
   DL-InformationPerRL-PostTDD-LCR-r4,
   DL-PDSCH-Information,
   DL-TPC-PowerOffsetPerRL-List,
   DPC-Mode,
   {\tt DPCH-CompressedModeStatusInfo,}
   FrequencyInfo,
   FrequencyInfoFDD,
   FrequencyInfoTDD,
   {\tt HS-SICH-Power-Control-Info-TDD384},
   MaxAllowedUL-TX-Power,
   OpenLoopPowerControl-IPDL-TDD-r4,
   PDSCH-CapacityAllocationInfo,
   PDSCH-CapacityAllocationInfo-r4,
   PDSCH-Identity,
   PrimaryCPICH-Info,
   PrimaryCCPCH-TX-Power,
   PUSCH-CapacityAllocationInfo,
   PUSCH-CapacityAllocationInfo-r4,
   PUSCH-Identity,
   PUSCH-SysInfoList-HCR-r5,
   PDSCH-SysInfoList-HCR-r5,
   RL-AdditionInformationList,
```

```
RL-RemovalInformationList,
    SpecialBurstScheduling,
    SSDT-Information,
    TFC-ControlDuration,
    SSDT-UL,
    TimeslotList,
    TimeslotList-r4,
    TX-DiversityMode,
    UL-ChannelRequirement,
    UL-ChannelRequirement-r4,
    UL-ChannelRequirement-r5,
    UL-ChannelRequirementWithCPCH-SetID,
    UL-ChannelRequirementWithCPCH-SetID-r4,
    UL-ChannelRequirementWithCPCH-SetID-r5,
    UL-DPCH-Info,
    UL-DPCH-Info-r4,
    UL-DPCH-Info-r5,
    UL-DPCH-InfoPostFDD,
    UL-DPCH-InfoPostTDD,
    UL-DPCH-InfoPostTDD-LCR-r4,
    UL-SynchronisationParameters-r4,
    UL-TimingAdvance,
    UL-TimingAdvanceControl,
   UL-TimingAdvanceControl-r4,
-- Measurement IEs :
   AdditionalMeasurementID-List,
    DeltaRSCP,
    Frequency-Band,
    EventResults,
    Inter-FreqEventCriteriaList-v590ext,
    Intra-FreqEventCriteriaList-v590ext,
    IntraFreqReportingCriteria-1b-r5,
    IntraFreqEvent-1d-r5,
    InterFreqEventResults-LCR-r4-ext,
    InterRATCellInfoIndication,
    InterRAT-TargetCellDescription,
    MeasuredResults,
    MeasuredResults-v390ext,
    MeasuredResults-v590ext,
   MeasuredResultsList,
MeasuredResultsList-LCR-r4-ext,
    MeasuredResultsOnRACH,
    MeasurementCommand,
    MeasurementCommand-r4,
    MeasurementIdentity,
    MeasurementReportingMode,
    PrimaryCCPCH-RSCP,
    SFN-Offset-Validity
    TimeslotListWithISCP,
    TrafficVolumeMeasuredResultsList,
    UE-Positioning-GPS-AssistanceData,
    UE-Positioning-Measurement-v390ext,
    UE-Positioning-OTDOA-AssistanceData,
    UE-Positioning-OTDOA-AssistanceData-r4ext,
    UE-Positioning-OTDOA-AssistanceData-UEB,
-- Other IEs :
    BCCH-ModificationInfo,
    CDMA2000-MessageList,
    GERANIu-MessageList,
    GERAN-SystemInformation,
    GSM-MessageList,
    InterRAT-ChangeFailureCause,
    InterRAT-HO-FailureCause,
    InterRAT-UE-RadioAccessCapabilityList,
    InterRAT-UE-RadioAccessCapability-v590ext,
    InterRAT-UE-SecurityCapList,
    IntraDomainNasNodeSelector
    ProtocolErrorMoreInformation,
    Rplmn-Information,
    Rplmn-Information-r4,
    SegCount,
    SegmentIndex
    SFN-Prime,
    SIB-Data-fixed,
    SIB-Data-variable,
    SIB-Type
FROM InformationElements
    maxSIBperMsg,
```

```
maxURNTI-Group
FROM Constant-definitions;
__ ***************************
-- ACTIVE SET UPDATE (FDD only)
ActiveSetUpdate ::= CHOICE {
                                 SEQUENCE {
   r3
         activeSetUpdate-r3
laterNonCriticalExtensions
ActiveSetUpdate-r3-IEs,
SEQUENCE {
               -- Container for additional R99 extensions
              -- Container for additional R99 extensions
activeSetUpdate-r3-add-ext BIT STRING OPTIONAL,
v4b0NonCriticalExtensions SEQUENCE {
   activeSetUpdate-v4b0ext ActiveSetUpdate-v4b0ext-IEs,
   v590NonCriticalExtensions SEQUENCE {
      activeSetUpdate-v590ext nonCriticalExtensions
   } OPTIONAL
} OPTIONAL
                  } OPTIONAL
              } OPTIONAL
         } OPTIONAL
         er-than-r3 SEQUENCE {
rrc-TransactionIdentifier RRC-TransactionIdentifier,
criticalExtensions SEQUENCE {}
    later-than-r3
}
ActiveSetUpdate-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
         rrc-TransactionIdentifier RRC-TransactionIdentifier,
         -- dummy and dummy2 are not used in this version of the specification, they should
         -- not be sent and if received they should be ignored.

dummy IntegrityProtectionModeInfo
                                                                                       OPTIONAL,
                                          CipheringModeInfo
         dummy2
                                                                                      OPTIONAL,
         activationTime
                                                ActivationTime
                                                                                            OPTIONAL,
         newU-RNTI
                                                U-RNTI
                                                                                            OPTIONAL,
    -- Core network IEs
         cn-InformationInfo
                                                CN-InformationInfo
                                                                                             OPTIONAL,
    -- Radio bearer IEs
         -- dummy3 is not used in this version of the specification, it should
         -- not be sent and if received it should be ignored.
         dummy3 DL-CounterSynchronisationInfo O
Physical channel IEs
maxAllowedUL-TX-Power
rl-AdditionInformationList
rl-RemovalInformationList
tx-DiversityMode
ssdt-Information

TI received it should be ignored.

MaxAllowedUL-TX-Power
RL-AdditionInformationList
RL-RemovalInformationList
TX-DiversityMode
ssdt-Information

SSDT-Information
     -- Physical channel IEs
                                                                                           OPTIONAL,
                                                                                           OPTIONAL,
                                                                                            OPTIONAL,
                                                                                            OPTIONAL
}
ActiveSetUpdate-v4b0ext-IEs ::= SEQUENCE {
    -- Physical channel IEs
         -- ssdt-UL extends SSDT-Information. 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 RL-AdditionInformationList included in this message cell-id-PerRL-List CellIdentity-PerRL-List OPTIONAL
         cell-id-PerRI-List
}
ActiveSetUpdate-v590ext-IEs ::= SEQUENCE {
    -- Physical channel IEs
                                                     DPC-Mode.
         dpc-Mode
         dl-TPC-PowerOffsetPerRL-List DL-TPC-PowerOffsetPerRL-List
                                                                                                    OPTIONAL
}
__ ***************
-- ACTIVE SET UPDATE COMPLETE (FDD only)
__ ***************
ActiveSetUpdateComplete ::= SEQUENCE {
    -- User equipment IEs
         rrc-TransactionIdentifier RRC-TransactionIdentifier,
          -- dummy is not used in this version of the specification, it should
```

```
-- not be sent and if received it should be ignored.
                                 IntegrityProtActivationInfo
                                                                   OPTIONAL,
   -- Radio bearer IEs
       -- dummy2 and dummy3 are not used in this version of the specification, they should
       -- not be sent and if received they should be ignored.
                            RB-ActivationTimeInfoList
       dummy3
                                                                  OPTIONAL,
           -- Container for additional R99 extensions
           activeSetUpdateComplete-r3-add-ext BIT STRING
                                                               OPTIONAL,
                                  SEQUENCE {} OPTIONAL
           nonCriticalExtensions
       } OPTIONAL
}
__ *******************
-- ACTIVE SET UPDATE FAILURE (FDD only)
__ ***************************
ActiveSetUpdateFailure ::= SEQUENCE {
       failureCause
laterNonCriticalExtensions
-- Container for TransactionIdentifier,
FailureCauseWithProtErr,
SEQUENCE {
SEQUENCE {
    -- User equipment IEs
           erNonCriticalExtensions SEQUENCE {
-- Container for additional R99 extensions
           activeSetUpdateFailure-r3-add-ext BIT STRING
                                                               OPTIONAL,
                                 SEQUENCE {} OPTIONAL
           nonCriticalExtensions
       OPTIONAL
}
__ ****************
-- Assistance Data Delivery
__ ****************
AssistanceDataDelivery ::= CHOICE {
                                 SEQUENCE {
       assistanceDataDelivery-r3 AssistanceDataDelivery-r3-IEs,
       v3a0NonCriticalExtensions
                                     SEQUENCE {
           assistanceDataDelivery-v3a0ext AssistanceDataDelivery-v3a0ext, laterNonCriticalExtensions SEQUENCE {
               -- Container for additional R99 extensions
               assistanceDataDelivery-r3-add-ext BIT STRING
                                                                 OPTIONAL,
               v4b0NonCriticalExtensions SEQUENCE {
                  assistanceDataDelivery-v4b0ext
                                                AssistanceDataDelivery-v4b0ext-IEs,
                  nonCriticalExtensions
                                                SEQUENCE {}
                                                                               OPTIONAL
                 OPTIONAL
              OPTIONAL
       } OPTIONAL
                                 SEQUENCE {
   later-than-r3
      rrc-TransactionIdentifier RRC-TransactionIdentifier,
                                     SEQUENCE {}
       criticalExtensions
}
AssistanceDataDelivery-r3-IEs ::= SEQUENCE {
   -- User equipment IEs
   rrc-TransactionIdentifier
                                 RRC-TransactionIdentifier,
    -- Measurement Information Elements
   ue-positioning-GPS-AssistanceData
                                            UE-Positioning-GPS-AssistanceData
   OPTIONAL.
   ue-positioning-OTDOA-AssistanceData-UEB UE-Positioning-OTDOA-AssistanceData-UEB
   OPTIONAL
}
AssistanceDataDelivery-v3a0ext ::= SEQUENCE {
                                     SFN-Offset-Validity OPTIONAL
   sfn-Offset-Validity
}
AssistanceDataDelivery-v4b0ext-IEs ::= SEQUENCE {
   ue-Positioning-OTDOA-AssistanceData-r4ext UE-Positioning-OTDOA-AssistanceData-r4ext OPTIONAL
```

```
-- CELL CHANGE ORDER FROM UTRAN
CellChangeOrderFromUTRAN ::= CHOICE {
                                  SEQUENCE {
       cellChangeOrderFromUTRAN-IES CellChangeOrderFromUTRAN-r3-IEs, laterNonCriticalExtensions SEQUENCE {
           -- Container for additional R99 extensions
           cellChangeOrderFromUTRAN-r3-add-ext BIT STRING v590NonCriticalExtensions SEQUENCE {
               {\tt cellChangeOrderFromUTRAN-v590ext-IEs,}
               {\tt nonCriticalExtensions} \qquad \qquad {\tt SEQUENCE} \ \{\} \ {\tt OPTIONAL}
               OPTIONAL
       ) OPTIONAL
      er-than-r3 SEQUENCE {
rrc-TransactionIdentifier RRC-TransactionIdentifier,
SEQUENCE {}
   later-than-r3
}
CellChangeOrderFromUTRAN-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
       rrc-TransactionIdentifier
                                     RRC-TransactionIdentifier,
        -- dummy is not used in this version of the specification, it should
        -- not be sent and if received it should be ignored.
                                      IntegrityProtectionModeInfo
       activationTime
                                      ActivationTime
                                                                          OPTIONAL.
       -- the IE rab-InformationList is not used in this version of the specification, it should
        -- not be sent and if received it should be ignored. The IE may be used in a later
        -- version of the protocol and hence it is not changed into a dummy
                              RAB-InformationList
       rab-InformationList
       inter {\tt RAT-TargetCellDescription} \quad {\tt InterRAT-TargetCellDescription}
}
CellChangeOrderFromUTRAN-v590ext-IEs ::= SEQUENCE {
       geran-SystemInfoType
          sI
                                               GERAN-SystemInformation,
           pSI
                                               GERAN-SystemInformation
             OPTIONAL
}
__ *****************************
-- CELL CHANGE ORDER FROM UTRAN FAILURE
__ ******************************
CellChangeOrderFromUTRANFailure ::= CHOICE {
                                   SEQUENCE {
       cellChangeOrderFromUTRANFailure-r3
                                      CellChangeOrderFromUTRANFailure-r3-IEs,
       -- Container for additional R99 extensions
           cellChangeOrderFromUTRANFailure-r3-add-ext
                                                         BIT STRING OPTIONAL,
                                          SEQUENCE {} OPTIONAL
           nonCriticalExtensions
    -- dummy is not used in this version of the specification and it
    -- should be ignored.
                                  SEQUENCE {
       rrc-TransactionIdentifier RRC-TransactionIdentifier,
                                      SEQUENCE {}
       criticalExtensions
}
{\tt CellChangeOrderFromUTRANFailure-r3-IEs} \ ::= \ {\tt SEQUENCE} \ \{
    -- User equipment IEs
       rrc-TransactionIdentifier
                                    RRC-TransactionIdentifier,
        -- dummy is not used in this version of the specification, it should
       -- not be sent and if received it should be ignored.
                                      IntegrityProtectionModeInfo OPTIONAL,
       dummy
       interRAT-ChangeFailureCause
                                       InterRAT-ChangeFailureCause
}
```

```
-- CELL UPDATE
__ ***************************
CellUpdate ::= SEQUENCE {
    -- User equipment IEs
                                        U-RNTI,
        u-RNTI
                     STARTList,
        startList
        am-RLC-ErrorIndicationRb2-3or4
        am-RLC-ErrorIndicationRb2-3or4 BOOLEAN, am-RLC-ErrorIndicationRb5orAbove cellUpdateCause
        cellUpdateCause
                                     CellUpdateCause,
        -- TABULAR: RRC transaction identifier is nested in FailureCauseWithProtErrTrId
                            FailureCauseWithProtErrTrId OPTIONAL,
        failureCause
        rb-timer-indicator
                                         Rb-timer-indicator,
    -- Measurement IEs
        Measurement IEs
measuredResultsOnRACH
laterNonCriticalExtensions
MeasuredResultsOnRACH
SEQUENCE {
                                                                        OPTIONAL,
             -- Container for additional R99 extensions
            cellUpdate-r3-add-ext BIT STRING OPTIONAL, v590NonCriticalExtensions SEQUENCE {
                 cellUpdate-v590ext CellUpdate-v590ext,
                 OPTIONAL
            OPTIONAL
}
CellUpdate-v590ext ::= SEQUENCE {
    establishmentCause
                                      EstablishmentCause OPTIONAL
-- CELL UPDATE CONFIRM
__ ****************
CellUpdateConfirm ::= CHOICE {
        -- Container for additional R99 extensions
                -- Container for additional R99 extensions
cellUpdateConfirm-r3-add-ext
v4b0NonCriticalExtensions
cellUpdateConfirm-v4b0ext
v590NonCriticalExtenstions
cellUpdateConfirm-v590ext
nonCriticalExtensions
}

COPTIONAL

BIT STRING OPTIONAL,
SEQUENCE {
CellUpdateConfirm-v4b0ext-IEs,
SEQUENCE {
CellUpdateConfirm-v590ext-IEs,
SEQUENCE {}
OPTIONAL
                           OPTIONAL
                         OPTIONAL
            }
                     OPTIONAL
                 OPTIONAL
                                     SEQUENCE {
    later-than-r3
        SEQUENCE {
cellUpdateConfirm-r4
v4d0Norconi
            r4
                 cellUpdateConfirm-r4
v4d0NonCriticalExtensions
CellUpdateConfirm-r4-IEs,
v5d0NonCriticalExtensions
                     -- Container for adding non critical extensions after freezing REL-5
                     cellUpdateConfirm-r4-add-ext BIT STRING OPTIONAL,
v590NonCriticalExtensions SEQUENCE {
    cellUpdateConfirm-v590ext CellUpdateConfirm-v590ext-IEs,
    nonCriticalExtensions SEQUENCE {} OPTIONAL
                    OPTIONAL
            },
criticalExtensions CHOICE {
                     SEQUENCE {
cellUpdateConfirm-r5 CellUpdateConfirm-r5-IEs,
                     -- Container for adding non critical extensions after freezing REL-6
                     nonCriticalExtensions
                                         SEQUENCE {}
                 criticalExtensions
            }
        }
```

```
}
}
CellUpdateConfirm-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
       rrc-TransactionIdentifier
                                        RRC-TransactionIdentifier,
        integrityProtectionModeInfo
cipheringModeInfo
CipheringModeInfo
CipheringModeInfo
                                                                              OPTIONAL,
                               Clpnering...
ActivationTime
                                                                                OPTIONAL,
        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-InformationReconfigList
rb-InformationAffectedList
dl-CounterSymples:
                                                                               OPTIONAL,
                                                                               OPTIONAL,
                                                                                OPTIONAL,
        dl-CounterSynchronisationInfo DL-CounterSynchronisationInfo
                                                                              OPTIONAL,
    -- Transport channel IEs
        UL-CommonTransChInfo
ul-deletedTransChInfoList
ul-AddReconfTransChInfoList
ul-AddReconfTransChInfoList
modeSpecificTransChInfo
fdd

cpch-SetID

CDCH. SetID
                                                                                OPTIONAL,
                                         UL-AddReconfTransChInfoList
                                                                               OPTIONAL,
                                                                                OPTIONAL.
                addReconfTransChDRAC-Info
                                                  DRAC-StaticInformationList OPTIONAL
            },
            tdd
                                              NIII.I.
        dl-CommonTransChInfo
        dl-CommonTransChInfo DL-CommonTransChInfo dl-DeletedTransChInfoList DL-DeletedTransChInfoList
                                                                               OPTIONAL,
        dl-AddReconfTransChInfoList DL-AddReconfTransChInfoList
                                                                               OPTIONAL,
    -- Physical channel IEs
                                         FrequencyInfo
                                                                               OPTIONAL,
        frequencyInfo
        maxAllowedUL-TX-Power
ul-ChannelRequirement
ul-ChannelRequirement
modeSpecificPhysChInfo

CHOICE {
                                                                                OPTIONAL,
                                                                               OPTIONAL,
                                              SEQUENCE {
-- dummy is not used in this version of specification, it should
-- not be sent and if received it should be ignored.
                                                      DL-PDSCH-Information
                                                                                   OPTIONAL
                dl-PDSCH-Informationdummy
            },
            tdd
                                              NULL
        OPTIONAL,
                                                                               OPTIONAL
CellUpdateConfirm-v3a0ext ::= SEQUENCE {
-- The IE "new-DSCH-RNTI" should not be included in FDD mode, and if received the UE behaviour
-- is unspecified
    new-DSCH-RNTI
                                 DSCH-RNTT
                                                                            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,
  The IE "new-DSCH-RNTI" should not be included in FDD mode, and if received the UE behaviour
-- is unspecified
       new-DSCH-RNTI
                                        DSCH-RNTI
                                                                            OPTIONAL,
        rrc-StateIndicator
                                        RRC-StateIndicator,
                                       UTRAN-DRX-CycleLengthCoefficient
        utran-DRX-CycleLengthCoeff
                                                                            OPTIONAL,
                                                BOOLEAN,
        rlc-Re-establishIndicatorRb2-3or4
       rlc-Re-establishIndicatorRb5orAbove BOOLEAN,
    -- CN information elements
       cn-InformationInfo
                                        CN-InformationInfo
                                                                            OPTIONAL,
    -- UTRAN mobility IEs
       ura-Identity
                                      URA-Identity
                                                                            OPTTONAL.
                                   RB-InformationReleaseList
    -- Radio bearer IEs
       rb-InformationReleaseList
                                                                            OPTIONAL.
        rb-InformationReconfigList
                                       RB-InformationReconfigList-r4
                                                                            OPTIONAL,
        rb-InformationAffectedList
                                        RB-InformationAffectedList
                                                                            OPTIONAL.
        {\tt dl-CounterSynchronisationInfo} \quad {\tt 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 {
                cpch-SetID
                                                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 {
 - dummy is not used in this version of specification,
                                                       it should
 - not be sent and if received it should be ignored.
                dl-PDSCH-Informationdummy
                                                    DL-PDSCH-Information
                                                                               OPTIONAL
            },
           tdd
                                            NULLI
        dl-CommonInformation
                                        DL-CommonInformation-r4
                                                                            OPTIONAL,
                                                                            OPTIONAL
                                      DL-InformationPerRL-List-r4
       dl-InformationPerRL-List
}
CellUpdateConfirm-r5-IEs ::= SEQUENCE {
    -- User equipment IEs
        integrityProtectionModeInfo
                                        IntegrityProtectionModeInfo
                                                                            OPTIONAL,
        \verb|ciphering| ModeInfo|
                                        CipheringModeInfo
                                                                            OPTIONAL,
                                        ActivationTime
        activationTime
                                                                             OPTIONAL,
       new-U-RNTI
                                        U-RNTI
                                                                            OPTIONAL,
       new-C-RNTI
                                                                            OPTIONAL.
                                        C-RNTI
  The IE "new-DSCH-RNTI" should not be included in FDD mode, and if received the UE behaviour
  is unspecified
                                        DSCH-RNTI
       new-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-CommonTransChInfoUL-CommonTransChInfo-r4ul-deletedTransChInfoListUL-DeletedTransChInfoListul-AddReconfTransChInfoListUL-AddReconfTransChInfoList
                                                                                      OPTIONAL,
                                                                                      OPTIONAL,
                                                                                    OPTIONAL,
        modeSpecificTransChInfo CHOICE {
   fdd SEQUI
                                                  SEQUENCE {
                  cpch-SetID
                                                      CPCH-SetID
                                                                                       OPTIONAL,
                  addReconfTransChDRAC-Info
                                                      DRAC-StaticInformationList OPTIONAL
             },
             tdd
                                                  NULL
        dl-CommonTransChInfo DL-CommonTransChInfo-r4
dl-DeletedTransChInfoList DL-DeletedTransChInfoList-r5
dl-AddReconfTransChInfoList DL-AddReconfTransChInfoList-r5
                                                                                      OPTIONAL,
                                                                                     OPTIONAL,
    -- Physical channel IEs
        frequencyInto
maxAllowedUL-TX-Power
ul-ChannelRequirement
modeSpecificPhysChInfo

CHOICE {
CROWLENGE {
         frequencyInfo
                                           FrequencyInfo
                                                                                      OPTIONAL,
                                                                                       OPTIONAL,
                                                                                      OPTIONAL,
                                                  SEQUENCE {
-- dummy is not used in this version of specification, it should
   not be sent and if received it should be ignored.
                  dl-PDSCH-Informationdummy
                                                           DL-PDSCH-Information
                                                                                          OPTIONAL
             },
             tdd
                                                 NULL
        dl-HSPDSCH-Information DL-HSPDSCH-Information dl-CommonInformation DL-CommonInformation-r5 dl-InformationPerRL-List DL-InformationPerRL-List-r5
                                                                                      OPTIONAL,
                                                                                     OPTIONAL,
                                                                                     OPTIONAL
}
__ ***************
-- HANDOVER TO UTRAN COMMAND
__ ***************
HandoverToUTRANCommand ::= CHOICE {
                                         SEQUENCE {
    r3
                                         HandoverToUTRANCommand-r3-IEs,
        handoverToUTRANCommand-r3
        nonCriticalExtensions
                                             SEQUENCE {} OPTIONAL
    criticalExtensions
                                        CHOICE {
                                             SEQUENCE {
                                             HandoverToUTRANCommand-r4-IEs,
             handoverToUTRANCommand-r4
             nonCriticalExtensions
                                                  SEQUENCE {} OPTIONAL
         },
                                             CHOICE {
         criticalExtensions
                                                  SEQUENCE {
             r5
                                                  HandoverToUTRANCommand-r5-IEs,
                  handoverToUTRANCommand-r5
                  nonCriticalExtensions
                                                      SEQUENCE {} OPTIONAL
             },
                                                  SEOUENCE {}
             criticalExtensions
         }
    }
}
HandoverToUTRANCommand-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
                                             U-RNTI-Short,
        new-U-RNTI
         -- 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 {
                                               SEQUENCE {
              complete
                  srb-InformationSetupList SRB-InformationSetupList,
rab-InformationSetupList RAB-InformationSetupList
ul-CommonTransChInfo UL-CommonTransChInfo,
ul-AddReconfTransChInfoList,
                                                                                               OPTIONAL.
                  dl-CommonTransChInfo
                                                      DL-CommonTransChInfo,
                  dl-AddReconfTransChInfoList
                                                     DL-AddReconfTransChInfoList,
                  ull-DPCH-Info
                                                      UL-DPCH-Info,
```

```
modeSpecificInfo
                                                CHOICE {
                                                    SEQUENCE {
                    fdd
-- dummy is not used in this version of specification, it should
-- not be sent and if received it should be ignored.
                        dl PDSCH Informationdummy
                                                            DL-PDSCH-Information OPTIONAL,
                        cpch-SetInfo
                                                        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,
                                                    SEQUENCE {
                    defaultConfig
                        defaultConfigMode
                                                        DefaultConfigMode,
                        defaultConfigIdentity
                                                        DefaultConfigIdentity
                rab-Info
                                                RAB-Info-Post
                                                                    OPTIONAL,
                modeSpecificInfo
                                                CHOICE {
                                                    SEQUENCE {
                        ul-DPCH-Info
                                                        UL-DPCH-InfoPostFDD,
                        dl-CommonInformationPost
                                                        DL-CommonInformationPost,
                        dl-InformationPerRL-List
                                                        DL-InformationPerRL-ListPostFDD,
                        frequencyInfo
                                                       FrequencyInfoFDD
                    },
                    t.dd
                                                        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,
                                                                           OPTIONAL,
       cipheringAlgorithm
                                        CipheringAlgorithm
    -- Radio bearer IEs
    -- Specification mode information
                                        CHOICE {
        specificationMode
                                            SEQUENCE {
                rab-InformationSetupList SRB-InformationSetupList, RAB-InformationSetupList ul-CommonTransChInfo
            complete
                                                RAB-InformationSetupList-r4
                                                                                     OPTIONAL,
                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 {
-- dummy is not used in this version of specification, it should
  not be sent and if received it should be ignored.
                        dl-PDSCH-Informationdummy
                                                            DL-PDSCH-Information OPTIONAL,
                        cpch-SetInfo
                                                        CPCH-SetInfo
                                                                             OPTIONAL
                    },
                    tdd
                                                    NULL
                dl-CommonInformation
                                               DL-CommonInformation-r4,
                dl-InformationPerRL-List
                                                DL-InformationPerRL-List-r4,
                frequencyInfo
                                                FrequencyInfo
                                            SEQUENCE {
            preconfiguration
```

```
-- 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 {
                                                      SEQUENCE {
                     fdd
                         ul-DPCH-Info
                                                           UL-DPCH-InfoPostFDD,
                         dl-CommonInformationPost
                                                           DL-CommonInformationPost,
                         dl-InformationPerRL-List
                                                           DL-InformationPerRL-ListPostFDD,
                         frequencyInfo
                                                          FrequencyInfoFDD
                     },
                     tdd
                                                       CHOICE {
                                                         SEQUENCE {
                         tdd384
                             ul-DPCH-Info
                                                               UL-DPCH-InfoPostTDD,
                             dl-InformationPerRL
                                                               DL-InformationPerRL-PostTDD,
                             frequencyInfo
                                                               FrequencyInfoTDD,
                             primaryCCPCH-TX-Power
                                                               PrimaryCCPCH-TX-Power
                         tdd128
                                                          SEQUENCE {
                                                              UL-DPCH-InfoPostTDD-LCR-r4,
                             ul-DPCH-Info
                             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,
                                                                               OPTIONAL,
        cipheringAlgorithm
                                          CipheringAlgorithm
    -- Radio bearer IEs
    -- Specification mode information
        specificationMode
                                         CHOICE {
                                            SEQUENCE {
            complete
                srb-InformationSetupList
rab-InformationSetupList
ul-CommonTransChInfo
ul-AddReconfTransChInfoList
SRB-InformationSetupList-r5,
RAB-InformationSetupList-r5
UL-CommonTransChInfo-r4,
UL-AddReconfTransChInfoList,
                                                                                         OPTIONAL,
                                                  DL-CommonTransChInfo-r4,
                dl-CommonTransChInfo
                dl-AddReconfTransChInfoList
                                                  DL-AddReconfTransChInfoList-r5,
                ul-DPCH-Info
                                                  UL-DPCH-Info-r5,
                                                  CHOICE {
                modeSpecificInfo
                                                       SEQUENCE {
                     fdd
-- dummy is not used in this version of specification, it should
  not be sent and if received it should be ignored.
                         dl-PDSCH-Informationdummy
                                                               DL-PDSCH-Information OPTIONAL,
                         cpch-SetInfo
                                                           CPCH-SetInfo
                                                                               OPTIONAL
                     },
                     tdd
                                                      NULL
                dl-CommonInformation
                                                  DL-CommonInformation-r4,
                dl-InformationPerRL-List
                                                  DL-InformationPerRL-List-r5,
                frequencyInfo
                                                  FrequencyInfo
                                              SEQUENCE {
            preconfiguration
-- 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-InfoPostFDD,
                       ul-DPCH-Info
                       dl-CommonInformationPost
                                                      DL-CommonInformationPost,
                                                      DL-InformationPerRL-ListPostFDD, FrequencyInfoFDD
                       dl-InformationPerRL-List
                       frequencyInfo
                    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
}
-- PHYSICAL CHANNEL RECONFIGURATION
  *************
PhysicalChannelReconfiguration ::= CHOICE {
                                   SEQUENCE {
       physicalChannelReconfiguration-r3
                                      PhysicalChannelReconfiguration-r3-IEs,
        v3a0NonCriticalExtensions
                                          SEQUENCE {
           physicalChannelReconfiguration-v3a0ext
                                                       PhysicalChannelReconfiguration-v3a0ext,
            laterNonCriticalExtensions
                                          SEQUENCE {
                 - Container for additional R99 extensions
                                                                  BIT STRING
               physicalChannelReconfiguration-r3-add-ext
                                                                                   OPTIONAL.
               v4b0NonCriticalExtenstions
                                                  SEQUENCE {
                   physicalChannelReconfiguration-v4b0ext
                                              PhysicalChannelReconfiguration-v4b0ext-IEs,
                                                      SEQUENCE {
                    v590NonCriticalExtenstions
                       {\tt physicalChannelReconfiguration-v590ext}
                                               PhysicalChannelReconfiguration-v590ext-IEs,
                       nonCriticalExtensions
                                                               SEQUENCE { } OPTIONAL
                       OPTIONAL
                    OPTIONAL
               OPTIONAL
           OPTIONAL
                                   SEQUENCE {
    later-than-r3
        rrc-TransactionIdentifier
                                       RRC-TransactionIdentifier,
           criticalExtensions
                                           CHOICE {
                                           SEQUENCE {
           r4
               physicalChannelReconfiguration-r4
                                               PhysicalChannelReconfiguration-r4-IEs,
               v4d0NonCriticalExtensions
                                                   SEQUENCE {
                    -- Container for adding non critical extensions after freezing REL-5
                                                                                   OPTIONAL.
                    physicalChannelReconfiguration-r4-add-ext
                                                                   BIT STRING
                    v590NonCriticalExtenstions
                                                       SEQUENCE {
                       physicalChannelReconfiguration-v590ext
                                               PhysicalChannelReconfiguration-v590ext-IEs,
                       nonCriticalExtensions
                                                       SEQUENCE {}
                                                                      OPTIONAL
                       OPTIONAL
               }
                   OPTIONAL
           },
            criticalExtensions
                                           CHOICE {
                                               SEQUENCE {
               r5
                   physicalChannelReconfiguration-r5
```

```
PhysicalChannelReconfiguration-r5-IEs,
                    -- Container for adding non critical extensions after freezing REL-6
                    physicalChannelReconfiguration-r5-add-ext BIT STRING
                                                                                      OPTIONAL,
                    nonCriticalExtensions
                                                   SEQUENCE {}
                                                                     OPTIONAL
                criticalExtensions
                                               SEQUENCE {}
           }
       }
   }
}
PhysicalChannelReconfiguration-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
       rrc-TransactionIdentifier RRC-TransactionIdentifier,
integrityProtectionModeInfo CipheringModeInfo
activationTime ActivationTime
                                                                              OPTIONAL,
                                                                              OPTIONAL,
        activationTime
                                        ActivationTime
                                                                              OPTIONAL,
       new-U-RNTI
                                        II-RNTT
                                                                              OPTIONAL,
       new-C-RNTI
                                       C-RNTI
                                                                              OPTIONAL,
       new-C-RNTI C-RNTI OFTIONAL, 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.
        ul-ChannelRequirement UL-ChannelRequirementWithCPCH-SetID modeSpecificInfo CHOICE {
                                                                               OPTIONAL,
           fdd
                                            SEQUENCE {
  dummy is not used in this version of specification, it should
-- not be sent and if received it should be ignored.
                dl PDSCH Informationdummy
                                                     DL-PDSCH-Information OPTIONAL
            tdd
                                             NULL
       dl-CommonInformation DL-CommonInformation
dl-InformationPerRL-List DL-InformationPerRL-List
                                                                             OPTIONAL,
                                                                             OPTIONAL
}
PhysicalChannelReconfiguration-v3a0ext ::= SEQUENCE {
-- The IE "new-DSCH-RNTI" should not be included in FDD mode, and if received the UE behaviour
   is unspecified
   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-PerRI-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,
  The IE "new-DSCH-RNTI" should not be included in FDD mode, and if received the UE behaviour
-- is unspecified
       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
        -- TABULAR: UL-ChannelRequirementWithCPCH-SetID-r4 contains the choice
        -- between UL DPCH info, CPCH SET info and CPCH set ID.
       ul-ChannelRequirement UL-ChannelRequirementWithCPCH-SetID-r4 OPTIONAL, modeSpecificInfo CHOICE {
           fdd
                                           SEQUENCE {
-- dummy is not used in this version of specification, it should
-- not be sent and if received it should be ignored.
                dl-PDSCH-Informationdummy
                                                    DL-PDSCH-Information OPTIONAL
            },
           tdd
                                           NULL
       dl-CommonInformation DL-CommonInformation-r4
dl-InformationPerRL-List DL-InformationPerRL-List-r4
                                                                           OPTIONAL,
                                                                          OPTIONAL
}
PhysicalChannelReconfiguration-r5-IEs ::= SEQUENCE {
    -- User equipment IEs
        integrityProtectionModeInfo
                                      IntegrityProtectionModeInfo
                                                                           OPTIONAL,
                                                                            OPTIONAL.
        cipheringModeInfo
                                       CipheringModeInfo
        activationTime
                                        ActivationTime
                                                                            OPTIONAL,
       new-U-RNTI
                                        U-RNTI
                                                                            OPTIONAL,
       new-C-RNTI
                                        C-RNTI
                                                                            OPTIONAL,
  The IE "new-DSCH-RNTI" should not be included in FDD mode, and if received the UE behaviour
  is unspecified
       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
    -- UTRAN mobility IEs
       ura-Identity
                                      URA-Identity
                                                                            OPTIONAL.
    -- Radio bearer IEs
       dl-CounterSynchronisationInfo DL-CounterSynchronisationInfo-r5
    -- Physical channel IEs
       frequencyInfo FrequencyInfo maxAllowedUL-TX-Power MaxAllowedUL-TX-Power
                                                                            OPTIONAL.
                                                                            OPTIONAL,
        -- TABULAR: UL-ChannelRequirementWithCPCH-SetID-r5 contains the choice
        -- between UL DPCH info, CPCH SET info and CPCH set ID.
        ul-ChannelRequirement UL-ChannelRequirementWithCPCH-SetID-r5 OPTIONAL,
                                       CHOICE {
       modeSpecificInfo
           fdd
                                           SEQUENCE {
  dummy is not used in this version of specification, it should
 - not be sent and if received it should be ignored.
                                                   DL-PDSCH-Information
               dl PDSCH Informationdummy
                                                                              OPTIONAL
            },
            tdd
                                           NULL
                                                                          OPTIONAL,
        dl-HSPDSCH-Information
                                     DL-HSPDSCH-Information
                                       DL-CommonInformation-r5
        dl-CommonInformation
                                                                           OPTIONAL,
                                      DL-InformationPerRL-List-r5
       dl-InformationPerRL-List
-- RADIO BEARER RECONFIGURATION
__ **************
RadioBearerReconfiguration ::= CHOICE {
                                   SEQUENCE {
       radioBearerReconfiguration-r3 RadioBearerReconfiguration-r3-IEs,
        -- Prefix "v3ao" is used (in one instance) to keep alignment with R99
        v3aoNonCriticalExtensions
                                       SEOUENCE {
```

```
radioBearerReconfiguration-v3a0ext RadioBearerReconfiguration-v3a0ext,
                    laterNonCriticalExtensions
                                                                        SEQUENCE {
                           -- Container for additional R99 extensions
                           radioBearerReconfiguration-r3-add-ext
                                                                                                    BIT STRING
                                                                                                                              OPTIONAL,
                                                                                       SEQUENCE {
                           v4b0NonCriticalExtensions
                                  radioBearerReconfiguration-v4b0ext
                                                                                      RadioBearerReconfiguration-v4b0ext-IEs,
                                  v590NonCriticalExtensions
                                                                                              SEQUENCE {
                                        radioBearerReconfiguration-v590ext
                                                                                            RadioBearerReconfiguration-v590ext-IEs,
                                        nonCriticalExtensions
                                                                                                     SEQUENCE {} OPTIONAL
                                        OPTIONAL
                                  OPTIONAL
                           OPTIONAL
             }
                   OPTIONAL
                                                            SEQUENCE {
      later-than-r3
                                                           RRC-TransactionIdentifier,
             rrc-TransactionIdentifier
             criticalExtensions
                                                                   CHOICE {
                                                                       SEQUENCE {
                           \verb|radioBearerReconfiguration-r4-IEs|, \\
                           v4d0NonCriticalExtensions
                                                                                        SEQUENCE {
                                   -- Container for adding non critical extensions after freezing REL-5
                                  radioBearerReconfiguration-r4-add-ext BIT STRING OPTIONAL,
                                  v590NonCriticalExtensions
                                                                                              SEQUENCE {
                                        radioBearerReconfiguration-v590ext
                                                                                 RadioBearerReconfiguration-v590ext-IEs,
                                        nonCriticalExtensions
                                                                                            SEQUENCE { }
                                                                                                                     OPTIONAL
                                        OPTIONAL
                                 OPTIONAL
                                                                         CHOICE {
                    criticalExtensions
                                                                                        SEQUENCE {
                           r5
                                  radioBearerReconfiguration-r5
                                                                                             RadioBearerReconfiguration-r5-IEs,
                                  -- Container for adding non critical extensions after freezing REL-6
                                  radioBearerReconfiguration-r5-add-ext BIT STRING OPTIONAL,
                                                                                              SEQUENCE {}
                                  nonCriticalExtensions
                                                                                                                        OPTIONAL
                                                                                SEQUENCE {}
                           criticalExtensions
                   }
            }
}
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 RB-InformationAffectedList
                                                                                                                               OPTIONAL,
       -- Transport channel IEs
                                                                  UL-CommonTransChInfo
             ul-CommonTransChInfo
                                                                                                                                 OPTIONAL.
             ul-qeletedTransChInfoList UL-DeletedTransChInfoList UL-AddReconfTransChInfoList UL-AddReconfTransChInfoList UL-AddReconfTransChInfoList UC-AddReconfTransChInfoList UL-AddReconfTransChInfoList UL-Add
                                                                                                                                 OPTIONAL,
                                                                   UL-AddReconfTransChInfoList
                                                                                                                                 OPTIONAL,
                                                                           SEQUENCE {
                    fdd
                           cpch-SetID
                                                                                                                                 OPTIONAL,
                                                                                 CPCH-Set ID
                           addReconfTransChDRAC-Info
                                                                                 DRAC-StaticInformationList OPTIONAL
                    },
                    tdd
                                                                          NULL
                                                                                                                                 OPTIONAL,
             dl-CommonTransChInfo
                                                                  DL-CommonTransChInfo
                                                                                                                                 OPTIONAL,
             dl-CommonTransChInfo DL-CommonTransChInfo dl-DeletedTransChInfoList DL-DeletedTransChInfoList
                                                                                                                                 OPTIONAL,
             dl-AddReconfTransChInfoList
                                                                   DL-AddReconfTransChInfo2List
                                                                                                                                OPTIONAL.
```

```
-- Physical channel IEs
        frequencyInfo
                                        FrequencyInfo
                                                                              OPTIONAL,
        maxAllowedUL-TX-Power MaxAllowedUL-TX-Power ul-ChannelRequirement UL-ChannelRequirement
                                                                             OPTIONAL,
                                                                             OPTIONAL,
        modeSpecificPhysChInfo
                                        CHOICE {
                                           SEQUENCE {
           fdd
-- dummy is not used in this version of specification, it should
 -- not be sent and if received it should be ignored.
                dl PDSCH Informationdummy
                                                     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
        -- or this message
dl-InformationPerRL-List DL-InformationPerRL-List
}
RadioBearerReconfiguration-v3a0ext ::= SEQUENCE {
-- The IE "new-DSCH-RNTI" should not be included in FDD mode, and if received the UE behaviour
  is unspecified
    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-III.
        ssdt-III.-r4
                                                                                 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-RNTT
                                         C-RNTI
                                                                              OPTIONAL,
-- The IE "new-DSCH-RNTI" should not be included in FDD mode, and if received the UE behaviour
   is unspecified
        new-DSCH-RNTI
                                       DSCH-RNTI
                                                                              OPTIONAL,
        rrc-StateIndicator
                                        RRC-StateIndicator,
       utran-DRX-CycleLengthCoeff
Core network TE:
                                        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
rb-InformationReconfigList
rb-InformationAffectedList
RB-InformationAffectedList
RB-InformationAffectedList
                                                                              OPTIONAL,
                                                                             OPTIONAL,
                                                                             OPTIONAL.
    -- Transport channel IEs
        ul-CommonTransChInfo
                                         UL-CommonTransChInfo-r4
                                                                              OPTIONAL,
        ul-deletedTransChInfoList
                                      UL-DeletedTransChInfoList
                                                                             OPTIONAL,
        ul-AddReconfTransChInfoList
                                        UL-AddReconfTransChInfoList
                                                                            OPTIONAL,
        modeSpecificTransChInfo
                                        CHOICE {
            fdd
                                           SEQUENCE {
                cpch-SetID
                                                 CPCH-SetID
                addReconfTransChDRAC-Info
                                                 DRAC-StaticInformationList OPTIONAL
            },
            tdd
                                            NULL
                                                                              OPTIONAL,
        dl-CommonTransChInfo DL-CommonTransChInfo-r4 dl-DeletedTransChInfoList DL-DeletedTransChInfoList
                                                                              OPTIONAL,
                                                                             OPTIONAL,
        dl-AddReconfTransChInfoList DL-AddReconfTransChInfoList-r4
                                                                            OPTIONAL,
    -- Physical channel IEs
                                      FrequencyInfo
        frequencyInfo
                                                                             OPTIONAL.
        frequency....c
maxAllowedUL-TX-Power
                                        MaxAllowedUL-TX-Power
                                                                             OPTIONAL,
                                        UL-ChannelRequirement-r4
                                                                              OPTIONAL,
```

```
modeSpecificPhysChInfo
                                             CHOICE {
                                                 SEQUENCE {
             fdd
-- dummy is not used in this version of specification, it should
-- not be sent and if received it should be ignored.
                  dl PDSCH Informationdummy
                                                          DL-PDSCH-Information
                                                                                        OPTIONAL
             },
             tdd
                                                 NULL
                                          DL-CommonInformation-r4
        dl-InformationPerRL-List
         dl-CommonInformation
                                                                                     OPTIONAL.
                                            DL-InformationPerRL-List-r4
                                                                                      OPTIONAL
RadioBearerReconfiguration-r5-IEs ::= SEQUENCE {
    -- User equipment IEs
         integrityProtectionModeInfo
                                             IntegrityProtectionModeInfo
        cipheringModeInfo
                                            CipheringModeInfo
                                                                                      OPTIONAL,
                                             ActivationTime
         activationTime
                                                                                      OPTIONAL.
        new-U-RNTI
                                             U-RNTI
                                                                                      OPTIONAL.
        new-C-RNTI
                                             C-RNTI
                                                                                      OPTIONAL,
-- The IE "new-DSCH-RNTI" should not be included in FDD mode, and if received the UE behaviour
-- is unspecified
        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
                                             CHOICE {
         specificationMode
             complete
                                             SEQUENCE {
             -- Radio bearer IEs
                 radio pearer 1ES
rab-InformationReconfigList
rb-InformationReconfigList
rb-InformationAffectedList
RB-InformationAffectedList-r5
RB-InformationAffectedList-r5
                                                                                              OPTIONAL,
                                                                                              OPTIONAL,
                                                                                               OPTIONAL,
                  rb-PDCPContextRelocationList RB-PDCPContextRelocationList
                                                                                              OPTIONAL,
             -- Transport channel IEs
                  ul-CommonTransChInfo
                                                     UL-CommonTransChInfo-r4
                                                                                              OPTIONAL.
                 ul-deletedTransChInfoList
ul-AddReconfTransChInfoList
ul-AddReconfTransChInfoList
modeSpecificTransChInfo
fdd

UL-DeletedTransChInfoList
UL-AddReconfTransChInfoList
CHOICE {
SEQUENCE {
                                                                                               OPTIONAL,
                                                      UL-AddReconfTransChInfoList
                                                                                               OPTIONAL,
                           cpch-SetID
                                                              CPCH-SetID
                                                                                               OPTIONAL.
                           addReconfTransChDRAC-Info
                                                               DRAC-StaticInformationList OPTIONAL
                      },
                      tdd
                                                         NULL
                                                                                              OPTIONAL.
                 dl-CommonTransChInfo DL-CommonTransChInfo-r4
dl-DeletedTransChInfoList DL-DeletedTransChInfoList-r5
dl-AddReconfTransChInfoList DL-AddReconfTransChInfoList-r5
                                                                                              OPTIONAL,
                                                                                              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.
                          aultConfigIdentity

defaultConfigMode
defaultConfigIdentity

defaultConfigIdentity

DefaultConfigMode,

DefaultConfigIdentity
                                                    CHOICE {
                  preConfigMode
                      predefinedConfigIdentity
                      defaultConfig
                                                             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 {
  dummy is not used in this version of specification, it should
-- not be sent and if received it should be ignored.
                                                          DL-PDSCH-Information OPTIONAL
                 dl-PDSCH-Informationdummy
             },
             tdd
                                                 NULL
```

```
dl-HSPDSCH-Information DL-HSPDSCH-Information dl-CommonInformation DL-CommonInformation-r5
                                                                                                                                                  OPTIONAL.
                                                                                                                                                 OPTIONAL,
               dl-InformationPerRL-List
                                                                        DL-InformationPerRL-List-r5
                                                                                                                                               OPTIONAL
}
-- RADIO BEARER RELEASE
__ ****************
RadioBearerRelease ::= CHOICE {
       r3
               v3a0NonCriticalExtensions SEOUENCE (
radioPorce 7
                                                                    SEQUENCE {
               -- Container for additional R99 extensions
                       radioBearerRelease-r3-add-ext BIT STRING
                                                                                                                          OPTIONAL,
                               v4b0NonCriticalExtensions
                                                                                           SEQUENCE {
                                      radioBearerRelease-v4b0ext RadioBearerRelease-v4b0ext-IEs, v590NonCriticalExtensions SEQUENCE {
                                                                                                 SEQUENCE {
                                              radioBearerRelease-v590ext RadioBearerRelease-v590ext-IEs, nonCriticalExtensions SEQUENCE {} OPTIONAL
                                              OPTIONAL
                                      OPTIONAL
                               OPTIONAL
                      OPTIONAL
       later-than-r3
                                                                    SEQUENCE {
                                                                   RRC-TransactionIdentifier,
               rrc-TransactionIdentifier
               criticalExtensions
                                                                            CHOICE {
                              SEQUENCE {
radioBearerRelease-r4
v4d0NorCritical
                              v4d0NonCriticalExtensions SECTIFICE (
-- Contains (
-- Con
                      r4
                                       -- Container for adding non critical extensions after freezing REL-5
                                      radioBearerRelease-r4-add-ext BIT STRING
                                                                                                                                  OPTIONAL,
                                                                                                   SEQUENCE {
                                      v590NonCriticalExtensions
                                              radioBearerRelease-v590ext RadioBearerRelease-v590ext-IEs, nonCriticalExtensions SEQUENCE {} OPTIONAL
                                              OPTIONAL
                                      OPTIONAL
                                                                                    CHOICE {
                       criticalExtensions
                                                                                    SEQUENCE {
                              r5
                                      radioBearerRelease-r5
                                                                                              RadioBearerRelease-r5-IEs,
                                       -- Container for adding non critical extensions after freezing REL-6
                                      radioBearerRelease-r5-add-ext BIT STRING OPTIONAL,
                                                                                                  SEQUENCE {}
                                                                                                                               OPTIONAL
                                      nonCriticalExtensions
                               criticalExtensions
                                                                                         SEQUENCE {}
                      }
               }
       }
}
RadioBearerRelease-r3-IEs ::= SEQUENCE {
        -- User equipment IEs
                                                                            RRC-TransactionIdentifier,
               rrc-TransactionIdentifier
               integrityProtectionModeInfo
                                                                            IntegrityProtectionModeInfo
                                                                                                                                                  OPTIONAL.
               cipheringModeInfo
                                                                            CipheringModeInfo
                                                                                                                                                  OPTIONAL,
                                                                           ActivationTime
               activationTime
               new-U-RNTI
                                                                           U-RNTI
                                                                                                                                                  OPTIONAL,
               new-C-RNTT
                                                                           C-RNTT
                                                                                                                                                  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
rb-InformationReleaseList
rb-InformationAffectedList
RB-InformationReleaseList,
RB-InformationAffectedList
                                                                                                                                                  OPTIONAL,
                                                                                                                                                  OPTIONAL,
```

```
dl-CounterSynchronisationInfo DL-CounterSynchronisationInfo
                                                                                   OPTIONAL,
    -- Transport channel IEs
        ul-AddReconfTransChInfoList
ul-AddReconfTransChInfoList
modeSpecificTransChInfo
fdd

UL-DeletedTransChInfoList
UL-AddReconfTransChInfoList
CHOICE {
        ul-CommonTransChInfo
                                           UL-CommonTransChInfo
                                                                                    OPTIONAL,
                                                                                    OPTIONAL,
                                            UL-AddReconfTransChInfoList
                                                                                    OPTIONAL.
                 cpch-SetID
                                                     CPCH-Set.ID
                                                                                     OPTIONAL.
                  addReconfTransChDRAC-Info
                                                     DRAC-StaticInformationList OPTIONAL
             },
             tdd
                                                 NULL
                                                                                    OPTIONAL.
        dl-CommonTransChInfo

dl-DeletedTransChInfoList

dl-AddReconfTransChInfoList

DL-AddReconfTransChInfo2List
                                                                                    OPTIONAL.
                                                                                    OPTIONAL,
                                                                                    OPTIONAL,
    -- Physical channel IEs
        {\tt frequencyInfo}
        frequencyInfo FrequencyInfo
maxAllowedUL-TX-Power
ul-ChannelRequirement UL-ChannelRequirement
                                                                                    OPTIONAL,
                                                                                    OPTIONAL,
        ul-ChannelRequirement UL-ChannelmodeSpecificPhysChInfo CHOICE {
                                                                                    OPTIONAL.
                                              SEOUENCE {
            fdd
-- dummy is not used in this version of specification, it should
   not be sent and if received it should be ignored.
                 dl-PDSCH-Informationdummy
                                                         DL-PDSCH-Information
                                                                                       OPTIONAL
             },
             tdd
                                          NULL
        dl-CommonInformation DL-CommonInformation dl-InformationPerRL-List DL-InformationPerRL-List
                                                                                    OPTTONAL.
                                                                                    OPTIONAL
}
RadioBearerRelease-v3a0ext ::= SEQUENCE {
-- The IE "new-DSCH-RNTI" should not be included in FDD mode, and if received the UE behaviour
-- is unspecified
    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.
                                                                                        OPTIONAL.
        ssdt-UL-r4
                                                 SSDT-UL
         -- 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
                                                                                     OPTIONAL,
                                            U-RNTI
        new-C-RNTT
                                            C-RNTT
                                                                                     OPTIONAL.
-- The IE "new-DSCH-RNTI" should not be included in FDD mode, and if received the UE behaviour
-- is unspecified
        new-DSCH-RNTI
                                           DSCH-RNTI
                                                                                     OPTIONAL,
        rrc-StateIndicator
        utran-DRX-CycleLengthCoeff
Core network IEs
                                            RRC-StateIndicator,
                                            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
rb-InformationReleaseList
rb-InformationAffectedList
RB-InformationReleaseList,
RB-InformationAffectedList
dl-CounterSynchronisationInfo
DL-CounterSynchronisationInfo
                                                                                     OPTIONAL,
                                                                                    OPTIONAL,
                                                                                    OPTIONAL,
    -- Transport channel IEs
         ul-CommonTransChInfo
                                            UL-CommonTransChInfo-r4
                                                                                     OPTIONAL.
         ul-deletedTransChInfoList
                                            UL-DeletedTransChInfoList
                                                                                     OPTIONAL,
```

```
ul-AddReconfTransChInfoList
                                        UL-AddReconfTransChInfoList
                                                                              OPTIONAL,
        modeSpecificTransChInfo
                                        CHOICE {
            fdd
                                             SEQUENCE {
                                                 CPCH-Set ID
                cpch-SetID
                                                                              OPTIONAL.
                {\tt addReconfTransChDRAC-Info}
                                                 DRAC-StaticInformationList OPTIONAL
            },
            tdd
                                             NIII.I.
       dl-DeletedTransChInfo DL-CommonTransChInfo-r4
dl-DeletedTransChInfoList DL-DeletedTransChInfoList DL-AddReconfTransChInfoList
                                                                              OPTIONAL.
                                                                              OPTIONAL,
                                        DL-DeletedTransChInfoList
                                                                              OPTIONAL,
                                        DL-AddReconfTransChInfoList-r4
                                                                              OPTIONAL,
    -- Physical channel IEs
        frequencyInfo
                                        FrequencyInfo
                                                                              OPTIONAL,
                                        MaxAllowedUL-TX-Power
        maxAllowedUL-TX-Power
                                                                              OPTIONAL,
                                        UL-ChannelRequirement-r4
        ul-ChannelRequirement
                                                                             OPTIONAL,
        modeSpecificPhysChInfo
                                        CHOICE {
            fdd
                                            SEQUENCE {
  dummy is not used in this version of specification,
                                                        it should
 - not be sent and if received it should be ignored.
                                                     DL-PDSCH-Information
                dl PDSCH Informationdummy
                                                                                OPTIONAL
            },
            tdd
                                        NULL
        dl-CommonInformation
                                        DL-CommonInformation-r4
                                                                              OPTIONAL,
                                        DL-InformationPerRL-List-r4
        dl-InformationPerRL-List
                                                                              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.
 - The IE "new-DSCH-RNTI" should not be included in FDD mode, and if received the UE behaviour
   is unspecified
       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-InformationAffectedList
                                        RB-InformationReleaseList,
                                        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 {
                                                 CPCH-SetID
                cpch-SetID
                                                                              OPTIONAL,
                addReconfTransChDRAC-Info
                                                 DRAC-StaticInformationList OPTIONAL
            },
            tdd
                                            MIII.T.
                                                                              OPTIONAL.
        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 {
                                             SEQUENCE {
            fdd
 - dummy is not used in this version of specification,
                                                       it should
  not be sent and if received it should be ignored.
                dl-PDSCH-Informationdummy
                                                     DL-PDSCH-Information
                                                                                OPTIONAL
            },
            tdd
                                         NULL
        },
```

dl-CommonInformation

dl-HSPDSCH-Information

OPTIONAL,

OPTIONAL,

DL-HSPDSCH-Information

DL-CommonInformation-r5

```
dl-InformationPerRL-List
                                       DL-InformationPerRL-List-r5
                                                                              OPTIONAL
}
-- RADIO BEARER SETUP
__ ****************************
RadioBearerSetup ::= CHOICE {
                                     SEQUENCE {
   r3
                                     RadioBearerSetup-r3-IEs,
        radioBearerSetup-r3
        v3a0NonCriticalExtensions
                                         SEQUENCE {
                                         RadioBearerSetup-v3a0ext,
            radioBearerSetup-v3a0ext
            laterNonCriticalExtensions
                                             SEQUENCE {
                 -- Container for additional R99 extensions
                radioBearerSetup-r3-add-ext BIT STRING
                                                                   OPTIONAL,
                v4b0NonCriticalExtensions
                                                  SEQUENCE {
                                                  RadioBearerSetup-v4b0ext-IEs,
                    radioBearerSetup-v4b0ext
                     v590NonCriticalExtensions
                                                     SEQUENCE {
                                                    RadioBearerSetup-v590ext-IEs,
SEQUENCE {} OPTIONAL
                         radioBearerSetup-v590ext
                         nonCriticalExtensions
                         OPTIONAL
                     OPTIONAL
                OPTIONAL
            OPTIONAL
                                     SEQUENCE {
    later-than-r3
                                         RRC-TransactionIdentifier,
        rrc-TransactionIdentifier
        criticalExtensions
                                         CHOICE {
                                         SEQUENCE {
                                              RadioBearerSetup-r4-IEs,
                radioBearerSetup-r4
                v4d0NonCriticalExtensions
                                                     SEQUENCE {
                     -- Container for adding non critical extensions after freezing REL-5
                     radioBearerSetup-r4-add-ext BIT STRING OPTIONAL,
                     v590NonCriticalExtensions
                                                     SEQUENCE {
                                                    RadioBearerSetup-v590ext-IEs,
                         radioBearerSetup-v590ext
                         nonCriticalExtensions
                                                         SEQUENCE {}
                                                                           OPTIONAL
                         OPTIONAL
                }
                    OPTIONAL
                                             CHOICE {
            criticalExtensions
                r5
                                              SEQUENCE {
                                                     RadioBearerSetup-r5-IEs,
                    radioBearerSetup-r5
                     -- Container for adding non critical extensions after freezing REL-6
                    \begin{tabular}{ll} radioBearerSetup-r5-add-ext & BIT STRING \\ nonCriticalExtensions & SEQUENCE $\{\}$ \end{tabular}
                                                                    OPTIONAL,
                                                                      OPTIONAL
                criticalExtensions
                                           SEQUENCE {}
            }
        }
    }
}
RadioBearerSetup-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier
                                         RRC-TransactionIdentifier,
        integrityProtectionModeInfo
                                         IntegrityProtectionModeInfo
                                                                               OPTIONAL,
        cipheringModeInfo
                                         CipheringModeInfo
                                                                               OPTIONAL.
                                                                               OPTIONAL,
        activationTime
                                         ActivationTime
        new-U-RNTI
                                         U-RNTI
                                                                               OPTIONAL,
        new-C-RNTI
                                         C-RNTI
                                                                               OPTIONAL,
        rrc-StateIndicator
                                         RRC-StateIndicator,
                                       UTRAN-DRX-CycleLengthCoefficient
        utran-DRX-CycleLengthCoeff
                                                                               OPTIONAL,
    -- UTRAN mobility IEs
        ura-Identity
                                         URA-Identity
                                                                               OPTIONAL,
    -- Core network IEs
                                         CN-InformationInfo
                                                                               OPTIONAL,
        cn-InformationInfo
    -- Radio bearer IEs
        srb-InformationSetupListSRB-InformationSetupListrab-InformationSetupListRAB-InformationSetupListrb-InformationAffectedListRB-InformationAffectedList
                                                                               OPTIONAL,
                                                                               OPTIONAL,
                                         RB-InformationAffectedList
                                                                               OPTIONAL.
        dl-CounterSynchronisationInfo DL-CounterSynchronisationInfo
                                                                               OPTIONAL,
```

```
-- Transport channel IEs
        ul-CommonTransChInfo
ul-deletedTransChInfoList
ul-AddReconfTransChInfoList
UL-AddReconfTransChInfoList
UL-AddReconfTransChInfoList
CHOICE {
                                                                                     OPTIONAL,
                                                                                     OPTIONAL,
                                                                                   OPTIONAL,
        modeSpecificTransChInfo
fdd
                                            SEQUENCE {
                 cpch-SetID CPCH-SetID OPTIONAL addreconfTransChDRAC-Info DRAC-StaticInformationList OPTIONAL
                                                                                     OPTIONAL.
             },
             tdd
                                                 NULL
                                                                                     OPTIONAL,
        dl-CommonTransChInfo DL-CommonTransChInfo dl-DeletedTransChInfoList DL-DeletedTransChInfoList dl-AddReconfTransChInfoList DL-AddReconfTransChInfoList
                                                                                     OPTIONAL.
                                                                                     OPTIONAL.
                                                                                    OPTIONAL,
    -- Physical channel IEs
        frequencyInfo
                                           FrequencyInfo
                                                                                    OPTIONAL,
        maxAllowedUL-TX-Power ul-ChannelRequirement
                                          MaxAllowedUL-TX-Power
                                                                                    OPTIONAL,
                                            UL-ChannelRequirement
                                                                                     OPTIONAL,
        modeSpecificPhysChInfo CHOICE {
             fdd
                                                SEQUENCE {
-- dummy is not used in this version of specification, it should
-- not be sent and if received it should be ignored.
                 dl-PDSCH-Informationdummy
                                                          DL-PDSCH-Information OPTIONAL
             },
             tdd
                                                 NULL
        dl-CommonInformation DL-CommonInformation
dl-InformationPerRL-List DL-InformationPerRL-List
                                                                                     OPTIONAL,
                                                                                   OPTIONAL
}
RadioBearerSetup-v3a0ext ::= SEQUENCE {
-- The IE "new-DSCH-RNTI" should not be included in FDD mode, and if received the UE behaviour
-- is unspecified
                                        DSCH-RNTI
    new-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
        ssdt.-UL-r4
                                                                                         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
                                                 CellIdentity-PerRL-List
         cell-id-PerRL-List
                                                                                        OPTIONAL
}
RadioBearerSetup-v590ext-IEs ::= SEQUENCE {
    -- Physical channel IEs
        dl-TPC-PowerOffsetPerRL-List DL-TPC-PowerOffsetPerRL-List
}
RadioBearerSetup-r4-IEs ::= SEQUENCE {
    -- User equipment IEs
                                            IntegrityProtectionModeInfo
                                                                                     OPTIONAL,
        integrityProtectionModeInfo
                                             CipheringModeInfo
         cipheringModeInfo
                                                                                     OPTIONAL.
                                             ActivationTime
         activationTime
                                                                                     OPTIONAL,
        new-U-RNTI
                                             U-RNTI
                                                                                     OPTIONAL,
        new-C-RNTI
                                             C-RNTI
                                                                                     OPTIONAL,
   The IE "new-DSCH-RNTI" should not be included in FDD mode, and if received the UE behaviour
-- is unspecified
        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
                                                                                     OPTIONAL,
                                          CN-InformationInfo
    -- Radio bearer IEs
        rab-InformationSetupList SRB-InformationSetupList RAB-InformationSetupList-r4 rb-InformationAffectedList RB-InformationAffectedList
                                                                                     OPTIONAL,
                                                                                     OPTIONAL,
                                                                                     OPTIONAL,
        dl-CounterSynchronisationInfo DL-CounterSynchronisationInfo
                                                                                     OPTIONAL,
    -- Transport channel IEs
        ul-CommonTransChInfo
                                            UL-CommonTransChInfo-r4
                                                                                     OPTIONAL,
        ul-deletedTransChInfoList
ul-AddReconfTransChInfoList
ul-AddReconfTransChInfoList
ul-AddReconfTransChInfoList
ul-AddReconfTransChInfoList
ul-AddReconfTransChInfoList
                                                                                     OPTIONAL.
                                            UL-AddReconfTransChInfoList
                                                                                     OPTIONAL,
        modeSpecificTransChInfo
                                            CHOICE {
```

```
fdd
                                                                              SEQUENCE {
                            cpch-SetID
                                                                                     CPCH-SetID
                                                                                                                                        OPTIONAL,
                            addReconfTransChDRAC-Info
                                                                                     DRAC-StaticInformationList OPTIONAL
                     },
                     tdd
                                                                              NULL
                                                                                                                                       OPTIONAL,
             dl-CommonTransChInfo DL-CommonTransChInfo-r4
dl-DeletedTransChInfoList DL-DeletedTransChInfoList
dl-AddReconfTransChInfoList DL-AddReconfTransChInfoList-r4
                                                                                                                                       OPTIONAL,
                                                                                                                                       OPTIONAL,
                                                                                                                                       OPTIONAL,
       -- Physical channel IEs
             frequencyInfo
                                                                      FrequencyInfo
                                                                                                                                       OPTIONAL,
              maxAllowedUL-TX-Power ul-ChannelRequirement
                                                                      MaxAllowedUL-TX-Power
                                                                                                                                       OPTIONAL.
                                                                      UL-ChannelRequirement-r4
                                                                                                                                       OPTIONAL.
              modeSpecificPhysChInfo
                                                                      CHOICE {
                     fdd
                                                                             SEQUENCE {
-- dummy is not used in this version of specification, it should
-- not be sent and if received it should be ignored.
                                                                                                                                   OPTIONAL
                            dl-PDSCH-Informationdummy
                                                                                             DL-PDSCH-Information
                     },
                     tdd
                                                                              NULL
              dl-CommonInformation
                                                                       DL-CommonInformation-r4
                                                                                                                                      OPTIONAL,
              dl-InformationPerRL-List DL-InformationPerRL-List-r4
                                                                                                                                     OPTIONAL
}
RadioBearerSetup-r5-IEs ::= SEQUENCE {
       -- User equipment IEs
                                                                                                                                       OPTIONAL.
              integrityProtectionModeInfo
                                                                      IntegrityProtectionModeInfo
              cipheringModeInfo
                                                                       CipheringModeInfo
                                                                                                                                        OPTIONAL,
              activationTime
                                                                       ActivationTime
                                                                                                                                        OPTIONAL,
              new-U-RNTI
                                                                       U-RNTI
                                                                                                                                        OPTIONAL,
             new-C-RNTI
                                                                       C-RNTI
                                                                                                                                        OPTIONAL,
     The IE "new-DSCH-RNTI" should not be included in FDD mode, and if received the UE behaviour
     is unspecified
              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
                                                                                                                                       OPTIONAL,
                                                                      URA-Identity
         - Core network IEs
              cn-InformationInfo
                                                                    CN-InformationInfo
                                                                                                                                       OPTIONAL,
       -- Radio bearer IEs
             srb-InformationSetupListSRB-InformationSetupList-r5rab-InformationSetupListRAB-InformationSetupList-r5rb-InformationAffectedListRB-InformationAffectedList-r5
                                                                                                                                       OPTIONAL,
                                                                                                                                       OPTIONAL,
                                                                                                                                       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 {
                            cpch-SetID
                                                                                     CPCH-SetID
                                                                                                                                        OPTIONAL,
                                                                                     DRAC-StaticInformationList OPTIONAL
                            addReconfTransChDRAC-Info
                     tdd
                                                                              NULL
                                                                                                                                       OPTIONAL,
             dl-DeletedTransChInfoList DL-CommonTransChInfo-r4
dl-AddReconfTransChInfoList DL-AddRe
                                                                                                                                       OPTIONAL.
                                                                                                                                       OPTIONAL,
                                                                      DL-AddReconfTransChInfoList-r5
                                                                                                                                       OPTIONAL,
       -- Physical channel IEs
              {\tt frequencyInfo}
                                                                      FrequencyInfo
                                                                                                                                       OPTIONAL.
              maxAllowedUL-TX-Power
                                                                      MaxAllowedUL-TX-Power
                                                                                                                                       OPTIONAL,
                                                                     UL-ChannelRequirement-r5
              ul-ChannelRequirement
                                                                                                                                      OPTIONAL,
              modeSpecificPhysChInfo
                                                                   CHOICE {
                                                                          SEQUENCE {
                    fdd
-- dummy is not used in this version of specification, it should
     not be sent and if received it should be ignored.
                            dl-PDSCH-Informationdummy
                                                                                            DL-PDSCH-Information
                                                                                                                                            OPTIONAL
                     },
                     tdd
                                                                              NULL
              dl-HSPDSCH-Information
                                                                   DL-HSPDSCH-Information
                                                                                                                                      OPTIONAL,
                                                                      DL-CommonInformation-r5
                                                                                                                                       OPTIONAL.
              dl-CommonInformation
                                                                      DL-InformationPerRL-List-r5
              dl-InformationPerRL-List
                                                                                                                                       OPTIONAL
```

}

```
__ *******************************
-- TRANSPORT CHANNEL RECONFIGURATION
__ ***************
TransportChannelReconfiguration ::= CHOICE {
                                   SEOUENCE {
        transportChannelReconfiguration-r3
                                       TransportChannelReconfiguration-r3-IEs,
        v3a0NonCriticalExtensions
                                       SEQUENCE {
           transportChannelReconfiguration-v3a0ext\\
                                           TransportChannelReconfiguration-v3a0ext,
           laterNonCriticalExtensions
                                               SEQUENCE {
                 - Container for additional R99 extensions
                                                               BIT STRING
                                                                               OPTIONAL,
               transportChannelReconfiguration-r3-add-ext
               v4b0NonCriticalExtensions
                                              SEQUENCE {
                    transport {\tt Channel Reconfiguration-v4b0ext}
                                                   TransportChannelReconfiguration-v4b0ext-IEs,
                    v590NonCriticalExtensions
                                                  SEQUENCE {
                       transport {\tt Channel Reconfiguration-v590ext}
                                                       TransportChannelReconfiguration-v590ext-IEs,
                                                      SEQUENCE {}
                       {\tt nonCriticalExtensions}
                                                                     OPTIONAL
                           OPTIONAL
                       OPTIONAL
                    OPTIONAL
           }
        }
               OPTIONAL
                                   SEQUENCE {
    later-than-r3
       rrc-TransactionIdentifier
                                       RRC-TransactionIdentifier,
        criticalExtensions
                                       CHOICE {
                                           SEQUENCE {
               transportChannelReconfiguration-r4
                                               TransportChannelReconfiguration-r4-IEs,
               v4d0NonCriticalExtensions
                                                   SEQUENCE {
                    -- Container for adding non critical extensions after freezing REL-5
                                                                  BIT STRING
                    transportChannelReconfiguration-r4-add-ext
                   v590NonCriticalExtensions
                                                  SEQUENCE {
                       transportChannelReconfiguration-v590ext
                                                 TransportChannelReconfiguration-v590ext-IEs,
                                                       SEQUENCE {}
                       nonCriticalExtensions
                                                                      OPTIONAL
                       OPTIONAL
               }
                   OPTIONAL
            },
                                           CHOICE {
           criticalExtensions
                                               SEQUENCE {
               r5
                    transportChannelReconfiguration-r5
                                                   TransportChannelReconfiguration-r5-IEs,
                    -- Container for adding non critical extensions after freezing REL-6
                                                                                   OPTIONAL,
                    transportChannelReconfiguration-r5-add-ext
                                                                  BIT STRING
                   nonCriticalExtensions
                                                   SEOUENCE {}
                                                                   OPTIONAL
                                               SEQUENCE {}
               criticalExtensions
           }
       }
    }
}
TransportChannelReconfiguration-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier
                                       RRC-TransactionIdentifier,
        integrityProtectionModeInfo
                                       IntegrityProtectionModeInfo
                                                                           OPTIONAL.
        cipheringModeInfo
                                                                           OPTIONAL,
                                       CipheringModeInfo
        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,
        SEQUENCE {
                cpch-SetID
                                                 CPCH-SetID
                addReconfTransChDRAC-Info
                                                  DRAC-StaticInformationList OPTIONAL
            },
            tdd
                                              NULL
                                                                                OPTIONAL,
        dl-CommonTransChInfo DL-CommonTransChInfo
dl-AddReconfTransChInfoList DL-AddReconfTransChInfoList
                                                                                OPTIONAL,
                                                                               OPTIONAL.
    -- Physical channel IEs
       frequencyInfo FrequencyInfo
maxAllowedUL-TX-Power MaxAllowedUL-T
ul-ChannelRequirement UL-ChannelRequirement
modeSpecificPhysChInfo
fdd

fdd
                                                                              OPTIONAL,
                                         MaxAllowedUL-TX-Power
                                                                               OPTIONAL,
                                         UL-ChannelRequirement
                                                                               OPTIONAL,
            fdd
                                              SEQUENCE {
-- dummy is not used in this version of specification, it should
-- not be sent and if received it should be ignored.
                dl PDSCH Informationdummy
                                                      DL-PDSCH-Information
                                                                                  OPTIONAL
            },
            tdd
        dl-CommonInformation
        dl-CommonInformation DL-CommonInformation dl-InformationPerRL-List DL-InformationPerRL-List
                                                                               OPTIONAL,
                                                                              OPTIONAL
}
TransportChannelReconfiguration-v3a0ext ::= SEQUENCE {
-- The IE "new-DSCH-RNTI" should not be included in FDD mode, and if received the UE behaviour
-- is unspecified
   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,
-- The IE "new-DSCH-RNTI" should not be included in FDD mode, and if received the UE behaviour
- is unspecified
        new-DSCH-RNTT
                                         DSCH-RNTT
                                                                                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-AddReconfiransChInfo
        ul-AddReconfTransChInfoList UL-AddReconfTransChInfoList
                                         CHOICE {
                                         SEQUENCE {
                CPCH-SetID addReconfTransChDRAC-Info DRAC-Statio
                                                                                OPTIONAL,
                                                  DRAC-StaticInformationList OPTIONAL
            },
            t.dd
                                              NULL
                                                                                OPTIONAL,
```

```
dl-CommonTransChInfo DL-CommonTransChInfo-r4 dl-AddReconfTransChInfoList DL-AddReconfTransChInfoList-r4
                                                                              OPTIONAL,
                                                                             OPTIONAL,
    -- Physical channel IEs
       frequencyInfo
                                        FrequencyInfo
                                                                             OPTIONAL,
        maxAllowedUL-TX-Power ul-ChannelRequirement
                                        MaxAllowedUL-TX-Power
                                                                              OPTIONAL,
                                        UL-ChannelRequirement-r4
        modeSpecificPhysChInfo
                                        CHOICE {
                                            SEQUENCE {
            fdd
-- dummy is not used in this version of specification, it should
-- not be sent and if received it should be ignored.
               dl PDSCH Informationdummy
                                                     DL-PDSCH-Information
                                                                                OPTIONAL
            },
            tdd
                                        NULL
        dl-CommonInformation
                                      DL-CommonInformation-r4
                                                                             OPTIONAL,
                                      DL-InformationPerRL-List-r4
        dl-InformationPerRL-List
                                                                            OPTIONAL
}
TransportChannelReconfiguration-r5-IEs ::= SEQUENCE {
    -- User equipment IEs
        integrityProtectionModeInfo
                                       IntegrityProtectionModeInfo
        cipheringModeInfo
                                        CipheringModeInfo
                                                                              OPTIONAL,
        activationTime
                                        ActivationTime
                                                                              OPTIONAL.
        new-U-RNTI
                                        U-RNTI
                                                                              OPTIONAL.
        new-C-RNTI
                                         C-RNTI
                                                                              OPTIONAL,
- The IE "new-DSCH-RNTI" should not be included in FDD mode, and if received the UE behaviour
-- is unspecified
                                        DSCH-RNTI
                                                                              OPTIONAL.
       new-DSCH-RNTI
                                       H-RNTI
        new-H-RNTI
                                                                              OPTIONAL,
        rrc-StateIndicator
                                        RRC-StateIndicator,
                                      UTRAN-DRX-CycleLengthCoefficient
       utran-DRX-CycleLengthCoeff
                                                                             OPTIONAL,
    -- Core network IEs
        cn-InformationInfo
                                        CN-InformationInfo
                                                                              OPTIONAL,
    -- UTRAN mobility IEs
       ura-Identity
                                        URA-Identity
                                                                              OPTIONAL.
    -- Radio bearer TEs
       dl-CounterSynchronisationInfo DL-CounterSynchronisationInfo-r5 OPTIONAL,
    -- Transport channel IEs
       ul-CommonTransChInfo
                                       UL-CommonTransChInfo-r4
       ul-CommonitanschintoList
       ul-AddReconiiranschinfo
                                        UL-AddReconfTransChInfoList
                                                                              OPTIONAL,
                                        CHOICE {
                                        SEQUENCE {
                cpch-SetID
                                                CPCH-SetID
                addReconfTransChDRAC-Info
                                                DRAC-StaticInformationList OPTIONAL
            },
            tdd
                                            NULL
                                                                              OPTIONAL,
       dl-CommonTransChInfo DL-CommonTransChInfo-r4
dl-AddReconfTransChInfoList DL-AddReconfTransChInfoList-r5
                                                                              OPTIONAL,
                                                                             OPTIONAL,
    -- Physical channel IEs
        frequencyInfo
                                        FrequencyInfo
                                                                              OPTIONAL,
       maxAllowedUL-TX-Power
ul-ChannelRequirement
modeSpecificPhysChInfo

