

TSG-RAN Meeting #9
Oahu, HI, USA, 20 – 22 September 2000

RP-000362

Title: Agreed CRs to TS 25.331 (2)

Source: TSG-RAN WG2

Agenda item: 5.2.3

Doc-1st-	Status-	Spec	CR	Rev	Subject	Cat	Version	Versio
R2-001374	agreed	25.331	437		Clarification of the description of IE semantics in "RB with PDCP information"	F	3.3.0	3.4.0
R2-001499	agreed	25.331	438	1	Editorial corrections on security	F	3.3.0	3.4.0
R2-001376	agreed	25.331	439		Editorial correction to RB mapping info	F	3.3.0	3.4.0
R2-001544	agreed	25.331	440	1	Compressed mode configuration failure	F	3.3.0	3.4.0
R2-001382	agreed	25.331	441		Gain factors for TDD	F	3.3.0	3.4.0
R2-001383	agreed	25.331	442		Introduction of Default DPCH Offset Value in TDD	F	3.3.0	3.4.0
R2-001509	agreed	25.331	444	1	Optimisation of handover to UTRAN command	F	3.3.0	3.4.0
R2-001386	agreed	25.331	445		Editorial corrections	F	3.3.0	3.4.0
R2-001510	agreed	25.331	448	1	Mapping of channelisation code	F	3.3.0	3.4.0
R2-001767	agreed	25.331	449	2	DL TFCS Limitation	F	3.3.0	3.4.0
R2-001413	agreed	25.331	450		SIB offset	F	3.3.0	3.4.0
R2-001414	agreed	25.331	451		RRC CONNECTION RELEASE cause	F	3.3.0	3.4.0
R2-001415	agreed	25.331	452		Addition of RACH TFCS	F	3.3.0	3.4.0
R2-001768	agreed	25.331	453	2	Cell Identity	F	3.3.0	3.4.0
R2-001417	agreed	25.331	454		Editorial Modifications	F	3.3.0	3.4.0
R2-001454	agreed	25.331	455	1	TDD PRACH Power Control for Spreading Factor 8/16	F	3.3.0	3.4.0
R2-001421	agreed	25.331	456		TDD CCTrCH Repetition Length Definition	F	3.3.0	3.4.0
R2-001500	agreed	25.331	457	1	Reporting threshold of traffic volume measurements	F	3.3.0	3.4.0
R2-001753	agreed	25.331	459	2	LCS GPS assistance data for SIB	F	3.3.0	3.4.0
R2-001518	agreed	25.331	461	1	Support of cell update confirm on CCCH	F	3.3.0	3.4.0

CHANGE REQUEST			Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.		
25.331		CR	437		Current Version: 3.3.0
GSM (AA.BB) or 3G (AA.BBB) specification number ↑			↑ CR number as allocated by MCC support team		
For submission to: TSG-RAN #9 <small>list expected approval meeting # here</small>	for approval for information	<input checked="" type="checkbox"/> <input type="checkbox"/>		strategic non-strategic	<input type="checkbox"/> <input type="checkbox"/> <small>(for SMG use only)</small>

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

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

Source: TSG-RAN WG2 **Date:** 22.6.2000

Subject: Clarification of the description of IE semantics in "RB with PDCP information"

Work item: _____

Category:	F Correction <input checked="" type="checkbox"/> A Corresponds to a correction in an earlier release <input type="checkbox"/> B Addition of feature <input type="checkbox"/> C Functional modification of feature <input type="checkbox"/> D Editorial modification <input type="checkbox"/>	Release:	Phase 2 <input type="checkbox"/> Release 96 <input type="checkbox"/> Release 97 <input type="checkbox"/> Release 98 <input type="checkbox"/> Release 99 <input checked="" type="checkbox"/> Release 00 <input type="checkbox"/>
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(only one category shall be marked with an X)

Reason for change: The usage of PDCP SN Info IE has been slightly changed lately due to new IE grouping and therefore its description in the "RB with PDCP information" IE has been outdated. The corrected semantics allows the IE to be used in both uplink and downlink signalling.

Clauses affected: 10.3.4.19

Other specs affected:	Other 3G core specifications <input type="checkbox"/> Other GSM core specifications <input type="checkbox"/> MS test specifications <input type="checkbox"/> BSS test specifications <input type="checkbox"/> O&M specifications <input type="checkbox"/>	→ List of CRs: → List of CRs: → List of CRs: → List of CRs: → List of CRs:	
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Other comments: _____



help.doc

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

10.3.4.19 RB with PDCP information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
RB identity	MP		RB identity 10.3.4.13	
PDCP SN info	MP		PDCP SN info 10.3.4.3	PDCP sequence number info from the sender of the message UE for lossless SRNS relocation.

CHANGE REQUEST

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

25.331 CR 438r1

Current Version: **3.3.0**

GSM (AA.BB) or 3G (AA.BBB) specification number ↑

↑ CR number as allocated by MCC support team

For submission to: **TSG-RAN #9**

list expected approval meeting # here ↑

for approval
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strategic
non-strategic (for SMG use only)

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Proposed change affects:

(at least one should be marked with an X)

(U)SIM ME UTRAN / Radio Core Network

Source:

TSG-RAN WG2

Date:

2000-07-03

Subject:

Editorial corrections on security

Work item:

Category:

(only one category shall be marked with an X)

F Correction
A Corresponds to a correction in an earlier release
B Addition of feature
C Functional modification of feature
D Editorial modification

Release:

Phase 2
Release 96
Release 97
Release 98
Release 99
Release 00

Reason for change:

- HFN is changed to START to align with SA WG3.
- INITIAL DIRECT TRANSFER shall be sent on RB 3, not on RB 2.
- Definitions of different HFNs and START are added/clarified.
- In RRC CONNECTION SETUP only signalling radio bearers RB1-4 can be setup, RB 0 (CCCH) is setup at an earlier stage.
- Clarification of incrementation of RRC SN.
- In CELL UPDATE and in RRC CONNECTION RE-ESTABLISHMENT REQUEST the START values for all CN domains shall be sent.

Clauses affected:

8.1.5.2, 8.1.8, 8.1.15, 8.2.1.3, 8.3.1.2, 8.5.2, 8.5.11, 8.5.12, 10.2, 10.3.3, 11.2, 11.3.3, 11.5, 13.4.4, 14.10

Other specs affected:

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

Other comments:



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8.1.5.2 Initiation

When a UE loses the radio connection due to e.g. radio link failure (see 8.5.6), detection of RLC unrecoverable error (amount of the retransmission of RESET PDU reaches the value of Max DAT and receives no ACK) in CELL_DCH state, the UE may initiate a new cell selection by transiting to CELL_FACH state.

If timer T314=0 and timer T315=0 the UE shall:

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

If timer T314>0 the UE shall:

- Release locally all radio bearers (except Signalling Radio Bearers) which are associated with T314. An indication may be sent to the non-access stratum.

If timer T315>0 the UE shall:

- Release locally all radio bearers (except Signalling Radio Bearers) which are associated with T315. An indication may be sent to the non-access stratum.

If T314>0, the UE shall start timer T314.

If T315>0, the UE shall start timer T315.

Upon initiation of the procedure, the UE shall set the variable `PROTOCOL_ERROR_INDICATOR` to FALSE.

The IE "AM_RLC error indication (for c-plane)" shall be set when the UE detects unrecoverable error (amount of the retransmission of RESET PDU reaches the value of Max DAT and receives no ACK) in an AM RLC entity for the signalling link. The IE "AM_RLC error indication (for u-plane)" shall be set when the UE detects unrecoverable error in an AM RLC entity (for u-plane) for u-plane link.

UE shall include "~~the maximum value in the currently used HFNs among CS and PS domains~~" plus "1" in IE "HFN" the START values from each CN domain in RRC CONNECTION RE-ESTABLISHMENT REQUEST message.

8.1.8 Initial Direct transfer

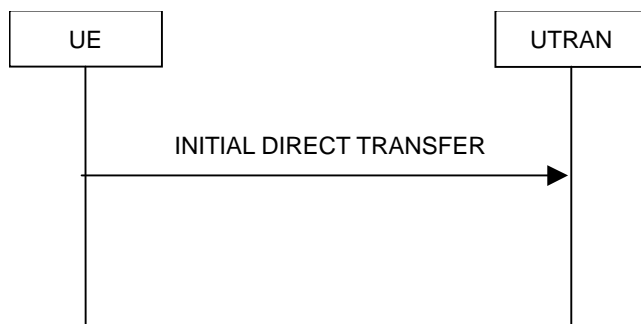


Figure 14: Initial Direct transfer in the uplink, normal flow

8.1.8.1 General

The initial direct transfer procedure is used in the uplink to establish signalling connections and signalling flows. It is also used to carry the initial higher layer (NAS) messages over the radio interface.

A signalling connection comprises one or several signalling flows. This procedure requests the establishment of a new flow, and triggers, depending on the routing and if no signalling connection exists for the chosen route for the flow, the establishment of a signalling connection.

8.1.8.2 Initiation of Initial direct transfer procedure in the UE

In the UE, the initial direct transfer procedure shall be initiated, when the upper layers request the initialisation of a new flow. This request also includes a request for the transfer of a NAS message. When not stated otherwise elsewhere, the UE may also initiate the initial direct transfer procedure when another procedure is ongoing, and in that case the state of the latter procedure

shall not be affected. The UE shall transmit the INITIAL DIRECT TRANSFER message on the uplink DCCH using AM RLC on RB [32](#).

The System Information Block Type 1 and 13 may contain CN NAS information which the upper layers in the UE can use in choosing the value to set the IE "CN Domain Identity" to. If available the UE shall use this CN NAS information as well as user preference and subscription information in setting the value of IE "CN Domain Identity" to indicate which CN node the NAS message is destined to. If the upper layers in the UE have not set a value for the IE "CN Domain Identity" RRC shall set it to the value "don't care". In addition the UE shall set the IE "Service Descriptor" and the IE "Flow Identifier" to the value allocated by the UE for that particular flow.

In CELL_FACH state, the UE shall include IE "Measured results on RACH" into the INITIAL DIRECT TRANSFER message if RACH measurement reporting has been requested in the IE "Intra-frequency reporting quantity for RACH reporting" and the IE "Maximum number of reported cells on RACH" in system information block type 12.

When the transmission of the INITIAL DIRECT TRANSFER message has been confirmed by RLC the procedure ends.

8.1.8.3 Reception of INITIAL DIRECT TRANSFER message by the UTRAN

On reception of the INITIAL DIRECT TRANSFER message the NAS message should be routed using the IE "CN Domain Identity" and the IE "Service Descriptor". The UTRAN should use the UE context to store the contents of the IE "Flow Identifier" for that particular flow.

If no signalling connection exists towards the chosen node, then a signalling connection is established.

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

When the UTRAN receives an INITIAL DIRECT TRANSFER message, it shall not affect the state of any other ongoing RRC procedures, when not stated otherwise elsewhere.

8.1.15 Counter check

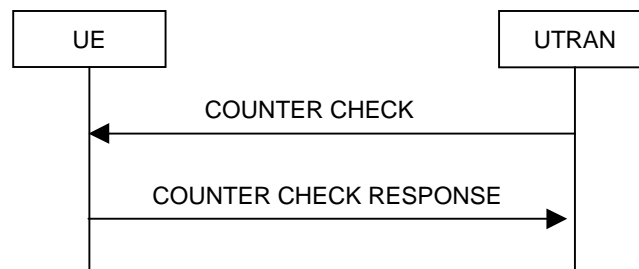


Figure 21: Counter check procedure

8.1.15.1 General

The counter check procedure is used by the UTRAN to perform a local authentication. The purpose of the procedure is to check that the amount of data sent in both directions (uplink/downlink) during the RRC connection is the same at the UTRAN and at the UE (to prevent a possible intruder – a 'man-in-the-middle' – to operate). It should be noted that this requires that the COUNT-C values for each radio bearer are maintained even if ciphering is not used. This procedure is only applicable to radio bearers using UM or AM mode of RLC. ~~Applying this procedure for radio bearers using transparent mode RLC is FFS. In Release 99, this procedure is not applied for radio bearers using transparent mode RLC.~~

8.1.15.2 Initiation

The UTRAN is monitoring the COUNT-C value associated to each radio bearer using UM or AM RLC. The procedure is triggered whenever any of these values reaches a critical checking value. The granularity of these checking values and the values themselves are defined to the UTRAN by the visited network. The UTRAN initiates the procedure by sending a COUNTER CHECK message on the downlink DCCH.

8.1.15.3 Timer expiry at UTRAN

If a timer started at UTRAN when sending the COUNTER CHECK message expires before a response from the UE is received, the UTRAN should release the RRC connection.

8.1.15.4 Reception of a COUNTER CHECK message by the UE

When the UE receives a COUNTER CHECK message it shall compare the COUNT-C MSB values received in the COUNTER CHECK message to the COUNT-C MSB values of the corresponding radio bearers.

If the number of radio bearers using UM or AM RLC mode or any of the COUNT-C MSB values is different the mismatching COUNT-C values shall be included in a COUNTER CHECK RESPONSE message.

The UE shall send the COUNTER CHECK RESPONSE message on the uplink DCCH.

8.1.15.5 Reception of the COUNTER CHECK RESPONSE message by UTRAN

If the UTRAN receives a COUNTER CHECK RESPONSE message that does not contain any COUNT-C values, the procedure ends.

If the UTRAN receives a COUNTER CHECK RESPONSE message that contains one or several COUNT-C values, it should compare the COUNT-C values in the message to the COUNT-C values which were used in forming the COUNTER CHECK message.

If there is no difference or if the difference is acceptable, the procedure ends. The limits for an acceptable difference are defined to the UTRAN by the visited network.

If there is a difference that is not acceptable, UTRAN should initiate the release of the RRC connection.

8.1.15.6 Invalid COUNTER CHECK message

If the UE receives a COUNTER CHECK message which contains a protocol error causing the variable `PROTOCOL_ERROR_REJECT` to be set to `TRUE` according to clause 16, the UE shall perform procedure specific error handling as follows:

- Transmit an RRC STATUS message on the uplink DCCH using AM RLC and include the IE "Protocol error information" with contents set to the value of the variable `PROTOCOL_ERROR_INFORMATION`.
- When the transmission of the RRC STATUS message has been confirmed by RLC, the UE shall resume normal operation as if the invalid COUNTER CHECK message has not been received.

8.2.1.3 Reception of a RADIO BEARER SETUP message by the UE

Upon reception of a RADIO BEARER SETUP message the UE shall perform actions as specified below and transmit a RADIO BEARER SETUP COMPLETE message on the uplink DCCH using AM RLC.

If the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO is set, the UE shall include and set the IE "Radio bearer uplink ciphering activation time info" to the value of that variable.

When the transmission of the RADIO BEARER SETUP COMPLETE message has been confirmed by RLC the UE shall resume data transmission on RB 3 and upwards if RLC-AM or RLC-UM is used on those radio bearers, the UE shall clear the variable ORDERED_CONFIG, clear the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO and the procedure ends.

The UE shall store the received UE Information Elements, RB Information Elements, TrCH Information Elements and PhyCH information elements in the variable ORDERED_CONFIG.

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

The UE shall be able to receive an RADIO BEARER SETUP message and perform a hard handover, even if no prior UE measurements have been performed on the target cell and/or frequency:

The UE shall:

- for the new radio bearer(s), use the multiplexing option applicable for the transport channels used according to the IE "RB mapping info";
- for the new radio bearer(s), if the variable CIPHERING_STATUS is set to "Started", initialise ciphering on ~~those the non-transparent~~ radio bearers using the current ~~START value~~hyperframe number. ~~For non-transparent mode radio bearers this hyperframe number is the highest used HFN (during the lifetime of the current cipher/integrity key set) incremented by one.~~All transparent mode radio bearers have a common hyperframe number (~~MAC-d HFN~~in the MAC layer), which is not incremented due to addition of new transparent radio bearer(s);
- in case of non-transparent mode radio bearers transmit the current ~~hyperframe number~~START value to UTRAN in RADIO BEARER SETUP COMPLETE message;
- for radio bearer(s) existing prior to the message, use the multiplexing option applicable for the transport channels used, according to their IE "RB mapping info" or their previously stored multiplexing options;
- configure MAC multiplexing if that is needed in order to use said transport channel(s);
- use MAC logical channel priority when selecting TFC in MAC;
- suspend data transmission on RB 3 and upward, if RLC-AM or RLC-UM is used on those radio bearers.

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

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

If the IE "RAB information to setup" is included, the procedure is used to establish radio bearers belonging to a radio access bearer and the UE shall:

- Associate the new radio bearers with the radio access bearer that is identified by the IE "RAB info".
- Check whether that radio access bearer exists in the variable ESTABLISHED_RABS.

If the radio access bearer exists the UE shall:

- store information about the radio bearer under the radio access bearer entry in the variable ESTABLISHED_RABS.

If the radio access bearer does not exist the UE shall:

- store information about the new radio access bearer in the variable ESTABLISHED_RABS
- store information about the radio bearer under the radio access bearer entry in the variable ESTABLISHED_RABS.
- indicate the establishment of the radio access bearer to the upper layer entity using the IE "CN domain identity", forwarding the content of the IE "RAB identity".

- For each new radio bearer, the UE shall:
 - create a new RAB subflow for the radio access bearer.
 - Number the RAB subflow in the order of when the radio bearers within the radio access bearers were created.
 - Store the number of the RAB subflow in the variable ESTABLISHED_RABS.
- Indicate the establishment of each new RAB subflow to the upper layer entity using the IE "CN domain identity".

The UE should turn off the transmitter during the reconfiguration. The UE may first release the current physical channel configuration and shall then establish a new physical channel configuration according to 8.5.7 and the following.

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

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

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

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

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 then the UE shall act upon the 'PDSCH code mapping' IE as specified in subclause 8.5.7 and:

- Infer that the PDSCH will be transmitted from the BS from which the downlink DPCH is transmitted.

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

- Use the TFS given in system information.

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

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

The UE shall enter a state according to 8.5.8.

8.3.1.2 Initiation

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

- Upon initiation of the procedure, the UE shall set the variable `PROTOCOL_ERROR_INDICATOR` to `FALSE`.
- In CELL_FACH or CELL_PCH state, the UE shall perform the cell update procedure when selecting another cell (cell reselection).
- In CELL_FACH and CELL_PCH state, the UE shall perform the cell update procedure upon expiry of T305 while the UE is in the service area. The UE shall only perform this periodic cell updating if configured by means of the IE "Information for periodical cell and URA update" in System Information Block Type 2. The UE shall initially start timer T305 upon entering CELL_FACH or CELL_PCH state (periodic cell update).
- In transition to CELL_DCH to CELL_FACH by receiving RB control message with no indication which cell to camp, the UE should select a cell and perform the cell update procedure (RB control response).
- In CELL_PCH state and URA_PCH state, the UE shall initiate the cell update procedure if it wants to transmit UL data (UL data transmission).
- In CELL_PCH and URA_PCH state, the UE shall perform the cell update procedure when receiving a PAGING TYPE 1 message as in subclause 8.1.2.3 (paging response).
- moving to CELL_FACH state, if not already in that state.
- consider stored C-RNTI to be invalid until CELL UPDATE CONFIRM message is received when UE detects a new cell.
- suspend data transmission on RB 3 and upward, if RLC-AM or RLC-UM is used on those radio bearers.
- sending a CELL UPDATE message on the uplink CCCH.
- starting timer T302 and resetting counter V302.

The IE "cell update cause" shall be used as follows:

- In case of cell reselection: "cell reselection";
- In case of periodic cell updating: "periodic cell update";
- In case of RB control response: "RB control response";
- In case of UL data transmission: "UL data transmission";
- In case of paging response: "paging response".

If the value of the variable `PROTOCOL_ERROR_INDICATOR` is `TRUE`, the UE shall set the IE "Protocol error indicator" to `TRUE` and include the IE "Protocol error information" set to the value of the variable `PROTOCOL_ERROR_INFORMATION`.

If the value of the variable `PROTOCOL_ERROR_INDICATOR` is `FALSE`, the UE shall set the IE "Protocol error indicator" to `FALSE`.

The IE "AM_RLC error indication" shall be set when the UE detects unrecoverable error (amount of the retransmission of RESET PDU reaches the value of Max DAT and receives no ACK) in an AM RLC entity for the signalling link. The IE "AM_RLC error indication (for u-plane)" shall be set when the UE detects unrecoverable error in an AM RLC entity (for u-plane) for for u-plane link.

UE shall include ~~"the maximum value in the currently used HFNs among CS and PS domains" + "1" in IE "HFN"~~ the START values from each CN domain in CELL UPDATE message.

The UE shall include an intra-frequency measurement report in the CELL UPDATE message, as specified in the IE "Intra-frequency reporting quantity for RACH reporting" and the IE "Maximum number of reported cells on RACH" in system information block type 12.

8.5.2 Actions when entering idle mode from connected mode

When entering idle mode from connected mode, the UE shall attempt to select a suitable cell to camp on. The UE shall perform cell selection when leaving connected mode according to [25.304].

While camping on a cell, the UE shall acquire system information according to the system information procedure in subclause 8.1, perform measurements according to the measurement control procedure specified in subclause 8.4 and, if registered, be prepared to receive paging and notification messages according to the paging procedure in subclause 8.2.

If IE "PLMN identity" within variable SELECTED_PLMN has the value "GSM-MAP", the UE shall delete any NAS system information received in connected mode, acquire the NAS system information in system information block type 1, and proceed according to 8.5.7.1.2.

~~The UE shall compare the 20 most significant bits of the hyper frame numbers in each CN domain for each radio bearer (including signalling radio bearers) that has existed during the connection, after possible authentication and ciphering/integrity key change. Even if a radio bearer has been released, its HFN must be temporarily saved until another HFN instance (of the radio bearers towards the same CN domain) exceeds the saved value or until ciphering/integrity keys for this domain are changed. The UE shall store into the USIM the 20 most significant bits of the highest HFN in each CN domain.~~

~~When entering idle mode the ME stores for every CN domain the current START value for every CN domain is stored in the USIM.~~

8.5.11 Hyper Frame Numbers

The hyper frame numbers (HFN) ~~in the IE "Hyper frame number" is~~ are used ~~to initialise as MSBs of~~ both the ciphering sequence number (COUNT-C) and the integrity sequence number (COUNT-I) for the ciphering and integrity protection algorithms, respectively. ~~For non-transparent mode radio bearers there is an uplink and downlink COUNT-C per radio bearer (for both uplink and /downlink) and an uplink and downlink COUNT-I per signalling radio bearer (for both uplink and /downlink). For all transparent mode radio bearers there is a common uplink and a common downlink COUNT-C and a common uplink and a common downlink COUNT-I.~~ COUNT-C and COUNT-I are defined in Security Architecture, TS 33.102.

~~COUNT C is initialised: COUNT C = HFN (the LSB not part of the HFN in COUNT C are set to zero).~~

~~COUNT I is initialised: COUNT I = HFN (the LSB not part of the HFN in COUNT I are set to zero).~~

~~The following hyper frame numbers are defined:~~

<u>MAC-d HFN</u>	<u>24 bits</u>	<u>MSB of COUNT-C for data sent over RLC TM</u>
<u>RLC UM HFN</u>	<u>25 bits</u>	<u>MSB of COUNT-C for data sent over RLC UM</u>
<u>RLC AM HFN</u>	<u>20 bits</u>	<u>MSB of COUNT-C for data sent over RLC AM</u>
<u>RRC HFN</u>	<u>28 bits</u>	<u>MSB of COUNT-I</u>

~~The START value is used to initialise the 20 most significant bits of all the hyper frame numbers and the remaining bits of the hyper frame numbers are set equal to zero.~~

~~All the hyper frame numbers are incremented at each cycle of the local counter (i.e. CFN, UM SN, AM SN, RRC SN, respectively).~~

8.5.a START

~~In connected mode, the START value for CN domain 'X' is calculated as~~

$$\text{START}_X = \text{MSB}_{20}(\text{MAX}\{\text{COUNT-C, COUNT-I} \mid \text{all logical channels protected with CK}_X \text{ and IK}_X\}) + 1.$$

~~The START_X value is used to initialise the 20 most significant bits of the various all hyper frame numbers in CN domain 'X'.~~

~~When entering idle mode the current START value for every CN domain is stored in the USIM.~~

8.5.12 Integrity protection

Integrity protection shall be performed on all RRC messages, with the following exceptions:

HANDOVER TO UTRAN COMPLETE
PAGING TYPE 1
PUSCH CAPACITY REQUEST
PHYSICAL SHARED CHANNEL ALLOCATION
RRC CONNECTION REQUEST
RRC CONNECTION SETUP
RRC CONNECTION SETUP COMPLETE
RRC CONNECTION REJECT
SYSTEM INFORMATION (BROADCAST INFORMATION)
SYSTEM INFORMATION CHANGE INDICATION
TRANSPORT FORMAT COMBINATION CONTROL

NOTE: MEASUREMENT REPORT needs to be studied when used on UM as in some cases there could be synchronisation problems with the RRC SN.

For CCCH and each signalling radio bearer, the UE shall use two ~~integrity protection~~RRC hyper frame numbers,

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

and two message sequence numbers,

- "Uplink RRC Message sequence number";
- "Downlink RRC Message sequence number".

The above information is stored in the variable INTEGRITY_PROTECTION_INFO per CCCH and signalling radio bearer (RB 0-4).

The RRC message sequence number (RRC SN) is incremented for every integrity protected RRC message. If the same RRC message is sent repeatedly (e.g. RRC CONNECTION RELEASE, RRC CONNECTION RELEASE COMPLETE) the corresponding RRC SN is not incremented.

8.5.12.1 Integrity protection in downlink

If the UE receives an RRC message on signalling radio bearer with RB identity n, the "Status" in the variable INTEGRITY_PROTECTION_INFO has the value "Started" and the IE 'Integrity check info' is present the UE shall:

- check the value of the IE "RRC message sequence number" included in the IE "Integrity check info". If the RRC message sequence number is lower than or equal to the "Downlink RRC Message sequence number" for RB#n in the variable INTEGRITY_PROTECTION_INFO, the UE shall increment "Downlink RRC HFN" for RB#n in the variable INTEGRITY_PROTECTION_INFO with one.
- calculate an expected message authentication code in accordance with 8.5.12.3.
- compare the expected message authentication code with the value of the received IE "message authentication code" contained in the IE 'Integrity check info'.
 - If the expected message authentication code and the received message authentication code are the same, the integrity check is successful.
 - If the calculated expected message authentication code and the received message authentication code differ, the message shall be discarded.

If the UE receives an RRC message on signalling radio bearer with identity n, the "Status" in the variable INTEGRITY_PROTECTION_INFO has the value "Started" and the IE 'Integrity check info' is not present the UE shall discard the message.

8.5.12.2 Integrity protection in uplink

Upon transmitting an RRC message using the signalling radio bearer with radio bearer identity n, and the "Status" in the variable INTEGRITY_PROTECTION_INFO has the value "Started" the UE shall:

- increment "Uplink RRC Message sequence number" for RB#n in the variable INTEGRITY_PROTECTION_INFO with 1. When "Uplink RRC Message sequence number" for RB#n in the variable INTEGRITY_PROTECTION_INFO becomes 0, the UE shall increment "Uplink [RRC](#) HFN" for RB#n in the variable INTEGRITY_PROTECTION_INFO with 1
- calculate the message authentication code in accordance with 8.5.12.3
- replace the "Message authentication code" in the IE "Integrity check info" in the message with the calculated message authentication code.
- replace the "RRC Message sequence number" in the IE "Integrity check info" in the message with contents set to the new value of the "Uplink RRC Message sequence number" for RB#n in the variable INTEGRITY_PROTECTION_INFO

8.5.12.3 Calculation of message authentication code

The UE shall calculate the message authentication code in accordance with 3G TS 33.102. The input parameter MESSAGE (TS 33.102) for the integrity algorithm shall be constructed by:

- setting the "Message authentication code" in the IE "Integrity check info" in the message to the signalling radio bearer identity
- setting the "RRC Message sequence number" in the IE "Integrity check info" in the message to zero
- encoding the message
- appending RRC padding (if any) as a bitstring to the encoded bitstring as the least significant bits

10.2 Radio Resource Control messages

In connected mode, RB 0,1,2, 3 and optionally 4 are available for usage by RRC messages using RLC-TM, RLC-UM and RLC-AM on the DCCH and CCCH. The UE and UTRAN shall select radio bearer for RRC messages using RLC-TM, RLC-UM or RLC-AM on the DCCH and CCCH, according to the following:

- RB 0 shall be used for all messages sent on the CCCH.
- RB 1 shall be used for all messages sent on the DCCH, when using RLC unacknowledged mode (RLC-UM).
- RB 2 shall be used for all messages sent on the DCCH, when using RLC acknowledged mode (RLC-AM), except for the INITIAL DIRECT TRANSFER, DOWNLINK DIRECT TRANSFER and UPLINK DIRECT TRANSFER messages.
- RB 3 or 4 shall be used by the [INITIAL DIRECT TRANSFER \(RB 3\)](#), ~~DOWNLINK DIRECT TRANSFER (RB 3)~~ and UPLINK DIRECT TRANSFER messages sent on the DCCH in RLC acknowledged mode (RLC-AM), as specified in subclause 8.1.8., 8.1.9 and 8.1.10.
- For RRC messages on the DCCH using RLC transparent mode (RLC-TM), the transparent signalling DCCH shall be used.

10.2.4 CELL UPDATE

This message is used by the UE to initiate a cell update procedure.

RLC-SAP: TM

Logical channel: CCCH

Direction: UE→UTRAN

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE information elements				
U-RNTI	MP		U-RNTI 10.3.3.45	
Integrity check info	CH		Integrity check info 10.3.3.15	
START list	MP	1 to <maxCNdo mains>		START [TS 33.102] values for all CN domains.
>CN domain identity	MP		CN domain identity 10.3.1.1	
>START	MP		START 10.3.3.13	START value to be used in this CN domain.
STARTHyper frame number	MP		STARTHyper frame number 10.3.3.13	The START value that is the highest of START values from all CN domains.
AM_RLC error indication(for c-plane)	MP		Boolean	TRUE indicates AM_RLC unrecoverable error occurred on c-plane in the UE
AM_RLC error indication(for u-plane)	MP		Boolean	TRUE indicates AM_RLC unrecoverable error occurred on u-plane in the UE
Cell update cause	MP		Cell update cause 10.3.3.3	
Protocol error indicator	MD		Protocol error indicator 10.3.3.28	Default value is FALSE
Measurement information elements				
Measured results on RACH	OP		Measured results on RACH 10.3.7.70	
Other information elements				
Protocol error information	CV-ProtErr		Protocol error information 10.3.8.10	

Condition	Explanation
<i>ProtErr</i>	If the IE "Protocol error indicator" has the value "TRUE"

10.2.11 HANDOVER TO UTRAN COMPLETE

This message is sent by the UE when a handover to UTRAN has been completed.

RLC-SAP: AM

Logical channel: DCCH

Direction: UE → UTRAN

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
START list	CH	1 to <maxCNdo mains>		START [TS 33.102] values for all CN domains. The IE is mandatory if it has not been transferred prior to the handover.
>CN domain identity	MP		CN domain identity 10.3.1.1	
>START	<u>MPCH</u>		<u>STARTHyper frame number</u> 10.3.3.13	<u>The IE is mandatory if it has not been transferred prior to the handover</u>

10.2.32 RADIO BEARER SETUP COMPLETE

This message is sent by UE to confirm the establishment of the radio bearer.

RLC-SAP: AM

Logical channel: DCCH

Direction: UE → UTRAN

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE information elements				
Integrity check info	CH		Integrity check info 10.3.3.15	
Uplink integrity protection activation info	OP		Integrity protection activation info 10.3.3.16	
CHOICE mode	OP			
>FDD				(no data)
>TDD				
>>Uplink Timing Advance	OP		Uplink Timing Advance 10.3.6.82	This information element shall be present in case of handover procedure. Calculated timing advance value for the new cell after handover in a synchronous TDD network
<u>Hyper frame numberSTART</u>	OP		<u>Hyper frame numberSTART</u> 10.3.3.13	This information element is not needed for transparent mode RBs
RB Information elements				
Radio bearer uplink ciphering activation time info	OP		RB activation time info 10.3.4.10	

10.2.38 RRC CONNECTION RE-ESTABLISHMENT COMPLETE

This message is used by UE to confirm the re-establishment of an RRC connection.

RLC-SAP: AM

Logical channel: DCCH

Direction: UE → UTRAN

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE information elements				
Integrity check info	CH		Integrity check info 10.3.3.15	
Uplink integrity protection activation info	OP		Integrity protection activation info 10.3.3.16	
CHOICE mode	OP			
>FDD				(no data)
>TDD				
>>Uplink Timing Advance	OP		Uplink Timing Advance 10.3.6.82	This information element shall be present in case of handover procedure. Calculated timing advance value for the new cell after handover in a synchronous TDD network
<u>Hyperframe number</u> START	MP		<u>Hyper Frame Number</u> START 10.3.3.13	<u>The START value that is the highest of START values from all CN domains.</u>
RB Information elements				
Radio bearer uplink ciphering activation time info	OP		RB activation time info 10.3.4.10	
RB with PDCP information list	OP	1 to <maxRBall RABs>		This IE is needed for each RB having PDCP in the case of lossless SRNS relocation
>RB with PDCP information	MP		RB with PDCP information 10.3.4.19	

10.2.39 RRC CONNECTION RE-ESTABLISHMENT REQUEST

This message is used by UE to request for the re-establishment of an RRC connection.

RLC-SAP: TM

Logical channel: CCCH

Direction: UE → UTRAN

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE information elements				
U-RNTI	MP		U-RNTI 10.3.3.45	
Integrity check info	CH		Integrity check info 10.3.3.15	
START list	MP	1 to <maxCNdomains>		START [TS 33.102] values for all CN domains.
>CN domain identity	MP		CN domain identity 10.3.1.1	
>START	MP		START 10.3.3.13	START value to be used in this CN domain.
Hyper frame number START	MP		Hyper frame number START 10.3.3.13	The START value that is the highest of START values from all CN domains.
AM_RLC error indication(for C-plane)	MP		Boolean	TRUE indicates AM_RLC unrecoverable error occurred on c-plane in the UE
AM_RLC error indication(for U-plane)	MP		Boolean	TRUE indicates AM_RLC unrecoverable error occurred on u-plane in the UE
Protocol error indicator	MD		Protocol error indicator 10.3.3.28	Default value is FALSE
Measurement information elements				
Measured results on RACH	OP		Measured results on RACH 10.3.7.70	
Other information elements				
Protocol error information	CV-ProtErr		Protocol error information 10.3.8.10	

Condition	Explanation
<i>ProtErr</i>	If the IE "Protocol error indicator" has the value "TRUE"

10.2.44 RRC CONNECTION SETUP

This message is used by the network to accept the establishment of an RRC connection for an UE, including assignment of signalling link information, transport channel information and optionally physical channel information.

RLC-SAP: UM

Logical channel: CCCH

Direction: UTRAN → UE

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE Information Elements				
Initial UE identity	MP		Initial UE identity 10.3.3.14	
Activation time	MD		Activation time 10.3.3.1	Default value is "now"
New U-RNTI	MP		U-RNTI 10.3.3.45	
New C-RNTI	OP		C-RNTI 10.3.3.8	
UTRAN DRX cycle length coefficient	MP		UTRAN DRX cycle length coefficient 10.3.3.47	
Capability update requirement	MD		Capability update requirement 10.3.3.2	Default value is defined in subclause 10.3.3.3
RB Information Elements				
Signalling RB information to setup list	MP	34 to 45		Information for signalling radio bearers, in the order RB 10 up to 4.
>Signalling RB information to setup	MP		Signalling RB information to setup 10.3.4.21	
TrCH Information Elements				
Uplink transport channels				
UL Transport channel information common for all transport channels	OP		UL Transport channel information common for all transport channels 10.3.5.24	
Added or Reconfigured TrCH information list	MP	1 to <maxTrCH >		
>Added or Reconfigured UL TrCH information	MP		Added or Reconfigured UL TrCH information 10.3.5.2	
Downlink transport channels				
DL Transport channel information common for all transport channels	OP		DL Transport channel information common for all transport channels 10.3.5.6	
Added or Reconfigured TrCH information list	MP	1 to <maxTrCH >		
>Added or Reconfigured DL	MP		Added or	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
TrCH information			Reconfigured DL TrCH information 10.3.5.1	
PhyCH information elements				
Frequency info	MD		Frequency info 10.3.6.30	Default value is the existing value of frequency information
Uplink radio resources				
Maximum allowed UL TX power	MD		Maximum allowed UL TX power 10.3.6.33	Default value is the existing maximum UL TX power
CHOICE <i>channel requirement</i>	OP			At least one spare choice (criticality = reject) required
>Uplink DPCH info			Uplink DPCH info 10.3.6.76	
>PRACH Info (for RACH)			PRACH Info (for RACH) 10.3.6.44	
Downlink radio resources				
CHOICE <i>mode</i>	MP			
>FDD				
>>Downlink information common for all radio links	OP		Downlink information common for all radio links 10.3.6.20	
>TDD				(no data)
Downlink information per radio link list	OP	1 to <MaxRL>		Send downlink information for each radio link to be set-up
>Downlink information for each radio link	MP		Downlink information for each radio link 10.3.6.23	

10.2.45 RRC CONNECTION SETUP COMPLETE

This message confirms the establishment of the RRC Connection by the UE.

RLC-SAP: AM

Logical channel: DCCH

Direction: UE → UTRAN

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
START list	MP	1 to <maxCNdo mains>		START [TS 33.102] values for all CN domains.
>CN domain identity	MP		CN domain identity 10.3.1.1	
>START	MP		Hyper frame number START 10.3.3.13	START value to be used in this CN domain.
UE information elements				
UE radio access capability	MP		UE radio access capability 10.3.3.40	
UE system specific capability	OP		Inter-system message 10.3.8.6	

10.2.57 TRANSPORT FORMAT COMBINATION CONTROL

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

RLC-SAP: TM, AM or UM

Logical channel: DCCH

Direction: UTRAN→UE

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Message Type	CV-notTM		Message Type	
UE information elements				
Integrity check info	CH CV-notTM		Integrity check info 10.3.3.15	
TrCH information elements				
DPCH TFCS in uplink	MP		Transport Format Combination subset 10.3.5.22	
TFC Control duration	CV-notTMopt		TFC Control duration 10.3.6.69	

Condition	Explanation
<i>NotTM</i>	The message type is not included when transmitting the message on the transparent mode signalling DCCH
<i>NotTMopt</i>	The information element is not included when transmitting the message on the transparent mode signalling DCCH and is optional otherwise.

If transparent mode signalling is used and the encoded message does not fill a transport block, the RRC layer shall insert padding according to subclause 12.x.

10.3.3.13 STARTHyper Frame Number

~~There is a START value per CN domain. The START hyper frame number (HFN) is used to initialise the 20 MSBs of various hyper frame numbers (MAC-d HFN, RLC UM HFN, RLC AM HFN, RRC HFN) for a CN domain, both COUNT-C and COUNT-I for the ciphering and integrity protection algorithms, respectively.~~

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
<u>START</u> HFN	MP		Bit string (20)	[TS 33.102]Start value for uplink and downlink COUNT-C and COUNT-I. For RBs using RLC transparent mode, zeros should be added, as LSB, to form a HFN of 24 bits. For RLC unacknowledged mode, zeros shall be added, as LSB, to form a HFN of 25 bits. For integrity protection function, zeros shall be added, as LSB to form a HFN of 28 bits.

10.3.3.15 Integrity check info

The Integrity check info contains the RRC message sequence number needed in the calculation of XMAC-I [TS 33.102] and the calculated MAC-I.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Message authentication code	MP		bit string(32)	MAC-I [TS 33.102] <u>The 27 MSB of the IE shall be set to zero and the 5 LSB of the IE shall be set to the used signalling radio bearer identity when the encoded RRC message is used as the MESSAGE parameter in the integrity protection algorithm.</u>
RRC Message sequence number	MP		Integer (0..15)	The local RRC hyper frame number (<u>RRC HFN</u>) is concatenated with the RRC message sequence number to form the input parameter COUNT-I for the integrity protection algorithm. <u>The IE value shall be set to zero when the encoded RRC message is used as the MESSAGE parameter in the integrity protection algorithm.</u>

10.3.3.16 Integrity protection activation info

This IE contains the time, in terms of RRC sequence numbers, when a new integrity protection configuration shall be activated for the signalling radio bearers.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
RRC message sequence number list	MP	4 to 5		The RRC sequence number when a new integrity protection configuration shall be applied, for CCCH(=RB0) and signalling radio bearers in the order RB0, RB1, RB2, RB3, RB4.
>RRC message sequence number	MP		Integer (0..15)	

11.1 General message structure

```

--*****
--
-- Downlink SHCCH messages
--
--*****

DL-SHCCH-Message ::= SEQUENCE {
  integrityCheckInfo IntegrityCheckInfo OPTIONAL,
  message DL-SHCCH-MessageType
}

DL-SHCCH-MessageType ::= CHOICE {
  physicalSharedChannelAllocation PhysicalSharedChannelAllocation,
  extension NULL
}

--*****
--
-- Uplink SHCCH messages
--
--*****

UL-SHCCH-Message ::= SEQUENCE {
  integrityCheckInfo IntegrityCheckInfo OPTIONAL,
  message UL-SHCCH-MessageType
}

UL-SHCCH-MessageType ::= CHOICE {
  puschCapacityRequest PUSCHCapacityRequest,
  extension NULL
}

```

11.2 PDU definitions

```

--*****
--
-- IE parameter types from other modules
--
--*****

IMPORTS

  CN-DomainIdentity,
  CN-InformationInfo,
  FlowIdentifier,
  NAS-Message,
  PagingRecordTypeID,
  ServiceDescriptor,
  SignallingFlowInfoList
FROM CoreNetwork-IEs

  URA-Identity
FROM UTRANMobility-IEs

  ActivationTime,
  C-RNTI,
  CapabilityUpdateRequirement,
  CellUpdateCause,
  CipheringAlgorithm,
  CipheringModeInfo,
  DRX-Indicator,

```

EstablishmentCause,
FailureCauseWithProtErr,
~~HyperFrameNumber,~~
InitialUE-Identity,
IntegrityProtActivationInfo,
IntegrityProtectionModeInfo,
PagingCause,
PagingRecordList,
ProtocolErrorIndicator,
ProtocolErrorIndicatorWithInfo,
Re-EstablishmentTimer,
RedirectionInfo,
RejectionCause,
ReleaseCause,
RRC-MessageTX-Count,
SecurityCapability,
START,
STARTList,
U-RNTI,
U-RNTI-Short,
UE-RadioAccessCapability,
URA-UpdateCause,
UTRAN-DRX-CycleLengthCoefficient,
WaitTime

FROM UserEquipment-IEs

PredefinedConfigIdentity,
RAB-Info,
RAB-InformationSetupList,
RB-ActivationTimeInfo,
RB-ActivationTimeInfoList,
RB-COUNT-C-InformationList,
RB-COUNT-C-MSB-InformationList,
RB-IdentityList,
RB-InformationAffectedList,
RB-InformationReconfigList,
RB-InformationReleaseList,
RB-InformationSetupList,
RB-WithPDCP-InfoList,
SRB-InformationSetupList,
SRB-InformationSetupList2

FROM RadioBearer-IEs

CPCH-SetID,
DL-AddReconfTransChInfo2List,
DL-AddReconfTransChInfoList,
DL-CommonTransChInfo,
DL-DeletedTransChInfoList,
DRAC-StaticInformationList,
TFC-Subset,
UL-AddReconfTransChInfoList,
UL-CommonTransChInfo,
UL-DeletedTransChInfoList

FROM TransportChannel-IEs

AllocationPeriodInfo,
CCTrCH-PowerControlInfo,
ConstantValue,
CPCH-SetInfo,
DL-CommonInformation,
DL-CommonInformationPost,
DL-InformationPerRL,
DL-InformationPerRL-List,
DL-InformationPerRL-ListPost,
DL-DPCH-PowerControlInfo,
DL-OuterLoopControl,
DL-PDSCH-Information,
DPCH-CompressedModeStatusInfo,
FrequencyInfo,
IndividualTS-InterferenceList,
MaxAllowedUL-TX-Power,
PDSCH-Info,
PRACH-RACH-Info,
PrimaryCCPCH-TX-Power,
PUSCH-CapacityAllocationInfo,
RL-AdditionInformationList,
RL-RemovalInformationList,
SSDT-Information,
TFC-ControlDuration,
TimeslotList,
TX-DiversityMode,
UL-ChannelRequirement,
UL-DPCH-Info,
UL-DPCH-InfoPost,
UL-TimingAdvance

FROM PhysicalChannel-IEs

```

AdditionalMeasurementID-List,
EventResults,
MeasuredResults,
MeasuredResultsList,
MeasuredResultsOnRACH,
MeasurementCommand,
MeasurementIdentityNumber,
MeasurementReportingMode,
PrimaryCCPCH-RSCP,
TimeslotListWithISCP,
TrafficVolumeMeasuredResultsList
FROM Measurement-IEs

```

```

BCCH-ModificationInfo,
InterSystemHO-Failure,
InterSystemMessage,
ProtocolErrorInformation,
SegCount,
SegmentIndex,
SFN-Prime,
SIB-Data-fixed,
SIB-Data-variable,
SIB-Type
FROM Other-IEs

```

```

maxSIBsegm
FROM Constant-definitions;

```

```

-- *****
--
-- CELL UPDATE
--
-- *****

```

```

CellUpdate ::= SEQUENCE {
  -- User equipment IEs
  u-RNTI U-RNTI,
  startListHyperFrameNumber STARTListHyperFrameNumber,
  am-RLC-ErrorIndicationC-plane BOOLEAN,
  am-RLC-ErrorIndicationU-plane BOOLEAN,
  cellUpdateCause CellUpdateCause,
  protocolErrorIndicator ProtocolErrorIndicatorWithInfo,
  -- TABULAR: Protocol error information is nested in
  -- ProtocolErrorIndicatorWithInfo.
  -- Measurement IEs
  measuredResultsOnRACH MeasuredResultsOnRACH OPTIONAL,
  -- Extension mechanism for non- release99 information
  nonCriticalExtensions SEQUENCE {} OPTIONAL
}

```

```

-- *****
--
-- HANDOVER TO UTRAN COMPLETE
--
-- *****

```

```

HandoverToUTRANComplete ::= SEQUENCE {
  -- TABULAR: Integrity protection shall not be performed on this message.
  -- User equipment IEs
  -- TABULAR: the IE below is conditional on history.
  startList STARTList OPTIONAL,
  -- Extension mechanism for non- release99 information
  nonCriticalExtensions SEQUENCE {} OPTIONAL
}

```

```

-- *****
--
-- PHYSICAL SHARED CHANNEL ALLOCATION (TDD only)
--
-- *****

```

```

PhysicalSharedChannelAllocation ::= SEQUENCE {
  -- TABULAR: Integrity protection shall not be performed on this message.
  -- User equipment IEs
  c-RNTI C-RNTI OPTIONAL,
  -- Physical channel IEs
  ul-TimingAdvance UL-TimingAdvance OPTIONAL,
  allocationPeriodInfo AllocationPeriodInfo OPTIONAL,
  pusch-CapacityAllocationInfo PUSCH-CapacityAllocationInfo OPTIONAL,
  pdsch-Info PDSCH-Info OPTIONAL,
  timeslotList TimeslotList OPTIONAL,
  -- Extension mechanism for non- release99 information
  nonCriticalExtensions SEQUENCE {} OPTIONAL
}

```



```

}

-- *****
--
-- RADIO BEARER SETUP COMPLETE
--
-- *****

RadioBearerSetupComplete ::= SEQUENCE {
  -- User equipment IEs
  ul-IntegProtActivationInfo      IntegrityProtActivationInfo      OPTIONAL,
  -- TABULAR: UL-TimingAdvance is applicable for TDD mode only.
  ul-TimingAdvance                UL-TimingAdvance                OPTIONAL,
  hyperFrameNumberStart          HyperFrameNumberSTART          OPTIONAL,
  -- Radio bearer IEs
  rb-UL-CiphActivationTimeInfo    RB-ActivationTimeInfo          OPTIONAL,
  -- Extension mechanism for non- release99 information
  nonCriticalExtensions            SEQUENCE {}                  OPTIONAL
}

-- *****
--
-- RRC CONNECTION RE-ESTABLISHMENT COMPLETE
--
-- *****

RRCConnectionReEstablishmentComplete ::= SEQUENCE {
  -- User equipment IEs
  ul-IntegProtActivationInfo      IntegrityProtActivationInfo      OPTIONAL,
  -- TABULAR: UL-TimingAdvance is applicable for TDD mode only.
  ul-TimingAdvance                UL-TimingAdvance                OPTIONAL,
  hyperFrameNumberStart          HyperFrameNumberSTART,
  -- Radio bearer IEs
  rb-UL-CiphActivationTimeInfo    RB-ActivationTimeInfo          OPTIONAL,
  rb-WithPDCP-InfoList            RB-WithPDCP-InfoList          OPTIONAL,
  -- Extension mechanism for non- release99 information
  nonCriticalExtensions            SEQUENCE {}                  OPTIONAL
}

-- *****
--
-- RRC CONNECTION RE-ESTABLISHMENT REQUEST
--
-- *****

RRCConnectionReEstablishmentRequest ::= SEQUENCE {
  -- User equipment IEs
  u-RNTI                          U-RNTI,
  hyperFrameNumberStartList      HyperFrameNumberSTARTList,
  am-RLC-ErrorIndicationC-plane    BOOLEAN,
  am-RLC-ErrorIndicationU-plane    BOOLEAN,
  protocolErrorIndicator            ProtocolErrorIndicatorWithInfo,
  -- TABULAR: The IE above is MD in tabular, but making a 2-way choice
  -- optional wastes one bit (using PER) and produces no additional
  -- information.
  -- Measurement IEs
  measuredResultsOnRACH            MeasuredResultsOnRACH          OPTIONAL,
  -- Extension mechanism for non- release99 information
  nonCriticalExtensions            SEQUENCE {}                  OPTIONAL
}

-- *****
--
-- RRC CONNECTION REJECT
--
-- *****

RRCConnectionReject ::= SEQUENCE {
  -- TABULAR: Integrity protection shall not be performed on this message.
  -- User equipment IEs
  initialUE-Identity              InitialUE-Identity,
  rejectionCause                  RejectionCause,
  waitTime                        WaitTime,
  redirectionInfo                 RedirectionInfo                OPTIONAL,
  -- Extension mechanism for non- release99 information
  criticalExtension                SEQUENCE {}                  OPTIONAL,
  nonCriticalExtensions            SEQUENCE {}                  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      ProtocolErrorIndicator,
  -- The IE above is MD, but for compactness reasons no default value
  -- has been assigned to it.
  -- Measurement IEs
    measuredResultsOnRACH       MeasuredResultsOnRACH          OPTIONAL,
  -- Extension mechanism for non- release99 information
    nonCriticalExtensions       SEQUENCE {}                    OPTIONAL
}

```

-- *****

-- RRC CONNECTION SETUP

-- *****

```
RRCCONNECTIONSETUP ::= SEQUENCE {
  -- TABULAR: Integrity protection shall not be performed on this message.
  -- User equipment IEs
    initialUE-Identity          InitialUE-Identity,
    activationTime              ActivationTime                OPTIONAL,
    new-U-RNTI                  U-RNTI,
    new-c-RNTI                  C-RNTI                    OPTIONAL,
    utran-DRX-CycleLengthCoeff  UTRAN-DRX-CycleLengthCoefficient,
    capabilityUpdateRequirement CapabilityUpdateRequirement  OPTIONAL,
  -- TABULAR: If the IE is not present, the default value defined in 10.3.3.2 shall
  -- be used.
  -- Radio bearer IEs
    srb-InformationSetupList    SRB-InformationSetupList2,
  -- Transport channel IEs
    ul-CommonTransChInfo       UL-CommonTransChInfo          OPTIONAL,
    ul-AddReconfTransChInfoList UL-AddReconfTransChInfoList,
    dl-CommonTransChInfo       DL-CommonTransChInfo          OPTIONAL,
    dl-AddReconfTransChInfoList DL-AddReconfTransChInfoList,
  -- Physical channel IEs
    frequencyInfo              FrequencyInfo                OPTIONAL,
    maxAllowedUL-TX-Power       MaxAllowedUL-TX-Power      OPTIONAL,
    ul-ChannelRequirement       UL-ChannelRequirement      OPTIONAL,
    modeSpecificInfo            CHOICE {
      fdd                       SEQUENCE {
        dl-CommonInformation    DL-CommonInformation      OPTIONAL
      },
      tdd                       NULL
    },
    dl-InformationPerRL-List     DL-InformationPerRL-List    OPTIONAL,
  -- Extension mechanism for non- release99 information
    criticalExtension            SEQUENCE {}                    OPTIONAL,
    nonCriticalExtensions        SEQUENCE {}                    OPTIONAL
}

```

-- *****

-- RRC CONNECTION SETUP COMPLETE

-- *****

```
RRCCONNECTIONSETUPCOMPLETE ::= SEQUENCE {
  -- TABULAR: Integrity protection shall not be performed on this message.
  -- User equipment IEs
    startList                   STARTList,
    ue-RadioAccessCapability    UE-RadioAccessCapability,
    ue-SystemSpecificCapability InterSystemMessage          OPTIONAL,
  -- Extension mechanism for non- release99 information
    nonCriticalExtensions        SEQUENCE {}                    OPTIONAL
}