CHOICE {
                                                                             OPTIONAL,
                                                                             OPTIONAL.
            fdd
                                           SEQUENCE {
  dummy is not used in this version of specification, it should
-- not be sent and if received it should be ignored.
               dl PDSCH Informationdummy
                                                    DL-PDSCH-Information OPTIONAL
            ŕdd
                                        NULL
        dl-HSPDSCH-Information DL-HSPDSCH-Information
                                                                             OPTIONAL,
        dl-CommonInformation
                                        DL-CommonInformation-r5
                                                                             OPTIONAL,
       dl-CommonInformation DL-CommonInformation-r5
dl-InformationPerRL-List DL-InformationPerRL-List-r5
                                                                            OPTIONAL
}
```

11.3 Information element definitions

__ *************************** BEGIN IMPORTS hiPDSCHidentities, hiPUSCHidentities, hiRM, maxAC maxAdditionalMeas, maxASC, maxASCmap, maxASCpersist, maxCCTrCH, maxCellMeas, maxCellMeas-1, maxCNdomains, maxCPCHsets, maxDPCH-DLchan, maxDPDCH-UL, maxDRACclasses, maxFACHPCH, maxFreq, maxFreqBandsFDD, maxFreqBandsTDD, maxFreqBandsGSM, maxGERAN-SI, maxHProcesses, maxHSDSCHTBIndex, maxHSDSCHTBIndex-tdd384, maxHSSCCHs, maxInterSysMessages, maxLoCHperRLC, maxMAC-d-PDUsizes, maxMeasEvent, maxMeasIntervals, maxMeasParEvent, maxNumCDMA2000Freqs, maxNumFDDFreqs, maxNumGSMFreqRanges, ${\tt maxNumTDDFreqs}$, maxOtherRAT, maxOtherRAT-16, maxPage1, maxPCPCH-APsig, maxPCPCH-APsubCh, maxPCPCH-CDsig, maxPCPCH-CDsubCh, maxPCPCH-SF, maxPCPCHs, maxPDCPAlgoType, maxPDSCH, maxPDSCH-TFCIgroups, maxPRACH, maxPRACH-FPACH, maxPredefConfig, maxPUSCH, maxQueueIDs, maxRABsetup, maxRAT, maxRB, maxRBallRABs, maxRBMuxOptions, maxRBperRAB, maxReportedGSMCells, maxSRBsetup, maxRL, maxRL-1, maxROHC-PacketSizes-r4,
maxROHC-Profile-r4, maxSCCPCH, maxSat, maxSIB, maxSIB-FACH, maxSystemCapability, maxTF, maxTF-CPCH,

maxTFC,

```
maxTFCsub,
    maxTFCI-2-Combs,
   maxTGPS,
   maxTrCH.
   maxTrCHpreconf,
   maxTS,
   maxTS-1,
   maxTS-2,
    maxTS-LCR,
    maxTS-LCR-1,
   maxURA,
    maxURNTI-Group
FROM Constant-definitions;
Ansi-41-IDNNS ::=
                                            BIT STRING (SIZE (14))
CN-DomainIdentity ::=
                                    ENUMERATED {
                                       cs-domain,
                                       ps-domain }
                                    SEQUENCE {
CN-DomainInformation ::=
    cn-DomainIdentity
                                        CN-DomainIdentity,
    cn-DomainSpecificNAS-Info
                                        NAS-SystemInformationGSM-MAP
}
                                   SEQUENCE {
CN-DomainInformationFull ::=
    cn-DomainIdentity
                                     CN-DomainIdentity,
    cn-DomainSpecificNAS-Info
                                        NAS-SystemInformationGSM-MAP,
    cn-DRX-CycleLengthCoeff
                                       CN-DRX-CycleLengthCoefficient
CN-DomainInformationList ::=
                                    SEQUENCE (SIZE (1..maxCNdomains)) OF
                                        CN-DomainInformation
CN-DomainInformationListFull ::=
                                    SEQUENCE (SIZE (1..maxCNdomains)) OF
                                        CN-DomainInformationFull
CN-DomainSysInfo ::=
                                    SEQUENCE {
                                        CN-DomainIdentity,
    cn-DomainIdentity
    cn-Type
                                        CHOICE {
       gsm-MAP
                                            NAS-SystemInformationGSM-MAP,
       ansi-41
                                            NAS-SystemInformationANSI-41
    cn-DRX-CycleLengthCoeff
                                       CN-DRX-CycleLengthCoefficient
}
CN-DomainSysInfoList ::=
                                    SEQUENCE (SIZE (1..maxCNdomains)) OF
                                        CN-DomainSysInfo
CN-InformationInfo ::=
                                    SEQUENCE {
   plmn-Identity
                                       PLMN-Identity
                                                                            OPTIONAL,
                                        NAS-SystemInformationGSM-MAP
    cn-CommonGSM-MAP-NAS-SysInfo
                                                                            OPTIONAL,
    cn-DomainInformationList
                                        CN-DomainInformationList
                                                                            OPTIONAL
CN-InformationInfoFull ::=
                                    SEQUENCE {
    plmn-Identity
                                       PLMN-Identity
                                                                            OPTIONAL,
    cn-CommonGSM-MAP-NAS-SysInfo
                                        NAS-SystemInformationGSM-MAP
                                                                            OPTIONAL,
    cn-DomainInformationListFull
                                       CN-DomainInformationListFull
                                                                            OPTIONAL
}
Digit ::=
                                    INTEGER (0..9)
Gsm-map-IDNNS ::=
                                            SECUENCE {
                                                    CHOICE {
    routingbasis
        localPTMSI
                                                        SEQUENCE {
                                                            RoutingParameter
           routingparameter
        tMSIofsamePLMN
                                                        SEQUENCE {
            routingparameter
                                                            RoutingParameter
        tMSIofdifferentPLMN
                                                        SEQUENCE {
                                                            RoutingParameter
           routingparameter
        iMSIresponsetopaging
                                                        SEQUENCE {
           routingparameter
                                                            RoutingParameter
                                                        SEQUENCE {
        iMSIcauseUEinitiatedEvent
```

```
routingparameter
                                                            RoutingParameter
        iMEI
                                                        SEQUENCE {
           routingparameter
                                                            RoutingParameter
        spare2
                                                        SEQUENCE {
                                                            RoutingParameter
           routingparameter
                                                        SEQUENCE {
        spare1
           routingparameter
                                                            RoutingParameter
        }
    -- dummy is not used in this version of the specification and
    -- it should be ignored by the receiver.
                                           BOOLEAN
}
IMEI ::=
                                    SEQUENCE (SIZE (15)) OF
                                        IMEI-Digit
                                    INTEGER (0..15)
IMEI-Digit ::=
IMSI-GSM-MAP ::=
                                    SEQUENCE (SIZE (6..21)) OF
                                       Digit
IntraDomainNasNodeSelector ::=
                                                SEQUENCE {
   version
                                                    CHOICE {
                                                       SEQUENCE {
       release99
                                                            CHOICE {
           cn-Type
               gsm-Map-IDNNS
                                                                Gsm-map-IDNNS,
               ansi-41-IDNNS
                                                                Ansi-41-IDNNS
           }
        },
       later
                                                        SEQUENCE {
                                                            BIT STRING (SIZE (15))
           futurecoding
    }
}
LAI ::=
                                    SEQUENCE {
   plmn-Identity
                                       PLMN-Identity,
                                        BIT STRING (SIZE (16))
   lac
}
MCC ::=
                                    SEQUENCE (SIZE (3)) OF
                                       Digit
MNC ::=
                                    SEQUENCE (SIZE (2..3)) OF
                                        Digit
                                    OCTET STRING (SIZE (1..4095))
NAS-Message ::=
NAS-Synchronisation-Indicator ::=
                                  BIT STRING(SIZE(4))
NAS-SystemInformationGSM-MAP ::=
                                    OCTET STRING (SIZE (1..8))
P-TMSI-GSM-MAP ::=
                                    BIT STRING (SIZE (32))
PagingRecordTypeID ::=
                                    ENUMERATED {
                                        imsi-GSM-MAP,
                                        tmsi-GSM-MAP-P-TMSI,
                                        imsi-DS-41,
                                        tmsi-DS-41 }
                                    SEQUENCE {
PLMN-Identity ::=
   mcc
                                        MCC,
                                        MNC
   mnc
}
                                    CHOICE {
PLMN-Type ::=
   gsm-MAP
                                      SEQUENCE {
                                        PLMN-Identity
      plmn-Identity
    ansi-41
                                    SEQUENCE {
       p-REV
                                       P-REV
                                       Min-P-REV,
       min-P-REV
        sid
                                        SID,
       nid
                                        NID
```

```
gsm-MAP-and-ANSI-41
                                  SEQUENCE {
       plmn-Identity
                                   PLMN-Identity,
       p-REV
                                     P-REV,
       min-P-REV
                                      Min-P-REV,
       sid
                                      SID,
       nid
   },
   spare
                                  NULL
}
                                  CHOICE {
BIT STRING (SIZE (8)),
RAB-Identity ::=
   gsm-MAP-RAB-Identity
   ansi-41-RAB-Identity
                                      BIT STRING (SIZE (8))
}
                                  SEQUENCE {
RAI ::=
   lai
                                      LAI,
   rac
                                      RoutingAreaCode
}
                                 BIT STRING (SIZE (8))
RoutingAreaCode ::=
                                              BIT STRING (SIZE (10))
RoutingParameter ::=
TMSI-GSM-MAP ::=
                                  BIT STRING (SIZE (32))
__ *******************************
      ITRAN MOBILITY INFORMATION ELEMENTS (10.3.2)
__ ***************
                                  ENUMERATED {
AccessClassBarred ::=
                                      barred, notBarred }
AccessClassBarredList ::=
                                  SEQUENCE (SIZE (maxAC)) OF
                                     AccessClassBarred
AllowedIndicator ::=
                                  ENUMERATED {
                                     allowed, notAllowed }
CellAccessRestriction ::= SEQUENCE {
   cellReservedForOperatorUse ReservedIndicator, cellReservationExtension ReservedIndicator.
   -- NOTE: IE accessClassBarredList should not be included if the IE CellAccessRestriction
   -- is included in the IE SysInfoType4
   accessClassBarredList
                                      AccessClassBarredList
                                                                         OPTIONAL
}
                                  CHOICE {
CellBarred ::=
                                   SEQUENCE {
                                      AllowedIndicator,
T-Barred
       intraFreqCellReselectionInd
       t-Barred
   notBarred
                                      NULL
}
CellIdentity ::=
                                 BIT STRING (SIZE (28))
CellIdentity-PerRL-List ::=
                                  SEQUENCE (SIZE (1..maxRL)) OF CellIdentity
CellSelectReselectInfoSIB-3-4 ::= SEQUENCE {
   mappingInfo
                                      MappingInfo
                                                                         OPTIONAL,
   cellSelectQualityMeasure
                                      CHOICE {
      cpich-Ec-N0
                                          SEQUENCE {
           -- Default value for q-HYST-2-S is q-HYST-1-S
           q-HYST-2-S
                                              Q-Hyst-S
                                                                        OPTIONAL
            -- Default value for q-HYST-2-S is q-HYST-1-S
       cpich-RSCP
                                          NIII.T.
   modeSpecificInfo
                                      CHOICE {
                                          SEQUENCE {
                                                                      OPTIONAL,
                                              S-SearchQual
           s-Intrasearch
                                              S-SearchQual
           s-Intersearch
           s-SearchHCS
                                              S-SearchRXLEV
                                                                         OPTIONAL,
```

```
rat-List
                                                   RAT-FDD-InfoList
                                                                                OPTIONAL,
            q-QualMin
                                                   Q-QualMin,
            q-RxlevMin
                                                   Q-RxlevMin
        },
        tdd
                                               SEQUENCE {
                                                 S-SearchRXLEV OPTIONAL,
S-SearchRXLEV OPTIONAL,
S-SearchRXLEV OPTIONAL,
RAT-TDD-InfoList OPTIONAL,
            s-Intrasearch
            s-Intersearch
            s-SearchHCS
            rat-List
            q-RxlevMin
                                                   Q-RxlevMin
        }
   q-Hyst-l-S Q-Hyst-S,
t-Reselection-S T-Reselection-S,
hcs-ServingCellInformation HCS-ServingCellInforma
maxAllowedUL-TX-Power MaxAllowedUL-TX-Power
                                          HCS-ServingCellInformation OPTIONAL,
}
MapParameter ::=
                                     INTEGER (0..99)
                                      SEQUENCE {
Mapping ::=
    mappingFunctionParameterList
                                          MappingFunctionParameterList
}
Mapping-LCR-r4 ::=
                                      SEQUENCE {
   mappingFunctionParameterList
                                        MappingFunctionParameterList
                                      SEQUENCE {
MappingFunctionParameter ::=
    functionType
                                        MappingFunctionType,
                                                                                 OPTIONAL,
    mapParameter1
                                          MapParameter
    mapParameter2
                                          MapParameter,
    -- The presence of upperLimit is conditional on the number of repetition
    upperLimit
                                          UpperLimit
                                                                                 OPTIONAL
}
                                    SEQUENCE (SIZE (1..maxMeasIntervals)) OF
MappingFunctionParameterList ::=
                                          MappingFunctionParameter
                                      ENUMERATED {
MappingFunctionType ::=
                                          linear,
                                           functionType2,
                                           functionType3,
                                           functionType4 }
-- In MappingInfo list, mapping for FDD and 3.84Mcps TDD is defined.
-- For 1.28Mcps TDD, Mapping-LCR-r4 is used instead.
MappingInfo ::=
                                      SEQUENCE (SIZE (1..maxRAT)) OF
                                          Mapping
-- Actual value Q-Hyst-S = IE value * 2
Q-Hyst-S ::=
                                      INTEGER (0..20)
Q-Hyst-S-Fine ::= INTEGER (0..40)
RAT ::=
                                      ENUMERATED {
                                          utra-FDD,
                                          utra-TDD,
                                           asm,
                                          cdma2000 }
RAT-FDD-Info ::=
                                      SEQUENCE {
   rat-Identifier
                                          RAT-Identifier,
    s-SearchRAT
                                          S-SearchOual,
    s-HCS-RAT
                                          S-SearchRXLEV
                                                                                     OPTIONAL,
    s-Limit-SearchRAT
                                          S-SearchQual
}
                                      SEQUENCE (SIZE (1..maxOtherRAT)) OF
RAT-FDD-InfoList ::=
                                          RAT-FDD-Info
RAT-Identifier ::=
                                      ENUMERATED {
                                          gsm, cdma2000 }
RAT-TDD-Info ::=
                                      SEQUENCE {
   rat-Identifier
                                          RAT-Identifier,
    s-SearchRAT
                                           S-SearchRXLEV,
```

```
s-HCS-RAT
                                     S-SearchRXLEV
                                                                        OPTIONAL,
   s-Limit-SearchRAT
                                     S-SearchRXLEV
}
RAT-TDD-InfoList ::=
                                  SEQUENCE (SIZE (1..maxOtherRAT)) OF
                                     RAT-TDD-Info
ReservedIndicator ::=
                                  ENUMERATED {
                                     reserved,
                                      notReserved }
-- Actual value S-SearchQual = IE value * 2
                                      INTEGER (-16..10)
S-SearchOual ::=
-- Actual value S-SearchRXLEV = (IE value * 2) + 1
                                     INTEGER (-53..45)
S-SearchRXLEV ::=
T-Barred ::=
                                  ENUMERATED {
                                     s10, s20, s40, s80,
                                      s160, s320, s640, s1280 }
T-Reselection-S ::=
                                  INTEGER (0..31)
-- Actual value T-Reselection-S-Fine = IE value * 0.2
T-Reselection-S-Fine ::=
                                 INTEGER (0..31)
-- Actual value ScalingFactor = IE value * 0.25
TreselectionScalingFactor ::= INTEGER (4..19)
-- For UpperLimit, the used range depends on the RAT used.
UpperLimit ::=
                                 INTEGER (1..91)
URA-Identity ::=
                                 BIT STRING (SIZE (16))
URA-IdentityList ::=
                                 SEQUENCE (SIZE (1..maxURA)) OF
                                     URA-Identity
__ ***************
      USER EQUIPMENT INFORMATION ELEMENTS (10.3.3)
__ ****************
AccessStratumReleaseIndicator ::= ENUMERATED {
                                     rel-4, rel-5, spare14, spare13,
                                      spare12, spare11, spare10, spare9, spare8,
                                      spare7, spare6, spare5, spare4, spare3,
                                      spare2, spare1 }
-- TABULAR : for ActivationTime, value 'now' always appear as default, and is encoded
-- by absence of the field
                                 INTEGER (0..255)
ActivationTime ::=
BackoffControlParams ::= SEQUENCE {
    n-AD-RetransMax N-AP-Re
                                  N-AP-RetransMax,
   n-AP-RetransMax
   n-AccessFails
                                     N-AccessFails,
   nf-BO-NoAICH
                                     NF-BO-NoAICH,
   ns-BO-Busy
                                     NS-BO-Busy,
   nf-BO-AllBusy
                                     NF-BO-AllBusy,
   nf-BO-Mismatch
                                     NF-BO-Mismatch,
   t-CPCH
                                     T-CPCH
}
C-RNTI ::=
                                 BIT STRING (SIZE (16))
CapabilityUpdateRequirement ::=
                                 SEQUENCE {
   ue-RadioCapabilityFDDUpdateRequirement BOOLEAN,
    -- ue-RadioCapabilityTDDUpdateRequirement is for 3.84Mcps TDD update requirement
   ue-RadioCapabilityTDDUpdateRequirement BOOLEAN,
   systemSpecificCapUpdateReqList
                                  SystemSpecificCapUpdateReqList OPTIONAL
}
CapabilityUpdateRequirement-r4-ext ::= SEQUENCE {
   ue-RadioCapabilityUpdateRequirement-TDD128 BOOLEAN
CapabilityUpdateRequirement-r4 ::= SEQUENCE {
   ue-RadioCapabilityFDDUpdateRequirement-FDD BOOLEAN,
```

```
\verb"ue-RadioCapabilityTDDUpdateRequirement-TDD384" BOOLEAN",
   ue-RadioCapabilityTDDUpdateRequirement-TDD128
                                                   BOOLEAN,
   systemSpecificCapUpdateReqList SystemSpecificCapUpdateReqList
                                                                           OPTIONAL
}
                                   ENUMERATED {
CellUpdateCause ::=
                                       cellReselection,
                                       periodicalCellUpdate,
                                        uplinkDataTransmission,
                                       utran-pagingResponse,
                                       re-enteredServiceArea,
                                       radiolinkFailure,
                                       rlc-unrecoverableError,
                                        spare1 }
                                   ENUMERATED {
ChipRateCapability ::=
                                       mcps3-84, mcps1-28 }
CipheringAlgorithm ::=
                                   ENUMERATED {
                                       uea0, uea1 }
                                   CHOICE {
CipheringModeCommand ::=
   startRestart
                                       CipheringAlgorithm,
                               NULL
   dummy
}
CipheringModeInfo ::=
                                   SEQUENCE {
   -- TABULAR: The ciphering algorithm is included in the CipheringModeCommand.
                           CipheringModeCommand,
   cipheringModeCommand
   activationTimeForDPCH
                                                                           OPTIONAL.
                                       ActivationTime
   rb-DL-CiphActivationTimeInfo
                                       RB-ActivationTimeInfoList
                                                                           OPTIONAL
CN-DRX-CycleLengthCoefficient ::= INTEGER (6..9)
CN-PagedUE-Identity ::=
                                   CHOICE {
   imsi-GSM-MAP
                                      IMSI-GSM-MAP,
   tmsi-GSM-MAP
                                       TMSI-GSM-MAP
   p-TMSI-GSM-MAP
                                       P-TMSI-GSM-MAP,
   imsi-DS-41
                                       IMSI-DS-41,
   tmsi-DS-41
                                       TMSI-DS-41,
                                       NULL.
   spare3
                                       NULL,
   spare2
   spare1
                                       NULL
}
CompressedModeMeasCapability ::= SEQUENCE {
   fdd-Measurements
                                       BOOLEAN,
    -- TABULAR: The IEs tdd-Measurements, gsm-Measurements and multiCarrierMeasurements
   -- are made optional since they are conditional based on another information element.
   -- Their absence corresponds to the case where the condition is not true.
   tdd-Measurements
                                       BOOLEAN
                                                                           OPTTONAL.
   gsm-Measurements
                                       GSM-Measurements
                                                                           OPTIONAL,
                                                                           OPTIONAL
   multiCarrierMeasurements
                                       BOOLEAN
}
CompressedModeMeasCapability-LCR-r4 ::= SEQUENCE {
   tdd128-Measurements
                                                                           OPTIONAL
CompressedModeMeasCapabFDDList ::= SEQUENCE (SIZE (1..maxFreqBandsFDD)) OF
                                       CompressedModeMeasCapabFDD
CompressedModeMeasCapabFDD ::=
                                   SEQUENCE {
                                       RadioFrequencyBandFDD OPTIONAL,
   radioFrequencyBandFDD
   dl-MeasurementsFDD
                                       BOOLEAN,
   ul-MeasurementsFDD
                                       BOOLEAN
}
CompressedModeMeasCapabTDDList ::= SEQUENCE (SIZE (1..maxFreqBandsTDD)) OF
                                       CompressedModeMeasCapabTDD
                                   SEQUENCE {
CompressedModeMeasCapabTDD ::=
                                       RadioFrequencyBandTDD,
   radioFrequencyBandTDD
   dl-MeasurementsTDD
                                       BOOLEAN,
   ul-MeasurementsTDD
                                       BOOLEAN
}
```

```
CompressedModeMeasCapabGSMList ::= SEQUENCE (SIZE (1..maxFreqBandsGSM)) OF
                                        CompressedModeMeasCapabGSM
{\tt CompressedModeMeasCapabGSM} ::= \\ {\tt SEQUENCE} \ \{
    radioFrequencyBandGSM
                                        RadioFrequencyBandGSM,
    dl-MeasurementsGSM
                                         BOOLEAN,
    ul-MeasurementsGSM
                                        BOOLEAN
}
CompressedModeMeasCapabMC ::=
                                    SEQUENCE {
    dl-MeasurementsMC
                                     BOOLEAN,
                                         BOOLEAN
    ul-MeasurementsMC
}
CPCH-Parameters ::=
                                    SEQUENCE {
   initialPriorityDelayList InitialPriorityDelayList backoffControlParams BackoffControlParams,
                                                                            OPTIONAL,
    -- TABULAR: TPC step size nested inside PowerControlAlgorithm
    {\tt powerControlAlgorithm} \qquad \qquad {\tt PowerControlAlgorithm},
    dl-DPCCH-BER
                                        DL-DPCCH-BER
}
DL-CapabilityWithSimultaneousHS-DSCHConfig ::= ENUMERATED{kbps32, kbps64, kbps128, kbps384}
DI-DPCCH-BER ::=
                                    INTEGER (0..63)
DL-PhysChCapabilityFDD ::=
                                   SEQUENCE {
-- The IE "maxNoDPCH-PDSCH-Codes" only gives information on the maximum number of DPCH Codes.
    maxNoDPCH-PDSCH-Codes
                                         INTEGER (1..8),
    maxNoDPCH-PDSCH-Codes
maxNoPhysChBitsReceived
                                         MaxNoPhysChBitsReceived,
    supportForSF-512
                                         BOOLEAN,
  The RNC should ignore this IE on reception.
    supportOfPDSCHdummy
                                             BOOLEAN,
    simultaneousSCCPCH-DPCH-Reception SimultaneousSCCPCH-DPCH-Reception
}
DL-PhysChCapabilityFDD-v380ext ::=
                                            SEQUENCE {
    supportOfDedicatedPilotsForChEstimation
                                               SupportOfDedicatedPilotsForChEstimation OPTIONAL
SupportOfDedicatedPilotsForChEstimation ::=
                                                    ENUMERATED { true }
DL-PhysChCapabilityTDD ::= SEQUENCE {
    maxTS-PerFrame
                                        MaxTS-PerFrame,
    maxPhysChPerFrame
                                         MaxPhysChPerFrame,
    minimumSF
                                        MinimumSF-DL,
    supportOfPDSCH
                                        BOOLEAN.
    maxPhysChPerTS
                                        MaxPhysChPerTS
DL-PhysChCapabilityTDD-LCR-r4 ::= SEQUENCE {
    maxTS-PerSubFrame
                                        MaxTS-PerSubFrame-r4,
    maxPhysChPerFrame
                                         MaxPhysChPerSubFrame-r4,
    minimumSF
                                         MinimumSF-DL,
    supportOfPDSCH
                                        BOOLEAN,
    maxPhysChPerTS
                                        MaxPhysChPerTS,
    supportOf8PSK
                                         BOOLEAN
}
DL-TransChCapability ::= SEQUENCE {
                                    MaxNoBits,
    maxNoBitsReceived
    maxConvCodeBitsReceived
                                         MaxNoBits,
    turboDecodingSupport
                                        TurboSupport,
    maxSimultaneousTransChs
                                        MaxSimultaneousTransChsDL,
                                     MaxSimultaneousTransChsDL,
MaxSimultaneousCCTrCH-Count,
MaxTransportBlocksDL,
    maxSimultaneousCCTrCH-Count
    maxReceivedTransportBlocks
                                        MaxTransportBlocksDL,
    {\tt maxNumberOfTFC}
                                         MaxNumberOfTFC-DL,
    maxNumberOfTF
                                        MaxNumberOfTF
}
DRAC-SysInfo ::=
                                    SEQUENCE {
    transmissionProbability
                                         TransmissionProbability,
                                         MaximumBitRate
    maximumBitRate
}
                                     SEQUENCE (SIZE (1..maxDRACclasses)) OF
DRAC-SysInfoList ::=
                                         DRAC-SysInfo
```

```
DSCH-RNTI ::=
                                    BIT STRING (SIZE (16))
ESN-DS-41 ::=
                                    BIT STRING (SIZE (32))
EstablishmentCause ::=
                                    ENUMERATED {
                                        originatingConversationalCall,
                                        originatingStreamingCall,
                                        originatingInteractiveCall,
                                        originatingBackgroundCall,
                                        originatingSubscribedTrafficCall,
                                        terminatingConversationalCall,
                                        terminatingStreamingCall,
                                        terminatingInteractiveCall,
                                        terminatingBackgroundCall,
                                        emergencyCall,
                                        interRAT-CellReselection,
                                        interRAT-CellChangeOrder,
                                        registration,
                                        detach,
                                        originatingHighPrioritySignalling,
                                        \hbox{\tt originatingLowPrioritySignalling,}
                                        callRe-establishment,
                                        terminatingHighPrioritySignalling,
                                        terminatingLowPrioritySignalling,
                                        terminatingCauseUnknown,
                                        spare12,
                                        spare11,
                                        spare10,
                                        spare9,
                                        spare8,
                                        spare7,
                                        spare6,
                                        spare5,
                                        spare4,
                                        spare3,
                                        spare2,
                                        spare1 }
FailureCauseWithProtErr ::=
                                   CHOICE {
    configurationUnsupported
                                       NULL,
    physicalChannelFailure
                                        NULL,
    incompatibleSimultaneousReconfiguration
                                        NULL
    compressedModeRuntimeError
                                        TGPSI
   protocolError
                                       ProtocolErrorInformation,
    cellUpdateOccurred
                                       NULL,
    invalidConfiguration
                                       NULL,
                                      NULL,
    configurationIncomplete
    unsupportedMeasurement
                                       NULL,
    spare7
                                       NULL,
    spare6
                                        NULL,
    spare5
                                        NULL,
    spare4
                                        NULL,
    spare3
                                        NULL,
    spare2
                                        NULL,
                                        NULL
    spare1
FailureCauseWithProtErrTrId ::= SEQUENCE {
       rrc-TransactionIdentifier RRC-TransactionIdentifier,
        failureCause
                                       FailureCauseWithProtErr
                                          SEQUENCE {
GroupIdentityWithReleaseInformation ::=
                                           RRC-ConnectionReleaseInformation,
       rrc-ConnectionReleaseInformation
        groupReleaseInformation
                                                GroupReleaseInformation
GroupReleaseInformation ::= SEQUENCE {
    uRNTI-Group
                                        U-RNTI-Group
                                    SEQUENCE {
GSM-Measurements ::=
    gsm900
                                        BOOLEAN,
    dcs1800
                                        BOOLEAN.
    gsm1900
                                        BOOLEAN
}
```

```
H-RNTI ::=
                                    BIT STRING (SIZE (16))
HSDSCH-physical-layer-category ::=
                                       INTEGER (1..64)
UESpecificBehaviourInformationlidle ::= BIT STRING (SIZE (4))
UESpecificBehaviourInformationlinterRAT ::= BIT STRING (SIZE (8))
IMSI-and-ESN-DS-41 ::=
   imei-DS-41
                                    SEQUENCE {
   imsi-DS-41
                                      IMSI-DS-41,
   esn-DS-41
                                        ESN-DS-41
}
IMSI-DS-41 ::=
                                    OCTET STRING (SIZE (5..7))
InitialPriorityDelayList ::=
                                    SEQUENCE (SIZE (1..maxASC)) OF
                                        NS-IP
InitialUE-Identity ::=
                                    CHOICE {
                                        IMSI-GSM-MAP,
   imsi
    tmsi-and-LAI
                                        TMSI-and-LAI-GSM-MAP,
   p-TMSI-and-RAI
                                        P-TMSI-and-RAI-GSM-MAP,
   imei
                                        IMEI,
    esn-DS-41
                                        ESN-DS-41.
    imsi-DS-41
                                        IMSI-DS-41,
    imsi-and-ESN-DS-41
                                        IMSI-and-ESN-DS-41,
    tmsi-DS-41
                                        TMSI-DS-41
}
IntegrityCheckInfo ::=
                                   SEQUENCE {
   messageAuthenticationCode
rrc-MessageSequenceNumber
                                    {\tt MessageAuthenticationCode,}
                                        RRC-MessageSequenceNumber
}
IntegrityProtActivationInfo ::=
                                    SEQUENCE {
   rrc-MessageSequenceNumberList
                                      RRC-MessageSequenceNumberList
IntegrityProtectionAlgorithm ::=
                                    ENUMERATED {
                                        uial }
IntegrityProtectionModeCommand ::= CHOICE {
   startIntegrityProtection SEQUENCE {
   integrityProtInitNumber Integr
                                        IntegrityProtInitNumber
    modify
                                        SEQUENCE {
       dl-IntegrityProtActivationInfo IntegrityProtActivationInfo
}
IntegrityProtectionModeInfo ::=
                                   SEQUENCE {
    -- TABULAR: DL integrity protection activation info and Integrity
    -- protection intialisation number have been nested inside
    -- IntegrityProtectionModeCommand.
    -- IntegrityProtectionModeCommand IntegrityProtectionAlgorithm IntegrityProtectionAlgorithm
                                        IntegrityProtectionModeCommand,
                                                                              OPTIONAL
}
                                   BIT STRING (SIZE (32))
IntegrityProtInitNumber ::=
-- dummy is not used in this version of the specification, it should
-- not be sent and if received it should be ignored.
MaxHcContextSpace ::=
                                         ENUMERATED {
                                             dummy, by1024, by2048, by4096,
                                            by8192 }
                                         ENUMERATED {
MaxHcContextSpace-r5-ext ::=
                                            by16384, by32768, by65536, by131072 }
MaxROHC-ContextSessions-r4 ::=
                                    ENUMERATED {
                                             s2, s4, s8, s12, s16, s24, s32, s48,
                                             s64, s128, s256, s512, s1024, s16384 }
MaximumAM-EntityNumberRLC-Cap ::=
                                    ENUMERATED {
                                         dummy, am4, am5, am6,
```

```
am8, am16, am30 }
-- Actual value MaximumBitRate = IE value * 16
MaximumBitRate ::=
                                    INTEGER (0..32)
MaximumRLC-WindowSize ::=
                                    ENUMERATED { mws2047, mws4095 }
MaxNoDPDCH-BitsTransmitted ::=
                                    ENUMERATED {
                                        b600, b1200, b2400, b4800,
                                        b9600, b19200, b28800, b38400,
                                        b48000, b57600 }
MaxNoBits ::=
                                    ENUMERATED {
                                        b640, b1280, b2560, b3840, b5120,
                                        b6400, b7680, b8960, b10240,
                                        b20480, b40960, b81920, b163840 }
MaxNoPhysChBitsReceived ::=
                                    ENUMERATED {
                                        dummy, b1200, b2400, b3600, b4800, b7200, b9600, b14400,
                                        b19200, b28800, b38400, b48000,
                                        b57600, b67200, b76800 }
MaxNoSCCPCH-RL ::=
                                    ENUMERATED {
                                       rl1 }
MaxNumberOfTF ::=
                                    ENUMERATED {
                                       tf32, tf64, tf128, tf256,
                                        tf512, tf1024 }
MaxNumberOfTFC-DL ::=
                                    ENUMERATED {
                                        tfc16, tfc32, tfc48, tfc64, tfc96,
                                        tfc128, tfc256, tfc512, tfc1024 }
                                    ENUMERATED {
MaxNumberOfTFC-UL ::=
                                        dummy1, dummy2, tfc16, tfc32, tfc48, tfc64,
                                        tfc96, tfc128, tfc256, tfc512, tfc1024 }
-- the values 1 ...4 for MaxPhysChPerFrame are not used in this version of the protocol
MaxPhysChPerFrame ::=
                                   INTEGER (1..224)
MaxPhysChPerSubFrame-r4 ::=
                                   INTEGER (1..96)
MaxPhysChPerTimeslot ::=
                                  ENUMERATED {
                                       ts1, ts2 }
-- the values 1 \dots4 for MaxPhysChPerTS are not used in this version of the protocol
MaxPhysChPerTS ::=
                                   INTEGER (1..16)
MaxSimultaneousCCTrCH-Count ::=
                                   INTEGER (1..8)
                                    ENUMERATED {
MaxSimultaneousTransChsDL ::=
                                       e4, e8, e16, e32 }
MaxSimultaneousTransChsUL ::=
                                    ENUMERATED {
                                        dummy, e4, e8, e16, e32 }
MaxTransportBlocksDL ::=
                                    ENUMERATED {
                                        tb4, tb8, tb16, tb32, tb48,
                                        tb64, tb96, tb128, tb256, tb512 }
MaxTransportBlocksUL ::=
                                    ENUMERATED {
                                        dummy, tb4, tb8, tb16, tb32, tb48,
                                        tb64, tb96, tb128, tb256, tb512 }
MaxTS-PerFrame ::=
                                    INTEGER (1..14)
MaxTS-PerSubFrame-r4 ::=
                                    INTEGER (1..6)
-- TABULAR: MeasurementCapability contains dependencies to UE-MultiModeRAT-Capability,
-- the conditional fields have been left mandatory for now.
MeasurementCapability ::= SEQUENCE {
                                       CompressedModeMeasCapability,
   downlinkCompressedMode
    {\tt uplinkCompressedMode}
                                       CompressedModeMeasCapability
}
MeasurementCapabilityExt ::=
                                   SEQUENCE {
    compressedModeMeasCapabFDDList
                                       CompressedModeMeasCapabFDDList,
```

```
compressedModeMeasCapabTDDList
                                        CompressedModeMeasCapabTDDList OPTIONAL,
    compressedModeMeasCapabGSMList
                                          CompressedModeMeasCapabGSMList OPTIONAL,
CompressedModeMeasCapabMC OPTIONAL
    compressedModeMeasCapabMC
}
MeasurementCapability-r4-ext ::= SEQUENCE {
    downlinkCompressedMode-LCR
                                          CompressedModeMeasCapability-LCR-r4,
    uplinkCompressedMode-LCR
                                          CompressedModeMeasCapability-LCR-r4
                                     BIT STRING (SIZE (32))
MessageAuthenticationCode ::=
MinimumSF-DL ::=
                                       ENUMERATED {
                                          sf1, sf16 }
MinimumSF-UL ::=
                                       ENUMERATED {
                                          sf1, sf2, sf4, sf8, dummy }
MultiModeCapability ::=
                                       ENUMERATED {
                                          tdd, fdd, fdd-tdd }
\label{eq:multirat-capability} \texttt{Multirat-Capability} ::= \\ \texttt{SEQUENCE} \ \big\{
                                     BOOLEAN,
    supportOfGSM
    supportOfMulticarrier
                                          BOOLEAN
}
MultiModeRAT-Capability-v590ext ::= SEQUENCE {
   supportOfUTRAN-ToGERAN-NACC
N-300 ::=
                                      INTEGER (0..7)
N-301 ::=
                                      INTEGER (0..7)
N-302 ::=
                                       INTEGER (0..7)
N-304 ::=
                                       INTEGER (0..7)
N-308 ::=
                                       INTEGER (1..8)
N-310 ::=
                                       INTEGER (0..7)
                                       ENUMERATED {
N-312 ::=
                                          s1, s50, s100, s200, s400,
                                          s600, s800, s1000 }
N-312ext ::=
                                       ENUMERATED {
                                          s2, s4, s10, s20 }
N-312-r5 ::=
                                          ENUMERATED {
                                           s1, s2, s4, s10, s20,
s50, s100, s200, s400,
                                           s600, s800, s1000 }
                                       ENUMERATED {
N-313 ::=
                                          s1, s2, s4, s10, s20,
s50, s100, s200 }
                                       ENUMERATED {
    s1, s50, s100, s200, s400,
N-315 ::=
                                           s600, s800, s1000 }
N-315ext ::=
                                       ENUMERATED {
                                          s2, s4, s10, s20 }
N-315-r5 ::=
                                           ENUMERATED {
                                           s1, s2, s4, s10, s20,
s50, s100, s200, s400,
                                           s600, s800, s1000 }
N-AccessFails ::=
                                      INTEGER (1..64)
                                      INTEGER (1..64)
N-AP-RetransMax ::=
NetworkAssistedGPS-Supported ::=
                                      ENUMERATED {
                                          networkBased,
                                           ue-Based,
```

```
bothNetworkAndUE-Based,
                                          noNetworkAssistedGPS }
NF-BO-AllBusy ::=
                                     INTEGER (0..31)
NF-BO-NoAICH ::=
                                     INTEGER (0..31)
NF-BO-Mismatch ::=
                                     INTEGER (0..127)
NS-BO-Busy ::=
                                     INTEGER (0..63)
NS-IP ::=
                                     INTEGER (0..28)
P-TMSI-and-RAI-GSM-MAP ::=
                                      SEQUENCE {
   p-TMSI
                                          P-TMSI-GSM-MAP,
   rai
                                          RAI
}
                                      ENUMERATED {
PagingCause ::=
                                          terminatingConversationalCall,
                                          terminatingStreamingCall,
                                          terminatingInteractiveCall,
                                          terminatingBackgroundCall,
                                          terminatingHighPrioritySignalling,
                                          terminatingLowPrioritySignalling,
                                          terminatingCauseUnknown,
PagingRecord ::=
                                     CHOICE {
    cn-Identity
                                      SEQUENCE {
       pagingCause
                                           PagingCause,
        cn-DomainIdentity
                                              CN-DomainIdentity,
                                              CN-PagedUE-Identity
        cn-pagedUE-Identity
    utran-Identity
                                          SEQUENCE {
                                             U-RNTI,
        cn-OriginatedPage-connectedMode-UE SEQUENCE {
                                                  PagingCause,
            pagingCause
            cn-DomainIdentity
                                                  CN-DomainIdentity,
            pagingRecordTypeID
                                                  PagingRecordTypeID
        }
                                                                                OPTIONAL
    }
}
PagingRecord2-r5 ::=
                                     CHOICE {
    utran-SingleUE-Identity
                                         SEQUENCE {
        u-RNTI
                                             U-RNTI,
        cn-OriginatedPage-connectedMode-UE SEQUENCE {
           pagingCause
                                                  PagingCause,
            cn-DomainIdentity
                                                  CN-DomainIdentity,
            pagingRecordTypeID
                                                  PagingRecordTypeID
                                                                                OPTIONAL,
        rrc-ConnectionReleaseInformation
                                                  RRC-ConnectionReleaseInformation
                                              SEQUENCE ( SIZE (1 .. maxURNTI-Group) ) OF
    utran-GroupIdentity
                                                  {\tt GroupIdentityWithReleaseInformation}
}
                                    SEQUENCE (SIZE (1..maxPage1)) OF
PagingRecordList ::=
                                         PagingRecord
PagingRecord2List-r5 ::=
                                     SEQUENCE (SIZE (1..maxPage1)) OF
                                         PagingRecord2-r5
PDCP-Capability ::=
                                     SEQUENCE {
    losslessSRNS-RelocationSupport BOOLEAN,
    -- If present, the "maxHcContextSpace" in the IE "PDCP-Capability-r5-ext" overrides the -- "supported" value in this IE. The value in this IE may be used by a pre-REL-5 UTRAN.
    supportForRfc2507
                                         CHOICE {
        notSupported
                                              NULL,
        supported
                                              MaxHcContextSpace
}
PDCP-Capability-r4-ext ::=
                                     SEQUENCE {
    supportForRfc3095
                                     CHOICE {
                                              NULL,
        notSupported
```

```
supported
                                            SEQUENCE {
                                                MaxROHC-ContextSessions-r4 DEFAULT s16,
            maxROHC-ContextSessions
            reverseCompressionDepth
                                                INTEGER (0..65535)
                                                                             DEFAULT 0
    }
}
                            SEQUENCE {
PDCP-Capability-r5-ext ::=
    supportForRfc3095ContextRelocation
                                            BOOLEAN,
    {\tt maxHcContextSpace}
                                             MaxHcContextSpace-r5-ext
                                                                       OPTIONAL
}
PDCP-Capability-r5-ext2 ::=
                                    SEQUENCE {
   losslessDLRLC-PDUSizeChange
                                       ENUMERATED { true }
                                                                             OPTIONAL
}
PhysicalChannelCapability ::= SEQUENCE {
                                            SEQUENCE {
        fddPhysChCapability
            downlinkPhysChCapability
                                                DL-PhysChCapabilityFDD,
            uplinkPhysChCapability
                                                UL-PhysChCapabilityFDD
        }
                                                   OPTIONAL,
        -- tddPhysChCapability describes the 3.84Mcps TDD physical channel capability
           PhysChCapability SEQUENCE {
downlinkPhysChCapability DL-Phys
uplinkPhysChCapability UL-Phys
        tddPhysChCapability
                                                DL-PhysChCapabilityTDD,
                                                UL-PhysChCapabilityTDD
        }
                                                    OPTIONAL
}
-- PhysicalChannelCapability-LCR-r4 describes the 1.28Mcps TDD physical channel capability
PhysicalChannelCapability-LCR-r4 ::= SEQUENCE {
           downlinkPhysChCapability
uplinkPhysChCapability
UL-PhysChC
        tdd128-PhysChCapability
                                                DL-PhysChCapabilityTDD-LCR-r4,
                                                UL-PhysChCapabilityTDD-LCR-r4
        }
                                                    OPTIONAL
}
-- PhysicalChannelCapability-hspdsch-r5 describes the HS-PDSCH physical channel capability
{\tt PhysicalChannelCapability-hspdsch-r5} ::= \\ {\tt SEQUENCE} \ \{
                                                    CHOICE {
    fdd-hspdsch
        supported
                                                        SEQUENCE {
            hsdsch-physical-layer-category
                                                            HSDSCH-physical-layer-category,
            supportOfDedicatedPilotsForChannelEstimationOfHSDSCH BOOLEAN,
            -- simultaneousSCCPCH-DPCH-HSDSCH-Reception shall be true only if the
            -- IE SimultaneousSCCPCH-DPCH-Reception indicates support of simultaneous
            -- reception of S-CCPCH and DPCH
            simultaneousSCCPCH-DPCH-HSDSCH-Reception
                                                             BOOLEAN
        },
        unsupported
                                                         NULL
    tdd384-hspdsch
        supported
                                                         HSDSCH-physical-layer-category,
        unsupported
                                                         NIII.I.
    tdd128-hspdsch
                                                         HSDSCH-physical-layer-category,
       supported
                                                         NULL
        unsupported
    }
}
PNBSCH-Allocation-r4 ::=
                                        SECUENCE {
       numberOfRepetitionsPerSFNPeriod ENUMERATED {
                                            c2, c3, c4, c5, c6, c7, c8, c9, c10,
                                             c12, c14, c16, c18, c20, c24, c28, c32,
                                             c36, c40, c48, c56, c64, c72, c80 }
}
ProtocolErrorCause ::=
                                    ENUMERATED {
                                        asn1-ViolationOrEncodingError,
                                         messageTypeNonexistent,
                                        messageNotCompatibleWithReceiverState,
                                         ie-ValueNotComprehended,
                                         informationElementMissing,
                                        messageExtensionNotComprehended,
                                        spare2, spare1 }
ProtocolErrorIndicator ::=
                                    ENUMERATED {
                                        noError, errorOccurred }
```

```
ProtocolErrorIndicatorWithMoreInfo ::=
                                   CHOICE {
   noError
                                     NULL,
                                      SEQUENCE {
    errorOccurred
                                      RRC-TransactionIdentifier,
       rrc-TransactionIdentifier
       protocolErrorInformation
                                          ProtocolErrorInformation
}
ProtocolErrorMoreInformation ::= SEQUENCE {
                                  CHOICE {
   diagnosticsType
                                           CHOICE {
        type1
           asn1-ViolationOrEncodingError
                                               NULL.
           messageTypeNonexistent
                                               NULL,
           messageNotCompatibleWithReceiverState
                                              IdentificationOfReceivedMessage,
           ie-ValueNotComprehended
                                               IdentificationOfReceivedMessage,
           conditionalInformationElementError IdentificationOfReceivedMessage,
                                              IdentificationOfReceivedMessage,
           messageExtensionNotComprehended
                                               NULL,
           spare1
                                               NULL
           spare2
        },
                                           NULL
       spare
    }
}
RadioFrequencyBandFDD ::=
                                  ENUMERATED {
   -- fdd2100, fdd1900, fdd1800 correspond to Band I, Band II and Band III respectively
                                       fdd2100,
                                       fdd1900,
                                       fdd1800, spare5, spare4, spare3, spare2, spare1 }
                                   RadioFrequencyBandFDDSpare ::=
                                   ENUMERATED {
RadioFrequencyBandTDDList ::=
                                       a, b, c, ab, ac, bc, abc, spare }
RadioFrequencyBandTDD ::=
                                   ENUMERATED {a, b, c, spare}
RadioFrequencyBandGSM ::=
                                   ENUMERATED {
                                       gsm450,
                                       gsm480,
                                       gsm850,
                                       gsm900P,
                                       gsm900E,
                                       gsm1800,
                                       gsm1900,
                                       spare9, spare8, spare7, spare6, spare5,
                                       spare4, spare3, spare2, spare1}
Rb-timer-indicator ::=
                                   SEQUENCE {
   t314-expired
                                       BOOLEAN,
                                       BOOLEAN }
    t315-expired
Re-EstablishmentTimer ::=
                                   ENUMERATED {
                                       useT314, useT315
}
RedirectionInfo ::=
                                   CHOICE {
    frequencyInfo
                                       FrequencyInfo,
    \verb"interRATInfo"
                                       InterRATInfo
RejectionCause ::=
                                   ENUMERATED {
                                       congestion,
                                       unspecified }
                                   ENUMERATED {
ReleaseCause ::=
                                       normalEvent,
                                       unspecified,
                                       pre-emptiveRelease,
                                       congestion,
                                       re-establishmentReject,
                                       {\tt directed signalling connection re-establishment,}\\
                                       userInactivity,
                                       spare }
```

```
SEQUENCE {
RF-Capability ::=
                           SEQUENCE {

UE-Pow
        fddRF-Capability
            ue-PowerClass
                                             UE-PowerClass,
            txRxFrequencySeparation
                                             TxRxFrequencySeparation
                                            OPTIONAL,
        tddRF-Capability
                                                      SEQUENCE {
            RF-Capability
ue-PowerClass
ue-PowerClass
ue-PowerClass,
radioFrequencyTDDBandList
RadioFrequencyBandTDDList,
            ue-PowerClass
            chipRateCapability ChipRateCapability
                                             OPTIONAL
}
                                SEQUENCE {
RF-Capability-r4-ext ::=
        tddRF-Capability
                                                      SEQUENCE {
            ue-PowerClass
                                         UE-PowerClass,
            {\tt radioFrequencyBandTDDList} \quad {\tt RadioFrequencyBandTDDList},
            chipRateCapability ChipRateCapability
OPTIONAL
        }
                                             OPTIONAL
}
                                    SEQUENCE {
RLC-Capability ::=
    -- If present, the "totalRLC-AM-BufferSize" in the IE "RLC-Capability-r5-ext" overrides the
    -- corresponding value in this IE. The value in this IE may be used by a pre-REL-5 UTRAN.
                               TotalRLC-AM-BufferSize,
MaximumRLC-WindowSize,
MaximumAM-EntityNumberR
    totalRLC-AM-BufferSize
   maximumRLC-WindowSize
   maximumAM-EntityNumber
                                         MaximumAM-EntityNumberRLC-Cap
}
RLC-Capability-r5-ext ::=
                                             SEQUENCE {
                                TotalRLC-AM-BufferSize-r5-ext
                                                                             OPTIONAL
    totalRLC-AM-BufferSize
RRC-ConnectionReleaseInformation ::= CHOICE {
   noRelease
                                             NULL.
                                              SEQUENCE {
   release
        releaseCause
                                                  ReleaseCause
}
RRC-MessageSequenceNumber ::=
                                  INTEGER (0..15)
RRC-MessageSequenceNumberList ::= SEQUENCE (SIZE (4..5)) OF
                                         RRC-MessageSequenceNumber
RRC-StateIndicator ::=
                                     ENUMERATED {
                                         cell-DCH, cell-FACH, cell-PCH, ura-PCH }
RRC-TransactionIdentifier ::=
                                    INTEGER (0..3)
S-RNTI ::=
                                     BIT STRING (SIZE (20))
S-RNTI-2 ::=
                                     BIT STRING (SIZE (10))
SecurityCapability ::=
                                     SEQUENCE {
                                         BIT STRING {
    \verb|cipheringAlgorithmCap||
                                          -- For each bit value "0" means false/ not supported
                                              spare15(0),
                                              spare14(1),
                                              spare13(2),
                                              spare12(3),
                                              spare11(4),
                                              spare10(5),
                                              spare9(6),
                                              spare8(7),
                                              spare7(8),
                                              spare6(9),
                                              spare5(10),
                                              spare4(11),
                                              spare3(12),
                                              spare2(13),
                                              uea1(14),
                                              uea0(15)
                                                  (SIZE (16)),
    \verb|integrityProtectionAlgorithmCap| \\
                                         BIT STRING {
                                          -- For each bit value "0" means false/ not supported
                                             spare15(0),
                                              spare14(1),
```

```
spare13(2),
                                                                                                  spare12(3),
                                                                                                  spare11(4),
                                                                                                  spare10(5),
                                                                                                  spare9(6),
                                                                                                  spare8(7),
                                                                                                  spare7(8),
                                                                                                  spare6(9),
                                                                                                  spare5(10),
                                                                                                  spare4(11),
                                                                                                  spare3(12),
                                                                                                  spare2(13),
                                                                                                  uia1(14),
                                                                                                  spare0(15)
                                                                                                         (SIZE (16))
}
SimultaneousSCCPCH-DPCH-Reception ::= CHOICE {
        notSupported
                                                                                        SEQUENCE {
         supported
                maxNoSCCPCH-RL
                                                                                                MaxNoSCCPCH-RL,
                  -- simultaneousSCCPCH-DPCH-DPDCH-Reception is applicable only if
                  -- the IE Support of PDSCH = TRUE
                  -- Note: the reference to DPDCH in the element name below is incorrect (see tabular). The
                  -- name is not changed, to keep it aligned with R99.
                 simultaneousSCCPCH-DPCH-DPDCH-Reception
                                                                                                                BOOLEAN
}
SRNC-Identity ::=
                                                                              BIT STRING (SIZE (12))
START-Value ::=
                                                                              BIT STRING (SIZE (20))
STARTList ::=
                                                                               SEQUENCE (SIZE (1..maxCNdomains)) OF
                                                                                       STARTSingle
STARTSingle ::=
                                                                               SEQUENCE {
        cn-DomainIdentity
                                                                                       CN-DomainIdentity,
         start-Value
                                                                                        START-Value
CapabilityUpdateRequirement-r5 ::= SEQUENCE {
         ue-RadioCapabilityFDDUpdateRequirement-FDD BOOLEAN,
         ue-RadioCapabilityTDDUpdateRequirement-TDD384 BOOLEAN,
         ue-RadioCapabilityTDDUpdateRequirement-TDD128
                                                                                                                   BOOLEAN,
                                                                                      SystemSpecificCapUpdateReqList-r5
                                                                                                                                                                              OPTIONAL
         systemSpecificCapUpdateReqList
}
                                                                           ENUMERATED {
SystemSpecificCapUpdateReq ::=
                                                                                        gsm }
SystemSpecificCapUpdateReq-v590ext ::=
                                                                                                  ENUMERATED {
                                                                                        geranIu }
SystemSpecificCapUpdateReq-r5 ::=
                                                                                       ENUMERATED {
                                                                                        gsm, geranIu }
SystemSpecificCapUpdateReqList ::= SEQUENCE (SIZE (1..maxSystemCapability)) OF
                                                                                        SystemSpecificCapUpdateReq
{\tt SystemSpecificCapUpdateReqList-r5} \ ::= \ {\tt SEQUENCE} \ ({\tt SIZE} \ ({\tt 1..maxSystemCapability})) \ {\tt OF} \ ({\tt SIZE} \ ({\tt 1..maxSystemCapability})) \ {\tt OF} \ ({\tt SIZE} \ ({\tt 1..maxSystemCapability})) \ {\tt OF} \ ({\tt SIZE} \ ({\tt 1..maxSystemCapability})) \ {\tt OF} \ ({\tt SIZE} \ ({\tt 1..maxSystemCapability})) \ {\tt OF} \ ({\tt INDECTION CAPABILITY}) \ {\tt OF} \ ({\tt INDE
                                                                                        SystemSpecificCapUpdateReq-r5
T-300 ::=
                                                                                ENUMERATED {
                                                                                        ms100, ms200, ms400, ms600, ms800,
                                                                                         {\tt ms1000,\ ms1200,\ ms1400,\ ms1600,}
                                                                                         {\tt ms1800,\ ms2000,\ ms3000,\ ms4000,}
                                                                                        ms6000, ms8000 }
T-301 ::=
                                                                                ENUMERATED {
                                                                                        ms100, ms200, ms400, ms600, ms800,
                                                                                         {\tt ms1000,\ ms1200,\ ms1400,\ ms1600,}
                                                                                         ms1800, ms2000, ms3000, ms4000,
                                                                                        ms6000, ms8000, spare }
T-302 ::=
                                                                                ENUMERATED {
```

```
ms100, ms200, ms400, ms600, ms800,
                                             ms1000, ms1200, ms1400, ms1600,
                                             ms1800, ms2000, ms3000, ms4000,
                                             ms6000, ms8000, spare }
T-304 ::=
                                        ENUMERATED {
                                            ms100, ms200, ms400,
                                             ms1000, ms2000, spare3, spare2, spare1 }
T-305 ::=
                                        ENUMERATED {
                                            noUpdate, m5, m10, m30,
                                             m60, m120, m360, m720 }
                                        ENUMERATED {
T-307 ::=
                                            s5, s10, s15, s20,
s30, s40, s50, spare }
т-308 ::=
                                        ENUMERATED {
                                            ms40, ms80, ms160, ms320 }
T-309 ::=
                                        INTEGER (1..8)
T-310 ::=
                                        ENUMERATED {
                                            ms40, ms80, ms120, ms160,
                                             ms200, ms240, ms280, ms320 }
T-311 ::=
                                        ENUMERATED {
                                            ms250, ms500, ms750, ms1000,
                                            ms1250, ms1500, ms1750, ms2000 }
-- The value 0 for T-312 is not used in this version of the specification
                                        INTEGER (0..15)
T-313 ::=
                                        INTEGER (0..15)
                                        ENUMERATED {
T-314 ::=
                                            s0, s2, s4, s6, s8,
                                             s12, s16, s20 }
                                        ENUMERATED {
    s0, s10, s30, s60, s180, s600, s1200, s1800 }
T-315 ::=
T-316 ::=
                                        ENUMERATED {
                                            s0, s10, s20, s30, s40,
                                             s50, s-inf, spare }
-- All the values are changed to "infinity" in Rel-5
T-317 ::=
                                        ENUMERATED {
                                            infinity0, infinity1, infinity2, infinity3, infinity4,
infinity5, infinity6, infinity7}
T-CPCH ::=
                                        ENUMERATED {
                                            ct0, ct1 }
TMSI-and-LAI-GSM-MAP ::=
                                        SEQUENCE {
    tmsi
                                            TMSI-GSM-MAP,
}
                                        OCTET STRING (SIZE (2..17))
TMSI-DS-41 ::=
TotalRLC-AM-BufferSize ::=
                                        ENUMERATED {
                                             dummy, kb10, kb50, kb100, kb150, kb500, kb1000, spare }
TotalRLC-AM-BufferSize-r5-ext ::= ENUMERATED {
                                            kb200, kb300, kb400, kb750 }
-- Actual value TransmissionProbability = IE value * 0.125
TransmissionProbability ::=
                                      INTEGER (1..8)
TransportChannelCapability ::= SEQUENCE {
    dl-TransChCapability DL-TransChCapability,
    ul-TransChCapability UL-TransChCapability
    ul-TransChCapability
                                             UL-TransChCapability
                                        CHOICE {
TurboSupport ::=
```

```
notSupported
                                                                                  NULL,
        supported
                                                                                  MaxNoBits
}
TxRxFrequencySeparation ::=
                                                                        ENUMERATED {
                                                                          mhz190, mhz174-8-205-2,
                                                                                 mhz134-8-245-2 }
U-RNTI ::=
                                                                         SEQUENCE {
        srnc-Identity
                                                                                 SRNC-Identity,
                                                                                  S-RNTI
        s-RNTI
}
U-RNTI-Group ::=
                                                                         CHOICE {
-- TABULAR: not following the tabular strictly, but this will most likely save bits
      all
                                                                                NULL,
       u-RNTI-BitMaskIndex-bl
u-RNTI-BitMaskIndex-b2
                                                                                 BIT STRING (SIZE (31)),

        u-RNTI-BitMaskIndex-b2
        BIT STRING (SIZE (30)),

        u-RNTI-BitMaskIndex-b3
        BIT STRING (SIZE (29)),

        u-RNTI-BitMaskIndex-b4
        BIT STRING (SIZE (28)),

        u-RNTI-BitMaskIndex-b5
        BIT STRING (SIZE (27)),

        u-RNTI-BitMaskIndex-b6
        BIT STRING (SIZE (26)),

        u-RNTI-BitMaskIndex-b7
        BIT STRING (SIZE (25)),

        u-RNTI-BitMaskIndex-b8
        BIT STRING (SIZE (24)),

        u-RNTI-BitMaskIndex-b9
        BIT STRING (SIZE (22)),

        u-RNTI-BitMaskIndex-b10
        BIT STRING (SIZE (22)),

        u-RNTI-BitMaskIndex-b11
        BIT STRING (SIZE (22)),

        u-RNTI-BitMaskIndex-b12
        BIT STRING (SIZE (21)),

        u-RNTI-BitMaskIndex-b13
        BIT STRING (SIZE (19)),

        u-RNTI-BitMaskIndex-b14
        BIT STRING (SIZE (19)),

        u-RNTI-BitMaskIndex-b15
        BIT STRING (SIZE (17)),

        u-RNTI-BitMaskIndex-b16
        BIT STRING (SIZE (16)),

        u-RNTI-BitMaskIndex-b19
        BIT STRING (SIZE (15)),

        u-RNTI-BitMaskIndex-b19
        BIT STRING (SIZE (12)),

        u-RNTI-BitMaskIndex-b20
        BIT STRING (SIZE (12)),

        u-RNTI-BitMaskIndex-b21
        BIT STRING (SIZE (10)),

        u-RNTI-BitMaskIndex-b24
        BIT STRING (SIZE (9)),

        u-RNTI-BitMa
                                                                                 BIT STRING (SIZE (30)),
       u-RNTI-BitMaskIndex-b3
                                                                                BIT STRING (SIZE (29)),
}
U-RNTI-Short ::=
                                                                      SEQUENCE {
                                                                                 SRNC-Identity,
       srnc-Identity
        s-RNTI-2
                                                                                  S-RNTI-2
}
UE-ConnTimersAndConstants ::= SEQUENCE {
-- Optional is used also for parameters for which the default value is the last one read in SIB1
-- t-301 and n-301 should not be used by the UE in this version of the specification
                                                                                  T-301
       t-301
       n-301
                                                                                  N - 301
                                                                                                                                                             DEFAULT 2,
                                                                                  T-302
       t-302
                                                                                                                                                             DEFAULT ms4000.
       n-302
                                                                                  N - 302
                                                                                                                                                             DEFAULT 3,
        t-304
                                                                                  T - 304
                                                                                                                                                             DEFAULT ms2000,
       n-304
                                                                                  N - 304
                                                                                                                                                             DEFAULT 2.
        t.-305
                                                                                  T-305
                                                                                                                                                             DEFAULT m30.
                                                                                  T-307
        t - 307
                                                                                                                                                             DEFAULT s30
        t-308
                                                                                  T-308
                                                                                                                                                             DEFAULT ms160,
        t-309
                                                                                   T-309
                                                                                                                                                             DEFAULT 5,
        t-310
                                                                                  T-310
                                                                                                                                                             DEFAULT ms160,
       n-310
                                                                                  N - 310
                                                                                                                                                             DEFAULT 4.
        t-311
                                                                                  T-311
                                                                                                                                                             DEFAULT ms2000,
                                                                                  T-312
                                                                                                                                                             DEFAULT 1.
        -- n-312 shall be ignored if n-312 in UE-ConnTimersAndConstants-v3a0ext is present, and the
        -- value of that element shall be used instead.
        n-312
                                                                                  N - 312
                                                                                                                                                             DEFAULT s1,
        t-313
                                                                                   T-313
                                                                                                                                                             DEFAULT 3,
        n-313
                                                                                  N - 313
                                                                                                                                                             DEFAULT s20,
                                                                                  T-314
                                                                                                                                                             DEFAULT s12.
        t-314
        t-315
                                                                                  T-315
                                                                                                                                                             DEFAULT s180,
```

```
-- n-315 shall be ignored if n-315 in UE-ConnTimersAndConstants-v3a0ext is present, and the
    -- value of that element shall be used instead.
   n-315
                                         N-315
                                                                               DEFAULT s1.
    t-316
                                                                               DEFAULT s30,
                                          T-316
    t-317
                                          T-317
                                                                               DEFAULT infinity4
}
UE-ConnTimersAndConstants-v3a0ext ::=
                                             SEOUENCE {
                                          N-312ext
                                                                                    OPTIONAL,
    n-315
                                          N-315ext
                                                                                    OPTIONAL
}
                                       SEQUENCE {
UE-ConnTimersAndConstants-r5 ::=
-- Optional is used also for parameters for which the default value is the last one read in SIB1
-- t-301 and n-301 should not be used by the UE in this version of the specification
   t-301
                                         T-301
                                                                               DEFAULT ms2000,
                                                                               DEFAULT 2,
   n-301
                                         N - 301
   t-302
                                         T = 302
                                                                               DEFAULT ms4000,
   n-302
                                         N-302
                                                                               DEFAULT 3,
    t-304
                                          T-304
                                                                               DEFAULT ms2000,
                                         N - 304
   n-304
                                                                               DEFAULT 2.
    t-305
                                         T-305
                                                                               DEFAULT m30,
    t-307
                                          T-307
                                                                               DEFAULT s30,
    t-308
                                         T-308
                                                                               DEFAULT ms160,
    t-309
                                          T-309
                                                                               DEFAULT 5.
                                          T-310
    t - 310
                                                                               DEFAULT ms160,
   n-310
                                         N - 310
                                                                               DEFAULT 4,
                                         T-311
    t-311
                                                                               DEFAULT ms2000,
    t-312
                                         T-312
                                                                               DEFAULT 1,
   n-312
                                                                               DEFAULT s1,
                                         N-312-r5
    t.-313
                                         T - 313
                                                                               DEFAULT 3,
   n-313
                                         N-313
                                                                               DEFAULT s20,
    t-314
                                         T-314
                                                                               DEFAULT s12,
    t.-315
                                         T - 315
                                                                               DEFAULT s180.
   n-315
                                         N-315-r5
                                                                               DEFAULT s1,
    t-316
                                          T-316
                                                                               DEFAULT s30,
                                                                               DEFAULT infinity4
    t-317
                                         T-317
}
UE-IdleTimersAndConstants ::=
                                     SEQUENCE {
                                         T-300,
                                          N-300,
   n - 300
    t-312
                                         T-312.
    -- n-312 shall be ignored if n-312 in UE-IdleTimersAndConstants-v3a0ext is present, and the
    -- value of that element shall be used instead.
}
UE-IdleTimersAndConstants-v3a0ext ::=
                                              SEQUENCE {
                                                                                   OPTIONAL
                                         N-312ext
}
UE-MultiModeRAT-Capability ::= SEQUENCE {
   multiRAT-CapabilityList
                                         MultiRAT-Capability,
                                         MultiModeCapability
    multiModeCapability
UE-PowerClass ::=
                                     INTEGER (1..4)
IJE-PowerClassExt ::=
                                     ENUMERATED {class1, class2, class3, class4,
                                          spare4, spare3, spare2, spare1 }
UE-RadioAccessCapability ::=
                                     SEQUENCE {
    -- UE-RadioAccessCapability is compatible with R99, although accessStratumReleaseIndicator -- is removed from this IE, since its encoding did not does in bits. The
    -- accessStratumReleaseIndicator is provided in the relevant REL-4 extension IEs.
                                         PDCP-Capability,
    pdcp-Capability
    rlc-Capability
                                         RLC-Capability,
                                         TransportChannelCapability,
    transportChannelCapability
    rf-Capability
                                         RF-Capability,
                                       PhysicalChannelCapability,
    physicalChannelCapability
    ue-MultiModeRAT-Capability
                                         UE-MultiModeRAT-Capability,
                                         SecurityCapability,
    securityCapability
                                       UE-Positioning-Capability,
    ue-positioning-Capability
    measurementCapability
                                         MeasurementCapability
                                                                      OPTIONAL
UE-RadioAccessCapabilityInfo ::=
                                         SEQUENCE {
```

```
ue-RadioAccessCapability
                                        UE-RadioAccessCapability,
    ue-RadioAccessCapability-v370ext
                                        UE-RadioAccessCapability-v370ext
}
UE-RadioAccessCapability-v370ext ::=
                                        SEQUENCE {
   ue-RadioAccessCapabBandFDDList
                                        UE-RadioAccessCapabBandFDDList
UE-RadioAccessCapability-v380ext ::=
                                        SEQUENCE {
    ue-PositioningCapabilityExt-v380
                                            UE-PositioningCapabilityExt-v380
UE-RadioAccessCapability-v3a0ext ::=
                                        SEQUENCE {
   ue-PositioningCapabilityExt-v3a0
                                           UE-PositioningCapabilityExt-v3a0
}
UE-RadioAccessCapability-v3g0ext ::=
                                        SEQUENCE {
   ue-PositioningCapabilityExt-v3g0
                                            UE-PositioningCapabilityExt-v3g0
UE-PositioningCapabilityExt-v380 ::=
                                       SEQUENCE {
   rx-tx-TimeDifferenceType2Capable
                                           BOOLEAN
UE-PositioningCapabilityExt-v3a0 ::=
                                       SEOUENCE {
                                            ENUMERATED { true }
   validity-CellPCH-UraPCH
UE-PositioningCapabilityExt-v3g0 ::=
                                      SEOUENCE {
                                        ENUMERATED { true }
    sfn-sfnType2Capability
UE-RadioAccessCapabBandFDDList ::= SEQUENCE (SIZE (1..maxFreqBandsFDD)) OF
                                            UE-RadioAccessCapabBandFDD
UE-RadioAccessCapabBandFDD ::= SEQUENCE{
   radioFrequencyBandFDD
                                   RadioFrequencyBandFDD,
                                        SEQUENCE {
    fddRF-Capability
       ue-PowerClass
                                            UE-PowerClassExt,
                                            TxRxFrequencySeparation
        txRxFrequencySeparation
                                                                    OPTIONAL,
                                       MeasurementCapabilityExt
    measurementCapability
}
UE-RadioAccessCapability-v4b0ext ::=
                                        SEQUENCE {
    pdcp-Capability-r4-ext
                                        PDCP-Capability-r4-ext,
    tdd-CapabilityExt
                                        SEQUENCE {
                                         RF-Capability-r4-ext
        rf-Capability
       physicalChannelCapability-LCR
                                            PhysicalChannelCapability-LCR-r4,
       measurementCapability-r4-ext MeasurementCapability-r4-ext
                                                OPTIONAL,
    -- IE " AccessStratumReleaseIndicator" is not needed in RRC CONNECTION SETUP COMPLETE
    accessStratumReleaseIndicator
                                                AccessStratumReleaseIndicator OPTIONAL
}
{\tt UE-RadioAccessCapabilityComp} \; ::= \; {\tt SEQUENCE} \; \left\{ \right.
    totalAM-RLCMemoryExceeds10kB
                                            BOOLEAN,
    rf-CapabilityComp
                                            RF-CapabilityComp
}
RF-CapabilityComp ::= SEQUENCE {
                            CHOICE {
    fdd
       notSupported
                                        NULL,
       supported
                                        RF-CapabBandListFDDComp
    tdd384-RF-Capability
                            CHOICE {
       notSupported
                                        NULL,
                                        RadioFrequencyBandTDDList
       supported
    tdd128-RF-Capability CHOICE {
       notSupported
        supported
                                        RadioFrequencyBandTDDList
}
-- NOTE: This IE is the frequency separation in MHz
{\tt RF-CapabBandFDDComp} \; ::= \; {\tt ENUMERATED} \; \left\{ \; \; {\tt notSupported} \,, \; {\tt mhz190} \,, \right.
                                        mhz174-8-205-2, mhz134-8-245-2 }
```

```
RF-CapabBandListFDDComp ::= SEQUENCE (SIZE (1..maxFreqBandsFDD)) OF
         -- the first entry corresponds with the first value of IE RadioFrequencyBandFDD,
         -- fdd2100, and so on \,
         RF-CapabBandFDDComp
UE-RadioAccessCapability-v590ext ::= SEQUENCE {
         \verb| dl-CapabilityWithSimultaneousHS-DSCHConfig | DL-CapabilityWit
         OPTIONAL,
         pdcp-Capability-r5-ext
                                                                                          PDCP-Capability-r5-ext,
        pdcp-Capability-r5-ext PDCP-Capability-r5-ext, rlc-Capability-r5-ext RLC-Capability-r5-ext, physicalChannelCapability PhysicalChannelCapability PhysicalChannelCapability-v590ext MultiModeRAT-Capability-v590ext
}
UE-RadioAccessCapability-v5c0ext ::= SEQUENCE {
                                                                                         PDCP-Capability-r5-ext2
         pdcp-Capability-r5-ext2
UL-PhysChCapabilityFDD ::= SEQUENCE {
        maxNoDPDCH-BitsTransmitted MaxNoDPDCH-BitsTransmitted, supportOfPCPCH BOOLEAN
}
\mbox{UL-PhysChCapabilityTDD} ::= \mbox{SEQUENCE} \; \{ \mbox{}
         maxPhysChPerTimeslot
                                                                               MaxTS-PerFrame,
        maxTS-PerFrame
                                                                                          MaxPhysChPerTimeslot,
         minimumSF
                                                                                           MinimumSF-UL,
         supportOfPUSCH
                                                                                          BOOLEAN
}
UL-PhysChCapabilityTDD-LCR-r4 ::= SEQUENCE {
        maxTS-PerSubFrame MaxTS-PerSubFrame-r4, maxPhysChPerTimeslot MaxPhysChPerTimeslot, minimumSF MinimumSF-III.
         supportOfPUSCH
                                                                                           BOOLEAN,
         supportOf8PSK
                                                                                        BOOLEAN
}
UL-TransChCapability ::= SEQUENCE {
   maxNoBitsTransmitted MaxNoB
   maxConvCodeBitsTransmitted MaxNoB
   turboEncodingSupport TurboS
   maxSimultaneousTransChs MaxSim
   modeSpecificInfo CHOICE
                                                                              MaxNoBits,
                                                                                          MaxNoBits.
                                                                                         TurboSupport,
                                                                                           MaxSimultaneousTransChsUL,
         modeSpecificInfo
                                                                                          CHOICE {
                  fdd
                                                                                                    NULL,
                                                                                                    SEQUENCE {
                   tdd.
                           maxSimultaneousCCTrCH-Count
                                                                                                              MaxSimultaneousCCTrCH-Count
         maxTransmittedBlocks
                                                                                           MaxTransportBlocksUL,
                                                                                           MaxNumberOfTFC-UL,
         maxNumberOfTFC
         maxNumberOfTF
                                                                                          MaxNumberOfTF
         Positioning-Capability ::= SEQUENCE {
standaloneLocMethodsSupported BOOLEAN,
ue-BasedOTDOA-Supported
UE-Positioning-Capability ::=
         ue-BasedOTDOA-Supported
networkAssistedGPS-Supported
                                                                                                   BOOLEAN,
         NetworkAssistedGPS-Supported, supportForUE-GPS-TimingOfCellFrames supportForIPDL BOOLEAN,
 }
UE-SecurityInformation ::= SEQUENCE {
                                                                                          START-Value
         start-CS
URA-UpdateCause ::=
                                                                                  ENUMERATED {
                                                                                            changeOfURA,
                                                                                            periodicURAUpdate,
                                                                                            spare1 }
UTRAN-DRX-CycleLengthCoefficient ::= INTEGER (3..9)
WaitTime ::=
                                                                                  INTEGER (0..15)
 __ ******************
```