```

-- *****

-- SECURITY MODE COMMAND

-- *****

```
SECURITYMODECOMMAND ::= SEQUENCE {
  -- TABULAR: Integrity protection shall always be performed on this message.
  -- User equipment IEs
    cipheringAlgorithm          SecurityCapability,
    cipheringModeInfo           CipheringModeInfo          OPTIONAL,
    integrityProtectionModeInfo IntegrityProtectionModeInfo  OPTIONAL,
  -- Core network IEs

```

```

        cn-DomainIdentity          CN-DomainIdentity,
-- Extension mechanism for non- release99 information
        criticalExtensions          SEQUENCE {}                OPTIONAL,
        nonCriticalExtensions       SEQUENCE {}                OPTIONAL
    }

-- *****
--
-- SECURITY MODE COMPLETE
--
-- *****

SecurityModeComplete ::= SEQUENCE {
-- TABULAR: Integrity protection shall always be performed on this message.
-- User equipment IEs
        ul-IntegProtActivationInfo  IntegrityProtActivationInfo  OPTIONAL,
-- Radio bearer IEs
        rb-UL-CiphActivationTimeInfo  RB-ActivationTimeInfoList  OPTIONAL,
-- Extension mechanism for non- release99 information
        nonCriticalExtensions       SEQUENCE {}                OPTIONAL
    }

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

TransportFormatCombinationControl ::= SEQUENCE {
-- TABULAR: Integrity protection shall not be performed on this message when transmitting this message
-- on the transparent mode signalling DCCH.
        dpch-TFCS-InUplink          TFC-Subset,
        tfc-ControlDuration          TFC-ControlDuration          OPTIONAL,
-- The information element is not included when transmitting the message
-- on the transparent mode signalling DCCH and is optional otherwise
-- Extension mechanism for non- release99 information
        nonCriticalExtensions       SEQUENCE {}                OPTIONAL
    }

```

11.3.3 User equipment information elements

```

| STARTHyperFrameNumber ::= BIT STRING (SIZE (20))

```

```

STARTSingle ::= SEQUENCE {
    cn-DomainIdentity          CN-DomainIdentity,
|   startValue                HyperFrameNumberSTART
}

```

11.3.4 Radio bearer information elements

```

| SRB-InformationSetupList2 ::= SEQUENCE (SIZE (34..45)) OF
                                SRB-InformationSetup

```

11.5 RRC information between network nodes

IMPORTS

```

    HandoverToUTRANCommand,
    MeasurementReport,
    PhysicalChannelReconfiguration,
    RadioBearerReconfiguration,
    RadioBearerRelease,
    RadioBearerSetup,
    TransportChannelReconfiguration,
    UECapabilityInformation
FROM PDU-definitions

    CN-DomainInformationList,
    NAS-SystemInformationGSM-MAP
FROM CoreNetwork-IEs

```

```
CellIdentity,
URA-Identity
FROM UTRANMobility-IEs
```

```
C-RNTI,
HyperFrameNumber,
RRC-MessageSequenceNumber,
START,
U-RNTI,
UE-RadioAccessCapability
FROM UserEquipment-IEs
```

```
PDCP-InfoReconfig,
RAB-Info,
RB-Identity,
RB-MappingInfo,
RLC-Info,
RLC-SequenceNumber,
SRB-InformationSetup
FROM RadioBearer-IEs
```

```
TFC-Subset,
TFCS,
TransportChannelIdentity,
TransportFormatSet
FROM TransportChannel-IEs
```

```
MeasurementIdentityNumber,
MeasurementReportingMode,
MeasurementType,
AdditionalMeasurementID-List
FROM Measurement-IEs
```

```
InterSystemMessage
FROM Other-IEs
```

```
maxNoOfMeas,
maxRABsetup,
maxRB,
maxSRBsetup,
maxTrCH
FROM Constant-definitions;
```

```
CipheringInfoPerRB ::= SEQUENCE {
  dl-STARTHPFN STARTHyperFrameNumber,
  ul-STARTHPFN STARTHyperFrameNumber,
  dl-RLC-SequenceNumber RLC-SequenceNumber,
  ul-RLC-SequenceNumber RLC-SequenceNumber
}
```

```
**TODO** Upper limit N316 is undefined! An arbitrary upper limit of
7 has been used here instead.
IntegrityProtectionFailureCount ::= INTEGER (0..7)
```

```
-- *****
--
-- Source RNC to target RNC
--
-- *****
```

```
SourceRNCToTargetRNC ::= SEQUENCE {
  -- Non-RRC IEs
  stateOfRRC StateOfRRC,
  stateOfRRC-Procedure StateOfRRC-Procedure,
  cipheringStatus CipheringStatus,
  calculationTimeForCiphering CalculationTimeForCiphering OPTIONAL,
  cipheringInfoPerRB-List CipheringInfoPerRB-List OPTIONAL,
  integrityProtectionStatus IntegrityProtectionStatus,
  integrityProtectionFailureCount IntegrityProtectionFailureCount,
  srb-SpecificIntegrityProtInfo SRB-SpecificIntegrityProtInfoList,
  implementationSpecificParams ImplementationSpecificParams OPTIONAL,
  -- User equipment IEs
  u-RNTI U-RNTI,
  c-RNTI C-RNTI OPTIONAL,
  ue-RadioAccessCapability UE-RadioAccessCapability,
  -- Other IEs
  interSystemMessage InterSystemMessage 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
  srb-InformationList         SRB-InformationList,
  rab-InformationList         RAB-InformationList          OPTIONAL,
-- Transport channel IEs
  ul-DCH-TFCS                 TFCS                 OPTIONAL,
  dl-DCH-TFCS                 TFCS                 OPTIONAL,
  ul-DCH-TFC-Subset          TFC-Subset          OPTIONAL,
  usch-TFCS                   TFCS                 OPTIONAL,
  dsch-TFCS                   TFCS                 OPTIONAL,
  usch-TFC-Subset            TFC-Subset          OPTIONAL,
  ul-TransChInfoList         TransChInfoList     OPTIONAL,
  dl-TransChInfoList         TransChInfoList     OPTIONAL,
-- Measurement report
  measurementReport           MeasurementReport    OPTIONAL
}

```

```

SRB-SpecificIntegrityProtInfo ::= SEQUENCE {
  ul-RRC-HFN                  HyperFrameNumberBIT STRING (SIZE (28)),
  dl-RRC-HFN                  HyperFrameNumberBIT STRING (SIZE (28)),
  ul-RRC-SequenceNumber      RRC-MessageSequenceNumber,
  dl-RRC-SequenceNumber      RRC-MessageSequenceNumber
}

```

13.4.4 INTEGRITY_PROTECTION_INFO

This variable contains information about the current status of the integrity protection in the UE.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Status	MP		Enumerated (Not started, Started)	
Signalling radio bearer specific integrity protection information	MP	1 to <maxSRBsetup>		Status information for RB#0-4 in that order
> Uplink RRC-HFN	MP		Bitstring (28)Hyper frame number 10.3.3.13	
> Downlink RRC-HFN	MP		Bitstring (28)Hyper frame number 10.3.3.13	
> Uplink RRC Message sequence number	MP		Integer (0..15)	
> Downlink RRC Message sequence number	MP		Integer (0..15)	

14.10.1 RRC Initialisation Information, source RNC to target RNC

When relocation of SRNS is decided to be executed, the RRC shall build the state information, which contains the RRC, RLC and MAC related RRC message information elements, which currently specify the state of the RRC including the radio bearer and transport channel configuration. This "RRC initialisation information, source RNC to target RNC" shall be sent by the source RNC to the target RNC to enable transparent relocation of the RRC and lower layer protocols. Correspondingly, the RRC in the target RNC shall receive the "RRC initialisation information, source RNC to target RNC" and update its state parameters accordingly to facilitate a transparent relocation of SRNS for the UE.

Information Element/Group Name	Need	Multi	Type and reference	Semantics description
Non RRC IEs				
State of RRC	MP		Enumerated (CELL_DCH, CELL_FACH, CELL_PCH, URA_PCH)	
State of RRC procedure	MP		Enumerated (await no RRC message, await RRC Connection Re-establishment Complete, await RB Setup Complete, await RB Reconfiguration Complete, await RB Release Complete, await Transport CH Reconfiguration Complete, await Physical CH Reconfiguration Complete, await Active Set Update Complete, await Handover Complete, others)	
Ciphering related information				
Ciphering status	MP		Enumerated(Not started, Started)	
Calculation time for ciphering related information	CV <i>Ciphering</i>			Time when the ciphering information of the message were calculated, relative to a cell of the target RNC
>Cell Identity	MP		Cell Identity 10.3.2.2	Identity of one of the cells under the target RNC and included in the active set of the current call
>SFN	MP		Integer(0..4095)	
Ciphering info per radio bearer	OP	1 to <maxRB >		
>RB identity	MP		RB identity 10.3.4.13	
>Downlink STARTFN	MP		Hyperframe number START 10.3.3.13	
>Uplink STARTFN	MP		Hyperframe number START 10.3.3.13	
Integrity protection related information				
Integrity protection status	MP		Enumerated(Not started, Started)	
Integrity protection failure count	MP		Integer(0..N316)	
Signalling radio bearer specific integrity protection information	CV <i>IP</i>	4 to <maxSR Bsetup>		Status information for RB#0-4 in that order
> Uplink RRC.HFN	MP		Bitstring (28) Hyperframe number 10.3.3.13	
> Downlink RRC.HFN	MP		Bitstring (28) Hyperframe number 10.3.3.13	
> Uplink RRC Message sequence number	MP		Integer (0..15)	
> Downlink RRC Message sequence number	MP		Integer (0..15)	
Implementation specific parameters	OP		Bitstring (1..512)	
RRC IEs				

Information Element/Group Name	Need	Multi	Type and reference	Semantics description
UE Information elements				
U-RNTI	MP		U-RNTI 10.3.3.45	
C-RNTI	OP		C-RNTI 10.3.3.8	
UE radio access Capability	MP		UE radio access capability 10.3.3.40	
Other Information elements				
Inter System message (inter system classmark)	OP		Inter-system message 10.8.6	
UTRAN Mobility Information elements				
URA Identifier	OP		URA identity 10.3.2.6	
CN Information Elements				
CN common GSM-MAP NAS system information	MP		NAS system information (GSM-MAP) 10.3.1.9	
CN domain related information	OP	1 to <MaxCN domains >		CN related information to be provided for each CN domain
>CN domain identity	MP			
>CN domain specific GSM-MAP NAS system info	MP		NAS system information (GSM-MAP) 10.3.1.9	
Measurement Related Information elements				
For each ongoing measurement reporting	OP	1 to <MaxNo OfMeas>		
>Measurement Identity Number	MP		Measurement identity number 10.3.7.73	
>Measurement Command	MP		Measurement command 10.3.7.71	
>Measurement Type	CV Setup		Measurement type 10.3.7.75	
>Measurement Reporting Mode	OP		Measurement reporting mode 10.3.7.74	
>Additional Measurements list	OP		Additional measurements list 10.3.7.1	
>CHOICE Measurement				
>>Intra-frequency				
>>>Intra-frequency cell info	OP		Intra-frequency cell info list 10.3.7.33	
>>>Intra-frequency measurement quantity	OP		Intra-frequency measurement quantity 10.3.7.38	
>>>Intra-frequency reporting quantity	OP		Intra-frequency reporting quantity 10.3.7.41	
>>>Reporting cell status	OP		Reporting cell status 10.3.7.86	
>>>Measurement validity	OP		Measurement validity 10.3.7.76	
>>>CHOICE report criteria				
>>>>Intra-frequency measurement reporting criteria			Intra-frequency measurement reporting criteria 10.3.7.39	
>>>>Periodical reporting			Periodical reporting criteria 10.3.7.78	
>>>>No reporting			NULL	

Information Element/Group Name	Need	Multi	Type and reference	Semantics description
>>Inter-frequency				
>>>Inter-frequency cell info	OP		Inter-frequency cell info list 10.3.7.13	
>>>Inter-frequency measurement quantity	OP		Inter-frequency measurement quantity 10.3.7.18	
>>>Inter-frequency reporting quantity	OP		Inter-frequency reporting quantity 10.3.7.21	
>>>Reporting cell status	OP		Reporting cell status 10.3.7.86	
>>>Measurement validity	OP		Measurement validity 10.3.7.76	
>>> CHOICE report criteria	OP			
>>>>Inter-frequency measurement reporting criteria			Inter-frequency measurement reporting criteria 10.3.7.19	
>>>>Periodical reporting			Periodical reporting criteria 10.3.7.78	
>>>>No reporting			NULL	
>>Inter-system				
>>>Inter-system cell info	OP		Inter-system cell info list 10.3.7.23	
>>>Inter-system measurement quantity	OP		Inter-system measurement quantity 10.3.7.29	
>>>Inter-system reporting quantity	OP		Inter-system reporting quantity 10.3.7.32	
>>>Reporting cell status	OP		Reporting cell status 10.3.7.86	
>>>Measurement validity	OP		Measurement validity 10.3.7.76	
>>> CHOICE report criteria	OP			
>>>>Inter-system measurement reporting criteria			Inter-system measurement reporting criteria 10.3.7.30	
>>>>Periodical reporting			Periodical reporting criteria 10.3.7.78	
>>>>No reporting			NULL	
>>Traffic Volume				
>>>Traffic volume measurement Object	OP		Traffic volume measurement object 10.3.7.95	
>>>Traffic volume measurement quantity	OP		Traffic volume measurement quantity 10.3.7.96	
>>>Traffic volume reporting quantity	OP		Traffic volume reporting quantity 10.3.7.99	
>>> CHOICE report criteria	OP			
>>>>Traffic volume measurement reporting criteria			Traffic volume measurement reporting criteria 10.3.7.97	
>>>>Periodical reporting			Periodical reporting criteria 10.3.7.78	
>>>>No reporting			NULL	
>>Quality				
>>>Quality measurement Object	OP		Quality measurement object	
>>>Quality measurement quantity	OP		Quality measurement quantity	
>>>Quality reporting quantity	OP		Quality reporting quantity	

Information Element/Group Name	Need	Multi	Type and reference	Semantics description
			10.3.7.84	
>>>CHOICE report criteria	OP			
>>>>Quality measurement reporting criteria			Quality measurement reporting criteria 10.3.7.83	
>>>>Periodical reporting			Periodical reporting criteria 10.3.7.78	
>>>>No reporting			NULL	
>>UE internal				
>>>UE internal measurement quantity	OP		UE internal measurement quantity 10.3.7.104	
>>>UE internal reporting quantity	OP		UE internal reporting quantity 10.3.7.107	
>>>CHOICE report criteria	OP			
>>>>UE internal measurement reporting criteria			UE internal measurement reporting criteria 10.3.7.105	
>>>>Periodical reporting			Periodical reporting criteria 10.3.7.78	
>>>>No reporting			NULL	
Radio Bearer Information Elements				
Signalling radio bearer information	MP	4 to <maxSR Bsetup>		For each signalling radio bearer
>RB identity	MP		RB identity 10.3.4.13	
>RLC info	MP		RLC info 10.3.4.20	
>RB mapping info	MP		RB mapping info 10.3.4.18	
RAB information	OP	1 to <maxRA Bsetup>		Information for each RAB
>RAB info	MP		RAB info 10.3.4.8	
>For each Radio Bearer	OP	1 to <maxRB >		Information for each radio bearer belonging to this RAB
>>RB Identity	MP		RB identity 10.3.4.13	
>>RLC Info	MP		RLC info 10.3.4.20	
>>PDCP Info	OP		PDCP info 10.3.4.2	Absent if PDCP is not configured for RB
>>PDCP SN Info	CV PDCP		PDCP SN info 10.3.4.3	
>>RB mapping info	MP		RB mapping info 10.3.4.18	
Transport Channel Information Elements				
TFCS (UL DCHs)	OP		Transport format combination set 10.3.5.20	
TFCS (DL DCHs)	OP		Transport format combination set 10.3.5.20	
TFC subset (UL DCHs)	OP		Transport format combination subset 10.3.5.22	
TFCS (USCHs)	OP		Transport format combination set 10.3.5.20	
TFCS (DSCHs)	OP		Transport format combination set	

Information Element/Group Name	Need	Multi	Type and reference	Semantics description
			10.3.5.20	
TFC subset (USCHs)	OP		Transport format combination subset 10.3.5.22	
Uplink transport channels				
For each uplink transport channel	OP	1 to <MaxTrCH>		
>Transport channel identity	MP		Transport channel identity 10.3.5.18	
>TFS	MP		Transport format set 10.3.5.23	
Downlink transport channels				
For each downlink transport channel	OP	1 to <MaxTrCH>		
>Transport channel identity	MP		Transport channel identity 10.3.5.18	
>TFS	MP		Transport format set 10.3.5.23	
Measurement report	OP		MEASUREMENT REPORT 10.2.17	

Multi Bound	Explanation
MaxNoOfMeas	Maximum number of active measurements, upper limit 16

Condition	Explanation
<i>Setup</i>	The IE is mandatory when the IE Measurement command has the value "Setup", otherwise the IE is not needed.
<i>Ciphering</i>	The IE is mandatory when the IE Ciphering Status has the value "started" and the ciphering counters need not be reinitialised, otherwise the IE is not needed.
<i>IP</i>	The IE is mandatory when the IE Integrity protection status has the value "started" and the ciphering counters need not be reinitialised, otherwise the IE is not needed.
<i>PDCP</i>	The IE is mandatory when the PDCP Info IE is present, otherwise the IE is not needed.

14.10.2 RRC initialisation information, source system to target RNC

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE RRC message	MP			
>UE CAPABILITY INFORMATION			UE CAPABILITY INFORMATION 10.2.60	NOTE: is assumed to contain HFNs as well. At least one spare value with criticality:reject is needed.

NOTE: Other information, such as a list of predefined configurations in the source system, is FFS.

14.13.2.2 UE security information

Upon receiving a UE information request from another system, the UE shall indicate the requested security information. The UE security information includes the following RRC information.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
UE information elements				
START list	MP	1 to <MaxCNdomains>		START [TS 33.102] values for all CN domains
>CN domain identity	MP		CN domain identity 10.3.1.1	
>START	MP		Hyper frame number <u>START</u> 10.3.3.13	START values to be used in this CN domain.

CHANGE REQUEST

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

25.331 CR 439

Current Version: **3.3.0**

GSM (AA.BB) or 3G (AA.BBB) specification number ↑

↑ CR number as allocated by MCC support team

For submission to: **TSG-RAN #9**

list expected approval meeting # here ↑

for approval
for information

strategic
non-strategic (for SMG use only)

Form: CR cover sheet, version 2 for 3GPP and SMG

The latest version of this form is available from: <ftp://ftp.3gpp.org/Information/CR-Form-v2.doc>

Proposed change affects:
(at least one should be marked with an X)

(U)SIM ME UTRAN / Radio Core Network

Source: TSG-RAN WG2 **Date:** 2000-06-30

Subject: Editorial correction to RB mapping info

Work item:

Category: F Correction
A Corresponds to a correction in an earlier release
B Addition of feature
C Functional modification of feature
D Editorial modification
(only one category shall be marked with an X)

Release: Phase 2
Release 96
Release 97
Release 98
Release 99
Release 00

Reason for change: The uplink logical channel mapping indicator field is unnecessarily repeated. This field has been moved one level higher where it will not be repeated.

Clauses affected: 10.3.4.18, 11.3.4

Other specs affected:

Other 3G core specifications	<input type="checkbox"/>	→ List of CRs:	
Other GSM core specifications	<input type="checkbox"/>	→ List of CRs:	
MS test specifications	<input type="checkbox"/>	→ List of CRs:	
BSS test specifications	<input type="checkbox"/>	→ List of CRs:	
O&M specifications	<input type="checkbox"/>	→ List of CRs:	

Other comments:



help.doc

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

10.3.4.18 RB mapping info

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

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Information for each multiplexing option	MP	1 to <maxRBMUXOptions>		
>RLC logical channel mapping indicator	CV-UL-RLCLogicalChannels		Boolean	TRUE indicates that the first logical channel shall be used for data PDUs and the second logical channel shall be used for control PDUs. FALSE indicates that control and data PDUs can be sent on either of the two logical channels.
>Number of RLC logical channels	CV-UL-RLC info	1 to MaxLoCHperRLC		1 or 2 logical channels per RLC entity or radio bearer RLC [TS 25.322]
>>RLC logical channel mapping indicator	CV-UL-RLCLogicalChannels		Boolean	TRUE indicates that the first logical channel shall be used for data PDUs and the second logical channel shall be used for control PDUs. FALSE indicates that control and data PDUs can be sent on either of the two logical channels.
>>Uplink transport channel type	MP		Enumerated(DCH,RACH,CPCH,USCH)	CPCH is FDD only USCH is TDD only
>>ULTransport channel identity	CV-UL-DCH		Transport channel identity 10.3.5.18	This is the ID of a DCH that this RB could be mapped onto.
>>Logical channel identity	OP		Integer(1..15)	This parameter is used to distinguish logical channels multiplexed by MAC on a transport channel.
>>MAC logical channel priority	MP		Integer(1..8)	This is priority between a user's different RBs (or logical channels). [25.321]
>>Logical channel max loss	MD		Integer(0,5,10,15,20,25,30,35,40,45,50,55,60,65,70,75,80,85,90,95,100)	The maximum fraction of transport blocks (in percent) that may be blocked for transmission in favour of lower priority data [25.321]. Default value is 0.
>Number of RLC logical channels	CV-DL-RLC info	1 to 2MaxLoCHperRLC		1 or 2 logical channels per RLC entity or radio bearer RLC [TS 25.322]
>>Downlink transport channel type	MP		Enumerated(DCH,FACH,DSCH)	
>>DL Transport channel identity	CV-DL-DCH/DSCH		Transport channel identity 10.3.5.18	
>>Logical channel identity	OP		Integer(1..15)	16 is reserved

Condition	Explanation
UL-RLC info	If "CHOICE Uplink RLC mode" in IE "RLC info" is present this IE is MP. Otherwise the IE is not needed.
DL-RLC info	If "CHOICE Downlink RLC mode" in IE "RLC info" is present this IE is MP. Otherwise the IE is not needed.
UL-RLCLogicalChannels	If "Number of RLC logical channels" in IE "RB mapping info" is 2, in the uplink, then this is present. Otherwise this IE is not needed.
UL-DCH	If IE "Uplink transport channel type" is equal to "DCH" this IE is MP. Otherwise the IE is not needed.
DL-DCH/DSCH	If IE "Downlink transport channel type" is equal to "DCH" or "DSCH" this IE is MP. Otherwise the IE is not needed.

11.3.4 Radio bearer information elements

```

RB-MappingOption ::=
    SEQUENCE {
        ul-LogicalChannelMappings      UL-LogicalChannelMappings      OPTIONAL,
        dl-LogicalChannelMappingList   DL-LogicalChannelMappingList   OPTIONAL
    }

UL-LogicalChannelMapping ::=
    SEQUENCE {
        -- TABULAR: UL-TransportChannelType contains TransportChannelIdentity as well.
        ul-TransportChannelType        UL-TransportChannelType,
        logicalChannelIdentity          LogicalChannelIdentity          OPTIONAL,
        mac-LogicalChannelPriority       MAC-LogicalChannelPriority,
        logicalChannelMaxLoss           LogicalChannelMaxLoss           DEFAULT lcm0
    }

UL-LogicalChannelMapping2 ::=
    SEQUENCE {
        rlc-LogicalChannelMappingIndicator BOOLEAN,
        -- TABULAR: UL-TransportChannelType contains TransportChannelIdentity as well.
        ul-TransportChannelType        UL-TransportChannelType,
        logicalChannelIdentity          LogicalChannelIdentity          OPTIONAL,
        mac-LogicalChannelPriority       MAC-LogicalChannelPriority,
        logicalChannelMaxLoss           LogicalChannelMaxLoss           DEFAULT lcm0
    }

UL-LogicalChannelMappingList ::=
    SEQUENCE {
        rlc-LogicalChannelMappingIndicator BOOLEAN,
        SEQUENCE (SIZE (maxLoChperRLC)) OF
        UL-LogicalChannelMapping2
    }

UL-LogicalChannelMappings ::=
    CHOICE {
        oneLogicalChannel      UL-LogicalChannelMapping,
        twoLogicalChannels     UL-LogicalChannelMappingList
    }

```

CHANGE REQUEST

25.331 CR 440r1

Current Version: 3.3.0

For submission to: TSG-RAN #9 for approval strategic
for information non-strategic

Proposed change affects: (U)SIM ME UTRAN / Radio Core Network

Source: TSG-RAN WG2 **Date:** 06.07.2000

Subject: Compressed Mode Configuration Failure

Work item:

Category:	F Correction	<input checked="" type="checkbox"/>	Release:	Phase 2	<input type="checkbox"/>
	A Corresponds to a correction in an earlier release	<input type="checkbox"/>		Release 96	<input type="checkbox"/>
	B Addition of feature	<input type="checkbox"/>		Release 97	<input type="checkbox"/>
	C Functional modification of feature	<input type="checkbox"/>		Release 98	<input type="checkbox"/>
	D Editorial modification	<input type="checkbox"/>		Release 99	<input checked="" type="checkbox"/>
				Release 00	<input type="checkbox"/>

Reason for change:

The compressed mode configuration overlap check, which was approved in the last meeting, requires intensive processing in the UE and, especially in some random pattern configurations, will introduce a considerable delay to the completion of the configuration procedure. It is therefore, more sensible to omit the overlap check at the beginning of a channel configuration procedure and to introduce a runtime error handling procedure instead. The PHYSICAL CHANNEL RECONFIGURATION FAILURE message is used for this purpose.

In case the UE detects a TGPS overlap in the same frame in runtime operation, it shall terminate and delete the TGPS associated with the highest TGPSI. It shall then signal a physical channel reconfiguration failure to the UTRAN indicating the deleted TGPSI.

An editorial correction to remove the obsolete UL compressed mode method "none" is also presented. This reason is not needed, because TGPSs are now activated with an explicit activation/deactivation flag.

The unacceptable configuration is renamed to unsupported configuration in several error handling procedures and in the failure cause IE.

The failure cause 'compressed mode runtime error' is added to the failure cause IE.

The UNACCEPTABLE_CONFIGURATION variable is renamed to COMPRESSED_MODE_ERROR

Some editorial mistakes in the text of section 8.2 are also corrected.

Clauses affected: 8.2, 8.2.1.4, 8.2.2.6, 8.2.3.4, 8.2.4.6, 8.2.6.6, 8.2.6.11, 8.5.7.6.14, 10.3.3.12, 10.3.6, 10.3.6.27, 11.3.3, 11.3.6, 13.4.15

Other specs Other 3G core specifications → List of CRs:

affected:

Other GSM core specifications

→ List of CRs:

MS test specifications

→ List of CRs:

BSS test specifications

→ List of CRs:

O&M specifications

→ List of CRs:

Other comments:

8.2.1.4 Unsupported ~~or unacceptable~~ configuration in the UE

If UTRAN instructs the UE to use a configuration, which it does not support ~~or if the variable~~ ~~UNACCEPTABLE_CONFIGURATION is set to TRUE,~~ the UE shall transmit a RADIO BEARER SETUP FAILURE message on the DCCH using AM RLC and set the IE "failure cause" the cause value "configuration ~~un~~supported~~acceptable~~". If the radio bearer setup procedure affects several radio bearers, the UE may include the identities of the radio bearers for which the procedure would have been successful into the RADIO BEARER SETUP FAILURE message.

When the transmission of the RADIO BEARER SETUP FAILURE message has been confirmed by RLC, the UE shall resume data transmission on RB 3 and upwards if RLC-AM or RLC-UM is used on those radio bearers, the UE shall clear the variable ORDERED_CONFIG and the procedure ends.

8.2.2.6 Unsupported ~~or unacceptable~~ configuration in the UE

If the UTRAN instructs the UE to use a configuration, which it does not support ~~or if the variable~~ ~~UNACCEPTABLE_CONFIGURATION is set to TRUE~~, the UE shall:

- transmit a RADIO BEARER RECONFIGURATION FAILURE message on the DCCH using AM RLC;
- set the cause value in IE "failure cause" to "configuration un~~supported~~~~acceptable~~";
- if the radio bearer reconfiguration procedure affects several radio bearers, the UE may include the identities of the radio bearers for which the procedure would have been successful into the RADIO BEARER RECONFIGURATION FAILURE message.

When the transmission of the RADIO BEARER RECONFIGURATION FAILURE message has been confirmed by RLC, the UE shall clear the variable ORDERED_CONFIG and the UE shall resume data transmission on RB 3 and upwards if RLC-AM or RLC-UM is used on those radio bearers. It shall resume the normal operation as if no radio bearer reconfiguration attempt had occurred and the procedure ends.

8.2.3.4 Unsupported ~~or unacceptable~~ configuration in the UE

If UTRAN instructs the UE to use a configuration, which it does not support ~~or if the variable~~ ~~UNACCEPTABLE_CONFIGURATION is set to TRUE,~~ the UE shall Transmit a RADIO BEARER RELEASE FAILURE message on the DCCH using AM RLC and set the value of the IE "failure cause" to "configuration ~~unsupported~~ ~~acceptable~~". If the radio bearer release procedure affects several radio bearers, the UE may include the identities of the radio bearers for which the procedure would have been succesful into the RADIO BEARER RELEASE FAILURE message.

When the transmission of the RADIO BEARER RELEASE FAILURE message has been confirmed by RLC, the UE shall clear the variable ORDERED_CONFIG and the UE shall resume data transmission on RB 3 and upwards if RLC-AM or RLC-UM is used on those radio bearers. The procedure ends.

8.2.4.6 Unsupported ~~or unacceptable~~ configuration in the UE

If the UTRAN instructs the UE to use a configuration, which it does not support ~~or if the variable UNACCEPTABLE_CONFIGURATION is set to TRUE~~, the UE shall:

- transmit a TRANSPORT CHANNEL RECONFIGURATION FAILURE message on the DCCH using AM RLC and set the cause value in IE "Failure Cause" to "configuration un~~supported~~acceptable".

When the transmission of the TRANSPORT CHANNEL RECONFIGURATION FAILURE message has been confirmed by RLC, the UE shall clear the variable ORDERED_CONFIG, the UE shall resume data transmission on RB 3 and upwards if RLC-AM or RLC-UM is used on those radio bearers and the procedure ends.

8.2.6.6 Unsupported ~~or unacceptable~~ configuration in the UE

If the UTRAN instructs the UE to use a configuration, which it does not support ~~or if the variable~~
~~UNACCEPTABLE_CONFIGURATION is set to TRUE~~, the UE shall

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

When the transmission of the PHYSICAL CHANNEL RECONFIGURATION FAILURE message has been confirmed by RLC, the UE shall clear the variable ORDERED_CONFIG and the procedure ends.

8.2.6.11 Physical channel failure during transition from CELL_DCH to CELL_FACH

If the UE fails to select the cell, which was assigned in the PHYSICAL CHANNEL RECONFIGURATION message initiating transition from CELL_DCH to CELL_FACH, the UE shall perform cell [search](#) and initiate the cell update procedure.

8.2.x Physical channel reconfiguration failure

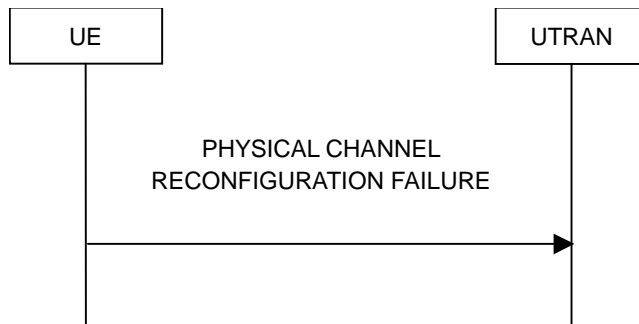


Figure xx: Physical channel reconfiguration failure in case of runtime configuration error

8.2.x.1 General

The physical channel reconfiguration failure procedure is used to indicate to the network a runtime configuration error in the UE.

8.2.x.2 Runtime error due to overlapping compressed mode configuration

When the UE has received from the UTRAN the configurations of several compressed mode transmission gap pattern sequences, and when several of these patterns are simultaneously active, the UE shall monitor, that none of transmission gap pattern sequences create transmission gaps in the same frame.

If the parallel transmission gap pattern sequences create no illegal overlap, the UE shall

- set the variable COMPRESSED_MODE_ERROR to FALSE;

Otherwise, the UE shall

- set the variable COMPRESSED_MODE_ERROR to TRUE,
- delete the overlapping transmission gap pattern sequence configuration stored in the variable TGPS_IDENTITY, which is associated with the highest value of IE 'TGPSI',
- transmit a PHYSICAL CHANNEL RECONFIGURATION FAILURE message on the DCCH using AM RLC and shall set the cause value in IE "failure cause" to "compressed mode runtime error".
- terminate the inter-frequency and/or inter-system measurements corresponding to the deleted transmission gap pattern sequence

8.5.7.6.14 DPCH Compressed mode info

If the IE "DPCH compressed mode info" is included, and if the IE group "transmission gap pattern sequence configuration parameters" are included, the UE

~~— shall check, that none of the parallel transmission gap pattern sequences create transmission gaps in the same frame by using the compressed mode method 'puncturing'.~~

~~If the configuration creates this kind of overlap, the UE~~

~~— shall set the variable UNACCEPTABLE_CONFIGURATION to TRUE;~~

~~— shall retain all previously stored compressed mode pattern sequences.~~

~~Otherwise, the UE~~

~~— shall set the variable UNACCEPTABLE_CONFIGURATION to FALSE;~~

- shall delete all previously stored compressed mode pattern sequences;

- shall store each pattern sequence to the variable TGPS_IDENTITY according to the IE "TGPSI";

- shall store into the variable TGPS_IDENTITY the configuration information defined by IE group "transmission gap pattern sequence configuration parameters"; ~~and~~

~~— shall activate the stored pattern sequence corresponding to each IE "TGPSI" for which the "TGPS status flag" is set to "activate" and begin the inter-frequency and/or inter-system measurements corresponding to the pattern sequence measurement purpose of each activated pattern sequence; [and](#)~~

~~- [shall monitor if the parallel transmission gap pattern sequences create an illegal overlap, and in case of overlap, take actions as specified in 8.2.x.2;](#)~~

If the IE "DPCH compressed mode info" is included, and if the IE group "transmission gap pattern sequence configuration parameters" is not included, the UE shall

- shall activate the stored pattern sequence corresponding to each IE "TGPSI" for which the "TGPS status flag" is set to "activate" and begin the inter-frequency and/or inter-system measurements corresponding to the pattern sequence measurement purpose of each activated pattern sequence;

- shall deactivate the stored pattern sequence corresponding to each IE "TGPSI" for which the "TGPS status flag" is set to "deactivate" and terminate the inter-frequency and/or inter-system measurements corresponding to the pattern sequence measurement purpose of each deactivated pattern sequence;

10.3.3.12 Failure cause and error information

Cause for failure to perform the requested procedure.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Failure cause	MP		Enumerated (Configuration unsupported, optional , physical channel failure, incompatible simultaneous reconfiguration, protocol error, <u>compressed mode runtime error</u>)	At least 3 spare values, Criticality: reject, are needed
Protocol error information	CV-ProtErr		Protocol error information 10.3.8.10	
<u>Deleted TGPSI</u>	<u>CV-CompModeErr</u>		<u>TGPSI 10.3.6.X</u>	

Condition	Explanation
<i>ProtErr</i>	Presence is mandatory if the IE "Failure cause" has the value "Protocol error"; otherwise the element is not needed in the message.
<u>CompModeErr</u>	<u>Presence is mandatory if the IE "Failure cause" has the value " Compressed mode runtime error"; otherwise the element is not needed in the message</u>

10.3.6.27 DPCH compressed mode info

NOTE: Only for FDD.

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

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Transmission gap pattern sequence		1 to <MaxTGPS>		
> TGPSI	MP		Integer(1..<MaxTGPS>) TGPSI 10.3.6.x	Transmission Gap Pattern Sequence Identifier Establish a reference to the compressed mode pattern sequence. Up to <MaxTGPS> simultaneous compressed mode pattern sequences can be used.
>TGPS Status Flag	MP		Enumerated(active, inactive)	This flag indicates the current status of the Transmission Gap Pattern Sequence, whether it shall be activated or deactivated.
>Transmission gap pattern sequence configuration parameters	OP			
>> TGMP	MP		Enumerated(TDD measurement, FDD measurement, GSM measurement, Other)	Transmission Gap pattern sequence Measurement Purpose.
>> TGPRC	MP		Integer (1..63, Infinity)	The number of transmission gap patterns within the Transmission Gap Pattern Sequence.
>> TGCFN	MP		Integer (0..255)	Connection Frame Number of the first frame of the first pattern within the Transmission Gap Pattern Sequence.
>> TGSN	MP		Integer (0..14)	Transmission Gap Starting Slot Number The slot number of the first transmission gap slot within the TGCFN.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
>>TGL1	MP		Integer(1..14)	The length of the first Transmission Gap within the transmission gap pattern expressed in number of slots
>> TGL2	MD		Integer (1..14)	The length of the second Transmission Gap within the transmission gap pattern. If omitted, then TGL2=TGL1.
>>TGD	MP		Integer(15..269, undefined)	Transmission gap distance indicates the number of slots between starting slots of two consecutive transmission gaps within a transmission gap pattern. If there is only one transmission gap in the transmission gap pattern, this parameter shall be set to zero.
>> TGPL1	MP		Integer (1..144)	The duration of transmission gap pattern 1.
>> TGPL2	MD		Integer (1..144)	The duration of transmission gap pattern 2. If omitted, then TGPL2=TGPL1.
>>RPP	MP		Enumerated (mode 0, mode 1).	Recovery Period Power control mode during the frame after the transmission gap within the compressed frame. Indicates whether normal PC mode or compressed PC mode is applied
>>ITP	MP		Enumerated (mode 0, mode 1).	Initial Transmit Power is the uplink power control method to be used to compute the initial transmit power after the compressed mode gap.
>>UL/DL mode	MP		Enumerated (UL only, DL only, UL/DL)	Defines whether only DL, only UL, or combined UL/DL compressed mode is used.
>> Downlink compressed mode method	CV DL		Enumerated (puncturing, SF/2, higher layer scheduling)	Method for generating downlink compressed mode gap
>> Uplink compressed mode method	CV UL		Enumerated (SF/2, none , higher layer scheduling)	Method for generating uplink compressed mode gap
>>Downlink frame type	MP		Enumerated (A, B)	
>>DeltaSIR1	MP		Real(0..3 by step of 0.1)	Delta in DL SIR target value to be set in the UE during the compressed frames corresponding to the first transmission gap in the transmission gap pattern (without including the effect of the bit-rate increase)
>>DeltaSIRafter1	MP		Real(0..3 by step of 0.1)	Delta in DL SIR target value to be set in the UE one frame after the compressed frames corresponding to the first transmission gap in the transmission gap pattern.
>>DeltaSIR2	OP		Real(0..3 by step of 0.1)	Delta in DL SIR target value to be set in the UE during the compressed frames

Information Element/Group name	Need	Multi	Type and reference	Semantics description
				corresponding to the second transmission gap in the transmission gap pattern (without including the effect of the bit-rate increase) When omitted, DeltaSIR2 = DeltaSIR1.

Range Bound	Explanation
<i>MaxTGPS</i>	Maximum number of transmission gap pattern sequences. Value 6.

Condition	Explanation
<i>UL</i>	This information element is only sent when the value of the "UL/DL mode" IE is "UL only" or "UL/DL".
<i>DL</i>	This information element is only sent when the value of the "UL/DL mode" IE is "DL only" or "UL/DL".

10.3.6.x TGPSI

<u>Information Element/Group name</u>	<u>Need</u>	<u>Multi</u>	<u>Type and reference</u>	<u>Semantics description</u>
<u>TGPSI</u>	<u>MP</u>		<u>Integer(1..<MaxTGPS>)</u>	<u>Transmission Gap Pattern Sequence Identifier</u> <u>Establish a reference to the compressed mode pattern sequence. Up to <MaxTGPS> simultaneous compressed mode pattern sequences can be used.</u>

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
CN information		
maxCNdomains	Maximum number of CN domains	4
maxSignallingFlow	Maximum number of flow identifiers	16
UTRAN mobility information		
maxRAT	Maximum number of Radio Access Technologies	maxOtherRAT + 1
maxOtherRAT	Maximum number of other Radio Access Technologies	15
maxURA	Maximum number of URAs in a cell	8
maxInterSysMessages	Maximum number of Inter System Messages	4
maxRABsetup	Maximum number of RABs to be established	16
UE information		
maxPDCPalgoType	Maximum number of PDCP algorithm types	8
maxDRACclasses	Maximum number of UE classes which would require different DRAC parameters	8
maxFrequencybands	Maximum number of frequency bands supported by the UE as defined in 25.102	4
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
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
TrCH information		
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
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
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 Node B	16
maxSIBsegm	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		
maxSubCh	Maximum number of sub-channels on PRACH	12
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
maxSig	Maximum number of signatures on PRACH	16
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
maxFACH	Maximum number of FACHs 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
maxDPCHcodesPerTS	Maximum number of codes for one timeslots (TDD)	16
maxPUSCH	Maximum number of PUSCHs	(8)
maxPDSCH	Maximum number of PDSCHs	8
maxPDSCHcodes	Maximum number of codes for PDSCH	16
maxPDSCH-TFCIgroups	Maximum number of TFCI groups for PDSCH	256
maxPDSCHcodeGroups	Maximum number of code groups for PDSCH	256
maxPCPCHs	Maximum number of PCPCH channels in a CPCH Set	64
maxPCPCH-SF	Maximum number of available SFs on PCPCH	7
MaxTGPS	Maximum number of transmission gap pattern sequences.	6
maxTS	Maximum number of timeslots used in one direction (UL or DL)	14
Measurement information		
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
maxFreq	Maximum number of frequencies to measure	8
maxSat	Maximum number of satellites to measure	16
HiRM	Maximum number that could be set as rate matching attribute for a transport channel	256

11.3.3 User equipment information elements

```
FailureCauseWithProtErr ::= CHOICE {  
| ConfigurationUnsuppportedaceceptable NULL,  
| physicalChannelFailure NULL,  
| incompatibleSimultaneousReconfiguration  
| NULL,  
| compressedModeRuntimeError TGPSI,  
| protocolError ProtocolErrorInformation,  
| spare1 NULL,  
| spare2 NULL,  
| spare3 NULL  
}
```


11.3.6 Physical channel information elements

```
UL-CompressedModeMethod ::=          ENUMERATED {  
|                                     sf-2, noCompressing,  
                                       higherLayerScheduling }
```

13.4.15

UNACCEPTABLE_CONFIGURATIONCOMPRESSED_MODE_ERROR

This variable contains information on whether the received compressed mode configuration from the UTRAN has resulted in an illegal configuration overlap causing a runtime error.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
<u>UNACCEPTABLE_CONFIGURATIONCOMPRESSED_MODE_ERROR</u>	MP		Boolean	

3G CHANGE REQUEST

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

25.331 CR **441**

Current Version: **3.3.0**

3G specification number ↑

↑ CR number as allocated by 3G support team

For submission to **TSG-RAN#9**
list TSG meeting no. here ↑

for approval (only one box should
for information be marked with an X)

Form: 3G CR cover sheet, version 1.0 The latest version of this form is available from: ftp://ftp.3gpp.org/Information/3GCRF-xx.rtf

Proposed change affects:
(at least one should be marked with an X)

USIM

ME

UTRAN

Core Network

Source: TSG-RAN WG2

Date: 28/06/2000

Subject: Gain factors for TDD

3G Work item:

Category:

F Correction

A Corresponds to a correction in a 2G specification

B Addition of feature

C Functional modification of feature

D Editorial modification

Release '99

Reason for change:

Gain factors can be applied for TDD in a similar way as in FDD. However, TDD does not require different Gain Factors for data and control physical channels since no separate data and control channels exist in FDD. Therefore the Gain factors for the control channels are only used in FDD. Additionally, no Power Offset for preamble is required for TDD due to the different PRACH concept.

Clauses affected: 10.3.5.8, 10.3.5.15, 11.1

Other specs affected:

Other 3G core specifications

→ List of CRs:

Other 2G core specifications

→ List of CRs:

MS test specifications

→ List of CRs:

BSS test specifications

→ List of CRs:

O&M specifications

→ List of CRs:

Other comments:



help.doc

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

10.3.5.8 Power Offset Information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>Gain Factors</i>	MP			
>Signalled Gain Factors				
>>CHOICE mode				
>>>FDD				
>>>>Gain Factor β_c	MP		Integer (0.. 15)	For UL DPCCH or control part of PRACH or PCPCH
>>>>TDD				(no data)
>>>Gain Factor β_d	MP		Integer (0..15)	For UL DPDCH or data part of PRACH or PCPCH <u>in FDD and all uplink channels in TDD</u>
>>Reference TFC ID	OP		Integer (0..3)	If this TFC is a reference TFC, indicates the reference ID.
>Computed Gain Factors				
>>Reference TFC ID	MP		Integer (0.. 3)	Indicates the reference TFC Id of the TFC to be used to calculate the gain factors for this TFC. In case of using computed gain factors, at least one signalled gain factor is necessary for reference.
CHOICE mode				
>FDD				
>>Power offset P _{p-m}	OP		Integer(-5..10)	In dB. Power offset between the last transmitted preamble and the control part of the message (added to the preamble power to receive the power of the message control part) Needed only for PRACH
>TDD				(no data)

CHOICE <i>Gain Factors</i>	Condition under which the way to signal the <i>Gain Factors</i> is chosen
<i>Signalled Gain Factors</i>	The values for gain factors β_c (<u>only in FDD mode</u>) and β_d are signalled directly for a TFC.
<i>Computed Gain Factors</i>	The gain factors β_c (<u>only in FDD mode</u>) and β_d are computed for a TFC, based on the signalled settings for the associated reference TFC.

10.3.5.15 TFCS Reconfiguration/Addition Information

When it is used in TFCI field 1, the calculation of CTFC ignores any DSCH transport channels which may be assigned. When it is used in TFCI field 2, the calculation of CTFC ignores any DCH transport channels.

The CTFC size should be chosen based on the maximum CTFC size for the UE. The first instance of the parameter "CTFC information" corresponds to Transport format combination 0, the second to transport format combination 1 and so on when it is used besides the case of TFCS *Addition*. Integer number of CTFC calculated according to clause 14.

In case of TFCS *Addition*, the integer number(s) is the CTFC that is added. The new additional TFC(s) is inserted into the first available position(s) in the TFCI. CTFC size should be same as the size used in *Complete reconfiguration*.

Information Element/Group name	Need	Multi	IE type and reference	Semantics description
CHOICE CTFC Size	MP			At least one, criticality: reject, spare value needed for future extension
>2 bit CTFC				
>>CTFC information	MP	1 to <maxTFC>		
>>>2bit CTFC	MP		Integer(0..3)	
>>>Power offset Information	OP		Power Offset Information 10.3.5.8	Needed only for uplink DPCCH/DPDCH or PRACH.physical channels
>4 bit CTFC				
>>CTFC information	MP	1 to <maxTFC>		
>>>4bit CTFC	MP		Integer(0..15)	
>>>Power offset Information	OP		Power Offset Information 10.3.5.8	Needed only for uplink physical channels DPCCH/DPDCH or PRACH.
>6 bit CTFC				
>>CTFC information	MP	1 to <maxTFC>		
>>>6 bit CTFC	MP		Integer(0..63)	
>>>Power offset Information	OP		Power Offset Information 10.3.5.8	Needed only for uplink physical channels DPCCH/DPDCH or PRACH.
>8 bit CTFC				
>>CTFC information	MP	1 to <MaxTFC>		
>>>8 bit CTFC	MP		Integer(0..255)	
>>>Power offset Information	OP		Power Offset Information 10.3.5.8	Needed only for uplink physical channels DPCCH/DPDCH or PRACH.
>12 bit CTFC				
>>CTFC information	MP	1 to <maxTFC>		
>>>12 bit CTFC	MP		Integer(0..4095)	
>>>Power offset Information	OP		Power Offset Information 10.3.5.8	Needed only for uplink physical channels DPCCH/DPDCH or PRACH.
>16 bit CTFC				
>>CTFC information	MP	1 to <maxTFC>		
>>>16 bit CTFC	MP		Integer(0..65535)	
>>>Power offset Information	OP		Power Offset Information 10.3.5.8	Needed only for uplink physical channels DPCCH/DPDCH or PRACH.
>24 bit CTFC				
>>CTFC information	MP	1 to <MaxTFC>		
>>>24 bit CTFC	MP		Integer(0..16777215)	
>>>Power offset Information	OP		Power Offset Information 10.3.5.8	Needed only for uplink physical channels DPCCH/DPDCH or PRACH.

Information Element/Group name	Need	Multi	IE type and reference	Semantics description
				PRACH.

11.1 General message structure

Class-definitions DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

```

PowerOffsetInformation ::=          SEQUENCE {
    gainFactorInformation            GainFactorInformation,
    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-AddReconfTransChInfoList
}

QualityTarget ::=                  SEQUENCE {
    bler-QualityValue                BLER-QualityValue
}

RateMatchingAttribute ::=          INTEGER (1..hirM)

ReferenceTFC-ID ::=                INTEGER (0..3)

RestrictedTrChInfo ::=              SEQUENCE {
    restrictedTrChIdentity            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                ChannelCodingType,
    rateMatchingAttribute              RateMatchingAttribute,
    crc-Size                           CRC-Size
}

SignalledGainFactors ::=            SEQUENCE {
    modeSpecificInfo                CHOICE {
        fdd                            SEQUENCE {
            gainFactorBetaC              GainFactor,
        },
    tdd                            NULL
        },
    gainFactorBetaD                    GainFactor,
    referenceTFC-ID                    ReferenceTFC-ID                OPTIONAL
}
    
```

CHANGE REQUEST

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

25.331 CR 442

Current Version: **3.3.0**

GSM (AA.BB) or 3G (AA.BBB) specification number ↑

↑ CR number as allocated by MCC support team

For submission to: **TSG-RAN#9**

list expected approval meeting # here ↑

for approval
for information

strategic
non-strategic (for SMG use only)

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

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

Source: TSG-RAN WG2 **Date:** 26th June 2000

Subject: Introduction of Default DPCH Offset Value in TDD

Work item:

Category: (only one category shall be marked with an X)	F Correction	<input checked="" type="checkbox"/>	Release:	Phase 2	<input type="checkbox"/>
	A Corresponds to a correction in an earlier release	<input type="checkbox"/>		Release 96	<input type="checkbox"/>
	B Addition of feature	<input type="checkbox"/>		Release 97	<input type="checkbox"/>
	C Functional modification of feature	<input type="checkbox"/>		Release 98	<input type="checkbox"/>
	D Editorial modification	<input type="checkbox"/>		Release 99	<input checked="" type="checkbox"/>
			Release 00	<input type="checkbox"/>	

Reason for change:
The Default DPCH Offset Value is used in FDD in order to distribute the traffic on the lub/lur and to distribute pilot occurrences on the Uu.
From architecture point of view a similar approach is possible to distribute the traffic on the lub/lur as well.
Therefore the corresponding parameter is proposed for TDD in order to serve this purpose and increase the commonalities between FDD and TDD.
Since the distribution of pilots is not feasible in TDD a range of 0 to 7 is sufficient. This value is determines the number of frames.

Clauses affected: 10.2.10, 10.2.20, 10.2.25, 10.2.28, 10.2.31, 10.2.37, 10.2.44, 10.2.54, 10.3.6.13, 10.3.6.20, 10.3.6.22, 10.3.6.48, 11

Other specs affected:	Other 3G core specifications	<input type="checkbox"/>	→ List of CRs:	
	Other GSM core specifications	<input type="checkbox"/>	→ List of CRs:	
	MS test specifications	<input type="checkbox"/>	→ List of CRs:	
	BSS test specifications	<input type="checkbox"/>	→ List of CRs:	
	O&M specifications	<input type="checkbox"/>	→ List of CRs:	

Other comments:



help.doc

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

10.2.10 HANDOVER TO UTRAN COMMAND

This message is sent to the UE via other system to make a handover to UTRAN.

RLC-SAP: N/A (Sent through a different RAT)

Logical channel: N/A (Sent through a different RAT)

Direction: UTRAN → UE

Information Element/Group name	Need	Multi	Type and reference	Semantics description
New U-RNTI	MP		U-RNTI Short 10.3.3.46	
Activation time	MD		Activation time 10.3.3.1	Default value is "now"
Ciphering algorithm	OP		Ciphering algorithm 10.3.3.4	
RAB info	MP		RAB info 10.3.4.8	One RAB is established
CHOICE specification mode	MP			
>Complete specification				
UE information elements				
>>Re-establishment timer	MP		Re-establishment timer 10.3.3.30	
RB information elements				
>>Signalling RB information to setup list	MP	1 to <maxSRBsetup>		For each signalling radio bearer established
>>>Signalling RB information to setup	MP		Signalling RB information to setup 10.3.4.21	
>>RB information to setup list	MP	1 to <maxRBperRAB>		
>>>RB information to setup	MP		RB information to setup 10.3.4.17	
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>		
>>>>Added or Reconfigured UL TrCH information	MP		Added or Reconfigured UL TrCH information 10.3.5.2	
Downlink transport channels				
>>DL Transport channel information common for all transport channels	MP		DL Transport channel information common for all transport channels 10.3.5.6	
>>>Added or Reconfigured TrCH information	MP	1 to <maxTrCH>		
>>>>Added or Reconfigured DL	MP		Added or	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
TrCH information			Reconfigured DL TrCH information 10.3.5.1	
Uplink radio resources				
>>Uplink DPCH info	MP		Uplink DPCH info 10.3.6.76	
Downlink radio resources				
>>CHOICE mode	MP			
>>>FDD				
>>>>Downlink information common for all radio links	MP		Downlink information common for all radio links 10.3.6.20	
>>>>Downlink PDSCH information	OP		Downlink PDSCH information 10.3.6.26	
>>>>CPCH SET Info	OP		CPCH SET Info 10.3.6.10	
>>>TDD				(no data)
>>Downlink information common for all radio links	MP		Downlink information common for all radio links 10.3.6.20	
>>Downlink information per radio link	MP	1 to <maxRL>		
>>>Downlink information for each radio link	MP		Downlink information for each radio link 10.3.6.23	
>Preconfiguration				
>>Predefined configuration identity	MP		Predefined configuration identity 10.3.4.5	
>>Uplink DPCH info	MP		Uplink DPCH info Post10.3.6.77	
Downlink radio resources				
>>CHOICE mode				
>>>FDD				
>>>>Downlink information common for all radio links			Downlink information common for all radio links Post 10.3.6.21	
>>>TDD				(no data)
>>Downlink information per radio link	MP	1 to <maxRL>		Send downlink information for each radio link to be set-up. In TDD MaxRL is 1.
>>>Downlink information for each radio link	MP		Downlink information for each radio linkPost 10.3.6.24	
Frequency info	MP		Frequency	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
			info 10.3.6.30	
Maximum allowed UL TX power	MP		Maximum allowed UL TX power 10.3.6.33	
CHOICE mode	MP			
>FDD				(no data)
>TDD				
>>Primary CCPCH Tx Power	MP		Primary CCPCH Tx Power 10.3.6.50	

10.2.20 PHYSICAL CHANNEL RECONFIGURATION

This message is used by UTRAN to assign, replace or release a set of physical channels used by a UE.