```
RADIO BEARER INFORMATION ELEMENTS (10.3.4)
__ ****************
AlgorithmSpecificInfo ::=
                                                                   CHOICE {
       rfc2507-Info
                                                                          RFC2507-Info
AlgorithmSpecificInfo-r4 ::=
                                                                    CHOICE {
                                                                      RFC2507-Info,
      rfc2507-Info
                                                                             RFC3095-Info-r4
       rfc3095-Info
}
CID-InclusionInfo-r4 ::=
                                                                      ENUMERATED {
                                                                          pdcp-Header,
                                                                              rfc3095-PacketFormat }
-- Upper limit of COUNT-C is 2^32 - 1
COUNT-C ::=
                                                                      INTEGER (0..4294967295)
-- Upper limit of COUNT-C-MSB is 2^25 - 1
COUNT-C-MSB ::=
                                                                     INTEGER (0..33554431)
DefaultConfigIdentity ::=
                                                                    INTEGER (0..10)
DefaultConfigIdentity-r4 ::=
                                                                    INTEGER (0..12)
DefaultConfigIdentity-r5 ::=
                                                                    INTEGER (0..13)
DefaultConfigMode ::=
                                                                      ENUMERATED {
                                                                              tdd }
                                                                  SEQUENCE {
DL-AM-RLC-Mode ::=
                                                                    BOOLEAN,
       inSequenceDelivery
       receivingWindowSize
dl-RLC-StatusInfo
                                                                            ReceivingWindowSize,
                                                                             DL-RLC-StatusInfo
       dl-RLC-StatusInfo
}
DL-AM-RLC-Mode-r5 ::=
                                                                             SEQUENCE {
      dl-RLC-PDU-size
                                                                          OctetModeRLC-SizeInfoType1,
                                                           BOOLEAN,
Receivin
       inSequenceDelivery
       receivingWindowSize
                                                                             ReceivingWindowSize,
       dl-RLC-StatusInfo
                                                                            DL-RLC-StatusInfo
}
DL-CounterSynchronisationInfo ::= SEQUENCE {
       rB-WithPDCP-InfoList
                                                                                RB-WithPDCP-InfoList OPTIONAL
{\tt DL-CounterSynchronisationInfo-r5} \; ::= \; \; \; \; {\tt SEQUENCE} \; \; \{
       The Wicher Properties The PDCP Context Relocation List RB-PDCP Context Relocation RB-PDCP Context RB-PDCP Co
                                                                                                                                                   OPTIONAL.
                                                                                   RB-PDCPContextRelocationList OPTIONAL
}
DL-LogicalChannelMapping ::= SEQUENCE {
        -- TABULAR: DL-TransportChannelType contains TransportChannelIdentity as well.
       dl-TransportChannelType DL-TransportChannelType, logicalChannelIdentity LogicalChannelIdentity
                                                                                                                                                  OPTIONAL
}
DL-LogicalChannelMapping-r5 ::= SEQUENCE {
       -- TABULAR: DL-TransportChannelType contains TransportChannelIdentity as well.
       dl-TransportChannelType DL-TransportChannelType-r5, logicalChannelIdentity LogicalChannelIdentity
                                                                                                                                                   OPTIONAL
}
DL-LogicalChannelMappingList ::= SEQUENCE (SIZE (1..maxLoCHperRLC)) OF
                                                                              DL-LogicalChannelMapping
DL-LogicalChannelMappingList-r5 ::= SEQUENCE (SIZE (1..maxLoCHperRLC)) OF
                                                                             DL-LogicalChannelMapping-r5
DL-RFC3095-r4 ::=
      RFC3095-r4 ::=
cid-InclusionInfo
                                                                   SEQUENCE {
                                                                   CID-InclusionInfo-r4,
INTEGER (1..16383)
       max-CID
                                                                                                                                                  DEFAULT 15,
                                                                             INTEGER (0..65535)
       reverseDecompressionDepth
                                                                                                                                                    DEFAULT 0
```

```
DL-RLC-Mode ::=
                                   CHOICE {
   dl-AM-RLC-Mode
                                      DL-AM-RLC-Mode,
   dl-UM-RLC-Mode
                                      NULL,
   dl-TM-RLC-Mode
                                      DL-TM-RLC-Mode
}
                                    CHOICE {
DL-AM-RLC-Mode-r5,
DL-RLC-Mode-r5 ::=
    dl-AM-RLC-Mode-r5
    dl-UM-RLC-Mode-r5
                                       DL-UM-RLC-Mode-r5,
   dl-TM-RLC-Mode
                                      DL-TM-RLC-Mode
}
DL-RLC-StatusInfo ::=
                                 SEQUENCE {
   timerStatusProhibit
                                      TimerStatusProhibit
                                                                          OPTIONAL,
    -- dummy is not used in this version of the specification, it should not be sent
    -- and if received they should be ignored.
                             TimerEPC
                                                                      OPTIONAL,
   missingPDU-Indicator
                                          BOOLEAN.
   timerStatusPeriodic
                                      TimerStatusPeriodic
                                                                         OPTIONAL
}
                                SEQUENCE {
   segmentationIndication
DL-TM-RLC-Mode ::=
                                          BOOLEAN
}
DL-TransportChannelType ::=
                                   CHOICE {
                                      TransportChannelIdentity,
                                       NULL,
   fach
                                       TransportChannelIdentity,
   dsch
-- The choice "dsch" should not be used in FDD mode, and if received the UE behaviour is unspecified
                                       TransportChannelIdentityDCHandDSCH
   dch-and-dsch
 - The choice "dch-and-dsch" should not be used in FDD mode, and if received the UE
-- behaviour is unspecified
DL-TransportChannelType-r5 ::=
                                      CHOICE {
                                       TransportChannelIdentity,
   dch
   fach
                                       NULL,
-- The choice "dsch" should not be used in FDD mode, and if received the UE behaviour is unspecified
                                       TransportChannelIdentity,
  The choice "dch-and-dsch" should not be used in FDD mode, and if received the UE
-- behaviour is unspecified
   dch-and-dsch
                                       {\tt TransportChannelIdentityDCHandDSCH,}
   hsdsch
                                       MAC-d-FlowIdentity,
   dch-and-hsdsch
                                       MAC-d-FlowIdentityDCHandHSDSCH
}
DL-UM-RLC-LI-size ::=
                                      ENUMERATED {
                                      size7, size15 }
DI-IIM-RIC-Mode-r5 ::=
                                      SEOUENCE {
   dl-UM-RLC-LI-size
                                      DL-UM-RLC-LI-size
                                  ENUMERATED {
ExpectReordering ::=
                                       reorderingNotExpected,
                                       reorderingExpected }
ExplicitDiscard ::=
                                   SEQUENCE {
                                      TimerMRW.
    timerMRW
    timerDiscard
                                       TimerDiscard,
   maxMRW
                                      MaxMRW
}
HeaderCompressionInfo ::= SEQUENCE {
                                   AlgorithmSpecificInfo
   algorithmSpecificInfo
HeaderCompressionInfoList ::= SEQUENCE (SIZE (1..maxPDCPAlgoType)) OF
                                      HeaderCompressionInfo
HeaderCompressionInfo-r4 ::=
                                  SEQUENCE {
                                     AlgorithmSpecificInfo-r4
    algorithmSpecificInfo
                                   SEQUENCE (SIZE (1..maxPDCPAlgoType)) OF
HeaderCompressionInfoList-r4 ::=
                                       HeaderCompressionInfo-r4
```

```
LogicalChannelIdentity ::=
                                  INTEGER (1..15)
LosslessSRNS-RelocSupport ::=
                                 CHOICE {
   supported
                                       MaxPDCP-SN-WindowSize,
   notSupported
}
MAC-d-HFN-initial-value ::=
                                  BIT STRING (SIZE (24))
MAC-LogicalChannelPriority ::=
                                   INTEGER (1..8)
MaxDAT ::=
                                   ENUMERATED {
                                       dat1, dat2, dat3, dat4, dat5, dat6,
                                       dat7, dat8, dat9, dat10, dat15, dat20,
                                       dat25, dat30, dat35, dat40 }
MaxDAT-Retransmissions ::=
                                   SEQUENCE {
   maxDAT
                                       MaxDAT,
   timerMRW
                                       TimerMRW,
   maxMRW
                                       MaxMRW
}
MaxMRW ::=
                                   ENUMERATED {
                                       mm1, mm4, mm6, mm8, mm12, mm16,
                                       mm24, mm32 }
MaxPDCP-SN-WindowSize ::=
                                   ENUMERATED {
                                       sn255, sn65535 }
MaxRST ::=
                                   ENUMERATED {
                                       rst1, rst4, rst6, rst8, rst12,
                                       rst16, rst24, rst32 }
NoExplicitDiscard ::=
                                   ENUMERATED {
                                       dt10, dt20, dt30, dt40, dt50,
                                       dt60, dt70, dt80, dt90, dt100 }
PDCP-Info ::=
                                   SEQUENCE {
  losslessSRNS-RelocSupport LosslessSRNS-RelocSupport
                                                                          OPTIONAL,
    -- TABULAR: pdcp-PDU-Header is MD in the tabular format and it can be encoded
   \mbox{--} in one bit, so the OPTIONAL is removed for compactness.
   pdcp-PDU-Header
                                       PDCP-PDU-Header,
   headerCompressionInfoList
                                       HeaderCompressionInfoList OPTIONAL
}
PDCP-Info-r4 ::=
   P-Info-r4 ::= SEQUENCE {
losslessSRNS-RelocSupport LosslessSRNS-RelocSupport
    -- TABULAR: pdcp-PDU-Header is MD in the tabular format and it can be encoded
    -- in one bit, so the OPTIONAL is removed for compactness.
                                       PDCP-PDU-Header,
   pdcp-PDU-Header
                                       HeaderCompressionInfoList-r4
                                                                         OPTIONAL
   headerCompressionInfoList
}
PDCP-InfoReconfig ::=
                                   SEQUENCE {
                                      PDCP-Info,
   pdcp-Info
    -- dummy is not used in this version of the specification and
    -- it should be ignored.
   dummy
                                       INTEGER (0..65535)
}
PDCP-InfoReconfig-r4 ::=
                                   SEQUENCE {
  pdcp-Info
                                      PDCP-Info-r4
PDCP-PDU-Header ::=
                                   ENUMERATED {
                                       present, absent }
PDCP-SN-Info ::=
                                   INTEGER (0..65535)
Poll-PDU ::=
                                   ENUMERATED {
                                       pdu1, pdu2, pdu4, pdu8, pdu16, pdu32, pdu64, pdu128 }
Poll-SDU ::=
                                   ENUMERATED {
                                       sdu1, sdu4, sdu16, sdu64 }
PollingInfo ::=
                                   SEQUENCE {
```

```
timerPollProhibit
                                       TimerPollProhibit
                                                                           OPTIONAL,
    timerPoll
                                       TimerPoll
                                                                           OPTIONAL,
   poll-PDU
                                      Poll-PDU
                                                                           OPTIONAL,
   poll-SDU
                                       Poll-SDU
                                                                           OPTIONAL,
    lastTransmissionPDU-Poll
                                       BOOLEAN,
   lastTransmissionPDU-POII
lastRetransmissionPDU-Poll
                                     BOOLEAN,
   pollWindow
                                       PollWindow
                                                                           OPTIONAL,
                                      TimerPollPeriodic
    timerPollPeriodic
                                                                           OPTIONAL
}
PollWindow ::=
                                   ENUMERATED {
                                       pw50, pw60, pw70, pw80, pw85,
                                       pw90, pw95, pw99 }
PredefinedConfigIdentity ::=
                                   INTEGER (0..15)
PredefinedConfigValueTag ::=
                                   INTEGER (0..15)
PredefinedRB-Configuration ::= SEQUENCE {
   re-EstablishmentTimer
                                      Re-EstablishmentTimer,
                                       SRB-InformationSetupList,
    rb-InformationList
                                      RB-InformationSetupList
PreDefRadioConfiguration ::= SEQUENCE {
    -- Radio bearer IEs
       predefinedRB-Configuration
                                         PredefinedRB-Configuration,
    -- Transport channel IEs
       preDefTransChConfiguration
                                         PreDefTransChConfiguration,
    -- Physical channel IEs
       preDefPhyChConfiguration
                                          PreDefPhyChConfiguration
}
PredefinedConfigStatusList ::=
                                          SEQUENCE (SIZE (maxPredefConfig)) OF
                                           PredefinedConfigStatusInfo
PredefinedConfigStatusInfo ::= CHOICE {
    storedWithValueTagSameAsPrevius NULL,
    other
                                       CHOICE {
       notStored
                                          NULL,
       storedWithDifferentValueTag
                                           PredefinedConfigValueTag
}
PredefinedConfigStatusListComp ::= SEQUENCE {
    setsWithDifferentValueTag
                                      PredefinedConfigSetsWithDifferentValueTag,
    otherEntries
                                       PredefinedConfigStatusListVarSz
                                                                                   OPTIONAL
}
PredefinedConfigSetsWithDifferentValueTag ::= SEQUENCE (SIZE (1..2)) OF
                                               PredefinedConfigSetWithDifferentValueTag
PredefinedConfigSetWithDifferentValueTag ::= SEQUENCE {
    startPosition
                                               INTEGER (0..10)
                                                                  DEFAULT 0,
                                               INTEGER (6..16),
    -- numberOfEntries
    -- numberOfEntries is covered by the size of the list in IE PredefinedConfigValueTagList
    valueTagList
                                               PredefinedConfigValueTagList
}
PredefinedConfigValueTagList ::= SEQUENCE (SIZE (1..maxPredefConfig)) OF
                                           PredefinedConfigValueTag
PredefinedConfigStatusListVarSz ::=
                                    SEQUENCE (SIZE (1..maxPredefConfig)) OF
                                           PredefinedConfigStatusInfo
                                   SEQUENCE {
RAB-Info ::=
   rab-Identity
                                     RAB-Identity,
                                       CN-DomainIdentity,
    cn-DomainIdentity
   nas-Synchronisation-Indicator
                                       NAS-Synchronisation-Indicator OPTIONAL,
   re-EstablishmentTimer
                                      Re-EstablishmentTimer
RAB-InformationList ::=
                                  SEQUENCE (SIZE (1..maxRABsetup)) OF
                                      RAB-Info
{\tt RAB-InformationReconfigList} ::= \\ {\tt SEQUENCE} \ ({\tt SIZE} \ ({\tt 1...} \ {\tt maxRABsetup})) \ {\tt OF} \\
                                       RAB-InformationReconfig
```

```
RAB-InformationReconfig ::=
                                 SEQUENCE {
   rab-Identity
                                     RAB-Identity,
   cn-DomainIdentity
                                      CN-DomainIdentity,
   nas-Synchronisation-Indicator
                                     NAS-Synchronisation-Indicator
}
RAB-Info-Post ::=
                                     SEQUENCE {
                                     RAB-Identity,
   rab-Identity
   cn-DomainIdentity
                                      CN-DomainIdentity,
   nas-Synchronisation-Indicator
                                     NAS-Synchronisation-Indicator OPTIONAL
}
RAB-InformationSetup ::= SEQUENCE {
   rab-Info
                                     RAB-Info,
   rb-InformationSetupList
                                      RB-InformationSetupList
}
RAB-InformationSetup-r4 ::= SEQUENCE {
   rab-Info
                                     RAB-Info,
                                     RB-InformationSetupList-r4
   rb-InformationSetupList
}
RAB-InformationSetup-r5 ::= SEQUENCE {
   rab-Info
                                     RAB-Info,
                                     RB-InformationSetupList-r5
   rb-InformationSetupList
                                  SEQUENCE (SIZE (1..maxRABsetup)) OF
RAB-InformationSetupList ::=
                                      RAB-InformationSetup
RAB-InformationSetupList-r4 ::=
                                  SEQUENCE (SIZE (1..maxRABsetup)) OF
                                     RAB-InformationSetup-r4
                                  SEQUENCE (SIZE (1..maxRABsetup)) OF
RAB-InformationSetupList-r5 ::=
                                     RAB-InformationSetup-r5
RB-ActivationTimeInfo ::=
                                  SEQUENCE {
   rb-Identity
                                     RB-Identity,
   rlc-SequenceNumber
                                      RLC-SequenceNumber
RB-ActivationTimeInfoList ::=
                                  SEQUENCE (SIZE (1..maxRB)) OF
                                      RB-ActivationTimeInfo
RB-COUNT-C-Information ::=
                                  SEQUENCE {
   rb-Identity
                                      RB-Identity,
                                      COUNT-C.
    count-C-III.
    count-C-DL
                                      COUNT-C
RB-COUNT-C-InformationList ::= SEQUENCE (SIZE (1..maxRBallRABs)) OF
                                      RB-COUNT-C-Information
RB-COUNT-C-MSB-Information ::=
                                  SEQUENCE {
                                     RB-Identity,
   rb-Identity
    count-C-MSB-UL
                                      COUNT-C-MSB
    count-C-MSB-DL
                                      COUNT-C-MSB
}
RB-COUNT-C-MSB-InformationList ::= SEQUENCE (SIZE (1..maxRBallRABs)) OF
                                      RB-COUNT-C-MSB-Information
RB-Identity ::=
                                  INTEGER (1..32)
                                  SEQUENCE (SIZE (1..maxRB)) OF
RB-IdentityList ::=
                                      RB-Identity
RB-InformationAffected ::=
                                  SEQUENCE {
                                      RB-Identity,
   rb-Identity
    rb-MappingInfo
                                      RB-MappingInfo
RB-InformationAffected-r5 ::=
                                  SEQUENCE {
   rb-Identity
                                      RB-Identity,
   rb-MappingInfo
                                      RB-MappingInfo-r5
RB-InformationAffectedList ::=
                                  SEQUENCE (SIZE (1..maxRB)) OF
```

```
RB-InformationAffected
```

```
RB-InformationAffectedList-r5 ::= SEQUENCE (SIZE (1..maxRB)) OF
                                       RB-InformationAffected-r5
RB-InformationReconfig ::=
                                 SEQUENCE {
                                    RB-Identity,
   rb-Identity
   pdcp-Info
                                       PDCP-InfoReconfig
                                                                           OPTIONAL,
   pdcp-SN-Info
                                       PDCP-SN-Info
                                                                           OPTIONAL,
   rlc-Info
                                       RLC-Info
                                                                           OPTIONAL,
   rb-MappingInfo
                                       RB-MappingInfo
                                                                           OPTIONAL,
                                       RB-StopContinue
   rb-StopContinue
                                                                           OPTIONAL
}
\label{eq:RB-InformationReconfig-r4} \textit{RB-InformationReconfig-r4} ::= & \textit{SEQUENCE} \; \{ \\
   rb-Identity
                                    RB-Identity,
                                       PDCP-InfoReconfig-r4
                                                                           OPTIONAL,
   pdcp-Info
   pdcp-SN-Info
                                       PDCP-SN-Info
                                                                           OPTIONAL,
                                       RLC-Info
                                                                           OPTIONAL,
   rlc-Info
   rb-MappingInfo
                                                                           OPTIONAL,
                                       RB-MappingInfo
                                       RB-StopContinue
   rb-StopContinue
                                                                           OPTIONAL
}
\mbox{RB-InformationReconfig-r5} ::= \mbox{SEQUENCE} \ \{ \mbox{}
   rb-Identity
                                      RB-Identity,
                                       PDCP-InfoReconfig-r4
   pdcp-Info
                                                                           OPTIONAL,
   pdcp-SN-Info
                                      PDCP-SN-Info
                                                                           OPTIONAL,
   rlc-Info
                                       RLC-Info-r5
                                                                           OPTIONAL,
                                       RB-MappingInfo-r5
   rb-MappingInfo
                                                                           OPTIONAL,
                                                                           OPTIONAL
   rb-StopContinue
                                       RB-StopContinue
RB-InformationReconfigList ::= SEQUENCE (SIZE (1..maxRB)) OF
                                        RB-InformationReconfig
RB-InformationReconfigList-r4 ::= SEQUENCE (SIZE (1..maxRB)) OF
                                       RB-InformationReconfig-r4
RB-InformationReconfigList-r5 ::= SEQUENCE (SIZE (1..maxRB)) OF
                                       RB-InformationReconfig-r5
                                  SEQUENCE (SIZE (1..maxRB)) OF
RB-InformationReleaseList ::=
                                       RB-Identity
{\tt RB-InformationSetup} \ ::= \ \ {\tt SEQUENCE} \ \big\{
   rb-Identity
                                       RB-Identity,
                                       PDCP-Info
                                                                           OPTIONAL.
   pdcp-Info
    rlc-InfoChoice
                                       RLC-InfoChoice,
   rb-MappingInfo
                                       RB-MappingInfo
}
RB-InformationSetup-r4 ::=
                                  SEQUENCE {
   rb-Identity
                                    RB-Identity,
                                        PDCP-Info-r4
   pdcp-Info
                                                                            OPTIONAL,
   rlc-InfoChoice
                                       RLC-InfoChoice,
                                       RB-MappingInfo
   rb-MappingInfo
}
RB-InformationSetup-r5 ::= SEQUENCE {
    rb-Identity RB-Iden
                                      RB-Identity,
   pdcp-Info
                                       PDCP-Info-r4
                                                                           OPTIONAL,
    rlc-InfoChoice
                                        RLC-InfoChoice-r5,
   rb-MappingInfo
                                       RB-MappingInfo-r5
}
RB-InformationSetupList ::= SEQUENCE (SIZE (1..maxRBperRAB)) OF
                                       RB-InformationSetup
RB-InformationSetupList-r4 ::= SEQUENCE (SIZE (1..maxRBperRAB)) OF
                                       RB-InformationSetup-r4
RB-InformationSetupList-r5 ::=
                                    SEQUENCE (SIZE (1..maxRBperRAB)) OF
                                       RB-InformationSetup-r5
RB-MappingInfo ::=
                                    SEQUENCE (SIZE (1..maxRBMuxOptions)) OF
                                       RB-MappingOption
RB-MappingInfo-r5 ::=
                                        SEQUENCE (SIZE (1..maxRBMuxOptions)) OF
```

```
RB-MappingOption-r5
    ul-LogicalChannelMappings

dl-LogicalChannelMappings
RB-MappingOption ::=
    ul-LogicalChannelMappings UL-LogicalChannelMappings OPTIONAL, dl-LogicalChannelMappingList DL-LogicalChannelMappingList OPTIONAL
}
    MappingOption-r5 ::= SEQUENCE {
ul-LogicalChannelMappings UL-LogicalChannelMappings OPTIONAL,
dl-LogicalChannelMappingList DL-LogicalChannelMappingList-r5 OPTIONAL
RB-MappingOption-r5 ::=
}
RB-PDCPContextRelocation ::= SEQUENCE {
    dl-RFC3095-Context-Relocation BOOLEAN, ul-RFC3095-Context-Relocation BOOLEAN
}
RB-PDCPContextRelocationList ::= SEQUENCE (SIZE (1..maxRBallRABs)) OF
                                            RB-PDCPContextRelocation
RB-StopContinue ::=
                                   ENUMERATED {
                                       stopRB, continueRB }
RB-WithPDCP-Info ::=
                                    SECUENCE {
   rb-Identity
                                        RB-Identity,
   pdcp-SN-Info
                                        PDCP-SN-Info
}
RB-WithPDCP-InfoList ::= SEQUENCE (SIZE (1..maxRBallRABs)) OF
                                        RB-WithPDCP-Info
ReceivingWindowSize ::=
                                    ENUMERATED {
                                        rw1, rw8, rw16, rw32, rw64, rw128, rw256,
                                         rw512, rw768, rw1024, rw1536, rw2047,
                                        rw2560, rw3072, rw3584, rw4095 }
RFC2507-Info ::=
                                    SEQUENCE {
                                        DEFAULT 256,
    f-MAX-PERIOD
    f-MAX-TIME
    max-HEADER
                                                                             DEFAULT 168,
    t.cp-SPACE
   non-TCP-SPACE
    -- TABULAR: expectReordering has only two possible values, so using Optional or Default
    -- would be wasteful
    expectReordering
                                        ExpectReordering
}
RFC3095-Info-r4 ::= SEQUENCE {
   rohcProfileList ROHC-ProfileList-r4,
   ul-RFC3095
    ul-RFC3095
                                        UL-RFC3095-r4
                                                                             OPTIONAL,
                                        DL-RFC3095-r4
    dl-RFC3095
                                                                             OPTIONAL
}
RLC-Info ::=
                                    SEQUENCE {
                                        UL-RLC-Mode
    ul-RLC-Mode
                                                                             OPTIONAL.
    dl-RLC-Mode
                                        DL-RLC-Mode
                                                                             OPTIONAL
}
RLC-Info-r5 ::=
                                    SEQUENCE {
                                        UL-RLC-Mode
    ul-RLC-Mode
                                                                             OPTIONAL,
    dl-RLC-Mode-r5
                                        DL-RLC-Mode-r5
                                                                             OPTIONAL,
   rlc-OneSidedReEst
                                        BOOLEAN
}
RLC-InfoChoice ::=
                                    CHOICE {
                                        RLC-Info,
   rlc-Info
    same-as-RB
                                        RB-Identity
}
RLC-InfoChoice-r5 ::=
                                        CHOICE {
   rlc-Info-r5
                                        RLC-Info-r5,
    same-as-RB
                                        RB-Identity
}
RLC-SequenceNumber ::=
                                   INTEGER (0..4095)
RLC-SizeInfo ::=
                                    SEQUENCE {
```

```
rlc-SizeIndex
                                      INTEGER (1..maxTF)
RLC-SizeInfo
ROHC-Profile-r4 ::=
                                   INTEGER (1..3)
ROHC-ProfileList-r4 ::=
                                 SEQUENCE (SIZE (1..maxROHC-Profile-r4)) OF
                                       ROHC-Profile-r4
ROHC-PacketSize-r4 ::=
                                  INTEGER (2..1500)
ROHC-PacketSizeList-r4 ::= SEQUENCE (SIZE (1..maxROHC-PacketSizes-r4)) OF
                                      ROHC-PacketSize-r4
SRB-InformationSetup ::= SEQUENCE {
    -- The default value for rb-Identity is the smallest value not used yet.
   rb-Identity
                                      RB-Identity
   rlc-InfoChoice
                                       RLC-InfoChoice,
   rb-MappingInfo
                                       RB-MappingInfo
}
                                 SEQUENCE {
SRB-InformationSetup-r5 ::=
   -- The default value for rb-Identity is the smallest value not used yet.
   rb-Identity
                                      RB-Identity
                                                                          OPTIONAL,
   rlc-InfoChoice
                                      RLC-InfoChoice-r5,
                                       RB-MappingInfo-r5
   rb-MappingInfo
}
SRB-InformationSetupList ::= SEQUENCE (SIZE (1..maxSRBsetup)) OF
                                      SRB-InformationSetup
SRB-InformationSetupList-r5 ::= SEQUENCE (SIZE (1..maxSRBsetup)) OF
                                      SRB-InformationSetup-r5
SRB-InformationSetupList2 ::=
                                  SEQUENCE (SIZE (3..4)) OF
                                      SRB-InformationSetup
                                   ENUMERATED {
TimerDiscard ::=
                                       td0-1, td0-25, td0-5, td0-75,
                                       td1, td1-25, td1-5, td1-75,
                                       td2, td2-5, td3, td3-5, td4,
                                       td4-5, td5, td7-5 }
TimerEPC ::=
                                   ENUMERATED {
                                      te50, te60, te70, te80, te90,
                                       te100, te120, te140, te160, te180,
                                       te200, te300, te400, te500, te700,
                                       te900 }
                                   ENUMERATED {
TimerMRW ::=
                                      te50, te60, te70, te80, te90, te100,
                                       tel20, tel40, tel60, tel80, te200, te300, te400, te500, te700, te900 }
TimerPoll ::=
                                   ENUMERATED {
                                      tp10, tp20, tp30, tp40, tp50,
                                       tp60, tp70, tp80, tp90, tp100, tp110, tp120, tp130, tp140, tp150,
                                       tp160, tp170, tp180, tp190, tp200,
                                       tp210, tp220, tp230, tp240, tp250,
                                       tp260, tp270, tp280, tp290, tp300,
                                       tp310, tp320, tp330, tp340, tp350,
                                       tp360, tp370, tp380, tp390, tp400,
                                       tp410, tp420, tp430, tp440, tp450,
                                       tp460, tp470, tp480, tp490, tp500,
                                       tp510, tp520, tp530, tp540, tp550,
                                       tp600, tp650, tp700, tp750, tp800,
                                       tp850, tp900, tp950, tp1000 }
                                   ENUMERATED {
TimerPollPeriodic ::=
                                      tper100, tper200, tper300, tper400,
                                       tper500, tper750, tper1000, tper2000 }
TimerPollProhibit ::=
                                       tpp10, tpp20, tpp30, tpp40, tpp50, tpp60, tpp70, tpp80, tpp90, tpp100,
```

```
tpp110, tpp120, tpp130, tpp140, tpp150,
                                         tpp160, tpp170, tpp180, tpp190, tpp200,
                                         tpp210, tpp220, tpp230, tpp240, tpp250,
                                         tpp260, tpp270, tpp280, tpp290, tpp300,
                                         tpp310, tpp320, tpp330, tpp340, tpp350,
                                         tpp360, tpp370, tpp380, tpp390, tpp400,
                                         tpp410, tpp420, tpp430, tpp440, tpp450, tpp460, tpp470, tpp480, tpp490, tpp500,
                                         tpp510, tpp520, tpp530, tpp540, tpp550,
                                         tpp600, tpp650, tpp700, tpp750, tpp800,
tpp850, tpp900, tpp950, tpp1000 }
TimerRST ::=
                                    ENUMERATED {
                                         tr50, tr100, tr150, tr200, tr250, tr300,
                                         tr350, tr400, tr450, tr500, tr550,
                                         tr600, tr700, tr800, tr900, tr1000 }
TimerStatusPeriodic ::=
                                    ENUMERATED {
                                         tsp100, tsp200, tsp300, tsp400, tsp500,
                                         tsp750, tsp1000, tsp2000 }
                                    ENUMERATED {
TimerStatusProhibit ::=
                                         tsp10,tsp20,tsp30,tsp40,tsp50,
                                         tsp60,tsp70,tsp80,tsp90,tsp100,
                                         tsp110,tsp120,tsp130,tsp140,tsp150,
                                         tsp160,tsp170,tsp180,tsp190,tsp200,
                                         tsp210,tsp220,tsp230,tsp240,tsp250,
                                         tsp260,tsp270,tsp280,tsp290,tsp300,
                                         tsp310,tsp320,tsp330,tsp340,tsp350,
                                         tsp360,tsp370,tsp380,tsp390,tsp400,
                                         tsp410,tsp420,tsp430,tsp440,tsp450,
                                         tsp460,tsp470,tsp480,tsp490,tsp500,
                                         tsp510,tsp520,tsp530,tsp540,tsp550,
                                         tsp600,tsp650,tsp700,tsp750,tsp800,
                                         tsp850,tsp900,tsp950,tsp1000 }
TransmissionRLC-Discard ::=
                                    CHOICE {
                                    ExplicitDiscard,
   timerBasedExplicit
    timerBasedNoExplicit
                                        NoExplicitDiscard,
    maxDAT-Retransmissions
                                        MaxDAT-Retransmissions,
    noDiscard
                                        MaxDAT
TransmissionWindowSize ::=
                                    ENUMERATED {
                                         tw1, tw8, tw16, tw32, tw64, tw128, tw256,
                                         tw512, tw768, tw1024, tw1536, tw2047,
                                         tw2560, tw3072, tw3584, tw4095 }
UL-AM-RLC-Mode ::=
                                    SEQUENCE {
                                     TransmissionRLC-Discard,
   transmissionRLC-Discard
    transmissionWindowSize
                                        TransmissionWindowSize,
    timerRST
                                        TimerRST,
   max-RST
                                        MaxRST,
                                                                              OPTIONAL
   pollingInfo
                                        PollingInfo
}
UL-CounterSynchronisationInfo ::=
                                        SEQUENCE {
   rB-WithPDCP-InfoList
                                           RB-WithPDCP-InfoList OPTIONAL,
                                            STARTList
   startList
}
UL-LogicalChannelMapping ::= SEQUENCE {
    -- TABULAR: UL-TransportChannelType contains TransportChannelIdentity as well.
    ul-TransportChannelType
                                        UL-TransportChannelType,
                                        {\tt LogicalChannelIdentity}
                                                                           OPTIONAL,
    logicalChannelIdentity
    rlc-SizeList
                                        CHOICE {
       allSizes
                                            NULL,
        configured
                                            NULL,
        explicitList
                                            RLC-SizeExplicitList
    mac-LogicalChannelPriority
                                      MAC-LogicalChannelPriority
}
UL-LogicalChannelMappingList ::= SEQUENCE {
    -- rlc-LogicalChannelMappingIndicator shall be set to TRUE in this version
    -- of the specification
    {\tt rlc-LogicalChannelMappingIndicator} \quad {\tt BOOLEAN},
                                        SEQUENCE (SIZE (maxLoCHperRLC)) OF
    ul-LogicalChannelMapping
```

```
UL-LogicalChannelMapping
}
\mbox{UL-LogicalChannelMappings} ::= \mbox{CHOICE} \ \{ \mbox{}
    oneLogicalChannel
                                     UL-LogicalChannelMapping,
    twoLogicalChannels
                                      UL-LogicalChannelMappingList
}
UL-RFC3095-r4 ::=
                                  SEQUENCE {
   cid-InclusionInfo
                                  CID-InclusionInfo-r4,
                                      INTEGER (1..16383)
   max-CID
                                                                       DEFAULT 15,
   ແສx-ປາມ
rohcPacketSizeList
                                     ROHC-PacketSizeList-r4
}
UL-RLC-Mode ::=
                                CHOICE {
                                  UL-AM-RLC-Mode,
   ul-AM-RLC-Mode
   ul-UM-RLC-Mode
                                     UL-UM-RLC-Mode,
   ul-TM-RLC-Mode
                                     UL-TM-RLC-Mode,
   spare
}
UL-TM-RLC-Mode ::=
                                 SEQUENCE {
   TM-RLC-Mode ::= SEQUENCE {
transmissionRLC-Discard TransmissionRLC-Discard OPTIONAL,
segmentationIndication BOOLEAN
}
                           SEQUENCE {
TransmissionRLC-Discard OPTIONAL
UL-UM-RLC-Mode ::=
   transmissionRLC-Discard
}
UL-TransportChannelType ::=
                               CHOICE {
                                     TransportChannelIdentity,
   rach
                                      NULL,
    cpch
                                      NULL,
   usch
                                      TransportChannelIdentity
}
__ ****************************
      TRANSPORT CHANNEL INFORMATION ELEMENTS (10.3.5)
__ ****************
AddOrReconfMAC-dFlow ::=
   mac-hs-AddReconfQueue-List
                                              MAC-hs-AddReconfQueue-List OPTIONAL,
   mac-hs-DelQueue-List
                                             MAC-hs-DelQueue-List OPTIONAL
}
AllowedTFC-List ::=
                                SEQUENCE (SIZE (1..maxTFC)) OF
                                     TFC-Value
AllowedTFI-List ::=
                                  SEQUENCE (SIZE (1..maxTF)) OF
                                     INTEGER (0..31)
BitModeRLC-SizeInfo ::=
                                  CHOICE {
    sizeType1
                                     INTEGER (0..127),
    -- Actual value sizeType2 = (part1 * 8) + 128 + part2
    sizeType2
                                      SEQUENCE {
                                          INTEGER (0..15),
       part1
       part2
                                          INTEGER (1..7)
                                                                        OPTIONAL
    -- Actual value sizeType3 = (part1 * 16) + 256 + part2
                                      SEQUENCE {
    sizeType3
                                          INTEGER (0..47),
       part1
                                          INTEGER (1..15)
                                                                       OPTIONAL
    -- Actual value sizeType4 = (part1 * 64) + 1024 + part2
                                      SEQUENCE {
    sizeType4
       part1
                                          INTEGER (0..62),
                                          INTEGER (1..63)
                                                                       OPTIONAL
       part2
    }
}
-- Actual value BLER-QualityValue = IE value * 0.1
BLER-QualityValue ::=
                                 INTEGER (-63..0)
ChannelCodingType ::=
                                 CHOICE {
```

```
-- noCoding is only used for TDD in this version of the specification,
    -- otherwise it should be ignored
   noCoding
                                       NULL,
                                       CodingRate,
    convolutional
    turbo
                                       NULL
                                   ENUMERATED {
CodingRate ::=
                                       half,
                                       third }
                                   SEQUENCE {
CommonDynamicTF-Info ::=
                                       CHOICE {
   rlc-Size
       fdd
                                         SEQUENCE {
           octetModeRLC-SizeInfoType2
                                              OctetModeRLC-SizeInfoType2
        },
       tdd
                                          SEQUENCE {
               bitModeRLC-SizeInfo
                                             BitModeRLC-SizeInfo,
           commonTDD-Choice
               octetModeRLC-SizeInfoType1
                                                 OctetModeRLC-SizeInfoType1
        }
   numberOfTbSizeList
                                   SEQUENCE (SIZE (1..maxTF)) OF
                                           NumberOfTransportBlocks,
    logicalChannelList
                                   LogicalChannelList
}
CommonDynamicTF-Info-DynamicTTI ::= SEQUENCE {
       bitModeRLC-SizeInfo
    commonTDD-Choice
                                      BitModeRLC-SizeInfo,
OctetModeRLC-SizeInfoType1
       octetModeRLC-SizeInfoType1
                               NumberOfTbSizeAndTTIList,
LogicalChannelList
    numberOfTbSizeAndTTIList
    logicalChannelList
}
CommonDynamicTF-InfoList ::= SEQUENCE (SIZE (1..maxTF)) OF
                                       CommonDynamicTF-Info
CommonDynamicTF-InfoList-DynamicTTI ::= SEQUENCE (SIZE (1..maxTF)) OF
                                       CommonDynamicTF-Info-DynamicTTI
CommonTransChTFS ::=
                                   SEQUENCE {
                                       CHOICE {
       tti10
                                           CommonDynamicTF-InfoList,
       tti20
                                           CommonDynamicTF-InfoList,
       tti40
                                           CommonDynamicTF-InfoList,
        tti80
                                           CommonDynamicTF-InfoList,
                                           CommonDynamicTF-InfoList-DynamicTTI
       dynamic
    semistaticTF-Information
                                      SemistaticTF-Information
}
                                       SEQUENCE {
CommonTransChTFS-LCR ::=
                                       CHOICE {
    tti
        tti5
                                           CommonDynamicTF-InfoList,
       tti10
                                           CommonDynamicTF-InfoList,
       tti20
                                           CommonDynamicTF-InfoList,
       tti40
                                           CommonDynamicTF-InfoList,
        tti80
                                           CommonDynamicTF-InfoList,
       dynamic
                                           CommonDynamicTF-InfoList-DynamicTTI
    },
    semistaticTF-Information
                                       SemistaticTF-Information
}
CPCH-SetID ::=
                                   INTEGER (1..maxCPCHsets)
CRC-Size ::=
                                   ENUMERATED {
                                       crc0, crc8, crc12, crc16, crc24 }
DedicatedDynamicTF-Info ::=
                                   SEQUENCE {
   rlc-Size
                                      CHOICE {
       bitMode
                                           BitModeRLC-SizeInfo,
       octetModeType1
                                           OctetModeRLC-SizeInfoType1
    numberOfTbSizeList
                                   SEQUENCE (SIZE (1..maxTF)) OF
    NumberOfTransportBlocks,
```

```
logicalChannelList
                                       LogicalChannelList
}
DedicatedDynamicTF-Info-DynamicTTI ::= SEQUENCE {
    rlc-Size
                                            CHOICE {
       bitMode
                                              BitModeRLC-SizeInfo,
        octetModeType1
                                                 OctetModeRLC-SizeInfoType1
    },
numberOfTbSizeAndTTIList
NumberOfTbSizeAndTTIList
LogicalChannelList
                                           NumberOfTbSizeAndTTIList,
}
DedicatedDynamicTF-InfoList ::= SEQUENCE (SIZE (1..maxTF)) OF
                                             DedicatedDynamicTF-Info
DedicatedDynamicTF-InfoList-DynamicTTI ::= SEQUENCE (SIZE (1..maxTF)) OF
                                            DedicatedDynamicTF-Info-DynamicTTI
DedicatedTransChTFS ::=
                                        SEQUENCE {
                                             CHOICE {
    tti
         t.t.i10
                                                 DedicatedDynamicTF-InfoList,
         tti20
                                                  DedicatedDynamicTF-InfoList,
         tti40
                                                  DedicatedDynamicTF-InfoList,
                                                  DedicatedDynamicTF-InfoList,
         tti80
                                                  DedicatedDynamicTF-InfoList-DynamicTTI
         dynamic
    semistaticTF-Information
                                            SemistaticTF-Information
}
-- The maximum allowed size of DL-AddReconfTransChInfo2List sequence is 16
DL-AddReconfTransChInfo2List ::= SEQUENCE (SIZE (1..maxTrCHpreconf)) OF
                                             DL-AddReconfTransChInformation2
-- The maximum allowed size of DL-AddReconfTransChInfoList sequence is 16
DL-AddReconfTransChInfoList ::= SEQUENCE (SIZE (1..maxTrCHpreconf)) OF
                                            DL-AddReconfTransChInformation
-- The maximum allowed size of DL-AddReconfTransChInfoList-r4 sequence is 16
\texttt{DL-AddReconfTransChInfoList-r4} \ ::= \ \texttt{SEQUENCE} \ (\texttt{SIZE} \ (\texttt{1..maxTrCHpreconf})) \ \texttt{OF}
                                             DL-AddReconfTransChInformation-r4
-- The maximum allowed size of DL-AddReconfTransChInfoList-r5 sequence is 16
DL-AddReconfTransChInfoList-r5 ::= SEQUENCE (SIZE (1..maxTrCHpreconf)) OF
                                             DL-AddReconfTransChInformation-r5
-- ASN.1 for IE "Added or Reconfigured DL TrCH information"
-- in case of messages other than: Radio Bearer Release message and
-- Radio Bearer Reconfiguration message
DL-AddReconfTransChInformation ::= SEQUENCE {
    dl-TransportChannelType DL-TrCH-Type,
dl-transportChannelIdentity TransportChan
tfs-SignallingMode CHOICE {
                                             TransportChannelIdentity,
         explicit-config
                                                 TransportFormatSet,
         sameAsULTrCH
                                                 UL-TransportChannelIdentity
    dch-QualityTarget
                                            QualityTarget
                                                                                      OPTIONAL,
    -- dummy is not used in this version of the specification, it should
    -- not be sent and if received it should be ignored.
                                             TM-SignallingInfo
                                                                                      OPTIONAL
    dummy
}
DL-AddReconfTransChInformation-r4 ::= SEQUENCE {
    dl-TransportChannelType DL-TrCH-Type,
dl-transportChannelIdentity TransportChannelIdentity,
tfs-SignallingMode CHOICE {
   explicit-config TransportFormatSet,
         sameAsULTrCH
                                                  UL-TransportChannelIdentity
    dch-QualityTarget
                                                                                     OPTIONAL
                                            QualityTarget
}
DL-AddReconfTransChInformation-r5 ::= SEQUENCE {
    dl-TransportChannelType DL-TrCH-Type
    tfs-SignallingMode CHOICE {
        explicit-config Transport
                                            DL-TrCH-TypeId1-r5,
                                                  TransportFormatSet,
         sameAsULTrCH
                                                  UL-TransportChannelIdentity,
         hsdsch
                                                  HSDSCH-Info
    },
```

```
dch-QualityTarget
                                        QualityTarget
                                                                             OPTIONAL
}
-- ASN.1 for IE "Added or Reconfigured DL TrCH information"
-- in case of Radio Bearer Release message and
-- Radio Bearer Reconfiguration message
DL-AddReconfTransChInformation2 ::= SEQUENCE {
                                       DL-TrCH-Type,
    dl-TransportChannelType
    transportChannelIdentity
                                        TransportChannelIdentity,
    tfs-SignallingMode
                                        CHOICE {
       explicit-config
                                            TransportFormatSet,
       sameAsULTrCH
                                            UL-TransportChannelIdentity
    qualityTarget
                                        QualityTarget
                                                                             OPTIONAL
}
DL-CommonTransChInfo ::=
                                    SEQUENCE {
    sccpch-TFCS
                                        TFCS
                                                                             OPTIONAL,
    -- modeSpecificInfo should be optional. A new version of this IE should be defined
    -- to be used in later versions of messages using this IE
                                       CHOICE {
   modeSpecificInfo
                                            SEQUENCE {
        fdd
            dl-Parameters
                                                CHOICE {
                dl-DCH-TFCS
                                                    TFCS.
                sameAsUL
                                                    NULL
                                                                            OPTIONAL
                                            SEQUENCE {
            individualDL-CCTrCH-InfoList
                                            IndividualDL-CCTrCH-InfoList
                                                                             OPTIONAL
    }
}
                                   SEQUENCE {
DL-CommonTransChInfo-r4 ::=
    sccpch-TFCS
                                        TFCS
                                                                            OPTIONAL,
    modeSpecificInfo
                                        CHOICE {
                                            SEQUENCE {
        fdd
                                                CHOICE {
            dl-Parameters
                dl-DCH-TFCS
                                                    SEQUENCE {
                   tfcs
                                                        TFCS
                                                                             OPTIONAL
                sameAsUL
                                                    NULL
            }
                                                                             OPTIONAL
        },
        tdd
                                            SEQUENCE {
            individualDL-CCTrCH-InfoList
                                               IndividualDL-CCTrCH-InfoList
                                                                             OPTIONAL
        OPTIONAL
}
DL-DeletedTransChInfoList ::=
                                   SEQUENCE (SIZE (1..maxTrCH)) OF
                                        DL-TransportChannelIdentity
DL-DeletedTransChInfoList-r5 ::=
                                    SEQUENCE (SIZE (1..maxTrCH)) OF
                                        DL-TransportChannelIdentity-r5
DL-TransportChannelIdentity ::=
                                        SEOUENCE {
                                        DL-TrCH-Type,
   dl-TransportChannelType
    dl-TransportChannelIdentity
                                        TransportChannelIdentity
                                   SEQUENCE {
DL-TransportChannelIdentity-r5 ::=
    {\tt dl-TransportChannelType}
                                        DL-TrCH-TypeId2-r5
DL-TrCH-Type ::= ENUMERATED {dch, dsch}
-- The choice "dsch" should not be used in FDD mode, and if received the UE behaviour is unspecified
DL-TrCH-TypeId1-r5 ::=
                                    CHOICE {
   dch
                                        TransportChannelIdentity,
                                        TransportChannelIdentity,
   dsch
-- The choice "dsch" should not be used in FDD mode, and if received the UE behaviour is unspecified
                                        NULL
   hsdsch
}
DL-TrCH-TypeId2-r5 ::=
                                   CHOICE {
```

```
dch
                                             TransportChannelIdentity,
      dsch
                                             TransportChannelIdentity,
-- The choice "dsch" should not be used in FDD mode, and if received the UE behaviour is unspecified
                                             MAC-d-FlowIdentity
      hsdsch
  DRAC-ClassIdentity ::=
                                        INTEGER (1..maxDRACclasses)
  DRAC-StaticInformation ::=
                                       SEQUENCE {
      transmissionTimeValidity
timeDurationBeforeRetry
                                             TransmissionTimeValidity,
                                             TimeDurationBeforeRetry,
      drac-ClassIdentity
                                            DRAC-ClassIdentity
  }
  DRAC-StaticInformationList ::=
                                        SEQUENCE (SIZE (1..maxTrCH)) OF
                                            DRAC-StaticInformation
  ExplicitTFCS-Configuration ::=
                                        CHOICE {
                                             TFCS-ReconfAdd,
      complete
      addition
                                             TFCS-ReconfAdd,
                                             TFCS-RemovalList,
      removal
      replacement
                                             SEQUENCE {
           tfcsRemoval
                                                 TFCS-RemovalList,
                                                 TFCS-ReconfAdd
           tfcsAdd
  }
                                        INTEGER (0..15)
  GainFactor ::=
  GainFactorInformation ::=
                                        CHOICE {
      signalledGainFactors
                                            SignalledGainFactors,
      computedGainFactors
                                            ReferenceTFC-ID
  }
                                         SEQUENCE {
  HSDSCH-Info ::=
      harqInfo
                                           HARQ-Info
                                                                       OPTIONAL,
                                            AddOrReconfMAC-dFlow OPTIONAL
      addOrReconfMAC-dFlow
  }
  HARQ-Info ::=
                                         SEQUENCE {
      numberOfProcesses
                                            INTEGER (1..8),
      memoryPartitioning
                                             CHOICE {
                                                 NULL,
          implicit
           explicit
                                                  SEQUENCE (SIZE (1..maxHProcesses)) OF
                                                      HARQMemorySize
  }
  HARQMemorySize ::=
                                         ENUMERATED {
                                             hms800, hms1600, hms2400, hms3200, hms4000,
                                             hms4800, hms5600, hms6400, hms7200, hms8000, hms8800, hms9600, hms10400, hms11200, hms12000,
                                             hms12800, hms13600, hms14400, hms15200, hms16000, hms17600, hms19200, hms20800, hms22400, hms24000,
                                             hms25600, hms27200, hms28800, hms30400, hms32000,
                                             hms36000, hms40000, hms44000, hms48000, hms52000, hms56000, hms60000, hms64000, hms68000, hms72000,
                                             hms76000, hms80000, hms88000, hms96000, hms104000,
                                             hms112000, hms120000, hms128000, hms136000, hms144000, hms152000, hms160000, hms176000, hms192000, hms208000,
                                             hms304000 }
                                       SEQUENCE {
   TFCS-Identity,
  IndividualDL-CCTrCH-Info ::=
      dl-TFCS-Identity
      tfcs-SignallingMode
                                            CHOICE {
          explicit-config
                                                 TFCS-Identity
          sameAsUL
  }
  IndividualDL-CCTrCH-InfoList ::=
                                         SEQUENCE (SIZE (1..maxCCTrCH)) OF
                                             IndividualDL-CCTrCH-Info
  IndividualUL-CCTrCH-Info ::=
                                         SEQUENCE {
      ul-TFCS-Identity
                                             TFCS-Identity,
      ul-TFCS
                                             TFCS .
      tfc-Subset
                                             TFC-Subset
```

```
}
IndividualUL-CCTrCH-InfoList ::= SEQUENCE (SIZE (1..maxCCTrCH)) OF
                                        IndividualUL-CCTrCH-Info
LogicalChannelByRB ::=
                                    SEQUENCE {
                                        RB-Identity,
    rb-Identity
                                                                             OPTIONAL
    logChOfRb
                                         INTEGER (0..1)
LogicalChannelList ::=
                                    CHOICE {
                                             NULL,
        allSizes
        configured
                                             NULL
        explicitList
                                             SEQUENCE (SIZE (1..15)) OF
                                                 LogicalChannelByRB
}
{\tt MAC-d-FlowIdentityDCHandHSDSCH} \ ::= \ {\tt SEQUENCE} \ \big\{
   dch-transport-ch-id TransportChannelIdentity, hsdsch-mac-d-flow-id MAC-d-FlowIdentity
}
MAC-d-FlowIdentity ::=
                                    INTEGER (0..7)
MAC-d-PDU-SizeInfo-List ::=
                                   SEQUENCE (SIZE(1.. maxMAC-d-PDUsizes)) OF
                                        MAC-d-PDUsizeInfo
--MAC-d-Pdu sizes need to be defined
MAC-d-PDUsizeInfo ::=
                                    SEQUENCE {
                                         INTEGER (1..5000),
   mac-d-PDII-Size
    mac-d-PDU-Index
                                         INTEGER(0..7)
MAC-hs-AddReconfQueue-List ::=
                                             SEQUENCE (SIZE(1..maxQueueIDs)) OF
                                     SEQUENCE (SIZE(1.
MAC-hs-AddReconfQueue
MAC-hs-AddReconfQueue ::= SEQUENCE {
                                   INTEGER(0..7),
MAC-d-FlowIdentity,
   mac-hsQueueru
mac-dFlowId
reorderingReleaseTimer
- heWindowSize
MAC-hs-WindowSize,
MAC-d-PDU-SizeInfo-List
   mac-hsOueueId
                                                                             OPTIONAL
}
MAC-hs-DelQueue-List ::=
                                        SEQUENCE (SIZE(1..maxQueueIDs)) OF
                                         MAC-hs-DelQueue
MAC-hs-DelQueue ::=
                                    SEQUENCE {
    mac-hsQueueId
                                        INTEGER(0..7)
MAC-hs-WindowSize ::=
                                     ENUMERATED {
                                        mws4, mws6, mws8, mws12, mws16, mws24, mws32 }
NumberOfTbSizeAndTTIList ::=
                                     SEQUENCE (SIZE (1..maxTF)) OF SEQUENCE {
                                             NumberOfTransportBlocks,
        numberOfTransportBlocks
        transmissionTimeInterval
                                             TransmissionTimeInterval
}
MessType ::=
                                     ENTIMERATED {
                                        transportFormatCombinationControl }
                                     SEQUENCE (SIZE (1..maxTFC)) OF
Non-allowedTFC-List ::=
                                         TFC-Value
NumberOfTransportBlocks ::=
                                     CHOICE {
    zero
                                         NULL,
                                         NULL,
    one
                                         INTEGER (2..17),
    small
                                         INTEGER (18..512)
    large
OctetModeRLC-SizeInfoType1 ::=
                                    CHOICE {
    -- Actual size = (8 * sizeType1) + 16
    sizeTypel
                                         INTEGER (0..31),
    sizeType2
                                         SEQUENCE {
        -- Actual size = (32 * part1) + 272 + (part2 * 8)
                                             INTEGER (0..23),
        part1
```

```
part2
                                                INTEGER (1..3)
                                                                                     OPTIONAL
    sizeType3
                                           SEQUENCE {
        -- Actual size = (64 * part1) + 1040 + (part2 * 8)
        part1
                                                 INTEGER (0..61),
                                                 INTEGER (1..7)
                                                                                    OPTIONAL
        part2
}
OctetModeRLC-SizeInfoType2 ::=
    etModeRLC-SizeInlorype2 .
-- Actual size = (sizeType1 * 8) + 48
INTEGER (0..31),
    -- Actual size = (sizeType2 * 16) + 312
    sizeType2
                                            INTEGER (0..63),
    -- Actual size = (sizeType3 *64) + 1384
                                             INTEGER (0..56)
    sizeType3
}
PowerOffsetInformation ::= SEQUENCE { gainFactorInformation GainFac
                                        GainFactorInformation,
    -- PowerOffsetPp-m is always absent in \ensuremath{\mathtt{TDD}}
    powerOffsetPp-m
                                            PowerOffsetPp-m
                                                                                    OPTIONAL
}
PowerOffsetPp-m ::=
                                       INTEGER (-5..10)
PreDefTransChConfiguration ::= SEQUENCE {
  ul-CommonTransChInfo UL-CommonTransChInfo,
  ul-AddReconfTrChInfoList UL-AddReconfTransChInfoList,
  dl-CommonTransChInfo DL-CommonTransChInfo,
    dl-CommonTransChInfo
    dl-TrChInfoList
                                            DL-AddReconfTransChInfoList
                              SEQUENCE {
OualityTarget ::=
    bler-QualityValue
                                        BLER-QualityValue
RateMatchingAttribute ::= INTEGER (1..hiRM)
ReferenceTFC-ID ::=
                                       INTEGER (0..3)
    trictedTrChInfo ::=
  ul-TransportChannelType
  restrictedTrChIdentity
  allowedTFI-List
                                      SEQUENCE {
RestrictedTrChInfo ::=
                                      UL-TrCH-Type,
                                            TransportChannelIdentity,
    allowedTFI-List
                                            AllowedTFI-List
                                                                                    OPTIONAL
}
RestrictedTrChInfoList ::= SEQUENCE (SIZE (1..maxTrCH)) OF
                                          RestrictedTrChInfo
SemistaticTF-Information ::= SEQUENCE {
    -- TABULAR: Transmission time interval has been included in the IE CommonTransChTFS.
    rateMatchingAttribute
                                            ChannelCodingType,
                                            RateMatchingAttribute,
                                            CRC-Size
    crc-Size
}
SignalledGainFactors ::= SEQUENCE { modeSpecificInfo CHOICE
                                        CHOICE {
                                              SEQUENCE {
        fdd
            gainFactorBetaC
                                                     GainFactor
         },
        tdd
                                                 NULL
    gainFactorBetaD
                                            GainFactor,
    referenceTFC-ID
                                            ReferenceTFC-ID
                                                                                    OPTIONAL
}
SplitTFCI-Signalling ::=
                                        SEQUENCE {
                                        SplitType OPTIONAL,
INTEGER (1..10) OPTIONAL,
ExplicitTFCS-Configuration OPTIONAL,
TFCI-Field2-Information OPTIONAL
   splitType
    tfci-Field2-Length
    tfci-Field1-Information
    tfci-Field2-Information
                                        ENUMERATED {
SplitType ::=
                                         hardSplit, logicalSplit }
```

```
T1-ReleaseTimer ::=
                                     ENUMERATED {
                                         rt10, rt20, rt30, rt40, rt50,
                                         rt60, rt70, rt80, rt90, rt100,
                                         rt120, rt140, rt160, rt200, rt300,
                                         rt400 }
TFC-Subset ::=
                                     CHOICE {
                                         TFC-Value,
    minimumAllowedTFC-Number
    allowedTFC-List
                                         AllowedTFC-List,
   non-allowedTFC-List
                                         Non-allowedTFC-List,
    restrictedTrChInfoList
                                         RestrictedTrChInfoList,
    fullTFCS
                                         MIII.T.
}
                                    INTEGER (0..7)
TFC-Subset-ID-With3b ::=
TFC-Subset-ID-With5b ::=
                                    INTEGER (0..31)
TFC-Subset-ID-With10b ::=
                                     INTEGER (0..1023)
TFC-SubsetList ::=
                                     SEQUENCE (SIZE (1.. maxTFCsub)) OF SEQUENCE {
                                         CHOICE {
   modeSpecificInfo
        fdd
                                             NULL,
        tdd
                                              SECUENCE {
                                                                             OPTIONAL
            tfcs-ID
                                                  TFCS-Identity
    tfc-Subset
                                         TFC-Subset
}
TFC-Value ::=
                                     INTEGER (0..1023)
TFCI-Field2-Information ::=
                                     CHOICE {
                                         TFCI-RangeList,
   tfci-Range
    explicit-config
                                          ExplicitTFCS-Configuration
TFCI-Range ::=
                                     SEQUENCE {
   maxTFCIField2Value
                                         INTEGER (1..1023),
    tfcs-InfoForDSCH
                                          TFCS-InfoForDSCH
                                     SEQUENCE (SIZE (1..maxPDSCH-TFCIgroups)) OF
TFCI-RangeList ::=
                                      TFCI-Range
TFCS ::=
                                     CHOICE {
  normalTFCI-Signalling ExplicitTFCS-Configuration, dummy is not used in this version of specification, it should
-- not be sent and if received it should be ignored.
                                             SplitTFCI-Signalling
    splitTFCI-Signallingdummy
}
TFCS-Identity ::=
                                     SEQUENCE {
                                         TFCS-IdentityPlain
                                                                             DEFAULT 1,
    t.fcs-ID
    sharedChannelIndicator
                                         BOOLEAN
                                     INTEGER (1..8)
TFCS-IdentityPlain ::=
TFCS-InfoForDSCH ::=
  ctfc2bit
                                        INTEGER (0..3),
                                         INTEGER (0..15),
INTEGER (0..63),
   ctfc4bit
   ctfc6bit
                                         INTEGER (0..255),
   ctfc8bit
                                         INTEGER (0..4095),
   ctfc12bit
   ctfc16bit
                                         INTEGER (0..65535),
                                         INTEGER (0..16777215)
   ctfc24bit
TFCS-ReconfAdd ::=
                                     SEQUENCE {
                                         CHOICE {
    ctfcSize
                                             SEQUENCE (SIZE (1..maxTFC)) OF SEQUENCE {
        ctfc2Bit
            ctfc2
                                                 INTEGER (0..3),
           powerOffsetInformation
                                                 PowerOffsetInformation
        }.
        ctfc4Bit
                                             SEQUENCE (SIZE (1..maxTFC)) OF SEQUENCE {
```

```
ct.fc4
                                                 INTEGER (0..15),
                                                 PowerOffsetInformation
            powerOffsetInformation
                                                                                  OPTIONAL
        },
        ctfc6Bit
                                             SEQUENCE (SIZE (1..maxTFC)) OF SEQUENCE {
            ctfc6
                                                 INTEGER (0..63),
            powerOffsetInformation
                                                  PowerOffsetInformation
                                                                                  OPTIONAL
        },
        ctfc8Bit
                                             SEQUENCE (SIZE (1..maxTFC)) OF SEQUENCE {
            ctfc8
                                                 INTEGER (0..255),
            powerOffsetInformation
                                                 PowerOffsetInformation
                                                                                   OPTIONAL
        },
        ctfc12Bit
                                             SEQUENCE (SIZE(1..maxTFC)) OF SEQUENCE {
                                                 INTEGER (0..4095),
            ct.fc12
            powerOffsetInformation
                                                 PowerOffsetInformation
        ctfc16Bit
                                             SEQUENCE (SIZE (1..maxTFC)) OF SEQUENCE {
                                                 INTEGER(0..65535),
            ctfc16
                                                 PowerOffsetInformation
            powerOffsetInformation
                                                                                  OPTIONAL
        ctfc24Bit
                                             SEQUENCE (SIZE (1..maxTFC)) OF SEQUENCE {
                                                 INTEGER(0..16777215),
            ctfc24
            powerOffsetInformation
                                                 PowerOffsetInformation
                                                                                 OPTIONAL
    }
}
TFCS-Removal ::=
                                     SEQUENCE {
                                         INTEGER (0..1023)
TFCS-RemovalList ::=
                                    SEQUENCE (SIZE (1..maxTFC)) OF
                                         TFCS-Removal
TimeDurationBeforeRetry ::=
                                  INTEGER (1..256)
TM-SignallingInfo ::=
                                     SEQUENCE {
   messType
                                        MessType,
    tm-SignallingMode
                                         CHOICE {
       mode1
                                             NULL.
                                             SEQUENCE {
             -- in ul-controlledTrChList, TrCH-Type is always DCH
            ul-controlledTrChList
                                                 UL-ControlledTrChList
        }
}
TransmissionTimeInterval ::=
                                    ENUMERATED {
                                       tti10, tti20, tti40, tti80 }
TransmissionTimeValidity ::=
                                   INTEGER (1..256)
TransportChannelIdentity ::=
                                    INTEGER (1..32)
TransportChannelIdentityDCHandDSCH ::= SEQUENCE {
   dch-transport-ch-id TransportChannelIdentity,
dsch-transport-ch-id TransportChannelIdentity
    dsch-transport-ch-id
                                    TransportChannelIdentity
}
                                CHOICE {
   dedicatedTransChTFS
commonTransChTFS
TransportFormatSet ::=
                                     DedicatedTransChTFS,
                                         CommonTransChTFS
}
TransportFormatSet-LCR ::= CHOICE {
    dedicatedTransChTFS Dedicate
    dedicatedTransChTFS
                                        DedicatedTransChTFS,
    commonTransChTFS-LCR
                                         CommonTransChTFS-LCR
}
-- The maximum allowed size of UL-AddReconfTransChInfoList sequence is 16
UL-AddReconfTransChInfoList ::= SEQUENCE (SIZE (1..maxTrCHpreconf)) OF
                                         UL-AddReconfTransChInformation
UL-AddReconfTransChInformation ::= SEQUENCE {
   ul-TransportChannelType UL-TrCH-Type,
transportChannelIdentity TransportChan
transportFormatSet TransportForm
                                        TransportChannelIdentity,
    transportFormatSet
                                        TransportFormatSet
}
```

```
UL-CommonTransChInfo ::=
                                  SEQUENCE {
   -- TABULAR: tfc-subset is applicable to FDD only, TDD specifies tfc-subset in individual
   -- CCTrCH Info.
   tfc-Subset
                                      TFC-Subset
                                                                         OPTIONAL,
   prach-TFCS
                                                                         OPTIONAL,
   modeSpecificInfo
                                      CHOICE {
                                          SEQUENCE {
       fdd
           ul-TFCS
                                          TFCS
       tdd
                                          SEQUENCE {
           individualUL-CCTrCH-InfoList
                                            IndividualUL-CCTrCH-InfoList
                                                                         OPTIONAL
       }
   }
                                                                         OPTIONAL
}
UL-CommonTransChInfo-r4 ::=
                                 SEQUENCE {
   -- TABULAR: tfc-subset is applicable to FDD only, TDD specifies tfc-subset in individual
   -- CCTrCH Info.
   tfc-Subset
                                      TFC-Subset
                                                                         OPTIONAL,
   prach-TFCS
                                      TFCS
                                                                         OPTIONAL,
   modeSpecificInfo
                                      CHOICE {
                                          SEQUENCE {
       fdd
           ul-TFCS
                                              TFCS
       tdd
                                          SEQUENCE {
           individualUL-CCTrCH-InfoList
                                             IndividualUL-CCTrCH-InfoList
       }
                                                                         OPTIONAL.
   tfc-SubsetList
                                      TFC-SubsetList
                                                                         OPTIONAL
}
-- In UL-ControlledTrChList, TrCH-Type is always DCH
UL-ControlledTrChList ::=
                           SEQUENCE (SIZE (1..maxTrCH)) OF
                                      TransportChannelIdentity
UL-DeletedTransChInfoList ::=
                                  SEQUENCE (SIZE (1..maxTrCH)) OF
                                      UL-TransportChannelIdentity
                                  SEQUENCE {
UL-TransportChannelIdentity ::=
                                  UL-TrCH-Type,
   ul-TransportChannelType
   ul-TransportChannelIdentity
                                      TransportChannelIdentity
}
UL-TrCH-Type ::= ENUMERATED {dch, usch}
USCH-TransportChannelsInfo ::=
                                  SEQUENCE (SIZE (1..maxTrCH)) OF
                                      SEQUENCE {
                                          TransportChannelIdentity,
   usch-TransportChannelIdentity
                                          TransportFormatSet
   usch-TFS
}
__ ****************************
      PHYSICAL CHANNEL INFORMATION ELEMENTS (10.3.6)
__ ***************
                                 INTEGER(1..4)
ACK-NACK-repetitionFactor ::=
AC-To-ASC-Mapping ::=
                                  INTEGER (0..7)
                                  SEQUENCE (SIZE (maxASCmap)) OF
AC-To-ASC-MappingTable ::=
                                      AC-To-ASC-Mapping
AccessServiceClass-FDD ::=
                                  SEQUENCE {
                                     INTEGER (0..15),
   availableSignatureStartIndex
                                      INTEGER (0..15),
   availableSignatureEndIndex
   assignedSubChannelNumber
                                      BIT STRING {
                                          b3(0),
                                          b2(1),
                                          b1(2),
                                          b0(3)
                                              (SIZE(4))
}
```

```
AccessServiceClass-TDD ::=
                                       SEQUENCE {
                                           BIT STRING {
    channelisationCodeIndices
                                                chCodeIndex7(0),
                                                chCodeIndex6(1),
                                                chCodeIndex5(2),
                                                chCodeIndex4(3),
                                                chCodeIndex3(4),
                                                chCodeIndex2(5),
                                                chCodeIndex1(6),
                                                chCodeIndex0(7)
                                                                          OPTIONAL,
                                                } (SIZE(8))
                                            CHOICE {
    subchannelSize
        size1
                                                NULL,
        size2
                                                SEQUENCE {
             -- subch0 means bitstring '01' in the tabular, subch1 means bitsring '10' subchannels ENUMERATED { subch0, subch1 } OPTIONAL
        },
        size4
                                                SEQUENCE {
             subchannels
                                                    BIT STRING {
                                                         subCh3(0),
                                                         subCh2(1),
                                                         subCh1(2),
                                                         subCh0(3)
                                                         } (SIZE(4))
                                                                          OPTIONAL
        },
        size8
                                                SEQUENCE {
             subchannels
                                                    BIT STRING {
                                                        subCh7(0),
                                                         subCh6(1),
                                                         subCh5(2),
                                                         subCh4(3),
                                                         subCh3(4),
                                                         subCh2(5),
                                                         subCh1(6),
                                                         subCh0(7)
                                                         } (SIZE(8))
                                                                          OPTIONAL
        }
}
AccessServiceClass-TDD-LCR-r4 ::=
                                       SEQUENCE {
    availableSYNC-UlCodesIndics
                                            BIT STRING {
                                                sulCodeIndex7(0),
                                                sulCodeIndex6(1),
                                                sulCodeIndex5(2),
                                                sulCodeIndex4(3),
                                                sulCodeIndex3(4),
                                                sulCodeIndex2(5),
                                                sulCodeIndex1(6),
                                                sulCodeIndex0(7)
                                                } (SIZE(8))
                                                                             OPTIONAL,
                                            CHOICE {
    subchannelSize
                                                NULL,
        sizel
                                                SEQUENCE {
             -- subch0 means bitstring '01' in the tabular, subch1 means bitsring '10'. subchannels ENUMERATED { subch0, subch1 } OPTIONAL
             subchannels
        },
        size4
                                                SEQUENCE {
             subchannels
                                                    BIT STRING {
                                                         subCh3(0),
                                                         subCh2(1),
                                                         subCh1(2),
                                                         subCh0(3)
                                                         } (SIZE(4))
                                                                             OPTIONAL
        size8
                                                SEQUENCE {
             subchannels
                                                    BIT STRING {
                                                         subCh7(0),
                                                         subCh6(1),
                                                         subCh5(2),
                                                         subCh4(3),
                                                         subCh3(4),
                                                         subCh2(5),
                                                         subCh1(6),
                                                         subCh0(7)
                                                         } (SIZE(8))
                                                                             OPTIONAL
        }
```

```
}
}
AICH-Info ::=
                                   SEQUENCE {
                                   ChannelisationCode256,
   channelisationCode256
    sttd-Indicator
                                       BOOLEAN.
    aich-TransmissionTiming
                                      AICH-TransmissionTiming
AICH-PowerOffset ::=
                                   INTEGER (-22..5)
AICH-TransmissionTiming ::=
                                  ENUMERATED {
                                      e0, e1 }
                                  SEQUENCE {
AllocationPeriodInfo ::=
    allocationActivationTime
                                     INTEGER (0..255),
    allocationDuration
                                       INTEGER (1..256)
-- Actual value Alpha = IE value * 0.125
Alpha ::=
                                   INTEGER (0..8)
AP-AICH-ChannelisationCode ::=
                                  INTEGER (0..255)
                                  INTEGER (0..79)
AP-PreambleScramblingCode ::=
AP-Signature ::=
                                   INTEGER (0..15)
AP-Signature-VCAM ::=
                                   SEOUENCE {
    ap-Signature
                                      AP-Signature,
    availableAP-SubchannelList
                                       AvailableAP-SubchannelList OPTIONAL
}
AP-Subchannel ::=
                                   INTEGER (0..11)
ASCSetting-FDD ::=
                                       SEQUENCE {
   -- TABULAR: accessServiceClass-FDD is MD in tabular description
    -- Default value is previous ASC
    -- If this is the first ASC, the default value is all available signature and sub-channels
   accessServiceClass-FDD
                                           AccessServiceClass-FDD OPTIONAL
}
ASCSetting-TDD ::=
                                       SEQUENCE {
   -- TABULAR: accessServiceClass-TDD is MD in tabular description
    -- Default value is previous ASC
    \operatorname{\mathsf{--}} If this is the first ASC, the default value is all available channelisation codes and
    -- all available sub-channels with subchannelSize=size1.
    accessServiceClass-TDD
                                           AccessServiceClass-TDD OPTIONAL
}
ASCSetting-TDD-LCR-r4 ::=
                                               SEQUENCE {
    -- TABULAR: accessServiceClass-TDD-LCR is MD in tabular description
    -- Default value is previous ASC
    -- If this is the first ASC, the default value is all available SYNC_UL codes and
    -- all available sub-channels with subchannelSize=size1.
    accessServiceClass-TDD-LCR
                                              AccessServiceClass-TDD-LCR-r4 OPTIONAL
}
AvailableAP-Signature-VCAMList ::= SEQUENCE (SIZE (1..maxPCPCH-APsig)) OF
                                       AP-Signature-VCAM
AvailableAP-SignatureList ::=
                                   SEQUENCE (SIZE (1..maxPCPCH-APsig)) OF
                                       AP-Signature
AvailableAP-SubchannelList ::=
                                   SEQUENCE (SIZE (1..maxPCPCH-APsubCh)) OF
                                       AP-Subchannel
AvailableMinimumSF-ListVCAM ::=
                                   SEQUENCE (SIZE (1..maxPCPCH-SF)) OF
                                      AvailableMinimumSF-VCAM
AvailableMinimumSF-VCAM ::=
                                   SEQUENCE {
                                      MinimumSpreadingFactor,
   minimumSpreadingFactor
    nf-Max
                                      NF-Max,
   maxAvailablePCPCH-Number
                                      MaxAvailablePCPCH-Number,
   availableAP-Signature-VCAMList AvailableAP-Signature-VCAMList
}
```

```
AvailableSignatures ::=
                               BIT STRING {
                                   signature15(0),
                                   signature14(1),
                                   signature13(2),
                                   signature12(3),
                                   signature11(4),
                                   signature10(5),
                                   signature9(6),
                                   signature8(7),
                                   signature7(8),
                                   signature6(9),
                                   signature5(10),
                                   signature4(11),
                                   signature3(12),
                                   signature2(13),
                                   signature1(14),
                                   signature0(15)
                                        (SIZE(16))
AvailableSubChannelNumbers ::=
                                   BIT STRING {
                                       subCh11(0),
                                       subCh10(1),
                                       subCh9(2),
                                       subCh8(3),
                                       subCh7(4),
                                       subCh6(5),
                                       subCh5(6),
                                       subCh4(7),
                                       subCh3(8),
                                       subCh2(9),
                                       subCh1(10),
                                       subCh0(11)
                                           (SIZE(12))
                                   ENUMERATED {
BurstType ::=
                                       type1, type2 }
-- Actual value Bler-Target = IE value * 0.05
Bler-Target ::=
                                  INTEGER (-63..0)
CCTrCH-PowerControlInfo ::=
                                 SEQUENCE {
                                      TFCS-Identity
                                                                          OPTIONAL,
   tfcs-Identity
   ul-DPCH-PowerControlInfo
                                      UL-DPCH-PowerControlInfo
}
CCTrCH-PowerControlInfo-r4 ::=
                                 SEQUENCE {
   tfcs-Identity
                                      TFCS-Identity
                                                                          OPTIONAL,
   ul-DPCH-PowerControlInfo
                                      UL-DPCH-PowerControlInfo-r4
}
CCTrCH-PowerControlInfo-r5 ::= SEQUENCE {
   tfcs-Identity
                                      TFCS-Identity
                                                                          OPTIONAL,
   ul-DPCH-PowerControlInfo
                                       UL-DPCH-PowerControlInfo-r5
CD-AccessSlotSubchannel ::=
                                  INTEGER (0..11)
CD-AccessSlotSubchannelList ::=
                                  SEQUENCE (SIZE (1..maxPCPCH-CDsubCh)) OF
                                       CD-AccessSlotSubchannel
CD-CA-ICH-ChannelisationCode ::=
                                 INTEGER (0..255)
CD-PreambleScramblingCode ::=
                                  INTEGER (0..79)
                                   INTEGER (0..15)
CD-SignatureCode ::=
CD-SignatureCodeList ::=
                                   SEQUENCE (SIZE (1..maxPCPCH-CDsig)) OF
                                      CD-SignatureCode
CellAndChannelIdentity ::= SEQUENCE {
    - burstType may be set to either value and should be ignored by the receiver for 1.28 Mcps TDD.
   burstType
                                      BurstType,
                                      MidambleShiftLong,
   midambleShift
   timeslot
                                      TimeslotNumber,
                                       CellParametersID
   cellParametersID
CellParametersID ::=
                                  INTEGER (0..127)
```