RLC-SAP: AM or UM

Logical channel: DCCH

Direction: UTRAN → UE

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE Information Elements				
Integrity check info	CH		Integrity check info 10.3.3.15	
Integrity protection mode info	OP		Integrity protection mode info 10.3.3.18	
Ciphering mode info	OP		Ciphering mode info 10.3.3.5	
Activation time	MD		Activation time 10.3.3.1	Default value is "now"
New U-RNTI	OP		U-RNTI 10.3.3.45	
New C-RNTI	OP		C-RNTI 10.3.3.8	
DRX Indicator	MP		DRX Indicator 10.3.3.10	
UTRAN DRX cycle length coefficient	MD		UTRAN DRX cycle length coefficient 10.3.3.47	Default value is the existing value of UTRAN DRX cycle length coefficient
CN Information Elements				
CN Information info	OP		CN Information info 10.3.1.3	
RB information elements				
RB with PDCP information list	OP	1 to <maxRBall RABs>		This IE is needed for each RB having PDCP in the case of lossless SRNS relocation
>RB with PDCP information	MP		RB with PDCP information 10.3.4.19	
PhyCH information elements				
Frequency info	MD		Frequency info 10.3.6.30	Default value is the existing value of frequency information
Uplink radio resources				
Maximum allowed UL TX power	MD		Maximum allowed UL TX power 10.3.6.33	Default value is the existing value of the maximum allowed UL TX power
CHOICE <i>channel requirement</i>	OP			At least one criticality=reject spare value needed for future extension
>Uplink DPCH info			Uplink	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
			DPCH info 10.3.6.76	
>PRACH Info (for RACH)			PRACH Info (for RACH) 10.3.6.44	
Downlink radio resources				
CHOICE mode				
>FDD				
>>Downlink information common for all radio links	OP		Downlink information common for all radio links 10.3.6.20	
>>Downlink PDSCH information	OP		Downlink PDSCH information 10.3.6.26	
>>CPCH SET Info	OP		CPCH SET Info 10.3.6.10	
> TDD				(no data)
<u>Downlink information common for all radio links</u>	<u>OP</u>		<u>Downlink information common for all radio links 10.3.6.20</u>	
Downlink information per radio link list	OP	1 to <maxRL>		Send downlink information for each radio link
>Downlink information for each radio link	MP		Downlink information for each radio link 10.3.6.23	

10.2.25 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.

RLC-SAP: AM or UM

Logical channel: DCCH

Direction: UTRAN → UE

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE Information elements				
Integrity check info	CH		Integrity check info 10.3.3.15	
Integrity protection mode info	OP		Integrity protection mode info 10.3.3.18	
Ciphering mode info	OP		Ciphering mode info 10.3.3.5	
Activation time	MD		Activation time 10.3.3.1	Default value is "now"

Information Element/Group name	Need	Multi	Type and reference	Semantics description
New U-RNTI	OP		U-RNTI 10.3.3.45	
New C-RNTI	OP		C-RNTI 10.3.3.8	
DRX Indicator	MP		DRX Indicator 10.3.3.10	
UTRAN DRX cycle length coefficient	MD		UTRAN DRX cycle length coefficient 10.3.3.47	Default value is the existing value of UTRAN DRX cycle length coefficient
CN information elements				
CN Information info	OP		CN Information info 10.3.1.3	
RB information elements				
RB information to reconfigure list	MP	1 to <maxRB>		
>RB information to reconfigure	MP		RB information to reconfigure 10.3.4.15	
RB information to be affected list	OP	1 to <maxRB>		
>RB information to be affected	MP		RB information to be affected 10.3.4.14	
TrCH Information Elements				
Uplink transport channels				
UL Transport channel information common for all transport channels	OP		UL Transport channel information common for all transport channels 10.3.5.24	
Deleted TrCH information list	OP	1 to <maxTrCH >		
> Deleted UL TrCH information	MP		Deleted UL TrCH information 10.3.5.5	
Added or Reconfigured TrCH information list	OP	1 to <maxTrCH >		
>Added or Reconfigured UL TrCH information	MP		Added or 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 >		
>>>DRAC static information	MP		DRAC static information 10.3.5.7	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
>TDD				(no data)
Downlink transport channels				
DL Transport channel information common for all transport channels	OP		DL Transport channel information common for all transport channels 10.3.5.6	
Deleted TrCH information list	OP	1 to <maxTrCH >		
>Deleted DL TrCH information	MP		Deleted DL TrCH information 10.3.5.4	
Added or Reconfigured TrCH information list	OP	1 to <maxTrCH >		
>Added or Reconfigured DL TrCH information	MP		Added or Reconfigured DL TrCH information 10.3.5.1	
PhyCH information elements				
Frequency info	MD		Frequency info 10.3.6.30	Default value is the existing value of frequency information
Uplink radio resources				
Maximum allowed UL TX power	MD		Maximum allowed UL TX power 10.3.6.33	Default value is the existing maximum UL TX power
CHOICE <i>channel requirement</i>	OP			At least one spare choice (criticality = reject) required
>Uplink DPCH info			Uplink DPCH info 10.3.6.76	
>PRACH Info (for RACH)			PRACH Info (for RACH) 10.3.6.44	
Downlink radio resources				
CHOICE <i>mode</i>	MP			
>FDD				
>>Downlink information common for all radio links	OP		Downlink information common for all radio links 10.3.6.20	
>>Downlink PDSCH information	OP		Downlink PDSCH information 10.3.6.26	
>>CPCH SET Info	OP		CPCH SET Info 10.3.6.10	
>TDD				(no data)
<u>Downlink information common for all radio links</u>	<u>OP</u>		<u>Downlink information common for all radio links 10.3.6.20</u>	
Downlink information per radio link list	OP	1 to <maxRL>		
>Downlink information for each	MP		Downlink	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
radio link			information for each radio link 10.3.6.23	

10.2.28 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.

RLC-SAP: AM or UM

Logical channel: DCCH

Direction: UTRAN → UE

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE Information Elements				
Integrity check info	CH		Integrity check info 10.3.3.15	
Integrity protection mode info	OP		Integrity protection mode info 10.3.3.18	
Ciphering mode info	OP		Ciphering mode info 10.3.3.5	
Activation time	MD		Activation time 10.3.3.1	Default value is "now"
New U-RNTI	OP		U-RNTI 10.3.3.45	
New C-RNTI	OP		C-RNTI 10.3.3.8	
DRX Indicator	MP		DRX Indicator 10.3.3.10	
UTRAN DRX cycle length coefficient	MD		UTRAN DRX cycle length coefficient 10.3.3.47	Default value is the existing value of UTRAN DRX cycle length coefficient
CN Information Elements				
CN Information info	OP		CN Information info 10.3.1.3	
RB Information Elements				
RB information to release list	MP	1 to <maxRB>		
>RB information to release	MP		RB information to release 10.3.4.16	
RB information to be affected list	OP	1 to <maxRB>		
>RB information to be affected	MP		RB information to be affected 10.3.4.14	
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 <axTrCH>		
>Deleted UL TrCH information	MP		Deleted UL TrCH information	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
			10.3.5.5	
Added or Reconfigured TrCH information list	OP	1 to <maxTrCH >		
>Added or Reconfigured UL TrCH information	MP		Added or Reconfigured UL TrCH information 10.3.5.2	
CHOICE <i>mode</i>	OP			
>FDD				
>>CPCH set ID	OP		CPCH set ID 10.3.5.3	
>> Added or Reconfigured TrCH information for DRAC list	OP	1 to <maxTrCH >		
>>>DRAC static information	MP		DRAC static information 10.3.5.7	
>TDD				(no data)
Downlink transport channels				
DL Transport channel information common for all transport channels	OP		DL Transport channel information common for all transport channels 10.3.5.6	
Deleted TrCH information list	OP	1 to <maxTrCH >		
>Deleted DL TrCH information	MP		Deleted DL TrCH information 10.3.5.4	
Added or Reconfigured TrCH information list	OP	1 to <maxTrCH >		
>Added or Reconfigured DL TrCH information	MP		Added or Reconfigured DL TrCH information 10.3.5.1	
PhyCH information elements				
Frequency info	MD		Frequency info 10.3.6.30	Default value is the existing value of frequency information
Uplink radio resources				
Maximum allowed UL TX power	MD		Maximum allowed UL TX power 10.3.6.33	Default value is the existing maximum UL TX power
CHOICE <i>channel requirement</i>	OP			At least one spare choice (criticality = reject) required
>Uplink DPCH info			Uplink DPCH info 10.3.6.76	
>PRACH Info (for RACH)			PRACH Info (for RACH) 10.3.6.44	
Downlink radio resources				
CHOICE <i>mode</i>				
>FDD				
>>>Downlink information common for all radio links	OP		Downlink information	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
			common for all radio links 10.3.6.20	
>>Downlink PDSCH information	OP		Downlink PDSCH information 10.3.6.26	
>>CPCH SET Info	OP		CPCH SET Info 10.3.6.10	
>TDD				(no data)
<u>Downlink information common for all radio links</u>	<u>OP</u>		<u>Downlink information common for all radio links 10.3.6.20</u>	
Downlink information per radio link list	OP	1 to <maxRL>		Send downlink information for each radio link to be set-up
>Downlink information for each radio link	MP		Downlink information for each radio link 10.3.6.23	

10.2.31 RADIO BEARER SETUP

This message is sent by UTRAN to the UE to establish new radio bearer(s). It can also include modifications to the configurations of transport channels and/or physical channels.

RLC-SAP: AM or UM

Logical channel: DCCH

Direction: UTRAN → UE

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE Information Elements				
Integrity check info	CH		Integrity check info 10.3.3.15	
Integrity protection mode info	OP		Integrity protection mode info 10.3.3.18	
Ciphering mode info	OP		Ciphering mode info 10.3.3.5	
Activation time	MD		Activation time 10.3.3.1	Default value is "now"
New U-RNTI	OP		U-RNTI 10.3.3.45	
New C-RNTI	OP		C-RNTI 10.3.3.8	
DRX Indicator	MP		DRX Indicator 10.3.3.10	
UTRAN DRX cycle length coefficient	MD		UTRAN DRX cycle length coefficient 10.3.3.47	Default value is the existing value of UTRAN DRX cycle length coefficient
CN Information Elements				
CN Information info	OP		CN Information info 10.3.1.3	
RB Information Elements				
Signalling RB information to setup list	OP	1 to <maxSRBs etup>		For each signalling radio bearer established
>Signalling RB information to setup	MP		Signalling RB information to setup 10.3.4.21	
RAB information to setup list	MP	1 to <maxRABs etup>		For each RAB established
>RAB information for setup	MP		RAB information to setup 10.3.4.9	
RB information to be affected list	OP	1 to <maxRB>		
>RB information to be affected	MP		RB information to be affected 10.3.4.14	
TrCH Information Elements				
Uplink transport channels				
UL Transport channel information common for all transport channels	OP		UL Transport channel information	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
			common for all transport channels 10.3.5.24	
Deleted TrCH information list	OP	1 to <maxTrCH >		
>Deleted UL TrCH information	MP		Deleted UL TrCH information 10.3.5.5	
Added or Reconfigured TrCH information list	OP	1 to <maxTrCH >		
>Added or Reconfigured UL TrCH information	MP		Added or Reconfigured UL TrCH information 10.3.5.2	
CHOICE <i>mode</i>	OP			
>FDD				
>>CPCH set ID	OP		CPCH set ID 10.3.5.3	
>> Added or Reconfigured TrCH information for DRAC list	OP	1 to <maxTrCH >		
>>>DRAC static information	MP		DRAC static information 10.3.5.7	
>TDD				(no data)
Downlink transport channels				
DL Transport channel information common for all transport channels	OP		DL Transport channel information common for all transport channels 10.3.5.6	
Deleted TrCH information list	OP	1 to <maxTrCH >		
>Deleted DL TrCH information	MP		Deleted DL TrCH information 10.3.5.4	
Added or Reconfigured TrCH information list	OP	1 to <maxTrCH >		
>Added or Reconfigured DL TrCH information	MP		Added or Reconfigured DL TrCH information 10.3.5.1	
PhyCH information elements				
Frequency info	MD		Frequency info 10.3.6.30	Default value is the existing value of frequency information
Uplink radio resources				
Maximum allowed UL TX power	MD		Maximum allowed UL TX power 10.3.6.33	Default value is the existing maximum UL TX power
CHOICE <i>channel requirement</i>	OP			At least one spare choice (criticality = reject) required
>Uplink DPCH info			Uplink	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
			DPCH info 10.3.6.76	
>PRACH Info (for RACH)			PRACH Info (for RACH) 10.3.6.44	
Downlink radio resources				
CHOICE <i>mode</i>				
>FDD				
>>Downlink information common for all radio links	OP		Downlink information common for all radio links 10.3.6.20	
>>Downlink PDSCH information	OP		Downlink PDSCH information 10.3.6.26	
>>CPCH SET Info	OP		CPCH SET Info 10.3.6.10	
>TDD				(no data)
<u>Downlink information common for all radio links</u>	<u>OP</u>		<u>Downlink information common for all radio links</u> 10.3.6.20	
Downlink information per radio link list	OP	1 to <maxRL>		Send downlink information for each radio link
>Downlink information for each radio link	MP		Downlink information for each radio link 10.3.6.23	

10.2.37 RRC CONNECTION RE-ESTABLISHMENT

This message is sent by UTRAN in order to re-establish an RRC connection.

RLC-SAP: UM

Logical channel: CCCH, DCCH

Direction: UTRAN → UE

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE Information Elements				
U-RNTI	CV-CCCH		U-RNTI 10.3.3.45	
Integrity check info	CH		Integrity check info 10.3.3.15	
Integrity protection mode info	OP		Integrity protection mode info 10.3.3.18	
Ciphering mode info	OP		Ciphering mode info 10.3.3.5	
Activation time	MD		Activation time 10.3.3.1	Default value is "now"
New U-RNTI	OP		U-RNTI 10.3.3.45	
New C-RNTI	OP		C-RNTI 10.3.3.8	
DRX Indicator	MP		DRX Indicator 10.3.3.10	
UTRAN DRX cycle length coefficient	MD		UTRAN DRX cycle length coefficient 10.3.3.47	Default value is the existing value of UTRAN DRX cycle length coefficient
CN Information Elements				
RLC reset indicator (for C-plane)	MP		RLC reset indicator 10.3.3.35	
RLC reset indicator (for U-plane)	MP		RLC reset indicator 10.3.3.35	
CN Information info	OP		CN Information info 10.3.1.3	
RB Information Elements				
Signalling RB information to setup list	OP	1 to <maxSRBs etup>		For each signalling radio bearer established
>Signalling RB information to setup	MP		Signalling RB information to setup 10.3.4.21	
RAB information for setup list	OP	1 to <maxRABs etup>		For each RAB established
>RAB information for setup	MP		RAB information for setup 10.3.4.9	
RB information to release list	OP	1 to <maxRB>		
>RB information to release	MP		RB information	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
			to release 10.3.4.16	
RB information to reconfigure list	OP	1 to <maxRB>		
>RB information to reconfigure	MP		RB information to reconfigure 10.3.4.15	
RB information to be affected list	OP	1 to <maxRB>		
>RB information to be affected	MP		RB information to be affected 10.3.4.14	
TrCH Information Elements				
Uplink transport channels				
UL Transport channel information common for all transport channels	OP		UL Transport channel information common for all transport channels 10.3.5.24	
Deleted TrCH information list	OP	1 to <maxTrCH >		
>Deleted UL TrCH information	MP		Deleted UL TrCH information 10.3.5.5	
Added or Reconfigured TrCH information list	OP	1 to <maxTrCH >		
>Added or Reconfigured UL TrCH information	MP		Added or Reconfigured UL TrCH information 10.3.5.2	
CHOICE mode	OP			
>FDD				
>>CPCH set ID	OP		CPCH set ID 10.3.5.3	
>>> Added or Reconfigured TrCH information for DRAC list	OP	1 to <maxTrCH >		
>>>>DRAC static information	MP		DRAC static information 10.3.5.7	
>TDD				(no data)
Downlink transport channels				
DL Transport channel information common for all transport channels	OP		DL Transport channel information common for all transport channels 10.3.5.6	
Deleted TrCH information list	OP	1 to <maxTrCH >		
>Deleted DL TrCH information	MP		Deleted DL TrCH information	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
			10.3.5.4	
Added or Reconfigured TrCH information list	OP	1 to <maxTrCH>		
>Added or Reconfigured DL TrCH information	MP		Added or Reconfigured DL TrCH information 10.3.5.1	
PhyCH information elements				
Frequency info	MD		Frequency info 10.3.6.30	Default value is the existing value of frequency information
Uplink radio resources				
Maximum allowed UL TX power	MD		Maximum allowed UL TX power 10.3.6.33	Default value is the existing maximum UL TX power
CHOICE <i>channel requirement</i>	OP			At least one spare choice (criticality = reject) required
>Uplink DPCH info			Uplink DPCH info 10.3.6.76.	
>PRACH Info (for RACH)			PRACH Info (for RACH) 10.3.6.44	
Downlink radio resources				
CHOICE <i>mode</i>				
>FDD				
>>Downlink information common for all radio links	OP		Downlink information common for all radio links 10.3.6.20	
>>Downlink PDSCH information	OP		Downlink PDSCH information 10.3.6.26	
>>CPCH SET Info	OP		CPCH SET Info 10.3.6.10	
>TDD				(no data)
<u>Downlink information common for all radio links</u>	<u>OP</u>		<u>Downlink information common for all radio links 10.3.6.20</u>	
Downlink information per radio link list	OP	1 to <maxRL>		Send downlink information for each radio link to be set-up
>Downlink information for each radio link	MP		Downlink information for each radio link 10.3.6.23	

Condition	Explanation
CCCH	This IE is only sent when CCCH is used

10.2.44 RRC CONNECTION SETUP

This message is used by the network to accept the establishment of an RRC connection for an UE, including assignment of signalling link information, transport channel information and optionally physical channel information.

RLC-SAP: UM

Logical channel: CCCH

Direction: UTRAN → UE

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE Information Elements				
Initial UE identity	MP		Initial UE identity 10.3.3.14	
Activation time	MD		Activation time 10.3.3.1	Default value is "now"
New U-RNTI	MP		U-RNTI 10.3.3.45	
New C-RNTI	OP		C-RNTI 10.3.3.8	
UTRAN DRX cycle length coefficient	MP		UTRAN DRX cycle length coefficient 10.3.3.47	
Capability update requirement	MD		Capability update requirement 10.3.3.2	Default value is defined in subclause 10.3.3.3
RB Information Elements				
Signalling RB information to setup list	MP	4 to 5		Information for signalling radio bearers, in the order RB 0 up to 4.
>Signalling RB information to setup	MP		Signalling RB information to setup 10.3.4.21	
TrCH Information Elements				
Uplink transport channels				
UL Transport channel information common for all transport channels	OP		UL Transport channel information common for all transport channels 10.3.5.24	
Added or Reconfigured TrCH information list	MP	1 to <maxTrCH >		
>Added or Reconfigured UL TrCH information	MP		Added or Reconfigured UL TrCH information 10.3.5.2	
Downlink transport channels				
DL Transport channel information common for all transport channels	OP		DL Transport channel information common for all transport channels 10.3.5.6	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Added or Reconfigured TrCH information list	MP	1 to <maxTrCH>		
>Added or Reconfigured DL TrCH information	MP		Added or Reconfigured DL TrCH information 10.3.5.1	
PhyCH information elements				
Frequency info	MD		Frequency info 10.3.6.30	Default value is the existing value of frequency information
Uplink radio resources				
Maximum allowed UL TX power	MD		Maximum allowed UL TX power 10.3.6.33	Default value is the existing maximum UL TX power
CHOICE <i>channel requirement</i>	OP			At least one spare choice (criticality = reject) required
>Uplink DPCH info			Uplink DPCH info 10.3.6.76	
>PRACH Info (for RACH)			PRACH Info (for RACH) 10.3.6.44	
Downlink radio resources				
CHOICE <i>mode</i>				
>FDD				
>>Downlink information common for all radio links	OP		Downlink information common for all radio links 10.3.6.20	
>TDD				
Downlink information per radio link list	OP	1 to <MaxRL>		Send downlink information for each radio link to be set-up
>Downlink information for each radio link	MP		Downlink information for each radio link 10.3.6.23	

10.2.54 TRANSPORT CHANNEL RECONFIGURATION

This message is used by UTRAN to configure the transport channel of a UE. This also includes a possible reconfiguration of physical channels. The message can also be used to assign a TFC subset and reconfigure physical channel.

RLC-SAP: AM or UM

Logical channel: DCCH

Direction: UTRAN → UE

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE Information Elements				
Integrity check info	CH		Integrity check info 10.3.3.15	
Integrity protection mode info	OP		Integrity	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
			protection mode info 10.3.3.18	
Ciphering mode info	OP		Ciphering mode info 10.3.3.5	
Activation time	MD		Activation time 10.3.3.1	Default value is "now"
New U-RNTI	OP		U-RNTI 10.3.3.45	
New C-RNTI	OP		C-RNTI 10.3.3.8	
DRX Indicator	MP		DRX Indicator 10.3.3.10	
UTRAN DRX cycle length coefficient	MD		UTRAN DRX cycle length coefficient 10.3.3.47	Default value is the existing value of UTRAN DRX cycle length coefficient
CN Information Elements				
CN Information info	OP		CN Information info 10.3.1.3	
RB information elements				
RB with PDCP information list	OP	1 to <maxRBall RABs>		This IE is needed for each RB having PDCP in the case of lossless SRNS relocation
>RB with PDCP information	MP		RB with PDCP information 10.3.4.19	
TrCH Information Elements				
Uplink transport channels				
UL Transport channel information common for all transport channels	OP		UL Transport channel information common for all transport channels 10.3.5.24	
Added or Reconfigured TrCH information list	MP	1 to <maxTrCH >		
>Added or Reconfigured UL TrCH information	MP		Added or Reconfigured UL TrCH information 10.3.5.2	
CHOICE mode	OP			
>FDD				
>>CPCH set ID	OP		CPCH set ID 10.3.5.3	
>> Added or Reconfigured TrCH information for DRAC list	OP	1 to <maxTrCH >		
>>>DRAC static information	MP		DRAC static information 10.3.5.7	
>TDD				(no data)
Downlink transport channels				
DL Transport channel information common for all transport channels	OP		DL Transport channel information common for all transport	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
			channels 10.3.5.6	
Added or Reconfigured TrCH information list	MP	1 to <maxTrCH >		
>Added or Reconfigured DL TrCH information	MP		Added or Reconfigured DL TrCH information 10.3.5.1	
PhyCH information elements				
Frequency info	MD		Frequency info 10.3.6.30	Default value is the existing value of frequency information
Uplink radio resources				
Maximum allowed UL TX power	MD		Maximum allowed UL TX power 10.3.6.33	Default value is the existing maximum UL TX power
CHOICE <i>channel requirement</i>	OP			At least one spare choice (criticality = reject) required
>Uplink DPCH info			Uplink DPCH info 10.3.6.76	
>PRACH Info (for RACH)			PRACH Info (for RACH) 10.3.6.44	
Downlink radio resources				
CHOICE <i>mode</i>				
>FDD				
>>Downlink information common for all radio links	OP		Downlink information common for all radio links 10.3.6.20	
>>Downlink PDSCH information	OP		Downlink PDSCH information 10.3.6.26	
>>CPCH set Info	OP		CPCH set Info 10.3.6.10	
>TDD				
Downlink information common for all radio links	OP		Downlink information common for all radio links 10.3.6.20	(no data)
Downlink information per radio link list	OP	1 to <maxRL>		Send downlink information for each radio link
>Downlink information for each radio link	MP		Downlink information for each radio link 10.3.6.23	

10.3.6.13 Default DPCH Offset Value

~~NOTE: Only for FDD.~~

Indicates the default offset value within interleaving size at a resolution of 512chip (1/5 slot) in FDD and a resolution of one frame in TDD to offset CFN in the UE. This is used to distribute discontinuous transmission periods in time and also to distribute NodeB-RNC transmission traffics in time. Even though the CFN is offset by DOFF, the start timing of

the interleaving will be the timing that "CFN mod (interleaving size)"=0 (e.g. interleaving size: 2,4,8) in both UE and SRNC.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
<u>CHOICE mode</u>				
<u>>FDD</u>				
<u>>>Default DPCH Offset Value (DOFF)</u>	MP		Integer (0..306688 by step of 512)	Number of chips=. 0 to 599 time 512 chips, see TS 25.402. At least 424 spare values needed Criticality: reject is needed
<u>>TDD</u>				
<u>>>Default DPCH Offset Value (DOFF)</u>	MP		<u>Integer(0..7)</u>	<u>Number of frames; See TS 25.402</u>

10.3.6.20 Downlink information common for all radio links

~~NOTE: Only for FDD~~

Information Element/Group name	Need	Multi	Type and reference	Semantics description
<u>CHOICE mode</u>				
<u>>FDD</u>				
<u>>>Downlink DPCH info common for all RL</u>	OP		Downlink DPCH info common for all RL 10.3.6.14	
<u>Default DPCH Offset Value</u>	MD		<u>Default DPCH Offset Value, 10.3.6.13</u>	<u>Default value is 0</u>
<u>>>DPCH compressed mode info</u>	MD		DPCH compressed mode info 10.3.6.27	Default value is the existing value of DPCH compressed mode information
<u>>>TX Diversity Mode</u>	MD		TX Diversity Mode 10.3.6.74	Default value is the existing value of TX Diversity mode
<u>>>SSDT information</u>	OP		SSDT information 10.3.6.67	
<u>>TDD</u>				<u>(no data)</u>
<u>Default DPCH Offset Value</u>	MD		<u>Default DPCH Offset Value, 10.3.6.13</u>	<u>Default value is 0</u>

10.3.6.22 Downlink information common for all radio links Pre

~~NOTE: Only for FDD~~

Information Element/Group name	Need	Multi	Type and reference	Semantics description
<u>CHOICE mode</u>	<u>MP</u>			
<u>>FDD</u>				
<u>>>Downlink DPCH info common for all RL</u>	MP		Downlink DPCH info common for all RL Pre 10.3.6.16	
<u>>TDD</u>				<u>(no data)</u>
<u>Default DPCH Offset Value</u>	<u>MD</u>		<u>Default DPCH Offset Value. 10.3.6.13</u>	<u>Default value is 0</u>

10.3.6.48 Predefined PhyCH configuration

This information element concerns a pre- defined configuration of physical channel parameters.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Uplink radio resources				
Uplink DPCH info	MP		Uplink DPCH info Pre 10.3.6.66a	
Downlink radio resources				
<u>CHOICE mode</u>				
<u>>FDD</u>				
<u>>>Downlink information common for all radio links</u>			Downlink information common for all radio links Pre 10.3.6.22	
<u>>TDD</u>				<u>(no data)</u>

11.2 PDU definitions

```

.
.
.
-- *****
--
-- HANDOVER TO UTRAN COMMAND
--
-- *****

HandoverToUTRANCommand ::= SEQUENCE {
  -- User equipment IEs
  new-U-RNTI                U-RNTI-Short,
  activationTime            ActivationTime          OPTIONAL,
  cipheringAlgorithm       CipheringAlgorithm      OPTIONAL,
  -- Radio bearer IEs
  rab-Info                 RAB-Info,
  -- Specification mode information
  specificationMode        CHOICE {
    complete                SEQUENCE {
      re-EstablishmentTimer Re-EstablishmentTimer,
      srb-InformationSetupList SRB-InformationSetupList,
      rb-InformationSetupList RB-InformationSetupList,
      ul-CommonTransChInfo  UL-CommonTransChInfo,
      ul-AddReconfTransChInfoList UL-AddReconfTransChInfoList,
      dl-CommonTransChInfo  DL-CommonTransChInfo,
      dl-AddReconfTransChInfoList DL-AddReconfTransChInfoList,
      ul-DPCH-Info          UL-DPCH-Info,
      modeSpecificInfo     CHOICE {
        fdd                SEQUENCE {
          dl-CommonInformation DL-CommonInformation,
          dl-PDSCH-Information DL-PDSCH-Information OPTIONAL,
          cpch-SetInfo        CPCH-SetInfo          OPTIONAL
        },
        tdd                NULL
      },
      dl-CommonInformation DL-CommonInformation,
      dl-InformationPerRL-List DL-InformationPerRL-List
    },
    preconfiguration        SEQUENCE {
      predefinedConfigIdentity PredefinedConfigIdentity,
      ul-DPCH-Info            UL-DPCH-InfoPost,
      modeSpecificInfo       CHOICE {
        fdd                SEQUENCE {
          dl-CommonInformationPost DL-CommonInformationPost
        },
        tdd                NULL
      },
      dl-InformationPerRL-List DL-InformationPerRL-ListPost
    }
  },
  -- Physical channel IEs
  frequencyInfo            FrequencyInfo,
  maxAllowedUL-TX-Power    MaxAllowedUL-TX-Power,
  modeSpecificPhysChInfo   CHOICE {
    fdd                    NULL,
    tdd                    SEQUENCE {
      primaryCCPCH-TX-Power PrimaryCCPCH-TX-Power
    }
  },
  -- Extension mechanism for non- release99 information
  criticalExtension        SEQUENCE {}          OPTIONAL,
  nonCriticalExtensions    SEQUENCE {}          OPTIONAL
}

.
.
.
-- *****
--
-- PHYSICAL CHANNEL RECONFIGURATION
--
-- *****

PhysicalChannelReconfiguration ::= 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,
  drx-Indicator                     DRX-Indicator,
  utran-DRX-CycleLengthCoeff       UTRAN-DRX-CycleLengthCoefficient OPTIONAL,
-- Core network IEs
  cn-InformationInfo                CN-InformationInfo                OPTIONAL,
-- Radio bearer IEs
  rb-WithPDCP-InfoList              RB-WithPDCP-InfoList              OPTIONAL,
-- Physical channel IEs
  frequencyInfo                     FrequencyInfo                     OPTIONAL,
  maxAllowedUL-TX-Power             MaxAllowedUL-TX-Power             OPTIONAL,
  ul-ChannelRequirement             UL-ChannelRequirement             OPTIONAL,
-- TABULAR: UL-ChannelRequirement contains the choice
-- between UL DPCH info and PRACH info for RACH.
  modeSpecificInfo                  CHOICE {
    fdd                              SEQUENCE {
      dl-CommonInformation      DL-CommonInformation      OPTIONAL,
      dl-PDSCH-Information            DL-PDSCH-Information            OPTIONAL,
      cpch-SetInfo                    CPCH-SetInfo                    OPTIONAL
    },
    tdd                              NULL
  },
  },
  dl-CommonInformation          DL-CommonInformation          OPTIONAL,
  dl-InformationPerRL-List           DL-InformationPerRL-List           OPTIONAL,
-- Extension mechanism for non- release99 information
  criticalExtension                  SEQUENCE {}                       OPTIONAL,
  nonCriticalExtensions              SEQUENCE {}                       OPTIONAL
}
.
.
.
-- *****
--
-- RADIO BEARER RECONFIGURATION
--
-- *****

```

```

RadioBearerReconfiguration ::= 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,
  drx-Indicator                     DRX-Indicator,
  utran-DRX-CycleLengthCoeff       UTRAN-DRX-CycleLengthCoefficient OPTIONAL,
-- Core network IEs
  cn-InformationInfo                CN-InformationInfo                OPTIONAL,
-- Radio bearer IEs
  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
    },
    tdd                              NULL
  }
  dl-CommonTransChInfo              DL-CommonTransChInfo              OPTIONAL,
  dl-DeletedTransChInfoList         DL-DeletedTransChInfoList         OPTIONAL,
  dl-AddReconfTransChInfoList       DL-AddReconfTransChInfo2List      OPTIONAL,
-- Physical channel IEs
  frequencyInfo                     FrequencyInfo                     OPTIONAL,
  maxAllowedUL-TX-Power             MaxAllowedUL-TX-Power             OPTIONAL,
  ul-ChannelRequirement             UL-ChannelRequirement             OPTIONAL,
  modeSpecificPhysChInfo            CHOICE {
    fdd                              SEQUENCE {
      dl-CommonInformation      DL-CommonInformation      OPTIONAL,
      dl-PDSCH-Information            DL-PDSCH-Information            OPTIONAL,

```

```

        cpch-SetInfo          CPCH-SetInfo          OPTIONAL
      },
      tdd                     NULL
    },
    dl-CommonInformation      DL-CommonInformation  OPTIONAL,
    dl-InformationPerRL-List  DL-InformationPerRL-List,
    -- Extension mechanism for non- release99 information
    criticalExtension         SEQUENCE {}          OPTIONAL,
    nonCriticalExtensions     SEQUENCE {}          OPTIONAL
  }
.
.
.
-- *****
--
-- RADIO BEARER RELEASE
--
-- *****

RadioBearerRelease ::= 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,
  drx-Indicator               DRX-Indicator,
  utran-DRX-CycleLengthCoeff UTRAN-DRX-CycleLengthCoefficient  OPTIONAL,
  -- Core network IEs
  cn-InformationInfo          CN-InformationInfo          OPTIONAL,
  -- Radio bearer IEs
  rb-InformationReleaseList   RB-InformationReleaseList,
  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
    },
    tdd                         NULL
  }
  dl-CommonTransChInfo       DL-CommonTransChInfo       OPTIONAL,
  dl-DeletedTransChInfoList  DL-DeletedTransChInfoList  OPTIONAL,
  dl-AddReconfTransChInfoList DL-AddReconfTransChInfo2List  OPTIONAL,
  -- Physical channel IEs
  frequencyInfo              FrequencyInfo              OPTIONAL,
  maxAllowedUL-TX-Power      MaxAllowedUL-TX-Power      OPTIONAL,
  ul-ChannelRequirement      UL-ChannelRequirement      OPTIONAL,
  modeSpecificPhysChInfo     CHOICE {
    fdd                         SEQUENCE {
      dl-CommonInformation      DL-CommonInformation      OPTIONAL,
      dl-PDSCH-Information      DL-PDSCH-Information      OPTIONAL,
      cpch-SetInfo              CPCH-SetInfo              OPTIONAL
    },
    tdd                         NULL
  },
  dl-CommonInformation      DL-CommonInformation      OPTIONAL,
  dl-InformationPerRL-List  DL-InformationPerRL-List  OPTIONAL,
  -- Extension mechanism for non- release99 information
  criticalExtension         SEQUENCE {}          OPTIONAL,
  nonCriticalExtensions     SEQUENCE {}          OPTIONAL
}
.
.
.
-- *****
--
-- RADIO BEARER SETUP
--
-- *****

RadioBearerSetup ::= 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,
    drx-Indicator                    DRX-Indicator,
    utran-DRX-CycleLengthCoeff      UTRAN-DRX-CycleLengthCoefficient OPTIONAL,
-- Core network IEs
  cn-InformationInfo                CN-InformationInfo              OPTIONAL,
-- Radio bearer IEs
  srb-InformationSetupList          SRB-InformationSetupList        OPTIONAL,
  rab-InformationSetupList          RAB-InformationSetupList,
  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
    },
    tdd                               NULL
  }
  dl-CommonTransChInfo              DL-CommonTransChInfo            OPTIONAL,
  dl-DeletedTransChInfoList         DL-DeletedTransChInfoList       OPTIONAL,
  dl-AddReconfTransChInfoList       DL-AddReconfTransChInfoList     OPTIONAL,
-- Physical channel IEs
  frequencyInfo                     FrequencyInfo                     OPTIONAL,
  maxAllowedUL-TX-Power              MaxAllowedUL-TX-Power           OPTIONAL,
  ul-ChannelRequirement              UL-ChannelRequirement           OPTIONAL,
  modeSpecificPhysChInfo             CHOICE {
    fdd                               SEQUENCE {
      dl-CommonInformation      DL-CommonInformation      OPTIONAL,
      dl-PDSCH-Information            DL-PDSCH-Information            OPTIONAL,
      cpch-SetInfo                    CPCH-SetInfo                    OPTIONAL
    },
    tdd                               NULL
  },
  dl-CommonInformation          DL-CommonInformation          OPTIONAL,
  dl-InformationPerRL-List          DL-InformationPerRL-List        OPTIONAL,
-- Extension mechanism for non-release99 information
  criticalExtension                  SEQUENCE {}                      OPTIONAL,
  nonCriticalExtensions              SEQUENCE {}                      OPTIONAL
}

.
.
.
-- *****
--
-- RRC CONNECTION RE-ESTABLISHMENT
--
-- *****

-- CR285, CR294, CR337, CR392
RRCConnectionReEstablishment ::= 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,
  drx-Indicator                    DRX-Indicator,
  utran-DRX-CycleLengthCoeff      UTRAN-DRX-CycleLengthCoefficient OPTIONAL,
  rlc-ResetIndicatorC-plane        BOOLEAN,
  rlc-ResetIndicatorU-plane        BOOLEAN,
-- Core network IEs
  cn-InformationInfo                CN-InformationInfo              OPTIONAL,
-- Radio bearer IEs
  srb-InformationSetupList          SRB-InformationSetupList        OPTIONAL,
  rab-InformationSetupList          RAB-InformationSetupList        OPTIONAL,
  rb-InformationReleaseList         RB-InformationReleaseList        OPTIONAL,
  rb-InformationReconfigList        RB-InformationReconfigList      OPTIONAL,
  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
  },
  tdd                             NULL
},
dl-CommonTransChInfo             DL-CommonTransChInfo             OPTIONAL,
dl-DeletedTransChInfoList        DL-DeletedTransChInfoList        OPTIONAL,
dl-AddReconfTransChInfoList      DL-AddReconfTransChInfoList      OPTIONAL,
-- Physical channel IEs
frequencyInfo                    FrequencyInfo                     OPTIONAL,
maxAllowedUL-TX-Power            MaxAllowedUL-TX-Power            OPTIONAL,
ul-ChannelRequirement            UL-ChannelRequirement            OPTIONAL,
modeSpecificPhysChInfo          CHOICE {
  fdd                             SEQUENCE {
dl-CommonInformation            DL-CommonInformation            OPTIONAL,
    dl-PDSCH-Information           DL-PDSCH-Information           OPTIONAL,
    cpch-SetInfo                  CPCH-SetInfo                   OPTIONAL
  },
  tdd                             NULL
},
dl-CommonInformation            DL-CommonInformation            OPTIONAL,
dl-InformationPerRL-List         DL-InformationPerRL-List         OPTIONAL,
-- Extension mechanism for non- release99 information
criticalExtension                 SEQUENCE {}                       OPTIONAL,
nonCriticalExtensions            SEQUENCE {}                       OPTIONAL
}

.
.
.
-- *****
--
-- RRC CONNECTION SETUP
--
-- *****

RRCConnectionSetup ::= SEQUENCE {
  -- User equipment IEs
  initialUE-Identity              InitialUE-Identity,
  activationTime                  ActivationTime                     OPTIONAL,
  new-U-RNTI                      U-RNTI,
  new-c-RNTI                      C-RNTI                           OPTIONAL,
  utran-DRX-CycleLengthCoeff     UTRAN-DRX-CycleLengthCoefficient,
  capabilityUpdateRequirement     CapabilityUpdateRequirement       OPTIONAL,
  -- TABULAR: If the IE is not present, the default value defined in 10.3.3.2 shall
  -- be used.
  -- Radio bearer IEs
  srb-InformationSetupList        SRB-InformationSetupList2,
  -- Transport channel IEs
  ul-CommonTransChInfo           UL-CommonTransChInfo             OPTIONAL,
  ul-AddReconfTransChInfoList    UL-AddReconfTransChInfoList,
  dl-CommonTransChInfo           DL-CommonTransChInfo             OPTIONAL,
  dl-AddReconfTransChInfoList    DL-AddReconfTransChInfoList,
  -- Physical channel IEs
  frequencyInfo                  FrequencyInfo                     OPTIONAL,
  maxAllowedUL-TX-Power          MaxAllowedUL-TX-Power            OPTIONAL,
  ul-ChannelRequirement          UL-ChannelRequirement            OPTIONAL,
modeSpecificInfo                CHOICE {
  fdd                             SEQUENCE {
    dl-CommonInformation           DL-CommonInformation           OPTIONAL
  },
  tdd                             NULL
},
  dl-InformationPerRL-List        DL-InformationPerRL-List         OPTIONAL,
  -- Extension mechanism for non- release99 information
  criticalExtension               SEQUENCE {}                       OPTIONAL,
  nonCriticalExtensions           SEQUENCE {}                       OPTIONAL
}

.
.
.
-- *****
--

```

```

-- TRANSPORT CHANNEL RECONFIGURATION
--
-- *****

TransportChannelReconfiguration ::= 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,
  drx-Indicator                  DRX-Indicator,
  utran-DRX-CycleLengthCoeff    UTRAN-DRX-CycleLengthCoefficient OPTIONAL,
  -- Core network IEs
  cn-InformationInfo            CN-InformationInfo            OPTIONAL,
  -- Radio bearer IEs
  rb-WithPDCP-InfoList          RB-WithPDCP-InfoList          OPTIONAL,
  -- Transport channel IEs
  ul-CommonTransChInfo          UL-CommonTransChInfo          OPTIONAL,
  ul-AddReconfTransChInfoList    UL-AddReconfTransChInfoList,
  modeSpecificTransChInfo        CHOICE {
    fdd                          SEQUENCE {
      cpch-SetID                CPCH-SetID                OPTIONAL,
      addReconfTransChDRAC-Info  DRAC-StaticInformationList OPTIONAL
    },
    tdd                          NULL
  } OPTIONAL,
  dl-CommonTransChInfo          DL-CommonTransChInfo          OPTIONAL,
  dl-AddReconfTransChInfoList    DL-AddReconfTransChInfoList,
  -- Physical channel IEs
  frequencyInfo                 FrequencyInfo                 OPTIONAL,
  maxAllowedUL-TX-Power          MaxAllowedUL-TX-Power        OPTIONAL,
  ul-ChannelRequirement          UL-ChannelRequirement        OPTIONAL,
  modeSpecificPhysChInfo        CHOICE {
    fdd                          SEQUENCE {
      dl-CommonInformation DL-CommonInformation OPTIONAL,
      dl-PDSCH-Information        DL-PDSCH-Information        OPTIONAL,
      cpch-SetInfo                CPCH-SetInfo                OPTIONAL
    },
    tdd                          NULL
  },
  dl-CommonInformation DL-CommonInformation OPTIONAL,
  dl-InformationPerRL-List        DL-InformationPerRL-List      OPTIONAL,
  -- Extension mechanism for non- release99 information
  criticalExtension              SEQUENCE {}                  OPTIONAL,
  nonCriticalExtensions          SEQUENCE {}                  OPTIONAL
}
.
.
.
END

```

11.3.6 Physical channel information elements

```

.
.
.
-- Actual value = IE value * 512, only values from 0 to 599 used in Release 99.
DefaultDPCH-OffsetValueFDD ::= INTEGER (0..1023)
DefaultDPCH-OffsetValueTDD ::= INTEGER(0..7)
.
.
.

DL-CommonInformation ::= SEQUENCE {
  modeSpecificInfo CHOICE {
  fdd SEQUENCE {
    dl-DPCH-InfoCommon          DL-DPCH-InfoCommon          OPTIONAL,
    defaultDPCH-OffsetValue      DefaultDPCH-OffsetValueFDD DEFAULT 0,
    dpch-CompressedModeInfo      DPCH-CompressedModeInfo      OPTIONAL,
    tx-DiversityMode             TX-DiversityMode             OPTIONAL,
    ssdt-Information             SSDT-Information             OPTIONAL
  },
  tdd SEQUENCE {
    defaultDPCH-OffsetValue      DefaultDPCH-OffsetValueTDD DEFAULT 0,
  }
}

```

```
}  
.br/>.br/>PreDefPhyChConfiguration ::=          SEQUENCE {  
    ul-DPCH-InfoPredef                UL-DPCH-InfoPredef,  
    modeSpecificInfo                CHOICE {  
        fdd                          SEQUENCE {  
            dl-CommonInformationPredef    DL-CommonInformationPredef OPTIONAL  
        },  
    tdd                              NULL  
    }  
}  
.br/>.br/>END
```

CHANGE REQUEST

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

25.331 CR 444r1

Current Version: **3.3.0**

GSM (AA.BB) or 3G (AA.BBB) specification number ↑

↑ CR number as allocated by MCC support team

For submission to: **TSG-RAN#9**

list expected approval meeting # here ↑

for approval
for information

strategic
non-strategic (for SMG use only)

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

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

Source: TSG-RAN WG2 **Date:** 06.07.2000

Subject: Optimisation of Handover to UTRAN command

Work item:

Category: <small>(only one category shall be marked with an X)</small>	F Correction	<input checked="" type="checkbox"/>	Release:	Phase 2	<input type="checkbox"/>
	A Corresponds to a correction in an earlier release	<input type="checkbox"/>		Release 96	<input type="checkbox"/>
	B Addition of feature	<input type="checkbox"/>		Release 97	<input type="checkbox"/>
	C Functional modification of feature	<input type="checkbox"/>		Release 98	<input type="checkbox"/>
	D Editorial modification	<input type="checkbox"/>		Release 99	<input checked="" type="checkbox"/>
			Release 00	<input type="checkbox"/>	

Reason for change:

The Handover to UTRAN command is sent during handover from another RAT to an UTRAN cell in a container message, which is of a limited length (e.g. 18 octets in GSM, cf. GSM 04.18) Therefore it is important that this message is kept as small as possible. In this change request, the following optimisations for this message are proposed:

- (TDD only): In the uplink and downlink DPCH postconfiguration info IEs, the Time info IE is removed (the Activation time IE included there is duplicated in the handover message, and for the duration it is reasonable to assume the default value and reconfigure after the handover if needed). The Common timeslot info included in the same postconfiguration IEs is moved to the preconfiguration (for the downlink case, it was also moved to the 'common for all radio links' case, because the IEs included there are common ones. This change has also impact to several setup messages, which are adjusted accordingly).
- (TDD only): The Timeslot and Channelisation code description in the DPCH info elements is optimised to use less octets in the case of allocating consecutive codes/timeslots, or if the same codes are allocated in many timeslots. The same optimisation is done also in the PDSCH info and PUSCH info elements.
- The ASN.1 code is changed to include just one FDD/TDD choice, and include all mode-specific elements in that (In the current message, there are at least 8 FDD/TDD choices, using 8 bits in the encoding for 1 bit of information).
- Some boolean IEs marked as Optional are changed to Mandatory.

Additionally, the Re-establishment is removed from the RAB Info used in Handover to UTRAN command (a new "RAB info short" is defined for that), because it is included separately in the case of complete specification, and in the case of preconfiguration it is included in the preconfiguration IEs.

Clauses affected: 10.2.10, 10.2.20, 10.2.25, 10.2.28, 10.2.31, 10.2.37, 10.2.44, 10.2.54, 10.3.4.8a (NEW), 10.3.6.13a (NEW), 10.3.6.14-10.3.6.22, 10.3.6.24, 10.3.6.26a (NEW),

10.3.6.31, 10.3.6.37, 10.3.6.48, 10.3.6.49, 10.3.6.49a (NEW), 10.3.6.77, 10.3.6.54, 10.3.6.76-10.3.6.78, 10.3.6.80, 10.3.6.81a (NEW), 11

Other specs affected:

Other 3G core specifications	<input type="checkbox"/>	→ List of CRs:	
Other GSM core specifications	<input type="checkbox"/>	→ List of CRs:	
MS test specifications	<input type="checkbox"/>	→ List of CRs:	
BSS test specifications	<input type="checkbox"/>	→ List of CRs:	
O&M specifications	<input type="checkbox"/>	→ List of CRs:	

Other comments:



help.doc

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

10.2.10 HANDOVER TO UTRAN COMMAND

This message is sent to the UE via other system to make a handover to UTRAN.

RLC-SAP: N/A (Sent through a different RAT)

Logical channel: N/A (Sent through a different RAT)

Direction: UTRAN → UE

Information Element/Group name	Need	Multi	Type and reference	Semantics description
New U-RNTI	MP		U-RNTI Short 10.3.3.46	
Activation time	MD		Activation time 10.3.3.1	Default value is "now"
Ciphering algorithm	OP		Ciphering algorithm 10.3.3.4	
RAB info	MP		RAB info <u>short</u> 10.3.4.8a	One RAB is established
CHOICE specification mode	MP			
>Complete specification				
UE information elements				
>>Re-establishment timer	MP		Re-establishment timer 10.3.3.30	
RB information elements				
>>Signalling RB information to setup list	MP	1 to <maxSRBsetup>		For each signalling radio bearer established
>>>Signalling RB information to setup	MP		Signalling RB information to setup 10.3.4.21	
>>RB information to setup list	MP	1 to <maxRBperRAB>		
>>>RB information to setup	MP		RB information to setup 10.3.4.17	
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>		
>>>Added or Reconfigured UL TrCH information	MP		Added or Reconfigured UL TrCH information 10.3.5.2	
Downlink transport channels				
>>DL Transport channel information common for all transport channels	MP		DL Transport channel information common for all transport channels 10.3.5.6	
>>Added or Reconfigured TrCH	MP	1 to		

Information Element/Group name	Need	Multi	Type and reference	Semantics description
information		<maxTrCH >		
>>>Added or Reconfigured DL TrCH information	MP		Added or Reconfigured DL TrCH information 10.3.5.1	
Uplink radio resources				
>>Uplink DPCH info	MP		Uplink DPCH info 10.3.6.76	
Downlink radio resources				
>>CHOICE <i>mode</i>	MP			
>>>FDD				
>>>>Downlink information common for all radio links	MP		Downlink information common for all radio links 10.3.6.20	
>>>>Downlink PDSCH information	OP		Downlink PDSCH information 10.3.6.26	
>>>>CPCH SET Info	OP		CPCH SET Info 10.3.6.10	
>>>TDD				(no data)
>>Downlink information common for all radio links	MP		Downlink information common for all radio links 10.3.6.20	
>>Downlink information per radio link	MP	1 to <maxRL>		
>>>Downlink information for each radio link	MP		Downlink information for each radio link 10.3.6.23	
>Preconfiguration				
>>Predefined configuration identity	MP		Predefined configuration identity 10.3.4.5	
>>Uplink DPCH info	MP		Uplink DPCH info Post 10.3.6.77	
Downlink radio resources				
>>CHOICE <i>mode</i>				
>>>FDD				
>>>>Downlink information common for all radio links			Downlink information common for all radio links Post 10.3.6.21	
>>>TDD				(no data)
>>Downlink information per radio link	MP	1 to <maxRL>		Send downlink information for each radio link to be set-up. In TDD MaxRL is 1.
>>>Downlink information for each radio link	MP		Downlink information for each radio link	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
			Post 10.3.6.24	
Frequency info	MP		Frequency info 10.3.6.30	
Maximum allowed UL TX power	MP		Maximum allowed UL TX power 10.3.6.33	
CHOICE mode	MP			
>FDD				(no data)
>TDD				
>>Primary CCPCH Tx Power	MP		Primary CCPCH Tx Power 10.3.6.50	

10.2.20 PHYSICAL CHANNEL RECONFIGURATION

This message is used by UTRAN to assign, replace or release a set of physical channels used by a UE.