```
INTEGER(0..255)
Cfntargetsfnframeoffset ::=
ChannelAssignmentActive ::=
                                  CHOICE {
    notActive
                                        NULL
    isActive
                                         AvailableMinimumSF-ListVCAM
}
ChannelisationCode256 ::=
                                    INTEGER (0..255)
ChannelReqParamsForUCSM ::=
                                   SEQUENCE {
                                         AvailableAP-SignatureList,
    availableAP-SignatureList
    availableAP-SubchannelList
                                                                       OPTIONAL
                                         AvailableAP-SubchannelList
ClosedLoopTimingAdjMode ::=
                                     ENUMERATED {
                                         slot1, slot2 }
CodeNumberDSCH ::=
                                     INTEGER (0..255)
                                     SEQUENCE {
CodeRange ::=
                                       PDSCH-CodeMapList
  pdsch-CodeMapList
                                     ENUMERATED {
CodeWordSet ::=
                                         longCWS
                                         mediumCWS,
                                         shortCWS,
                                         ssdtOff }
CommonTimeslotInfo ::=
                                    SEQUENCE {
   -- TABULAR: secondInterleavingMode is MD, but since it can be encoded in a single
    -- bit it is not defined as OPTIONAL.
   secondInterleavingMode
tfci-Coding
nuncturingLimit
                                        SecondInterleavingMode,
                                        TFCI-Coding
                                                                             OPTIONAL.
    puncturingLimit
                                         PuncturingLimit,
   repetitionPeriodAndLength
                                        RepetitionPeriodAndLength
                                                                             OPTIONAL
}
CommonTimeslotInfoSCCPCH ::=
                                   SEQUENCE {
   -- TABULAR: secondInterleavingMode is MD, but since it can be encoded in a single
    -- bit it is not defined as OPTIONAL.
   secondInterleavingMode SecondInterleavingMode, tfci-Coding TFCI-Coding
                                                                              OPTIONAL,
   puncturingLimit
                                       PuncturingLimit,
   repetitionPeriodLengthAndOffset RepetitionPeriodLengthAndOffset
                                                                             OPTIONAL
ConstantValue ::=
                                    INTEGER (-35..-10)
ConstantValueTdd ::=
                                     INTEGER (-35..10)
CPCH-PersistenceLevels ::=
                                     SEQUENCE {
    cpch-SetID
                                         CPCH-SetID,
    dynamicPersistenceLevelTF-List
                                        DynamicPersistenceLevelTF-List
CPCH-PersistenceLevelsList ::=
                                     SEQUENCE (SIZE (1..maxCPCHsets)) OF
                                         CPCH-PersistenceLevels
CPCH-SetInfo ::=
                                     SEQUENCE {
    cpch-SetID
                                        CPCH-SetID,
    transportFormatSet
                                         TransportFormatSet,
    tfcs
                                        TFCS.
    ap-PreambleScramblingCode
                                        AP-PreambleScramblingCode,
    ap-AICH-ChannelisationCode
                                        AP-AICH-ChannelisationCode,
    cd-PreambleScramblingCode
                                        CD-PreambleScramblingCode,
    cd-CA-ICH-ChannelisationCode
                                      CD-CA-ICH-ChannelisationCode,
                                                                             OPTIONAL,
    cd-AccessSlotSubchannelList
                                        CD-AccessSlotSubchannelList
    cd-SignatureCodeList
                                        CD-SignatureCodeList
                                                                              OPTIONAL,
    deltaPp-m
                                        DeltaPp-m,
   ul-DPCCH-SlotFormat
                                         UL-DPCCH-SlotFormat,
   n-StartMessage
                                        N-StartMessage,
   n-EOT
                                        N-EOT,
    -- TABULAR: VCAM info has been nested inside ChannelAssignmentActive,
    -- which in turn is mandatory since it's only a binary choice. channelAssignmentActive ChannelAssignmentActive, cpch-StatusIndicationMode CPCH-StatusIndicationMode,
```

```
pcpch-ChannelInfoList
                                    PCPCH-ChannelInfoList
}
CPCH-SetInfoList ::=
                                SEQUENCE (SIZE (1..maxCPCHsets)) OF
                                     CPCH-SetInfo
CPCH-StatusIndicationMode ::=
                                 ENUMERATED {
                                     pa-mode.
                                     pamsf-mode }
CQI-RepetitionFactor ::=
                                 INTEGER(1..4)
CSICH-PowerOffset ::=
                                 INTEGER (-10..5)
-- DefaultDPCH-OffsetValueFDD and DefaultDPCH-OffsetValueTDD corresponds to
-- IE "Default DPCH Offset Value" depending on the mode.
-- Actual value DefaultDPCH-OffsetValueFDD = IE value * 512
DefaultDPCH-OffsetValueFDD ::=
                                 INTEGER (0..599)
DefaultDPCH-OffsetValueTDD ::=
                                 INTEGER (0..7)
DeltaPp-m ::=
                                 INTEGER (-10..10)
DeltaCQI ::=
                                  INTEGER (0..8)
DeltaNACK ::=
                                  INTEGER (0..8)
DeltaACK ::=
                                  INTEGER (0..8)
-- Actual value DeltaSIR = IE value * 0.1
DeltaSIR ::=
                                 INTEGER (0..30)
DL-CCTrCh ::=
                                 SEQUENCE {
                                     TFCS-IdentityPlain
   t.fcs-ID
                                                                      DEFAULT 1,
                                     TimeInfo,
   timeInfo
   commonTimeslotInfo
                                     CommonTimeslotInfo
                                                                       OPTIONAL,
                                    DownlinkTimeslotsCodes
   dl-CCTrCH-TimeslotsCodes
                                                                       OPTIONAL,
   ul-CCTrChTPCList
                                     UL-CCTrChTPCList
                                                                       OPTIONAL
}
DL-CCTrCh-r4 ::=
                                 SEQUENCE {
                                     TFCS-IdentityPlain
   t.fcs-ID
                                                                      DEFAULT 1.
   timeInfo
                                     TimeInfo,
   commonTimeslotInfo
                                     CommonTimeslotInfo
                                                                       OPTIONAL,
   tddOption
                                     CHOICE {
                                       SEQUENCE {
       tdd384
          dl-CCTrCH-TimeslotsCodes
                                            DownlinkTimeslotsCodes OPTIONAL
                                      SEQUENCE {
       tdd128
         dl-CCTrCH-TimeslotsCodes
                                           DownlinkTimeslotsCodes-LCR-r4 OPTIONAL
       }
   ul-CCTrChTPCList
                                    UL-CCTrChTPCList
                                                          OPTIONAL
DL-CCTrChList ::=
                                  SEQUENCE (SIZE (1..maxCCTrCH)) OF
                                     DL-CCTrCh
                                 SEQUENCE (SIZE (1..maxCCTrCH)) OF
DL-CCTrChList-r4 ::=
                                     DL-CCTrCh-r4
DL-CCTrChListToRemove ::=
                                 SEQUENCE (SIZE (1..maxCCTrCH)) OF
                                     TFCS-IdentityPlain
DL-CCTrChTPCList ::=
                                 SEQUENCE (SIZE (0..maxCCTrCH)) OF
                                         TFCS-Identity
DL-ChannelisationCode ::=
                                 SEQUENCE {
  secondaryScramblingCode
                                  SecondaryScramblingCode
                                                                      OPTIONAL,
   sf-AndCodeNumber
                                     SF512-AndCodeNumber,
   scramblingCodeChange
                                     ScramblingCodeChange
                                                                       OPTIONAL
}
DL-ChannelisationCodeList ::=
                                SEQUENCE (SIZE (1..maxDPCH-DLchan)) OF
                                     DL-ChannelisationCode
DL-CommonInformation ::=
                                SEQUENCE {
                                     DL-DPCH-InfoCommon
   dl-DPCH-InfoCommon
                                                              OPTIONAL,
```

```
CHOICE {
    modeSpecificInfo
                                           SEQUENCE {
        fdd
           defaultDPCH-OffsetValue
                                               DefaultDPCH-OffsetValueFDD OPTIONAL,
            dpch-CompressedModeInfo
                                               DPCH-CompressedModeInfo OPTIONAL,
            tx-DiversityMode
                                               TX-DiversityMode
                                                                           OPTIONAL,
            ssdt-Information
                                               SSDT-Information
                                                                           OPTIONAL
        },
                                           SEOUENCE {
        t.dd
            defaultDPCH-OffsetValue
                                               DefaultDPCH-OffsetValueTDD OPTIONAL
    }
}
DL-CommonInformation-r4 ::=
                                   SEQUENCE {
    dl-DPCH-InfoCommon
                                       DL-DPCH-InfoCommon-r4
                                                                   OPTIONAL,
    modeSpecificInfo
                                       CHOICE {
        fdd
                                           SEOUENCE {
            defaultDPCH-OffsetValue
                                               DefaultDPCH-OffsetValueFDD OPTIONAL,
                                               DPCH-CompressedModeInfo OPTIONAL,
            dpch-CompressedModeInfo
            tx-DiversityMode
                                               TX-DiversityMode
                                                                           OPTIONAL,
                                               SSDT-Information-r4
                                                                           OPTIONAL
            ssdt-Information
        t.dd
                                            SEQUENCE {
            tddOption
                                               CHOICE {
                tdd384
                                                   NULL.
                tdd128
                                                   SEQUENCE {
                    tstd-Indicator
                                                        BOOLEAN
            defaultDPCH-OffsetValue
                                             DefaultDPCH-OffsetValueTDD OPTIONAL
       }
    }
}
DL-CommonInformation-r5 ::=
                                    SEQUENCE {
    dl-DPCH-InfoCommon
                                       DL-DPCH-InfoCommon-r4
                                                                      OPTIONAL,
    modeSpecificInfo
                                       CHOICE {
        fdd
                                           SEQUENCE {
            defaultDPCH-OffsetValue
                                               DefaultDPCH-OffsetValueFDD OPTIONAL,
           dpch-CompressedModeInfo
                                               DPCH-CompressedModeInfo OPTIONAL,
            tx-DiversityMode
                                               TX-DiversityMode
                                                                           OPTIONAL,
                                               SSDT-Information-r4
            ssdt-Information
                                                                           OPTIONAL
        },
        tdd
                                            SEQUENCE {
            tddOption
                                               CHOICE {
                t.dd384
                                                   NULL.
                                                   SEQUENCE {
                t.dd128
                   tstd-Indicator
                                                        BOOLEAN
            defaultDPCH-OffsetValue
                                               DefaultDPCH-OffsetValueTDD OPTIONAL
    }.
                                      ENUMERATED { true }
   mac-hsResetIndicator
                                                                   OPTIONAL
}
DL-CommonInformationPost ::=
                                   SEQUENCE {
    dl-DPCH-InfoCommon
                                       DL-DPCH-InfoCommonPost
DL-CommonInformationPredef ::=
                                   SEQUENCE {
    dl-DPCH-InfoCommon
                                       DL-DPCH-InfoCommonPredef
                                                                   OPTIONAL
DL-CompressedModeMethod ::=
                                   ENUMERATED {
                                       puncturing, sf-2,
                                       higherLayerScheduling }
DL-DPCH-InfoCommon ::=
                                    SEQUENCE {
    cfnHandling
                                       CHOICE {
       maintain
                                           NIII.I.
        initialise
                                            SEQUENCE {
            cfntargetsfnframeoffset
                                               Cfntargetsfnframeoffset
                                                                                   OPTIONAL
    },
    modeSpecificInfo
                                       CHOICE {
                                           SEQUENCE {
        fdd
           dl-DPCH-PowerControlInfo
                                               DL-DPCH-PowerControlInfo
                                                                                   OPTIONAL,
```

```
-- TABULAR: The number of pilot bits is nested inside the spreading factor.
           spreadingFactorAndPilot SF512-AndPilot,
           positionFixedOrFlexible
                                             PositionFixedOrFlexible,
           tfci-Existence
                                            BOOLEAN
       },
                                         SEOUENCE {
       t.dd
           dl-DPCH-PowerControlInfo
                                             DL-DPCH-PowerControlInfo
                                                                               OPTIONAL
   }
}
DL-DPCH-InfoCommon-r4 ::=
                                      SEQUENCE {
   cfnHandling
                                      CHOICE {
       maintain
                                         NULL.
       initialise
                                          SEQUENCE {
           cfntargetsfnframeoffset
                                              Cfntargetsfnframeoffset
                                                                           OPTIONAL
   modeSpecificInfo
                                      CHOICE {
                                       SEQUENCE {
       fdd
           dl-DPCH-PowerControlInfo
                                             DL-DPCH-PowerControlInfo
                                                                                OPTIONAL,
           powerOffsetPilot-pdpdch
dl-rate-matching-restriction
                                             PowerOffsetPilot-pdpdch,
                                             Dl-rate-matching-restriction
                                                                                OPTIONAL.
           -- TABULAR: The number of pilot bits is nested inside the spreading factor.
           spreadingFactorAndPilot SF512-AndPilot,
           positionFixedOrFlexible
                                             PositionFixedOrFlexible,
           tfci-Existence
                                             BOOLEAN
       },
       tdd
                                         SEQUENCE {
           dl-DPCH-PowerControlInfo
                                            DL-DPCH-PowerControlInfo
       }
-- The IE mac-d-HFN-initial-value should be absent in the RRCConnectionSetup-r4-IEs or
-- RRCConnectionSetup-r5-IEs or HandoverToUTRANCommand-r4-IEs or HandoverToUTRANCommand-r5-IEs and
-- if the IE is included, the general error handling for conditional IEs applies.
   mac-d-HFN-initial-value
                                     MAC-d-HFN-initial-value
                                                                         OPTIONAL
}
                                 SEQUENCE {
DL-DPCH-InfoCommonPost ::=
                                    DL-DPCH-PowerControlInfo
   dl-DPCH-PowerControlInfo
                                                                     OPTIONAL
DL-DPCH-InfoCommonPredef ::=
                                  SEQUENCE {
                                   CHOICE {
   modeSpecificInfo
       fdd
                                         SEQUENCE {
            -- TABULAR: The number of pilot bits is nested inside the spreading factor.
           spreadingFactorAndPilot
positionFixedOrFlexible
                                             SF512-AndPilot,
                                             PositionFixedOrFlexible,
           tfci-Existence
                                             BOOLEAN
                                        SEQUENCE {
       t.dd
           commonTimeslotInfo
                                             CommonTimeslotInfo
       }
   }
DL-DPCH-InfoPerRL ::=
                                  CHOICE {
                                      SEQUENCE {
   fdd
                                      PCPICH-UsageForChannelEst,
       pCPICH-UsageForChannelEst
       dpch-FrameOffset
                                         DPCH-FrameOffset,
                                      SecondaryCPICH-Info
DL-ChannelisationCodeList,
       secondaryCPICH-Info
                                                                         OPTIONAL.
       dl-ChannelisationCodeList
                                         TPC-CombinationIndex,
       tpc-CombinationIndex
       ssdt-CellIdentity
                                         SSDT-CellIdentity
                                                                         OPTIONAL,
                                         ClosedLoopTimingAdjMode
       closedLoopTimingAdjMode
                                                                        OPTIONAL
   }
   t dd
                                     SEQUENCE {
       dl-CCTrChListToEstablish
                                        DL-CCTrChList
                                                                        OPTIONAL,
       dl-CCTrChListToRemove
                                          DL-CCTrChListToRemove
                                                                        OPTIONAL
   }
}
DL-DPCH-InfoPerRL-r4 ::=
                                 CHOICE {
   fdd
                                      SEQUENCE {
```

```
{\tt pCPICH-UsageForChannelEst} \qquad \qquad {\tt pCPICH-UsageForChannelEst},
        dpch-FrameOffset
                                            DPCH-FrameOffset,
        secondaryCPICH-Info
                                           SecondaryCPICH-Info
                                                                            OPTIONAL,
        dl-ChannelisationCodeList

tpc-CombinationIndex

TPC-CombinationIndex,
        tpc-CombinationIndex
                                            TPC-CombinationIndex,
        ssdt-CellIdentity
                                           SSDT-CellIdentity
                                                                            OPTIONAL,
        closedLoopTimingAdjMode
                                          ClosedLoopTimingAdjMode
                                                                            OPTIONAL
    tdd
                                      SEQUENCE {
       dl-CCTrChListToEstablish
                                            DL-CCTrChList-r4
                                                                            OPTIONAL,
        dl-CCTrChListToRemove
                                            DL-CCTrChListToRemove
                                                                             OPTIONAL
}
DL-DPCH-InfoPerRL-r5 ::=
                                   CHOICE {
                                    SEQUENCE {
    fdd
                                        PCPICH-UsageForChannelEst,
        pCPICH-UsageForChannelEst
        dpch-FrameOffset
                                            DPCH-FrameOffset,
                                           SecondaryCPICH-Info
       dl-ChannelisationCodeList
tpc-CombinationIndex
powerOffsetTPC-pdpdch

SecondaryCPICH-Info
DL-ChannelisationCodeList,
TPC-CombinationIndex,
PowerOffsetTPC-pdpdch
        secondaryCPICH-Info
                                                                             OPTIONAL,
                                          PowerOffsetTPC-pdpdch
        powerOffsetTPC-pdpdch
                                                                           OPTIONAL,
        ssdt-CellIdentity
                                            SSDT-CellIdentity
                                                                             OPTIONAL,
                                          ClosedLoopTimingAdjMode OPTIONAL
        {\tt closedLoopTimingAdjMode}
    tdd
                                      SEQUENCE {
       dl-CCTrChListToEstablish
dl-CCTrChListToRemove
                                        DL-CCTrChList-r4
                                                                           OPTIONAL,
                                            DL-CCTrChListToRemove
                                                                           OPTIONAL
}
DL-DPCH-InfoPerRL-PostFDD ::=
       pCPICH-UsageForChannelEst
dl-ChannelisationCode
tpc-CombinationIndex
                                                            SEOUENCE {
                                                PCPICH-UsageForChannelEst,
                                                DL-ChannelisationCode,
                                                TPC-CombinationIndex
}
DL-DPCH-InfoPerRL-PostTDD ::=
                                          SEQUENCE {
    dl-DPCH-TimeslotsCodes
                                                DownlinkTimeslotsCodes
}
DL-DPCH-InfoPerRL-PostTDD-LCR-r4 ::=
                                            SEQUENCE {
   dl-CCTrCH-TimeslotsCodes
                                                DownlinkTimeslotsCodes-LCR-r4
DL-DPCH-PowerControlInfo ::=
                                      SEQUENCE {
                                        CHOICE {
   modeSpecificInfo
                                              SEQUENCE {
            dpc-Mode
                                                    DPC-Mode
        },
       tdd
                                                SEQUENCE {
           tpc-StepSizeTDD
                                                    TPC-StepSizeTDD
                                                                           OPTIONAL
    }
}
DL-FrameType ::=
                                    ENUMERATED {
                                        dl-FrameTypeA, dl-FrameTypeB }
DL-HSPDSCH-Information ::=
                                    SEQUENCE {
    hs-scch-Info
                                    HS-SCCH-Info OPTIONAL,
    measurement-feedback-Info
                                    Measurement-Feedback-Info OPTIONAL,
                                    CHOICE {
    modeSpecificInfo
                                    CHOICE {
            tdd384
                                            SEQUENCE {
                dl-HSPDSCH-TS-Configuration DL-HSPDSCH-TS-Configuration OPTIONAL
            tdd128
                                        SEQUENCE {
               hs-PDSCH-Midamble-Configuration-tdd128
                     HS-PDSCH-Midamble-Configuration-TDD128
                                                                                     OPTIONAL
        fdd
                                   NULL
    }
}
-- The IE 'DL-HSPDSCH-TS-Configuration' applies to tdd-384 REL-5 onward
DL-HSPDSCH-TS-Configuration ::= SEQUENCE (SIZE (1..maxTS-1)) OF
```

```
SEQUENCE {
    timeslot
                                            TimeslotNumber,
    midambleShiftAndBurstType
                                            MidambleShiftAndBurstType-DL
}
DL-InformationPerRL ::=
                                   SEQUENCE {
                                    CHOICE {
   modeSpecificInfo
                                            SEQUENCE {
        fdd
            primaryCPICH-Info
                                                PrimaryCPICH-Info,
          dummy1 and dummy 2 are not used in this version of specification, they should
        -- not be sent and if received they should be ignored.
            pdsch SHO DCH Infodummy1
                                                        PDSCH-SHO-DCH-Info
                                                                                     OPTIONAL.
                                                        PDSCH-CodeMapping
            pdsch CodeMappingdummy 2
                                                                                    OPTIONAL
        },
        tdd
                                            PrimaryCCPCH-Info
    dl-DPCH-InfoPerRL
                                      DL-DPCH-InfoPerRL
                                                                           OPTIONAL,
    sccpch-InfoforFACH
                                        SCCPCH-InfoForFACH
                                                                            OPTIONAL
}
DL-InformationPerRL-r4 ::=
                                   SEQUENCE {
   modeSpecificInfo
                                      CHOICE {
        fdd
                                         SEQUENCE {
            primaryCPICH-Info
                                                PrimaryCPICH-Info,
        -- dummy1 and dummy 2 are not used in this version of specification, they should
-- not be sent and if received they should be ignored.
            pdsch-SHO-DCH-Infodummy1
                                                        PDSCH-SHO-DCH-Info
                                                                                    OPTIONAL,
                                                        PDSCH-CodeMapping
            pdsch CodeMappingdummy 2
                                                                                    OPTIONAL
        },
        tdd
                                          PrimaryCCPCH-Info-r4
    dl-DPCH-InfoPerRL
                                      DL-DPCH-InfoPerRL-r4
                                                                           OPTIONAL.
    sccpch-InfoforFACH
                                       SCCPCH-InfoForFACH-r4
                                                                           OPTIONAL,
    cell-id
                                                                            OPTIONAL
                                        CellIdentity
}
DL-InformationPerRL-r5 ::= SEQUENCE {
                                    CHOICÈ {
   modeSpecificInfo
                                        SEQUENCE {
        fdd
                                                PrimaryCPICH-Info,
            primaryCPICH-Info
        -- dummy1 and dummy 2 are not used in this version of specification, they should
        -- not be sent and if received they should be ignored.
            pdsch-SHO-DCH-Infodummy1
                                                        PDSCH-SHO-DCH-Info
                                                                                     OPTIONAL.
                                                        PDSCH-CodeMapping
            pdsch-CodeMappingdummy 2
                                                                                    OPTIONAL,
            servingHSDSCH-RL-indicator BOOLEAN
        },
        t.dd
                                           PrimaryCCPCH-Info-r4
    dl-DPCH-InfoPerRL
                                      DL-DPCH-InfoPerRL-r5
                                                                           OPTIONAL,
    sccpch-InfoforFACH
                                        SCCPCH-InfoForFACH-r4
                                                                            OPTIONAL.
    cell-id
                                        CellIdentity
                                                                            OPTIONAL
}
DL-InformationPerRL-r5bis ::= SEQUENCE {
                                    CHOICE {
    modeSpecificInfo
        fdd
                                            SEQUENCE {
                                                PrimaryCPICH-Info,
            primaryCPICH-Info
        -- dummy1 and dummy 2 are not used in this version of specification, they should -- not be sent and if received they should be ignored.
            pdsch SHO DCH Infodummy1
                                                        PDSCH-SHO-DCH-Info
                                                                                     OPTIONAL,
                                                        PDSCH-CodeMapping
            pdsch CodeMappingdummy 2
                                                                                     OPTIONAL
        },
        tdd
                                           PrimaryCCPCH-Info-r4
    dl-DPCH-InfoPerRL
                                      DL-DPCH-InfoPerRL-r5
                                                                            OPTIONAL,
    sccpch-InfoforFACH
                                        SCCPCH-InfoForFACH-r4
                                                                            OPTIONAL,
    cell-id
                                        CellIdentity
                                                                            OPTIONAL
DL-InformationPerRL-List ::=
                                  SEQUENCE (SIZE (1..maxRL)) OF
                                        DL-InformationPerRL
DL-InformationPerRL-List-r4 ::=
                                    SEQUENCE (SIZE (1..maxRL)) OF
                                        DL-InformationPerRL-r4
                                    SEQUENCE (SIZE (1..maxRL)) OF
DL-InformationPerRL-List-r5 ::=
                                        DL-InformationPerRL-r5
```

```
DL-InformationPerRL-List-r5bis ::= SEQUENCE (SIZE (1..maxRL)) OF
                                              DL-InformationPerRL-r5bis
DL-InformationPerRL-ListPostFDD ::= SEQUENCE (SIZE (1..maxRL)) OF
                                          DL-InformationPerRL-PostFDD
DL-InformationPerRL-PostFDD ::= SEQUENCE {
            primaryCPICH-Info
                                                   PrimaryCPICH-Info,
    dl-DPCH-InfoPerRL
                                          DL-DPCH-InfoPerRL-PostFDD
}
DL-InformationPerRL-PostTDD ::= SEQUENCE {
                                       PrimaryCCPCH-InfoPost,
    primaryCCPCH-Info
    dl-DPCH-InfoPerRL
                                          DL-DPCH-InfoPerRL-PostTDD
}
DL-InformationPerRL-PostTDD-LCR-r4 ::= SEQUENCE {
                                          PrimaryCCPCH-InfoPostTDD-LCR-r4,
   primaryCCPCH-Info
    dl-DPCH-InfoPerRL
                                          DL-DPCH-InfoPerRL-PostTDD-LCR-r4
}
DL-PDSCH-Information ::= SEQUENCE {
-- dummy1 and dummy 2 are not used in this version of specification, it should
-- dummy1 and dummy2 are not used in this
-- not be sent and if received it should be ignored.

pdsch-SHO-DCH-Infodummy1

pdsch-CodeMappingdummy2

PDSCH-CodeMapping
                                                                                        OPTIONAL,
                                                   PDSCH-SHO-DCH-Info
{\tt Dl-rate-matching-restriction} ::= {\tt SEQUENCE} \; \big\{
   restrictedTrCH-InfoList
                                        RestrictedTrCH-InfoList
DL-TPC-PowerOffsetPerRL ::= SEQUENCE {
    powerOffsetTPC-pdpdch
                                               PowerOffsetTPC-pdpdch
                                                                                OPTIONAL
}
-- NOTE: The radio links in the following list have a one-to-one mapping with the
-- radio links in the message.
DL-TPC-PowerOffsetPerRL-List ::=
                                      SEQUENCE (SIZE (1..maxRL)) OF
                                          DL-TPC-PowerOffsetPerRL
                                      ENUMERATED {
DL-TS-ChannelisationCode ::=
                                          cc16-1, cc16-2, cc16-3, cc16-4,
                                           cc16-5, cc16-6, cc16-7, cc16-8, cc16-9, cc16-10, cc16-11, cc16-12,
                                           cc16-13, cc16-14, cc16-15, cc16-16 }
DL-TS-ChannelisationCodesShort ::= SEQUENCE {
                                          CHOICE {
    codesRepresentation
        consecutive
                                              SEOUENCE {
            firstChannelisationCode
                                                  DL-TS-ChannelisationCode,
                                                   DL-TS-ChannelisationCode
             lastChannelisationCode
        bitmap
                                               BIT STRING {
                                                   chCode16-SF16(0),
                                                   chCode15-SF16(1),
                                                   chCode14-SF16(2),
                                                   chCode13-SF16(3),
                                                   chCode12-SF16(4),
                                                   chCode11-SF16(5),
                                                   chCode10-SF16(6),
                                                   chCode9-SF16(7),
                                                   chCode8-SF16(8),
                                                   chCode7-SF16(9),
                                                   chCode6-SF16(10),
                                                   chCode5-SF16(11),
                                                   chCode4-SF16(12),
                                                   chCode3-SF16(13),
                                                   chCode2-SF16(14),
                                                   chCode1-SF16(15)
                                                   } (SIZE (16))
                                   SEOUENCE {
DownlinkAdditionalTimeslots ::=
    parameters
                                          CHOICE {
```

```
SEQUENCE {
        sameAsLast
                                                TimeslotNumber
           timeslotNumber
                                            SEOUENCE {
       newParameters
           individualTimeslotInfo
                                               IndividualTimeslotInfo,
            dl-TS-ChannelisationCodesShort
                                                DL-TS-ChannelisationCodesShort
    }
}
DownlinkAdditionalTimeslots-LCR-r4 ::= SEQUENCE {
    parameters
                                        CHOICE {
                                            SEQUENCE {
       sameAsLast.
           timeslotNumber
                                               TimeslotNumber-LCR-r4
                                            SEQUENCE {
       newParameters
           individualTimeslotInfo
                                               IndividualTimeslotInfo-LCR-r4,
            dl-TS-ChannelisationCodesShort
                                               DL-TS-ChannelisationCodesShort
        }
    }
}
DownlinkTimeslotsCodes ::= SEQUENCE {
    firstIndividualTimeslotInfo IndividualTimeslotInfo,
    dl-TS-ChannelisationCodesShort
                                       DL-TS-ChannelisationCodesShort,
    moreTimeslots
                                        CHOICE {
       noMore
                                           NULL,
       additionalTimeslots
                                            CHOICE {
           consecutive
                                               INTEGER (1..maxTS-1),
                                                SEQUENCE (SIZE (1..maxTS-1)) OF
           timeslotList
                                                    DownlinkAdditionalTimeslots
        }
    }
}
DownlinkTimeslotsCodes-LCR-r4 ::= SEQUENCE {
                                    IndividualTimeslotInfo-LCR-r4,
   firstIndividualTimeslotInfo
    dl-TS-ChannelisationCodesShort
                                        DL-TS-ChannelisationCodesShort,
                                        CHOICE {
   moreTimeslots
       noMore
                                           NULL,
       additionalTimeslots
                                            CHOICE {
                                               INTEGER (1..maxTS-LCR-1),
           consecutive
                                                SEQUENCE (SIZE (1..maxTS-LCR-1)) OF
            timeslotList
                                                    DownlinkAdditionalTimeslots-LCR-r4
        }
    }
DPC-Mode ::=
                                    ENUMERATED {
                                       singleTPC,
                                        tpcTripletInSoft }
-- Actual value DPCCH-PowerOffset = IE value * 2
DPCCH-PowerOffset ::=
                                    INTEGER (-82..-3)
-- Actual value DPCCH-PowerOffset2 = 2 + (IE value * 4)
DPCCH-PowerOffset2 ::=
                                   INTEGER (-28..-13)
DPCH-CompressedModeInfo ::=
                                   SEQUENCE {
    tgp-SequenceList
                                       TGP-SequenceList
}
DPCH-CompressedModeStatusInfo ::= SEQUENCE {
    tgps-Reconfiguration-CFN
                                       TGPS-Reconfiguration-CFN,
    tgp-SequenceShortList
                                            SEQUENCE (SIZE (1..maxTGPS)) OF
                                            TGP-SequenceShort
}
-- Actual value DPCH-FrameOffset = IE value * 256
DPCH-FrameOffset::=
                                    INTEGER (0..149)
DSCH-Mapping ::=
                                    SEQUENCE {
   maxTFCI-Field2Value
                                       MaxTFCI-Field2Value,
                                        SF-PDSCH,
    spreadingFactor
    codeNumber
                                        CodeNumberDSCH,
    multiCodeInfo
                                       MultiCodeInfo
```

```
SEQUENCE (SIZE (1..maxPDSCH-TFCIgroups)) OF
DSCH-MappingList ::=
                                       DSCH-Mapping
DSCH-RadioLinkIdentifier ::= INTEGER (0..511)
DSCH-TransportChannelsInfo ::=
                                    SEQUENCE (SIZE (1..maxTrCH)) OF
                                        SEQUENCE {
    {\tt dsch-transport-channel-identity}
                                            TransportChannelIdentity,
    dsch-TFS
                                            TransportFormatSet
}
DurationTimeInfo ::=
                                    INTEGER (1..4096)
DvnamicPersistenceLevel ::=
                                    INTEGER (1..8)
DynamicPersistenceLevelList ::=
                                    SEQUENCE (SIZE (1..maxPRACH)) OF
                                        DynamicPersistenceLevel
DynamicPersistenceLevelTF-List ::= SEQUENCE (SIZE (1..maxTF-CPCH)) OF
                                        DynamicPersistenceLevel
FACH-PCH-Information ::=
                                    SEOUENCE {
    transportFormatSet
                                      TransportFormatSet,
    transportChannelIdentity
                                        TransportChannelIdentity,
    ctch-Indicator
                                       BOOLEAN
FACH-PCH-InformationList ::=
                                    SEQUENCE (SIZE (1..maxFACHPCH)) OF
                                        FACH-PCH-Information
Feedback-cycle ::=
                                    ENUMERATED {
                                        fc0, fc2, fc4, fc8, fc10, fc20, fc40, fc80, fc160}
FPACH-Info-r4 ::=
                                        SEQUENCE {
    timeslot
                                       TimeslotNumber-LCR-r4,
    channelisationCode
                                       TDD-FPACH-CCode16-r4,
    midambleShiftAndBurstType
                                        MidambleShiftAndBurstType-LCR-r4,
                                        Wi-LCR
}
FrequencyInfo ::=
                                    SEQUENCE {
   modeSpecificInfo
                                        CHOICE {
       fdd
                                            FrequencyInfoFDD,
        tdd
                                            FrequencyInfoTDD
}
FrequencyInfoFDD ::=
                                    SEQUENCE {
   uarfcn-UL
                                       HARFON
                                                           OPTIONAL,
    uarfcn-DL
                                        HARFON
                                    SEQUENCE {
FrequencyInfoTDD ::=
    uarfcn-Nt
                                        UARFCN
                                    ENUMERATED {
HS-ChannelisationCode-LCR ::=
                                        cc16-1, cc16-2, cc16-3, cc16-4,
                                        cc16-5, cc16-6, cc16-7, cc16-8,
                                        cc16-9, cc16-10, cc16-11, cc16-12,
                                        cc16-13, cc16-14, cc16-15, cc16-16 }
HS-PDSCH-Midamble-Configuration-TDD128 ::= SEQUENCE {
   midambleAllocationMode
                                        CHOICE {
       defaultMidamble
                                            NULL,
        commonMidamble
                                            NULL.
        ueSpecificMidamble
                                            INTEGER (0..15)
     - Actual value midambleConfiguration = IE value * 2
                                       INTEGER (1..8)
   midambleConfiguration
}
HS-SCCH-Info ::=
                                    SEQUENCE {
   modeSpecificInfo
                                       CHOICE {
                                            SEQUENCE {
       fdd
            \verb|hS-SCCHC| hannel is at ion Code Info|
                                              SEQUENCE (SIZE (1..maxHSSCCHs)) OF
                                                    HS-SCCH-Codes,
            dl-ScramblingCode
                                                SecondaryScramblingCode
                                                                           OPTIONAL
        },
```

```
CHOICE {
        t.dd
            tdd384
                                                SEQUENCE {
                nack-ack-power-offset
                                                   INTEGER (-7..8),
                                                   HS-SICH-Power-Control-Info-TDD384,
                hs-SICH-PowerControl-Info
                hS-SCCH-SetConfiguration
                                                   SEQUENCE (SIZE (1..maxHSSCCHs)) OF
                        HS-SCCH-TDD384
                                                SEQUENCE (SIZE (1..maxHSSCCHs)) OF
            tdd128
                                                    HS-SCCH-TDD128
    }
}
HS-SCCH-Codes ::=
                                   INTEGER (0..127)
HS-SCCH-TDD128 ::=
                                SEQUENCE {
    timeslotNumber
                                        TimeslotNumber-LCR-r4,
    firstChannelisationCode
                                        HS-ChannelisationCode-LCR,
    secondChannelisationCode
                                        HS-ChannelisationCode-LCR,
    midambleAllocationMode
                                        CHOICE {
       defaultMidamble
                                            NULL.
        {\tt commonMidamble}
                                            NULL,
        ueSpecificMidamble
                                            INTEGER(0..15)
    -- Actual value midambleConfiguration = IE value * 2
   midambleConfiguration
                                       INTEGER (1..8),
    bler-target
                                        Bler-Target,
    hs-sich-configuration
                                        HS-SICH-Configuration-TDD128
}
HS-SICH-Configuration-TDD128 ::= SEQUENCE {
    timeslotNumber
                                       TimeslotNumber-LCR-r4,
    channelisationCode
                                        HS-ChannelisationCode-LCR,
    midambleAllocationMode
                                        CHOICE {
        defaultMidamble
                                            NULL,
        ueSpecificMidamble
                                            SEQUENCE {
           midambleShift
                                                MidambleShiftLong
        }
     -- Actual value midambleConfiguration = IE value * 2
    midambleConfiguration
                                       INTEGER (1..8),
                                        INTEGER (-7..8),
   nack-ack-power-offset
                                        INTEGER (-120..-58),
    power-level-HSSICH
    tpc-step-size
                                        ENUMERATED { s1, s2, s3 , spare1}
}
HS-SCCH-TDD384 ::=
                                SEOUENCE {
    timeslotNumber
                                        TimeslotNumber,
    channelisationCode
                                        DL-TS-ChannelisationCode,
    midambleAllocationMode
                                        CHOICE {
        defaultMidamble
                                            NULL,
        commonMidamble
                                            NULL,
        ueSpecificMidamble
                                            SEQUENCE {
           midambleShift
                                                MidambleShiftLong
        }
    midambleconfiguration
                                        {\tt MidambleConfigurationBurstTypeland3},
    bler-target
                                        Bler-Target,
    hs-sich-configuration
                                        HS-SICH-Configuration-TDD384
}
HS-SICH-Configuration-TDD384 ::=
                                  SEQUENCE {
    timeslotNumber
                                       TimeslotNumber,
    channelisationCode
                                        DL-TS-ChannelisationCode,
    midambleAllocationMode
                                        CHOICE {
        defaultMidamble
                                            NULL,
        ueSpecificMidamble
                                            SEQUENCE {
           midambleShift
                                                MidambleShiftLong
    midambleconfiguration
                                        MidambleConfigurationBurstTypeland3
}
HS-SICH-Power-Control-Info-TDD384 ::= SEQUENCE {
    -- Actual value ul-target-SIR = IE value * 0.5
    ul-target-SIR
                                       INTEGER (-22..40),
                                       ConstantValue
   hs-sich-ConstantValue
}
```

```
IndividualTimeslotInfo ::=
                                 SEQUENCE {
                                      TimeslotNumber,
   timeslotNumber
   tfci-Existence
                                       BOOLEAN,
   midambleShiftAndBurstType
                                       MidambleShiftAndBurstType
IndividualTimeslotInfo-LCR-r4 ::= SEQUENCE {
   timeslotNumber
                                       TimeslotNumber-LCR-r4,
   tfci-Existence
                                       BOOLEAN,
   midambleShiftAndBurstType
                                      MidambleShiftAndBurstType-LCR-r4,
   modulation
                                      ENUMERATED { mod-QPSK, mod-8PSK },
   ss-TPC-Symbols
                                      ENUMERATED { zero, one, sixteenOverSF },
   additionalSS-TPC-Symbols
                                      INTEGER(1..15)
                                                         OPTIONAL
}
IndividualTimeslotInfo-LCR-r4-ext ::=
                                          SEQUENCE {
-- timeslotNumber and tfci-Existence is taken from IndividualTimeslotInfo.
-- midambleShiftAndBurstType in IndividualTimeslotInfo shall be ignored.
   midambleShiftAndBurstType
                                     MidambleShiftAndBurstType-LCR-r4
                                       ENUMERATED { mod-QPSK, mod-8PSK },
ENUMERATED { zero, one, sixteenOverSF }
   modulation
   ss-TPC-Symbols
}
IndividualTS-Interference ::=
                                  SEQUENCE {
   timeslot
                                     TimeslotNumber,
   ul-TimeslotInterference
                                       TDD-UL-Interference
}
IndividualTS-InterferenceList ::= SEQUENCE (SIZE (1..maxTS)) OF
                                      IndividualTS-Interference
TTP ::=
                                   ENUMERATED {
                                      mode0, mode1 }
NidentifyAbort ::= INTEGER (1..128)
MaxAllowedUL-TX-Power ::=
                                  INTEGER (-50..33)
MaxAvailablePCPCH-Number ::=
                                  INTEGER (1..64)
                                  INTEGER (0..3)
MaxPowerIncrease-r4 ::=
MaxTFCI-Field2Value ::=
                                   INTEGER (1..1023)
Measurement-Feedback-Info ::=
                                   SEQUENCE {
   modeSpecificInfo
                                   CHOICE {
                                      SEQUENCE {
           measurementPowerOffset
                                          MeasurementPowerOffset,
           feedback-cvcle
                                          Feedback-cvcle,
           cqi-RepetitionFactor
                                          CQI-RepetitionFactor,
           deltaCOI
                                          DeltaCOI
       },
       tdd
                                      NULL
   }
}
MidambleConfigurationBurstTypeland3 ::= ENUMERATED {ms4, ms8, ms16}
MidambleConfigurationBurstType2 ::= ENUMERATED {ms3, ms6}
MidambleShiftAndBurstType ::=
                                   SEQUENCE {
   burstType
                                      CHOICE {
                                          SEQUENCE {
           CHOICE {
           midambleAllocationMode
               defaultMidamble
                                                  NULL,
               commonMidamble
                                                  NULL,
               ueSpecificMidamble
                                                  SEQUENCE {
                   midambleShift
                                                      MidambleShiftLong
           }
       },
        type2
                                           SEQUENCE {
           \verb|midamble| Configuration BurstType2|
                                              MidambleConfigurationBurstType2,
                                               CHOICE {
           \verb|midambleAllocationMode| \\
```

```
defaultMidamble
                                                                                                                                                                                                                    NULL,
                                                                  commonMidamble
                                                                                                                                                                                                                    NULL,
                                                                  ueSpecificMidamble
                                                                                                                                                                                                                   SEQUENCE {
                                                                                 midambleShift
                                                                                                                                                                                                                                    MidambleShiftShort
                                                 }
                                 },
                                                                                                                                                                                 SEQUENCE {
                                                 \verb|midamble| Configuration BurstType| and 3 \verb|Midamble| Configuration BurstType| and 3 \verb|, in the configuration b
                                                 midambleAllocationMode CHOICE {
                                                                defaultMidamble
                                                                                                                                                                                                                 NULL,
                                                                 ueSpecificMidamble
                                                                                                                                                                                                                    SEQUENCE {
                                                                                 midambleShift
                                                                                                                                                                                                                                     MidambleShiftLong
                                                }
                               }
                }
}
MidambleShiftAndBurstType-LCR-r4 ::=
                                                                                                                                                          SEQUENCE {
                midambleAllocationMode
                                                                                                                                                                    CHOICE {
                                 defaultMidamble
                                                                                                                                                                                    NULL,
                                 {\tt commonMidamble}
                                                                                                                                                                                    NULL,
                                ueSpecificMidamble
                                                                                                                                                                                   SEQUENCE {
                                                midambleShift
                                                                                                                                                                                                    INTEGER (0..15)
                 -- Actual value midambleConfiguration = IE value * 2
                {\tt midambleConfiguration}
                                                                                                                                                                  INTEGER (1..8)
}
MidambleShiftAndBurstType-DL ::=
                                                                                                                                                                  SEQUENCE {
                burstType
                                                                                                                                                                    CHOICE {
                                                                                                                                                                                    SEQUENCE {
                                                \verb|midamble| Configuration \verb|BurstType| and \verb|3| Midamble| Configuration \verb|BurstType| and \verb|3|, and \verb|4| Midamble| Configuration \verb|BurstType| and \verb|3|, and \verb|4|, and and another and another ano
                                                 midambleAllocationMode CHOICE {
                                                                 defaultMidamble
                                                                                                                                                                                                                    NULL,
                                                                  commonMidamble
                                                                                                                                                                                                                    NULL,
                                                                  ueSpecificMidamble
                                                                                                                                                                                                                    SEQUENCE {
                                                                                midambleShift
                                                                                                                                                                                                                                    MidambleShiftLong
                                                 }
                                 },
                                                                                                                                                                                   SEQUENCE {
                                 type2
                                                \verb|midamble| Configuration BurstType2|
                                                                                                                                                                                                    MidambleConfigurationBurstType2,
                                                                                                                                                                                                    CHOICE {
                                                 midambleAllocationMode
                                                                defaultMidamble
                                                                                                                                                                                                                   NULL,
                                                                 commonMidamble
                                                                                                                                                                                                                   NULL,
                                                                 ueSpecificMidamble
                                                                                                                                                                                                                 SEQUENCE {
                                                                                 midambleShift
                                                                                                                                                                                                                                    MidambleShiftShort
                                                }
                               }
                }
}
MidambleShiftLong ::=
                                                                                                                                               INTEGER (0..15)
MidambleShiftShort ::=
                                                                                                                                                  INTEGER (0..5)
MinimumSpreadingFactor ::=
                                                                                                                                                   ENUMERATED {
                                                                                                                                                                   sf4, sf8, sf16, sf32,
                                                                                                                                                                    sf64, sf128, sf256 }
MultiCodeInfo ::= INTEGER (1..16)
N-EOT ::=
                                                                                                                                                   INTEGER (0..7)
                                                                                                                                                    ENUMERATED {
N-GAP ::=
                                                                                                                                                                    f2, f4, f8 }
N-PCH ::=
                                                                                                                                                   INTEGER (1..8)
N-StartMessage ::=
                                                                                                                                                   INTEGER (1..8)
NB01 ::=
                                                                                                                                                   INTEGER (0..50)
```

```
NF-Max ::=
                                      INTEGER (1..64)
                                     INTEGER (1..maxDPDCH-UL)
NumberOfDPDCH ::=
NumberOfFBI-Bits ::=
                                     INTEGER (1..2)
OpenLoopPowerControl-TDD ::= SEQUENCE {
    primaryCCPCH-TX-Power Primary
   primaryCCPCH-TX-Power
                                        PrimaryCCPCH-TX-Power,
    -- alpha, prach-ConstantValue, dpch-ConstantValue and pusch-ConstantValue
    -- shall be ignored in 1.28Mcps TDD mode.
                                         Alpha
   alpha
                                                                       OPTIONAL.
    prach-ConstantValue
                                         ConstantValueTdd,
                                        ConstantValueTdd,
    dpch-ConstantValue
   pusch-ConstantValue
                                         ConstantValueTdd
                                                                      OPTIONAL
}
OpenLoopPowerControl-IPDL-TDD-r4 ::= SEQUENCE {
   ipdl-alpha
                                          Alpha,
                                          MaxPowerIncrease-r4
   maxPowerIncrease
PagingIndicatorLength ::= ENUMERATED {
                                         pi4, pi8, pi16 }
                                     INTEGER (0..7)
PC-Preamble ::=
PCP-Length ::=
                                      ENUMERATED {
                                         as0, as8 }
   pcpch-UL-ScramblingCode
pcpch-DL-ChannelisationCode
pcpch-DL-ScramblingCode
pcp-Length
ucsm-Info
PCPCH-ChannelInfo ::=
                                     SEQUENCE {
                                     INTEGER (0..79),
                                          INTEGER (0..511),
                                         SecondaryScramblingCode OPTIONAL,
                                         PCP-Length,
                                          UCSM-Info
                                                                                OPTIONAL
}
PCPCH-ChannelInfo
PCPICH-UsageForChannelEst ::=
                                      ENUMERATED {
                                         mayBeUsed,
                                          shallNotBeUsed }
PDSCH-CapacityAllocationInfo ::= SEQUENCE {
    -- pdsch-PowerControlInfo is conditional on new-configuration -- selected the IE is OPTIONAL otherwise it should not be sent
-- PDSCH-PowerControlInfo OPTIONAL,
   -- pdsch-PowerControlInfo is conditional on new-configuration branch below, if this
   pdsch-PowerControlInfo
pdsch-AllocationPeriodInfo
configuration
old-Configuration

tfcs-ID

pdsch-PowerControlInfo
AllocationPeriodInfo,
CHOICE {
SEQUENCE {
                                                 TFCS-IdentityPlain
           tfcs-ID
                                                                                         DEFAULT 1,
            ttcs-ID
pdsch-Identity
                                                  PDSCH-Identity
        },
new-Configuration
                                            SEQUENCE {
           pdsch-Info
                                                  PDSCH-Info,
                                                  PDSCH-Identity
            pdsch-Identity
                                                                              OPTIONAL
        }
    }
}
PDSCH-CapacityAllocationInfo-r4 ::= SEQUENCE {
    pdsch-AllocationPeriodInfo AllocationPeriodInfo,
    configuration
                                          CHOICE {
        old-Configuration
                                          SEQUENCE {
                                                  TFCS-IdentityPlain
                                                                                        DEFAULT 1,
            tfcs-ID
            pdsch-Identity
                                                  PDSCH-Identity
        },
        new-Configuration SEQUENCE {
   pdsch-Info PDSCH-
   pdsch-Identity PDSCH-
   pdsch-PowerControlInfo PDSCH-
                                              PDSCH-Info-r4,
                                                  PDSCH-Identity
                                                                                OPTIONAL,
                                                  PDSCH-PowerControlInfo
                                                                                OPTIONAL
        }
    }
}
PDSCH-CodeInfo ::= SEQUENCE {
```

```
spreadingFactor
                                        SF-PDSCH,
                                        CodeNumberDSCH,
   codeNumber
   multiCodeInfo
                                        MultiCodeInfo
PDSCH-CodeInfoList ::=
                                    SEQUENCE (SIZE (1..maxTFCI-2-Combs)) OF
                                        PDSCH-CodeInfo
PDSCH-CodeMap ::=
                                    SEQUENCE {
   spreadingFactor
                                        SF-PDSCH,
                                        MultiCodeInfo,
   multiCodeInfo
                                        CodeNumberDSCH,
   codeNumberStart
                                        CodeNumberDSCH
   codeNumberStop
PDSCH-CodeMapList ::=
                                    SEQUENCE (SIZE (1..maxPDSCH-TFCIgroups)) OF
                                        PDSCH-CodeMap
PDSCH-CodeMapping ::=
                                    SEQUENCE {
   dl-ScramblingCode
                                        SecondaryScramblingCode OPTIONAL,
   signallingMethod
                                        CHOICE {
                                            CodeRange,
       codeRange
       tfci-Range
                                            DSCH-MappingList,
       explicit-config
                                            PDSCH-CodeInfoList,
       replace
                                            ReplacedPDSCH-CodeInfoList
PDSCH-Identity ::=
                                    INTEGER (1..hiPDSCHidentities)
PDSCH-Info ::=
                                    SEQUENCE {
                                        TFCS-IdentityPlain
                                                                            DEFAULT 1,
   tfcs-ID
   commonTimeslotInfo
                                        CommonTimeslotInfo
                                                                            OPTIONAL.
   pdsch-TimeslotsCodes
                                       DownlinkTimeslotsCodes
                                                                            OPTIONAL
PDSCH-Info-r4 ::=
                                        SEQUENCE {
                                        TFCS-IdentityPlain
                                                                            DEFAULT 1,
   tfcs-ID
   {\tt commonTimeslotInfo}
                                        CommonTimeslotInfo
                                                                            OPTIONAL,
   tddOption
                                        CHOICE {
       t.dd384
                                           SEQUENCE {
           pdsch-TimeslotsCodes
                                                DownlinkTimeslotsCodes
                                                                            OPTIONAL
        tdd128
                                            SEQUENCE {
           pdsch-TimeslotsCodes
                                                DownlinkTimeslotsCodes-LCR-r4 OPTIONAL
   }
}
PDSCH-Info-LCR-r4 ::=
                                    SEOUENCE {
   tfcs-ID
                                       TFCS-IdentityPlain
                                                                            DEFAULT 1,
   commonTimeslotInfo
                                        CommonTimeslotInfo
                                                                            OPTIONAL,
                                        DownlinkTimeslotsCodes-LCR-r4
   pdsch-TimeslotsCodes
                                                                            OPTIONAL
}
PDSCH-PowerControlInfo ::=
                                    SEOUENCE {
   tpc-StepSizeTDD
                                        TPC-StepSizeTDD
                                                                            OPTIONAL,
   ul-CCTrChTPCList
                                        UL-CCTrChTPCList
                                                                            OPTIONAL
}
PDSCH-SHO-DCH-Info ::=
                                    SEQUENCE {
   dsch-RadioLinkIdentifier
                                       DSCH-RadioLinkIdentifier,
                                        RL-IdentifierList
                                                                            OPTIONAL
   rl-IdentifierList
PDSCH-SysInfo ::=
                                    SEQUENCE {
   pdsch-Identity
                                       PDSCH-Identity,
                                        PDSCH-Info,
   pdsch-Info
   dsch-TFS
                                        {\tt TransportFormatSet}
                                                                            OPTIONAL,
   dsch-TFCS
                                                                             OPTIONAL
}
PDSCH-SysInfo-HCR-r5 ::=
                                            SEQUENCE {
   pdsch-Identity
                                       PDSCH-Identity,
   pdsch-Info
                                       PDSCH-Info,
   dsch-TransportChannelsInfo
                                        DSCH-TransportChannelsInfo
                                                                            OPTIONAL.
   dsch-TFCS
                                        TFCS
                                                                             OPTIONAL
```

```
}
PDSCH-SysInfo-LCR-r4 ::= SEQUENCE { pdsch-Identity PDSCH-:
                                         PDSCH-Identity,
    pdsch-Identity
    pdsch-Info
                                          PDSCH-Info-LCR-r4,
    dsch-TFS
                                                                                OPTIONAL,
                                          TransportFormatSet
    dsch-TFCS
                                          TFCS
                                                                                 OPTIONAL
}
PDSCH-SysInfoList ::=
                                      SEQUENCE (SIZE (1..maxPDSCH)) OF
                                          PDSCH-SysInfo
                                         SEQUENCE (SIZE (1..maxPDSCH)) OF PDSCH-SysInfo-HCR-r5
PDSCH-SysInfoList-HCR-r5 ::=
PDSCH-SysInfoList-LCR-r4 ::= SEQUENCE (SIZE (1..maxPDSCH)) OF
                                          PDSCH-SysInfo-LCR-r4
PDSCH-SysInfoList-SFN ::= SEQUENCE (SIZE (1..maxPDSCH)) OF
                                          SEQUENCE {
                                               PDSCH-SysInfo,
    pdsch-SysInfo
                                                                                OPTIONAL
    sfn-TimeInfo
                                               SFN-TimeInfo
}
PDSCH-SysInfoList-SFN-HCR-r5 ::=
                                              SEQUENCE (SIZE (1..maxPDSCH)) OF
                                          SEOUENCE {
    pdsch-SysInfo
                                              PDSCH-SysInfo-HCR-r5,
    sfn-TimeInfo
                                              SFN-TimeInfo
                                                                                 OPTIONAL
}
PDSCH-SysInfoList-SFN-LCR-r4 ::= SEQUENCE (SIZE (1..maxPDSCH)) OF
                                          SEQUENCE {
                                              PDSCH-SysInfo-LCR-r4,
    pdsch-SysInfo
    sfn-TimeInfo
                                               SFN-TimeInfo
                                                                                 OPTIONAL
}
                                      ENUMERATED {
PersistenceScalingFactor ::=
                                          psf0-9, psf0-8, psf0-7, psf0-6,
                                           psf0-5, psf0-4, psf0-3, psf0-2 }
PersistenceScalingFactorList ::=
                                      SEQUENCE (SIZE (1..maxASCpersist)) OF
                                          PersistenceScalingFactor
                                      ENUMERATED {
PI-CountPerFrame ::=
                                          e18, e36, e72, e144 }
PichChannelisationCodeList-LCR-r4 ::= SEQUENCE (SIZE (1..2)) OF
                                              DL-TS-ChannelisationCode
PICH-Info ::=
                                      CHOICE {
                                       SEQUENCE {
    fdd
                                            ChannelisationCode256,
        channelisationCode256
        pi-CountPerFrame
                                               PI-CountPerFrame,
        sttd-Indicator
                                             BOOLEAN
    tdd
                                        SEQUENCE {
                                            TDD-PICH-CCode
        channelisationCode
                                             TDD-Fich TimeslotNumber
MidambleShiftAndBurstType,
ParlengthOffset-PICH
                                                                                 OPTIONAL,
        timeslot
midambleShiftAndBurstType
repetitionPeriodLengthOffset
pagingIndicatorLength
        timeslot
                                                                                 OPTIONAL,
                                             RepPerLengthOffset-PICH
PagingIndicatorLength
                                                                                 OPTIONAL,
        pagingIndicatorLength
                                                                                DEFAULT pi4,
        n-GAP
                                              N-GAP
                                                                                 DEFAULT f4,
                                               N-PCH
                                                                                 DEFAULT 2
        n-PCH
    }
}
PICH-Info-LCR-r4 ::=
                                     SEQUENCE {
    timeslot
                                          TimeslotNumber-LCR-r4
                                                                                 OPTIONAL,
    pichChannelisationCodeList-LCR-r4 PichChannelisationCodeList-LCR-r4,
    midambleShiftAndBurstType MidambleShiftAndBurstType-LCR-r4, repetitionPeriodLengthOffset RepPerLengthOffset-PICH
                                          Midamblesniicandansii
RepPerLengthOffset-PICH OPTIONAL
PaqingIndicatorLength DEFAULT pi4,
                                                                                OPTIONAL,
    pagingIndicatorLength
    n-GAP
                                                                             DEFAULT f4,
                                          N-PCH
                                                                             DEFAULT 2
    n-PCH
}
PICH-PowerOffset ::=
                                     INTEGER (-10..5)
PilotBits128 ::=
                                      ENUMERATED {
```

```
pb4, pb8 }
PilotBits256 ::=
                                    ENUMERATED {
                                        pb2, pb4, pb8 }
    -- Actual measurement power offset value = IE value * 0.5
MeasurementPowerOffset ::= INTEGER (-12..26)
PositionFixedOrFlexible ::=
                                  ENUMERATED {
                                        fixed,
                                        flexible }
PowerControlAlgorithm ::=
                                   CHOICE {
   algorithm1
                                       TPC-StepSizeFDD,
   algorithm2
                                        NULL
}
PowerOffsetPilot-pdpdch ::=
                                  INTEGER (0..24)
PowerOffsetTPC-pdpdch ::=
                                   INTEGER (0..24)
PowerRampStep ::=
                                   INTEGER (1..8)
TDD-PRACH-CCode-LCR-r4
PRACH-Definition-LCR-r4 ::= SEQUENCE {
                                   TimeslotNumber-PRACH-LCR-r4, PRACH-ChanCodes-LCR-r4,
   timeslot
   prach-ChanCodes-LCR
   prach-ChanCodes-LCK
midambleShiftAndBurstType
                                       MidambleShiftAndBurstType-LCR-r4,
    fpach-Info
                                       FPACH-Info-r4
                                    ENUMERATED {
PRACH-Midamble ::=
                                        direct,
                                        direct-Inverted }
PRACH-Partitioning ::=
                                    CHOICE {
                                       SEQUENCE (SIZE (1..maxASC)) OF
    -- TABULAR: If only "NumASC+1" (with, NumASC+1 < maxASC) ASCSetting-FDD are listed,
    -- the remaining (NumASC+2 through maxASC) ASCs are unspecified.
                                           ASCSetting-FDD.
    tdd
                                        SEQUENCE (SIZE (1..maxASC)) OF
    -- TABULAR: If only "NumASC+1" (with, NumASC+1 < maxASC) ASCSetting-TDD are listed,
    -- the remaining (NumASC+2 through maxASC) ASCs are unspecified.
                                           ASCSetting-TDD
}
PRACH-Partitioning-LCR-r4 ::=
                                   SEQUENCE (SIZE (1..maxASC)) OF
   -- TABULAR: If only "NumASC+1" (with, NumASC+1 < maxASC) ASCSetting-TDD-LCR-r4 are listed,
    -- the remaining (NumASC+2 through maxASC) ASCs are unspecified.
                                           ASCSetting-TDD-LCR-r4
PRACH-PowerOffset ::=
                                    SEQUENCE {
                                       PowerRampStep,
   powerRampStep
   preambleRetransMax
                                        PreambleRetransMax
}
   CH-RACH-Info ::=
modeSpecificInfo
PRACH-RACH-Info ::=
                                    SEQUENCE {
                                       CHOICE {
       fdd
                                        SEQUENCE {
            availableSignatures
                                               AvailableSignatures,
            availableSF
                                                SF-PRACH,
           preambleScramblingCodeWordNumber PreambleScramblingCodeWordNumber, puncturingLimit PuncturingLimit,
            puncturingLimit PuncturingLimit,
availableSubChannelNumbers AvailableSubChannelNumbers
        },
        tdd
                                          SEQUENCE {
           TimeslotNumber, channelisationCodeList TDD-PRACH-CCodel prach-Midamble
                                                TDD-PRACH-CCodeList,
    }
}
PRACH-RACH-Info-LCR-r4 ::= SEQUENCE {
    sync-UL-Info SYNC-UL
    proch DefinitionList
                                        SYNC-UL-Info-r4.
    prach-DefinitionList
                                        SEQUENCE (SIZE (1..maxPRACH-FPACH)) OF
```

```
PRACH-Definition-LCR-r4
}
PRACH-SystemInformation ::=
                                   SEQUENCE {
   prach-RACH-Info
                                       PRACH-RACH-Info,
    transportChannelIdentity
                                       TransportChannelIdentity,
   rach-TransportFormatSet
                                                                           OPTIONAL,
                                       TransportFormatSet
   rach-TFCS
                                      TFCS
                                                                          OPTIONAL,
   prach-Partitioning
                                      PRACH-Partitioning
                                                                          OPTIONAL,
    persistenceScalingFactorList
                                       PersistenceScalingFactorList
                                                                           OPTIONAL,
    ac-To-ASC-MappingTable
                                      AC-To-ASC-MappingTable
                                                                          OPTIONAL,
                                      CHOICE {
    modeSpecificInfo
        fdd
                                           SEQUENCE {
           primaryCPICH-TX-Power
                                             PrimaryCPICH-TX-Power
                                                                         OPTIONAL,
                                              PRACH-PowerOffset
           constantValue
                                                                           OPTIONAL,
           prach-PowerOffset
                                                                          OPTIONAL,
           rach-TransmissionParameters
                                              RACH-TransmissionParameters OPTIONAL,
           aich-Info
                                               AICH-Info
                                                                           OPTIONAL
        },
        tdd
                                           NULL
    }
}
PRACH-SystemInformation-LCR-r4 ::= SEQUENCE {
   rach-TransportFormatSet-LCR
    prach-RACH-Info-LCR
                                       PRACH-RACH-Info-LCR-r4.
                                                                      OPTIONAL,
                                       TransportFormatSet-LCR
                                 Transportrormation __.
PRACH-Partitioning-LCR-r4
   prach-Partitioning-LCR
                                                                      OPTIONAL
PRACH-SystemInformationList ::= SEQUENCE (SIZE (1..maxPRACH)) OF
                                       PRACH-SystemInformation
PRACH-SystemInformationList-LCR-r4 ::= SEQUENCE (SIZE (1..maxPRACH)) OF
                                           PRACH-SystemInformation-LCR-r4
PreambleRetransMax ::=
                                   INTEGER (1..64)
PreambleScramblingCodeWordNumber ::= INTEGER (0..15)
PreDefPhyChConfiguration ::=
                                   SEQUENCE {
    ul-DPCH-InfoPredef
                                       UL-DPCH-InfoPredef,
                                       DL-CommonInformationPredef OPTIONAL
    dl-CommonInformationPredef
}
                                   CHOICE {
PrimaryCCPCH-Info ::=
                                       SEQUENCE {
    fdd
                                           BOOLEAN
       tx-DiversityIndicator
                                       SEQUENCE {
        -- syncCase should be ignored for 1.28Mcps TDD mode
        syncCase
                                           CHOICE {
           syncCase1
                                               SEOUENCE {
              timeslot
                                                   TimeslotNumber
           },
           syncCase2
                                               SEQUENCE {
               timeslotSync2
                                                   TimeslotSync2
                                                                           OPTIONAL,
        cellParametersID
                                           CellParametersID
                                                                           OPTIONAL,
       sctd-Indicator
                                           BOOLEAN
    }
}
PrimaryCCPCH-Info-r4 ::=
                                   CHOICE {
                                       SEQUENCE {
        tx-DiversityIndicator
                                           BOOLEAN
    },
                                       SEQUENCE {
    tdd
        tddOption
                                           CHOICE {
           tdd384
                                               SEQUENCE {
               syncCase
                   syncCase1
                                                       SEQUENCE {
                       timeslot
                                                           TimeslotNumber
                   syncCase2
                                                       SEQUENCE {
                       timeslotSync2
                                                           TimeslotSync2
               }
                                                                           OPTIONAL
```

```
tdd128
                                           SEQUENCE {
             tstd-Indicator
                                              BOOLEAN
       cellParametersID
                                      CellParametersID
                                                                   OPTIONAL,
       sctd-Indicator
                                       BOOLEAN
}
PrimaryCCPCH-Info-LCR-r4 ::= SEQUENCE {
                                  BOOLEAN,
   tstd-Indicator
   cellParametersID
                                    CellParametersID
                                                      OPTIONAL,
   sctd-Indicator
                                   BOOLEAN
}
-- For 1.28Mcps TDD, the following IE includes elements for the PCCPCH Info additional to those
-- in PrimaryCCPCH-Info
PrimaryCCPCH-Info-LCR-r4-ext ::= SEQUENCE {
   tstd-Indicator
                                   BOOLEAN
PrimaryCCPCH-InfoPost ::= SEQUENCE {
                                   CHOICE {
   syncCase
      syncCase1
                                       SEQUENCE {
         timeslot
                                          TimeslotNumber
       },
                                       SEQUENCE {
       syncCase2
          timeslotSync2
                                         TimeslotSync2
                                  CellParametersID,
   cellParametersID
   sctd-Indicator
                                    BOOLEAN
PrimaryCCPCH-InfoPostTDD-LCR-r4 ::= SEQUENCE {
   tstd-Indicator
                                   BOOLEAN.
   cellParametersID
                                    CellParametersID,
   sctd-Indicator
                                    BOOLEAN
}
                               INTEGER (6..43)
PrimaryCCPCH-TX-Power ::=
   maryCPICH-Info ::= SEQUENCE {
primaryScramblingCode Primary
PrimaryCPICH-Info ::=
                                   PrimaryScramblingCode
PrimaryCPICH-TX-Power ::=
                               INTEGER (-10..50)
PrimaryScramblingCode ::=
                               INTEGER (0..511)
PuncturingLimit ::=
                                ENUMERATED {
                                   pl0-40, pl0-44, pl0-48, pl0-52, pl0-56,
                                    pl0-60, pl0-64, pl0-68, pl0-72, pl0-76,
                                    pl0-80, pl0-84, pl0-88, pl0-92, pl0-96, pl1 }
PUSCH-CapacityAllocationInfo ::= SEQUENCE {
      pusch-Allocation
                                                                   OPTIONAL,
                                                  TFCS-IdentityPlain DEFAULT 1,
                 tfcs-ID
                 pusch-Identity
                                                  PUSCH-Identity
              },
                                             SEQUENCE {
              new-Configuration
                 pusch-Info
                                               PUSCH-Info,
                                                  PUSCH-Identity OPTIONAL
                 pusch-Identity
              }
         }
       }
   }
}
PUSCH-CapacityAllocationInfo-r4 ::= SEQUENCE {
   pusch-Allocation
                                    CHOICE {
```

```
pusch-AllocationPending NULL,
pusch-AllocationAssignment SEQUE
pusch-AllocationPeriodInfo
pusch-PowerControlInfo
                                           SEQUENCE {
                                               AllocationPeriodInfo,
           pusch-PowerControlInfo
                                                PUSCH-PowerControlInfo-r4 OPTIONAL,
            configuration
                                                CHOICE {
               old-Configuration
                                                  SEQUENCE {
                                                        TFCS-IdentityPlain DEFAULT 1,
                    tfcs-ID
                                                        PUSCH-Identity
                    pusch-Identity
                new-Configuration
                                                   SEQUENCE {
                                                      PUSCH-Info-r4,
                   pusch-Info
                                                        PUSCH-Identity
                                                                            OPTIONAL
                    pusch-Identity
                }
           }
       }
    }
PUSCH-Identity ::=
                                    INTEGER (1..hiPUSCHidentities)
PUSCH-Info ::=
                                    SEQUENCE {
   tfcs-ID
                                       TFCS-IdentityPlain
                                                                           DEFAULT 1,
    commonTimeslotInfo
                                        CommonTimeslotInfo
                                                                           OPTIONAL,
    pusch-TimeslotsCodes
                                       UplinkTimeslotsCodes
                                                                           OPTIONAL
}
PUSCH-Info-r4 ::=
                                    SEQUENCE {
                                        TFCS-IdentityPlain
                                                                           DEFAULT 1,
    tfcs-ID
    commonTimeslotInfo
                                        CommonTimeslotInfo
                                                                            OPTIONAL,
    tddOption
                                        CHOICE {
       tdd384
                                          SEQUENCE {
                                               UplinkTimeslotsCodes
           pusch-TimeslotsCodes
                                                                          OPTIONAL
        tdd128
                                           SEQUENCE {
           pusch-TimeslotsCodes
                                               UplinkTimeslotsCodes-LCR-r4 OPTIONAL
    }
}
                         SEQUENCE {
PUSCH-Info-LCR-r4 ::=
                                        TFCS-IdentityPlain
    tfcs-ID
                                                                           DEFAULT 1.
    commonTimeslotInfo
                                        CommonTimeslotInfo
                                                                            OPTIONAL,
                                        UplinkTimeslotsCodes-LCR-r4
   pusch-TimeslotsCodes
                                                                            OPTIONAL
}
PUSCH-PowerControlInfo-r4 ::=
                                  SEQUENCE {
   -- The IE ul-TargetSIR corresponds to PRX-PUSCHdes for 1.28Mcps TDD
    -- Actual value PRX-PUSCHdes = (value of IE "ul-TargetSIR" - 120)
    ul-TargetSIR
                                        UL-TargetSIR,
    tddOption
                                        CHOICE {
       tdd384
                                           NULL,
                                            SEQUENCE {
       tdd128
            tpc-StepSize
                                                TPC-StepSizeTDD
                                                                           OPTIONAL
    }
}
PUSCH-SysInfo ::=
                                    SEQUENCE {
                                       PUSCH-Identity,
   pusch-Identity
   pusch-Info
                                        PUSCH-Info,
    usch-TFS
                                        TransportFormatSet
                                                                            OPTIONAL.
    usch-TFCS
                                        TFCS
                                                                            OPTIONAL
PUSCH-SysInfo-HCR-r5 ::=
                                           SEQUENCE {
   pusch-Identity
                                       PUSCH-Identity,
    pusch-Info
                                        PUSCH-Info,
    usch-TransportChannelsInfo
                                        USCH-TransportChannelsInfo
                                                                           OPTIONAL,
                                        TFCS
                                                                            OPTIONAL
   usch-TFCS
}
PUSCH-SysInfo-LCR-r4 ::=
                                   SEQUENCE {
   pusch-Identity
                                       PUSCH-Identity,
                                        PUSCH-Info-LCR-r4,
    pusch-Info
    usch-TFS
                                        TransportFormatSet
                                                                            OPTIONAL,
    usch-TFCS
                                                                            OPTIONAL
                                        TFCS
}
```

```
SEQUENCE (SIZE (1..maxPUSCH)) OF
PUSCH-SysInfoList ::=
                                       PUSCH-SysInfo
PUSCH-SysInfoList-HCR-r5 ::=
                                       SEQUENCE (SIZE (1..maxPUSCH)) OF PUSCH-SysInfo-HCR-r5
                                  SEQUENCE (SIZE (1..maxPUSCH)) OF
PUSCH-SysInfoList-LCR-r4 ::=
                                       PUSCH-SysInfo-LCR-r4
PUSCH-SysInfoList-SFN ::=
                                   SEQUENCE (SIZE (1..maxPUSCH)) OF
                                       SEQUENCE {
                                           PUSCH-SysInfo,
    pusch-SysInfo
    sfn-TimeInfo
                                           SFN-TimeInfo
                                                                          OPTIONAL
                                           SEQUENCE (SIZE (1..maxPUSCH)) OF
PUSCH-SysInfoList-SFN-HCR-r5 ::=
                                       SEQUENCE {
   pusch-SysInfo
                                           PUSCH-SysInfo-HCR-r5,
                                           SFN-TimeInfo
                                                                           OPTIONAL
   sfn-TimeInfo
}
PUSCH-SysInfoList-SFN-LCR-r4 ::=
                                       SEQUENCE (SIZE (1..maxPUSCH)) OF
                                        SEQUENCE {
   pusch-SysInfo
                                           PUSCH-SysInfo-LCR-r4,
    sfn-TimeInfo
                                           SFN-TimeInfo
                                                                           OPTIONAL
}
RACH-TransmissionParameters ::=
                                   SEQUENCE {
                                       INTEGER (1..32),
   mmax
    nb01Min
                                        NB01,
    nb01Max
                                        NB01
}
                                   INTEGER (0..8191)
ReducedScramblingCodeNumber ::=
RepetitionPeriodAndLength ::= CHOICE {
  repetitionPeriod1
                                     NULL,
    -- repetitionPeriod2 could just as well be NULL also.
   repetitionPeriod2
                                       INTEGER (1..1),
   repetitionPeriod4
                                       INTEGER (1..3),
   repetitionPeriod8
                                       INTEGER (1..7),
                                      INTEGER (1..15),
   repetitionPeriod16
   repetitionPeriod32
                                      INTEGER (1..31),
   repetitionPeriod64
                                       INTEGER (1..63)
}
{\tt RepetitionPeriodLengthAndOffset} \ ::= \ {\tt CHOICE} \ \big\{
    repetitionPeriod1
                                      NULL.
   repetitionPeriod2
                                        SEQUENCE {
       length
                                           NULL,
                                           INTEGER (0..1)
       offset
    repetitionPeriod4
                                        SEQUENCE {
                                           INTEGER (1..3),
       length
                                           INTEGER (0..3)
       offset
    repetitionPeriod8
                                        SEQUENCE {
                                           INTEGER (1..7),
       length
       offset
                                            INTEGER (0..7)
    repetitionPeriod16
                                        SEQUENCE {
       length
                                            INTEGER (1..15),
       offset
                                           INTEGER (0..15)
    repetitionPeriod32
                                       SEQUENCE {
       length
                                           INTEGER (1..31),
                                           INTEGER (0..31)
       offset
                                       SEQUENCE {
    repetitionPeriod64
       length
                                           INTEGER (1..63),
                                           INTEGER (0..63)
       offset
    }
}
ReplacedPDSCH-CodeInfo ::=
                                   SEQUENCE {
                                       MaxTFCI-Field2Value,
   tfci-Field2
                                        SF-PDSCH,
    spreadingFactor
                                        CodeNumberDSCH,
    codeNumber
```

```
MultiCodeInfo
   multiCodeInfo
ReplacedPDSCH-CodeInfoList ::= SEQUENCE (SIZE (1..maxTFCI-2-Combs)) OF
                                      ReplacedPDSCH-CodeInfo
RepPerLengthOffset-PICH ::=
                                    CHOICE {
                                        INTEGER (0..3),
   rpp4-2
   rpp8-2
                                        INTEGER (0..7),
   rpp8-4
                                        INTEGER (0..7),
                                        INTEGER (0..15),
   rpp16-2
                                        INTEGER (0..15),
INTEGER (0..31),
   rpp16-4
   rpp32-2
   rpp32-4
                                        INTEGER (0..31),
   rpp64-2
                                        INTEGER (0..63),
                                        INTEGER (0..63)
   rpp64-4
}
                                    SEQUENCE {
RestrictedTrCH ::=
   dl-restrictedTrCh-Type
                                        DL-TrCH-Type,
   restrictedDL-TrCH-Identity
                                        TransportChannelIdentity,
    {\tt allowedTFIList}
                                       AllowedTFI-List
RestrictedTrCH-InfoList ::=
                                   SEQUENCE (SIZE(1..maxTrCH)) OF
                                       RestrictedTrCH
RL-AdditionInformation ::=
                                    SEQUENCE {
   primaryCPICH-Info
                                       PrimaryCPICH-Info,
                                        DL-DPCH-InfoPerRL,
    dl-DPCH-InfoPerRL
  dummy is not used in this version of specification
-- and it should be ignored.
    tfci CombiningIndicatordummy
                                                BOOLEAN,
                                      SCCPCH-InfoForFACH
                                                                           OPTIONAL
    sccpch-InfoforFACH
}
RL-AdditionInformationList ::=
                                  SEQUENCE (SIZE (1..maxRL-1)) OF
                                        RL-AdditionInformation
RL-IdentifierList ::=
                                    SEQUENCE (SIZE (1..maxRL)) OF
                                        PrimaryCPICH-Info
RL-RemovalInformationList ::=
                                    SEQUENCE (SIZE (1..maxRL)) OF
                                        PrimaryCPICH-Info
RPP ::=
                                    ENUMERATED {
                                        mode0, mode1 }
S-Field ::=
                                    ENUMERATED {
                                        elbit, e2bits }
SCCPCH-ChannelisationCode ::=
                                    ENUMERATED {
                                        cc16-1, cc16-2, cc16-3, cc16-4,
                                        cc16-5, cc16-6, cc16-7, cc16-8,
cc16-9, cc16-10, cc16-11, cc16-12,
                                        cc16-13, cc16-14, cc16-15, cc16-16 }
SCCPCH-ChannelisationCodeList ::=
                                    SEQUENCE (SIZE (1..16)) OF
                                        SCCPCH-ChannelisationCode
SCCPCH-InfoForFACH ::=
                                    SEQUENCE {
    secondaryCCPCH-Info
                                        SecondaryCCPCH-Info,
                                        TFCS,
   modeSpecificInfo
                                    CHOICE {
                                       SEQUENCE {
            fach-PCH-InformationList
                                                FACH-PCH-InformationList,
            sib-ReferenceListFACH
                                                SIB-ReferenceListFACH
        },
                                       SEQUENCE {
       t.dd
            fach-PCH-InformationList
                                                FACH-PCH-InformationList
    }
}
SCCPCH-InfoForFACH-r4 ::=
                                        SEQUENCE {
    secondaryCCPCH-Info
                                        SecondaryCCPCH-Info-r4,
                                        TFCS.
    t.fcs
    fach-PCH-InformationList
                                        FACH-PCH-InformationList,
```