RLC-SAP: AM or UM

Logical channel: DCCH

Direction: UTRAN → UE

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE Information Elements				
Integrity check info	CH		Integrity check info 10.3.3.15	
Integrity protection mode info	OP		Integrity protection mode info 10.3.3.18	
Ciphering mode info	OP		Ciphering mode info 10.3.3.5	
Activation time	MD		Activation time 10.3.3.1	Default value is "now"
New U-RNTI	OP		U-RNTI 10.3.3.45	
New C-RNTI	OP		C-RNTI 10.3.3.8	
DRX Indicator	MP		DRX Indicator 10.3.3.10	
UTRAN DRX cycle length coefficient	MD		UTRAN DRX cycle length coefficient 10.3.3.47	Default value is the existing value of UTRAN DRX cycle length coefficient
CN Information Elements				
CN Information info	OP		CN Information info 10.3.1.3	
RB information elements				
RB with PDCP information list	OP	1 to <maxRBall RABs>		This IE is needed for each RB having PDCP in the case of lossless SRNS relocation
>RB with PDCP information	MP		RB with PDCP information 10.3.4.19	
PhyCH information elements				
Frequency info	MD		Frequency info 10.3.6.30	Default value is the existing value of frequency information
Uplink radio resources				
Maximum allowed UL TX power	MD		Maximum allowed UL TX power 10.3.6.33	Default value is the existing value of the maximum allowed UL TX power
CHOICE <i>channel requirement</i>	OP			At least one criticality=reject spare value needed for future extension
>Uplink DPCH info			Uplink DPCH info 10.3.6.76	
>PRACH Info (for RACH)			PRACH Info (for RACH)	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
			10.3.6.44	
Downlink radio resources				
CHOICE <i>mode</i>	MP			
>FDD				
>>Downlink information common for all radio links	OP		Downlink information common for all radio links 10.3.6.20	
>>Downlink PDSCH information	OP		Downlink PDSCH information 10.3.6.26	
>>CPCH SET Info	OP		CPCH SET Info 10.3.6.10	
> TDD				(no data)
<u>Downlink information common for all radio links</u>	<u>OP</u>		<u>Downlink information common for all radio links 10.3.6.20</u>	
Downlink information per radio link list	OP	1 to <maxRL>		Send downlink information for each radio link
>Downlink information for each radio link	MP		Downlink information for each radio link 10.3.6.23	

10.2.25 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.

RLC-SAP: AM or UM

Logical channel: DCCH

Direction: UTRAN → UE

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE Information elements				
Integrity check info	CH		Integrity check info 10.3.3.15	
Integrity protection mode info	OP		Integrity protection mode info 10.3.3.18	
Ciphering mode info	OP		Ciphering mode info 10.3.3.5	
Activation time	MD		Activation time 10.3.3.1	Default value is "now"
New U-RNTI	OP		U-RNTI 10.3.3.45	
New C-RNTI	OP		C-RNTI 10.3.3.8	
DRX Indicator	MP		DRX Indicator 10.3.3.10	
UTRAN DRX cycle length coefficient	MD		UTRAN DRX cycle length coefficient 10.3.3.47	Default value is the existing value of UTRAN DRX cycle length coefficient
CN information elements				
CN Information info	OP		CN Information info 10.3.1.3	
RB information elements				
RB information to reconfigure list	MP	1 to <maxRB>		
>RB information to reconfigure	MP		RB information to reconfigure 10.3.4.15	
RB information to be affected list	OP	1 to <maxRB>		
>RB information to be affected	MP		RB information to be affected 10.3.4.14	
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	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Deleted TrCH information list	OP	1 to <maxTrCH >		
> Deleted UL TrCH information	MP		Deleted UL TrCH information 10.3.5.5	
Added or Reconfigured TrCH information list	OP	1 to <maxTrCH >		
>Added or Reconfigured UL TrCH information	MP		Added or Reconfigured UL TrCH information 10.3.5.2	
CHOICE <i>mode</i>	OP			
>FDD				
>>CPCH set ID	OP		CPCH set ID 10.3.5.3	
>> Added or Reconfigured TrCH information for DRAC list	OP	1 to <maxTrCH >		
>>>DRAC static information	MP		DRAC static information 10.3.5.7	
>TDD				(no data)
Downlink transport channels				
DL Transport channel information common for all transport channels	OP		DL Transport channel information common for all transport channels 10.3.5.6	
Deleted TrCH information list	OP	1 to <maxTrCH >		
>Deleted DL TrCH information	MP		Deleted DL TrCH information 10.3.5.4	
Added or Reconfigured TrCH information list	OP	1 to <maxTrCH >		
>Added or Reconfigured DL TrCH information	MP		Added or Reconfigured DL TrCH information 10.3.5.1	
PhyCH information elements				
Frequency info	MD		Frequency info 10.3.6.30	Default value is the existing value of frequency information
Uplink radio resources				
Maximum allowed UL TX power	MD		Maximum allowed UL TX power 10.3.6.33	Default value is the existing maximum UL TX power
CHOICE <i>channel requirement</i>	OP			At least one spare choice (criticality = reject) required
>Uplink DPCH info			Uplink DPCH info 10.3.6.76	
>PRACH Info (for RACH)			PRACH Info (for RACH)	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
			10.3.6.44	
Downlink radio resources				
CHOICE <i>mode</i>	MP			
>FDD				
>>Downlink information common for all radio links	OP		Downlink information common for all radio links 10.3.6.20	
>>Downlink PDSCH information	OP		Downlink PDSCH information 10.3.6.26	
>>CPCH SET Info	OP		CPCH SET Info 10.3.6.10	
>TDD				(no data)
<u>Downlink information common for all radio links</u>	<u>OP</u>		<u>Downlink information common for all radio links 10.3.6.20</u>	
Downlink information per radio link list	OP	1 to <maxRL>		
>Downlink information for each radio link	MP		Downlink information for each radio link 10.3.6.23	

10.2.28 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.

RLC-SAP: AM or UM

Logical channel: DCCH

Direction: UTRAN → UE

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE Information Elements				
Integrity check info	CH		Integrity check info 10.3.3.15	
Integrity protection mode info	OP		Integrity protection mode info 10.3.3.18	
Ciphering mode info	OP		Ciphering mode info 10.3.3.5	
Activation time	MD		Activation time 10.3.3.1	Default value is "now"
New U-RNTI	OP		U-RNTI 10.3.3.45	
New C-RNTI	OP		C-RNTI 10.3.3.8	
DRX Indicator	MP		DRX Indicator 10.3.3.10	
UTRAN DRX cycle length coefficient	MD		UTRAN DRX cycle length coefficient 10.3.3.47	Default value is the existing value of UTRAN DRX cycle length coefficient
CN Information Elements				
CN Information info	OP		CN Information info 10.3.1.3	
RB Information Elements				
RB information to release list	MP	1 to <maxRB>		
>RB information to release	MP		RB information to release 10.3.4.16	
RB information to be affected list	OP	1 to <maxRB>		
>RB information to be affected	MP		RB information to be affected 10.3.4.14	
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 <axTrCH>		
>Deleted UL TrCH information	MP		Deleted UL TrCH information 10.3.5.5	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Added or Reconfigured TrCH information list	OP	1 to <maxTrCH >		
>Added or Reconfigured UL TrCH information	MP		Added or Reconfigured UL TrCH information 10.3.5.2	
CHOICE <i>mode</i>	OP			
>FDD				
>>CPCH set ID	OP		CPCH set ID 10.3.5.3	
>> Added or Reconfigured TrCH information for DRAC list	OP	1 to <maxTrCH >		
>>>DRAC static information	MP		DRAC static information 10.3.5.7	
>TDD				(no data)
Downlink transport channels				
DL Transport channel information common for all transport channels	OP		DL Transport channel information common for all transport channels 10.3.5.6	
Deleted TrCH information list	OP	1 to <maxTrCH >		
>Deleted DL TrCH information	MP		Deleted DL TrCH information 10.3.5.4	
Added or Reconfigured TrCH information list	OP	1 to <maxTrCH >		
>Added or Reconfigured DL TrCH information	MP		Added or Reconfigured DL TrCH information 10.3.5.1	
PhyCH information elements				
Frequency info	MD		Frequency info 10.3.6.30	Default value is the existing value of frequency information
Uplink radio resources				
Maximum allowed UL TX power	MD		Maximum allowed UL TX power 10.3.6.33	Default value is the existing maximum UL TX power
CHOICE <i>channel requirement</i>	OP			At least one spare choice (criticality = reject) required
>Uplink DPCH info			Uplink DPCH info 10.3.6.76	
>PRACH Info (for RACH)			PRACH Info (for RACH) 10.3.6.44	
Downlink radio resources				
CHOICE <i>mode</i>	MP			
>FDD				
>>Downlink information common for all radio links	OP		Downlink information common for	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
			all radio links 10.3.6.20	
>>Downlink PDSCH information	OP		Downlink PDSCH information 10.3.6.26	
>>CPCH SET Info	OP		CPCH SET Info 10.3.6.10	
>TDD				(no data)
<u>Downlink information common for all radio links</u>	<u>OP</u>		<u>Downlink information common for all radio links</u> <u>10.3.6.20</u>	
Downlink information per radio link list	OP	1 to <maxRL>		Send downlink information for each radio link to be set-up
>Downlink information for each radio link	MP		Downlink information for each radio link 10.3.6.23	

10.2.31 RADIO BEARER SETUP

This message is sent by UTRAN to the UE to establish new radio bearer(s). It can also include modifications to the configurations of transport channels and/or physical channels.

RLC-SAP: AM or UM

Logical channel: DCCH

Direction: UTRAN → UE

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE Information Elements				
Integrity check info	CH		Integrity check info 10.3.3.15	
Integrity protection mode info	OP		Integrity protection mode info 10.3.3.18	
Ciphering mode info	OP		Ciphering mode info 10.3.3.5	
Activation time	MD		Activation time 10.3.3.1	Default value is "now"
New U-RNTI	OP		U-RNTI 10.3.3.45	
New C-RNTI	OP		C-RNTI 10.3.3.8	
DRX Indicator	MP		DRX Indicator 10.3.3.10	
UTRAN DRX cycle length coefficient	MD		UTRAN DRX cycle length coefficient 10.3.3.47	Default value is the existing value of UTRAN DRX cycle length coefficient
CN Information Elements				
CN Information info	OP		CN Information info 10.3.1.3	
RB Information Elements				
Signalling RB information to setup list	OP	1 to <maxSRBs etup>		For each signalling radio bearer established
>Signalling RB information to setup	MP		Signalling RB information to setup 10.3.4.21	
RAB information to setup list	MP	1 to <maxRABs etup>		For each RAB established
>RAB information for setup	MP		RAB information for setup 10.3.4.9	
RB information to be affected list	OP	1 to <maxRB>		
>RB information to be affected	MP		RB information to be affected 10.3.4.14	
TrCH Information Elements				
Uplink transport channels				
UL Transport channel information common for all transport channels	OP		UL Transport channel information common for	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
			all transport channels 10.3.5.24	
Deleted TrCH information list	OP	1 to <maxTrCH >		
>Deleted UL TrCH information	MP		Deleted UL TrCH information 10.3.5.5	
Added or Reconfigured TrCH information list	OP	1 to <maxTrCH >		
>Added or Reconfigured UL TrCH information	MP		Added or Reconfigured UL TrCH information 10.3.5.2	
CHOICE mode	OP			
>FDD				
>>CPCH set ID	OP		CPCH set ID 10.3.5.3	
>> Added or Reconfigured TrCH information for DRAC list	OP	1 to <maxTrCH >		
>>>DRAC static information	MP		DRAC static information 10.3.5.7	
>TDD				(no data)
Downlink transport channels				
DL Transport channel information common for all transport channels	OP		DL Transport channel information common for all transport channels 10.3.5.6	
Deleted TrCH information list	OP	1 to <maxTrCH >		
>Deleted DL TrCH information	MP		Deleted DL TrCH information 10.3.5.4	
Added or Reconfigured TrCH information list	OP	1 to <maxTrCH >		
>Added or Reconfigured DL TrCH information	MP		Added or Reconfigured DL TrCH information 10.3.5.1	
PhyCH information elements				
Frequency info	MD		Frequency info 10.3.6.30	Default value is the existing value of frequency information
Uplink radio resources				
Maximum allowed UL TX power	MD		Maximum allowed UL TX power 10.3.6.33	Default value is the existing maximum UL TX power
CHOICE channel requirement	OP			At least one spare choice (criticality = reject) required
>Uplink DPCH info			Uplink DPCH info	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
>PRACH Info (for RACH)			10.3.6.76 PRACH Info (for RACH) 10.3.6.44	
Downlink radio resources				
CHOICE <i>mode</i>	MP			
>FDD				
>>Downlink information common for all radio links	OP		Downlink information common for all radio links10.3.6.20	
>>Downlink PDSCH information	OP		Downlink PDSCH information10.3.6.26	
>>CPCH SET Info	OP		CPCH SET Info 10.3.6.10	
>TDD				(no data)
<u>Downlink information common for all radio links</u>	<u>OP</u>		<u>Downlink information common for all radio links10.3.6.20</u>	
Downlink information per radio link list	OP	1 to <maxRL>		Send downlink information for each radio link
>Downlink information for each radio link	MP		Downlink information for each radio link 10.3.6.23	

10.2.37 RRC CONNECTION RE-ESTABLISHMENT

This message is sent by UTRAN in order to re-establish an RRC connection.

RLC-SAP: UM

Logical channel: CCCH, DCCH

Direction: UTRAN → UE

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE Information Elements				
U-RNTI	CV-CCCH		U-RNTI 10.3.3.45	
Integrity check info	CH		Integrity check info 10.3.3.15	
Integrity protection mode info	OP		Integrity protection mode info 10.3.3.18	
Ciphering mode info	OP		Ciphering mode info 10.3.3.5	
Activation time	MD		Activation time 10.3.3.1	Default value is "now"
New U-RNTI	OP		U-RNTI 10.3.3.45	
New C-RNTI	OP		C-RNTI 10.3.3.8	
DRX Indicator	MP		DRX Indicator 10.3.3.10	
UTRAN DRX cycle length coefficient	MD		UTRAN DRX cycle length coefficient 10.3.3.47	Default value is the existing value of UTRAN DRX cycle length coefficient
RLC reset indicator (for C-plane)	MP		RLC reset indicator 10.3.3.35	
RLC reset indicator (for U-plane)	MP		RLC reset indicator 10.3.3.35	
CN Information Elements				
CN Information info	OP		CN Information info 10.3.1.3	
RB Information Elements				
Signalling RB information to setup list	OP	1 to <maxSRBs etup>		For each signalling radio bearer established
>Signalling RB information to setup	MP		Signalling RB information to setup 10.3.4.21	
RAB information for setup list	OP	1 to <maxRABs etup>		For each RAB established
>RAB information for setup	MP		RAB information for setup 10.3.4.9	
RB information to release list	OP	1 to <maxRB>		
>RB information to release	MP		RB information to release	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
			10.3.4.16	
RB information to reconfigure list	OP	1 to <maxRB>		
>RB information to reconfigure	MP		RB information to reconfigure 10.3.4.15	
RB information to be affected list	OP	1 to <maxRB>		
>RB information to be affected	MP		RB information to be affected 10.3.4.14	
TrCH Information Elements				
Uplink transport channels				
UL Transport channel information common for all transport channels	OP		UL Transport channel information common for all transport channels 10.3.5.24	
Deleted TrCH information list	OP	1 to <maxTrCH >		
>Deleted UL TrCH information	MP		Deleted UL TrCH information 10.3.5.5	
Added or Reconfigured TrCH information list	OP	1 to <maxTrCH >		
>Added or Reconfigured UL TrCH information	MP		Added or Reconfigured UL TrCH information 10.3.5.2	
CHOICE <i>mode</i>	OP			
>FDD				
>>CPCH set ID	OP		CPCH set ID 10.3.5.3	
>> Added or Reconfigured TrCH information for DRAC list	OP	1 to <maxTrCH >		
>>>DRAC static information	MP		DRAC static information 10.3.5.7	
>TDD				(no data)
Downlink transport channels				
DL Transport channel information common for all transport channels	OP		DL Transport channel information common for all transport channels 10.3.5.6	
Deleted TrCH information list	OP	1 to <maxTrCH >		
>Deleted DL TrCH information	MP		Deleted DL TrCH information 10.3.5.4	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Added or Reconfigured TrCH information list	OP	1 to <maxTrCH>		
>Added or Reconfigured DL TrCH information	MP		Added or Reconfigured DL TrCH information 10.3.5.1	
PhyCH information elements				
Frequency info	MD		Frequency info 10.3.6.30	Default value is the existing value of frequency information
Uplink radio resources				
Maximum allowed UL TX power	MD		Maximum allowed UL TX power 10.3.6.33	Default value is the existing maximum UL TX power
CHOICE <i>channel requirement</i>	OP			At least one spare choice (criticality = reject) required
>Uplink DPCH info			Uplink DPCH info 10.3.6.76.	
>PRACH Info (for RACH)			PRACH Info (for RACH) 10.3.6.44	
Downlink radio resources				
CHOICE <i>mode</i>				
>FDD				
>>Downlink information common for all radio links	OP		Downlink information common for all radio links 10.3.6.20	
>>Downlink PDSCH information	OP		Downlink PDSCH information 10.3.6.26	
>>CPCH SET Info	OP		CPCH SET Info 10.3.6.10	
>TDD				(no data)
<u>Downlink information common for all radio links</u>	<u>OP</u>		<u>Downlink information common for all radio links 10.3.6.20</u>	
Downlink information per radio link list	OP	1 to <maxRL>		Send downlink information for each radio link to be set-up
>Downlink information for each radio link	MP		Downlink information for each radio link 10.3.6.23	

Condition	Explanation
CCCH	This IE is only sent when CCCH is used

10.2.44 RRC CONNECTION SETUP

This message is used by the network to accept the establishment of an RRC connection for an UE, including assignment of signalling link information, transport channel information and optionally physical channel information.

RLC-SAP: UM

Logical channel: CCCH

Direction: UTRAN → UE

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE Information Elements				
Initial UE identity	MP		Initial UE identity 10.3.3.14	
Activation time	MD		Activation time 10.3.3.1	Default value is "now"
New U-RNTI	MP		U-RNTI 10.3.3.45	
New C-RNTI	OP		C-RNTI 10.3.3.8	
UTRAN DRX cycle length coefficient	MP		UTRAN DRX cycle length coefficient 10.3.3.47	
Capability update requirement	MD		Capability update requirement 10.3.3.2	Default value is defined in subclause 10.3.3.3
RB Information Elements				
Signalling RB information to setup list	MP	4 to 5		Information for signalling radio bearers, in the order RB 0 up to 4.
>Signalling RB information to setup	MP		Signalling RB information to setup 10.3.4.21	
TrCH Information Elements				
Uplink transport channels				
UL Transport channel information common for all transport channels	OP		UL Transport channel information common for all transport channels 10.3.5.24	
Added or Reconfigured TrCH information list	MP	1 to <maxTrCH >		
>Added or Reconfigured UL TrCH information	MP		Added or Reconfigured UL TrCH information 10.3.5.2	
Downlink transport channels				
DL Transport channel information common for all transport channels	OP		DL Transport channel information common for all transport channels 10.3.5.6	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Added or Reconfigured TrCH information list	MP	1 to <maxTrCH>		
>Added or Reconfigured DL TrCH information	MP		Added or Reconfigured DL TrCH information 10.3.5.1	
PhyCH information elements				
Frequency info	MD		Frequency info 10.3.6.30	Default value is the existing value of frequency information
Uplink radio resources				
Maximum allowed UL TX power	MD		Maximum allowed UL TX power 10.3.6.33	Default value is the existing maximum UL TX power
CHOICE <i>channel requirement</i>	OP			At least one spare choice (criticality = reject) required
>Uplink DPCH info			Uplink DPCH info 10.3.6.76	
>PRACH Info (for RACH)			PRACH Info (for RACH) 10.3.6.44	
Downlink radio resources				
CHOICE mode	MP			
>FDD				
>>Downlink information common for all radio links	OP		Downlink information common for all radio links 10.3.6.20	
>TDD				(no data)
Downlink information per radio link list	OP	1 to <MaxRL>		Send downlink information for each radio link to be set-up
>Downlink information for each radio link	MP		Downlink information for each radio link 10.3.6.23	

10.2.54 TRANSPORT CHANNEL RECONFIGURATION

This message is used by UTRAN to configure the transport channel of a UE. This also includes a possible reconfiguration of physical channels. The message can also be used to assign a TFC subset and reconfigure physical channel.

RLC-SAP: AM or UM

Logical channel: DCCH

Direction: UTRAN → UE

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE Information Elements				
Integrity check info	CH		Integrity check info 10.3.3.15	
Integrity protection mode info	OP		Integrity protection mode info 10.3.3.18	
Ciphering mode info	OP		Ciphering mode info 10.3.3.5	
Activation time	MD		Activation time 10.3.3.1	Default value is "now"
New U-RNTI	OP		U-RNTI 10.3.3.45	
New C-RNTI	OP		C-RNTI 10.3.3.8	
DRX Indicator	MP		DRX Indicator 10.3.3.10	
UTRAN DRX cycle length coefficient	MD		UTRAN DRX cycle length coefficient 10.3.3.47	Default value is the existing value of UTRAN DRX cycle length coefficient
CN Information Elements				
CN Information info	OP		CN Information info 10.3.1.3	
RB information elements				
RB with PDCP information list	OP	1 to <maxRBall RABs>		This IE is needed for each RB having PDCP in the case of lossless SRNS relocation
>RB with PDCP information	MP		RB with PDCP information 10.3.4.19	
TrCH Information Elements				
Uplink transport channels				
UL Transport channel information common for all transport channels	OP		UL Transport channel information common for all transport channels 10.3.5.24	
Added or Reconfigured TrCH information list	MP	1 to <maxTrCH >		
>Added or Reconfigured UL TrCH information	MP		Added or Reconfigured UL TrCH	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
			information 10.3.5.2	
CHOICE <i>mode</i>	OP			
>FDD				
>>CPCH set ID	OP		CPCH set ID 10.3.5.3	
>> Added or Reconfigured TrCH information for DRAC list	OP	1 to <maxTrCH >		
>>>DRAC static information	MP		DRAC static information 10.3.5.7	
>TDD				(no data)
Downlink transport channels				
DL Transport channel information common for all transport channels	OP		DL Transport channel information common for all transport channels 10.3.5.6	
Added or Reconfigured TrCH information list	MP	1 to <maxTrCH >		
>Added or Reconfigured DL TrCH information	MP		Added or Reconfigured DL TrCH information 10.3.5.1	
PhyCH information elements				
Frequency info	MD		Frequency info 10.3.6.30	Default value is the existing value of frequency information
Uplink radio resources				
Maximum allowed UL TX power	MD		Maximum allowed UL TX power 10.3.6.33	Default value is the existing maximum UL TX power
CHOICE <i>channel requirement</i>	OP			At least one spare choice (criticality = reject) required
>Uplink DPCH info			Uplink DPCH info 10.3.6.76	
>PRACH Info (for RACH)			PRACH Info (for RACH) 10.3.6.44	
Downlink radio resources				
CHOICE <i>mode</i>				
>FDD				
>>Downlink information common for all radio links	OP		Downlink information common for all radio links 10.3.6.20	
>>>Downlink PDSCH information	OP		Downlink PDSCH information 10.3.6.26	
>>CPCH set Info	OP		CPCH set Info 10.3.6.10	
>TDD				(no data)
Downlink information common for all radio links	OP		Downlink information common for	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
			all radio links 10.3.6.20	
Downlink information per radio link list	OP	1 to <maxRL>		Send downlink information for each radio link
>Downlink information for each radio link	MP		Downlink information for each radio link 10.3.6.23	

10.3.4.8 RAB info

This IE contains information used to uniquely identify a radio access bearer.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
RAB identity	MP		RAB identity 10.3.1.14	
CN domain identity	MP		CN domain identity 10.3.1.1	
Re-establishment timer	MP		Re- establishe nt timer 10.3.3.30	

10.3.4.8a RAB info short

This IE contains information used to uniquely identify a radio access bearer.

<u>Information Element/Group name</u>	<u>Need</u>	<u>Multi</u>	<u>Type and reference</u>	<u>Semantics description</u>
<u>RAB identity</u>	<u>MP</u>		<u>RAB identity</u> <u>10.3.1.14</u>	
<u>CN domain identity</u>	<u>MP</u>		<u>CN domain</u> <u>identity</u> <u>10.3.1.1</u>	

10.3.6.13a Downlink channelisation codes

NOTE: Only for TDD

<u>Information Element/Group name</u>	<u>Need</u>	<u>Multi</u>	<u>Type and reference</u>	<u>Semantics description</u>
<u>CHOICE codes representation</u>	<u>MP</u>			
<u>>Consecutive codes</u>				
<u>>>First channelisation code</u>	<u>MP</u>		<u>Enumerated ((16/1)...(16/16))</u>	<u>The codes from First channelisation code to Last channelisation code shall be used in that order by the physical layer in this timeslot. If a TFCI exists in this timeslot, it is mapped in the First channelisation code.</u>
<u>>>Last channelisation code</u>	<u>MP</u>		<u>Enumerated ((16/1)...(16/16))</u>	<u>If this is the same as First channelisation code, only one code is used by the physical layer.</u>
<u>>Bitmap</u>				
<u>>>Channelisation codes bitmap</u>	<u>MP</u>		<u>Bitmap(16)</u>	<u>The first bit in this bitmap corresponds to channelisation code (16/1) the second to (16/2) and so on. A 1 in the bitmap means that the code is used in this timeslot, a 0 that the code is not used. The codes shall be used in the order from (16/1) to (16/16) by the physical layer.</u>

10.3.6.14 Downlink DPCH info common for all RL

NOTE: Only for FDD

Information Element/Group name	Need	Multi	Type and reference	Semantics description
<u>CHOICE mode</u>				
<u>>FDD</u>				
<u>>>Downlink DPCH power control information</u>	OP		Downlink DPCH power control information 10.3.6.19	
<u>>>Spreading factor</u>	MP		Integer(4, 8, 16, 32, 64, 128, 256, 512)	
<u>>>Fixed or Flexible Position</u>	MP		Enumerated (Fixed, Flexible)	
<u>>>TFCI existence</u>	MP		Boolean	TRUE indicates that TFCI exists
<u>>>CHOICE SF</u>	MP			
<u>>>> SF = 256</u>				
<u>>>>> Number of bits for Pilot bits</u>	MP		Integer (2,4,8)	In bits
<u>>>> SF = 128</u>				
<u>>>>>Number of bits for Pilot bits</u>	MP		Integer(4,8)	In bits
<u>>>> Otherwise</u>				(no data)
<u>>TDD</u>				
<u>>>Common timeslot info</u>	<u>MD</u>		<u>Common Timeslot Info 10.3.6.7</u>	<u>Default is the current Common timeslot info</u>

CHOICE SF	Condition under which the given SF is chosen
SF=128	"Spreading factor" is set to 128
SF=256	"Spreading factor" is set to 256
Otherwise	"Spreading factor" is set to a value distinct from 128 and 256

10.3.6.15 Downlink DPCH info common for all RL Post

NOTE: Only for FDD

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Downlink DPCH power control information	OP		Downlink DPCH power control information 10.3.6.19	

10.3.6.16 Downlink DPCH info common for all RL Pre

NOTE: Only for FDD

Information Element/Group name	Need	Multi	Type and reference	Semantics description
<u>CHOICE mode</u>	<u>MP</u>			
<u>>FDD</u>				
<u>>>Spreading factor</u>	MP		Integer(4, 8, 16, 32, 64, 128, 256, 512)	Defined in CHOICE SF512-Andpilot with "number of its for pilot bits" in ASN.1
<u>>>Fixed or Flexible Position</u>	MP		Enumerated (Fixed, Flexible)	
<u>>>TFCI existence</u>	MP		Boolean	TRUE indicates that TFCI exists
<u>>>CHOICE SF</u>	MP			
<u>>>> SF = 256</u>				
<u>>>>> Number of bits for Pilot bits</u>	MP		Integer (2,4,8)	In bits
<u>>>> SF = 128</u>				
<u>>>>>Number of bits for Pilot bits</u>	MP		Integer(4,8)	In bits
<u>>>> Otherwise</u>				(no data)
<u>>TDD</u>				
<u>>>Common timeslot info</u>	<u>MP</u>		<u>Common Timeslot Info 10.3.6.7</u>	

CHOICE SF	Condition under which the given SF is chosen
SF=128	"Spreading factor" is set to 128
SF=256	"Spreading factor" is set to 256
Otherwise	"Spreading factor" is set to a value distinct from 128 and 256

10.3.6.17 Downlink DPCH info for each RL

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>mode</i>	MP			
>FDD				
>>Primary CPICH usage for channel estimation	MP		Primary CPICH usage for channel estimation 10.3.6.53	
>>DPCH frame offset	MP		Integer(0..381 44 by step of 256)	Offset (in number of chips) between the beginning of the P-CCPCH frame and the beginning of the DPCH frame This is called $\tau_{DPCH,n}$ in TS 25.211
>>Secondary CPICH info	OP		Secondary CPICH info 10.3.6.63	
>>DL channelisation code	MP	1 to <maxDPC H-DLchan>		SF of the channelisation code of the data part for each DPCH
>>>Secondary scrambling code	MD		Secondary scrambling code 10.3.6.64	Default is the same scrambling code as for the Primary CPICH
>>> CHOICE <i>Spreading factor</i>	MP		Integer(4, 8, 16, 32, 64, 128, 256, 512)	Defined in CHOICE SF512-AndCodenumber with "code number" in ASN.1
>>>Code number	MP		Integer(0..Spreading factor - 1)	
>>> Scrambling code change	CH SF/2		Enumerated (code change, no code change)	Indicates whether the alternative scrambling code is used for compressed mode method 'SF/2'.
>>TPC combination index	MP		TPC combination index 10.3.6.73	
>>SSDT Cell Identity	OP		SSDT Cell Identity 10.3.6.66	
>>Closed loop timing adjustment mode	CH TxDiversity Mode		Integer(1, 2)	It is present if current TX Diversity Mode in UE is "closed loop mode 1" or "closed loop mode 2". Value in slots
>TDD				
>>DL CCTrCh List	MP	1..<maxCC TrCH>		
>>>TFCS Identity	MD		Transport Format Combination Set Identity 10.3.5.21	Identity of this CCTrCh. Default is specified in 10.3.5.21
>>>Time info	MP		Time Info 10.3.6.71	
>>>Common timeslot info	MD		Common Timeslot Info 10.3.6.7	Default is the current Common timeslot info
>>>Individual Timeslot info list	MD	1 to <maxTS>		Default is the current Timeslot info list

Information Element/Group name	Need	Multi	Type and reference	Semantics description
>>>>Individual timeslot info	MP		Individual timeslot info 10.3.6.31	
>>>>Channelisation code list	MP	1 to <maxDPC HcodesPer TS>		The first instance of the parameter Channelisation code corresponds to the first DPCH in that timeslot that shall be used first by the physical layer, the second to the DPCH in that timeslot that shall be used second and so on.
>>>>Channelisation code	MP		Enumerated ((16/1)...(16/16))	
>>>Downlink DPCH timeslots and codes	MD		Downlink Timeslots and Codes 10.3.6.26a	Default is to use the old timeslots and codes.