```
modeSpecificInfo
                                  CHOICE {
                                    SEQUENCE {
       fdd
           sib-ReferenceListFACH
                                          SIB-ReferenceListFACH
       tdd
                                      NULL
   }
}
SCCPCH-SystemInformation ::= SEQUENCE {
   secondaryCCPCH-Info
                                      SecondaryCCPCH-Info,
                                      TFCS
                                                                        OPTIONAL,
   tfcs
   fach-PCH-InformationList
                                      FACH-PCH-InformationList
                                                                         OPTIONAL.
   pich-Info
                                      PICH-Info
                                                                         OPTIONAL
}
{\tt SCCPCH-SystemInformation-LCR-r4-ext} \; ::= \; {\tt SEQUENCE} \; \left\{ \right. \\
   secondaryCCPCH-LCR-Extensions SecondaryCCPCH-Info-LCR-r4-ext,
    -- pich-Info in the SCCPCH-SystemInformation IE shall be absent,
   -- and instead the following used.
                                  PICH-Info-LCR-r4
                                                                         OPTIONAL
   pich-Info
}
SCCPCH-SystemInformationList ::=
                                  SEQUENCE (SIZE (1..maxSCCPCH)) OF
                                      SCCPCH-SystemInformation
-- SCCPCH-SystemInformationList-LCR-r4-ext includes elements additional to those in
-- SCCPCH-SystemInformationList for the 1.28Mcps TDD. The order of the IEs
-- indicates which SCCPCH-SystemInformation-LCR-r4-ext IE extends which
-- SCCPCH-SystemInformation IE.
SCCPCH-SystemInformationList-LCR-r4-ext ::= SEQUENCE (SIZE (1..maxSCCPCH)) OF
                                              SCCPCH-SystemInformation-LCR-r4-ext
                                  ENUMERATED {
ScramblingCodeChange ::=
                                      codeChange, noCodeChange }
ScramblingCodeType ::=
                                  ENUMERATED {
                                      shortSC
                                      longSC }
SecondaryCCPCH-Info ::=
                                  SEQUENCE {
                                  CHOICE {
   modeSpecificInfo
       fdd
                                      SEQUENCE {
            -- dummy1 is not used in this version of the specification and should be ignored.
           dummy1
                                          PCPICH-UsageForChannelEst,
           -- dummy2 is not used in this version of the specification. It should not
           -- be sent and if received it should be ignored.
                                          SecondaryCPICH-Info
           dummv2
                                                                         OPTIONAL,
                                          SecondaryScramblingCode
           secondaryScramblingCode
                                                                         OPTIONAL,
           sttd-Indicator
                                         BOOLEAN,
           sf-AndCodeNumber
                                          SF256-AndCodeNumber,
           pilotSymbolExistence
                                        BOOLEAN,
                                          BOOLEAN,
           tfci-Existence
           positionFixedOrFlexible
                                          PositionFixedOrFlexible,
                                       TimingOffset
           timingOffset
                                                                         DEFAULT 0
        },
                                      SEQUENCE {
       t.dd
           -- TABULAR: the offset is included in CommonTimeslotInfoSCCPCH
           channelisationCode
                                         SCCPCH-ChannelisationCodeList
       }
   }
}
                              SEQUENCE {
SecondaryCCPCH-Info-r4 ::=
   modeSpecificInfo CHOICE {
       fdd
                                    SEQUENCE {
                                     SecondaryScramblingCode
           secondaryScramblingCode
                                                                        OPTIONAL,
           sttd-Indicator
                                          BOOLEAN,
           sf-AndCodeNumber
                                         SF256-AndCodeNumber,
           pilotSymbolExistence
                                          BOOLEAN,
           tfci-Existence
                                         BOOLEAN,
           positionFixedOrFlexible
                                          PositionFixedOrFlexible,
                                                                         DEFAULT 0
           timingOffset
                                          TimingOffset
        },
                                      SEQUENCE {
           -- TABULAR: the offset is included in CommonTimeslotInfoSCCPCH
           commonTimeslotInfo
                                          CommonTimeslotInfoSCCPCH,
           tddOption
                                          CHOICE {
```

```
t.dd384
                                                  SEQUENCE {
                    individualTimeslotInfo
                                                     IndividualTimeslotInfo
                tdd128
                                                SEQUENCE {
                    individualTimeslotInfo
                                                   IndividualTimeslotInfo-LCR-r4
            },
            channelisationCode SCCPCH-ChannelisationCodeList
        }
    }
}
SecondaryCCPCH-Info-LCR-r4-ext ::= SEQUENCE {
    individualTimeslotLCR-Ext
                                         IndividualTimeslotInfo-LCR-r4-ext
}
   ondaryCPICH-Info ::= SEQUENCE {
secondaryDL-ScramblingCode SecondaryScramblingCode
channelisationCode 256
SecondaryCPICH-Info ::=
                                                                              OPTIONAL,
    channelisationCode
                                         ChannelisationCode256
}
SecondaryScramblingCode ::=
                                    INTEGER (1..15)
SecondInterleavingMode ::=
                                   ENUMERATED {
                                         frameRelated, timeslotRelated }
-- SF256-AndCodeNumber encodes both "Spreading factor" and "Code Number"
SF256-AndCodeNumber ::=
                                     CHOICE {
    sf4
                                          INTEGER (0..3),
   sf8
                                          INTEGER (0..7),
                                          INTEGER (0..15),
    sf16
                                          INTEGER (0..31),
   sf32
    sf64
                                         INTEGER (0..63),
    sf128
                                          INTEGER (0..127),
                                         INTEGER (0..255)
    sf256
}
-- SF512-AndCodeNumber encodes both "Spreading factor" and "Code Number"
SF512-AndCodeNumber ::=
                                     CHOICE {
                                         INTEGER (0..3),
   sf4
   sf8
                                          INTEGER (0..7),
    sf16
                                          INTEGER (0..15),
                                         INTEGER (0..31),
   sf32
                                         INTEGER (0..63),
INTEGER (0..127),
   sf64
   sf128
    sf256
                                         INTEGER (0..255),
                                         INTEGER (0..511)
    sf512
}
-- SF512-AndPilot encodes both "Spreading factor" and "Number of bits for Pilot bits"
SF512-AndPilot ::=
                                     CHOICE {
   sfd4
                                         NULL,
   sfd8
                                         NULL,
    sfd16
                                         NULL,
    sfd32
                                         NULL,
   sfd64
                                         NULL,
    sfd128
                                         PilotBits128,
    sfd256
                                         PilotBits256,
    sfd512
                                         NULL
                                     ENUMERATED {
                                         sfp4, sfp8, sfp16, sfp32, sfp64, sfp128, sfp256 }
SF-PRACH ::=
                                     ENUMERATED {
                                         sfpr32, sfpr64, sfpr128, sfpr256 }
SFN-TimeInfo ::=
                                     SEQUENCE {
   activationTimeSFN
                                        INTEGER (0..4095),
   physChDuration
                                     DurationTimeInfo
 -- actual scheduling value = 2^{(\text{signalled value }+1)} and is the periodicity of sending special burst frames
SpecialBurstScheduling ::=
                                        INTEGER (0..7)
SpreadingFactor ::=
                                     ENUMERATED {
                                         sf4, sf8, sf16, sf32,
                                          sf64, sf128, sf256 }
```

```
INTEGER (0..7)
SRB-delay ::=
SSDT-CellIdentity ::=
                                     ENUMERATED {
                                         ssdt-id-a, ssdt-id-b, ssdt-id-c,
                                          ssdt-id-d, ssdt-id-e, ssdt-id-f,
                                         ssdt-id-g, ssdt-id-h }
SSDT-Information ::=
                                     SEQUENCE {
    s-Field
                                          S-Field,
    codeWordSet
                                          CodeWordSet
}
SSDT-Information-r4 ::=
s-Field
codeWordSet
                                    SEQUENCE {
                                        S-Field,
                                          CodeWordSet,
   ssdt-UL-r4
                                         SSDT-UL
                                                                                    OPTIONAL
SSDT-UL ::=
                                     ENUMERATED {
                                         ul, ul-AndDL }
SynchronisationParameters-r4 ::=
                                     SEQUENCE {
                                         BIT STRING {
    sync-UL-CodesBitmap
                                              code7(0),
                                              code6(1),
                                              code5(2),
                                              code4(3),
                                              code3(4),
                                              code2(5),
                                              code1(6),
                                              code0(7)
                                              } (SIZE (8)),
                                         FPACH-Info-r4,
    fpach-Info
    -- Actual value prxUpPCHdes = IE value - 120
    prxUpPCHdes
                                         INTEGER (0..62),
                                                                                   OPTIONAL
    sync-UL-Procedure
                                         SYNC-UL-Procedure-r4
}
SYNC-UL-Procedure-r4 ::= SEQUENCE {
  max-SYNC-UL-Transmissions ENUMERATED { tr1, tr2, tr4, tr8 },
  powerRampStep INTEGER (0..3)
}
   c-UL-Info-r4 ::=
sync-UL-Codes-Bitmap
SYNC-UL-Info-r4 ::=
                                   SEQUENCE {
                                         BIT STRING {
                                             code7(0),
                                              code6(1),
                                              code5(2),
                                              code4(3),
                                              code3(4),
                                              code2(5),
                                              code1(6),
                                              code0(7)
                                             } ( SIZE (8)),
    -- Actual value prxUpPCHdes = IE value - 120
                     INTEGER (0..62),
    prxUpPCHdes
                                         INTEGER (0..3),
    powerRampStep
    max-SYNC-UL-Transmissions
                                         ENUMERATED { tr1, tr2, tr4, tr8 } ,
INTEGER(1..32)
    mmax
}
                                     ENUMERATED {
TDD-FPACH-CCode16-r4 ::=
                                          cc16-1, cc16-2, cc16-3, cc16-4,
                                          cc16-5, cc16-6, cc16-7, cc16-8,
                                          cc16-9, cc16-10, cc16-11, cc16-12,
                                          cc16-13, cc16-14, cc16-15, cc16-16 }
                                     INTEGER (-110..-52)
TDD-UL-Interference ::=
                                     ENUMERATED {
TDD-PICH-CCode ::=
                                         cc16-1, cc16-2, cc16-3, cc16-4,
                                          cc16-5, cc16-6, cc16-7, cc16-8,
                                          cc16-9, cc16-10, cc16-11, cc16-12,
                                          cc16-13, cc16-14, cc16-15, cc16-16 }
TDD-PRACH-CCode8 ::=
                                     ENUMERATED {
                                          cc8-1, cc8-2, cc8-3, cc8-4,
```

```
cc8-5, cc8-6, cc8-7, cc8-8 }
TDD-PRACH-CCode16 ::=
                                     ENUMERATED {
                                         cc16-1, cc16-2, cc16-3, cc16-4,
                                         cc16-5, cc16-6, cc16-7, cc16-8,
                                         cc16-9, cc16-10, cc16-11, cc16-12,
                                         cc16-13, cc16-14, cc16-15, cc16-16 }
TDD-PRACH-CCode-LCR-r4 ::=
                                     ENUMERATED {
                                         cc4-1, cc4-2, cc4-3, cc4-4,
                                         cc8-1, cc8-2, cc8-3, cc8-4,
                                         cc8-5, cc8-6, cc8-7, cc8-8,
cc16-1, cc16-2, cc16-3, cc16-4,
                                         cc16-5, cc16-6, cc16-7, cc16-8,
                                         cc16-9, cc16-10, cc16-11, cc16-12,
                                         cc16-13, cc16-14, cc16-15, cc16-16 }
TDD-PRACH-CCodeList ::=
                                     CHOICE {
                                        SEQUENCE (SIZE (1..8)) OF
                                             TDD-PRACH-CCode8,
-- Channelisation codes cc16-9, cc16-10, cc16-11, cc16-12, cc16-13, cc16-14,
-- cc16-15 and cc16-16 shall not be used
                                         SEQUENCE (SIZE (1..8)) OF
    sf16
                                             TDD-PRACH-CCode16
}
TFC-ControlDuration ::=
                                     ENUMERATED {
                                         tfc-cd1, tfc-cd2, tfc-cd4, tfc-cd8,
                                         tfc-cd16, tfc-cd24, tfc-cd32,
                                         tfc-cd48, tfc-cd64, tfc-cd128,
                                         tfc-cd192, tfc-cd256, tfc-cd512 }
TFCI-Coding ::=
                                     ENUMERATED {
                                         tfci-bits-4, tfci-bits-8,
                                         tfci-bits-16, tfci-bits-32 }
TGCFN ::=
                                     INTEGER (0..255)
-- In TGD, value 270 represents "undefined" in the tabular description.
TGD ::=
                                     INTEGER (15..270)
                                     INTEGER (1..14)
TGL ::=
TGMP ::=
                                     ENUMERATED {
                                         tdd-Measurement, fdd-Measurement,
                                         gsm-CarrierRSSIMeasurement,
                                         gsm-initialBSICIdentification, gsmBSICReconfirmation,
                                         multi-carrier }
                                     SEQUENCE {
TGP-Sequence ::=
                                         TGPSI,
    tapsi
                                         CHOICE {
    tgps-Status
      activate
                                            SEQUENCE {
                                                 TGCFN
            tgcfn
                                             NULL
       deactivate
    tgps-ConfigurationParams
                                        TGPS-ConfigurationParams
                                                                            OPTIONAL
}
TGPS-Reconfiguration-CFN ::=
                                    INTEGER (0..255)
                                     SEQUENCE (SIZE (1..maxTGPS)) OF
TGP-SequenceList ::=
                                        TGP-Sequence
                                     SEQUENCE {
TGP-SequenceShort ::=
                                         TGPSI,
    tgpsi
    tgps-Status
                                         CHOICE {
                                            SEQUENCE {
       activate
            tgcfn
                                                TGCFN
        deactivate
                                             NULL
    }
}
TGPL ::=
                                    INTEGER (1..144)
-- TABULAR: In TGPRC, value 0 represents "infinity" in the tabular description.
```

```
TGPRC ::=
                                   INTEGER (0..511)
TGPS-ConfigurationParams ::=
                                   SEQUENCE {
    tgmp
                                       TGMP,
    tgprc
                                        TGPRC,
    tgsn
                                        TGSN,
    tgl1
                                        TGL,
                                                                           OPTIONAL,
    tq12
                                        TGL
    tgd
                                        TGD,
    tgpl1
                                        TGPL,
    -- dummy is not used in this version of the specification, it should
    -- not be sent and if received it may be ignored.
   dummy
                                                                       OPTIONAL.
                                    TGPL
                                       RPP,
   itp
                                        ITP,
    -- TABULAR: Compressed mode method is nested inside UL-DL-Mode
   ul-DL-Mode
                                       UL-DL-Mode,
   dl-FrameType
                                       DL-FrameType,
   deltaSIR1
                                       DeltaSIR,
   deltaSIRAfter1
                                       DeltaSIR,
                                                                            OPTIONAL,
   deltaSIR2
                                       DeltaSIR
   deltaSIRAfter2
                                       DeltaSIR
                                                                            OPTIONAL,
   {\tt nidentifyAbort}
                                       NidentifyAbort
                                                                            OPTIONAL,
   treconfirmAbort
                                       TreconfirmAbort
                                                                            OPTIONAL
}
TGPSI ::=
                                   INTEGER (1..maxTGPS)
TGSN ::=
                                    INTEGER (0..14)
TimeInfo ::=
                                    SEQUENCE {
                                       ActivationTime
                                                                           OPTIONAL,
   activationTime
   durationTimeInfo
                                        DurationTimeInfo
                                                                           OPTIONAL
TimeslotList ::=
                                    SEQUENCE (SIZE (1..maxTS)) OF
                                       TimeslotNumber
TimeslotList-r4 ::=
                                    CHOICE {
   tdd384
                                      SEQUENCE (SIZE (1..maxTS)) OF
                                           TimeslotNumber,
   tdd128
                                        SEQUENCE (SIZE (1..maxTS-LCR)) OF
                                           TimeslotNumber-LCR-r4
-- If TimeslotNumber is included for a 1.28Mcps TDD description, it shall take values from 0..6
                                        INTEGER (0..14)
TimeslotNumber ::=
TimeslotNumber-LCR-r4 ::=
                                       INTEGER (0..6)
TimeslotNumber-PRACH-LCR-r4 ::=
                                  INTEGER (1..6)
TimeslotSync2 ::=
                              INTEGER (0..6)
-- Actual value TimingOffset = IE value * 256
TimingOffset ::=
                                   INTEGER (0..149)
TPC-CombinationIndex ::=
                                   INTEGER (0..5)
-- Actual value TPC-StepSizeFDD = IE value + 1
TPC-StepSizeFDD ::=
                                   INTEGER (0..1)
TPC-StepSizeTDD ::=
                                   INTEGER (1..3)
-- Actual value TreconfirmAbort = IE value * 0.5 seconds
TreconfirmAbort ::= INTEGER (1..20)
TX-DiversityMode ::=
                                    ENUMERATED {
                                       noDiversity,
                                        sttd,
                                        closedLoopMode1,
                                        closedLoopMode2 }
                               INTEGER (0..16383)
UARFCN ::=
UCSM-Info ::=
                                    SEQUENCE {
   {\tt minimumSpreadingFactor}
                                       MinimumSpreadingFactor,
   nf-Max
                                        NF-Max,
```

```
channelReqParamsForUCSM
                                    ChannelReqParamsForUCSM
}
UL-CCTrCH ::=
                                 SEQUENCE {
   tfcs-ID
                                    TFCS-IdentityPlain
                                                                     DEFAULT 1,
   ul-TargetSIR
                                    UL-TargetSIR,
   timeInfo
                                    TimeInfo,
                                    CommonTimeslotInfo
   commonTimeslotInfo
                                                                     OPTIONAL.
   OPTIONAL
                             SEQUENCE {
UL-CCTrCH-r4 ::=
                                   TFCS-IdentityPlain
                                                                     DEFAULT 1.
   tfcs-ID
   -- The IE ul-TargetSIR corresponds to PRX-DPCHdes for 1.28Mcps TDD
   -- Actual value PRX-DPCHdes = (value of IE "ul-TargetSIR" - 120)
   ul-TargetSIR
                                    UL-TargetSIR,
   timeInfo
                                    TimeInfo,
   commonTimeslotInfo
                                    CommonTimeslotInfo
                                                                    OPTIONAL,
   tddOption
                                    CHOICE {
       tdd384
                                    SEQUENCE {
         ul-CCTrCH-TimeslotsCodes
                                         UplinkTimeslotsCodes
                                                                    OPTIONAL
          tdd128
                                        UplinkTimeslotsCodes-LCR-r4 OPTIONAL
   }
}
                                 SEQUENCE (SIZE (1..maxCCTrCH)) OF
UL-CCTrCHList ::=
                                    UL-CCTrCH
UL-CCTrCHList-r4 ::=
                                 SEQUENCE (SIZE (1..maxCCTrCH)) OF
                                    UL-CCTrCH-r4
UL-CCTrCHListToRemove ::=
                                 SEQUENCE (SIZE (1..maxCCTrCH)) OF
                                    TFCS-IdentityPlain
UL-CCTrChTPCList ::=
                                SEQUENCE (SIZE (0..maxCCTrCH)) OF
                                        TFCS-Identity
UL-ChannelRequirement ::=
                                CHOICE {
                                  UL-DPCH-Info,
   ul-DPCH-Info
   cpch-SetInfo
                                    CPCH-SetInfo
}
\label{eq:UL-ChannelRequirement-r4} \mbox{ ::= } \mbox{ CHOICE } \{
                                 UL-DPCH-Info-r4,
   ul-DPCH-Info
   cpch-SetInfo
                                    CPCH-SetInfo
UL-ChannelRequirement-r5 ::= CHOICE {
                                    UL-DPCH-Info-r5,
   ul-DPCH-Info
   cpch-SetInfo
                                    CPCH-SetInfo
}
UL-ChannelRequirementWithCPCH-SetID ::= CHOICE {
   ul-DPCH-Info
                                    UL-DPCH-Info,
   cpch-SetInfo
                                    CPCH-SetInfo,
   cpch-SetID
                                    CPCH-SetID
}
UL-ChannelRequirementWithCPCH-SetID-r4 ::= CHOICE {
   ul-DPCH-Info
                                    UL-DPCH-Info-r4,
                                    CPCH-SetInfo,
   cpch-SetInfo
   cpch-SetID
                                    CPCH-SetID
}
UL-ChannelRequirementWithCPCH-SetID-r5 ::= CHOICE {
   ul-DPCH-Info
                                    UL-DPCH-Info-r5,
   cpch-SetInfo
                                    CPCH-SetInfo,
   cpch-SetID
                                    CPCH-SetID
}
                                ENUMERATED {
UL-CompressedModeMethod ::=
                                    higherLayerScheduling }
                                 CHOICE {
UL-DL-Mode ::=
```

```
ul
                                         UL-CompressedModeMethod,
                                         DL-CompressedModeMethod,
    dl
    ul-and-dl
                                             SEQUENCE {
                                             {\tt UL-CompressedModeMethod},\\
        117
        dl
                                             {\tt DL-CompressedModeMethod}
    }}
UL-DPCCH-SlotFormat ::=
                                    ENUMERATED {
                                         slf0, slf1, slf2 }
UL-DPCH-Info ::=
                                    SEQUENCE {
                                         UL-DPCH-PowerControlInfo
    ul-DPCH-PowerControlInfo
                                                                            OPTIONAL.
                                         CHOICE {
    modeSpecificInfo
        fdd
                                             SEQUENCE {
            scramblingCodeType
                                                 ScramblingCodeType,
                                                 UL-ScramblingCode,
            scramblingCode
            numberOfDPDCH
                                                 NumberOfDPDCH
                                                                             DEFAULT 1.
            spreadingFactor
                                                 SpreadingFactor,
                                                 BOOLEAN,
            tfci-Existence
            -- numberOfFBI-Bits is conditional based on history
                                                                             OPTIONAL,
            numberOfFBI-Bits
                                                 NumberOfFBI-Bits
            puncturingLimit
                                                 PuncturingLimit
        tdd
                                            SEQUENCE {
                                                 UL-TimingAdvanceControl
            ul-TimingAdvance
                                                                             OPTIONAL.
            ul-CCTrCHList
                                                 UL-CCTrCHList
                                                                             OPTIONAL,
            ul-CCTrCHListToRemove
                                                 UL-CCTrCHListToRemove
                                                                             OPTIONAL
    }
}
UL-DPCH-Info-r4 ::=
                                    SEQUENCE {
    ul-DPCH-PowerControlInfo
                                         UL-DPCH-PowerControlInfo-r4
                                                                            OPTIONAL,
                                         CHOICE {
    modeSpecificInfo
                                             SEQUENCE {
        fdd
                                                 ScramblingCodeType,
            scramblingCodeType
            scramblingCode
                                                 UL-ScramblingCode,
            numberOfDPDCH
                                                 NumberOfDPDCH
                                                                             DEFAULT 1,
            spreadingFactor
                                                 SpreadingFactor,
            tfci-Existence
                                                 BOOLEAN,
             -- numberOfFBI-Bits is conditional based on history
                                                NumberOfFBI-Bits
                                                                             OPTIONAL,
            numberOfFBI-Bits
            puncturingLimit
                                                 PuncturingLimit
        },
        tdd
                                            SEQUENCE {
            ul-TimingAdvance
                                                UL-TimingAdvanceControl-r4 OPTIONAL,
            ul-CCTrCHList
                                                 UL-CCTrCHList-r4
                                                                             OPTIONAL.
            ul-CCTrCHListToRemove
                                                 UL-CCTrCHListToRemove
                                                                             OPTIONAL
        }
    }
}
UL-DPCH-Info-r5 ::=
                                    SEQUENCE {
                                         UL-DPCH-PowerControlInfo-r5
    ul-DPCH-PowerControlInfo
                                                                             OPTIONAL.
    modeSpecificInfo
                                         CHOICE {
        fdd
                                            SEQUENCE {
            scramblingCodeType
                                                 ScramblingCodeType,
                                                 UL-ScramblingCode,
            scramblingCode
            numberOfDPDCH
                                                 NumberOfDPDCH
                                                                             DEFAULT 1,
            spreadingFactor
                                                 SpreadingFactor,
            tfci-Existence
                                                 BOOLEAN,
            -- numberOfFBI-Bits is conditional based on history
            numberOfFBI-Bits
                                                 NumberOfFBI-Bits
                                                                             OPTIONAL,
            puncturingLimit
                                                 PuncturingLimit
        },
        tdd.
                                            SEQUENCE {
            ul-TimingAdvance
                                                UL-TimingAdvanceControl-r4 OPTIONAL,
            ul-CCTrCHList
                                                 UL-CCTrCHList-r4
                                                                             OPTIONAL,
                                                                       OPTIONAL
OPTIONAL
            ul-CCTrCHListToRemove
                                                 UL-CCTrCHListToRemove
        }
    }
}
UL-DPCH-InfoPostFDD ::=
                                    SEQUENCE {
                                         UL-DPCH-PowerControlInfoPostFDD,
    ul-DPCH-PowerControlInfo
            scramblingCodeType
                                                 ScramblingCodeType,
                                                 ReducedScramblingCodeNumber,
            {\tt reducedScramblingCodeNumber}
                                                 SpreadingFactor
            spreadingFactor
```

```
}
UL-DPCH-InfoPostTDD ::=
                                    SEQUENCE {
    ul-DPCH-PowerControlInfo
                                       UL-DPCH-PowerControlInfoPostTDD,
    ul-TimingAdvance
                                        UL-TimingAdvanceControl
                                                                                OPTIONAL,
    ul-CCTrCH-TimeslotsCodes
                                       UplinkTimeslotsCodes
}
UL-DPCH-InfoPostTDD-LCR-r4 ::=
                                   SEQUENCE {
                                   UL-DPCH-PowerControlInfoPostTDD-LCR-r4,
   ul-DPCH-PowerControlInfo
    ul-TimingAdvance
                                       UL-TimingAdvanceControl-LCR-r4
                                                                                    OPTIONAL.
    ul-CCTrCH-TimeslotsCodes
                                       UplinkTimeslotsCodes-LCR-r4
}
UL-DPCH-InfoPredef ::=
                                   SEQUENCE {
                                      UL-DPCH-PowerControlInfoPredef,
    ul-DPCH-PowerControlInfo
    modeSpecificInfo
                                        CHOICE {
                                            SEQUENCE {
            tfci-Existence
                                                BOOLEAN,
            puncturingLimit
                                                PuncturingLimit
        },
        tdd
                                            SEQUENCE {
            commonTimeslotInfo
                                               CommonTimeslotInfo
    }
}
UL-DPCH-PowerControlInfo ::=
                                   CHOICE {
                                        SEQUENCE {
    fdd
        dpcch-PowerOffset
                                           DPCCH-PowerOffset,
       pc-Preamble
                                            PC-Preamble,
        sRB-delay
                                           SRB-delay,
        -- TABULAR: TPC step size nested inside PowerControlAlgorithm
       powerControlAlgorithm
                                           PowerControlAlgorithm
                                        SEQUENCE {
        ul-TargetSIR
                                           UL-TargetSIR
                                                                      OPTIONAL,
        ul-OL-PC-Signalling
                                            CHOICE {
            broadcast-UL-OL-PC-info
                                           NULL,
            individuallySignalled
                                               SEQUENCE {
               individualTS-InterferenceList
                                                   IndividualTS-InterferenceList,
                dpch-ConstantValue
                                                   ConstantValueTdd,
                primaryCCPCH-TX-Power
                                                   PrimaryCCPCH-TX-Power
            }
        }
                                                                        OPTIONAL
    }
}
UL-DPCH-PowerControlInfo-r4 ::=
                                   CHOICE {
    fdd
                                        SEQUENCE {
       dpcch-PowerOffset
                                           DPCCH-PowerOffset,
       pc-Preamble
                                            PC-Preamble,
        sRB-delay
                                            SRB-delay,
        -- TABULAR: TPC step size nested inside PowerControlAlgorithm
        powerControlAlgorithm
                                           PowerControlAlgorithm
    },
    tdd
                                       SEQUENCE {
        -- The IE ul-TargetSIR corresponds to PRX-DPCHdes for 1.28Mcps TDD
        -- Actual value PRX-DPCHdes = (value of IE "ul-TargetSIR" - 120)
                                          UL-TargetSIR
                                                                        OPTIONAL,
        ul-TargetSIR
                                           CHOICE {
        ul-OL-PC-Signalling
           broadcast-UL-OL-PC-info
                                               NULL.
            individuallySignalled
                                                SEQUENCE {
                tddOption
                                                    CHOICE {
                                                       SEQUENCE {
                    t.dd384
                        individualTS-InterferenceList
                                                           IndividualTS-InterferenceList,
                                                           ConstantValue
                        dpch-ConstantValue
                    },
                    tdd128
                                                       SEQUENCE {
                        tpc-StepSize
                                                           TPC-StepSizeTDD
               primaryCCPCH-TX-Power
                                                  PrimaryCCPCH-TX-Power
           }
       }
    }
}
```

```
UL-DPCH-PowerControlInfo-r5 ::= CHOICE {
                                       SEQUENCE {
    fdd
       dpcch-PowerOffset
                                         DPCCH-PowerOffset,
       pc-Preamble
                                           PC-Preamble,
       sRB-delay
                                           SRB-delay,
        -- TABULAR: TPC step size nested inside PowerControlAlgorithm
       powerControlAlgorithmPowerControlAlgorithm,deltaACKDeltaACKOPTIONAL,deltaNACKDeltaNACKOPTIONAL,
       ack-NACK-repetition-factor
                                          ACK-NACK-repetitionFactor OPTIONAL
    t dd
                                      SEQUENCE {
        -- The IE ul-TargetSIR corresponds to PRX-DPCHdes for 1.28Mcps TDD
        -- Actual value PRX-DPCHdes = (value of IE "ul-TargetSIR" - 120)
                            UL-TargetSIR
                                                                      OPTIONAL,
       ul-TargetSIR
        ul-OL-PC-Signalling
                                          CHOICE {
           broadcast-UL-OL-PC-info NULL, individuallySignalled SEQUE
                                               SEQUENCE {
                                                  CHOICÈ {
                tddOption
                                                     SEQUENCE {
                   tdd384
                                                       IndividualTS-InterferenceList,
                       individualTS-InterferenceList
                       dpch-ConstantValue
                                                          ConstantValue
                   tdd128
                                                       SEQUENCE {
                       tpc-StepSize
                                                           TPC-StepSizeTDD
               primaryCCPCH-TX-Power
                                      PrimaryCCPCH-TX-Power
           }
       }
   }
}
UL-DPCH-PowerControlInfoPostFDD ::= SEQUENCE {
    -- DPCCH-PowerOffset2 has a smaller range to save bits
   dpcch-PowerOffset
                                       DPCCH-PowerOffset2,
   pc-Preamble
                                       PC-Preamble.
   sRB-delay
                                       SRB-delay
}
UL-DPCH-PowerControlInfoPostTDD ::= SEQUENCE {
   ul-TargetSIR
                                      UL-TargetSIR,
    ul-TimeslotInterference
                                       TDD-UL-Interference
}
UL-DPCH-PowerControlInfoPostTDD-LCR-r4 ::= SEQUENCE {
    -- The IE ul-TargetSIR corresponds to PRX-DPCHdes for 1.28Mcps TDD
    -- Actual value PRX-DPCHdes = (value of IE "ul-TargetSIR" - 120)
   ul-TargetSIR
                                       UL-TargetSIR
}
UL-DPCH-PowerControlInfoPredef ::= CHOICE { SEQUENCE {
        -- TABULAR: TPC step size nested inside PowerControlAlgorithm
       powerControlAlgorithm
                                           PowerControlAlgorithm
    tdd
                                       SEQUENCE {
        -- dpch-ConstantValue shall be ignored if in 1.28Mcps TDD mode.
       dpch-ConstantValue
                                           ConstantValueTdd
    }
}
                                  INTEGER (-110..-70)
UL-Interference ::=
UL-ScramblingCode ::=
                                   INTEGER (0..16777215)
UL-SynchronisationParameters-r4 ::= SEQUENCE {
   stepSize
                                      INTEGER (1..8),
                                       INTEGER (1..8)
   frequency
}
-- Actual value UL-TargetSIR = (IE value * 0.5) - 11
UL-TargetSIR ::=
                                  INTEGER (0..62)
UL-TimingAdvance ::=
                                  INTEGER (0..63)
```

```
UL-TimingAdvanceControl ::=
                                     CHOICE {
    disabled
                                         NULL,
    enabled
                                         SEQUENCE {
        ul-TimingAdvance
                                             UL-TimingAdvance
                                                                               OPTIONAL,
        activationTime
                                             ActivationTime
                                                                               OPTIONAL
}
UL-TimingAdvanceControl-r4 ::=
                                     CHOICE {
    disabled
                                         SEQUENCE {
    enabled
        tddOption
                                              CHOICE {
            tdd384
                                                  SEQUENCE {
                ul-TimingAdvance
                                                      UL-TimingAdvance
                                                                                       OPTIONAL,
                activationTime
                                                      ActivationTime
                                                                                       OPTIONAL
            },
            tdd128
                                                  SEQUENCE {
                ul-SynchronisationParameters
                                                      UL-SynchronisationParameters-r4 OPTIONAL,
                synchronisationParameters
                                                      SynchronisationParameters-r4
            }
        }
    }
}
UL-TimingAdvanceControl-LCR-r4 ::= CHOICE {
    enabled
                                         SEOUENCE {
        ul-SynchronisationParameters
                                              UL-SynchronisationParameters-r4 OPTIONAL,
        synchronisationParameters
                                              SynchronisationParameters-r4
                                                                             OPTIONAL
}
UL-TS-ChannelisationCode ::=
                                     ENUMERATED {
                                         cc1-1, cc2-1, cc2-2,
                                         cc4-1, cc4-2, cc4-3, cc4-4,
                                         cc8-1, cc8-2, cc8-3, cc8-4,
cc8-5, cc8-6, cc8-7, cc8-8,
                                         cc16-1, cc16-2, cc16-3, cc16-4,
                                         cc16-5, cc16-6, cc16-7, cc16-8,
                                         cc16-9, cc16-10, cc16-11, cc16-12,
                                         cc16-13, cc16-14, cc16-15, cc16-16 }
UL-TS-ChannelisationCodeList ::=
                                     SEQUENCE (SIZE (1..2)) OF
                                         UL-TS-ChannelisationCode
UplinkAdditionalTimeslots ::=
                                     SEQUENCE {
                                         CHOICE {
    parameters
                                             SEQUENCE {
        sameAsLast
            timeslotNumber
                                                  TimeslotNumber
        newParameters
                                              SEQUENCE {
                                                          IndividualTimeslotInfo,
            individualTimeslotInfo
            ul-TS-ChannelisationCodeList
                                                          UL-TS-ChannelisationCodeList
        }
    }
}
                                         SEQUENCE {
UplinkAdditionalTimeslots-LCR-r4 ::=
    parameters
                                         CHOICE {
        sameAsLast
                                              SEQUENCE {
            timeslotNumber
                                                  TimeslotNumber
        newParameters
                                              SEQUENCE {
            individualTimeslotInfo
                                                          IndividualTimeslotInfo-LCR-r4,
            ul-TS-ChannelisationCodeList
                                                          UL-TS-ChannelisationCodeList
        }
    }
}
                                     SEQUENCE {
UplinkTimeslotsCodes ::=
    dynamicSFusage
                                         BOOLEAN,
    firstIndividualTimeslotInfo
                                         IndividualTimeslotInfo,
    ul-TS-ChannelisationCodeList
                                         UL-TS-ChannelisationCodeList,
    moreTimeslots
                                         CHOICE {
                                             NULL,
        noMore
        additionalTimeslots
                                              CHOICE {
            consecutive
                                                  SEQUENCE {
                                                      INTEGER (1..maxTS-1)
                numAdditionalTimeslots
```

```
timeslotList
                                             SEQUENCE (SIZE (1..maxTS-1)) OF
                                                 UplinkAdditionalTimeslots
       }
   }
}
UplinkTimeslotsCodes-LCR-r4 ::= SEQUENCE {
   dynamicSFusage
                                  BOOLEAN,
   firstIndividualTimeslotInfo
                                      IndividualTimeslotInfo-LCR-r4,
   ul-TS-ChannelisationCodeList
                                      UL-TS-ChannelisationCodeList,
                                     CHOICE {
   moreTimeslots
       noMore
                                         NULL.
       additionalTimeslots
                                          CHOICE {
           consecutive
                                            SEQUENCE {
             numAdditionalTimeslots
                                                 INTEGER (1..maxTS-LCR-1)
           timeslotList
                                            SEQUENCE (SIZE (1..maxTS-LCR-1)) OF
                                                 UplinkAdditionalTimeslots-LCR-r4
       }
   }
}
                                                                      INTEGER(1..4)
Wi-LCR ::=
__ ****************************
      MEASUREMENT INFORMATION ELEMENTS (10.3.7)
__ *****************
AcquisitionSatInfo ::=
                                  SEQUENCE {
   satID
                                     SatID,
    -- Actual value dopplerOthOrder = IE value * 2.5
                                     INTEGER (-2048..2047),
   doppler0thOrder
                                      ExtraDopplerInfo
   extraDopplerInfo
                                                                        OPTIONAL.
   codePhase
                                     INTEGER (0..1022),
   integerCodePhase
                                     INTEGER (0..19),
   gps-BitNumber
                                     INTEGER (0..3),
                                CodePhaseSearchWindow,
   codePhaseSearchWindow
                                    AzimuthAndElevation
   azimuthAndElevation
                                                                        OPTIONAL
AcquisitionSatInfoList ::= SEQUENCE (SIZE (1..maxSat)) OF
                                     AcquisitionSatInfo
                                  SEQUENCE (SIZE (1..maxAdditionalMeas)) OF
AdditionalMeasurementID-List ::=
                                      MeasurementIdentity
AlmanacSatInfo ::=
                                  SEQUENCE {
   dataID
                                      INTEGER (0..3),
   satID
                                      SatID,
                                     BIT STRING (SIZE (16)),
                                     BIT STRING (SIZE (8)),
   t-oa
   deltaI
                                     BIT STRING (SIZE (16)),
   omegaDot
                                     BIT STRING (SIZE (16)),
                                     BIT STRING (SIZE (8)),
   satHealth
   a-Sqrt
                                     BIT STRING (SIZE (24)),
   omega0
                                      BIT STRING (SIZE (24)),
                                     BIT STRING (SIZE (24)),
   omega
                                      BIT STRING (SIZE (24)),
                                     BIT STRING (SIZE (11)),
   af0
   af1
                                      BIT STRING (SIZE (11))
AlmanacSatInfoList ::=
                                  SEQUENCE (SIZE (1..maxSat)) OF
                                      AlmanacSatInfo
AverageRLC-BufferPayload ::=
                                  ENUMERATED {
                                      pla0, pla4, pla8, pla16, pla32,
                                      pla64, pla128, pla256, pla512,
                                      pla1024, pla2k, pla4k, pla8k, pla16k,
                                      pla32k, pla64k, pla128k, pla256k,
                                      pla512k, pla1024k, spare12, spare11,
                                      spare10, spare9, spare8, spare7, spare6,
                                      spare5, spare4, spare3, spare2, spare1 }
```

```
AzimuthAndElevation ::=
                                   SEQUENCE {
    -- Actual value azimuth = IE value * 11.25
                                       INTEGER (0..31),
    -- Actual value elevation = IE value * 11.25
                                       INTEGER (0..7)
    elevation
}
                                   SEQUENCE (SIZE (1..maxSat)) OF
BadSatList ::=
                                       INTEGER (0..63)
Frequency-Band ::=
                                   ENUMERATED {
                                       dcs1800BandUsed, pcs1900BandUsed }
BCCH-ARFCN ::=
                                   INTEGER (0..1023)
                                   SEQUENCE {
BLER-MeasurementResults ::=
    transportChannelIdentity
                                       TransportChannelIdentity,
    dl-TransportChannelBLER
                                       DL-TransportChannelBLER
                                                                         OPTIONAL
                                  SEQUENCE (SIZE (1..maxTrCH)) OF
BLER-MeasurementResultsList ::=
                                       BLER-MeasurementResults
BLER-TransChIdList ::=
                                   SEQUENCE (SIZE (1..maxTrCH)) OF
                                       TransportChannelIdentity
BSIC-VerificationRequired ::=
                                   ENUMERATED {
                                     required, notRequired }
                                   CHOICE {
BSICReported ::=
    -- Value maxCellMeas is not allowed for verifiedBSIC
                                      INTEGER (0..maxCellMeas),
    verifiedBSIC
   nonVerifiedBSIC
                                       BCCH-ARFCN
}
BurstModeParameters ::=
                                   SEQUENCE {
   burstStart
                                     INTEGER (0..15),
                                       INTEGER (10..25),
INTEGER (1..16)
   burstLength
   burstFreq
}
   CellDCH-ReportCriteria ::=
                                      PeriodicalReportingCriteria
}
CellDCH-ReportCriteria-LCR-r4 ::= CHOICE {
   intraFreqReportingCriteria IntraFreqReportingCriteria-LCR-r4, periodicalReportingCriteria PeriodicalReportingCriteria
}
-- Actual value CellIndividualOffset = IE value * 0.5
CellIndividualOffset ::=
                                  INTEGER (-20..20)
   cellIndividualOffset
CellInfo ::=
                                   SEQUENCE {
                                   CellIndividualOffset
                                                                          DEFAULT 0,
                                      ReferenceTimeDifferenceToCell
    referenceTimeDifferenceToCell
                                                                         OPTIONAL,
   modeSpecificInfo
                                    CHOICE {
                                       SEQUENCE {
       fdd
                                               PrimaryCPICH-Info OPTIONAL,
PrimaryCPICH-TX-Power OPTIONAL,
                                           PrimaryCPICH-Info
           primaryCPICH-Info
           primaryCPICH-TX-Power
           readSFN-Indicator
                                               BOOLEAN,
                                              BOOLEAN
           tx-DiversityIndicator
                                         SEQUENCE {
           primaryCCPCH-Info
primaryCCPCH-TX-Power
                                          PrimaryCCPCH-Info,
                                              PrimaryCCPCH-TX-Power OPTIONAL,
TimeslotInfoList OPTIONAL,
           timeslotInfoList
           readSFN-Indicator
                                               BOOLEAN
    }
}
   cellIndividualOffset
CellInfo-r4 ::=
                                   SEQUENCE {
   CellIndividualOffset referenceTimeDifferenceToCell ReferenceTimeDifferenceToCell modeSpecificInfo
                                                                         DEFAULT 0,
                                       ReferenceTimeDifferenceToCell OPTIONAL,
```

```
fdd
                                               SEQUENCE {
                                                   PrimaryCPICH-Info
            primaryCPICH-Info
                                                                                 OPTIONAL,
                                                   PrimaryCPICH-TX-Power
                                                                               OPTIONAL,
            primaryCPICH-TX-Power
            readSFN-Indicator
                                                   BOOLEAN,
            tx-DiversityIndicator
                                                   BOOLEAN
        },
                                             SEQUENCE {
            primaryCCPCH-Info
                                                   PrimaryCCPCH-Info-r4,
            primaryCCPCH-Info
primaryCCPCH-TX-Power
timeslotInfoList
                                                   PrimaryCCPCH-TX-Power OPTIONAL,
            timeslotInfoList
                                                   TimeslotInfoList-r4
                                                                                 OPTIONAL,
            readSFN-Indicator
                                                   BOOLEAN
        }
    }
}
CellInfoSI-RSCP ::=
                                      SEQUENCE {
    cellIndividualOffset
                                          CellIndividualOffset
                                                                                 DEFAULT 0,
                                          ReferenceTimeDifferenceToCell OPTIONAL,
    referenceTimeDifferenceToCell
    modeSpecificInfo
                                          CHOICE {
        fdd
                                            SEQUENCE {
                                                   PrimaryCPICH-Info OPTIONAL,
PrimaryCPICH-TX-Power OPTIONAL,
            primaryCPICH-Info
            primaryCPICH-TX-Power
            readSFN-Indicator
                                                   BOOLEAN.
                                                   BOOLEAN
            tx-DiversityIndicator
        },
        tdd
                                               SEQUENCE {
            primaryCCPCH-Info
                                                   PrimaryCCPCH-Info,
            primaryCCPCH-Info
primaryCCPCH-TX-Power
                                                   PrimaryCCPCH-TX-Power
                                                                               OPTIONAL,
            timeslotInfoList
                                                   TimeslotInfoList
                                                                                 OPTIONAL.
            readSFN-Indicator
                                                   BOOLEAN
        }
    },
    cellSelectionReselectionInfo CellSelectReselectInfoSIB-11-12-RSCP
                                                                                          OPTIONAL
}
CellinfoSI-RSCP-LCR-r4 ::= SEQUENCE {
   cellIndividualOffset CellIndividualOffset
referenceTimeDifferenceToCell
primaryCCPCH-Info
primaryCCPCH-TX-Power
timeslotInfoList
readSFN-Indicator

CellIndividualOffset
ReferenceTimeDifferenceToCell
PrimaryCCPCH-Info-LCR-r4,
PrimaryCCPCH-TX-Power
TimeslotInfoList
TimeslotInfoList-LCR-r4
                                                                                 DEFAULT 0,
                                                                                 OPTIONAL,
                                                                                 OPTIONAL,
                                                                                 OPTIONAL.
    readSFN-Indicator BOOLEAN, cellSelectionReselectionInfo CellSelectReselectInfoSIB-11-12-RSCP
                                                                                          OPTIONAL
}
    cellIndividualOffset
CellInfoST-ECNO ::=
                                     CellIndividualOffset
                                          CellIndividualOffset DEFAULT 0,
ReferenceTimeDifferenceToCell OPTIONAL,
    referenceTimeDifferenceToCell
    modeSpecificInfo
                                          CHOICE {
                                              SEQUENCE {
        fdd
                                                   PrimaryCPICH-Info OPTIONAL,
PrimaryCPICH-TX-Power OPTIONAL,
                                                   PrimaryCPICH-Info
            primaryCPICH-Info
            primaryCPICH-TX-Power
            readSFN-Indicator
                                                   BOOLEAN.
                                                   BOOLEAN
            tx-DiversityIndicator
        },
        tdd
                                               SEQUENCE {
            primaryCCPCH-Info
                                                 PrimaryCCPCH-Info,
                                                                                OPTIONAL,
            primaryCCPCH-TX-Power
                                                   PrimaryCCPCH-TX-Power
                                                   TimeslotInfoList
            timeslotInfoList
            readSFN-Indicator
                                                   BOOLEAN
    },
    cellSelectionReselectionInfo CellSelectReselectInfoSIB-11-12-ECNO OPTIONAL
}
CellinfoSI-ECNO-LCR-r4 ::= SEQUENCE {
                                      CellIndividualOffset
ReferenceTimeDifferenceToCell
    cellIndividualOffset
                                                                                DEFAULT 0,
                                                                                OPTIONAL,
    referenceTimeDifferenceToCell
                             PrimaryCCPCH-Info-LCR-
PrimaryCCPCH-TX-Power
                                          PrimaryCCPCH-Info-LCR-r4,
    primaryCCPCH-Info
    primaryCCPCH-TX-Power
                                                                                OPTIONAL,
    timeslotInfoList
                                          TimeslotInfoList-LCR-r4
                                                                                 OPTIONAL,
                                          BOOLEAN.
    readSFN-Indicator
    cellSelectionReselectionInfo CellSelectReselectInfoSIB-11-12-ECN0
                                                                                      OPTIONAL
}
CellInfoST-HCS-RSCP ::=
                                     SEQUENCE {
    cellIndividualOffset
                                          CellIndividualOffset
                                                                                 DEFAULT 0,
```

```
ReferenceTimeDifferenceToCell
   referenceTimeDifferenceToCell
                                                                           OPTIONAL,
   modeSpecificInfo
                                       CHOICE {
                                           SEQUENCE {
       fdd
           primaryCPICH-Info
                                               PrimaryCPICH-Info
                                                                           OPTIONAL.
           primaryCPICH-TX-Power
                                               PrimaryCPICH-TX-Power
                                                                           OPTIONAL,
           readSFN-Indicator
                                               BOOLEAN,
           tx-DiversityIndicator
                                               BOOLEAN
        },
        tdd
                                           SEQUENCE {
           primaryCCPCH-Info
                                               PrimaryCCPCH-Info,
           primaryCCPCH-TX-Power
                                               PrimaryCCPCH-TX-Power
                                                                           OPTIONAL,
                                               TimeslotInfoList
           timeslotInfoList
                                                                           OPTIONAL,
           readSFN-Indicator
                                               BOOLEAN
   cellSelectionReselectionInfo
                                     CellSelectReselectInfoSIB-11-12-HCS-RSCP
                                                                                   OPTIONAL
CellInfoSI-HCS-RSCP-LCR-r4 ::=
                                 SEQUENCE {
   cellIndividualOffset
                                       CellIndividualOffset
                                                                           DEFAULT 0,
   referenceTimeDifferenceToCell
                                       ReferenceTimeDifferenceToCell
                                                                           OPTIONAL,
   primaryCCPCH-Info
                                       PrimaryCCPCH-Info-LCR-r4,
   primaryCCPCH-TX-Power
                                       PrimaryCCPCH-TX-Power
                                                                           OPTIONAL,
   timeslotInfoList
                                       TimeslotInfoList-LCR-r4
                                                                           OPTIONAL.
   readSFN-Indicator
                                       BOOLEAN,
   cellSelectionReselectionInfo
                                       CellSelectReselectInfoSIB-11-12-HCS-RSCP
                                                                                   OPTIONAL
CellInfoSI-HCS-ECNO ::=
                                   SEQUENCE {
   cellIndividualOffset
                                       CellIndividualOffset
                                                                           DEFAULT 0.
   referenceTimeDifferenceToCell
                                       ReferenceTimeDifferenceToCell
                                                                           OPTIONAL,
   modeSpecificInfo
                                       CHOICE {
       fdd
                                           SEQUENCE {
           primaryCPICH-Info
                                               PrimaryCPICH-Info
                                                                           OPTIONAL.
           primaryCPICH-TX-Power
                                               PrimaryCPICH-TX-Power
                                                                           OPTIONAL,
           readSFN-Indicator
                                               BOOLEAN,
           tx-DiversityIndicator
                                               BOOLEAN
        },
       tdd
                                           SEQUENCE {
           primaryCCPCH-Info
                                               PrimaryCCPCH-Info,
           primaryCCPCH-TX-Power
                                               PrimaryCCPCH-TX-Power
                                                                           OPTIONAL,
           timeslotInfoList
                                               TimeslotInfoList
                                                                           OPTIONAL.
           readSFN-Indicator
                                               BOOLEAN
   cellSelectionReselectionInfo
                                     CellSelectReselectInfoSIB-11-12-HCS-ECN0
                                                                                   OPTIONAL
CellInfoSI-HCS-ECN0-LCR-r4 ::=
                                 SEQUENCE {
   cellIndividualOffset
                                      CellIndividualOffset
                                                                           DEFAULT 0.
   referenceTimeDifferenceToCell
                                       ReferenceTimeDifferenceToCell
                                                                           OPTIONAL,
                                       PrimaryCCPCH-Info-LCR-r4,
   primaryCCPCH-Info
   primaryCCPCH-TX-Power
                                       PrimaryCCPCH-TX-Power
                                                                           OPTIONAL,
   timeslotInfoList
                                       TimeslotInfoList-LCR-r4
   readSFN-Indicator
                                       BOOLEAN,
   cellSelectionReselectionInfo
                                       CellSelectReselectInfoSIB-11-12-HCS-ECN0
                                                                                   OPTIONAL
}
CellMeasuredResults ::=
                                   SEQUENCE {
   cellIdentity
                                       CellIdentity
                                                                           OPTIONAL.
    -- dummy is not used in this version of the specification, it should
    -- not be sent and if received it should be ignored.
                  SFN-SFN-ObsTimeDifference
                                                       OPTIONAL,
   cellSynchronisationInfo
                                CellSynchronisationInfo
                                                                   OPTIONAL.
   modeSpecificInfo
                                       CHOICE {
       fdd
                                           SEQUENCE {
           primaryCPICH-Info
                                               PrimaryCPICH-Info,
           cpich-Ec-N0
                                               CPICH-Ec-N0
                                                                           OPTIONAL,
           cpich-RSCP
                                               CPICH-RSCP
                                                                           OPTIONAL.
           pathloss
                                               Pathloss
                                                                           OPTIONAL
                                           SEQUENCE {
           cellParametersID
                                               CellParametersID,
           proposedTGSN
                                                                           OPTIONAL,
                                               TGSN
           primaryCCPCH-RSCP
                                               PrimaryCCPCH-RSCP
                                                                           OPTIONAL,
           pathloss
                                               Pathloss
                                                                           OPTIONAL.
                                               TimeslotISCP-List
            timeslotISCP-List
                                                                           OPTIONAL
        }
```

```
}
}
CellMeasurementEventResults ::= CHOICE {
   fdd
                                     SEQUENCE (SIZE (1..maxCellMeas)) OF
                                        PrimaryCPICH-Info,
   tdd
                                      SEQUENCE (SIZE (1..maxCellMeas)) OF
                                         PrimaryCCPCH-Info
}
CellMeasurementEventResults-LCR-r4 ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
                                         PrimaryCCPCH-Info-LCR-r4
CellReportingQuantities ::= SEQUENCE {
   -- dummy is not used in this version of the specification, it should
   -- not be sent and if received it should be ignored.
                         SFN-SFN-OTD-Type,
   dummy
                                                   BOOLEAN,
BOOLEAN,
   cellIdentity-reportingIndicator
                              CHOICE {
   cellSynchronisationInfoReportingIndicator
   modeSpecificInfo
                                       SEQUENCE {
       fdd
           cpich-Ec-N0-reportingIndicator
                                                                BOOLEAN,
           cpich-RSCP-reportingIndicator
                                                                BOOLEAN,
           pathloss-reportingIndicator
                                                            BOOLEAN
       },
                                        SEQUENCE {
       tdd
           timeslotISCP-reportingIndicator
                                                           BOOLEAN,
           proposedTGSN-ReportingRequired
                                                            BOOLEAN,
           primaryCCPCH-RSCP-reportingIndicator
                                                            BOOLEAN.
                                                           BOOLEAN
           pathloss-reportingIndicator
   }
}
CellSelectReselectInfoSIB-11-12 ::= SEQUENCE {
                             Q-OffsetS-N
   q-Offset1S-N
                                                                       OPTIONAL,
   q-Offset2S-N
                                     MaxAllowedUL-TX-Power
                                     Q-OffsetS-N
   maxAllowedUL-TX-Power
                                                                       OPTIONAL,
   hcs-NeighbouringCellInformation-RSCP
                                            HCS-NeighbouringCellInformation-RSCP
   OPTIONAL,
   modeSpecificInfo
                                     CHOICE {
                                         SEQUENCE {
       fdd
           q-QualMin
                                                                       OPTIONAL.
                                             Q-QualMin
           q-RxlevMin
                                             Q-RxlevMin
                                                                       OPTIONAL
       },
       tdd
                                         SEQUENCE {
           q-RxlevMin
                                            Q-RxlevMin
                                                                      OPTIONAL
       },
                                         SEQUENCE {
       gsm
          q-RxlevMin
                                             Q-RxlevMin
                                                                      OPTIONAL
       }
   }
}
CellSelectReselectInfoSIB-11-12-RSCP ::= SEQUENCE {
                                                              DEFAULT 0,
                      Q-OffsetS-N
   q-OffsetS-N
                                     PffsetS-N
MaxAllowedUL-TX-Power
                                                               OPTIONAL,
   maxAllowedUL-TX-Power
   modeSpecificInfo
                                     CHOICE {
       fdd
                                         SEQUENCE {
           q-QualMin
                                             O-OualMin
                                                                       OPTIONAL.
           q-RxlevMin
                                             Q-RxlevMin
                                                                       OPTIONAL
       },
       tdd
                                         SEQUENCE {
                                                            OPTIONAL
                                             Q-RxlevMin
           q-RxlevMin
       },
                                         SEQUENCE {
                                                                      OPTIONAL
          q-RxlevMin
                                             Q-RxlevMin
   }
}
CellSelectReselectInfoSIB-11-12-ECNO ::= SEQUENCE {
                                                                  DEFAULT 0,
   q-Offset1S-N
                                    O-OffsetS-N
   q	ext{-Offset2S-N}
                                     Q-OffsetS-N
                                                                  DEFAULT 0,
                                     Q-OffisetS-N DE.
MaxAllowedUL-TX-Power
   maxAllowedUL-TX-Power
                                                                       OPTIONAL,
   modeSpecificInfo
                                     CHOICE {
       fdd
                                         SEOUENCE {
                                                                      OPTIONAL,
           q-OualMin
                                             O-OualMin
```

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```
q-RxlevMin
                                                  Q-RxlevMin
                                                                               OPTIONAL
        tdd
                                             SEQUENCE {
                                                                               OPTIONAL
            q-RxlevMin
                                                 Q-RxlevMin
                                              SEQUENCE {
        gsm
            q-RxlevMin
                                                 Q-RxlevMin
                                                                               OPTIONAL
        }
    }
}
CellSelectReselectInfoSiB-11-12-HCS-RSCP ::= SEQUENCE {
    q-OffsetS-N
                                     Q-OffsetS-N
                                                                      DEFAULT 0,
    q-OffsetS-N
maxAllowedUL-TX-Power
                                        MaxAllowedUL-TX-Power
                                                                              OPTIONAL,
    hcs-NeighbouringCellInformation-RSCP
                                             HCS-NeighbouringCellInformation-RSCP
    OPTIONAL,
    modeSpecificInfo
                                         CHOICE {
                                              SEQUENCE {
        fdd
            q-QualMin
                                                 Q-QualMin
                                                                               OPTIONAL.
            q-RxlevMin
                                                                               OPTIONAL
                                                 O-RxlevMin
        },
        tdd
                                              SEQUENCE {
            q-RxlevMin
                                                 Q-RxlevMin
                                                                               OPTIONAL
        },
                                             SECUENCE {
        gsm
           q-RxlevMin
                                                 Q-RxlevMin
                                                                              OPTIONAL
    }
}
CellSelectReselectInfoSIB-11-12-HCS-ECNO ::= SEQUENCE {
                                         Q-OffsetS-N
    q-Offset1S-N
                                                                          DEFAULT 0,
    q-Offset2S-N
                                         Q-OffsetS-N
                                                                          DEFAULT 0,
                                         MaxAllowedUL-TX-Power
    maxAllowedUL-TX-Power
                                                                              OPTIONAL.
    hcs-NeighbouringCellInformation-ECN0
                                                HCS-NeighbouringCellInformation-ECN0
    OPTIONAL,
                                         CHOICE {
    modeSpecificInfo
                                              SEQUENCE {
        fdd
            q-QualMin
                                                 Q-QualMin
                                                                               OPTIONAL,
            q-RxlevMin
                                                  Q-RxlevMin
                                                                               OPTIONAL
        },
                                              SEQUENCE {
        t.dd
            q-RxlevMin
                                                 Q-RxlevMin
                                                                             OPTIONAL
        },
        gsm
                                              SEQUENCE {
            q-RxlevMin
                                                 Q-RxlevMin
                                                                              OPTIONAL
    }
}
CellSelectReselectInfo-v590ext ::= SEQUENCE {
                                                                       OPTIONAL.
    deltaQrxlevmin
                                     DeltaOrxlevmin
    deltaQhcs
                                     DeltaRSCP
                                                                       OPTIONAL
}
{\tt CellSelectReselectInfoPCHFACH-v5b0ext} \; ::= \; {\tt SEQUENCE} \; \left\{ \right. \\
    q-Hyst-l-S-PCH Q-Hyst-S-Fine
                                                                       OPTIONAL,
    q-Hyst-1-S-FACH
                                Q-Hyst-S-Fine
                                                                       OPTIONAL,
    q-Hyst-2-S-FACH
                               Q-Hyst-S-Fine
Q-Hyst-S-Fine
                                                                       OPTIONAL,
                                                                      OPTIONAL.
    t-Reselection-S-PCH
                                T-Reselection-S
                                                                      OPTIONAL,
    t-Reselection-S-FACH
                                T-Reselection-S-Fine
                                                                      OPTIONAL
}
{\tt CellSelectReselectInfoTreselectionScaling-v5c0ext} \ ::= \ {\tt SEQUENCE} \ \{ \\
    -- For speed detection, the same HCS parameters are utilised
                                   T-CRMax
    non-HCS-t-CR-Max
                                                                                           OPTIONAL,
    speedDependentScalingFactor
                                                 SpeedDependentScalingFactor
                                                                                           OPTIONAL,
    interFrequencyTreselectionScalingFactor TreselectionScalingFactor InterRATTreselectionScalingFactor TreselectionScalingFactor
                                                                                           OPTIONAL,
                                                                                           OPTIONAL
                                    SEQUENCE (SIZE (1..maxCellMeas)) OF
CellsForInterFreqMeasList ::=
                                         {\tt InterFreqCellID}
CellsForInterRATMeasList ::=
                                         SEQUENCE (SIZE (1..maxCellMeas)) OF
                                         InterRATCellID
CellsForIntraFregMeasList ::=
                                     SEQUENCE (SIZE (1..maxCellMeas)) OF
                                         IntraFreqCellID
```

```
CellSynchronisationInfo ::=
                                  SEQUENCE {
   modeSpecificInfo
                                      CHOICE {
       fdd
                                         SEQUENCE {
                                           CountC-SFN-Frame-difference
            countC-SFN-Frame-difference
                                                                               OPTIONAL,
                                               INTEGER(0..38399)
        },
                                           SEQUENCE {
        t.dd
           countC-SFN-Frame-difference
                                              CountC-SFN-Frame-difference OPTIONAL
    }
}
CellToReport ::=
                                   SEQUENCE {
   bsicReported
                                      BSICReported
                                   SEQUENCE (SIZE (1..maxCellMeas)) OF
CellToReportList ::=
                                       CellToReport
                                   ENUMERATED {
CodePhaseSearchWindow ::=
                                       w1023, w1, w2, w3, w4, w6, w8,
                                       w12, w16, w24, w32, w48, w64,
                                       w96, w128, w192 }
CountC-SFN-Frame-difference ::= SEQUENCE {
    -- Actual value countC-SFN-High = IE value * 256
                      INTEGER(0..15),
    countC-SFN-High
   off
                                  INTEGER(0..255)
}
-- SPARE: CPICH-Ec-No, Max = 49
-- Values above Max are spare
CPICH-Ec-N0 ::=
                                   INTEGER (0..63)
-- SPARE: CPICH- RSCP, Max = 91
-- Values above Max are spare
CPICH-RSCP ::=
                                   INTEGER (0..127)
DeltaPRC ::=
                                   INTEGER (-127..127)
--Actual value DeltaQrxlevmin = IE value * 2
DeltaQrxlevmin ::= INTEGER (-2..-1)
DeltaRSCP ::= INTEGER (-5..-1)
DeltaRSCPPerCell ::= SEQUENCE {
   deltaRSCP
                                   DeltaRSCP OPTIONAL
-- Actual value DeltaRRC = IE value * 0.032
DeltaRRC ::=
                                   INTEGER (-7..7)
DGPS-CorrectionSatInfo ::=
                                   SEQUENCE {
    satID
                                       SatID,
    iode
                                       IODE,
    udre
                                       UDRE,
                                       PRC,
   prc
                                       RRC.
   rrc
-- dummy1 and dummy2 are not used in this version of the specification and should be ignored.
   dummy1
                                   DeltaPRC,
   dummy2
                                   DeltaRRC,
    -- dummy3 and dummy4 are not used in this version of the specification. They should not
    \mbox{--} be sent and if received they should be ignored.
                                   DeltaPRC
                                                       OPTIONAL.
                                                       OPTIONAL
    dummy4
                                   DeltaRRC
}
DGPS-CorrectionSatInfoList ::=
                                   SEQUENCE (SIZE (1..maxSat)) OF
                                       DGPS-CorrectionSatInfo
DiffCorrectionStatus ::=
                                   ENUMERATED {
                                       udre-1-0, udre-0-75, udre-0-5, udre-0-3,
                                       udre-0-2, udre-0-1, noData, invalidData }
DL-TransportChannelBLER ::=
                                  INTEGER (0..63)
```

```
ENUMERATED {
DopplerUncertainty ::=
                                                 hz12-5, hz25, hz50, hz100, hz200,
                                                 spare3, spare2, spare1 }
EllipsoidPoint ::= SEQUENCE {
  latitudeSign ENUMERATED { north, south },
  latitude INTEGER (0..8388607),
  longitude INTEGER (-8388608..8388607)
}
                                            SEQUENCE {
EllipsoidPointAltitude ::=
    latitudeSign ENUMERATED { north, south }, latitude INTEGER (0..8388607), longitude INTEGER (-8388608..8388607),
     altitude integer (0.32767)

altitude integer (0.32767)
}
EllipsoidPointAltitudeEllipsoide ::=
                                                 SEQUENCE {
     latitude
                                  INTEGER (0..8388607),
                                  INTEGER (-8388608..8388607),
     longitude
    longitude INTEGER (-8388608..8388607)
altitudeDirection ENUMERATED {height, depth},
altitude INTEGER (0..32767),
uncertaintySemiMajor INTEGER (0..127),
uncertaintySemiMinor INTEGER (0..127),
     -- Actual value orientationMajorAxis = IE value * 2
     orientationMajorAxis INTEGER (0..89),
uncertaintyAltitude INTEGER (0..127),
confidence INTEGER (0..100)
     confidence
                                  INTEGER (0..100)
}
EllipsoidPointUncertCircle ::=
                                            SEQUENCE {
     latitudeSign ENUMERATED { north, south }, latitude INTEGER (0..8388607),
     latitude INTEGER (0..8388607),
longitude INTEGER (-8388608..8388607),
uncertaintyCode INTEGER (0..127)
}
EllipsoidPointUncertEllipse ::= SEQUENCE {
     longitude INTEGER (-8388608.8388607), uncertaintySemiMajor INTEGER (0..127), uncertaintySemiMinor INTEGER (0..127),
     -- Actual value orientationMajorAxis = IE value * 2
     orientationMajorAxis INTEGER (0..89),
     confidence
                                  INTEGER (0..100)
}
EnvironmentCharacterisation ::=
                                            ENUMERATED {
                                                 possibleHeavyMultipathNLOS,
                                                  lightMultipathLOS,
                                                 notDefined,
                                                 spare }
Eventla ::=
                                             SEQUENCE {
                                                 TriggeringCondition2,
     triggeringCondition
     reportingRange
                                                 ReportingRange,
     forbiddenAffectCellList
                                                 {\tt ForbiddenAffectCellList}
                                                                                             OPTIONAL,
     reportDeactivationThreshold
                                                 ReportDeactivationThreshold,
    reportingAmount
                                                 ReportingAmount,
                                                 ReportingInterval
     reportingInterval
}
Eventla-r4 ::=
                                            SEQUENCE {
                                                 TriggeringCondition2,
     triggeringCondition
     reportingRange
                                                 ReportingRange,
     forbiddenAffectCellList
                                                 ForbiddenAffectCellList-r4
                                                                                             OPTIONAL,
     reportDeactivationThreshold
                                                 ReportDeactivationThreshold,
     reportingAmount
                                                 ReportingAmount,
```

```
reportingInterval
                                      ReportingInterval
}
Eventla-LCR-r4 ::=
                                  SEQUENCE {
   triggeringCondition
                                      TriggeringCondition2,
   reportingRange
                                      ReportingRange,
   forbiddenAffectCellList
                                      ForbiddenAffectCellList-LCR-r4 OPTIONAL,
                                    ReportDeactivationThreshold,
   reportDeactivationThreshold
   reportingAmount
                                      ReportingAmount,
   reportingInterval
                                      ReportingInterval
}
Event1b ::=
                                  SEQUENCE {
   triggeringCondition
                                     TriggeringCondition1,
   reportingRange
                                      ReportingRange,
   forbiddenAffectCellList
                                      ForbiddenAffectCellList
                                                                       OPTIONAL,
}
Event1b-r4 ::=
                                 SEQUENCE {
   triggeringCondition
                                     TriggeringCondition1,
   reportingRange
                                      ReportingRange,
                                     ForbiddenAffectCellList-r4 OPTIONAL,
   forbiddenAffectCellList
}
                                SEQUENCE {
Event1b-LCR-r4 ::=
   triggeringCondition
                                     TriggeringCondition1,
   reportingRange
                                     ReportingRange,
   forbiddenAffectCellList
                                      ForbiddenAffectCellList-LCR-r4
                                                                           OPTIONAL,
}
Event1c ::=
                                  SEQUENCE {
   replacementActivationThreshold
                                      ReplacementActivationThreshold,
   reportingAmount
                                      ReportingAmount,
   reportingInterval
                                      ReportingInterval
}
                             SEQUENCE {
Eventle ::=
   triggeringCondition
                                      TriggeringCondition2,
   thresholdUsedFrequency
                                      ThresholdUsedFrequency
}
Event1f ::=
                              SEOUENCE {
   triggeringCondition
                                      TriggeringCondition1,
   thresholdUsedFrequency
                                      ThresholdUsedFrequency
}
Event2a ::=
                                  SEQUENCE {
    -- dummy is not used in this version of the specification and should be ignored
   dummy
                                     Threshold,
   usedFreqW
                                      W.
                                     HysteresisInterFreq,
   hysteresis
   timeToTrigger
                                     TimeToTrigger,
                                                                        OPTIONAL,
   {\tt reportingCellStatus}
                                      ReportingCellStatus
                                     NonUsedFreqParameterList
   nonUsedFreqParameterList
                                                                        OPTIONAL
}
Event2b ::=
                                  SEQUENCE {
   usedFreqThreshold
                                      Threshold,
   usedFreqW
                                      W.
                                    {\tt HysteresisInterFreq},
   hysteresis
   timeToTrigger
                                     TimeToTrigger,
   reportingCellStatus
                                    ReportingCellStatus
                                                                        OPTIONAL,
   nonUsedFreqParameterList
                                    NonUsedFreqParameterList
                                                                        OPTIONAL
}
Event2c ::=
                                  SEQUENCE {
                                     HysteresisInterFreq,
   hvsteresis
   reportingCellStatus
   timeToTrigger
                                      TimeToTrigger,
                                      ReportingCellStatus
                                                                        OPTIONAL,
   nonUsedFreqParameterList
                                    NonUsedFreqParameterList
                                                                        OPTIONAL
}
Event2d ::=
                                  SEQUENCE {
   usedFreqThreshold
                                      Threshold,
```

```
usedFreqW
                                           HysteresisInterFreq,
    hysteresis
    timeToTrigger
                                           TimeToTrigger,
    reportingCellStatus
                                                                                  OPTIONAL
                                           ReportingCellStatus
}
                                      SEQUENCE {
Event2e ::=
   hysteresis
                                          HysteresisInterFreq,
    timeToTrigger
                                           TimeToTrigger,
    reportingCellStatus
                                           ReportingCellStatus
                                                                                   OPTIONAL,
    nonUsedFreqParameterList
                                           NonUsedFreqParameterList OPTIONAL
}
Event2f ::=
                                      SEQUENCE {
   usedFreqThreshold
                                           Threshold,
    usedFreaW
                                           W,
                                           HysteresisInterFreq,
   hysteresis
    timeToTrigger
                                           TimeToTrigger,
    reportingCellStatus
                                         ReportingCellStatus
                                                                                 OPTIONAL
}
                                      SEQUENCE {
Event3a ::=
    thresholdOwnSystem
                                           Threshold,
                                           W,
    thresholdOtherSystem
                                           Threshold.
                                           Hysteresis,
    hysteresis
    timeToTrigger
                                           TimeToTrigger,
    reportingCellStatus
                                           ReportingCellStatus
                                                                                  OPTIONAL
}
   nt3b ::=
thresholdOtherSystem
bysteresis
Event3b ::=
                                       SEQUENCE {
                                       Threshold,
                                           Hysteresis,
                                           TimeToTrigger,
    timeToTrigger
                                                                                 OPTIONAL
    reportingCellStatus
                                          ReportingCellStatus
}
Event3c ::=
                                       SEQUENCE {
                                      Threshold,
    thresholdOtherSystem
    hysteresis
                                           Hysteresis,
                                           TimeToTrigger,
    timeToTrigger
    reportingCellStatus
                                           ReportingCellStatus
                                                                                 OPTIONAL
}
Event3d ::=
                                       SEQUENCE {
   hysteresis
                                           Hysteresis,
    timeToTrigger
                                           TimeToTrigger,
    reportingCellStatus
                                           ReportingCellStatus
                                                                                   OPTIONAL
}
EventIDInterFreq ::=
                                       ENUMERATED {
                                           e2a, e2b, e2c, e2d, e2e, e2f, spare2, spare1 }
EventIDInterRAT ::=
                                       ENUMERATED {
                                           e3a, e3b, e3c, e3d }
EventIDIntraFreq ::=
                                       ENUMERATED {
                                           ela, elb, elc, eld, ele, elf, elg, eli, spare7,
                                           spare6, spare5, spare4, spare3, spare2,
                                           spare1 }
                                      CHOICE {
EventResults ::=
    intraFreqEventResults
interFreqEventResults
interRATEventResults
                                    IntraFreqEventResults,
InterFreqEventResults,
    interFreqEventResults InterFreqEventResults,
interRATEventResults InterRATEventResults,
trafficVolumeEventResults TrafficVolumeEventResults,
qualityEventResults QualityEventResults,
ue-InternalEventResults UE-InternalEventResults,
    ue-positioning-MeasurementEventResults
                                                    UE-Positioning-MeasurementEventResults,
    spare
                                           NULL
}
ExtraDopplerInfo ::=
                                      SEQUENCE {
    -- Actual value doppler1stOrder = IE value * 0.023
                                           INTEGER (-42..21),
    doppler1stOrder
    dopplerUncertainty
                                           DopplerUncertainty
```

```
}
FACH-MeasurementOccasionInfo ::= SEQUENCE {
   fACH-meas-occasion-coeff INTEGER (1..12) inter-freq-FDD-meas-ind BOOLEAN,
                                                                          OPTIONAL,
    -- inter-freq-TDD-meas-ind is for 3.84Mcps TDD. For 1.28Mcps TDD, the IE in
    -- FACH-MeasurementOccasionInfo-LCR-r4-ext is used.
                                     BOOLEAN,
   inter-freq-TDD-meas-ind
    inter-RAT-meas-ind
                                       SEQUENCE (SIZE (1..maxOtherRAT)) OF
                                           RAT-Type
                                                                          OPTIONAL
}
FACH-MeasurementOccasionInfo-LCR-r4-ext ::= SEQUENCE {
   inter-freq-TDD128-meas-ind
FilterCoefficient ::=
                                   ENUMERATED {
                                      fc0, fc1, fc2, fc3, fc4, fc5,
                                       fc6, fc7, fc8, fc9, fc11, fc13,
                                       fc15, fc17, fc19, spare1 }
-- Actual value FineSFN-SFN = IE value * 0.0625
FineSFN-SFN ::=
                                   INTEGER (0..15)
ForbiddenAffectCell ::=
                                   CHOICE {
   fdd
                                      PrimaryCPICH-Info,
    tdd
                                      PrimaryCCPCH-Info
}
ForbiddenAffectCell-r4 ::=
                                   CHOICE {
    fdd
                                      PrimaryCPICH-Info,
                                      PrimaryCCPCH-Info-r4
}
ForbiddenAffectCell-LCR-r4 ::=
                                   SEQUENCE {
                                      PrimaryCCPCH-Info-LCR-r4
ForbiddenAffectCellList ::=
                                   SEQUENCE (SIZE (1..maxCellMeas)) OF
                                      ForbiddenAffectCell
                                      SEQUENCE (SIZE (1..maxCellMeas)) OF
ForbiddenAffectCellList-r4 ::=
                                      ForbiddenAffectCell-r4
ForbiddenAffectCellList-LCR-r4 ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
                                       ForbiddenAffectCell-LCR-r4
FreqQualityEstimateQuantity-FDD ::= ENUMERATED {
                                       cpich-Ec-N0,
                                       cpich-RSCP }
FreqQualityEstimateQuantity-TDD ::= ENUMERATED {
                                      primaryCCPCH-RSCP }
GPS-MeasurementParam ::= SEQUENCE {
    satelliteID
                                     INTEGER (0..63),
    c-N0
                                       INTEGER (0..63),
   doppler
                                      INTEGER (-32768..32768),
                             INTEGER (0..1022),
INTEGER (0..1023),
MultipathIndicator,
   wholeGPS-Chips
   fractionalGPS-Chips
   multipathIndicator
   pseudorangeRMS-Error
                                      INTEGER (0..63)
}
GPS-MeasurementParamList ::= SEQUENCE (SIZE (1..maxSat)) OF
                                      GPS-MeasurementParam
                                  BIT STRING (SIZE (6))
GSM-CarrierRSSI ::=
GSM-MeasuredResults ::=
                                 SEQUENCE {
   gsm-CarrierRSSI
                                      GSM-CarrierRSSI
                                                                          OPTTONAL.
    -- dummy is not used in this version of the specification, it should
    -- not be sent and if received it should be ignored.
                                      INTEGER (46..173)
                                                                          OPTIONAL,
                                     BSICReported,
   bsicReported
   observedTimeDifferenceToGSM ObservedTimeDifferenceToGSM
                                                                         OPTIONAL
```

```
GSM-MeasuredResultsList ::=
                                    SEQUENCE (SIZE (1..maxReportedGSMCells)) OF
                                         GSM-MeasuredResults
GPS-TOW-1msec ::=
                                    INTEGER (0..604799999)
GPS-TOW-Assist ::=
                                     SEQUENCE {
                                        SatID,
    satID
    tlm-Message
                                         BIT STRING (SIZE (14)),
    tlm-Reserved
                                         BIT STRING (SIZE (2)),
    alert
                                        BOOLEAN,
    antiSpoof
                                        BOOLEAN
}
GPS-TOW-AssistList ::=
                                    SEQUENCE (SIZE (1..maxSat)) OF
                                        GPS-TOW-Assist
HCS-CellReselectInformation-RSCP ::=
                                            SEQUENCE {
    -- TABULAR: The default value for penaltyTime is "notUsed"
    -- Temporary offset is nested inside PenaltyTime-RSCP
    penaltyTime
                                                PenaltyTime-RSCP
}
HCS-CellReselectInformation-ECN0 ::=
                                           SEQUENCE {
    -- TABULAR: The default value for penaltyTime is "notUsed"
    -- Temporary offset is nested inside PenaltyTime-ECNO
   penaltyTime
                                        PenaltyTime-ECN0
}
HCS-NeighbouringCellInformation-RSCP ::= SEQUENCE {
   hcs-PRIO
                                        HCS-PRIO
                                                                              DEFAULT 0,
                                                                              DEFAULT 0,
    hcs-CellReselectInformation
                                        HCS-CellReselectInformation-RSCP
}
HCS-NeighbouringCellInformation-ECN0 ::= SEQUENCE {
                                       HCS-PRIO
                                                                              DEFAULT 0,
   hcs-PRIO
                                                                              DEFAULT 0,
    a-HCS
                                         O-HCS
   hcs-CellReselectInformation
                                       HCS-CellReselectInformation-ECN0
}
HCS-PRIO ::=
                                   INTEGER (0..7)
HCS-ServingCellInformation ::= SEQUENCE {
   hcs-PRIO
                                        HCS-PRIO
                                                                             DEFAULT 0,
    q-HCS
                                         Q-HCS
                                                                              DEFAULT 0,
                                         T-CRMax
                                                                              OPTIONAL
    t-CR-Max
}
-- Actual value Hysteresis = IE value * 0.5
Hysteresis ::=
                                    INTEGER (0..15)
-- Actual value HysteresisInterFreq = IE value * 0.5
HysteresisInterFreq ::=
                                    INTEGER (0..29)
InterFreqCell ::=
                                    SEQUENCE {
    frequencyInfo
                                         FrequencyInfo,
    nonFreqRelatedEventResults
                                         {\tt CellMeasurementEventResults}
}
InterFreqCell-LCR-r4 ::=
                                    SEQUENCE {
    frequencyInfo
                                         FrequencyInfo,
    nonFreqRelatedEventResults
                                         CellMeasurementEventResults-LCR-r4
}
InterFreqCellID ::=
                                    INTEGER (0..maxCellMeas-1)
InterFreqCellInfoList ::=
                                     SEOUENCE {
   removedInterFreqCellList
newInterFreqCellList
cellsForInterFreqMeasList
                                     RemovedInterFreqCellList
                                                                            OPTIONAL,
                                         NewInterFreqCellList
                                                                             OPTIONAL,
                                        CellsForInterFreqMeasList
}
InterFreqCellInfoList-r4 ::=
    removedInterFreqCellList
    removedInterFreqCellList
                                   SEQUENCE {
                                                                      OPTIONAL,
                                   RemovedInterFreqCellList
NewInterFreqCellList-r4
                                                                             OPTIONAL,
   newInterFreqCellList
    cellsForInterFreqMeasList
                                        CellsForInterFreqMeasList
                                                                             OPTIONAL
}
```

```
InterFreqCellInfoSI-List-RSCP ::= SEQUENCE {
  removedInterFreqCellList RemovedInterFreqCellList
  newInterFreqCellList NewInterFreqCellSI-List-RS
                                                                               OPTIONAL,
                                         RemovedInterFreqCellList
NewInterFreqCellSI-List-RSCP
   newInterFreqCellList
                                                                               OPTIONAL
InterFreqCellInfoSI-List-ECN0 ::= SEQUENCE {
   removedInterFreqCellList
   newInterFreqCellList
   NewInterFreqCellSI-List-E
                                         RemovedInterFreqCellList
NewInterFreqCellSI-List-ECN0
                                                                               OPTIONAL.
   newInterFreqCellList
                                                                               OPTIONAL
InterFreqCellInfoSI-List-HCS-RSCP ::=
                                             SEOUENCE {
   removedInterFreqCellList
                                         RemovedInterFreqCellList
                                                                              OPTIONAL.
                                         NewInterFreqCellSI-List-HCS-RSCP OPTIONAL
   newInterFreqCellList
RemovedInterFreqCellList OPTIONAL, NewInterFreqCellSI-List-HCS-ECNO OPTIONAL
    newInterFreqCellList
}
OPTIONAL,
                                         NewInterFreqCellSI-List-RSCP-LCR-r4 OPTIONAL
    newInterFreqCellList
}
InterFreqCellInfoSI-List-ECNO-LCR ::= SEQUENCE {
   removedInterFreqCellList
   newInterFreqCellList
   NewInterFreqCellList
NewInterFreqCellList
                                        NewInterFreqCellSI-List-ECN0-LCR-r4 OPTIONAL
    newInterFreqCellList
}
InterFreqCellInfoSI-List-HCS-RSCP-LCR ::=
                                                SEQUENCE {
   removedInterFreqCellList RemovedInterFreqCellList
   newInterFreqCellList
                                        NewInterFreqCellSI-List-HCS-RSCP-LCR-r4 OPTIONAL
InterFreqCellInfoSI-List-HCS-ECNO-LCR ::=
                                                  SEQUENCE {
   removedInterFreqCellList RemovedInterFreqCellList OPTIONAL, newInterFreqCellList NewInterFreqCellSI-List-HCS-ECNO-LCR-r4 OPTIONAL
}
                            SEQUENCE (SIZE (1..maxFreq)) OF
InterFreqCellList ::=
                                         InterFreqCell
InterFreqCellList-LCR-r4-ext ::= SEQUENCE (SIZE (1..maxFreq)) OF
                                          InterFreqCell-LCR-r4
InterFreqCellMeasuredResultsList ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
                                          CellMeasuredResults
                                     CHOICE {
InterFreqEvent ::=
                                         Event2a,
   event2a
                                         Event2b,
    event 2b
    event 2c
                                          Event2c,
    event2d
                                         Event2d,
    event 2e
                                          Event2e,
    event2f
                                         Event2f
}
InterFreqEventList ::=
                                     SEQUENCE (SIZE (1..maxMeasEvent)) OF
                                          InterFreqEvent
--Following IE shall be used regardless of CPICH RSCP(FDD) or Primary CCPCH RSCP(TDD)
--The order of the list corresponds to the order of the cells in Inter-FrequencyMeasuredResultsList
InterFrequencyMeasuredResultsList-v590ext ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
                                                  DeltaRSCPPerCell
Inter-FreqEventCriteria-v590ext ::= SEQUENCE {
    threholdUsedFrequency-delta DeltaRSCP, threholdNonUsedFrequency-deltaList ThreholdNo
                                              ThreholdNonUsedFrequency-deltaList
                                                                                        OPTIONAL
}
--The order of the list corresponds to the order of the events in Inter-FreqEventList
Inter-FreqEventCriteriaList-v590ext ::= SEQUENCE (SIZE (1..maxMeasEvent)) OF
                                              Inter-FreqEventCriteria-v590ext
--The order of the list corresponds to the order of relevant events in Intra-FreqEventCriteriaList
--i.e. the first element of the list corresponds to the first occurance of event le, lf, lh, li,
--the second element of the list corresponds to the second occurance of event 1e, 1f, 1h, 1i
Intra-FreqEventCriteriaList-v590ext ::= SEQUENCE (SIZE (1..maxMeasEvent)) OF
```

DeltaRSCP

```
--Following IE shall be used regardless of CPICH RSCP(FDD) or Primary CCPCH RSCP(TDD)
--The order of the list corresponds to the order of the cells in Intra-FrequencyMeasuredResultsList
IntraFrequencyMeasuredResultsList-v590ext ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
                                               DeltaRSCPPerCell
IntraFreqReportingCriteria-1b-r5 ::= SEQUENCE {
   periodicReportingInfo-1b
                                       PeriodicReportingInfo-1b
PeriodicReportingInfo-1b ::= SEQUENCE {
                                       ReportingAmount,
   reportingAmount
   reportingInterval
                                       ReportingInterval
}
InterFreqEventResults ::=
                                  SEQUENCE {
    eventID
                                       EventIDInterFreq,
                                                                         OPTIONAL
   interFreqCellList
                                       InterFreqCellList
}
InterFreqEventResults-LCR-r4-ext ::= SEQUENCE {
                                       EventIDInterFreq,
    eventID
                                       InterFreqCellList-LCR-r4-ext OPTIONAL
    interFreqCellList
}
InterFreqMeasQuantity ::= SEQUENCE {
       CHOICE {

intraFreqReportingCriteria SEQUENCE {

intraFreqMeasQuantity
}.
   reportingCriteria
                                             IntraFreqMeasQuantity
        interFreqReportingCriteria SEQUENCE {
           erFreqkeporting_
filterCoefficient
                                             FilterCoefficient DEFAULT fc0,
                                               CHOICE {
                fdd
                                                  SEQUENCE {
                   freqQualityEstimateQuantity-FDD FreqQualityEstimateQuantity-FDD
               tdd
                                                  SEQUENCE {
                   {\tt freqQualityEstimateQuantity-TDD} \qquad {\tt FreqQualityEstimateQuantity-TDD}
           }
       }
    }
}
\label{eq:continuous_sequence} \mbox{InterFreqMeasuredResults} \ ::= \ \ \mbox{SEQUENCE} \ \big\{
                      FrequencyInfo
    frequencyInfo
                                                                          OPTIONAL.
    utra-CarrierRSSIUTRA-CarrierRSSIOPTIONALinterFreqCellMeasuredResultsListInterFreqCellMeasuredResultsListOPTIONAL
                                                                          OPTIONAL,
}
InterFreqMeasuredResultsList ::= SEQUENCE (SIZE (1..maxFreq)) OF
                                      InterFreqMeasuredResults
{\tt InterFreqMeasurementSysInfo-RSCP} \ ::= \ \ {\tt SEQUENCE} \ \big\{
    interFreqCellInfoSI-List
                                       InterFreqCellInfoSI-List-RSCP
                                                                              OPTIONAL
                                       SEQUENCE {
InterFreqMeasurementSysInfo-ECN0 ::=
                                     InterFreqCellInfoSI-List-ECN0 OPTIONAL
    interFreqCellInfoSI-List
}
InterFreqMeasurementSysInfo-HCS-RSCP ::= SEQUENCE {
    interFreqCellInfoSI-List InterFreqCellInfoSI-List-HCS-RSCP OPTIONAL
InterFreqMeasurementSysInfo-HCS-ECN0 ::=
                                              SEOUENCE {
    interFreqCellInfoSI-List InterFreqCellInfoSI-List-HCS-ECNO OPTIONAL
InterFreqMeasurementSysInfo-RSCP-LCR-r4 ::= SEQUENCE {
                                           InterFreqCellInfoSI-List-RSCP-LCR
                                                                                  OPTIONAL
   interFreqCellInfoSI-List
InterFreqMeasurementSysInfo-ECN0-LCR-r4 ::= SEQUENCE {
   interFreqCellInfoSI-List InterFreqCellInfoSI-List-ECNO-LCR OPTIONAL
```

```
InterFreqMeasurementSysInfo-HCS-RSCP-LCR-r4 ::= SEQUENCE {
                                            InterFreqCellInfoSI-List-HCS-RSCP-LCR OPTIONAL
    interFreqCellInfoSI-List
}
InterFreqMeasurementSysInfo-HCS-ECN0-LCR-r4 ::=
    interFreqCellInfoSI-List
                                            InterFreqCellInfoSI-List-HCS-ECNO-LCR OPTIONAL
                                      CHOICE {
InterFreqReportCriteria ::=
    intraFreqReportingCriteria IntraFreqReportingCriteria, interFreqReportingCriteria InterFreqReportingCriteria, periodicalReportingCriteria PeriodicalWithReportingCell
                                          PeriodicalWithReportingCellStatus,
    noReporting
                                             ReportingCellStatusOpt
}
InterFreqReportCriteria-r4 ::= CHOICE {
   intraFreqReportingCriteria Intr
                                       IntraFreqReportingCriteria-r4,
InterFreqReportingCriteria,
    interFreqReportingCriteria
    periodicalReportingCriteria
                                              PeriodicalWithReportingCellStatus,
    noReporting
                                             ReportingCellStatusOpt
InterFreqReportingCriteria ::= SEQUENCE {
    interFreqEventList
                                            {\tt InterFreqEventList}
                                                                                      OPTIONAL
InterFreqReportingQuantity ::= SEQUENCE {
                                          BOOLEAN,
    utra-Carrier-RSSI
    frequencyQualityEstimate
                                              BOOLEAN,
    nonFreqRelatedQuantities
                                              CellReportingQuantities
}
InterFrequencyMeasurement ::= SEQUENCE {
  interFreqCellInfoList InterFreqCellInfoList,
  interFreqMeasQuantity InterFreqMeasQuantity
  interFreqReportingQuantity MeasurementValidity
  interFreqSetUpdate UE-AutonomousUpdateMode
                                             InterFreqReportingQuantity
                                                                                      OPTIONAL,
                                                                                       OPTIONAL,
    interFreqSetUpdate
                                             UE-AutonomousUpdateMode
                                                                                       OPTIONAL,
    reportCriteria
                                             InterFreqReportCriteria
}
InterFrequencyMeasurement-r4 ::= SEQUENCE {
    interFreqCellInfoList InterFreqCellInfoList-r4, interFreqMeasQuantity InterFreqMeasQuantity
    interFreqMeasQuantity
interFreqReportingQuantity
interFreqReportingQuantity
measurementValidity
MeasurementValidity
UE-AutonomousUpdateMode
                                                                                      OPTIONAL,
                                              InterFreqReportingQuantity
                                                                                       OPTIONAL,
                                                                                       OPTTONAL.
                                                                                       OPTIONAL,
    reportCriteria
                                              InterFreqReportCriteria-r4
}
InterRAT-TargetCellDescription ::= SEQUENCE {
    technologySpecificInfo CHOICE {
                                                  SEQUENCE {
             bsic
                                                       BSIC,
             frequency-band
                                                       Frequency-Band,
                                                       BCCH-ARFCN,
             bcch-ARFCN
                                                       NC-Mode
             ncMode
                                                                              OPTIONAL
         },
                                                  NULL,
         is-2000
         spare2
                                                  NULL,
                                                   NULL
         spare1
    }
}
InterRATCellID ::=
                                   INTEGER (0..maxCellMeas-1)
InterRATCellInfoIndication ::=
                                        INTEGER (0..3)
InterRATCellInfoList ::=
                                         SEQUENCE {
    removedInterRATCellList
                                        RemovedInterRATCellList,
     -- NOTE: Future revisions of dedicated messages including IE newInterRATCellList
    -- should use a corrected version of this IE
    cellsForInterRATMeasList CellsForInterPATM
                                             CellsForInterRATMeasList OPTIONAL
                                        SEQUENCE {
InterRATCellInfoList-B ::=
```

```
RemovedInterRATCellList,
    removedInterRATCellList
     -- NOTE: IE newInterRATCellList should be optional. However, system information
     -- does not support message versions. Hence, this can not be corrected
                                       NewInterRATCellList-B
    newInterRATCellList
}
InterRATCellInfoList-r4 ::= SEQUENCE {
  removedInterRATCellList RemovedInterRATCellList,
  newInterRATCellList NewInterRATCellList
  cellsForInterRATMeasList CellsForInterRATMeasList
                                                                                            OPTIONAL,
                                                    CellsForInterRATMeasList
                                                                                               OPTIONAL
}
InterRATCellIndividualOffset ::= INTEGER (-50..50)
InterRATEvent ::=
                                     CHOICE {
    event3a
                                               Event3a,
     event3b
                                               Event3b,
     event3c
                                               Event3c,
     event3d
                                               Event3d
}
InterRATEventList ::= SEQUENCE (SIZE (1..maxMeasEvent)) OF
                                               InterRATEvent
InterRATEventResults ::=
    eventID
                                         SECTIENCE {
                                           EventIDInterRAT,
     cellToReportList
                                               CellToReportList
}
InterRATInfo ::=
                                           ENUMERATED {
                                               gsm }
InterRATMeasQuantity ::=
                                               SEQUENCE {
     measQuantityUTRAN-QualityEstimate
                                                IntraFreqMeasQuantity OPTIONAL,
                                               CHOICE {
     ratSpecificInfo
         gsm
                                                         SEQUENCE {
                                                             MeasurementQuantityGSM,
FilterCoefficient DEFAULT fc0,
             measurementQuantity
              filterCoefficient
              bsic-VerificationRequired
                                                             BSIC-VerificationRequired
         is-2000
                                                         SEQUENCE {
                                                            INTEGER (0..63),
             tadd-EcIo
                                                              INTEGER (0..15),
              tcomp-EcIo
                                                             INTEGER (0..63) OPTIONAL,
INTEGER (0..63) OPTIONAL
              softSlope
              addIntercept
         }
     }
}
InterRATMeasuredResults ::= CHOICE {
                                               GSM-MeasuredResultsList,
     asm
     spare
                                               NULL
InterRATMeasuredResultsList ::= SEQUENCE (SIZE (1..maxOtherRAT-16)) OF
                                               InterRATMeasuredResults
    erRATMeasurement ::= SEQUENCE {
interRATCellInfoList InterRATCellInfoList
interRATMeasQuantity InterRATMeasQuantity
interRATReportingQuantity InterRATReportingQuantity InterRATReportCriteria
InterRATMeasurement ::=
                                                                                         OPTIONAL,
                                               InterRATReportingQuantity OPTIONAL,
}
InterRATMeasurement-r4 ::= SEQUENCE {
  interRATCellInfoList InterRATMeasQuantity InterRATMeasQuantity InterRATMeasQuantity InterRATMeasQuantity InterRATMeasQuantity InterRATMEASTAGE
                                         InterRATCellInfoList-r4
InterRATMeasOuantity
                                              InterRATCellInfoList-r4 OPTIONAL,
InterRATMeasQuantity OPTIONAL,
InterRATReportingQuantity OPTIONAL,
    reportCriteria
                                               InterRATReportCriteria
}
InterRATMeasurementSysInfo ::= SEQUENCE {
                                       InterRATCellInfoList
                                                                                         OPTIONAL
    interRATCellInfoList
}
InterRATMeasurementSysInfo-B ::= SEQUENCE {
    interRATCellInfoList InterRATCellInfoList-B OPTIONAL
```

```
}
InterRATReportingCriteria ::= SEQUENCE {
                                     InterRATEventList
   interRATEventList
                                                                           OPTIONAL
SEQUENCE {
            dummy
                                                     BOOLEAN,
             observedTimeDifferenceGSM
                                                      BOOLEAN.
             gsm-Carrier-RSSI
                                                      BOOLEAN
         }
    }
}
IntraFreqCellID ::=
                                       INTEGER (0..maxCellMeas-1)
   raFreqCellInfoList ::= SEQUENCE {
  removedIntraFreqCellList RemovedIntraFreqCellList OPTIONAL,
  newIntraFreqCellList NewIntraFreqCellList OPTIONAL,
  cellsForIntraFreqMeasList CellsForIntraFreqMeasList OPTIONAL
IntraFreqCellInfoList ::=
}
IntraFreqCellInfoList-r4 ::= SEQUENCE {
   removedIntraFreqCellList RemovedIntraFreqCellList OPTIONAL,
   newIntraFreqCellList NewIntraFreqCellList-r4 OPTIONAL,
   cellsForIntraFreqMeasList CellsForIntraFreqMeasList OPTIONAL
                                       RemovedIntraFreqCellList OPTIONAL,
NewIntraFreqCellList-r4 OPTIONAL,
}
IntraFreqCellInfoSI-List-RSCP ::= SEQUENCE {
   removedIntraFreqCellList

newIntraFreqCellList

NewIntraFreqCellList
                                                                                    OPTIONAL,
    newIntraFreqCellList
                                            NewIntraFreqCellSI-List-RSCP
}
OPTIONAL,
                                            NewIntraFreqCellSI-List-ECN0
}
IntraFreqCellInfoSI-List-HCS-RSCP ::= SEQUENCE {
    removedIntraFreqCellList RemovedIntraFreqCellList
    newIntraFreqCellList NewIntraFreqCellSI-List-HCS-RSCP
                                                                                    OPTIONAL,
}
IntraFreqCellInfoSI-List-HCS-ECN0 ::= SEQUENCE {
   removedIntraFreqCellList RemovedIntraFreqCellList
newIntraFreqCellList NewIntraFreqCellSI-List-H
                                                                                    OPTIONAL,
    newIntraFreqCellList
                                            NewIntraFreqCellSI-List-HCS-ECN0
}
IntraFreqCellInfoSI-List-RSCP-LCR-r4 ::= SEQUENCE {
   removedIntraFreqCellList

newIntraFreqCellList

NewIntraFreqCellList
    newIntraFreqCellList
                                            NewIntraFreqCellSI-List-RSCP-LCR-r4
}
IntraFreqCellInfoSI-List-ECN0-LCR-r4 ::= SEQUENCE {
   removedIntraFreqCellList RemovedIntraFreqCellList NewIntraFreqCellList NewIntraFreqCellSI-List-FCNO-LCE
                                                                                     OPTIONAL,
                                            NewIntraFreqCellSI-List-ECN0-LCR-r4
}
IntraFreqCellInfoSI-List-HCS-RSCP-LCR-r4 ::= SEQUENCE {
   removedIntraFreqCellList RemovedIntraFreqCellList
                                                                                    OPTIONAL,
    newIntraFreqCellList
                                            NewIntraFreqCellSI-List-HCS-RSCP-LCR-r4
}
IntraFreqCellInfoSI-List-HCS-ECNO-LCR-r4 ::=
                                                     SEOUENCE {
    rarrequellinios1-List-HCS-ECN0-LCR-r4 ::= SEQUENCE {
removedIntraFreqCellList RemovedIntraFreqCellList OPT:
newIntraFreqCellList NewIntraFreqCellSI-List-HCS-ECN0-LCR-r4
                                                                                     OPTIONAL,
}
IntraFreqEvent ::=
                                       CHOICE {
                                            Eventla,
```

```
e1b
                                       Event1b,
                                       Event1c,
    e1c
    e1d
                                       NULL,
    e1e
                                       Eventle,
    e1f
                                       Event1f,
    e1g
                                       NULL,
                                       ThresholdUsedFrequency,
    e1h
                                       ThresholdUsedFrequency
    eli
}
IntraFreqEvent-r4 ::=
                                  CHOICE {
                                       Eventla-r4,
    e1a
                                       Event1b-r4.
    e1b
    e1c
                                       Event1c,
    e1d
                                       NULL,
   e1e
                                       Eventle,
                                       Event1f,
    e1f
    e1g
                                       NULL,
                                       ThresholdUsedFrequency,
    e1h
                                       ThresholdUsedFrequency
    eli
}
IntraFreqEvent-LCR-r4 ::=
                                 CHOICE {
                                       Eventla-LCR-r4,
    e1a
                                       Event1b-LCR-r4,
    e1b
   e1c
                                       Event1c,
   e1d
                                       NULL,
                                       Eventle,
   e1e
   e1f
                                       Event1f,
                                       NULL,
    e1a
    e1h
                                       ThresholdUsedFrequency,
                                       ThresholdUsedFrequency
    eli
}
IntraFreqEvent-1d-r5 ::=
                              SEQUENCE {
                                       TriggeringCondition2 OPTIONAL,
    triggeringCondition
    useCIO
                                       BOOLEAN
}
IntraFreqEventCriteria ::= SEQUENCE {
    event
                                       IntraFreqEvent,
   hysteresis
                                       Hysteresis.
    timeToTrigger
                                       TimeToTrigger,
    {\tt reportingCellStatus}
                                       ReportingCellStatus
                                                                         OPTIONAL
}
IntraFreqEventCriteria-r4 ::=
                                 SEQUENCE {
                                   IntraFreqEvent-r4,
   event
   hysteresis
                                       Hysteresis,
   timeToTrigger
                                       TimeToTrigger,
   reportingCellStatus
                                       ReportingCellStatus
                                                                          OPTIONAL
IntraFreqEventCriteria-LCR-r4 ::= SEQUENCE {
                                       IntraFreqEvent-LCR-r4,
    event
   hysteresis
                                       Hysteresis,
    timeToTrigger
                                       TimeToTrigger,
   reportingCellStatus
                                                                          OPTIONAL
                                       ReportingCellStatus
}
IntraFreqEventCriteriaList ::= SEQUENCE (SIZE (1..maxMeasEvent)) OF
                                      IntraFreqEventCriteria
IntraFreqEventCriteriaList-r4 ::= SEQUENCE (SIZE (1..maxMeasEvent)) OF
                                       IntraFreqEventCriteria-r4
IntraFreqEventCriteriaList-LCR-r4 ::=
                                       SEQUENCE (SIZE (1..maxMeasEvent)) OF
                                       IntraFreqEventCriteria-LCR-r4
IntraFreqEventResults ::=
                                   SEQUENCE {
   eventID
                                      EventIDIntraFreq,
    cellMeasurementEventResults
                                       CellMeasurementEventResults
}
IntraFreqMeasQuantity ::=
                                 SEQUENCE {
   filterCoefficient
                                      FilterCoefficient
                                                                         DEFAULT fc0,
                                       CHOICE {
   modeSpecificInfo
        fdd
                                       SEQUENCE {
```

```
intraFreqMeasQuantity-FDD
                                                IntraFreqMeasQuantity-FDD
         tdd
                                              SEOUENCE {
             intraFreqMeasQuantity-TDDList IntraFreqMeasQuantity-TDDList
    }
}
-- If IntraFreqMeasQuantity-FDD is used in InterRATMeasQuantity, then only
-- cpich-Ec-NO and cpich-RSCP are allowed.
-- dummy is not used in this version of the specification, it should
-- not be sent and if received it should be ignored.
                                         ENUMERATED {
IntraFreqMeasQuantity-FDD ::=
                                              cpich-Ec-N0,
                                              cpich-RSCP,
                                              pathloss.
                                              dummy }
-- dummy is not used in this version of the specification, it should
-- not be sent and if received it should be ignored.
IntraFreqMeasQuantity-TDD ::=
                                        ENUMERATED {
                                              primaryCCPCH-RSCP,
                                              pathloss,
                                              timeslotISCP,
                                              dummy }
IntraFreqMeasQuantity-TDDList ::=
                                         SEQUENCE (SIZE (1..4)) OF
                                              IntraFreqMeasQuantity-TDD
                                         SEQUENCE (SIZE (1..maxCellMeas)) OF
IntraFreqMeasuredResultsList ::=
                                              CellMeasuredResults
IntraFreqMeasurementSysInfo-RSCP ::=
                                              SEQUENCE {
                                              MeasurementIdentity DEFAULT 1,
    intraFreqMeasurementID
    intraFreqMeasurementID
intraFreqCellInfoSI-List
intraFreqMeasQuantity
                                             IntraFreqCellInfoSI-List-RSCP OPTIONAL,
    intraFreqMeasQuantity
                                              IntraFreqMeasQuantity
                                                                                        OPTIONAL,
    intraFreqReportingQuantityForRACH IntraFreqReportingQuantityForRACH OPTIONAL,
                                                                           OPTIONAL,
OPTIONAL
    maxReportedCellsOnRACH
                                             MaxReportedCellsOnRACH
    reportingInfoForCellDCH
                                             ReportingInfoForCellDCH
}
IntraFreqMeasurementSysInfo-ECN0 ::=
                                                  SEQUENCE {
                                                                       DEFAULT 1,
                                              MeasurementIdentity
    intraFreqMeasurementID
                                             IntraFreqCellInfoSI-List-ECN0 OPTIONAL,
IntraFreqMeasQuantity OPTIONAL,
    intraFreqCellInfoSI-List
    intraFreqMeasQuantity
                                             IntraFreqMeasQuantity
    intraFreqReportingQuantityForRACH IntraFreqReportingQuantityForRACH OPTIONAL,
maxReportedCellsOnRACH MaxReportedCellsOnRACH OPTIONAL,
reportingInfoForCellDCH PercentingInfoForCellDCH OPTIONAL
    reportingInfoForCellDCH
                                             ReportingInfoForCellDCH
                                                                                       OPTIONAL
IntraFreqMeasurementSysInfo-HCS-RSCP ::=
                                                SEOUENCE {
                                                                             DEFAULT 1,
    intraFreqMeasurementID MeasurementIdentity
    intraFreqCellInfoSI-List IntraFreqCellInfoSI-List-HCS-RSCP OPTIONAL, intraFreqMeasQuantity IntraFreqMeasQuantity OPTIONAL.
    intraFreqMeasQuantity
                                              IntraFreqMeasQuantity
                                                                                        OPTIONAL,
    intraFreqReportingQuantityForRACH IntraFreqReportingQuantityForRACH OPTIONAL,
    maxReportedCellsOnRACH
                                             MaxReportedCellsOnRACH
                                                                                       OPTIONAL,
    reportingInfoForCellDCH
                                             ReportingInfoForCellDCH
                                                                                        OPTIONAL
}
\label{eq:conditional} IntraFreqMeasurementSysInfo-HCS-ECNO ::= SEQUENCE \; \{
    intraFreqMeasurementID MeasurementIdentity
intraFreqCellInfoSI-List IntraFreqCellInfoSI-List
intraFreqMeasQuantity IntraFreqMeasQuantity
                                                                             DEFAULT 1,
                                             IntraFreqCellInfoSI-List-HCS-ECNO OPTIONAL,
                                                                                       OPTIONAL,
    intra Freq Reporting Quantity For RACH \qquad Intra Freq Reporting Quantity For RACH \qquad OPTIONAL, \\
    maxReportedCellsOnRACH
                                              MaxReportedCellsOnRACH
                                                                                        OPTIONAL.
    reportingInfoForCellDCH
                                             ReportingInfoForCellDCH
                                                                                        OPTIONAL
}
IntraFreqMeasurementSysInfo-RSCP-LCR-r4 ::= SEQUENCE {
    intraFreqMeasurementID MeasurementIdentity DEFAULT 1
intraFreqCellInfoSI-List IntraFreqCellInfoSI-List-RSCP-LCR-r4
intraFreqMeasOuantity IntraFreqMeasOuantity O
                                             MeasurementIdentity DEFAULT 1,
                                                                                             OPTIONAL,
    intraFreqMeasQuantity
                                              IntraFreqMeasQuantity
                                                                                       OPTIONAL,
    intraFreqReportingQuantityForRACH IntraFreqReportingQuantityForRACH OPTIONAL, maxReportedCellsOnRACH MaxReportedCellsOnRACH OPTIONAL, reportingInfoForCellDCH ReportingInfoForCellDCH-LCR-r4 OPTIONAL
IntraFreqMeasurementSysInfo-ECN0-LCR-r4 ::=
                                                       SEQUENCE {
```

```
intraFreqMeasurementID
                                                                       MeasurementIdentity
                                                                                                                           DEFAULT 1,
       intraFreqCellInfoSI-List intraFreqMeasQuantity
                                                                        IntraFreqCellInfoSI-List-ECN0-LCR-r4
                                                                                                                                                  OPTIONAL,
                                                                       IntraFreqMeasQuantity
                                                                                                                                         OPTIONAL,
       intra Freq Reporting Quantity For RACH \qquad Intra Freq Reporting Quantity For RACH \qquad OPTIONAL\,,
       maxReportedCellsOnRACH
reportingInfoForCellDCH
                                                                        MaxReportedCellsOnRACH
                                                                                                                                          OPTIONAL.
       reportingInfoForCellDCH
                                                                       ReportingInfoForCellDCH-LCR-r4
{\tt IntraFreqMeasurementSysInfo-HCS-RSCP-LCR-r4} ::= {\tt SEQUENCE} \ \{
       intraFreqMeasurementID MeasurementIdentity DEFAULT 1, intraFreqCellInfoSI-List IntraFreqCellInfoSI-List-HCS-RSCP-LCR-r4 intraFreqMeasQuantity IntraFreqMeasQuantity
      intrafreqReasQuantity IntrafreqReasQuantityForRACH IntrafreqReportingQuantityForRACH IntrafreqReportingQuantityForRACH MaxReportedCellsOnRACH MaxReportedCellsOnRACH ReportingInfoForCellDCH ReportingInfoForCellDCH ReportingInfoForCellDCH IntrafreqReportingInfoForCellDCH ReportingInfoForCellDCH 
                                                                                                                                                        OPTIONAL,
}
IntraFreqMeasurementSysInfo-HCS-ECN0-LCR-r4 ::= SEQUENCE {
       intraFreqCellInfoSI-List IntraFreqCellInfoSI-
intraFreqMeasQuantity
                                                                                                                           DEFAULT 1.
                                                                        IntraFreqCellInfoSI-List-HCS-ECN0-LCR-r4
                                                                                                                                                         OPTIONAL,
                                                                                                                                         OPTIONAL,
                                                                         {	t IntraFreqMeasQuantity}
       \verb|intraFreqReportingQuantityForRACH| IntraFreqReportingQuantityForRACH| OPTIONAL, \\
                                                       MaxReportedCellsUnkacn
ReportingInfoForCellDCH-LCR-r4
       maxReportedCellsOnRACH
                                                                                                                                          OPTIONAL,
                                                                                                                                        OPTIONAL
       reportingInfoForCellDCH
}
IntraFreqReportCriteria ::=
                                                                 CHOICE {
                                                                 IntraFreqReportingCriteria,
       intraFreqReportingCriteria
                                                                         PeriodicalWithReportingCellStatus,
       periodicalReportingCriteria
       noReporting
                                                                       ReportingCellStatusOpt
}
                                                                 CHOICE {
IntraFreqReportCriteria-r4 ::=
       intraFreqReportingCriteria
                                                                       IntraFreqReportingCriteria-r4,
       periodicalReportingCriteria
                                                                         PeriodicalWithReportingCellStatus,
       noReporting
                                                                        ReportingCellStatusOpt
}
IntraFreqReportingCriteria ::=
                                                                SEQUENCE {
       eventCriteriaList
                                                                      IntraFreqEventCriteriaList
                                                                                                                                OPTIONAL
}
IntraFreqReportingCriteria-r4 ::= SEQUENCE {
       eventCriteriaList
                                                                        IntraFreqEventCriteriaList-r4 OPTIONAL
}
IntraFreqReportingCriteria-LCR-r4 ::= SEQUENCE {
       eventCriteriaList
                                                                        IntraFreqEventCriteriaList-LCR-r4 OPTIONAL
       IntraFreqReportingQuantity ::=
                                                                 CellReportingQuantities,
       monitoredSetReportingQuantities
                                                                         CellReportingQuantities,
                                                                                                                                       OPTIONAL
       detectedSetReportingQuantities CellReportingQuantities
}
IntraFreqReportingQuantityForRACH ::= SEQUENCE {
       sfn-SFN-OTD-Type
                                                                        SFN-SFN-OTD-Type,
       modeSpecificInfo
                                                                         CHOICE {
              fdd
                                                                                SEQUENCE {
                      intraFreqRepQuantityRACH-FDD
                                                                                     IntraFreqRepQuantityRACH-FDD
              },
                                                                               SEQUENCE {
              tdd
                      intraFreqRepQuantityRACH-TDDList
                                                                                    IntraFreqRepQuantityRACH-TDDList
       }
}
IntraFreqRepQuantityRACH-FDD ::=
                                                                  ENUMERATED {
                                                                        cpich-EcNO, cpich-RSCP,
                                                                        pathloss, noReport }
IntraFreqRepQuantityRACH-TDD ::=
                                                                 ENUMERATED {
                                                                        timeslotISCP,
                                                                         primaryCCPCH-RSCP,
                                                                        noReport }
IntraFreqRepQuantityRACH-TDDList ::= SEQUENCE (SIZE (1..2)) OF
```

 ${\tt IntraFreqRepQuantityRACH-TDD}$

```
IntraFrequencyMeasurement ::=
                                  SEQUENCE {
                                       IntraFreqCellInfoList
    {\tt intraFreqCellInfoList}
                                                                             OPTIONAL,
    intraFreqMeasQuantity
                                        IntraFreqMeasQuantity
                                                                            OPTIONAL,
                                        IntraFreqReportingQuantity
                                                                           OPTIONAL,
    intraFreqReportingQuantity
   measurementValidity
                                        MeasurementValidity
                                                                            OPTIONAL,
                                                                            OPTIONAL
                                        IntraFreqReportCriteria
    reportCriteria
}
IntraFrequencyMeasurement-r4 ::= SEQUENCE {
                                                                            OPTIONAL,
                                        IntraFreqCellInfoList-r4
    intraFreqCellInfoList
    intraFreqMeasQuantity
                                        IntraFreqMeasQuantity
                                                                            OPTIONAL,
    intraFreqReportingQuantity
                                        IntraFreqReportingQuantity
                                                                           OPTIONAL,
   measurementValidity
                                        MeasurementValidity
                                                                            OPTIONAL,
                                        IntraFreqReportCriteria-r4
   reportCriteria
                                                                            OPTIONAL
}
IODE ::=
                                    INTEGER (0..255)
IP-Length ::=
                                    ENUMERATED {
                                        ipl5, ipl10 }
IP-PCCPCH-r4 ::=
                                    BOOLEAN
IP-Spacing ::=
                                    ENUMERATED {
                                        e5, e7, e10, e15, e20,
                                        e30, e40, e50 }
                                        ENUMERATED {
IP-Spacing-TDD ::=
                                        e30, e40, e50, e70, e100}
IS-2000SpecificMeasInfo ::=
                                    ENUMERATED {
                                        frequency, timeslot, colourcode,
                                        outputpower, pn-Offset }
MaxNumberOfReportingCellsType1 ::= ENUMERATED {
                                        e1, e2, e3, e4, e5, e6}
MaxNumberOfReportingCellsType2 ::= ENUMERATED {
                                        e1, e2, e3, e4, e5, e6, e7, e8, e9, e10, e11, e12}
MaxNumberOfReportingCellsType3 ::= ENUMERATED {
                                        viactCellsPlus1,
                                        viactCellsPlus2,
                                        viactCellsPlus3,
                                        viactCellsPlus4.
                                        viactCellsPlus5,
                                        viactCellsPlus6 }
                                    ENUMERATED {
MaxReportedCellsOnRACH ::=
                                        noReport,
                                        currentCell,
                                        currentAnd-1-BestNeighbour,
                                        currentAnd-2-BestNeighbour,
                                        currentAnd-3-BestNeighbour,
                                        currentAnd-4-BestNeighbour,
                                        currentAnd-5-BestNeighbour,
                                        currentAnd-6-BestNeighbour }
MeasuredResults ::=
                                    CHOICE {
                                    {\tt IntraFreqMeasuredResultsList},
    intraFreqMeasuredResultsList
   interFreqMeasuredResultsList InterFreqMeasuredResults interRATMeasuredResultsList InterRATMeasuredResultsList,
                                        InterFreqMeasuredResultsList,
    {\tt trafficVolumeMeasuredResultsList} \qquad {\tt TrafficVolumeMeasuredResultsList},
   ue-InternalMeasuredResults
                                        QualityMeasuredResults,
                                        UE-InternalMeasuredResults,
   ue-positioning-MeasuredResults
                                        UE-Positioning-MeasuredResults,
    spare
                                        NULL
}
MeasuredResults-v390ext ::=
                                            SEQUENCE {
                                                             UE-Positioning-MeasuredResults-v390ext
   ue-positioning-MeasuredResults-v390ext
MeasuredResults-v590ext ::= CHOICE {
    \verb|intraFrequencyMeasuredResultsList|
                                            IntraFrequencyMeasuredResultsList-v590ext,
```

```
}
                                  CHOICE {
MeasuredResults-LCR-r4 ::=
                                  IntraFreqMeasuredResultsList,
   intraFreqMeasuredResultsList
   interFreqMeasuredResultsList InterFreqMeasuredResults interRATMeasuredResultsList InterRATMeasuredResultsList,
                                       InterFreqMeasuredResultsList,
   {\tt trafficVolumeMeasuredResultsList} \qquad {\tt TrafficVolumeMeasuredResultsList},
   ue-InternalMeasuredResults
                                      QualityMeasuredResults,
                                      UE-InternalMeasuredResults-LCR-r4,
   ue-positioniing-MeasuredResults UE-Positioning-MeasuredResults,
                                      NULL
   spare
}
MeasuredResultsList ::=
                                   SEQUENCE (SIZE (1..maxAdditionalMeas)) OF
                                       MeasuredResults
MeasuredResultsList-LCR-r4-ext ::= SEQUENCE (SIZE (1..maxAdditionalMeas)) OF
                                       MeasuredResults-LCR-r4
MeasuredResultsOnRACH ::=
                                   SEQUENCE {
   currentCell
                                       SEQUENCE {
       modeSpecificInfo
                                          CHOICE {
           fdd
                                              SEQUENCE {
               measurementQuantity
                                                   CHOICE {
                   cpich-Ec-N0
                                                      CPICH-Ec-N0,
                   cpich-RSCP
                                                       CPICH-RSCP,
                   pathloss
                                                       Pathloss,
                                                      NULL
                   spare
           },
           tdd
                                               SEQUENCE {
                                                  TimeslotISCP-List
                                                                         OPTIONAL,
               timeslotISCP
               primaryCCPCH-RSCP
                                                   PrimaryCCPCH-RSCP
                                                                          OPTIONAL
           }
   },
                                     MonitoredCellRACH-List
                                                                         OPTIONAL
   monitoredCells
}
MeasurementCommand ::=
                                   CHOICE {
                                       MeasurementType,
   setup
   modify
                                       SEQUENCE {
       measurementType
                                          MeasurementType
                                                                          OPTIONAL
                                       NULL
   release
}
MeasurementCommand-r4 ::=
                                   CHOICE {
                                       MeasurementType-r4,
   setup
                                       SEQUENCE {
   modify
                                                                        OPTIONAL
       measurementType
                                          MeasurementType-r4
   release
                                       NULL
}
MeasurementControlSysInfo ::= SEQUENCE {
    -- CHOICE cellSelectQualityMeasure represents PCCPCH-RSCP in TDD mode.
                                       CHOICE {
   use-of-HCS
                                       SEQUENCE
       hcs-not-used
           cellSelectQualityMeasure
                                       CHOICE {
               cpich-RSCP
                                       SEQUENCE
                   intraFreqMeasurementSysInfo
                                                      IntraFreqMeasurementSysInfo-RSCP
   OPTIONAL,
                   interFreqMeasurementSysInfo
                                                      InterFreqMeasurementSysInfo-RSCP
                                                                                          OPTIONAL
               cpich-Ec-N0
                                      SEQUENCE
                   intraFreqMeasurementSysInfo
                                                      IntraFreqMeasurementSysInfo-ECN0
   OPTIONAL,
                   interFreqMeasurementSysInfo
                                                      InterFreqMeasurementSysInfo-ECN0
                                                                                          OPTIONAL
           interRATMeasurementSysInfo
                                         InterRATMeasurementSysInfo-B
                                                                             OPTIONAL
       hcs-used
                                      SEQUENCE
           cellSelectQualityMeasure CHOICE {
               cpich-RSCP
                                      SEQUENCE
```

```
intraFreqMeasurementSysInfo
                                                    IntraFreqMeasurementSysInfo-HCS-RSCP
   OPTIONAL,
                                                   InterFreqMeasurementSysInfo-HCS-RSCP
                  interFreqMeasurementSysInfo
   OPTIONAL
              cpich-Ec-N0
                                     SEQUENCE
                  intraFreqMeasurementSysInfo
                                                    IntraFreqMeasurementSysInfo-HCS-ECN0
   OPTIONAL,
                  interFreqMeasurementSysInfo
                                                   InterFreqMeasurementSysInfo-HCS-ECN0
   OPTIONAL
           interRATMeasurementSysInfo
                                       InterRATMeasurementSysInfo
                                                                     OPTIONAL
       }
   },
   trafficVolumeMeasSysInfo
                                    TrafficVolumeMeasSvsInfo
                                                                       OPTIONAL,
    -- dummy is not used in this version of specification and it shall be ignored by the UE.
              UE-InternalMeasurementSysInfo
                                                OPTIONAL
}
MeasurementControlSysInfo-LCR-r4-ext ::= SEQUENCE {
    -- CHOICE use-of-HCS shall have the same value as the use-of-HCS
   -- in MeasurementControlSysInfo
   -- CHOICE cellSelectQualityMeasure represents PCCPCH-RSCP in TDD mode.
                                     CHOICE {
   use-of-HCS
       hcs-not-used
                                     SEQUENCE
           -- CHOICE cellSelectQualityMeasure shall have the same value as the
           -- cellSelectQualityMeasure in MeasurementControlSysInfo
           cellSelectQualityMeasure CHOICE {
               cpich-RSCP
                                    SEQUENCE
                  \verb|intraFreqMeasurementSysInfo-RSCP-LCR-r4-OPTIONAL|,
                  },
                                     SEQUENCE
               cpich-Ec-N0
                  \tt intraFreqMeasurementSysInfo-ECN0-LCR-r4~OPTIONAL\,,
                   interFreqMeasurementSysInfo InterFreqMeasurementSysInfo-ECN0-LCR-r4 OPTIONAL
           }
                                     SEQUENCE
           -- CHOICE cellSelectQualityMeasure shall have the same value as the
           -- cellSelectQualityMeasure in MeasurementControlSysInfo
           cellSelectQualityMeasure CHOICE {
               cpich-RSCP
                                     SEQUENCE
                  intraFreqMeasurementSysInfo IntraFreqMeasurementSysInfo-HCS-RSCP-LCR-r4
   OPTIONAL,
                  interFreqMeasurementSysInfo InterFreqMeasurementSysInfo-HCS-RSCP-LCR-r4 OPTIONAL
               },
               cpich-Ec-N0
                                     SEQUENCE
                  intraFreqMeasurementSysInfo IntraFreqMeasurementSysInfo-HCS-ECN0-LCR-r4
   OPTIONAL.
                  interFreqMeasurementSysInfo InterFreqMeasurementSysInfo-HCS-ECN0-LCR-r4 OPTIONAL
           }
       }
   }
}
MeasurementIdentity ::= INTEGER (1..16)
MeasurementQuantityGSM ::=
                                  ENUMERATED {
                                     gsm-CarrierRSSI,
                                     dummy }
MeasurementReportingMode ::=
                                  SEQUENCE {
   measurementReportTransferMode
                                     TransferMode,
   periodicalOrEventTrigger
                                     PeriodicalOrEventTrigger
}
                                 CHOICE {
MeasurementType ::=
                                  IntraFrequencyMeasurement,
   intraFrequencyMeasurement
   interFrequencyMeasurement
                                     InterFrequencyMeasurement,
   interRATMeasurement
                                     InterRATMeasurement,
                                 UE-Positioning-Measurement,
   ue-positioning-Measurement
   trafficVolumeMeasurement
                                    TrafficVolumeMeasurement,
                                    QualityMeasurement,
   qualityMeasurement
   ue-InternalMeasurement
                                    UE-InternalMeasurement
```

```
surementType-r4 ::= CHOICE {
  intraFrequencyMeasurement
  interFrequencyMeasurement
  interRATMeasurement
  interRATMeasurement
  up-Measurement
  trafficVolumeMeasurement
  qualityMeasurement
  ue-InternalMeasurement
  UE-InternalMeasurement-r4

  UE-InternalMeasurement-r4

  UE-InternalMeasurement-r4
                                          CHOICE {
MeasurementType-r4 ::=
}
\label{eq:measurementValidity} \texttt{::=} \qquad \qquad \texttt{SEQUENCE} \ \{
    ue-State
                                              ENUMERATED {
                                                   cell-DCH, all-But-Cell-DCH, all-States }
}
MonitoredCellRACH-List ::=
                                        SEQUENCE (SIZE (1..8)) OF
                                              MonitoredCellRACH-Result
    sfn-SFN-ObsTimeDifference SFN-SFN modeSpecificInfo
MonitoredCellRACH-Result ::=
                                          SFN-SFN-ObsTimeDifference
                                                                                        OPTIONAL,
                                              CHOICE {
                                                   SEQUENCE {
              primaryCPICH-Info
                                                        PrimaryCPICH-Info,
                                                        CHOICE {
              measurementQuantity
                  cpich-Ec-N0
                                                            CPICH-Ec-N0,
                   cpich-RSCP
                                                             CPICH-RSCP,
                  pathloss
                                                             Pathloss,
                                                             NULL
                   spare
              }
                                                                                         OPTIONAL
                                                   SEQUENCE {
         tdd
              cellParametersID
                                                        CellParametersID,
              primaryCCPCH-RSCP
                                                        PrimaryCCPCH-RSCP
    }
}
MultipathIndicator ::=
                                          ENUMERATED {
                                               nm,
                                               low,
                                               medium.
                                               high }
N-CR-T-CRMaxHyst ::=
                                          SEQUENCE {
                                               INTEGER (1..16)
                                                                                        DEFAULT 8,
    n-CR
    t-CRMaxHyst
                                               T-CRMaxHyst
}
{\tt NavigationModelSatInfo} ::= \\ {\tt SEQUENCE} \ \{
                                              SatID.
    satID
    satelliteStatus
                                               SatelliteStatus,
    {\tt ephemerisParameter}
                                               EphemerisParameter
                                                                           OPTIONAL
NavigationModelSatInfoList ::= SEQUENCE (SIZE (1..maxSat)) OF
                                              NavigationModelSatInfo
EphemerisParameter ::=
                                                   SEQUENCE {
                                              BIT STRING (SIZE (2)),
    codeOnI<sub>2</sub>2
    uraIndex
                                              BIT STRING (SIZE (4)),
    satHealth
                                               BIT STRING (SIZE (6)),
                                              BIT STRING (SIZE (10)),
    iodc
    12Pflag
                                               BIT STRING (SIZE (1)),
    sf1Revd
                                               SubFrame1Reserved,
    t-GD
                                              BIT STRING (SIZE (8)),
                                               BIT STRING (SIZE (16)),
    t-oc
    af2
                                              BIT STRING (SIZE (8)),
    af1
                                               BIT STRING (SIZE (16)),
    af0
                                               BIT STRING (SIZE (22)),
                                              BIT STRING (SIZE (16)),
    c-rs
    delta-n
                                               BIT STRING (SIZE (16)),
                                              BIT STRING (SIZE (32)),
    m0
    c-uc
                                              BIT STRING (SIZE (16)),
                                               BIT STRING (SIZE (32)),
                                              BIT STRING (SIZE (16)),
    c-us
                                               BIT STRING (SIZE (32)),
    a-Sgrt.
                                               BIT STRING (SIZE (16)),
    t-oe
```

```
fitInterval
                                      BIT STRING (SIZE (1)),
   aodo
                                      BIT STRING (SIZE (5)),
   c-ic
                                     BIT STRING (SIZE (16)),
   omega0
                                     BIT STRING (SIZE (32)),
    c-is
                                      BIT STRING (SIZE (16)),
   i0
                                     BIT STRING (SIZE (32)),
   c-rc
                                      BIT STRING (SIZE (16)),
                                     BIT STRING (SIZE (32)),
   omega
    omegaDot
                                     BIT STRING (SIZE (24)),
    iDot
                                      BIT STRING (SIZE (14))
NC-Mode ::=
                                  BIT STRING (SIZE (3))
                                  SEQUENCE {
Neighbour ::=
   modeSpecificInfo
                                  CHOICE {
                                 SEQUENCE {
       fdd
                                             PrimaryCPICH-Info
           neighbourIdentity
                                                                                OPTIONAL,
           uE-RX-TX-TimeDifferenceType2Info
                                             UE-RX-TX-TimeDifferenceType2Info
                                                                                OPTIONAL
                                     SEQUENCE {
       tdd
           neighbourAndChannelIdentity CellAndChannelIdentity
                                                                                OPTIONAL
   neighbourQuality
                                    NeighbourQuality,
   sfn-SFN-ObsTimeDifference2
                                     SFN-SFN-ObsTimeDifference2}
Neighbour-v390ext ::=
                                         SEQUENCE {
   modeSpecificInfo
                                CHOICE {
                                  SEQUENCE {
       fdd
           frequencyInfo
                                             FrequencyInfo
       tdd
                                     NULL
    }
}
NeighbourList ::=
                                  SEQUENCE (SIZE (1..maxCellMeas)) OF
                                      Neighbour
-- The order of the cells in IE NeighbourList-v390ext shall be the
-- same as the order in IE NeighbourList
NeighbourList-v390ext ::=
                                          SEQUENCE (SIZE (1..maxCellMeas)) OF
                                     Neighbour-v390ext
NeighbourQuality ::=
                                  SEQUENCE {
   ue-Positioning-OTDOA-Quality
                                  UE-Positioning-OTDOA-Quality
}
NewInterFreqCell ::=
                                  SEQUENCE {
   interFreqCellID
                                      InterFreqCellID
                                                                        OPTIONAL,
   frequencyInfo
                                      FrequencyInfo
                                                                        OPTIONAL,
   cellInfo
                                      CellInfo
}
NewInterFreqCell-r4 ::= interFreqCellID
                                  SEQUENCE {
                                     InterFreqCellID
                                                                        OPTIONAL,
                                                                        OPTIONAL,
    frequencyInfo
                                      FrequencyInfo
    cellInfo
                                      CellInfo-r4
}
NewInterFreqCellList ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
                                     NewInterFreqCell
NewInterFreqCellList-r4 ::=
                               SEQUENCE (SIZE (1..maxCellMeas)) OF
                                     NewInterFreqCell-r4
                                    SEQUENCE {
NewInterFreqCellSI-RSCP ::=
    interFreqCellID
                                                                        OPTIONAL,
                                      InterFreqCellID
                                     FrequencyInfo
    frequencyInfo
                                                                        OPTIONAL,
                                     CellInfoSI-RSCP
    cellInfo
}
NewInterFreqCellSI-ECN0 ::=
                                     SEQUENCE {
   interFreqCellID
                                                                        OPTIONAL,
                                     InterFregCellID
    frequencyInfo
                                     FrequencyInfo
                                                                        OPTIONAL,
    cellInfo
                                      CellInfoSI-ECN0
}
NewInterFreqCellSI-HCS-RSCP ::=
                                        SEQUENCE {
```

```
interFreqCellID
                                        InterFreqCellID
                                                                            OPTIONAL,
    frequencyInfo
                                        FrequencyInfo
                                                                            OPTIONAL,
    cellInfo
                                        CellInfoSI-HCS-RSCP
}
NewInterFreqCellSI-HCS-ECN0 ::=
                                           SEQUENCE {
    interFreqCellID
                                        InterFreqCellID
                                                                            OPTIONAL,
    frequencyInfo
                                       FrequencyInfo
                                                                            OPTIONAL,
    {\tt cellInfo}
                                       CellInfoSI-HCS-ECN0
                                   SEQUENCE (
InterFreqCellID
                                           SEQUENCE {
NewInterFreqCellSI-RSCP-LCR-r4 ::=
                                                                            OPTIONAL.
    interFreqCellID
    frequencyInfo
                                       FrequencyInfo
                                                                            OPTIONAL,
   cellInfo
                                       CellInfoSI-RSCP-LCR-r4
}
NewInterFreqCellSI-ECN0-LCR-r4 ::=
                                           SEQUENCE {
    interFreqCellID
                                       InterFreqCellID
                                                                            OPTIONAL.
    frequencyInfo
                                        FrequencyInfo
                                                                            OPTIONAL,
                                        CellInfoSI-ECN0-LCR-r4
    cellInfo
}
NewInterFreqCellSI-HCS-RSCP-LCR-r4 ::=
                                           SEQUENCE {
                                        InterFreqCellID
    interFregCellID
                                                                            OPTIONAL.
    frequencyInfo
                                       FrequencyInfo
                                                                            OPTIONAL,
    cellInfo
                                       CellInfoSI-HCS-RSCP-LCR-r4
}
NewInterFreqCellSI-HCS-ECN0-LCR-r4 ::=
                                           SEQUENCE {
    interFreqCellID
                                        InterFreqCellID
                                                                            OPTIONAL,
    frequencyInfo
                                        FrequencyInfo
                                                                            OPTIONAL,
   cellInfo
                                        CellInfoSI-HCS-ECN0-LCR-r4
NewInterFreqCellSI-List-ECN0 ::=
                                            SEQUENCE (SIZE (1..maxCellMeas)) OF
                                       NewInterFreqCellSI-ECN0
NewInterFreqCellSI-List-HCS-RSCP ::=
                                                SEQUENCE (SIZE (1..maxCellMeas)) OF
                                        NewInterFreqCellSI-HCS-RSCP
                                                SEQUENCE (SIZE (1..maxCellMeas)) OF
NewInterFreqCellSI-List-HCS-ECN0 ::=
                                       NewInterFreqCellSI-HCS-ECN0
NewInterFreqCellSI-List-RSCP ::=
                                        SEQUENCE (SIZE (1..maxCellMeas)) OF
                                        NewInterFreqCellSI-RSCP
NewInterFreqCellSI-List-ECN0-LCR-r4 ::=
                                            SEQUENCE (SIZE (1..maxCellMeas)) OF
                                        NewInterFreqCellSI-ECN0-LCR-r4
{\tt NewInterFreqCellSI-List-HCS-RSCP-LCR-r4} \ ::= \ {\tt SEQUENCE} \ ({\tt SIZE} \ ({\tt 1..maxCellMeas})) \ {\tt OF}
                                        NewInterFreqCellSI-HCS-RSCP-LCR-r4
NewInterFreqCellSI-List-HCS-ECN0-LCR-r4 ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
                                        NewInterFreqCellSI-HCS-ECN0-LCR-r4
NewInterFreqCellSI-List-RSCP-LCR-r4 ::=
                                           SEQUENCE (SIZE (1..maxCellMeas)) OF
                                       NewInterFreqCellSI-RSCP-LCR-r4
NewInterRATCell ::=
                               SEQUENCE {
                              InterRATCellID
CHOICE (
    interRATCellID
                                                              OPTIONAL,
    technologySpecificInfo
                                         SEQUENCE {
                                           CellSelectReselectInfoSIB-11-12
            cellSelectionReselectionInfo
                                                                                   OPTIONAL,
            interRATCellIndividualOffset
                                                InterRATCellIndividualOffset,
           bsic
                                               BSIC.
            frequency-band
                                                Frequency-Band,
           bcch-ARFCN
                                                BCCH-ARFCN,
            -- dummy is not used in this version of the specification, it should
            -- not be sent and if received it should be ignored.
           dummy
                                                NULL
        is-2000
                                            SEQUENCE {
           is-2000SpecificMeasInfo
                                               IS-2000SpecificMeasInfo
        -- ASN.1 inconsistency: NewInterRATCellList should be optional within
        -- InterRATCellInfoList. The UE shall consider IE NewInterRATCell with
        -- technologySpecificInfo set to "absent" as valid and handle the
```

```
-- message as if the IE NewInterRATCell was absent
                                          NULL,
                                          NULL
       spare1
    }
}
NewInterRATCell-B ::=
   interRATCellID
                                 SEQUENCE {
   Internative IID Internative OPTIONAL, technologySpecificInfo CHOICE {
gsm
           CellSelectReselectInfoSIB-11-12
interRATCellIndividualOffset
bsic
                                                                                OPTIONAL,
           frequency-band
                                              Frequency-Band,
           bcch-ARFCN
                                              BCCH-ARFCN,
           -- dummy is not used in this version of the specification, it should
           -- not be sent and if received it should be ignored.
           dummy
                                              NULL
                                                                 OPTIONAL
        is-2000
                                         SEQUENCE {
           is-2000SpecificMeasInfo
                                              IS-2000SpecificMeasInfo
         - ASN.1 inconsistency: NewInterRATCellList-B should be optional within
        -- InterRATCellInfoList-B. The UE shall consider IE NewInterRATCell-B with
        -- technology
Specific<br/>Info set to "absent" as valid and handle the \,
        -- message as if the IE NewInterRATCell-B was absent
                                          NULL,
       spare1
                                          NULL
    }
}
NewInterRATCellList ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
                               NewInterRATCell
\label{eq:newInterRatCellList-B} \begin{tabular}{ll} NewInterRatCellList-B ::= & SEQUENCE (SIZE (1..maxCellMeas)) OF \\ \end{tabular}
                                      NewInterRATCell-B
NewIntraFreqCell ::=
                                  SEQUENCE {
                                      IntraFreqCellID
   intraFregCellID
                                                                        OPTIONAL,
                                      CellInfo
    cellInfo
NewIntraFreqCell-r4 ::= SEQUENCE {
   intraFreqCellID IntraF
   intraFreqCellID
                                   IntraFreqCellID
                                                                        OPTIONAL,
    cellInfo
                                      CellInfo-r4
NewIntraFreqCellList ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
                                      NewIntraFreqCell
\label{eq:local_new_problem} \mbox{NewIntraFreqCellList-r4} ::= \qquad \qquad \mbox{SEQUENCE (SIZE (1..maxCellMeas)) OF}
                                      NewIntraFreqCell-r4
NewIntraFreqCellSI-RSCP ::=
                                      SEQUENCE {
   intraFreqCellID
                                      IntraFreqCellID
                                                                        OPTIONAL,
   cellInfo
                                      CellInfoSI-RSCP
IntraFreqCellID
                                                                         OPTIONAL.
   cellInfo
                                      CellInfoSI-ECN0
NewIntraFreqCellSI-HCS-RSCP ::= SEQUENCE {
                                  IntraFreqCellID
                                                                         OPTIONAL.
   intraFreqCellID
                                      CellInfoSI-HCS-RSCP
    cellInfo
}
NewIntraFreqCellSI-HCS-ECNO ::= SEQUENCE {
    intraFreqCellID
                                     IntraFreqCellID
                                                                        OPTIONAL,
    cellInfo
                                      CellInfoSI-HCS-ECN0
}
NewIntraFreqCellSI-RSCP-LCR-r4 ::= SEQUENCE {
    intraFreqCellID
                                      IntraFreqCellID
                                                                        OPTIONAL,
    cellInfo
                                      CellInfoSI-RSCP-LCR-r4
NewIntraFreqCellSI-ECN0-LCR-r4 ::=
                                     SEQUENCE {
```

```
intraFreqCellID
                                        IntraFreqCellID
                                                                            OPTIONAL,
    cellInfo
                                        CellInfoSI-ECN0-LCR-r4
NewIntraFreqCellSI-HCS-RSCP-LCR-r4 ::= SEQUENCE {
    intraFreqCellID
                                        IntraFreqCellID
                                                                            OPTIONAL,
                                        CellInfoSI-HCS-RSCP-LCR-r4
    cellInfo
}
NewIntraFreqCellSI-HCS-ECN0-LCR-r4 ::= SEQUENCE {
    intraFreqCellID
                                        IntraFreqCellID
                                                                           OPTIONAL,
                                       CellInfoSI-HCS-ECN0-LCR-r4
    cellInfo
}
NewIntraFreqCellSI-List-RSCP ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
                                           NewIntraFreqCellSI-RSCP
                                     SEQUENCE (SIZE (1..maxCellMeas)) OF
NewIntraFreqCellSI-List-ECN0 ::=
                                       NewIntraFreqCellSI-ECN0
                                       SEQUENCE (SIZE (1..maxCellMeas)) OF
NewIntraFreqCellSI-List-HCS-RSCP ::=
                                       NewIntraFreqCellSI-HCS-RSCP
                                        SEQUENCE (SIZE (1..maxCellMeas)) OF
NewIntraFreqCellSI-List-HCS-ECN0 ::=
                                       NewIntraFreqCellSI-HCS-ECN0
NewIntraFreqCellSI-List-RSCP-LCR-r4 ::=
                                            SEQUENCE (SIZE (1..maxCellMeas)) OF
                                           NewIntraFreqCellSI-RSCP-LCR-r4
NewIntraFreqCellSI-List-ECN0-LCR-r4 ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
                                       NewIntraFreqCellSI-ECN0-LCR-r4
NewIntraFreqCellSI-List-HCS-RSCP-LCR-r4 ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
                                       NewIntraFreqCellSI-HCS-RSCP-LCR-r4
NewIntraFreqCellSI-List-HCS-ECNO-LCR-r4 ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
                                       NewIntraFreqCellSI-HCS-ECN0-LCR-r4
    -- IE "nonUsedFreqThreshold" is not needed in case of event 2a
    -- In case of event 2a UTRAN should include value 0 within IE "nonUsedFreqThreshold"
    -- In case of event 2a, the UE shall be ignore IE "nonUsedFreqThreshold"
    \operatorname{\mathsf{--}} In later versions of the message including this IE, a special version of
    -- IE "NonUsedFreqParameterList" may be defined for event 2a, namely a
    -- version not including IE "nonUsedFreqThreshold"
                           SEQUENCE {
NonUsedFreqParameter ::=
   nonUsedFreqThreshold
                                       Threshold,
   nonUsedFreqW
NonUsedFreqParameterList ::= SEQUENCE (SIZE (1..maxFreq)) OF
                                       NonUsedFregParameter
ObservedTimeDifferenceToGSM ::=
                                   INTEGER (0..4095)
OTDOA-SearchWindowSize ::=
                                   ENUMERATED {
                                       c20, c40, c80, c160, c320,
                                        c640, c1280, moreThan1280 }
-- SPARE: Pathloss, Max = 158
-- Values above Max are spare
                                   INTEGER (46..173)
Pathloss ::=
PenaltyTime-RSCP ::=
                                   CHOICE {
   notUsed
                                       NULL,
   pt10
                                        TemporaryOffset1,
                                        TemporaryOffset1,
   pt20
   pt30
                                       TemporaryOffset1,
                                       TemporaryOffset1,
   pt40
                                       TemporaryOffset1,
   pt50
   pt60
                                       TemporaryOffset1
PenaltyTime-ECN0 ::=
                                   CHOICE {
                                       NULL,
   notUsed
   pt10
                                        TemporaryOffsetList,
   pt20
                                        TemporaryOffsetList,
   pt30
                                        TemporaryOffsetList,
    pt40
                                        TemporaryOffsetList,
    pt50
                                        TemporaryOffsetList,
```

```
pt60
                                         TemporaryOffsetList
}
PendingTimeAfterTrigger ::=
                                   ENUMERATED {
                                         ptat0-25, ptat0-5, ptat1,
                                         ptat2, ptat4, ptat8, ptat16 }
PeriodicalOrEventTrigger ::=
                                     ENUMERATED {
                                        periodical,
                                         eventTrigger }
PeriodicalReportingCriteria ::= SEQUENCE {
                                        ReportingIntervalLong DEFAULT ra-Infinity,
                       ReportingAmount
ReportingInterva
    reportingAmount
   reportingInterval
}
{\tt PeriodicalWithReportingCellStatus} ::= {\tt SEQUENCE} \ \{
   periodicalReportingCriteria PeriodicalReportingCriteria, reportingCellStatus ReportingCellStatus
                                                                            OPTIONAL
}
}
{\tt PLMNsOfInterFreqCellsList} ::= \\ {\tt SEQUENCE} \ ({\tt SIZE} \ ({\tt 1...maxCellMeas})) \ {\tt OF} \\
                                           SEQUENCE {
                                                 PLMN-Identity
                                                                            OPTIONAL
    plmn-Identity
PLMNsOfIntraFreqCellsList ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
                                            SEQUENCE {
    plmn-Identity
                                               PLMN-Identity
                                                                            OPTIONAL
}
PLMNsOfInterRATCellsList ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
                                            SEQUENCE {
                                                PLMN-Identity
   plmn-Identity
                                                                            OPTIONAL
}
PositionEstimate ::=
                                   CHOICE {
    ellipsoidPoint EllipsoidPoint,
ellipsoidPointUncertCircle EllipsoidPointUncertCircle,
ellipsoidPointUncertEllipse EllipsoidPointUncertEllipse,
ellipsoidPointAltitude EllipsoidPointAltitudeEllipse
                                     ENUMERATED {
PositioningMethod ::=
                                        otdoa,
                                         qps,
                                         otdoaOrGPS, cellID }
-- Actual value PRC = IE value * 0.32
PRC ::=
                                     INTEGER (-2047..2047)
-- SPARE: PrimaryCCPCH-RSCP, Max = 91
-- Values above Max are spare
                                    INTEGER (0..127)
PrimaryCCPCH-RSCP ::=
                                    INTEGER (0..99)
Q-HCS ::=
Q-OffsetS-N ::=
                                    INTEGER (-50..50)
Q-QualMin ::=
                                     INTEGER (-24..0)
-- Actual value Q-RxlevMin = (IE value * 2) + 1
Q-RxlevMin ::=
                                     INTEGER (-58..-13)
QualityEventResults ::=
                                     SEQUENCE (SIZE (1..maxTrCH)) OF
                                        TransportChannelIdentity
QualityMeasuredResults ::= blerMeasurementResultsList
                                     SEQUENCE {
                                    BLER-MeasurementResultsList OPTIONAL,
                                         CHOICE {
    modeSpecificInfo
        fdd
                                             NULL,
```

```
t.dd
                                                                                           SEQUENCE {
                         sir-MeasurementResults
                                                                                                    SIR-MeasurementList
                                                                                                                                                               OPTIONAL
                 }
        }
}
        lityMeasurement ::=
qualityReportingQuantity
QualityMeasurement ::=
                                                                        SEQUENCE {
                                                                                   QualityReportingQuantity OPTIONAL,
        reportCriteria
                                                                                   QualityReportCriteria
       cutofice for the control of the
QualityReportCriteria ::=
                                                                                   PeriodicalReportingCriteria,
}
QualityReportingCriteria ::=
                                                                           SEQUENCE (SIZE (1..maxTrCH)) OF
                                                                                    QualityReportingCriteriaSingle
QualityReportingCriteriaSingle ::= SEQUENCE {
        transportChannelIdentity TransportChannelIdentity,
        totalCRC
                                                                                    INTEGER (1..512),
                                                                                  INTEGER (1..512),
        badCRC
        pendingAfterTrigger
                                                                                   INTEGER (1..512)
}
{\tt QualityReportingQuantity} ::= \\ {\tt SEQUENCE} \ \{
        dl-TransChBLER
                                                                                BOOLEAN,
        bler-dl-TransChIdList
                                                                                   BLER-TransChIdList
                                                                                                                                                             OPTIONAL.
        modeSpecificInfo
                                                                                    CHOICE {
                fdd
                                                                                        NULL,
                tdd
                                                                                            SEQUENCE {
                         sir-TFCS-List
                                                                                                    SIR-TFCS-List
                                                                                                                                                OPTIONAL
                 }
        }
}
                                                                            ENUMERATED {
RAT-Type ::=
                                                                                   gsm, is2000 }
ReferenceCellPosition ::=
                                                                            CHOICE {
        ellipsoidPoint
                                                                                   EllipsoidPoint,
        ellipsoidPointWithAltitude
                                                                                   EllipsoidPointAltitude
}
-- ReferenceLocation, as defined in 23.032
ReferenceLocation ::=
                                                                   SEQUENCE {
        ellipsoidPointAltitudeEllipsoide
                                                                                            EllipsoidPointAltitudeEllipsoide
}
ReferenceTimeDifferenceToCell ::= CHOICE {
        -- Actual value accuracy40 = IE value * 40
                                                                                    INTEGER (0..960),
        accuracy40
        -- Actual value accuracy256 = IE value * 256
                                                                                    INTEGER (0..150),
        accuracy256
          -- Actual value accuracy2560 = IE value * 2560
        accuracy2560
                                                                                   INTEGER (0..15)
}
RemovedInterFreqCellList ::= CHOICE {
    removeAllInterFreqCells NULL,
    removeSomeInterFreqCells SEQUE
                                                                                   SEQUENCE (SIZE (1..maxCellMeas)) OF
                                                                                            InterFreqCellID,
                                                                                   NULL
        removeNoInterFreqCells
}
RemovedInterRATCellList ::= CHOICE {
                                                                NULL,
SECTIF
        removeAllInterRATCells
        removeSomeInterRATCells
                                                                          SEQUENCE (SIZE (1..maxCellMeas)) OF
                                                                                          InterRATCellID,
        removeNoInterRATCells
                                                                          NULL
}
RemovedIntraFreqCellList ::= removeAllIntraFreqCells removeSomeIntraFreqCells
                                                                          CHOICE {
                                                                                    SEQUENCE (SIZE (1..maxCellMeas)) OF
                                                                                            IntraFreqCellID,
```

```
removeNoIntraFreqCells
                                                                             NULL
}
ReplacementActivationThreshold ::= ENUMERATED {
                                                                             notApplicable, t1, t2,
                                                                              t3, t4, t5, t6, t7 }
                                                                     ENUMERATED {
ReportDeactivationThreshold ::=
                                                                             notApplicable, t1, t2,
                                                                             t3, t4, t5, t6, t7 }
ReportingAmount ::=
                                                                     ENUMERATED {
                                                                             ral, ra2, ra4, ra8, ra16, ra32,
                                                                             ra64, ra-Infinity }
ReportingCellStatus ::=
                                                                     CHOICE {
                                                                             MaxNumberOfReportingCellsType1,
       withinActiveSet
       withinMonitoredSetUsedFreq
                                                                             MaxNumberOfReportingCellsType1,
       within \verb|ActiveAndOrMonitoredUsedFreq| MaxNumberOfReportingCellsType1,
       withinDetectedSetUsedFreq
                                                                             MaxNumberOfReportingCellsType1,
       {\tt withinMonitoredAndOrDetectedUsedFreq}
                                                                            MaxNumberOfReportingCellsType1,
       allActiveplusMonitoredSet
                                                                             MaxNumberOfReportingCellsType3,
       allActivePlusDetectedSet
                                                                             MaxNumberOfReportingCellsType3,
       \verb|allActivePlusMonitoredAndOrDetectedSet| \\
                                                                           MaxNumberOfReportingCellsType3,
       withinVirtualActSet
                                                                    MaxNumberOfReportingCellsType1,
                                                                            MaxNumberOfReportingCellsType1,
       withinMonitoredSetNonUsedFreq
       withinMonitoredAndOrVirtualActiveSetNonUsedFreq
                                                                             {\tt MaxNumberOfReportingCellsType1,}
       allVirtualActSetplusMonitoredSetNonUsedFreq
                                                                             MaxNumberOfReportingCellsType3,
       withinActSetOrVirtualActSet-InterRATcells
                                                                             MaxNumberOfReportingCellsType2,
       with \verb|inActSetAndOrMonitoredUsedFreqOrV| in tual \verb|ActSetAndOrMonitoredNonUsedFreqOrV| in tual \verb|ActSetAndOrMon
                                                                            MaxNumberOfReportingCellsType2
}
                                                                   SEQUENCE {
ReportingCellStatusOpt ::=
       reportingCellStatus
                                                                            ReportingCellStatus
                                                                                                                                                 OPTIONAL
ReportingInfoForCellDCH ::=
       ortingInfoForCellDCH ::=
intraFreqReportingQuantity
                                                                     SEQUENCE {
                                                                     {\tt IntraFreqReportingQuantity,}
       measurementReportingMode
                                                                             MeasurementReportingMode,
                                                                             CellDCH-ReportCriteria
       reportCriteria
}
ReportingInfoForCellDCH-LCR-r4 ::= SEQUENCE {
       intraFreqReportingQuantity
                                                                             IntraFreqReportingQuantity,
       measurementReportingMode
                                                                             MeasurementReportingMode,
       reportCriteria
                                                                             CellDCH-ReportCriteria-LCR-r4
ReportingInterval ::=
                                                                     ENUMERATED {
                                                                             noPeriodicalreporting, ri0-25,
                                                                             ri0-5, ri1, ri2, ri4, ri8, ri16 }
ReportingIntervalLong ::=
                                                                     ENUMERATED {
                                                                             ril0, ril0-25, ril0-5, ril1,
                                                                              ril2, ril3, ril4, ril6, ril8,
                                                                             ril12, ril16, ril20, ril24,
                                                                      ril28, ril32, ril64 } -- When the value "ril0" is used, the UE behaviour is not
                                                                      -- defined.
-- Actual value ReportingRange = IE value * 0.5
ReportingRange ::=
                                                                     INTEGER (0..29)
RL-AdditionInfoList ::=
                                                                     SEQUENCE (SIZE (1..maxRL)) OF
                                                                            PrimaryCPICH-Info
RL-InformationLists ::=
                                                                     SEQUENCE {
                                                                    RL-AdditionInfoList
       rl-AdditionInfoList
                                                                                                                                                   OPTIONAL,
       rL-RemovalInformationList
                                                                           RL-RemovalInformationList
                                                                                                                                                   OPTIONAL
}
```

```
RLC-BuffersPayload ::=
                                     ENUMERATED {
                                         pl0, pl4, pl8, pl16, pl32,
pl64, pl128, pl256, pl512, pl1024,
                                         pl2k, pl4k, pl8k, pl16k, pl32k,
                                         pl64k, pl128k, pl256k, pl512k, pl1024k,
                                         spare12, spare11, spare10, spare9, spare8,
                                         spare7, spare6, spare5, spare4, spare3,
spare2, spare1 }
-- Actual value RRC = IE value * 0.032
                                     INTEGER (-127..127)
SatData ::=
                                     SEQUENCE {
   satID
                                         SatID,
    iode
                                         IODE
}
                                     SEQUENCE (SIZE (0..maxSat)) OF
SatDataList ::=
                                         SatData
                                     ENUMERATED {
SatelliteStatus ::=
                                        ns-NN-U,
                                         es-SN,
                                         es-NN-U,
                                         rev2.
                                         rev }
-- Identifies the satellite and is equal to (SV ID No - 1) where SV ID No is defined in [12].
SatID ::=
                                     INTEGER (0..63)
SFN-Offset-Validity ::=
                               ENUMERATED { false }
SFN-SFN-Drift ::=
                                     ENUMERATED {
                                         sfnsfndrift0, sfnsfndrift1, sfnsfndrift2,
                                         sfnsfndrift3, sfnsfndrift4, sfnsfndrift5,
                                         sfnsfndrift8, sfnsfndrift10, sfnsfndrift15
                                         sfnsfndrift25, sfnsfndrift35, sfnsfndrift50,
                                         sfnsfndrift65, sfnsfndrift80, sfnsfndrift100,
                                         sfnsfndrift-1, sfnsfndrift-2, sfnsfndrift-3,
                                         sfnsfndrift-4, sfnsfndrift-5, sfnsfndrift-8,
                                         sfnsfndrift-10, sfnsfndrift-15, sfnsfndrift-25,
                                         sfnsfndrift-35, sfnsfndrift-50, sfnsfndrift-65,
                                         sfnsfndrift-80, sfnsfndrift-100}
{\tt SFN-SFN-ObsTimeDifference} ::= {\tt CHOICE} \; \{
                                         SFN-SFN-ObsTimeDifferencel,
    type1
                                         SFN-SFN-ObsTimeDifference2
    type2
}
-- SPARE: SFN-SFN-ObsTimeDifference1, Max = 9830399
-- For 1.28Mcps TDD, Max value of SFN-SFN-ObsTimeDifferencel is 3276799.
-- Values above Max are spare
SFN-SFN-ObsTimeDifference1 ::=
                                   INTEGER (0..16777215)
-- SPARE: SFN-SFN-ObsTimeDifference2, Max = 40961
-- For 1.28Mcps TDD, Max value of SFN-SFN-ObsTimeDifference2 is 27649.
-- Values above Max are spare
SFN-SFN-ObsTimeDifference2 ::=
                                    INTEGER (0..65535)
SFN-SFN-OTD-Type ::=
                                     ENUMERATED {
                                         noReport,
                                         type1,
                                         type2 }
SFN-SFN-RelTimeDifference1 ::=
                                     SEQUENCE {
    sfn-Offset
                                         INTEGER (0 .. 4095),
    sfn-sfn-Reltimedifference
                                         INTEGER (0.. 38399)
}
SFN-TOW-Uncertainty ::=
                                     ENUMERATED {
                                         lessThan10,
                                         moreThan10 }
SIR ::=
                                     INTEGER (0..63)
```

```
SIR-MeasurementList ::=
                                  SEQUENCE (SIZE (1..maxCCTrCH)) OF
                                       SIR-MeasurementResults
SIR-MeasurementResults ::=
                                   SEQUENCE {
  tfcs-ID
                                   TFCS-IdentityPlain,
   sir-TimeslotList
                                       SIR-TimeslotList
}
SIR-TFCS ::=
                                   TFCS-IdentityPlain
                                   SEQUENCE (SIZE (1..maxCCTrCH)) OF
SIR-TFCS-List ::=
                                       SIR-TFCS
                                   SEQUENCE (SIZE (1..maxTS)) OF
SIR-TimeslotList ::=
-- Actual value ScalingFactor = IE value * 0.1
SpeedDependentScalingFactor ::=
                                  INTEGER (0..10)
-- SubFramelReserved, reserved bits in subframe 1 of the GPS navigation message
SubFrame1Reserved ::=
                                   SEQUENCE {
                                       BIT STRING (SIZE (23)),
   reserved1
                                       BIT STRING (SIZE (24)),
   reserved2
                                       BIT STRING (SIZE (24)),
   reserved3
   reserved4
                                       BIT STRING (SIZE (16))
}
T-ADVinfo ::=
                                   SEOUENCE {
               t-ADV
                                    INTEGER(0..2047),
                                      INTEGER(0..4095)
}
                                   CHOICE {
T-CRMax ::=
   notUsed
                                      NULL,
                                       N-CR-T-CRMaxHyst,
   t30
   t60
                                       N-CR-T-CRMaxHyst,
   t120
                                      N-CR-T-CRMaxHyst,
   t180
                                       N-CR-T-CRMaxHyst,
    t240
                                       N-CR-T-CRMaxHyst
}
T-CRMaxHyst ::=
                                   ENUMERATED {
                                      notUsed, t10, t20, t30,
                                       t40, t50, t60, t70 }
TemporaryOffset1 ::=
                                   ENUMERATED {
                                       to3, to6, to9, to12, to15,
                                       to18, to21, infinite }
                                   ENUMERATED {
TemporaryOffset2 ::=
                                      to2, to3, to4, to6, to8,
                                       to10, to12, infinite }
TemporaryOffsetList ::=
                                   SEQUENCE
       temporaryOffset1
                                       TemporaryOffset1,
       temporaryOffset2
                                       TemporaryOffset2
}
Threshold ::=
                                   INTEGER (-115..0)
-- The order of the list corresponds to the order of frequency defined in Inter-FreqEventCriteria
ThreholdNonUsedFrequency-deltaList ::= SEQUENCE (SIZE (1..maxFreq)) OF
                                           DeltaRSCPPerCell
ThresholdPositionChange ::=
                                   ENUMERATED {
                                       pc10, pc20, pc30, pc40, pc50,
                                       pc100, pc200, pc300, pc500,
                                       pc1000, pc2000, pc5000, pc10000,
                                       pc20000, pc50000, pc100000 }
ThresholdSFN-GPS-TOW ::=
                                   ENUMERATED {
                                       ms1, ms2, ms3, ms5, ms10,
                                       ms20, ms50, ms100 }
ThresholdSFN-SFN-Change ::=
                                 ENUMERATED {
                                       c0-25, c0-5, c1, c2, c3, c4, c5,
```

```
c10, c20, c50, c100, c200, c500,
                                      c1000, c2000, c5000 }
ThresholdUsedFrequency ::=
                                 INTEGER (-115..165)
-- Actual value TimeInterval = IE value * 20.
TimeInterval ::=
                                  INTEGER (1..13)
TimeslotInfo ::=
                                 SEQUENCE {
   timeslotNumber
                                      TimeslotNumber,
                                      BurstType
   burstType
TimeslotInfo-LCR-r4 ::=
                                SEQUENCE {
   timeslotNumber
                                     TimeslotNumber-LCR-r4
TimeslotInfoList ::=
                                SEQUENCE (SIZE (1..maxTS)) OF
                                     TimeslotInfo
TimeslotInfoList-LCR-r4 ::=
                                 SEQUENCE (SIZE (1..maxTS-LCR)) OF
                                     TimeslotInfo-LCR-r4
                                 CHOICE {
TimeslotInfoList-r4 ::=
   tdd384
                                   SEQUENCE (SIZE (1..maxTS)) OF
                                         TimeslotInfo,
   tdd128
                                      SEQUENCE (SIZE (1..maxTS-LCR)) OF
                                         TimeslotInfo-LCR-r4
-- SPARE: TimeslotISCP, Max = 91
-- Values above Max are spare
TimeslotISCP ::=
                                 INTEGER (0..127)
-- TimeslotISCP-List shall not include more than 6 elements in 1.28Mcps TDD mode.
TimeslotISCP-List ::=
                                  SEQUENCE (SIZE (1..maxTS)) OF
                                     TimeslotISCP
TimeslotListWithISCP ::=
                                  SEQUENCE (SIZE (1..maxTS)) OF
                                     TimeslotWithISCP
TimeslotWithISCP ::=
                                  SEQUENCE {
                                     TimeslotNumber,
   timeslot
   timeslotISCP
                                     TimeslotISCP
TimeToTrigger ::=
                                  ENUMERATED {
                                      ttt0, ttt10, ttt20, ttt40, ttt60,
                                      ttt80, ttt100, ttt120, ttt160,
                                      ttt200, ttt240, tt320, ttt640,
                                      ttt1280, ttt2560, ttt5000 }
TrafficVolumeEventParam ::= SEQUENCE {
   eventID
                                     TrafficVolumeEventType,
   reportingThreshold
                                     TrafficVolumeThreshold,
                                     TimeToTrigger
                                                                       OPTIONAL.
   timeToTrigger
   pendingTimeAfterTrigger
tx-InterruptionAfterTrigger
                                     PendingTimeAfterTrigger
                                                                       OPTIONAL.
                                    TX-InterruptionAfterTrigger
                                                                       OPTIONAL
TrafficVolumeEventResults ::= SEQUENCE {
   ul-transportChannelCausingEvent UL-TrCH-Identity,
   trafficVolumeEventIdentity
                                     TrafficVolumeEventType
}
TrafficVolumeEventType ::=
                               ENUMERATED {
                                     e4a,
                                     e4b }
TrafficVolumeMeasQuantity ::=
                                CHOICE {
                                 NULL,
   rlc-BufferPayload
   averageRLC-BufferPayload
                                     TimeInterval,
   varianceOfRLC-BufferPayload TimeInterval
}
```

```
TrafficVolumeMeasSysInfo ::=
    trafficVolumeMeasurementID MeasurementIdentity DEFAULT 4, trafficVolumeMeasurementObjectList TrafficVolumeMeasurementObjectList OPTIONAL,
    trafficVolumeMeasQuantity TrafficVolumeMeasQuantity trafficVolumeReportingQuantity TrafficVolumeReportingQuantity
                                                                                OPTIONAL,
                                                                                 OPTIONAL
    -- dummy is not used in this version of specification, it should
    -- not be sent and if received it should be ignored.
                                                                               OPTIONAL.
                                          TrafficVolumeReportingCriteria
    dummy
    measurementValidity
                                          MeasurementValidity
                                                                                 OPTIONAL,
    measurementReportingMode
                                    Measurementkeportingnose,
TrafficVolumeReportCriteriaSysInfo
                                          MeasurementReportingMode,
    reportCriteriaSysInf
}
TrafficVolumeMeasuredResults ::= SEQUENCE {
                                     RB-Identity,
   rb-Identity
    rlc-BuffersPavload
                                          RLC-BuffersPayload
                                                                                 OPTIONAL,
    averageRLC-BufferPayload AverageRLC-BufferPayload VarianceOfRLC-BufferPayload VarianceOfRLC-BufferPayload
                                                                                 OPTIONAL.
                                                                                OPTIONAL
TrafficVolumeMeasuredResultsList ::= SEQUENCE (SIZE (1..maxRB)) OF
                                          TrafficVolumeMeasuredResults
                                      SECUENCE {
TrafficVolumeMeasurement ::=
    {\tt trafficVolumeMeasurementObjectList} \quad {\tt TrafficVolumeMeasurementObjectList} \quad {\tt OPTIONAL}, \\
                                    TrafficVolumeMeasQuantity
    trafficVolumeMeasQuantity
                                                                           OPTIONAL,
    trafficVolumeReportingQuantity
                                          TrafficVolumeReportingQuantity
                                                                                 OPTIONAL,
    measurementValidity
                                          MeasurementValidity
                                                                                 OPTIONAL,
    reportCriteria
                                          TrafficVolumeReportCriteria
}
TrafficVolumeMeasurementObjectList ::= SEQUENCE (SIZE (1..maxTrCH)) OF
                                               UL-TrCH-Identity
TrafficVolumeReportCriteria ::=
                                      CHOICE {
    {\tt traffic Volume Reporting Criteria} \qquad {\tt Traffic Volume Reporting Criteria},
    periodicalReportingCriteria
                                          PeriodicalReportingCriteria,
    noReporting
                                          NIII.I.
}
TrafficVolumeReportCriteriaSysInfo ::= CHOICE {
    trafficVolumeReportingCriteria TrafficVolumeReportingCriteria, periodicalReportingCriteria PeriodicalReportingCriteria
    periodicalReportingCriteria
                                          PeriodicalReportingCriteria
TrafficVolumeReportingCriteria ::= SEQUENCE {
    -- NOTE: transChCriteriaList should be mandatory in later versions of this message
    transChCriteriaList
                                           TransChCriteriaList
}
TrafficVolumeReportingQuantity ::= SEQUENCE {
    rlc-RB-BufferPayloadAverage rlc-RB-BufferPayloadAverage
   rlc-RB-BufferPayload
                                        BOOLEAN
    rlc-RB-BufferPayloadVariance
}
TrafficVolumeThreshold ::=
                                      ENUMERATED {
                                           th8, th16, th32, th64, th128,
                                           th256, th512, th1024, th2k, th3k,
                                           th4k, th6k, th8k, th12k, th16k,
                                           th24k, th32k, th48k, th64k, th96k,
                                           th128k, th192k, th256k, th384k,
                                           th512k, th768k }
TransChCriteria ::=
                                      SEQUENCE {
    ul-transportChannelID
                                          UL-TrCH-Identity
    eventSpecificParameters
                                          SEQUENCE (SIZE (1..maxMeasParEvent)) OF
                                               TrafficVolumeEventParam
                                                                                 OPTIONAL
TransChCriteriaList ::=
                                SEQUENCE (SIZE (1..maxTrCH)) OF
                                          TransChCriteria
TransferMode ::=
                                      ENUMERATED {
                                          acknowledgedModeRLC,
                                           unacknowledgedModeRLC }
```

```
TransmittedPowerThreshold ::=
                                    INTEGER (-50..33)
TriggeringCondition1 ::=
                                    ENUMERATED {
                                        activeSetCellsOnly,
                                        monitoredSetCellsOnly,
                                        activeSetAndMonitoredSetCells }
                                    ENUMERATED {
TriggeringCondition2 ::=
                                        activeSetCellsOnly,
                                        monitoredSetCellsOnly,
                                        activeSetAndMonitoredSetCells,
                                        detectedSetCellsOnly,
                                        detectedSetAndMonitoredSetCells }
TX-InterruptionAfterTrigger ::=
                                    ENUMERATED {
                                        txiat0-25, txiat0-5, txiat1,
                                        txiat2, txiat4, txiat8, txiat16 }
UDRE ::=
                                    ENUMERATED {
                                        lessThan1,
                                        between1-and-4,
                                        between4-and-8,
                                        over8 }
                                    SEQUENCE {
IJE-6AB-Event ::=
   timeToTrigger
                                        TimeToTrigger,
    transmittedPowerThreshold
                                        TransmittedPowerThreshold
}
IJE-6FG-Event ::=
                                    SEOUENCE {
                                       TimeToTrigger,
   timeToTrigger
    -- in 1.28 Mcps TDD ue-RX-TX-TimeDifferenceThreshold corresponds to T_{\text{ADV}} Threshold
   ue-RX-TX-TimeDifferenceThreshold UE-RX-TX-TimeDifferenceThreshold
}
-- dummy and dummy2 are not used in this version of the specification, they should
-- not be sent and if received the UE behaviour is not specified.
                                CHOICE {
UE-AutonomousUpdateMode ::=
                                        NULL,
   dummy
    onWithNoReporting
                                        NULL.
    dummy2
                                        RL-InformationLists
}
UE-InternalEventParam ::=
                                    CHOICE {
   event6a
                                        UE-6AB-Event,
   event6b
                                        UE-6AB-Event,
                                        TimeToTrigger,
    event6c
    event6d
                                        TimeToTrigger,
    event6e
                                        TimeToTrigger,
    event6f
                                        UE-6FG-Event,
    event6q
                                        UE-6FG-Event
                                    SEQUENCE (SIZE (1..maxMeasEvent)) OF
UE-InternalEventParamList ::=
                                        UE-InternalEventParam
UE-InternalEventResults ::=
                                    CHOICE {
                                        NULL,
   event6a
    event6b
                                        NULL,
    event6c
                                        NIII.I.
    event6d
                                        NULL
    event6e
                                        NULL
    event6f
                                        PrimaryCPICH-Info,
                                        PrimaryCPICH-Info,
    event.6a
    spare
                                        NULL
}
UE-InternalMeasQuantity ::=
                                   SEQUENCE {
                                        UE-MeasurementQuantity,
    measurementQuantity
    filterCoefficient
                                        FilterCoefficient
                                                                            DEFAULT fc0
UE-InternalMeasuredResults ::=
                                   SEOUENCE {
                                    CHOICE {
    modeSpecificInfo
                                         SEQUENCE {
        fdd
            ue-TransmittedPowerFDD
                                                UE-TransmittedPower
                                                                           OPTIONAL,
            ue-RX-TX-ReportEntryList
                                                UE-RX-TX-ReportEntryList
                                                                            OPTIONAL
        },
```

```
t.dd
                                            SEQUENCE {
            ue-TransmittedPowerTDD-List
                                                UE-TransmittedPowerTDD-List OPTIONAL,
            appliedTA
                                                UL-TimingAdvance
                                                                            OPTIONAL
        }
    }
}
UE-InternalMeasuredResults-LCR-r4 ::= SEQUENCE {
        ue-TransmittedPowerTDD-List
                                            UE-TransmittedPowerTDD-List
                                                                            OPTIONAL,
        t-ADVinfo
                                            T-ADVinfo
                                                                             OPTIONAL
}
UE-InternalMeasurement ::=
    ue-InternalMeasQuantity
                                   SEQUENCE {
                                     UE-InternalMeasQuantity
                                                                            OPTIONAL,
    ue-InternalReportingQuantity
                                        UE-InternalReportingQuantity
                                                                            OPTIONAL,
   reportCriteria
                                        UE-InternalReportCriteria
}
UE-InternalMeasurement-r4 ::=
                                   SEQUENCE {
   ue-InternalMeasQuantity
                                        UE-InternalMeasQuantity
                                                                            OPTIONAL,
                                        UE-InternalReportingQuantity-r4
    ue-InternalReportingQuantity
                                                                            OPTIONAL,
    reportCriteria
                                        UE-InternalReportCriteria
                                    SEQUENCE {
UE-InternalMeasurementSysInfo ::=
    ue-InternalMeasurementID
                                       MeasurementIdentity
                                                                   DEFAULT 5,
    ue-InternalMeasQuantity
                                        UE-InternalMeasQuantity
}
UE-InternalReportCriteria ::=
                                    CHOICE {
    ue-InternalReportingCriteria
                                       UE-InternalReportingCriteria,
   periodicalReportingCriteria
                                        PeriodicalReportingCriteria,
                                        NULL
   noReporting
}
UE-InternalReportingCriteria ::=
                                   SEQUENCE {
   ue-InternalEventParamList
                                    UE-InternalEventParamList
                                                                           OPTIONAL
UE-InternalReportingQuantity ::=
                                    SEQUENCE {
    ue-TransmittedPower
                                        BOOLEAN,
    modeSpecificInfo
                                        CHOICE {
        fdd
                                            SEQUENCE {
            ue-RX-TX-TimeDifference
                                                BOOLEAN
        },
        tdd
                                            SEQUENCE {
            appliedTA
                                                BOOLEAN
    }
}
UE-InternalReportingQuantity-r4 ::= SEQUENCE {
    ue-TransmittedPower
                                        BOOLEAN,
    modeSpecificInfo
                                            SEQUENCE {
        fdd
            ue-RX-TX-TimeDifference
                                                BOOLEAN
        },
        tdd
                                            SEQUENCE {
            tddOption
                                                CHOICE {
                tdd384
                                                    SEQUENCE {
                                                        BOOLEAN
                    appliedTA
                t.dd128
                                                    SEQUENCE {
                    t-ADVinfo
                                                        BOOLEAN
            }
        }
    }
}
-- TABULAR: UE-MeasurementQuantity, for 3.84 Mcps TDD only the first two values
-- ue-TransmittedPower and utra-Carrier-RSSI are used.
-- For 1.28 Mcps TDD ue-RX-TX-TimeDifference corresponds to T-ADV in the tabular
UE-MeasurementQuantity ::=
                                    ENUMERATED {
                                        ue-TransmittedPower,
                                        utra-Carrier-RSSI,
                                        ue-RX-TX-TimeDifference }
```

```
UE-RX-TX-ReportEntry ::=
                                    SEQUENCE {
   primaryCPICH-Info
                                        PrimaryCPICH-Info,
    ue-RX-TX-TimeDifferenceType1
                                        UE-RX-TX-TimeDifferenceType1
                                   SEQUENCE (SIZE (1..maxRL)) OF
UE-RX-TX-ReportEntryList ::=
                                        UE-RX-TX-ReportEntry
-- SPARE: UE-RX-TX-TimeDifferenceType1, Max = 1280
-- Values above Max are spare
UE-RX-TX-TimeDifferenceType1 ::=
                                           INTEGER (768..1791)
UE-RX-TX-TimeDifferenceType2 ::= INTEGER (0..8191)
UE-RX-TX-TimeDifferenceType2Info ::= SEQUENCE {
                                            UE-RX-TX-TimeDifferenceType2,
    ue-RX-TX-TimeDifferenceType2
    neighbourQuality
                                            NeighbourQuality
}
-- In 1.28 Mcps TDD, actual value for
-- T-ADV Threshold = (UE-RX-TX-TimeDifferenceThreshold - 768) * 0.125
UE-RX-TX-TimeDifferenceThreshold ::= INTEGER (768..1280)
IJE-TransmittedPower ::=
                                    INTEGER (0..104)
UE-TransmittedPowerTDD-List ::= SEQUENCE (SIZE (1..maxTS)) OF
                                        UE-TransmittedPower
UL-TrCH-Identity ::=
                                        CHOICE {
   dch
                                        TransportChannelIdentity,
    -- Default transport channel in the UL is either RACH or CPCH, but not both.
    rachorcpch
                                        NULL,
                                        TransportChannelIdentity
    usch
}
UE-Positioning-Accuracy ::=
                                            BIT STRING (SIZE (7))
UE-Positioning-CipherParameters ::= SEQUENCE {
    cipheringKeyFlag BIT STRING (SIZE (1)),
    cipheringSerialNumber
                                       INTEGER (0..65535)
}
                                                SEQUENCE {
UE-Positioning-Error ::=
                                        UE-Positioning-ErrorCause,
    errorReason
    ue-positioning-GPS-additionalAssistanceDataRequest
                                                                UE-Positioning-GPS-
AdditionalAssistanceDataRequest OPTIONAL
UE-Positioning-ErrorCause ::=
                                                ENUMERATED {
                                        notEnoughOTDOA-Cells,
                                        notEnoughGPS-Satellites,
                                        assistanceDataMissing,
                                        notAccomplishedGPS-TimingOfCellFrames,
                                        undefinedError,
                                        requestDeniedByUser,
                                        notProcessedAndTimeout,
                                        referenceCellNotServingCell }
UE-Positioning-EventParam ::=
                                                SEQUENCE {
   reportingAmount
                                        ReportingAmount,
    reportFirstFix
                                        BOOLEAN,
    measurementInterval
                                        UE-Positioning-MeasurementInterval,
    eventSpecificInfo
                                        UE-Positioning-EventSpecificInfo
UE-Positioning-EventParamList ::=
                                                SEQUENCE (SIZE (1..maxMeasEvent)) OF
                                        UE-Positioning-EventParam
UE-Positioning-EventSpecificInfo ::=
                                                CHOICE {
    e7a
                                        ThresholdPositionChange,
    e7b
                                        ThresholdSFN-SFN-Change,
    e7c
                                        ThresholdSFN-GPS-TOW
}
UE-Positioning-GPS-AcquisitionAssistance ::=
                                               SEQUENCE {
    gps-ReferenceTime
                                        INTEGER (0..604799999),
```

```
utran-GPSReferenceTime
                                      UTRAN-GPSReferenceTime
                                                                      OPTIONAL,
    satelliteInformationList
                                      AcquisitionSatInfoList
}
UE-Positioning-GPS-AdditionalAssistanceDataRequest ::=
                                                          SEQUENCE {
   almanacRequest
   utcModelRequest
                                       BOOLEAN,
                                BOOLEAN,
   ionosphericModelRequest
    navigationModelRequest
                                     BOOLEAN,
    dgpsCorrectionsRequest
                                      BOOLEAN,
                                    BOOLEAN,
   referenceLocationRequest
   referenceTimeRequest
   referenceTimeRequest BOOLEAN, aquisitionAssistanceRequest BOOLEAN, realTimeIntegrityRequest BOOLEAN,
   navModelAddDataRequest
                                      UE-Positioning-GPS-NavModelAddDataReq
                                                                                 OPTIONAL
}
UE-Positioning-GPS-Almanac ::= SEQUENCE {
BIT STRING (SIZE (8)),
    almanacSatInfoList
                                       AlmanacSatInfoList,
                                      BIT STRING (SIZE (364))
                                                                         OPTIONAL
    sv-GlobalHealth
}
UE-Positioning-GPS-AssistanceData ::=
                                               SEQUENCE {
                                                  UE-Positioning-GPS-ReferenceTime
    ue-positioning-GPS-ReferenceTime
    OPTIONAL,
    ue-positioning-GPS-ReferenceLocation
                                                 ReferenceLocation
                                                                                  OPTIONAL,
    ue-positioning-GPS-DGPS-Corrections
                                                 UE-Positioning-GPS-DGPS-Corrections
   OPTIONAL,
    ue-positioning-GPS-NavigationModel
                                                  UE-Positioning-GPS-NavigationModel
    OPTIONAL,
    ue-positioning-GPS-IonosphericModel
                                                  UE-Positioning-GPS-IonosphericModel
    OPTIONAL,
    ue-positioning-GPS-UTC-Model
                                                  UE-Positioning-GPS-UTC-Model
    OPTIONAL,
    ue-positioning-GPS-Almanac
                                                  UE-Positioning-GPS-Almanac
    OPTIONAL,
    ue-positioning-GPS-AcquisitionAssistance
                                                 UE-Positioning-GPS-AcquisitionAssistance
   OPTIONAL,
    ue-positioning-GPS-Real-timeIntegrity
                                                 BadSatList
                                                                                      OPTIONAL,
    -- dummy is not used in this version of the specification, it should
    -- not be sent and if received it should be ignored.
                  UE-Positioning-GPS-ReferenceCellInfo
                                                             OPTIONAL
}
UE-Positioning-GPS-DGPS-Corrections ::=
                                         SEQUENCE {
                   INTEGER (0..604799),
    gps-TOW
    statusHealth
                                      DiffCorrectionStatus,
    dgps-CorrectionSatInfoList
                                      DGPS-CorrectionSatInfoList
}
UE-Positioning-GPS-IonosphericModel ::=
                                          SEOUENCE {
                                       BIT STRING (SIZE (8)),
                                       BIT STRING (SIZE (8)),
   alfa2
                                       BIT STRING (SIZE (8)),
                                       BIT STRING (SIZE (8)),
    alfa3
   beta0
                                       BIT STRING (SIZE (8)),
                                       BIT STRING (SIZE (8)),
   beta1
   beta2
                                       BIT STRING (SIZE (8)),
                                       BIT STRING (SIZE (8))
   beta3
}
UE-Positioning-GPS-MeasurementResults ::=
                                               SEQUENCE {
                                   CHOICE {
   referenceTime
                                     UTRAN-GPSReferenceTimeResult,
       utran-GPSReferenceTimeResult
       gps-ReferenceTimeOnly
                                          INTEGER (0..604799999)
    gps-MeasurementParamList
                                     GPS-MeasurementParamList
}
UE-Positioning-GPS-NavigationModel ::=
                                              SEQUENCE {
   navigationModelSatInfoList
                                      NavigationModelSatInfoList
UE-Positioning-GPS-NavModelAddDataReq ::= SEQUENCE {
   gps-Week
                                      INTEGER (0..1023),
    -- SPARE: gps-Toe, Max = 167
    -- Values above Max are spare
```

```
gps-Toe
                                        INTEGER (0..255),
    -- SPARE: tToeLimit, Max = 10
    -- Values above Max are spare
                                        INTEGER (0..15),
    tToeLimit
    satDataList
                                        SatDataList
}
UE-Positioning-GPS-ReferenceCellInfo ::=
                                                SEQUENCE {
                                  CHOICE {
    modeSpecificInfo
        fdd
                                       SEQUENCE {
            referenceIdentity
                                           PrimaryCPICH-Info
        },
                                        SEQUENCE {
        t.dd
            referenceIdentity
                                            CellParametersID
        }
    }
}
                                                SEQUENCE {
UE-Positioning-GPS-ReferenceTime ::=
                                        INTEGER (0..1023),
   gps-Week
    gps-tow-1msec
                                        GPS-TOW-1msec, utran-GPSReferenceTime
                                                                                             UTRAN-
GPSReferenceTime
                              OPTIONAL,
    sfn-tow-Uncertainty
                                        SFN-TOW-Uncertainty
                                                                             OPTIONAL,
   utran-GPS-DriftRate
                                        UTRAN-GPS-DriftRate
                                                                            OPTIONAL,
                                        GPS-TOW-AssistList
                                                                            OPTIONAL
   gps-TOW-AssistList
}
UE-Positioning-GPS-UTC-Model ::=
                                                SEQUENCE {
   a1
                                        BIT STRING (SIZE (24)),
    a0
                                        BIT STRING (SIZE (32)),
    t-ot
                                        BIT STRING (SIZE (8)),
                                        BIT STRING (SIZE (8)),
    wn-t
   delta-t-LS
                                        BIT STRING (SIZE (8)),
                                        BIT STRING (SIZE (8)),
   wn-lsf
    dn
                                        BIT STRING (SIZE (8)),
    delta-t-LSF
                                        BIT STRING (SIZE (8))
}
UE-Positioning-IPDL-Parameters ::=
                                                SEQUENCE {
    ip-Spacing
                                        IP-Spacing,
    ip-Length
                                        IP-Length,
    ip-Offset
                                        INTEGER (0..9),
    seed
                                        INTEGER (0..63),
    burstModeParameters
                                        BurstModeParameters
                                                                    OPTIONAL
}
UE-Positioning-IPDL-Parameters-r4 ::=
                                                SEQUENCE {
   modeSpecificInfo
                                        CHOICE {
        fdd
                                            SEQUENCE {
                                                IP-Spacing,
            ip-Spacing
            ip-Length
                                                IP-Length,
            ip-Offset
                                                INTEGER (0..9),
            seed
                                                INTEGER (0..63)
                                            SEQUENCE {
                                                IP-Spacing-TDD,
            ip-Spacing-TDD
            ip-slot
                                                INTEGER (0..14),
            ip-Start
                                                INTEGER (0..4095),
                                                IP-PCCPCH-r4
            ip-PCCPCG
                                                                        OPTIONAL
        }
    burstModeParameters
                                        BurstModeParameters
                                                                        OPTIONAL
}
UE-Positioning-IPDL-Parameters-TDD-r4-ext ::= SEQUENCE {
    ip-Spacing
                                        IP-Spacing-TDD,
                                        INTEGER (0..14)
    ip-slot
    ip-Start
                                        INTEGER (0..4095),
                                        IP-PCCPCH-r4
    ip-PCCPCG
                                                                        OPTIONAL.
   burstModeParameters
                                        BurstModeParameters
UE-Positioning-MeasuredResults ::=
                                              SEQUENCE {
    ue-positioning-OTDOA-Measurement
                                                   UE-Positioning-OTDOA-Measurement
    OPTIONAL,
   ue-positioning-PositionEstimateInfo
                                                  UE-Positioning-PositionEstimateInfo
        OPTIONAL,
```

```
ue-positioning-GPS-Measurement
                                                   UE-Positioning-GPS-MeasurementResults
       OPTIONAL,
    ue-positioning-Error
                                                   UE-Positioning-Error
    OPTIONAL
}
UE-Positioning-MeasuredResults-v390ext ::=
                                               SEQUENCE {
   ue-Positioning-OTDOA-Measurement-v390ext
                                                   UE-Positioning-OTDOA-Measurement-v390ext
}
UE-Positioning-Measurement ::=
                                               SEQUENCE {
    ue-positioning-ReportingQuantity
                                                   UE-Positioning-ReportingQuantity,
                                      UE-Positioning-ReportCriteria,
    reportCriteria
    ue-positioning-OTDOA-AssistanceData UE-Positioning-OTDOA-AssistanceData
    OPTIONAL,
    ue-positioning-GPS-AssistanceData
                                                  UE-Positioning-GPS-AssistanceData
    OPTIONAL
}
UE-Positioning-Measurement-v390ext ::=
                                             SEQUENCE {
    ue-positioning-ReportingQuantity-v390ext
                                                UE-Positioning-ReportingQuantity-v390ext
    OPTIONAL,
    measurementValidity
                                       MeasurementValidity
                                                                           OPTIONAL,
    ue-positioning-OTDOA-AssistanceData-UEB
                                                   UE-Positioning-OTDOA-AssistanceData-UEB
    OPTIONAL
}
UE-Positioning-Measurement-r4 ::=
                                               SEQUENCE {
   ue-positioning-ReportingQuantity
                                                  UE-Positioning-ReportingQuantity-r4,
    measurementValidity
                                                  MeasurementValidity
    OPTIONAL,
   reportCriteria
                                                   UE-Positioning-ReportCriteria,
    ue-positioning-OTDOA-AssistanceData
                                                   UE-Positioning-OTDOA-AssistanceData-r4
   OPTIONAL.
    ue-positioning-GPS-AssistanceData
                                                  UE-Positioning-GPS-AssistanceData
    OPTIONAL
}
UE-Positioning-MeasurementEventResults ::=
                                              CHOICE {
    event7a
                                       UE-Positioning-PositionEstimateInfo,
    event7b
                                       UE-Positioning-OTDOA-Measurement,
                                       UE-Positioning-GPS-MeasurementResults,
    event.7c
    spare
                                       NULL
UE-Positioning-MeasurementInterval ::=
                                               ENUMERATED {
                                       e5, e15, e60, e300,
                                       e900, e1800, e3600, e7200 }
UE-Positioning-MethodType ::=
                                               ENUMERATED {
                                       ue-Assisted,
                                       ue-Based,
                                       ue-BasedPreferred,
                                       ue-AssistedPreferred }
                                           SEQUENCE {
UE-Positioning-OTDOA-AssistanceData ::=
    ue-positioning-OTDOA-ReferenceCellInfo
                                           UE-Positioning-OTDOA-ReferenceCellInfo
    ue-positioning-OTDOA-NeighbourCellList
                                                       UE-Positioning-OTDOA-NeighbourCellList
        OPTIONAL.
}
UE-Positioning-OTDOA-AssistanceData-r4 ::= SEQUENCE {
                                             UE-Positioning-OTDOA-ReferenceCellInfo-r4
   ue-positioning-OTDOA-ReferenceCellInfo
       OPTIONAL,
    ue-positioning-OTDOA-NeighbourCellList
                                                  UE-Positioning-OTDOA-NeighbourCellList-r4
       OPTIONAL
}
UE-Positioning-OTDOA-AssistanceData-r4ext ::= SEQUENCE {
    -- In case of TDD these IPDL parameters shall be used for the reference cell instead of
    -- IPDL Parameters in IE UE-Positioning-OTDOA-ReferenceCellInfo
                                                   UE-Positioning-IPDL-Parameters-TDD-r4-ext
   ue-Positioning-IPDL-Parameters-TDD-r4-ext
   OPTIONAL,
    -- These IPDL parameters shall be used for the neighbour cells in case of TDD instead of
    -- IPDL Parameters in IE UE-Positioning-OTDOA-NeighbourCellInfoList. The cells shall be
    -- listed in the same order as in IE UE-Positioning-OTDOA-NeighbourCellInfoList
```

```
ue-Positioning-IPDL-Parameters-TDDList-r4-ext UE-Positioning-IPDL-Parameters-TDDList-r4-ext
}
UE-Positioning-OTDOA-AssistanceData-UEB ::=
                                                SEQUENCE {
                                               UE-Positioning-OTDOA-ReferenceCellInfo-UEB
  ue-positioning-OTDOA-ReferenceCellInfo-UEB
                OPTIONAL,
    ue-positioning-OTDOA-NeighbourCellList-UEB
                                                           UE-Positioning-OTDOA-NeighbourCellList-
UEB
                OPTIONAL
}
UE-Positioning-IPDL-Parameters-TDDList-r4-ext ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
                                           UE-Positioning-IPDL-Parameters-TDD-r4-ext
UE-Positioning-OTDOA-Measurement ::=
                                                SEQUENCE {
                                        INTEGER (0..4095),
   sfn
    modeSpecificInfo
                                   CHOICE {
        fdd
                                        SEQUENCE {
           referenceCellIDentity
                                                PrimaryCPICH-Info,
           ue-RX-TX-TimeDifferenceType2Info
                                               UE-RX-TX-TimeDifferenceType2Info
        },
        tdd
                                            SEQUENCE {
           referenceCellIdentity
                                            CellParametersID
        }
                                        NeighbourList
    neighbourList
                                                                            OPTIONAL
}
UE-Positioning-OTDOA-Measurement-v390ext ::=
                                                       SEQUENCE {
   neighbourList-v390ext
                                                NeighbourList-v390ext
UE-Positioning-OTDOA-NeighbourCellInfo ::= SEQUENCE {
                      CHOICE {
    modeSpecificInfo
        fdd
                                        SEOUENCE {
            primaryCPICH-Info
                                                PrimaryCPICH-Info
        tdd
                                        SEOUENCE {
            cellAndChannelIdentity
                                                CellAndChannelIdentity
        }
    frequencyInfo
                                        {\tt FrequencyInfo}
                                                                            OPTIONAL.
                                                   UE-Positioning-IPDL-Parameters
    ue-positioning-IPDL-Paremeters
    OPTIONAL,
    sfn-SFN-RelTimeDifference
                                        SFN-SFN-RelTimeDifference1,
    sfn-SFN-Drift
                                        SFN-SFN-Drift
                                                                            OPTIONAL,
    searchWindowSize
                                        OTDOA-SearchWindowSize,
    positioningMode
                       CHOICE {
                                                SEQUENCE {},
        ueBased
        ueAssisted
                                                SEQUENCE {}
}
UE-Positioning-OTDOA-NeighbourCellInfo-r4 ::= SEQUENCE {
                      CHOICE {
    modeSpecificInfo
        fdd
                                        SEQUENCE {
           primaryCPICH-Info
                                                PrimaryCPICH-Info
        tdd
                                        SEQUENCE {
           cellAndChannelIdentity
                                                CellAndChannelIdentity
        }
    frequencyInfo
                                        FrequencyInfo
                                                                            OPTIONAL,
                                        UE-Positioning-IPDL-Parameters-r4 OPTIONAL,
    ue-positioning-IPDL-Paremeters
    sfn-SFN-RelTimeDifference
                                        SFN-SFN-RelTimeDifferencel,
    sfn-Offset-Validity
                                        SFN-Offset-Validity
                                                                            OPTIONAL.
                                        SFN-SFN-Drift
    sfn-SFN-Drift
                                                                            OPTIONAL,
    searchWindowSize
                                        OTDOA-SearchWindowSize,
                      CHOICE {
    positioningMode
        ueBased
                                                SEQUENCE {
           relativeNorth
                                                INTEGER (-20000..20000)
                                                                                    OPTIONAL,
                                                INTEGER (-20000..20000)
            relativeEast
                                                                                    OPTIONAL,
           relativeAltitude
                                                INTEGER (-4000..4000)
                                                                                    OPTIONAL,
           fineSFN-SFN
                                                FineSFN-SFN
                                                                                    OPTIONAL,
            -- actual value roundTripTime = (IE value * 0.0625) + 876
           roundTripTime
                                                INTEGER (0.. 32766)
                                                                                    OPTIONAL
                                                SEQUENCE {}
        ueAssisted
```

```
}
}
UE-Positioning-OTDOA-NeighbourCellInfo-UEB ::= SEQUENCE {
   modeSpecificInfo CHOICE {
                                        SEQUENCE {
           primaryCPICH-Info
                                                PrimaryCPICH-Info
        },
        tdd
                                        SEQUENCE {
            cellAndChannelIdentity
                                         CellAndChannelIdentity
        }
                                                                             OPTIONAL.
   requencyInto
ue-positioning-IPDL-Paremeters
ue-positioning-IPDL-Paremeters
uE-positioning-IPDL-Parameters
sfn-SFN-RelTimeDifference
sfn-SFN-Drift
SFN-SFN-Drift
    frequencyInfo
                                        FrequencyInfo
                                                                             OPTIONAL,
                                                                             OPTIONAL,
    searchWindowSize
                                      OTDOA-SearchWindowSize,
   relativeNorth
                                        INTEGER (-20000..20000)
                                                                            OPTIONAL,
                                       INTEGER (-20000..20000)
   relativeEast
                                                                            OPTIONAL.
                                        INTEGER (-4000..4000)
                                                                            OPTIONAL,
   relativeAltitude
                                        FineSFN-SFN,
   fineSFN-SFN
    -- actual value roundTripTime = (IE value * 0.0625) + 876
                                        INTEGER (0..32766)
                                                                            OPTIONAL
    roundTripTime
}
UE-Positioning-OTDOA-NeighbourCellList ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
                                            UE-Positioning-OTDOA-NeighbourCellInfo
UE-Positioning-OTDOA-NeighbourCellList-r4 ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
                                                UE-Positioning-OTDOA-NeighbourCellInfo-r4
UE-Positioning-OTDOA-NeighbourCellList-UEB ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
                                            UE-Positioning-OTDOA-NeighbourCellInfo-UEB
UE-Positioning-OTDOA-Quality ::=
                                            SEOUENCE {
    stdResolution
                                        BIT STRING (SIZE (2)),
    numberOfOTDOA-Measurements
                                       BIT STRING (SIZE (3)),
    stdOfOTDOA-Measurements
                                      BIT STRING (SIZE (5))
UE-Positioning-OTDOA-ReferenceCellInfo ::=
                                       INTEGER (0..4095)
    sfn
    OPTIONAL.
    modeSpecificInfo CHOICE {
                                                SEQUENCE {
           primaryCPICH-Info
                                                PrimaryCPICH-Info
        tdd
                                                SEOUENCE {
            cellAndChannelIdentity
                                                CellAndChannelIdentity
        }
                                      FrequencyInfo
    frequencyInfo
                                                                            OPTIONAL.
    positioningMode CHOICE {
                                                 SEQUENCE { },
       ueBased
                                                SEQUENCE {}
       ueAssisted
    ue-positioning-IPDL-Paremeters
                                                UE-Positioning-IPDL-Parameters OPTIONAL
}
UE-Positioning-OTDOA-ReferenceCellInfo-r4 ::= SEQUENCE {
                                        INTEGER (0..4095)
    OPTIONAL,
    modeSpecificInfo CHOICE {
                                                SEQUENCE {
        fdd
           primaryCPICH-Info
                                                PrimaryCPICH-Info
                                                SEQUENCE {
           cellAndChannelIdentity
                                                CellAndChannelIdentity
    frequencyInfo
                                        FrequencyInfo
                                                                             OPTIONAL,
    positioningMode CHOICE {
                                                SEQUENCE {
       ueBased
                                                        ReferenceCellPosition OPTIONAL,
           cellPosition
            -- actual value roundTripTime = (IE value * 0.0625) + 876
           roundTripTime
                                                INTEGER (0..32766)
        }.
                                                SEQUENCE {}
        ueAssisted
```

```
ue-positioning-IPDL-Paremeters
                                        UE-Positioning-IPDL-Parameters-r4 OPTIONAL
}
UE-Positioning-OTDOA-ReferenceCellInfo-UEB ::=
                                                      SEQUENCE {
                                 INTEGER (0..4095)
                                                                         OPTIONAL,
   modeSpecificInfo CHOICE {
                                              SEQUENCE {
       fdd
          primaryCPICH-Info
                                              PrimaryCPICH-Info
        tdd
                                               SEQUENCE {
           cellAndChannelIdentity
                                              CellAndChannelIdentity
        }
    frequencyInfo
                                      FrequencyInfo
                                                                           OPTIONAL,
                                      ReferenceCellPosition
   cellPosition
                                                                          OPTIONAL,
    -- actual value roundTripTime = (IE value * 0.0625) + 876
   roundTripTime
                                       INTEGER (0..32766)
                                                                          OPTIONAL,
   roundTripTime INTEGER (U..32766) OPTIONAL ue-positioning-IPDL-Parameters UE-Positioning-IPDL-Parameters OPTIONAL
}
UE-Positioning-PositionEstimateInfo ::=
                                                      SEOUENCE {
                                  CHOICE {
    referenceTime
        \verb"utran-GPSReferenceTimeResult" UTRAN-GPSReferenceTimeResult",
                                           INTEGER (0..604799999),
        gps-ReferenceTimeOnly
       cell-Timing
                                           SEQUENCE {
           sfn
                                                       INTEGER (0..4095),
           modeSpecificInfo
                                           CHOICE {
               fdd
                                                   SEQUENCE {
                   primaryCPICH-Info
                                                      PrimaryCPICH-Info
                                                 SEQUENCE {
               tdd
                   cellAndChannelIdentity
                                                      CellAndChannelIdentity
           }
    },
    positionEstimate
                                     PositionEstimate
}
UE-Positioning-ReportCriteria ::=
                                               CHOICE {
   ue-positioning-ReportingCriteria
                                                UE-Positioning-EventParamList,
    periodicalReportingCriteria PeriodicalReportingCriteria,
   noReporting
                                       NULL
}
UE-Positioning-ReportingQuantity ::=
                                               SEOUENCE {
   methodType
                                      UE-Positioning-MethodType,
   positioningMethod
                                       PositioningMethod,
    -- dummy1 is not used in this version of specification and it should
    -- be ignored.
                                       UE-Positioning-ResponseTime,
   dummy1
   gps-TimingOfCellWanted
                                       UE-Positioning-Accuracy
                                                                           OPTIONAL,
                                       BOOLEAN,
    -- dummy2 is not used in this version of specification and it should
    -- be ignored.
   dummy2
                                       BOOLEAN,
   additionalAssistanceDataRequest BOOLEAN, environmentCharacterisation EnvironmentCharacterisation
                                                                         OPTIONAL
}
UE-Positioning-ReportingQuantity-r4 ::=
                                              SEQUENCE {
   positioningMethod
                                      UE-Positioning-MethodType,
   methodType
                                      PositioningMethod,
   horizontalAccuracy
                                      UE-Positioning-Accuracy
                                                                          OPTIONAL,
   verticalAccuracyUE-Positioning-Accuracygps-TimingOfCellWantedBOOLEAN,additionalAssistanceDataReqBOOLEAN,environmentCharacterisationEnvironmentCharacterisation
   verticalAccuracy
                                      UE-Positioning-Accuracy
                                                                          OPTIONAL,
                                                                         OPTIONAL
}
                                          ENUMERATED {
UE-Positioning-ResponseTime ::=
                                      s1, s2, s4, s8, s16,
                                       s32, s64, s128 }
```

```
-- SPARE: UTRA-CarrierRSSI, Max = 76
-- Values above Max are spare
                                  INTEGER (0..127)
UTRA-CarrierRSSI ::=
UTRAN-GPS-DriftRate ::=
                                  ENUMERATED {
                                  utran-GPSDrift0, utran-GPSDrift1, utran-GPSDrift2,
                                  utran-GPSDrift5, utran-GPSDrift10, utran-GPSDrift15,
                                  utran-GPSDrift25, utran-GPSDrift50, utran-GPSDrift-1,
                                  utran-GPSDrift-2, utran-GPSDrift-5, utran-GPSDrift-10,
                                  utran-GPSDrift-15, utran-GPSDrift-25, utran-GPSDrift-50}
UTRAN-GPSReferenceTime ::=
                                      SEQUENCE {
   -- For utran-GPSTimingOfCell values above 2322431999999 are not
   -- used in this version of the specification
   -- Actual value utran-GPSTimingOfCell = (ms-part * 4294967296) + ls-part
   utran-GPSTimingOfCell
                                 SEQUENCE {
       ms-part
                                      INTEGER (0..1023),
       ls-part
                                      INTEGER (0..4294967295)
                                  CHOICE {
   modeSpecificInfo
                                     SEQUENCE {
       fdd
           referenceIdentity
                                        PrimaryCPICH-Info
       },
                                      SEQUENCE {
       tdd
           referenceIdentity
                                        CellParametersID
                  OPTIONAL,
   sfn
                                      INTEGER (0..4095)
}
UTRAN-GPSReferenceTimeResult ::=
   -- For ue-GPSTimingOfCell values above 37158911999999 are not
   -- used in this version of the specification
    -- Actual value ue-GPSTimingOfCell = (ms-part * 4294967296) + ls-part
   ue-GPSTimingOfCell
                        SEQUENCE {
       ms-part
                                      INTEGER (0.. 16383),
                                      INTEGER (0..4294967295)
       ls-part
   modeSpecificInfo
                                  CHOICE {
                                    SEQUENCE {
                                        PrimaryCPICH-Info
          referenceIdentity
       },
       tdd
                                      SEQUENCE {
          referenceIdentity
                                         CellParametersID
       }
   },
   sfn
                                      INTEGER (0..4095)
VarianceOfRLC-BufferPayload ::=
                                  ENUMERATED {
                                      plv0, plv4, plv8, plv16, plv32, plv64,
                                      plv128, plv256, plv512, plv1024,
                                      plv2k, plv4k, plv8k, plv16k, spare2, spare1 }
-- Actual value W = IE value * 0.1
₩ ::=
                                  INTEGER (0..20)
__ **************
      OTHER INFORMATION ELEMENTS (10.3.8)
__ *******************
BCC ::=
                                  INTEGER (0..7)
BCCH-ModificationInfo ::=
                                  SEOUENCE {
   mib-ValueTag
                                     MIB-ValueTag,
                                                                       OPTIONAL
   bcch-ModificationTime
                                      BCCH-ModificationTime
-- Actual value BCCH-ModificationTime = IE value * 8
BCCH-ModificationTime ::=
                                 INTEGER (0..511)
BSIC ::=
                                  SEQUENCE {
   ncc
                                     NCC,
                                      BCC
   bcc
```

```
CBS-DRX-Level1Information ::= SEQUENCE {
    ctch-AllocationPeriod INTEGER
    cbs-FrameOffset INTEGER
                                       INTEGER (1..256),
                                        INTEGER (0..255)
CDMA2000-Message ::=
                                   SEQUENCE {
                                       BIT STRING (SIZE (8)),
   msq-Type
   payload
                                       BIT STRING (SIZE (1..512))
                            SEQUENCE (SIZE (1..maxInterSysMessages)) OF
CDMA2000-MessageList ::=
                                            CDMA2000-Message
CDMA2000-UMTS-Frequency-List ::=
                                       SEQUENCE (SIZE (1..maxNumCDMA2000Freqs)) OF
                                           FrequencyInfoCDMA2000
CellValueTag ::=
                                       INTEGER (1..4)
--Actual value = 2^(IE value)
                                       INTEGER (1..8)
ExpirationTimeFactor ::=
FDD-UMTS-Frequency-List ::=
                                      SEQUENCE (SIZE (1..maxNumFDDFreqs)) OF
                                            FrequencyInfoFDD
                                        SEQUENCE {
FrequencyInfoCDMA2000 ::=
                                           band-Class BIT STRING (SIZE (5)), cdma-Freq BIT STRING (SIZE(11))
}
                                       OCTET STRING (SIZE (1..23))
GERAN-SystemInfoBlock ::=
GERAN-SystemInformation ::=
                                       SEQUENCE (SIZE (1..maxGERAN-SI)) OF GERAN-SystemInfoBlock
GSM-BA-Range ::=
                                        SEQUENCE {
                                            gsmLowRangeUARFCN
                                                                    UARFCN,
                                            gsmUpRangeUARFCN
                                                                    UARFCN
}
GSM-BA-Range-List ::=
                                      SEQUENCE (SIZE (1..maxNumGSMFreqRanges)) OF
                                            GSM-BA-Range
-- This IE is formatted as 'TLV' and is coded in the same way as the Mobile Station Classmark 2
-- information element in [5]. The first octet is the Mobile station classmark 2 IEI and its value
-- shall be set to 33H. The second octet is the Length of mobile station classmark 2 and its value
-- shall be set to 3. The octet 3 contains the first octet of the value part of the Mobile Station
-- Classmark 2 information element, the octet 4 contains the second octet of the value part of the
-- Mobile Station Classmark 2 information element and so on. For each of these octets, the first/
-- leftmost/ most significant bit of the octet contains b8 of the corresponding octet of the Mobile
-- Station Classmark 2.
GSM-Classmark2 ::=
                                   OCTET STRING (SIZE (5))
-- This IE is formatted as 'V' and is coded in the same way as the value part in the Mobile station
-- classmark 3 information element in [5]
-- The value part is specified by means of CSN.1, which encoding results in a bit string, to which
-- final padding may be appended upto the next octet boundary [5]. The first/ leftmost bit of the
-- CSN.1 bit string is placed in the first/ leftmost/ most significant bit of the first
-- octet. This continues until the last bit of the CSN.1 bit string, which is placed in the last/
-- rightmost/ least significant bit of the last octet.
GSM-Classmark3 ::=
                                    OCTET STRING (SIZE (1..32))
GSM-MessageList ::=
                                   SEQUENCE (SIZE (1..maxInterSysMessages)) OF
                                       BIT STRING (SIZE (1..512))
GsmSecurityCapability ::=
                                    BIT STRING {
                                        -- For each bit value "0" means false/ not supported
                                        a5-7(0),
                                        a5-6(1),
                                        a5-5(2),
                                        a5-4(3),
                                        a5-3(4),
                                        a5-2(5),
                                        a5-1(6)
                                           (SIZE (7))
IdentificationOfReceivedMessage ::= SEQUENCE {
        rrc-TransactionIdentifier RRC-TransactionIdentifier,
```

```
receivedMessageType
                                   ReceivedMessageType
}
configurationUnacceptable
                               NULL,
   physicalChannelFailure
                                   NULL,
                                   ProtocolErrorInformation,
   protocolError
                                   NULL,
   unspecified
   spare4
                                   NULL,
   spare3
                                   NULL,
   spare2
                                   NULL,
   spare1
                                   NULL
}
GERANIu-MessageList ::=
                              SEQUENCE (SIZE (1..maxInterSysMessages)) OF
                                   BIT STRING (SIZE (1..32768))
GERANIu-RadioAccessCapability ::= BIT STRING (SIZE (1..170))
InterRAT-UE-RadioAccessCapability ::= CHOICE {
                                   SEQUENCE {
       gsm-Classmark2
                                       GSM-Classmark2,
      gsm-Classmark3
                                       GSM-Classmark3
   cdma2000
                                   SECUENCE {
      cdma2000-MessageList
                                       CDMA2000-MessageList
}
InterRAT-UE-RadioAccessCapability
InterRAT-UE-RadioAccessCapability-v590ext ::= SEQUENCE {
   geranIu-RadioAccessCapability GERANIu-RadioAccessCapability
}
InterRAT-UE-SecurityCapability ::= CHOICE {
                                   SEQUENCE {
       gsmSecurityCapability
                                   GsmSecurityCapability
}
InterRAT-UE-SecurityCapList ::= SEQUENCE (SIZE(1..maxInterSysMessages)) OF
                                   InterRAT-UE-SecurityCapability
InterRAT-HO-FailureCause ::=
                                CHOICE {
   configurationUnacceptable
                                NULL,
   physicalChannelFailure
                                   NULL,
   protocolError
                                   ProtocolErrorInformation,
   interRAT-ProtocolError
                                  NULL,
   unspecified
                                   NULL,
   spare11
                                   NULL,
   spare10
                                   NULL,
   spare9
                                   NULL,
   spare8
                                   NULL,
   spare7
                                   NULL,
   spare6
                                   NULL,
                                   NULL,
   spare5
   spare4
                                   NULL,
   spare3
                                   NITIT.
   spare2
                                   NULL
   spare1
                                   NULL
}
{\tt MasterInformationBlock ::= SEQUENCE } \{
       mib-ValueTag
                                   MIB-ValueTag,
       -- TABULAR: The PLMN identity and ANSI-41 core network information
       -- are included in PLMN-Type.
      sibSb-ReferenceList
                                   PLMN-Type,
                                   SIBSb-ReferenceList,
   -- Extension mechanism for non- release99 information
       nonCriticalExtensions
                                   SEQUENCE {}
                                                                    OPTIONAL
}
MIB-ValueTag ::=
                                INTEGER (1..8)
NCC ::=
                               INTEGER (0..7)
```

```
PLMN-ValueTag ::=
                                      INTEGER (1..256)
PredefinedConfigIdentityAndValueTag ::= SEQUENCE {
    predefinedConfigIdentity
                                              PredefinedConfigIdentity,
    predefinedConfigValueTag
                                              PredefinedConfigValueTag
}
ProtocolErrorInformation ::=
                                    SEQUENCE {
    diagnosticsType
                                      CHOICE {
                                           SEQUENCE {
        type1
            protocolErrorCause
                                                  ProtocolErrorCause
        },
                                              NULL
        spare
    }
}
ReceivedMessageType ::=
                                      ENUMERATED {
                                          activeSetUpdate,
                                          cellChangeOrderFromUTRAN,
                                          cellUpdateConfirm,
                                          counterCheck,
                                          downlinkDirectTransfer,
                                          interRATHandoverCommand,
                                          measurementControl.
                                          pagingType2,
                                          physicalChannelReconfiguration,
                                          physicalSharedChannelAllocation,
                                          radioBearerReconfiguration,
                                          radioBearerRelease,
                                          radioBearerSetup,
                                          rrcConnectionRelease,
                                          rrcConnectionReject,
                                          rrcConnectionSetup,
                                          securityModeCommand,
                                          signallingConnectionRelease,
                                          transportChannelReconfiguration,
                                          transportFormatCombinationControl,
                                          ueCapabilityEnquiry,
                                          {\tt ueCapabilityInformationConfirm,}\\
                                          uplinkPhysicalChannelControl,
                                          uraUpdateConfirm,
                                          utranMobilityInformation,
                                          assistanceDataDelivery,
                                          spare6, spare5, spare4, spare3, spare2,
                                          spare1
Rplmn-Information ::=
                                          SEQUENCE {
                                               gsm-BA-Range-List GSM-BA-Range-List OPTIONAL,
                                               fdd-UMTS-Frequency-List FDD-UMTS-Frequency-List
    OPTIONAL,
                                               tdd-UMTS-Frequency-List TDD-UMTS-Frequency-List
    OPTIONAL,
                                              cdma2000-UMTS-Frequency-List CDMA2000-UMTS-Frequency-
        OPTIONAL
List
Rplmn-Information-r4 ::= SEQUENCE {
    gsm-BA-Range-List GSM-BA-Range-List fdd-UMTS-Frequency-List TDD-UMTS-Frequency-List tdd128-UMTS-Frequency-List TDD-UMTS-Frequency-List
                                                                               OPTIONAL.
                                                                               OPTIONAL,
                                                                                OPTIONAL,
                                                                               OPTIONAL,
                                                                          OPTIONAL
    cdma2000-UMTS-Frequency-List CDMA2000-UMTS-Frequency-List
}
SchedulingInformation ::=
                                      SEQUENCE {
                                          SEQUENCE {
    scheduling
                                              SegCount
        segCount
                                                                                 DEFAULT 1.
        sib-Pos
                                               CHOICE {
             -- The element name indicates the repetition period and the value
             -- (multiplied by two) indicates the position of the first segment.
                                                  INTEGER (0..1),
            rep4
            rep8
                                                   INTEGER (0..3),
                                                   INTEGER (0..7),
            rep16
            rep32
                                                   INTEGER (0..15),
                                                   INTEGER (0..31),
            rep64
                                                   INTEGER (0..63),
            rep128
```

```
rep256
                                               INTEGER (0..127),
           rep512
                                               INTEGER (0..255),
                                              INTEGER (0..511),
           rep1024
           rep2048
                                               INTEGER (0..1023),
           rep4096
                                               INTEGER (0..2047)
       sib-PosOffsetInfo
                                           SibOFF-List
                                                                          OPTIONAL
    }
}
SchedulingInformationSIB ::= SEQUENCE {
                                       SIB-TypeAndTag,
    sib-Type
    scheduling
                                       SchedulingInformation
}
{\tt SchedulingInformationSIBSb} ::= \\ {\tt SEQUENCE} \ \{
                                      SIBSb-TypeAndTag,
    sibSb-Type
    scheduling
                                       SchedulingInformation
}
                                  INTEGER (1..16)
SegCount ::=
SegmentIndex ::=
                                   INTEGER (1..15)
-- Actual value SFN-Prime = 2 * IE value
SFN-Prime ::=
                                   INTEGER (0..2047)
SIB-Data-fixed ::=
                                 BIT STRING (SIZE (222))
SIB-Data-variable ::=
                                 BIT STRING (SIZE (1..214))
                       INTEGER (0..15)
SIBOccurIdentity ::=
SIBOccurrenceIdentityAndValueTag ::=
                                     SEOUENCE {
   sibOccurIdentity
                                 SIBOccurIdentity,
    sibOccurValueTag
                                   SIBOccurValueTag
}
SIBOccurValueTag ::=
                              INTEGER (0..15)
SIB-ReferenceList ::=
                                  SEQUENCE (SIZE (1..maxSIB)) OF
                                       SchedulingInformationSIB
                           SEQUENCE (SIZE (1..maxSIB)) OF
SIBSb-ReferenceList ::=
                                       SchedulingInformationSIBSb
SIB-ReferenceListFACH ::= SEQUENCE (SIZE (1..maxSIB-FACH)) OF
                                      SchedulingInformationSIB
SIB-Type ::=
                                   ENUMERATED {
                                      masterInformationBlock,
                                       systemInformationBlockType1,
                                       systemInformationBlockType2,
                                       {\tt systemInformationBlockType3,}
                                       systemInformationBlockType4,
                                       systemInformationBlockType5,
                                       systemInformationBlockType6,
                                       systemInformationBlockType7.
                                       systemInformationBlockType8,
                                       systemInformationBlockType9
                                       systemInformationBlockType10,
                                       systemInformationBlockType11,
                                       systemInformationBlockType12,
                                       systemInformationBlockType13,
                                       systemInformationBlockType13-1,
                                       systemInformationBlockType13-2,
                                       systemInformationBlockType13-3,
                                       systemInformationBlockType13-4,
                                       systemInformationBlockType14,
                                       systemInformationBlockType15,
                                       systemInformationBlockType15-1,
                                       systemInformationBlockType15-2,
                                       systemInformationBlockType15-3,
                                       systemInformationBlockType16,
                                       systemInformationBlockType17,
                                       systemInformationBlockType15-4,
```

```
systemInformationBlockType18,
                                         schedulingBlock1,
                                         schedulingBlock2,
                                         systemInformationBlockType15-5,
                                         spare1, spare2 }
SIB-TypeAndTag ::=
                                     CHOICE {
                                        PLMN-ValueTag,
    sysInfoType1
    sysInfoType2
                                         CellValueTag,
    sysInfoType3
                                         CellValueTag,
    sysInfoType4
                                        CellValueTag,
                                         CellValueTag,
    sysInfoType5
                                        CellValueTag,
    sysInfoType6
    sysInfoType7
                                        NULL,
    sysInfoType8
                                        CellValueTag,
    sysInfoType9
                                        NULL,
    sysInfoType10
                                        NULL,
    sysInfoType11
                                        CellValueTag,
                                        CellValueTag,
    sysInfoType12
                                        CellValueTag,
    sysInfoType13
    sysInfoType13-1
                                         CellValueTag,
    sysInfoType13-2
                                        CellValueTag,
    sysInfoType13-3
                                         CellValueTag,
                                        CellValueTag,
    sysInfoType13-4
    sysInfoType14
                                        NIII.I.
    sysInfoType15
                                        CellValueTag,
    sysInfoType16
                                        PredefinedConfigIdentityAndValueTag,
    sysInfoType17
    sysInfoType15-1
                                        CellValueTag,
                                        SIBOccurrenceIdentityAndValueTag,
    sysInfoType15-2
    sysInfoType15-3
                                         SIBOccurrenceIdentityAndValueTag,
    sysInfoType15-4
                                        CellValueTag,
    sysInfoType18
                                        CellValueTag,
    sysInfoType15-5
                                         CellValueTag,
    spare5
                                         NULL,
    spare4
                                         NULL,
    spare3
                                        NULL,
    spare2
                                         NULL,
    spare1
                                         NULL
}
SIBSb-TypeAndTag ::=
                                        CHOICE {
    sysInfoTypel
                                        PLMN-ValueTag,
    sysInfoType2
                                         CellValueTag,
    sysInfoType3
                                        CellValueTag,
    sysInfoType4
                                         CellValueTag,
    sysInfoType5
                                        CellValueTag,
    sysInfoType6
                                         CellValueTag,
    sysInfoType7
                                        NULL,
                                        CellValueTag,
    sysInfoType8
    sysInfoType9
                                        NULL,
    sysInfoType10
                                        NULL,
    sysInfoType11
                                        CellValueTag,
    sysInfoType12
                                         CellValueTag,
                                        CellValueTag,
    sysInfoType13
    sysInfoType13-1
                                         CellValueTag,
    sysInfoType13-2
                                         CellValueTag,
    sysInfoType13-3
                                         CellValueTag,
    sysInfoType13-4
                                         CellValueTag,
    sysInfoType14
                                        NITIT.
    sysInfoType15
                                         CellValueTag,
    sysInfoType16
                                         {\tt PredefinedConfigIdentityAndValueTag},
                                        NULL,
    sysInfoType17
    sysInfoTypeSB1
                                         CellValueTag,
    sysInfoTypeSB2
                                        CellValueTag
    sysInfoType15-1
                                         CellValueTag,
                                         SIBOccurrenceIdentityAndValueTag,
    sysInfoType15-2
    sysInfoType15-3
                                        SIBOccurrenceIdentityAndValueTag,
                                         CellValueTag,
    sysInfoType15-4
    sysInfoType18
                                         CellValueTag,
    sysInfoType15-5
                                         CellValueTag,
    spare3
                                         NULL,
                                         NULL,
    spare2
    spare1
                                         NULL
SibOFF ::=
                                     ENUMERATED {
                                         so2, so4, so6, so8, so10,
```

```
so12, so14, so16, so18,
                                            so20, so22, so24, so26,
so28, so30, so32 }
SibOFF-List ::=
                                       SEQUENCE (SIZE (1..15)) OF
                                            SibOFF
SysInfoTypel ::=
                                       SEQUENCE {
    -- Core network IEs
        cn-CommonGSM-MAP-NAS-SysInfo
                                            NAS-SystemInformationGSM-MAP,
        cn-DomainSysInfoList
                                           CN-DomainSysInfoList,
    -- User equipment IEs
        ue-ConnTimersAndConstants UE-ConnTimersAndConstants ue-IdleTimersAndConstants UE-IdleTimersAndConstants
                                                                                   OPTIONAL.
                                                                                  OPTIONAL,
    -- Extension mechanism for non- release99 information
        }
}
SysInfoType1-v3a0ext-IEs ::= SEQUENCE {
    ue-ConnTimersAndConstants-v3a0ext
                                                UE-ConnTimersAndConstants-v3a0ext,
    ue-IdleTimersAndConstants-v3a0ext
                                                UE-IdleTimersAndConstants-v3a0ext
}
SysInfoType2 ::=
                                      SEQUENCE {
   -- UTRAN mobility IEs
        ura-IdentitvList
                                           URA-IdentityList,
    -- Extension mechanism for non- release99 information
        {\tt nonCriticalExtensions}
                                           SEQUENCE {}
                                                                                    OPTIONAL
}
SysInfoType3 ::=
                                      SEQUENCE {
                                       BOOLEAN,
        sib4indicator
    -- UTRAN mobility IEs
        cellIdentity CellIdentity, cellSelectReselectInfo CellSelectReselectInfo CellAccessRestriction,
        cellIdentity
    -- Extension mechanism for non- release99 information
        v4b0NonCriticalExtensions SEQUENCE {
    sysInfoType3-v4b0ext SysInf
             SysInfoType3-v5c0ext-IEs,
                     nonCriticalExtensions
                                                                                            OPTIONAL
                                                         SEQUENCE {}
                                               OPTIONAL
                                           OPTIONAL
             }
        }
                                       OPTIONAL
}
SysInfoType3-v4b0ext-IEs ::= SEQUENCE {
   mapping-LCR
                                       Mapping-LCR-r4
                                                                                    OPTIONAL
}
SysInfoType3-v590ext ::= SEQUENCE {
    cellSelectReselectInfo-v590ext
                                           CellSelectReselectInfo-v590ext
                                                                                    OPTIONAL
SysInfoType3-v5c0ext-IEs ::= SEQUENCE {
    \verb|cellSelectReselectInfoTreselectionScaling-v5c0ext|
                                       CellSelectReselectInfoTreselectionScaling-v5c0ext OPTIONAL
}
SysInfoType4 ::=
                                       SEQUENCE {
    -- UTRAN mobility IEs
        cellIdentity
                                           CellIdentity,
        cellSelectReselectInfo
cellAccessRestriction
                                           CellSelectReselectInfoSIB-3-4,
                                           CellAccessRestriction,
    -- Extension mechanism for non- release99 information
        v4b0NonCriticalExtensions SEQUENCE {
    sysInfoType4-v4b0ext SysInf
            sysInfoType4-v4b0ext SysInfoType4-v4b0ext-IEs,
v590NonCriticalExtension SEQUENCE {
    sysInfoType4-v590ext SysInfoType4-v590ext,
    v5b0NonCriticalExtension SEQUENCE {
        sysInfoType4-v5b0ext SysInfoType4-v5b0ext-IEs,
        v5c0NonCriticalExtension SEQUENCE {
```

```
sysInfoType4-v5c0ext
                                                            SysInfoType4-v5c0ext-IEs,
                                                            SEQUENCE { }
                         nonCriticalExtensions
                                                                                               OPTIONAL
                         OPTIONAL
                     OPTIONAL
                 OPTIONAL.
            OPTIONAL
SysInfoType4-v4b0ext-IEs ::= SEQUENCE {
    mapping-LCR
                                      Mapping-LCR-r4
                                                                                  OPTIONAL
SysInfoType4-v590ext ::= SEQUENCE {
    cellSelectReselectInfo-v590ext
                                          CellSelectReselectInfo-v590ext
SysInfoType4-v5b0ext-IEs ::= SEQUENCE {
   cellSelectReselectInfoPCHFACH-v5b0ext CellSelectReselectInfoPCHFACH-v5b0ext
                                                                                              OPTIONAL
}
SysInfoType4-v5c0ext-IEs ::= SEQUENCE {
    {\tt cellSelectReselectInfoTreselectionScaling-v5c0ext}
                                      CellSelectReselectInfoTreselectionScaling-v5c0ext OPTIONAL
}
SysInfoType5 ::=
                                      SEQUENCE {
        sib6indicator
                                        BOOLEAN,
    -- Physical channel IEs
                                          PICH-PowerOffset,
        pich-PowerOffset
        modeSpecificInfo
                                          CHOICE {
                                           SEQUENCE {
            fdd
                 aich-PowerOffset
                                                   AICH-PowerOffset
            tdd
                                              SEQUENCE {
    -- If PDSCH/PUSCH is configured for 1.28Mcps TDD, the following IEs should be absent
    -- and the info included in the tdd128SpecificInfo instead.
    -- If PDSCH/PUSCH is configured for 3.84Mcps TDD in R5, HCR-r5-SpecificInfo should also be
    -- included.
                pusch-SysInfoList-SFN
                                                   PUSCH-SysInfoList-SFN
                                                                                  OPTIONAL,
                                                   PDSCH-SysInfoList-SFN
                 pdsch-SysInfoList-SFN
                                                                                  OPTIONAL,
                 openLoopPowerControl-TDD
                                                   OpenLoopPowerControl-TDD
            }
        primaryCCPCH-Info
                                        PrimaryCCPCH-Info
                                                                                  OPTIONAL,
        prach-SystemInformationList PRACH-SystemInformationList, sCCPCH-SystemInformationList SCCPCH-SystemInformationList,
        -- cbs-DRX-LevellInformation is conditional on any of the CTCH indicator IEs in
        -- sCCPCH-SystemInformationList
        cbs-DRX-Level1Information CBS-DRX-Level1Information
                                                                                OPTIONAL,
    -- Extension mechanism for non- release99 information
        v4b0NonCriticalExtensions SEQUENCE {
    sysInfoType5-v4b0ext SysInf
                                            SysInfoType5-v4b0ext-IEs
                                                                                OPTIONAL,
        -- Extension mechanism for non- rel-4 information
            {\tt v590NonCriticalExtensions} \quad {\tt SEQUENCE} \ \{
                                                  SysInfoType5-v590ext-IEs OPTIONAL,
                 sysInfoType5-v590ext
                 sysInfoTypes val.
nonCriticalExtensions OPTIONAL
                                                   SEQUENCE {}
                                                                                      OPTIONAL
            }
        }
                                     OPTIONAL
}
SysInfoType5-v4b0ext-IEs ::= SEQUENCE {
    --The following IE PNBSCH-Allocation-r4 shall be used for 3.84Mcps TDD only.
                                      PNBSCH-Allocation-r4
    pNBSCH-Allocation-r4
                                                                        OPTIONAL.
    -- In case of TDD, the following IE is included instead of the
    -- IE up-IPDL-Parameter in up-OTDOA-AssistanceData.
    openLoopPowerControl-IPDL-TDD OpenLoopPowerControl-IPDL-TDD-r4
-- If SysInfoType5 is sent to describe a 1.28Mcps TDD cell, the IE PRACH-RACH-Info included in
-- PRACH-SystemInformationList shall be ignored, the IE PRACH-Partitioning and the
-- IE rach-TransportFormatSet shall be absent and the corresponding IE in the following
-- PRACH-SystemInformationList-LCR-r4 shall be used
    prach-SystemInformationList-LCR-r4 PRACH-SystemInformationList-LCR-r4 OPTIONAL,
    tdd128SpecificInfo
                                 SEQUENCE {
        pusch-SysInfoList-SFN PUSCH-SysInfoList-SFN-LCR-r4
pdsch-SysInfoList-SFN PDSCH-SysInfoList-SFN-LCR-r4
pdsch-SysInfoList-SFN PDSCH-SysInfoList-SFN-LCR-r4
pdsch-SysInfoList-SFN-LCR-r4
                                                                            OPTIONAL,
                                                                             OPTIONAL,
        pCCPCH-LCR-Extensions PrimaryCCPCH-Info-LCR-r4-ext OPTIONA:
sCCPCH-LCR-ExtensionsList SCCPCH-SystemInformationList-LCR-r4-ext
                                                                             OPTIONAL,
        pCCPCH-LCR-Extensions
                                                                         OPTIONAL.
```

```
frequencyBandIndicator
                                    RadioFrequencyBandFDDSpare
                                                                    OPTIONAL
}
{\tt SysInfoType5-v590ext-IEs} \; ::= \; {\tt SEQUENCE} \; \left\{ \right.
   hcr-r5-SpecificInfo
                                    SEQUENCE {
                                    PUSCH-SysInfoList-SFN-HCR-r5 OPTIONAL,
       pusch-SysInfoList-SFN
       pdsch-SysInfoList-SFN
                                        PDSCH-SysInfoList-SFN-HCR-r5
                                                                        OPTIONAL
                                                                        OPTIONAL
}
                                   SEQUENCE {
SysInfoType6 ::=
    -- Physical channel IEs
       pich-PowerOffset
                                        PICH-PowerOffset,
        modeSpecificInfo
                                       CHOICE {
            fdd
                                        SEQUENCE {
                aich-PowerOffset
                                             AICH-PowerOffset,
                -- dummy is not used in this version of specification, it should
                -- not be sent and if received it should be ignored.
                                                CSICH-PowerOffset
            },
            tdd
                                            SEQUENCE {
                -- If PDSCH/PUSCH is configured for 1.28Mcps TDD, pusch-SysInfoList-SFN,
                -- pdsch-SysInfoList-SFN and openLoopPowerControl-TDD should be absent
                -- and the info included in the tdd128SpecificInfo instead.
                -- If PDSCH/PUSCH is configured for 3.84Mcps TDD in R5, HCR-r5-SpecificInfo should
                -- also be included.
                pusch-SysInfoList-SFN
                                                PUSCH-SysInfoList-SFN
                                                                             OPTIONAL,
                pdsch-SysInfoList-SFN
                                                PDSCH-SysInfoList-SFN
                                                                             OPTIONAL,
                openLoopPowerControl-TDD
                                               OpenLoopPowerControl-TDD
            }
        primaryCCPCH-Info
                                       PrimaryCCPCH-Info
        prach-SystemInformationList
                                       PRACH-SystemInformationList
                                                                            OPTIONAL,
        sCCPCH-SystemInformationList
                                       SCCPCH-SystemInformationList
                                                                            OPTIONAL.
        cbs-DRX-LevellInformation
                                       CBS-DRX-LevellInformation
                                                                            OPTIONAL,
        -- Conditional on any of the CTCH indicator IEs in
        -- sCCPCH-SystemInformationList
    -- Extension mechanism for non- release99 information
       v4b0NonCriticalExtensions
sysInfoType6-v4b0ext
                                       SEQUENCE {
                                           SysInfoType6-v4b0ext-IEs
                                                                          OPTIONAL,
        -- Extension mechanism for non- rel-4 information
           v590NonCriticalExtensions SEQUENCE {
                                                SysInfoType6-v590ext-IEs
                sysInfoType6-v590ext
                                                                              OPTIONAL.
                nonCriticalExtensions
                                                SEQUENCE {}
                                                                                OPTIONAL
            }
                                        OPTIONAL
        }
                                    OPTIONAL
}
SysInfoType6-v4b0ext-IEs ::= SEQUENCE {
   -- openLoopPowerControl-IPDL-TDD is present only if IPDLs are applied for TDD
   openLoopPowerControl-IPDL-TDD OpenLoopPowerControl-IPDL-TDD-r4 OPTIONAL,
    -- If SysInfoType6 is sent to describe a 1.28Mcps TDD cell, the IE PRACH-RACH-Info included
   -- in PRACH-SystemInformationList shall be ignored, the IE PRACH-Partitioning and the
   -- IE rach-TransportFormatSet shall be absent and the corresponding IEs in the following
    -- PRACH-SystemInformationList-LCR-r4 shall be used
   prach-SystemInformationList-LCR-r4 PRACH-SystemInformationList-LCR-r4 OPTIONAL,
                               SEQUENCE {
    tdd128SpecificInfo
                                    PUSCH-SysInfoList-SFN-LCR-r4 OPTIONAL,
       pusch-SysInfoList-SFN
       pdsch-SysInfoList-SFN
pCCPCH-LCR-Extensions
                                                                      OPTIONAL,
                                        PDSCH-SysInfoList-SFN-LCR-r4
                                       PrimaryCCPCH-Info-LCR-r4-ext
       pCCPCH-LCR-Extensions PrimaryCCPCH-Into-LCR-r4-ext OPTIONAL, sCCPCH-LCR-ExtensionsList SCCPCH-SystemInformationList-LCR-r4-ext OPTIONAL
                                                                    OPTIONAL,
    frequencyBandIndicator
                                   RadioFrequencyBandFDDSpare
                                                                    OPTIONAL
}
SysInfoType6-v590ext-IEs ::= SEQUENCE {
   hcr-r5-SpecificInfo
                           SEQUENCE {
                                    PUSCH-SysInfoList-SFN-HCR-r5
       pusch-SysInfoList-SFN
                                                                        OPTIONAL,
                                        PDSCH-SysInfoList-SFN-HCR-r5
       pdsch-SysInfoList-SFN
                                                                        OPTIONAL
                                                                        OPTIONAL
}
SysInfoType7 ::=
                                    SEQUENCE {
   -- Physical channel IEs
       modeSpecificInfo
                                        CHOICE {
            fdd
                                        SEQUENCE {
                ul-Interference
                                                UL-Interference
```

```
tdd
                                             NULL
       prach-Information-SIB5-List DynamicPersistenceLevelList,
prach-Information-SIB6-List DynamicPersistenceLevelList

Project in Time Foot or
                                                                              OPTIONAL,
                                         ExpirationTimeFactor
        expirationTimeFactor
                                                                               OPTIONAL,
    -- Extension mechanism for non- release99 information
       nonCriticalExtensions
                                        SEQUENCE {}
                                                                             OPTIONAL
}
SysInfoType8 ::=
                                    SEQUENCE {
   -- User equipment IEs
                                       CPCH-Parameters,
   cpch-Parameters
-- Physical channel IEs
cpch-SetInfoList
       cpch-Parameters
                                       CPCH-SetInfoList,
       csich-PowerOffset
                                         CSICH-PowerOffset,
    -- Extension mechanism for non- release99 information
       nonCriticalExtensions
                                        SEQUENCE {}
                                                                               OPTIONAL
}
SysInfoType9 ::=
                                    SEQUENCE {
    -- Physical channel IEs
       cpch-PersistenceLevelsList CPCH-PersistenceLevelsList,
    -- Extension mechanism for non- release99 information
                                     SEQUENCE {}
       nonCriticalExtensions
                                                                              OPTIONAL
}
SysInfoType10 ::=
                                   SEQUENCE {
   -- User equipment IEs
       drac-SysInfoList
                                        DRAC-SysInfoList,
    -- Extension mechanism for non- release99 information
       nonCriticalExtensions
                                        SEQUENCE {}
                                                                               OPTIONAL
}
       sibl2indicator SEQUENCE {
sibl2indicator BOOLEAN,
Measurement IEs
fach_Most
SysInfoType11 ::=
    -- Measurement IEs
       fach-MeasurementOccasionInfo
measurementControlSysInfo

MeasurementControlSysInfo,
                                                                             OPTIONAL,
    -- Extension mechanism for non- release99 information
            v590NonCriticalExtension sysInfoType11-v590ext SysInfoType11-v590ext SysInfoType11-v590ext-IEs SysInfoType11-v590ext-IEs SysInfoType11-v590ext-IEs
        OPTIONAL,
                sysInfoTyperr-volume
nonCriticalExtensions OPTIONAL
                                                 SysInfoType11-v590ext-IEs,
                                                                                  OPTIONAL
            }
        }
                                    OPTIONAL
}
SysInfoType11-v4b0ext-IEs ::= SEQUENCE {
   fach-MeasurementOccasionInfo-LCR-Ext
                                             FACH-MeasurementOccasionInfo-LCR-r4-ext OPTIONAL,
   measurementControlSysInfo-LCR
                                             MeasurementControlSysInfo-LCR-r4-ext
}
SysInfoType11-v590ext-IEs ::= SEQUENCE {
    --The order of the list corresponds to the order of cell in newIntraFrequencyCellInfoList
   newIntraFrequencyCellInfoList-v590ext SEQUENCE (SIZE (1..maxCellMeas)) OF
                                                 CellSelectReselectInfo-v590ext OPTIONAL,
    --The order of the list corresponds to the order of cell in newInterFrequencyCellInfoList
   {\tt newInterFrequencyCellInfoList-v590ext} \qquad {\tt SEQUENCE} \ \ ({\tt SIZE} \ \ ({\tt 1...maxCellMeas})) \ \ {\tt OF} \\
                                                 CellSelectReselectInfo-v590ext OPTIONAL.
    --The order of the list corresponds to the order of cell in newInterRATCellInfoList
    newInterRATCellInfoList-v590ext SEQUENCE (SIZE (1..maxCellMeas)) OF
                                                CellSelectReselectInfo-v590ext OPTIONAL,
    intraFreqEventCriteriaList-v590ext
                                             Intra-FreqEventCriteriaList-v590ext
                                                                                       OPTIONAL.
    intraFreqReportingCriteria-1b-r5
                                             IntraFreqReportingCriteria-lb-r5 OPTIONAL,
    intraFreqEvent-1d-r5
                                             IntraFreqEvent-1d-r5
                                                                                  OPTIONAL
}
                                 SEQUENCE {
SysInfoType12 ::=
    -- Measurement IEs
        fach-MeasurementOccasionInfo FACH-MeasurementOccasionInfo
                                                                             OPTIONAL,
       measurementControlSysInfo
                                        MeasurementControlSysInfo,
    -- Extension mechanism for non- release99 information
            v4b0NonCriticalExtensions SEQUENCE {
    sysInfoType12-v4b0ext SysInf
                                                                                   OPTIONAL
```

```
}
                                         OPTIONAL
                                     OPTIONAL
}
SysInfoType12-v4b0ext-IEs ::= SEQUENCE {
    fach-MeasurementOccasionInfo-LCR-Ext
                                             FACH-MeasurementOccasionInfo-LCR-r4-ext OPTIONAL,
    measurementControlSysInfo-LCR
                                             MeasurementControlSysInfo-LCR-r4-ext
}
SysInfoType12-v590ext-IEs ::= SEQUENCE {
    --The order of the list corresponds to the order of cell in newIntraFrequencyCellInfoList
    newIntraFrequencyCellInfoList-v590ext
                                             SEQUENCE (SIZE (1..maxCellMeas)) OF
                                                 CellSelectReselectInfo-v590ext OPTIONAL,
    --The order of the list corresponds to the order of cell in newInterFrequencyCellInfoList
    newInterFrequencyCellInfoList-v590ext SEQUENCE (SIZE (1..maxCellMeas)) OF
                                                CellSelectReselectInfo-v590ext OPTIONAL,
    --The order of the list corresponds to the order of cell in newInterRATCellInfoList
    newInterRATCellInfoList-v590ext
                                             SEQUENCE (SIZE (1..maxCellMeas)) OF
                                                CellSelectReselectInfo-v590ext OPTIONAL,
                                             Intra-FreqEventCriteriaList-v590ext
    intraFregEventCriteriaList-v590ext
                                                                                      OPTIONAL,
                                             IntraFreqReportingCriteria-lb-r5 OPTIONAL, IntraFreqEvent-ld-r5 OPTIONAL
    intraFreqReportingCriteria-1b-r5
    intraFreqEvent-1d-r5
                                             IntraFreqEvent-1d-r5
SysInfoType13 ::=
                                    SEQUENCE {
    -- Core network IEs
        cn-DomainSysInfoList
                                       CN-DomainSysInfoList,
    -- User equipment IEs

    ue-IdleTimersAndConstants
    UE-IdleTimersAndConstants

    capabilityUpdateRequirement
    CapabilityUpdateRequirement

                                                                             OPTIONAL,
                                                                             OPTIONAL,
    -- Extension mechanism for non- release99 information
        v3a0NonCriticalExtensions SEQUENCE {
            sysInfoType13-v3a0ext
                                             SysInfoType13-v3a0ext-IEs,
            v4b0NonCriticalExtensions SEQUENCE {
    sysInfoType13-v4b0ext SysInf
                                                 SysInfoType13-v4b0ext-IEs,
            -- Extension mechanism for non- release99 information
                nonCriticalExtensions
                                                SEQUENCE {}
                                                                                  OPTIONAL
                                         OPTIONAL
                                    OPTIONAL
}
SysInfoType13-v3a0ext-IEs ::= SEQUENCE {
    ue-IdleTimersAndConstants-v3a0ext
                                             UE-IdleTimersAndConstants-v3a0ext
SysInfoType13-v4b0ext-IEs ::= SEQUENCE {
    capabilityUpdateRequirement-r4Ext CapabilityUpdateRequirement-r4-ext OPTIONAL
SysInfoType13-1 ::=
                                     SEQUENCE {
    -- ANSI-41 IEs
       ansi-41-RAND-Information
                                        ANSI-41-RAND-Information,
    -- Extension mechanism for non- release99 information
                                                                              OPTIONAL
       nonCriticalExtensions
                                        SEQUENCE {}
}
SysInfoType13-2 ::=
                                    SEQUENCE {
    -- ANSI-41 IEs
        ansi-41-UserZoneID-Information ANSI-41-UserZoneID-Information,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions
                                        SEQUENCE { }
                                                                              OPTIONAL
                                    SEQUENCE {
SysInfoType13-3 ::=
    -- ANSI-41 IEs
        ansi-41-PrivateNeighbourListInfo ANSI-41-PrivateNeighbourListInfo,
    -- Extension mechanism for non- release99 information
                                        SEQUENCE {}
                                                                              OPTIONAL
       nonCriticalExtensions
}
SysInfoType13-4 ::=
                                     SEQUENCE {
    -- ANSI-41 IEs
       ansi-41-GlobalServiceRedirectInfo
                                         ANSI-41-GlobalServiceRedirectInfo,
    -- Extension mechanism for non- release99 information
       nonCriticalExtensions
                                        SEQUENCE {}
                                                                              OPTIONAL
}
```

```
SysInfoType14 ::=
                                  SEQUENCE {
   -- Physical channel IEs
       individualTS-InterferenceList IndividualTS-InterferenceList,
       expirationTimeFactor
                                      ExpirationTimeFactor
                                                                         OPTIONAL,
    -- Extension mechanism for non- release99 information
                                     SEQUENCE {}
                                                                        OPTIONAL
       nonCriticalExtensions
}
SysInfoType15 ::=
                                  SEQUENCE {
    -- Measurement IEs
       ue-positioning-GPS-CipherParameters
                                              UE-Positioning-CipherParameters
                                                                                 OPTIONAL.
       ue-positioning-GPS-ReferenceLocation
                                              ReferenceLocation,
       ue-positioning-GPS-ReferenceTime
                                            UE-Positioning-GPS-ReferenceTime,
       ue-positioning-GPS-Real-timeIntegrity
                                                 BadSatList
                                                                                     OPTIONAL,
    -- Extension mechanism for non- release99 information
       v4b0NonCriticalExtensions SEQUENCE {
    sysInfoType15-v4b0ext SysInfoType15-v4b0ext-IEs,
       -- Extension mechanism for non- release4 information
           nonCriticalExtensions
                                            SEQUENCE {}
                                                                    OPTIONAL
       } OPTIONAL
SysInfoType15-v4b0ext-IEs ::= SEQUENCE {
   SysInfoType15-1 ::=
                                  SEQUENCE {
   -- DGPS corrections
       ue-positioning-GPS-DGPS-Corrections
                                                 UE-Positioning-GPS-DGPS-Corrections,
    -- Extension mechanism for non- release99 information
                                      SEQUENCE {}
                                                             OPTIONAL
       nonCriticalExtensions
}
SysInfoType15-2 ::=
                                  SEQUENCE {
    -- Ephemeris and clock corrections
       transmissionTOW
                                      INTEGER (0..604799),
       satID
                                      SatID,
       ephemerisParameter
                                      EphemerisParameter,
   -- Extension mechanism for non- release99 information
                                                   OPTIONAL
       nonCriticalExtensions
                                      SEQUENCE {}
}
SysInfoType15-3 ::=
                                  SEQUENCE {
    -- Almanac and other data
                                     INTEGER (0.. 604799),
       transmissionTOW
       ue-positioning-GPS-Almanac
                                                  UE-Positioning-GPS-Almanac
   OPTIONAL,
       ue-positioning-GPS-IonosphericModel
                                                 UE-Positioning-GPS-IonosphericModel
       ue-positioning-GPS-UTC-Model
                                                 UE-Positioning-GPS-UTC-Model
   OPTIONAL,
       satMask
                                      BIT STRING (SIZE (1..32)) OPTIONAL,
                                      BIT STRING (SIZE (8))
       lsbTOW
                                                                 OPTIONAL,
    -- Extension mechanism for non- release99 information
       nonCriticalExtensions
                                      SEQUENCE {}
                                                                 OPTIONAL
}
SysInfoType15-4 ::=
                                  SEQUENCE {
    -- Measurement IEs
       ue-positioning-OTDOA-CipherParametersUE-Positioning-CipherParametersue-positioning-OTDOA-AssistanceDataUE-Positioning-OTDOA-AssistanceData,
                                                                                     OPTIONAL.
       v3a0NonCriticalExtensions SEQUENCE {
    sysInfoType15-4-v3a0ext SysInf
                                              SysInfoType15-4-v3a0ext,
        -- Extension mechanism for non- release99 information
           v4b0NonCriticalExtensions SEQUENCE {
               sysInfoType15-4-v4b0ext
                                                 SysInfoType15-4-v4b0ext,
               nonCriticalExtensions
                                                  SEQUENCE {}
               OPTIONAL
           OPTIONAL
}
SysInfoType15-4-v3a0ext ::= SEQUENCE {
   sfn-Offset-Validity SFN-Offset-Validity OPTIONAL
```

```
SysInfoType15-4-v4b0ext ::= SEQUENCE {
   ue-Positioning-OTDOA-AssistanceData-r4ext UE-Positioning-OTDOA-AssistanceData-r4ext OPTIONAL
}
SysInfoType15-5 ::=
                                  SEQUENCE {
   -- Measurement IEs
       ue-positioning-OTDOA-AssistanceData-UEB
                                                  UE-Positioning-OTDOA-AssistanceData-UEB,
       v3a0NonCriticalExtensions SEQUENCE {
    sysInfoType15-5-v3a0ext SysInfoType15-5-v3a0ext,
        -- Extension mechanism for non- release99 information
           nonCriticalExtensions
                                              SEQUENCE {}
                                                                OPTIONAL
        } OPTIONAL
}
SysInfoType15-5-v3a0ext ::= SEQUENCE {
   sfn-Offset-Validity SFN-Offset-Validity OPTIONAL
SysInfoType16 ::=
                                  SEQUENCE {
   -- Radio bearer IEs
       preDefinedRadioConfiguration PreDefRadioConfiguration,
   -- Extension mechanism for non- release99 information
                                   SEQUENCE {}
      nonCriticalExtensions
                                                                            OPTIONAL
}
SysInfoType17 ::=
                                  SEQUENCE {
   -- Physical channel IEs
       -- If PDSCH/PUSCH is configured for 1.28Mcps TDD, pusch-SysInfoList and
        -- pdsch-SysInfoList should be absent and the info included in the
        -- tdd128SpecificInfo instead.
        -- If PDSCH/PUSCH is configured for 3.84Mcps TDD in R5, HCR-r5-SpecificInfo should also be
        -- included.
       pusch-SysInfoList
                                      PUSCH-SysInfoList
                                                                       OPTIONAL.
       pdsch-SysInfoList
                                       PDSCH-SysInfoList
                                                                       OPTIONAL,
    -- Extension mechanism for non- release99 information
       v4b0NonCriticalExtensions SEQUENCE {
   sysInfoType17-v4b0ext SysInfoType17-v4b0ext-IEs,
           }
}
SysInfoType17-v4b0ext-IEs ::= SEQUENCE {
   tdd128SpecificInfo SEQUENCE {
   pusch-SysInfoList PUSCH-SysInfoList-LCR-r4 OPTIONAL,
   pdsch-SysInfoList PDSCH-SysInfoList-LCR-r4 OPTIONAL
   }
                                                                       OPTIONAL
}
SysInfoType17-v590ext-IEs ::= SEQUENCE {
   hcr-r5-SpecificInfo SEQUENCE {
   pusch-SysInfoList PUSCH-SysInfoList-HCR-r5 OPTIONAL,
   pdsch-SysInfoList PDSCH-SysInfoList-HCR-r5 OPTIONAL
                                                                OPTIONAL
}
       idleModePLMNIdentities SEQUENCE {
connectedModePLMNIdentities
SysInfoType18 ::=
                                       PLMNIdentitiesOfNeighbourCells
                                                                           OPTIONAL,
        {\tt connected ModePLMNI Identities\ PLMNI Identities\ OPTIONAL},
    -- Extension mechanism for non- release99 information
                                       SEQUENCE {}
                                                       OPTIONAL
      nonCriticalExtensions
}
SysInfoTypeSB1 ::=
                                   SEQUENCE {
   -- Other IEs
       sib-ReferenceList
                                       SIB-ReferenceList,
    -- Extension mechanism for non- release99 information
                                   SEQUENCE {}
      nonCriticalExtensions
                                                                            OPTIONAL
}
SysInfoTypeSB2 ::=
                           SEQUENCE {
   -- Other IEs
       sib-ReferenceList
                                      SIB-ReferenceList,
   -- Extension mechanism for non- release99 information
       nonCriticalExtensions
                                                                            OPTIONAL
                                       SEOUENCE {}
```

```
}
TDD-UMTS-Frequency-List ::=
                                                   SEQUENCE (SIZE (1..maxNumTDDFreqs)) OF
                                                           FrequencyInfoTDD
__ ****************
         ANSI-41 INFORMATION ELEMENTS (10.3.9)
__ *******************************
ANSI-41-GlobalServiceRedirectInfo ::= ANSI-41-NAS-Parameter
ANSI-41-PrivateNeighbourListInfo ::= ANSI-41-NAS-Parameter
ANSI-41-RAND-Information ::= ANSI-41-NAS-Parameter
ANSI-41-UserZoneID-Information ::= ANSI-41-NAS-Parameter
ANSI-41-NAS-Parameter ::= BIT STRING (SIZE (1..2048))
Min-P-REV ::=
                                                     BIT STRING (SIZE (8))
NAS-SystemInformationANSI-41 ::= ANSI-41-NAS-Parameter
NTD ::= BIT STRING (SIZE (16))
P-REV ::=
                                                     BIT STRING (SIZE (8))
SID ::=
                                                     BIT STRING (SIZE (15))
END
```

11.4 Constant definitions

Constant-definitions DEFINITIONS AUTOMATIC TAGS ::=

```
BEGIN
```

```
        hipDSCHidentities
        INTEGER ::= 64

        hiPUSCHidentities
        INTEGER ::= 64

        hiRM
        INTEGER ::= 256

        maxAC
        INTEGER ::= 16

        maxACC
        INTEGER ::= 8

        maxASC
        INTEGER ::= 8

        maxASCCmap
        INTEGER ::= 6

        maxCCTTCH
        INTEGER ::= 8

        maxCCllMeas
        INTEGER ::= 31

        maxCellMeas-1
        INTEGER ::= 31

        maxCPCHsets
        INTEGER ::= 4

        maxDPCH-DLchan
        INTEGER ::= 16

        maxDPCH-UL
        INTEGER ::= 8

        maxFACHPCH
        INTEGER ::= 8

        maxFreq
        INTEGER ::= 8

        maxFreqBandsFDD
        INTEGER ::= 8

        maxFreqBandsGSM
        INTEGER ::= 8

        maxFreqBandsGSM
        INTEGER ::= 4

        maxHProcesses
        INTEGER ::= 16

        maxHSDSCHTBINdex
        INTEGER ::= 4

        maxHSDSCHTBINdex-tdd384
        INTEGER ::= 4

        maxHoch-d-pDUsizes
        INTEGER ::= 4

        maxHeasEvent
        INTEGER ::= 3

        maxMeasIntervals
        INTEGER ::= 8

        maxNumGDMA2000Freqs
        INTEGER ::= 8

        ma
```

```
maxPCPCH-CDsubCh
                             INTEGER ::= 12
                             INTEGER ::= 7
maxPCPCH-SF
maxPCPCHs
                             INTEGER ::= 64
maxPDCPAlgoType
                             INTEGER ::= 8
maxPDSCH
                             INTEGER ::= 8
maxPDSCH-TFCIgroups INTEGER ::= 256
                             INTEGER ::= 16
maxPRACH
maxPRACH-FPACH
                            INTEGER ::= 8
maxPredefConfig
                            INTEGER ::= 16
maxPUSCH
                             INTEGER ::= 8
                            INTEGER ::= 8
maxQueueIDs
                            INTEGER ::= 16
INTEGER ::= 16
maxRABsetup
maxRAT
maxRB
                            INTEGER ::= 32
                            INTEGER ::= 27
INTEGER ::= 8
maxRBallRABs
maxRBMuxOptions
maxRBperRABINTEGER::=8maxReportedGSMCellsINTEGER::=8maxRLINTEGER::=8
maxRL-1
                             INTEGER ::= 7
maxRFC3095-CID INTEGER ::= 16
maxROHC-PacketSizes-r4 INTEGER ::= 8
INTEGER ::= 16
                            INTEGER ::= 16384
                            INTEGER ::= 16
INTEGER ::= 32
maxSCCPCH
maxSIB
maxSIB-FACH
                            INTEGER ::= 8
                            INTEGER ::= 16
INTEGER ::= 8
maxSIBperMsg
maxSRBsetup
maxSystemCapability
                             INTEGER ::= 16
maxTF
                             INTEGER ::= 32
maxTF-CPCH
                             INTEGER ::= 16
maxTFC
                             INTEGER ::= 1024
maxTFCsub
                             INTEGER ::= 1024
                       INTEGER ::= 512
maxTFCI-2-Combs
                             INTEGER ::= 6
                             INTEGER ::= 32
maxTrCH
-- maxTrCHpreconf should be 16 but has been set to 32 for compatibility
maxTrCHpreconf INTEGER ::= 32
maxTS
                            INTEGER ::= 14
maxTS-1
                             INTEGER ::= 13
                            INTEGER ::= 12
maxTS-2
                            INTEGER ::= 6
maxTS-LCR
maxTS-LCR-1
                             INTEGER ::= 5
                             INTEGER ::= 8
maxURNTI-Group
                             INTEGER ::= 8
END
```

11.5 RRC information between network nodes

```
Internode-definitions DEFINITIONS AUTOMATIC TAGS ::=
BEGIN
```

IMPORTS

```
HandoverToUTRANCommand.
    MeasurementReport,
    PhysicalChannelReconfiguration,
    RadioBearerReconfiguration,
    RadioBearerRelease,
    RadioBearerSetup,
    RRC-FailureInfo,
    TransportChannelReconfiguration
FROM PDU-definitions
-- Core Network IEs :
    CN-DomainIdentity
    CN-DomainInformationList,
    CN-DomainInformationListFull,
```

CN-DRX-CycleLengthCoefficient, NAS-SystemInformationGSM-MAP, -- UTRAN Mobility IEs : CellIdentity,

URA-Identity

```
-- User Equipment IEs :
   AccessStratumReleaseIndicator,
   C-RNTI,
   ChipRateCapability,
   DL-CapabilityWithSimultaneousHS-DSCHConfig,
   DL-PhysChCapabilityFDD-v380ext,
   DL-PhysChCapabilityTDD,
   DL-PhysChCapabilityTDD-LCR-r4,
   GSM-Measurements,
   HSDSCH-physical-layer-category,
   FailureCauseWithProtErr,
   MaxHcContextSpace,
   MaximumAM-EntityNumberRLC-Cap,
   MaximumRLC-WindowSize,
   MaxNoPhysChBitsReceived,
   MaxPhysChPerFrame,
   MaxPhysChPerSubFrame-r4,
   MaxPhysChPerTS,
   MaxROHC-ContextSessions-r4,
   MaxTS-PerFrame,
   MaxTS-PerSubFrame-r4,
   MinimumSF-DL,
   MultiModeCapability,
   MultiRAT-Capability,
   NetworkAssistedGPS-Supported,
   RadioFrequencyBandTDDList,
   RLC-Capability,
   RRC-MessageSequenceNumber,
   SecurityCapability,
   SimultaneousSCCPCH-DPCH-Reception,
   STARTList,
   STARTSingle,
   START-Value,
   SupportOfDedicatedPilotsForChEstimation,
   TransportChannelCapability,
   TxRxFrequencySeparation,
   U-RNTI,
   UE-MultiModeRAT-Capability,
   UE-PowerClassExt,
   {\tt UE-RadioAccessCapabBandFDDList}\,,
   UE-RadioAccessCapabBandFDDList2,
   UE-RadioAccessCapabBandFDDList-ext,
   UE-RadioAccessCapability,
   UE-RadioAccessCapability-v370ext,
   UE-RadioAccessCapability-v380ext,
   UE-RadioAccessCapability-v3a0ext,
   UE-RadioAccessCapability-v3g0ext,
   UE-RadioAccessCapability-v4b0ext,
   UE-RadioAccessCapability-v590ext,
   UE-RadioAccessCapability-v5c0ext,
   UE-RadioAccessCapability-v650ext,
   UL-PhysChCapabilityFDD,
   UL-PhysChCapabilityTDD,
   UL-PhysChCapabilityTDD-LCR-r4,
-- Radio Bearer IEs :
   PredefinedConfigStatusList,
   PredefinedConfigValueTag,
   RAB-InformationSetupList,
   RAB-InformationSetupList-r4,
   RAB-InformationSetupList-r5,
   RAB-InformationSetupList-r6-ext,
   RAB-InformationSetupList-r6,
   RB-Identity,
   SRB-InformationSetupList,
   SRB-InformationSetupList-r5,
   SRB-InformationSetupList-r6,
-- Transport Channel IEs :
   CPCH-SetID,
   DL-CommonTransChInfo,
   DL-CommonTransChInfo-r4,
   DL-AddReconfTransChInfoList,
   DL-AddReconfTransChInfoList-r4,
   DL-AddReconfTransChInfoList-r5.
   DRAC-StaticInformationList,
   UL-CommonTransChInfo,
   UL-CommonTransChInfo-r4
   UL-AddReconfTransChInfoList,
   UL-AddReconfTransChInfoList-r6,
```

```
-- Physical Channel IEs :
    PrimaryCPICH-Info,
    TPC-CombinationIndex.
    ScramblingCodeChange,
    TGCFN,
    TGPSI,
   TGPS-ConfigurationParams,
-- Measurement IEs :
    Inter-FreqEventCriteriaList-v590ext,
    Intra-FreqEventCriteriaList-v590ext,
    IntraFreqEvent-1d-r5,
    IntraFreqReportingCriteria-1b-r5,
    InterRATCellInfoIndicator,
   MeasurementIdentity,
   MeasurementReportingMode,
   MeasurementType,
   {\tt MeasurementType-r4},
   AdditionalMeasurementID-List,
   PositionEstimate,
-- MBMS IEs :
   MBMS-JoinedInformation-r6,
-- Other IEs :
    GERANIu-RadioAccessCapability,
    InterRAT-UE-RadioAccessCapabilityList,
    InterRAT-UE-RadioAccessCapability-v590ext,
    UESpecificBehaviourInformationlidle,
    UESpecificBehaviourInformationlinterRAT
FROM InformationElements
    maxCNdomains,
   maxNoOfMeas,
   maxRB.
   maxRBallRABs,
   maxRFC3095-CID,
   maxSRBsetup,
   maxRL,
   maxTGPS
FROM Constant-definitions
-- Part 1: Class definitions similar to what has been defined in 11.1 for RRC messages
-- Information that is tranferred in the same direction and across the same path is grouped
-- RRC information, to target RNC
__ **************
-- RRC Information to target RNC sent either from source RNC or from another RAT
ToTargetRNC-Container ::= CHOICE {
    interRATHandoverInfo
                                        InterRATHandoverInfoWithInterRATCapabilities-r3,
                                       SRNC-RelocationInfo-r3,
    srncRelocation
    rfc3095-ContextInfo
                                        RFC3095-ContextInfo-r5,
    extension
                                        NULL
}
__ ****************
-- RRC information, target RNC to source RNC
__ **************************
TargetRNC-ToSourceRNC-Container ::= CHOICE {
                                 RadioBearerSetup,
   radioBearerSetup
                                      RadioBearerReconfiguration,
    radioBearerReconfiguration
   radioBearerRelease
transportChannelReconfiguration
physicalChannelReconfiguration
physicalChannelReconfiguration
RRC-FailureInfo
RRC-FailureInfo
    -- IE dl-DCCHmessage consists of an octet string that includes the IE DL-DCCH-Message
   dL-DCCHmessage
                                        OCTET STRING,
                                        NULL
    extension
}
```

```
-- Part 2: Container definitions, similar to the PDU definitions in 11.2 for RRC messages
-- In alphabetical order
__ *******************************
-- Handover to UTRAN information
__ ****************
SEQUENCE {
       -- IE InterRATHandoverInfoWithInterRATCapabilities-r3-IEs also
       -- includes non critical extensions
       \verb|interRATH| and over InfoWithInterRATC| apabilities-v390ext|
   InterRATHandoverInfoWithInterRATCapabilities-v390ext-IEs,
          -- Reserved for future non critical extension
           nonCriticalExtensions
                                       SEQUENCE {} OPTIONAL
       }
              OPTIONAL
   criticalExtensions SEQUENCE {}
}
InterRATHandoverInfoWithInterRATCapabilities-r3-IEs ::=
                                                       SEQUENCE {
       -- The order of the IEs may not reflect the tabular format
       -- but has been chosen to simplify the handling of the information in the BSC
   -- Other IEs
       ue-RATSpecificCapability InterRAT-UE-RadioAccessCapabilityList OPTIONAL,
-- interRATHandoverInfo, Octet string is used to obtain 8 bit length field prior to
       -- actual information. This makes it possible for BSS to transparently handle information
       -- received via GSM air interface even when it includes non critical extensions.
       -- The octet string shall include the InterRATHandoverInfo information
       -- The BSS can re-use the 04.18 length field received from the MS \,
       interRATHandoverInfo
                                    OCTET STRING (SIZE (0..255))
}
InterRATHandoverInfoWithInterRATCapabilities-v390ext-IEs ::= SEQUENCE {
   -- User equipment IEs
       failureCauseWithProtErr
                                         FailureCauseWithProtErr
                                                                              OPTIONAL
}
__ ****************
-- RFC3095 context, source RNC to target RNC
__ *****************************
RFC3095-ContextInfo-r5 ::= CHOICE {
       SEQUENCE {
rFC3095-ContextInfoList-r5
RFC3095-ContextInfoList-r5,
       -- Reserved for future non critical extension
       nonCriticalExtensions
                                   SEQUENCE {} OPTIONAL
   criticalExtensions
                                SEQUENCE {}
RFC3095-ContextInfoList-r5 ::= SEQUENCE (SIZE (1..maxRBallRABs)) OF
                                     RFC3095-ContextInfo
__ ***************
-- SRNC Relocation information
__ ****************
SRNC-RelocationInfo-r3 ::= CHOICE {
                               SEQUENCE {
       v380NonCriticalExtensions SRNC-RelocationInfo-r3-IEs,
           sRNC-RelocationInfo-v380ext SRNC-RelocationInfo-v380ext-IEs,
           -- Reserved for future non critical extension
              ONONCriticalExtensions SEQUENCE {
sRNC-RelocationInfo-v390ext SRNC-RelocationInfo-v390ext-IEs,
v3a0NonCriticalExtensions SEQUENCE {
sRNC-RelocationInfo-v3a0ext SRNC-RelocationInfo-v3a0ext-
           v390NonCriticalExtensions
                                                 SRNC-RelocationInfo-v3a0ext-IEs,
```

```
v3b0NonCriticalExtensions
                                                   SEQUENCE {
                    sRNC-RelocationInfo-v3b0ext
                                                       SRNC-RelocationInfo-v3b0ext-IEs,
                   v3c0NonCriticalExtensions
                                                       SEQUENCE {
                        sRNC-RelocationInfo-v3c0ext
                                                           SRNC-RelocationInfo-v3c0ext-IEs,
                        laterNonCriticalExtensions
                                                           SEQUENCE {
                           sRNC-RelocationInfo-v3d0ext
                                                               SRNC-RelocationInfo-v3d0ext-IEs,
                            -- Container for additional R99 extensions
                            sRNC-RelocationInfo-r3-add-ext
                                                               BIT STRING
                                            (CONTAINING SRNC-RelocationInfo-v3h0ext-IEs)
                                                                                             OPTIONAL,
                            v3g0NonCriticalExtensions
                                                               SEQUENCE {
                                                                   SRNC-RelocationInfo-v3g0ext-IEs,
                               sRNC-RelocationInfo-v3g0ext
                                                                   SEQUENCE {
                                v4b0NonCriticalExtensions
                                                                       SRNC-RelocationInfo-v4b0ext-IEs,
                                    sRNC-RelocationInfo-v4b0ext
                                    v590NonCriticalExtensions
                                                                       SEQUENCE {
                                       sRNC-RelocationInfo-v590ext
                                                                       SRNC-RelocationInfo-v590ext-IEs,
                                       v5a0NonCriticalExtensions
                                                                           SEQUENCE {
                                           sRNC-RelocationInfo-v5a0ext
                                                                       SRNC-RelocationInfo-v5a0ext-IEs,
                                                                               SEQUENCE {
                                           v5b0NonCriticalExtensions
                                               {\tt sRNC-RelocationInfo-v5b0ext}
                                                                       SRNC-RelocationInfo-v5b0ext-IEs,
                                                    v5c0NonCriticalExtensions
                                                                                       SEOUENCE {
                                                       sRNC-RelocationInfo-v5c0ext
                                                                           SRNC-RelocationInfo-v5c0ext-IE
                                                       v6xyNonCriticalExtensions
                                                                                       SEQUENCE {
                                                            sRNC-RelocationInfo-v6xyext
                                                                       SRNC-RelocationInfo-v6xyext-IEs,
                                                            -- Reserved for future non critical extension
                                                           OPTIONAL
                                                            OPTIONAL
                                                   OPTIONAL
                                               OPTIONAL
                                           OPTIONAL
                                        OPTIONAL
                                    OPTIONAL
                               OPTIONAL
                            OPTIONAL.
                        OPTIONAL
                    OPTIONAL
       }
                OPTIONAL
            OPTIONAL
later-than-r3
                               CHOICE {
                                   SEQUENCE {
                                    SRNC-RelocationInfo-r4-IEs,
        sRNC-RelocationInfo-r4
       v4d0NonCriticalExtensions
                                       SEQUENCE {
            sRNC-RelocationInfo-v4d0ext
                                           SRNC-RelocationInfo-v4d0ext-IEs,
            -- Container for adding non critical extensions after freezing REL-5
            sRNC-RelocationInfo-r4-add-ext
                                              BIT STRING
                           (CONTAINING SRNC-RelocationInfo-v650ext1-IEs)
                                                                               OPTTONAL.
            v590NonCriticalExtensions
                                             SEQUENCE {
                                                   SRNC-RelocationInfo-v590ext-IEs,
                sRNC-RelocationInfo-v590ext
                                                   SEQUENCE {
                v5a0NonCriticalExtensions
                    sRNC-RelocationInfo-v5a0ext
                                                       SRNC-RelocationInfo-v5a0ext-IEs,
                    v5b0NonCriticalExtensions
                                                       SEQUENCE {
                        sRNC-RelocationInfo-v5b0ext
                                                           SRNC-RelocationInfo-v5b0ext-IEs,
                        v5c0NonCriticalExtensions
                                                           SEQUENCE {
                            sRNC-RelocationInfo-v5c0ext
                                                               SRNC-RelocationInfo-v5c0ext-IEs,
                                                               SEQUENCE {
                            v6xyNonCriticalExtensions
                                sRNC-RelocationInfo-v6xyext
                                           SRNC-RelocationInfo-v6xyext-IEs,
                               nonCriticalExtensions
                                                                   SEQUENCE {} OPTIONAL
                               OPTIONAL
                           OPTIONAL
                        OPTIONAL
                   OPTIONAL
               OPTIONAL
            OPTIONAL
    criticalExtensions
                                    CHOICE {
                                       SEQUENCE {
            sRNC-RelocationInfo-r5
                                           SRNC-RelocationInfo-r5-IEs.
            sRNC-RelocationInfo-r5-add-ext
                                           BIT STRING
                                                           OPTIONAL,
            v5a0NonCriticalExtensions
                                           SEQUENCE {
                sRNC-RelocationInfo-v5a0ext
                                               SRNC-RelocationInfo-v5a0ext-IEs,
                v5b0NonCriticalExtensions
                                               SEOUENCE {
```

```
sRNC-RelocationInfo-v5b0ext
                                                    SRNC-RelocationInfo-v5b0ext-IEs,
                       v5c0NonCriticalExtensions
                                                         SEQUENCE {
                           sRNC-RelocationInfo-v5c0ext
                                                             SRNC-RelocationInfo-v5c0ext-IEs,
                           v650NonCriticalExtensions
                                                          SEQUENCE {
                               {\tt sRNC-RelocationInfo-v650ext2-IEs}\,,
                               v6xyNonCriticalExtensions
                                                              SEQUENCE {
                                   sRNC-RelocationInfo-v6xyext
                                                                 SRNC-RelocationInfo-v6xyext-IEs,
                                                                 SEQUENCE {}
                                  nonCriticalExtensions
                                                                                 OPTIONAL
                                  OPTIONAL
                               OPTIONAL
                           OPTIONAL
                       OPTIONAL
                   OPTIONAL
           criticalExtensions
                                          CHOICE {
                                          SEQUENCE {
               rб
                                                 SRNC-RelocationInfo-r6-IEs,
                   sRNC-RelocationInfo-r6
                                                               OPTIONAL,
                   sRNC-RelocationInfo-r6-add-ext BIT STRING
                   nonCriticalExtensions
                                                  SEQUENCE {}
                                                                 OPTIONAL
                                                  SEQUENCE {}
               criticalExtensions
           }
       }
   }
}
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,
                                                                         OPTIONAL,
       count-C-List
                                      COUNT-C-List
        integrityProtectionStatus
                                      IntegrityProtectionStatus,
        -- In the IE srb-SpecificIntegrityProtInfo, the first information listed corresponds to
        -- signalling radio bearer RBO 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".
       \verb|srb-SpecificIntegrityProtInfo| SRB-SpecificIntegrityProtInfoList|,\\
       OPTIONAL,
    -- User equipment IEs
       u-RNTI
                                      U-RNTI,
       c-RNTI
                                      C-RNTI
                                                                         OPTIONAL,
       ue-RadioAccessCapability
                                      UE-RadioAccessCapability,
       ue-Positioning-LastKnownPos UE-Positioning-LastKnownPos
                                                                         OPTIONAL,
    -- Other IEs
                                      InterRAT-UE-RadioAccessCapabilityList OPTIONAL,
       ue-RATSpecificCapability
   -- 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 {
                                          SEQUENCE {
           fdd
               cpch-SetID
                                              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
}
SRNC-RelocationInfo-v380ext-IEs ::= SEQUENCE {
   -- Ciphering related information IEs
        cn-DomainIdentity
                                             CN-DomainIdentity,
        cipheringStatusList
                                            CipheringStatusList
}
SRNC-RelocationInfo-v390ext-IEs ::= SEQUENCE {
        cn-DomainInformationList-v390ext CN-DomainInformationList-v390ext ue-RadioAccessCapability-v370ext UE-RadioAccessCapability-v370ext
                                                                                      OPTIONAL.
                                                                                      OPTIONAL.
        ue-RadioAccessCapaDility vscallddl-PhysChCapabilityFDD-v380ext DL-PhysChCapabilityFDD-v380ext FailureCauseWithProtErr
        ue-RadioAccessCapability-v380ext UE-RadioAccessCapability-v380ext
                                                                                      OPTIONAL,
                                            DL-PhysChCapabilityFDD-v380ext,
                                                                                      OPTIONAL
}
SRNC-RelocationInfo-v3a0ext-IEs ::= SEQUENCE {
        cipheringInfoForSRB1-v3a0ext CipheringInfoPerRB-List-v3a0ext, ue-RadioAccessCapability-v3a0ext UE-RadioAccessCapability-v3a0ext
                                                                                      OPTIONAL,
        -- cn-domain identity for IE startValueForCiphering-v3a0ext is specified
        -- in subsequent extension (SRNC-RelocationInfo-v3b0ext-IEs)
        startValueForCiphering-v3a0ext
                                          START-Value
}
SRNC-RelocationInfo-v3b0ext-IEs ::= SEQUENCE {
        -- cn-domain identity for IE startValueForCiphering-v3a0ext included in previous extension
                                       CN-DomainIdentity,
        cn-DomainIdentity
        -- the IE startValueForCiphering-v3b0ext contains the start values for each CN Domain. The
        -- value of start indicated by the IE startValueForCiphering-v3a0ext should be set to the
        -- same value as the start-Value for the corresponding cn-DomainIdentity in the IE
        -- startValueForCiphering-v3b0ext
                                            STARTList2
        startValueForCiphering-v3b0ext
                                                                                      OPTIONAL
}
SRNC-RelocationInfo-v3c0ext-IEs ::= SEQUENCE {
        -- 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
}
SRNC-RelocationInfo-v3d0ext-IEs ::= SEQUENCE {
     - User equipment IEs
       uESpecificBehaviourInformation1idleUESpecificBehaviourInformation1idleuESpecificBehaviourInformation1interRATUESpecificBehaviourInformation1interRAT
                                                                                         OPTIONAL,
                                                   UESpecificBehaviourInformationlinterRAT
    OPTIONAL
}
SRNC-RelocationInfo-v3g0ext-IEs ::= SEQUENCE {
        ue-RadioAccessCapability-v3g0ext UE-RadioAccessCapability-v3g0ext
                                                                                     OPTIONAL
}
SRNC-RelocationInfo-v3h0ext-IEs ::= SEQUENCE {
        ue-RadioAccessCapability-v650ext UE-RadioAccessCapability-v650ext
                                                                                      OPTIONAL,
            nonCriticalExtension
                                                 SEQUENCE {}
                                                                                      OPTIONAL
    } OPTIONAL
}
SRNC-RelocationInfo-v4d0ext-IEs ::= SEQUENCE {
       tpc-CombinationInfoList TPC-CombinationInfoList OPTIONAL
}
TPC-CombinationInfoList ::= SEQUENCE (SIZE (1..maxRL)) OF
       TPC-Combination-Info
STARTList2 ::=
                                    SEQUENCE (SIZE (2..maxCNdomains)) OF
SRNC-RelocationInfo-v4b0ext-IEs ::= SEOUENCE {
        ue-RadioAccessCapability-v4b0ext UE-RadioAccessCapability-v4b0ext
                                                                                     OPTIONAL
}
SRNC-RelocationInfo-v590ext-IEs ::= SEQUENCE {
        OPTIONAL,
```

```
ue-RATSpecificCapability-v590ext InterRAT-UE-RadioAccessCapability-v590ext OPTIONAL
}
SRNC-RelocationInfo-v5a0ext-IEs ::= SEQUENCE {
        storedCompressedModeInfo StoredCompressedModeInfo OPTIONAL
SRNC-RelocationInfo-v5b0ext-IEs ::= SEQUENCE {
                                          InterRATCellInfoIndicator OPTIONAL
    interRATCellInfoIndicator
SRNC-RelocationInfo-v5c0ext-IEs ::= SEQUENCE {
        ue-RadioAccessCapability-v5c0ext UE-RadioAccessCapability-v5c0ext OPTIONAL
SRNC-RelocationInfo-v650ext1-IEs ::= SEQUENCE {
    ue-RadioAccessCapability-v650ext UE-RadioAccessCapability-v650ext OPTIONAL,
    nonCriticalExtension
                                           SEQUENCE {} OPTIONAL
}
{\tt SRNC-RelocationInfo-v650ext2-IEs} \; ::= \; {\tt SEQUENCE} \; \big\{
                                                   UE-RadioAccessCapability-v650ext
        ue-RadioAccessCapability-v650ext
}
CipheringInfoPerRB-List-v3a0ext ::= SEQUENCE {
        dl-UM-SN
                                          BIT STRING (SIZE (7))
CipheringStatusList ::= SEQUENCE (SIZE (1..maxCNdomains)) OF
                                           CipheringStatusCNdomain
CipheringStatusCNdomain ::=
cn-DomainIdentity
                                         SEQUENCE {
                                          CN-DomainIdentity,
                                           CipheringStatus
}
CodeChangeStatusList ::= SEQUENCE (SIZE (1..maxRL)) OF
        CodeChangeStatus
CodeChangeStatus ::= SEQUENCE {
    primaryCPICH-Info
                                               PrimaryCPICH-Info,
        scramblingCodeChange
                                               ScramblingCodeChange
}
StoredCompressedModeInfo ::= SEQUENCE {
        storedTGP-SequenceList StoredTGP-SequenceList, codeChangeStatusList CodeChangeStatusList OPTIONAL
}
StoredTGP-SequenceList ::= SEQUENCE (SIZE (1..maxTGPS)) OF
                                          StoredTGP-Sequence
StoredTGP-Sequence ::=
                                   SEQUENCE {
    tapsi
    current-tgps-Status
                                           CHOICE {
                                               SEQUENCE {
        active
           tgcfn
                                                   TGCFN
        inactive
                                               NULL
                                         TGPS-ConfigurationParams
    tgps-ConfigurationParams
                                                                                OPTIONAL
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 stateOfRRC StateOfRRC, stateOfRRC-Procedure StateOfRRC-Procedure,
                                                                                  OPTIONAL,
    -- Ciphering related information IEs
        cipheringStatusList
CipheringStatusList-r4,
latestConfiguredCN-Domain
CN-DomainIdentity,
calculationTimeForCiphering
CalculationTimeForCiphering
Count-C-List
COUNT-C-List
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 ue-Positioning-LastKnownPos UE-Positioning-LastKnownPos
                                                                                                                             OPTIONAL,
                                                                                                                             OPTIONAL,
                                                                             UESpecificBehaviourInformationlidle
             uESpecificBehaviourInformationlidle
                                                                                                                                                 OPTIONAL.
             uESpecificBehaviourInformationlinterRAT
                                                                                     UESpecificBehaviourInformationlinterRAT
      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-r4
             ul-CommonTransChInfo
                                                                                                                             OPTIONAL,
             ul-TransChInfoList
                                                                UL-AddReconfTransChInfoList
                                                                                                                             OPTIONAL,
             modeSpecificInfo
                                                                 CHOICE {
                                                                        SEQUENCE {
                   fdd
                          cpch-SetID
                                                                               CPCH-SetID
                                                                                                                             OPTIONAL,
                          transChDRAC-Info
                                                                               DRAC-StaticInformationList OPTIONAL
                   },
                   tdd
                                                                        NULL
                                                                                                                             OPTIONAL.
             dl-CommonTransChInfo
                                                              DL-CommonTransChInfo-r4
                                                                                                                             OPTIONAL,
            dl-TransChInfoList
                                                                 DL-AddReconfTransChInfoList-r4
                                                                                                                             OPTIONAL,
      -- Measurement report
            measurementReport
                                                                  MeasurementReport
                                                                                                                             OPTIONAL,
                                                                 FailureCauseWithProtErr
             failureCause
                                                                                                                             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 stateOfRRC StateOfRRC, stateOfRRC-Procedure StateOfRRC-
                                                                                                                            OPTIONAL,
             stateOfRRC-Procedure
                                                                 StateOfRRC-Procedure,
            calculationTimeForCiphering
count-C-List
cipheringInfoPerRB-List
Integrity protection relationTimeForCiphering
CipheringInfoPerBD-TimeForCiphering
CipheringInfoPerBD-TimeForC
      -- Ciphering related information IEs
                                                                                                                             OPTIONAL,
                                                                                                                             OPTIONAL,
                                                                                                                             OPTIONAL,
      -- Integrity protection related information IEs integrityProtectionStatus IntegrityProtectionStatus,
             srb-SpecificIntegrityProtInfo SRB-SpecificIntegrityProtInfoList OPTIONAL,
             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-InformationSetupList-r5,
        srb-InformationList
        rab-InformationList
                                         RAB-InformationSetupList-r5
                                                                                OPTIONAL,
    -- Transport channel IEs
                                       UL-CommonTransChInfo-r4
        ul-CommonTransChInfo
                                                                                OPTIONAL,
        ul-TransChInfoList
                                          UL-AddReconfTransChInfoList
                                                                                OPTIONAL,
        modeSpecificInfo
                                         CHOICE {
                                              SEQUENCE {
            fdd
                cpch-SetID
                                                  CPCH-Set ID
                                                                                OPTIONAL.
                transChDRAC-Info
                                                  DRAC-StaticInformationList OPTIONAL
            },
            tdd
                                              NIII.I.
                                                                                OPTIONAL,
        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
                                         FailureCauseWithProtErr
        failureCause
                                                                                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 stateOfRRC StateOfRRC, stateOfRRC-Procedure StateOfRRC-
                                         StateOfRRC-Procedure,
    -- Ciphering related information IEs
        cipheringStatusList
latestConfiguredCN-Domain
calculationTimeForCiphering
count-C-List
cipheringInfoPerRB-List

CipheringStatusList-r4,
CN-DomainIdentity,
CalculationTimeForCiphering
COUNT-C-List
CipheringInfoPerRB-List-r4
                                                                                OPTIONAL.
                                                                                OPTIONAL,
                                                                                OPTIONAL,
    -- Integrity protection related information IEs
        integrityProtectionStatus IntegrityProtectionStatus,
        \verb|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,
        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 {
                                               CPCH-Set ID
                cpch-SetID
                                                                           OPTIONAL.
                transChDRAC-Info
                                               DRAC-StaticInformationList OPTIONAL
            },
                                           NITIT
                                                                           OPTIONAL.
       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
                                                                           OPTTONAL.
    -- MBMS IEs
       mbms-JoinedInformation
                                     MBMS-JoinedInformation-r6
                                                                           OPTIONAL
}
-- IE definitions
CalculationTimeForCiphering ::=
                                   SEQUENCE {
                                       CellIdentity,
    cell-Id
                                        INTEGER (0..4095)
    sfn
}
CipheringInfoPerRB ::=
                                   SEQUENCE {
                                       BIT STRING (SIZE (20..25)),
    dl-HFN
    ul-HFN
                                       BIT STRING (SIZE (20..25))
CipheringInfoPerRB-r4 ::=
                                   SEQUENCE {
    rb-Identity
                                       RB-Identity,
    dl-HFN
                                       BIT STRING (SIZE (20..25)),
                                       BIT STRING (SIZE (7))
   dl-UM-SN
                                                                          OPTIONAL,
   ul-HFN
                                       BIT STRING (SIZE (20..25))
-- TABULAR: CipheringInfoPerRB-List, multiplicity value numberOfRadioBearers
-- has been replaced with maxRB.
CipheringInfoPerRB-List ::=
                                   SEQUENCE (SIZE (1..maxRB)) OF
                                       CipheringInfoPerRB
CipheringInfoPerRB-List-r4 ::=
                                   SEQUENCE (SIZE (1..maxRB)) OF
                                       CipheringInfoPerRB-r4
CipheringStatus ::=
                                    ENUMERATED {
                                       started, notStarted }
CipheringStatusList-r4 ::=
                                   SEQUENCE (SIZE (1..maxCNdomains)) OF
                                       CipheringStatusCNdomain-r4
                                   SEQUENCE {
CipheringStatusCNdomain-r4 ::=
       cn-DomainIdentity
                                       CN-DomainIdentity,
        cipheringStatus
                                        CipheringStatus,
       start-Value
                                       START-Value
}
CN-DomainInformation-v390ext ::=
                                       SEQUENCE {
   cn-DRX-CycleLengthCoeff
                                       CN-DRX-CycleLengthCoefficient
CN-DomainInformationList-v390ext ::=
                                       SEQUENCE (SIZE (1..maxCNdomains)) OF
                                       CN-DomainInformation-v390ext
{\tt CompressedModeMeasCapability-r4 ::= SEQUENCE } \{
    fdd-Measurements
                                       BOOLEAN,
    -- TABULAR: The IEs tdd-Measurements, gsm-Measurements and multiCarrierMeasurements
    -- are made optional since they are conditional based on another information element.
    -- Their absence corresponds to the case where the condition is not true.
                                                                           OPTIONAL,
    tdd384-Measurements
                                       BOOLEAN
    tdd128-Measurements
                                       BOOLEAN
                                                                           OPTIONAL,
    gsm-Measurements
                                       GSM-Measurements
                                                                           OPTIONAL,
    multiCarrierMeasurements
                                       BOOLEAN
                                                                           OPTIONAL
```

```
SEQUENCE (SIZE (1..maxCNdomains)) OF
COUNT-C-List ::=
                                        COUNT-CSingle
COUNT-CSingle ::=
                                        SEOUENCE {
                                        CN-DomainIdentity,
    cn-DomainIdentity
    count-C
                                        BIT STRING (SIZE (32))
}
DL-PhysChCapabilityFDD-r4 ::=
                                    SEQUENCE {
-- The IE "maxNoDPCH-PDSCH-Codes" only gives information on the maximum number of DPCH Codes.
                                        INTEGER (1..8),
    maxNoDPCH-PDSCH-Codes
    maxNoPhysChBitsReceived
                                        MaxNoPhysChBitsReceived,
    supportForSF-512
                                        BOOLEAN,
-- The RNC should ignore this IE on reception.
    supportOfPDSCHdummy
                                            BOOLEAN,
    simultaneousSCCPCH-DPCH-Reception SimultaneousSCCPCH-DPCH-Reception,
    supportOfDedicatedPilotsForChEstimation
                                                SupportOfDedicatedPilotsForChEstimation OPTIONAL
}
DL-PhysChCapabilityFDD-r5 ::=
                                    SEQUENCE {
-- The IE "maxNoDPCH-PDSCH-Codes" only gives information on the maximum number of DPCH Codes.
    maxNoDPCH-PDSCH-Codes
                                        INTEGER (1..8),
    maxNoPhysChBitsReceived
                                        MaxNoPhysChBitsReceived,
    supportForSF-512
                                        BOOLEAN.
  The RNC should ignore this IE on reception.
    dummy<del>supportOfPDSCH</del>
                                            BOOLEAN,
    simultaneousSCCPCH-DPCH-Reception SimultaneousSCCPCH-DPCH-Reception,
    supportOfDedicatedPilotsForChEstimation SupportOfDedicatedPilotsForChEstimation
                                                                                             OPTIONAL,
                                        CHOICE {
    fdd-hspdsch
        supported
                                           SEQUENCE {
            hsdsch-physical-layer-category
                                                HSDSCH-physical-layer-category,
            supportOfDedicatedPilotsForChannelEstimationOfHSDSCH
                                                                   BOOLEAN,
            \mbox{--}\mbox{simultaneousSCCPCH-DPCH-HSDSCH-Reception} shall be true only if the
            -- IE SimultaneousSCCPCH-DPCH-Reception indicates support of simultaneous
            -- reception of S-CCPCH and DPCH
            simultaneousSCCPCH-DPCH-HSDSCH-Reception
        unsupported
                                            NULL
    }
}
                                  SEQUENCE {
DL-PhysChCapabilityTDD-r5 ::=
    maxTS-PerFrame
                                        MaxTS-PerFrame,
    {\tt maxPhysChPerFrame}
                                        MaxPhysChPerFrame,
   minimumSF
                                        MinimumSF-DL,
    supportOfPDSCH
                                        BOOLEAN.
    maxPhysChPerTS
                                        MaxPhysChPerTS,
    tdd384-hspdsch
                                        CHOICE {
       supported
                                            HSDSCH-physical-layer-category,
        unsupported
                                            NULL
    }
}
DL-PhysChCapabilityTDD-LCR-r5 ::= SEQUENCE {
    maxTS-PerSubFrame
                                        MaxTS-PerSubFrame-r4,
    {\tt maxPhysChPerFrame}
                                        MaxPhysChPerSubFrame-r4,
    minimumSF
                                        MinimumSF-DL,
    supportOfPDSCH
                                        BOOLEAN,
                                        MaxPhysChPerTS,
   maxPhysChPerTS
    supportOf8PSK
                                        BOOLEAN,
    tdd128-hspdsch
                                        CHOICE {
                                            HSDSCH-physical-layer-category,
       supported
                                            NULL
        unsupported
}
DL-RFC3095-Context ::=
                                    SEQUENCE {
                                        INTEGER (0..16383),
    rfc3095-Context-Identity
    dl-mode
                                        ENUMERATED \{u, o, r\},\
    dl-ref-ir
                                        OCTET STRING ( SIZE (1..3000)),
    dl-ref-time
                                        INTEGER (0..4294967295) OPTIONAL,
                                        INTEGER (0..4294967295)
   dl-curr-time
                                                                    OPTIONAL,
                                                                   OPTIONAL,
    dl-syn-offset-id
                                        INTEGER (0..65535)
    dl-syn-slope-ts
                                        INTEGER (0..4294967295)
                                                                   OPTIONAL.
    dl-dyn-changed
                                        BOOLEAN
}
```

```
ImplementationSpecificParams ::= BIT STRING (SIZE (1..512))
IntegrityProtectionStatus ::=
                                       ENUMERATED {
                                             started, notStarted }
InterRAT-UE-RadioAccessCapabilityList-r5 ::=
                                                       SEQUENCE {
    interRAT-UE-RadioAccessCapability InterRAT-UE-RadioAccessCapabilityList, geranIu-RadioAccessCapability GERANIu-RadioAccessCapability
                                                                                                 OPTIONAL
\mbox{--}\mbox{ dummy} is not used in this version of the specification, it should
-- not be sent and if received it should be ignored.
MaxHcContextSpace-r5 ::=
                                              ENUMERATED {
                                                   dummy, by1024, by2048, by4096, by8192,
                                                   by16384, by32768, by65536, by131072 }
MeasurementCapability-r4 ::= SEQUENCE {
                                             CompressedModeMeasCapability-r4,
    downlinkCompressedMode
    uplinkCompressedMode
                                             CompressedModeMeasCapability-r4
}
MeasurementCommandWithType ::=
                                         CHOICE {
    setup
                                              MeasurementType,
                                              NULL.
    modify
    release
                                              NULL
}
MeasurementCommandWithType-r4 ::=
                                         CHOICE {
                                              MeasurementType-r4,
    setup
    modify
                                              NULL,
    release
                                              NULL
}
                            SEQUENCE {
OngoingMeasRep ::=
    measurementIdentity
                                             MeasurementIdentity,
    -- TABULAR: The CHOICE Measurement in the tabular description is included
    -- in MeasurementCommandWithType
    measurementCommandWithType MeasurementCommandWithType,
measurementReportingMode MeasurementReportingMode
additionalMeasurementID-List AdditionalMeasurementID-List
                                                                                       OPTIONAL,
                                                                                       OPTIONAL
}
                             SEQUENCE {
    MeasurementIdentity,
OngoingMeasRep-r4 ::=
   measurementIdentity
    -- TABULAR: The CHOICE Measurement in the tabular description is included
    -- in MeasurementCommandWithType-r4.
    measurementCommandWithType MeasurementCommandWithType-r4,
measurementReportingMode MeasurementReportingMode
additionalMeasurementID-List AdditionalMeasurementID-List
                                                                                      OPTIONAL,
}
OngoingMeasRep-r5 ::=
                                       SEQUENCE {
    measurementIdentity
                                             MeasurementIdentity,
    -- TABULAR: The CHOICE Measurement in the tabular description is included
    -- in MeasurementCommandWithType-r4.
    measurementCommandWithType MeasurementCommandWithType-r4, measurementReportingMode MeasurementReportingMode additionalMeasurementID-List MeasurementCommand-v590ext CHOICE {
                                                                                        OPTIONAL,
                                                                                       OPTIONAL,
         -- the choice "intra-frequency" shall be used for the case of intra-frequency measurement,
         -- as well as when intra-frequency events are configured for inter-frequency measurement
                                                  Intra-FreqEventCriteriaList-v590ext,
         intra-frequency
                                                  Inter-FreqEventCriteriaList-v590ext
         inter-frequency
             OPTIONAL,
    intraFreqReportingCriteria-1b-r5
IntraFreqReportingCriteria-1b-r5
                                                                                                 OPTIONAL,
    intraFreqEvent-1d-r5
                                                                                                 OPTIONAL
                                                   IntraFreqEvent-1d-r5
}
                           SEQUENCE (SIZE (1..maxNoOfMeas)) OF
OngoingMeasRepList ::=
                                              OngoingMeasRep
                                       SEQUENCE (SIZE (1..maxNoOfMeas)) OF
OngoingMeasRepList-r4 ::=
                                              OngoingMeasRep-r4
\label{eq:conditional_condition} {\tt OngoingMeasRepList-r5} ::= \\ {\tt SEQUENCE} \ ({\tt SIZE} \ ({\tt 1..maxNoOfMeas})) \ {\tt OF} \\
                                              OngoingMeasRep-r5
```

```
PDCP-Capability-r4 ::=
                                     SEQUENCE {
    losslessSRNS-RelocationSupport
                                         BOOLEAN,
    supportForRfc2507
                                         CHOICE {
        notSupported
                                             NULL.
        supported
                                             MaxHcContextSpace
    supportForRfc3095
                                         CHOICE {
                                             NULL,
       notSupported
        supported
                                             SEQUENCE {
            maxROHC-ContextSessions
                                                 MaxROHC-ContextSessions-r4 DEFAULT s16,
            reverseCompressionDepth
                                                 INTEGER (0..65535)
                                                                              DEFAULT 0
    }
}
PDCP-Capability-r5 ::=
                                     SEQUENCE {
    {\tt losslessSRNS-RelocationSupport}
                                         BOOLEAN,
    supportForRfc2507
                                         CHOICE {
        notSupported
                                             NULL.
                                             MaxHcContextSpace-r5
        supported
    supportForRfc3095
                                         CHOICE {
        notSupported
                                             NULL,
        supported
                                             SEQUENCE {
                                                 MaxROHC-ContextSessions-r4 DEFAULT s16,
            maxROHC-ContextSessions
                                                 INTEGER (0..65535)
            reverseCompressionDepth
                                                                             DEFAULT 0,
            supportForRfc3095ContextRelocation BOOLEAN
    }
}
                                         SEQUENCE {
PhysicalChannelCapability-r4 ::=
        fddPhysChCapability
                                             SEQUENCE {
            {\tt downlinkPhysChCapability}
                                                 DL-PhysChCapabilityFDD-r4,
            uplinkPhysChCapability
                                                 UL-PhysChCapabilityFDD
                                                    OPTIONAL,
        tdd384-PhysChCapability
                                             SEQUENCE {
            downlinkPhysChCapability
                                                 DL-PhysChCapabilityTDD,
            uplinkPhysChCapability
                                                 UL-PhysChCapabilityTDD
                                                     OPTIONAL,
        tdd128-PhysChCapability
                                             SEQUENCE {
            downlinkPhysChCapability
                                                 DL-PhysChCapabilityTDD-LCR-r4,
            uplinkPhysChCapability
                                                 {\tt UL-PhysChCapabilityTDD-LCR-r4}
                                                     OPTIONAL
}
PhysicalChannelCapability-r5 ::=
                                         SEQUENCE {
                                             SEQUENCE {
        fddPhysChCapability
            downlinkPhysChCapability
                                                 DL-PhysChCapabilityFDD-r5,
            uplinkPhysChCapability
                                                 UL-PhysChCapabilityFDD
                                                    OPTIONAL,
        tdd384-PhysChCapability
                                             SEQUENCE {
            downlinkPhysChCapability
                                               DL-PhysChCapabilityTDD-r5,
            uplinkPhysChCapability
                                                 UL-PhysChCapabilityTDD
                                                     OPTIONAL,
        tdd128-PhysChCapability
                                             SEQUENCE {
            downlinkPhysChCapability
                                                 DL-PhysChCapabilityTDD-LCR-r5,
            uplinkPhysChCapability
                                                 {\tt UL-PhysChCapabilityTDD-LCR-r4}
        }
                                                     OPTIONAL
}
RF-Capability-r4 ::=
                                     SEQUENCE {
        fddRF-Capability
                                         SEQUENCE {
                                             UE-PowerClassExt,
            ue-PowerClass
            {\tt txRxFrequencySeparation}
                                             TxRxFrequencySeparation
                                                                          OPTIONAL,
        tdd384-RF-Capability
                                         SEQUENCE {
            ue-PowerClass
                                             UE-PowerClassExt,
            {\tt radioFrequencyBandTDDList}
                                             RadioFrequencyBandTDDList,
            chipRateCapability
                                             ChipRateCapability
                                                                          OPTIONAL,
        tdd128-RF-Capability
                                         SEQUENCE {
            ue-PowerClass
                                            UE-PowerClassExt,
            {\tt radioFrequencyBandTDDList}
                                             RadioFrequencyBandTDDList,
            chipRateCapability
                                             ChipRateCapability
        }
                                                                          OPTIONAL
}
```

```
RFC3095-ContextInfo ::=
                                    SEQUENCE {
                                        RB-Identity,
    rb-Identity
   rfc3095-Context-List
                                        RFC3095-Context-List
}
                            SEQUENCE (SIZE (1..maxRFC3095-CID)) OF SEQUENCE {
RFC3095-Context-List ::=
                                        DL-RFC3095-Context OPTIONAL,
UL-RFC3095-Context OPTIONAL
    dl-RFC3095-Context
    ul-RFC3095-Context
}
RLC-Capability-r5 ::=
                                   SEQUENCE {
   totalRLC-AM-BufferSize
maximumRLC-WindowSize
maximumAM-EntityNumber
                                        TotalRLC-AM-BufferSize-r5,
                                        MaximumRLC-WindowSize.
                                        MaximumAM-EntityNumberRLC-Cap
}
SRB-SpecificIntegrityProtInfo ::= SEQUENCE {
   ul-RRC-HFN
                                        BIT STRING (SIZE (28)),
   dl-RRC-HFN
                                        BIT STRING (SIZE (28)),
   ul-RRC-SequenceNumber
                                        RRC-MessageSequenceNumber,
   dl-RRC-SequenceNumber
                                        RRC-MessageSequenceNumber
}
SRB-SpecificIntegrityProtInfoList ::= SEQUENCE (SIZE (4..maxSRBsetup)) OF
                                        SRB-SpecificIntegrityProtInfo
StateOfRRC ::=
                                    ENUMERATED {
                                        cell-DCH, cell-FACH,
                                        cell-PCH, ura-PCH }
StateOfRRC-Procedure ::=
                                    ENUMERATED {
                                        awaitNoRRC-Message,
                                         awaitRB-ReleaseComplete,
                                        awaitRB-SetupComplete,
                                         awaitRB-ReconfigurationComplete,
                                         awaitTransportCH-ReconfigurationComplete,
                                         awaitPhysicalCH-ReconfigurationComplete,
                                         awaitActiveSetUpdateComplete,
                                         awaitHandoverComplete,
                                         sendCellUpdateConfirm,
                                         sendUraUpdateConfirm,
                                         -- dummy is not used in this version of specification
                                         -- It should not be sent
                                         dummy,
                                         otherStates
}
TotalRLC-AM-BufferSize-r5 ::=
                                    ENUMERATED {
                                         kb10, kb50, kb100, kb150, kb200,
                                        kb300, kb400, kb500, kb750, kb1000 }
TPC-Combination-Info ::= SEQUENCE {
      primaryCPICH-Info
                                            PrimaryCPICH-Info,
                                            TPC-CombinationIndex
        tpc-CombinationIndex
}
UE-MultiModeRAT-Capability-r5 ::= SEQUENCE {
   multiRAT-CapabilityList MultiRAT-Capability,
   multiModeCapability
                                        MultiModeCapability,
                                       BOOLEAN
    supportOfUTRAN-ToGERAN-NACC
}
UE-Positioning-Capability-r4 ::= SEQUENCE {
                                   BOOLEAN,
    standaloneLocMethodsSupported
    ue-BasedOTDOA-Supported
                                            BOOLEAN.
    networkAssistedGPS-Supported
                                            NetworkAssistedGPS-Supported,
    supportForUE-GPS-TimingOfCellFrames
                                            BOOLEAN,
    supportForIPDL
                                            BOOLEAN,
    rx-tx-TimeDifferenceType2Capable
                                            BOOLEAN.
                                            ENUMERATED { true }
    validity-CellPCH-UraPCH
                                                                     OPTIONAL,
                                            ENUMERATED { true }
    sfn-sfnType2Capability
                                                                     OPTIONAL
}
\mbox{UE-Positioning-LastKnownPos} \mbox{::=} \mbox{SEQUENCE} \ \{ \mbox{}
                                   INTEGER (0..4095),
        sfn
       cell-id
                                        CellIdentity,
       positionEstimate
                                        PositionEstimate
}
```

```
UE-RadioAccessCapability-r4 ::=
                                    SEQUENCE {
                                        AccessStratumReleaseIndicator,
    accessStratumReleaseIndicator
    pdcp-Capability
                                         PDCP-Capability-r4,
    rlc-Capability
                                         RLC-Capability,
    transportChannelCapability
                                         TransportChannelCapability,
   rf-Capability
                                         RF-Capability-r4,
    physicalChannelCapability
                                         PhysicalChannelCapability-r4,
    ue-MultiModeRAT-Capability
                                         UE-MultiModeRAT-Capability,
    securityCapability
                                         SecurityCapability,
    ue-positioning-Capability
                                         UE-Positioning-Capability-r4,
    measurementCapability
                                         MeasurementCapability-r4
                                                                          OPTIONAL
UE-RadioAccessCapability-r5 ::=
                                    SEQUENCE {
                                        AccessStratumReleaseIndicator,
    accessStratumReleaseIndicator
    {\tt dl-CapabilityWithSimultaneousHS-DSCHConfig}
                                         DL-CapabilityWithSimultaneousHS-DSCHConfig OPTIONAL,
    pdcp-Capability
                                         PDCP-Capability-r5,
    rlc-Capability
                                         RLC-Capability-r5,
    {\tt transportChannelCapability}
                                         TransportChannelCapability,
    rf-Capability
                                         RF-Capability-r4,
    physicalChannelCapability
                                         PhysicalChannelCapability-r5,
                                        UE-MultiModeRAT-Capability-r5,
    ue-MultiModeRAT-Capability
                                         SecurityCapability,
    securityCapability
    ue-positioning-Capability
                                         UE-Positioning-Capability-r4,
    measurementCapability
                                        MeasurementCapability-r4
                                                                          OPTIONAL
UL-RFC3095-Context ::=
                                    SEOUENCE {
    rfc3095-Context-Identity
                                         INTEGER (0..16383),
                                         ENUMERATED {u, o, r},
    ul-mode
    ul-ref-ir
                                         OCTET STRING ( SIZE (1..3000)),
                                         INTEGER (0..4294967295)
                                                                     OPTIONAL,
    ul-ref-time
    ul-curr-time
                                         INTEGER (0..4294967295)
                                                                     OPTIONAL,
                                         INTEGER (0..65535)
                                                                     OPTIONAL,
    ul-syn-offset-id
    ul-syn-slope-ts
                                         INTEGER (0..4294967295)
                                                                     OPTIONAL,
    ul-ref-sn-1
                                        INTEGER (0..65535)
                                                                     OPTIONAL
}
END
```

**** Next modified section ***

13.4.3a DSCH_RNTI

In TDD Tthis variable stores the assigned DSCH-RNTI for this UE when in CELL_DCH state.

Information Element/Group	Need	Multi	Type and	Semantics description
name			reference	
DSCH-RNTI	OP		DSCH-RNTI	Cleared when entering UTRA
			10.3.3.9a	RRC connected mode when
				not otherwise stated in the
				procedure.
				Cleared when leaving UTRA
				RRC connected mode.

B.3.1 CELL_DCH state

The CELL_DCH state is characterised by

- For 3.84 Mcps TDD: A dedicated physical channel is allocated to the UE in uplink and downlink or a dedicated physical channel is allocated to the UE in the uplink and HS_DSCH_RECEPTION is set to TRUE.

- A dedicated physical channel is allocated to the UE in uplink and downlink.
- The UE is known on cell level according to its current active set.
- Dedicated transport channels, downlink and uplink (TDD) shared transport channels, and a combination of these transport channels can be used by the UE.

The CELL_DCH-state is entered from the Idle Mode through the setup of an RRC connection, or by establishing a dedicated physical channel from the CELL_FACH state.

<u>In TDD Aa</u> PDSCH may be assigned to the UE in this state, to be used for a DSCH. <u>In TDD aA</u> PUSCH may also be assigned to the UE in this state, to be used for a USCH. If PDSCH or PUSCH are used for TDD, a FACH transport channel may be assigned to the UE for reception of physical shared channel allocation messages.