Condition	Explanation
<i>HO list length</i>	maxCCTrCH is 8 in case of handover, otherwise it is equal to one.
<i>HO presence</i>	The element is only present in case of handover
<i>SF/2</i>	The information element is mandatory if the UE has an active compressed mode pattern sequence, which is using compressed mode method "SF/2". Otherwise the IE is not needed.
<i>TxDiversity Mode</i>	This IE is present if current TX Diversity Mode in UE is "closed loop mode 1" or "closed loop mode 2". Otherwise the IE is not needed.

10.3.6.18 Downlink DPCH info for each RL Post

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE mode	MP			
>FDD				
>>Primary CPICH usage for channel estimation	MP		Primary CPICH usage for channel estimation 10.3.6.53	
>>Secondary scrambling code	MD		Secondary scrambling code 10.3.6.64	Default is the same scrambling code as for the Primary CPICH
>>Code number	MP		Integer(0..max CodeNum)	
>>TPC combination index	MP		TPC combination index 10.3.6.73	
>TDD				
>>Time info	MP		Time Info 10.3.6.74	
>>Common timeslot info	MP		Common Timeslot Info 10.3.6.7	
>>Individual Timeslot info list	MP	1 to <Max TS>		
>>>Individual timeslot info	MP		Individual timeslot info 10.3.6.34	
>>>Channelisation code list	MP	1 to <MaxDPC HcodesPer TS>		The first instance of the parameter Channelisation code corresponds to the first DPCH in that timeslot that shall be used first by the physical layer, the second to the DPCH in that timeslot that shall be used second and so on.
>>>>Channelisation code	MP		Enumerated ((16/1)...(16/16))	
>>Downlink DPCH timeslots and codes	MP		Downlink Timeslots and Codes 10.3.6.26a	

10.3.6.19 Downlink DPCH power control information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE mode	MP			
>FDD				
>>DPC Mode	MP		Enumerated (Single TPC, TPC triplet in soft)	"Single TPC" is DPC_Mode=0 and "TPC triplet in soft" is DPC_mode=1 in [TS 25.214]
> TDD				(no data)

10.3.6.20 Downlink information common for all radio links

NOTE: Only for FDD

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Downlink DPCH info common for all RL	OP		Downlink DPCH info common for all RL 10.3.6.14	
<u>CHOICE mode</u>				
<u>>FDD</u>				
<u>>>Default DPCH Offset Value</u>	MD		Default DPCH Offset Value, 10.3.6.13	Default value is 0
<u>>>DPCH compressed mode info</u>	MD		DPCH compressed mode info 10.3.6.27	Default value is the existing value of DPCH compressed mode information
<u>>>TX Diversity Mode</u>	MD		TX Diversity Mode 10.3.6.74	Default value is the existing value of TX Diversity mode
<u>>>SSDT information</u>	OP		SSDT information 10.3.6.67	
<u>>TDD</u>				(no data)

10.3.6.21 Downlink information common for all radio links Post

NOTE: Only for FDD

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Downlink DPCH info common for all RL	MP		Downlink DPCH info common for all RL Post 10.3.6.159.4 &	

10.3.6.22 Downlink information common for all radio links Pre

NOTE: Only for FDD

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Downlink DPCH info common for all RL	MP		Downlink DPCH info common for all RL Pre 10.3.6.16	
<u>CHOICE mode</u>				
<u>>FDD</u>				
<u>>>Default DPCH Offset Value</u>	MD		Default DPCH Offset Value, 10.3.6.13	Default value is 0
<u>>TDD</u>				(no data)

10.3.6.24 Downlink information for each radio link Post

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Choice mode	MP			
>FDD				
>>Primary CPICH info	MP		Primary CPICH info 10.3.6.51	
>TDD				
>>Primary CCPCH info	MPOP		Primary CCPCH info post 10.3.6.49a	
Downlink DPCH info for each RL	MP		Downlink DPCH info for each RL Post 10.3.6.1 87	

10.3.6.26a Downlink Timeslots and Codes

NOTE: Only for TDD

<u>Information Element/Group name</u>	<u>Need</u>	<u>Multi</u>	<u>Type and reference</u>	<u>Semantics description</u>
<u>First Individual timeslot info</u>	<u>MP</u>		<u>Individual timeslot info 10.3.6.31</u>	<u>Individual timeslot info for the first timeslot used by the physical layer.</u>
<u>First timeslot channelisation codes</u>	<u>MP</u>		<u>Downlink channelisation codes 10.3.6.13a</u>	<u>These codes shall be used by the physical layer in the timeslot given in First Individual timeslot info.</u>
<u>CHOICE more timeslots</u>	<u>MP</u>			
<u>>No more timeslots</u>				<u>(no data)</u>
<u>>Consecutive timeslots</u>				
<u>>>Number of additional timeslots</u>	<u>MP</u>		<u>Integer(1..maxTS-1)</u>	<u>The timeslots used by the physical layer shall be timeslots: N mod maxTS (N+1) mod maxTS ... (N+k) mod maxTS in that order, where N is the timeslot number in the First individual timeslot info and k the Number of additional timeslots. The additional timeslots shall use the same parameters (e.g. channelisation codes, midamble shifts etc.) as the first timeslot.</u>
<u>>Timeslot list</u>				
<u>>>Additional timeslot list</u>	<u>MP</u>	<u>1 to <maxTS-1></u>		<u>The first instance of this parameter corresponds to the timeslot that shall be used second by the physical layer, the second to the timeslot that shall be used third and so on.</u>
<u>>>>CHOICE parameters</u>	<u>MP</u>			
<u>>>>>Same as last</u>				
<u>>>>>>Timeslot number</u>	<u>MP</u>		<u>Timeslot Number 10.3.6.72</u>	<u>The physical layer shall use the same parameters (e.g. channelisation codes, midamble shifts etc.) for this timeslot as for the last one.</u>
<u>>>>>>New parameters</u>				
<u>>>>>>Individual timeslot info</u>	<u>MP</u>		<u>Individual timeslot info 10.3.6.31</u>	
<u>>>>>>Channelisation codes</u>	<u>MP</u>		<u>Downlink channelisation codes 10.3.6.13a</u>	

10.3.6.31 Individual timeslot info

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Timeslot number	MP		Timeslot number 10.3.6.72	Timeslot within a frame
TFCI existence	CHMP		Boolean	TRUE indicates that the TFCI exists. It shall be coded in the first physical channel of this timeslot.
Midamble Shift and burst type	MP		Midamble shift and burst type 10.3.6.35	

10.3.6.37 PDSCH info

NOTE: Only for TDD.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
TFCS Identity	MD		Transport format combination set Identity 10.3.5.21	TFCS to be used. Default is as specified in 10.3.5.21.
SFN Time info	OP		SFN Time info 10.3.6.65	
Common timeslot info	MD		Common timeslot info 10.3.6.7	Common timeslot info is needed if Common timeslot info needs to be updated.
<u>PDSCH timeslots and codes</u>	<u>MD</u>		<u>Downlink Timeslots and Codes 10.3.6.81a</u>	<u>Default is to use the old timeslots and codes.</u>
Timeslot List	MD	1 to <maxTS>		Timeslot List is needed if Timeslot List needs to be updated.
>Individual timeslot info	MP		Individual timeslot info 10.3.6.34	The first instance of the parameter Individual Timeslot Info corresponds to the timeslot that shall be used first by the physical layer, the second to the timeslot that shall be used second and so on.
>Channelisation Code List	MP	1 to 16		
>>Channelisation Code	MP		Enumerated((16/1)..(16/16))	

10.3.6.48 Predefined PhyCH configuration

This information element concerns a pre- defined configuration of physical channel parameters.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Uplink radio resources				
Uplink DPCH info	MP		Uplink DPCH info Pre 10.3.6.78	
Downlink radio resources				
CHOICE mode				
>FDD				
>>Downlink information common for all radio links			Downlink information common for all radio links Pre 10.3.6.22	
>TDD				(no data)

10.3.6.49 Primary CCPCH info

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE mode	MP			
>FDD				
>>TX Diversity indicator	MPD		Boolean	Default value is "TRUE"
>TDD				
>>CHOICE SyncCase	OP			
>>>Sync Case 1				
>>>>Timeslot	MP		Integer (0..14)	PCCPCH timeslot
>>>Sync Case 2				
>>>>Timeslot	MP		Integer(0..6)	
>>Cell parameters ID	OP		Integer (0..127)	The Cell parameters ID is described in 25.223.
>>Block STTD indicator	MPD		Block STTD indicator 10.3.6.5	Default value is "TRUE"

10.3.6.49a Primary CCPCH info post

NOTE: -Only for TDD

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE SyncCase	MP			
>Sync Case 1				
>>Timeslot	MP		Integer (0..14)	PCCPCH timeslot
>Sync Case 2				
>>Timeslot	MP		Integer(0..6)	
Cell parameters ID	MP		Integer (0..127)	The Cell parameters ID is described in 25.223.
Block STTD indicator	MP		Block STTD indicator 10.3.6.5	

10.3.6.54 PUSCH info

NOTE: Only for TDD.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
TFCS Identity	MD		Transport format combination set Identity 10.3.5.21	Default is as specified in 10.3.5.21.
SFN Time info	OP		SFN Time info 10.3.6.65	
Common timeslot info	MD		Common timeslot info 10.3.6.7	Default is the old Common timeslot info.
<u>PUSCH timeslots and codes</u>	<u>MD</u>		<u>Uplink Timeslots and Codes 10.3.6.81a</u>	<u>Default is to use the old timeslots and codes.</u>
<u>Timeslot List</u>	<u>MD</u>	<u>1 to <maxTS></u>		<u>Default is the old Timeslot List.</u>
<u>>Individual timeslot info</u>	<u>MP</u>		<u>Individual timeslot info 10.3.6.31</u>	<u>The first instance of the parameter Individual Timeslot Info corresponds to the timeslot that shall be used first by the physical layer, the second to the timeslot that shall be used second and so on.</u>
<u>>Channelisation Code List</u>	<u>MP</u>	<u>1..2</u>		
<u>>>Channelisation Code</u>	<u>MP</u>		<u>Enumerated{(1/1),(2/1),(2/2),(4/1)..(4/4),(8/1)..(8/8),(16/1)..(16/6)}</u>	

10.3.6.76 Uplink DPCH info

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Uplink DPCH power control info	OP		Uplink DPCH power control info 10.3.6.79	
<i>CHOICE mode</i>	MP			
>FDD				
>>Scrambling code type	MP		Enumerated(short, long)	
>>>Scrambling code number	MP		Integer(0..16777215)	
>>>Number of DPDCH	MD		Integer(2..maxDPDCH)	Default value is 1. Number of DPDCH is 1 in HANDOVER TO UTRAN COMMAND
>>>Spreading factor	MP		Integer(4, 8, 16, 32, 64, 128, 256)	SF of the channelisation code for data part
>>>TFCI existence	MD		Boolean	TRUE means existence. Default value is "TRUE"
>>>Number of FBI bits	CH		Integer (1, 2)	In bits. Number of FBI bits is needed if SSdT or FB Mode Transmit Signalling is supported.
>>>Puncturing Limit	MP		Real(0.40 ..1 by step of 0.04)	
>TDD				
>>Uplink Timing Advance	OP		Uplink Timing Advance 10.3.6.82	
>>>UL CCTrCH List	MP	1 to <maxCCTrCH>		
>>>>TFCS Identity	MD		Transport Format Combination Set Identity 10.3.5.21	Default value is 1.
>>>>Time info	MP		Time info 10.3.6.71	
>>>>Common timeslot info	MD		Common timeslot info 10.3.6.7	Default is the current Common timeslot info
>>>>>Uplink DPCH timeslots and codes	MD		<u>Uplink Timeslots and Codes 10.3.6.81a</u>	<u>Default is to use the old timeslots and codes.</u>
>>>>>Timeslot List	MD	1 to <maxTS>		<u>-Default is the current Timeslot List</u>
>>>>>>Individual timeslot info	MP		<u>Individual timeslot info 10.3.6.31</u>	<u>The first instance of the parameter Individual Timeslot Info corresponds to the timeslot that shall be used first by the physical layer, the second to the timeslot that shall be used second and so on.</u>
>>>>>>>Code List	MP	1..2		
>>>>>>>>Channelisation Code	MP		<u>Enumerated({(1/1)},(2/1)},(2/2),(4/1)..(4/</u>	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
			4),(8/1)..(8/8), (16/1)..(16/16))	

Condition	Explanation
Single	This IE is included if IE "Number of DPDCH" is "1"

10.3.6.77 Uplink DPCH info Post

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Uplink DPCH power control info	MP		Uplink DPCH power control info Post 10.3.6.80	
CHOICE mode	MP			
>FDD				
>>Scrambling code type	MP		Enumerated(short, long)	
>>>Reduced scrambling code number	MP		Integer(0..8191)	Sub-range of values for initial use upon handover to UTRAN.
>>>Spreading factor	MP		Integer(4, 8, 16, 32, 64, 128, 256)	SF of the channelisation code for data part There is only one DPDCH for this case
>TDD				(no data)
>>Uplink Timing Advance	OP		Uplink Timing Advance 10.3.6.82	
>>>Time info	MP		Time Info 10.3.6.71	
>>>Common timeslot info	MP		Common Timeslot Info 10.3.6.7	
>>>Timeslot List	MP	1 to <MaxTS>		
>>>>Individual timeslot info	MP		Individual timeslot info 10.3.6.31	The first instance of the parameter Individual Timeslot Info corresponds to the timeslot that shall be used first by the physical layer, the second to the timeslot that shall be used second and so on.
>>>>Code List	MP	1..2		
>>>>>Channelisation Code	MP		Enumerated((1/1),(2/1),(2/2),(4/1)..(4/4),(8/1)..(8/8), (16/1)..(16/16))	
>>>>>Uplink DPCH timeslots and codes	MP		Uplink Timeslots and Codes 10.3.6.81a	

10.3.6.78 Uplink DPCH info Pre

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Uplink DPCH power control info	OP		Uplink DPCH power control info Pre 10.3.6.81	
CHOICE <i>mode</i>	MP			
>FDD				
>>TFCI existence	MP		Boolean	TRUE means existence. Default value is "TRUE"
>>>Puncturing Limit	MP		Real(0.40 ..1 by step of 0.04)	
>TDD				(no data)
>>>Common timeslot info	<u>MP</u>		<u>Common Timeslot Info 10.3.6.7</u>	

Condition	Explanation
<i>Single</i>	This IE is included if IE "Number of DPDCH" is "1"

10.3.6.80 Uplink DPCH power control info Post

Parameters used by UE to set DPCH initial output power and to use for closed-loop power control.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>mode</i>	MP			
>FDD				(no data)
>>Power Control Algorithm	MP		Enumerated (algorithm 1, algorithm 2)	Specifies algorithm to be used by UE to interpret TPC commands
>>>TPC step size	CV algo		Integer (1, 2)	In dB
>TDD				(no data)
>>UL target SIR	MP		Real (-11 .. 20 by step of 0.5dB)	In dB
>>>UL Timeslot Interference	MP		UL Interference 10.3.6.75	

Condition	Explanation
<i>algo</i>	The IE is mandatory if "Power Control Algorithm" is set to "algorithm 1", otherwise the IE is not needed

10.3.6.81a Uplink Timeslots and Codes

NOTE:- Only for TDD

<u>Information Element/Group name</u>	<u>Need</u>	<u>Multi</u>	<u>Type and reference</u>	<u>Semantics description</u>
<u>First Individual timeslot info</u>	<u>MP</u>		<u>Individual timeslot info 10.3.6.31</u>	<u>Individual timeslot info for the first timeslot used by the physical layer.</u>
<u>First timeslot Code List</u>	<u>MP</u>	<u>1..2</u>		<u>Code list used in the timeslot. given in First individual timeslot info.</u>
<u>>Channelisation Code</u>	<u>MP</u>		<u>Enumerated((1/1)..(2/1)..(2/2)..(4/1)..(4/4)..(8/1)..(8/8)..(16/1)..(16/16))</u>	
<u>CHOICE more timeslots</u>	<u>MP</u>			
<u>>No more timeslots</u>				<u>(no data)</u>
<u>>Consecutive timeslots</u>				
<u>>>Number of additional timeslots</u>	<u>MP</u>		<u>Integer(1..maxTS-1)</u>	<u>The timeslots used by the physical layer shall be timeslots: N mod maxTS (N+1) mod maxTS ... (N+k) mod maxTS in that order, where N is the timeslot number in the First individual timeslot info and k the Number of additional timeslots. The additional timeslots shall use the same parameters (e.g. channelisation codes, midamble shifts etc.) as the first timeslot.</u>
<u>>Timeslot list</u>				
<u>>>Additional timeslot list</u>	<u>MP</u>	<u>1 to <maxTS-1></u>		<u>The first instance of this parameter corresponds to the timeslot that shall be used second by the physical layer, the second to the timeslot that shall be used third and so on.</u>
<u>>>>CHOICE parameters</u>	<u>MP</u>			
<u>>>>>Same as last</u>				
<u>>>>>Timeslot number</u>	<u>MP</u>		<u>Timeslot Number 10.3.6.72</u>	<u>This physical layer shall use the same parameters (e.g. channelisation codes, midamble shifts etc.) for this timeslot as for the last one.</u>
<u>>>>>New parameters</u>				
<u>>>>>>Individual timeslot info</u>	<u>MP</u>		<u>Individual timeslot info 10.3.6.31</u>	
<u>>>>>>Code List</u>	<u>MP</u>	<u>1..2</u>		
<u>>>>>>Channelisation Code</u>	<u>MP</u>		<u>Enumerated((1/1)..(2/1)..(2/2)..(4/1)..(4/4)..(8/1)..(8/8)..(16/1)..(16/16))</u>	

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
-- and TDD second, just for consistency.
--
--*****

PDU-definitions DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

--*****
--
-- IE parameter types from other modules
--
--*****

IMPORTS

    CN-DomainIdentity,
    CN-InformationInfo,
    FlowIdentifier,
    NAS-Message,
    PagingRecordTypeID,
    ServiceDescriptor,
    SignallingFlowInfoList
FROM CoreNetwork-IEs

    URA-Identity
FROM UTRANMobility-IEs

    ActivationTime,
    C-RNTI,
    CapabilityUpdateRequirement,
    CellUpdateCause,
    CipheringAlgorithm,
    CipheringModeInfo,
    DRX-Indicator,
    EstablishmentCause,
    FailureCauseWithProtErr,
    HyperFrameNumber,
    InitialUE-Identity,
    IntegrityProtActivationInfo,
    IntegrityProtectionModeInfo,
    PagingCause,
    PagingRecordList,
    ProtocolErrorIndicator,
    ProtocolErrorIndicatorWithInfo,
    Re-EstablishmentTimer,
    RedirectionInfo,
    RejectionCause,
    ReleaseCause,
    RRC-MessageTX-Count,
    SecurityCapability,
    STARTList,
    U-RNTI,
    U-RNTI-Short,
    UE-RadioAccessCapability,
    URA-UpdateCause,
    UTRAN-DRX-CycleLengthCoefficient,
    WaitTime
FROM UserEquipment-IEs

    PredefinedConfigIdentity,
    RAB-Info,
    RAB-Info-Short,
    RAB-InformationSetupList,
    RB-ActivationTimeInfo,
    RB-ActivationTimeInfoList,
    RB-COUNT-C-InformationList,
    RB-COUNT-C-MSB-InformationList,
    RB-IdentityList,

```

RB-InformationAffectedList,
RB-InformationReconfigList,
RB-InformationReleaseList,
RB-InformationSetupList,
RB-WithPDCP-InfoList,
SRB-InformationSetupList,
SRB-InformationSetupList2
FROM RadioBearer-IEs

CPCH-SetID,
DL-AddReconfTransChInfo2List,
DL-AddReconfTransChInfoList,
DL-CommonTransChInfo,
DL-DeletedTransChInfoList,
DRAC-StaticInformationList,
TFC-Subset,
UL-AddReconfTransChInfoList,
UL-CommonTransChInfo,
UL-DeletedTransChInfoList
FROM TransportChannel-IEs

AllocationPeriodInfo,
CCTrCH-PowerControlInfo,
ConstantValue,
CPCH-SetInfo,
DL-CommonInformation,
DL-CommonInformationPost,
DL-InformationPerRL,
DL-InformationPerRL-List,
DL-InformationPerRL-ListPostFDD,
DL-InformationPerRL-PostTDD,
DL-DPCH-PowerControlInfo,
DL-OuterLoopControl,
DL-PDSCH-Information,
DPCH-CompressedModeStatusInfo,
FrequencyInfo,
FrequencyInfoFDD,
FrequencyInfoTDD,
IndividualTS-InterferenceList,
MaxAllowedUL-TX-Power,
PDSCH-Info,
PRACH-RACH-Info,
PrimaryCCPCH-TX-Power,
PUSCH-CapacityAllocationInfo,
RL-AdditionInformationList,
RL-RemovalInformationList,
SSDT-Information,
TFC-ControlDuration,
TimeslotList,
TX-DiversityMode,
UL-ChannelRequirement,
UL-DPCH-Info,
UL-DPCH-InfoPostFDD,
UL-DPCH-InfoPostTDD,
UL-TimingAdvance
FROM PhysicalChannel-IEs

AdditionalMeasurementID-List,
EventResults,
MeasuredResults,
MeasuredResultsList,
MeasuredResultsOnRACH,
MeasurementCommand,
MeasurementIdentityNumber,
MeasurementReportingMode,
PrimaryCCPCH-RSCP,
TimeslotListWithISCP,
TrafficVolumeMeasuredResultsList
FROM Measurement-IEs

BCCH-ModificationInfo,
InterSystemHO-Failure,
InterSystemMessage,
ProtocolErrorInformation,
SegCount,
SegmentIndex,
SFN-Prime,
SIB-Data-fixed,

```

SIB-Data-variable,
SIB-Type
FROM Other-IEs

maxSIBsegm
FROM Constant-definitions;

-- *****
--
-- ACTIVE SET UPDATE (FDD only)
--
-- *****

ActiveSetUpdate ::= SEQUENCE {
  -- User equipment IEs
  integrityProtectionModeInfo    IntegrityProtectionModeInfo    OPTIONAL,
  cipheringModeInfo              CipheringModeInfo                OPTIONAL,
  activationTime                  ActivationTime                    OPTIONAL,
  newU-RNTI                       U-RNTI                          OPTIONAL,
  -- Core network IEs
  cn-InformationInfo              CN-InformationInfo              OPTIONAL,
  -- Radio bearer IEs
  rb-WithPDCP-InfoList            RB-WithPDCP-InfoList            OPTIONAL,
  -- Physical channel IEs
  maxAllowedUL-TX-Power           MaxAllowedUL-TX-Power           OPTIONAL,
  rl-AdditionInformationList      RL-AdditionInformationList      OPTIONAL,
  rl-RemovalInformationList       RL-RemovalInformationList       OPTIONAL,
  tx-DiversityMode                TX-DiversityMode                OPTIONAL,
  ssdt-Information                SSDT-Information                OPTIONAL,
  -- Extension mechanism for non- release99 information
  criticalExtension                SEQUENCE {}                     OPTIONAL,
  nonCriticalExtensions            SEQUENCE {}                     OPTIONAL
}

-- *****
--
-- ACTIVE SET UPDATE COMPLETE (FDD only)
--
-- *****

ActiveSetUpdateComplete ::= SEQUENCE {
  -- User equipment IEs
  ul-IntegProtActivationInfo      IntegrityProtActivationInfo      OPTIONAL,
  -- Radio bearer IEs
  rb-UL-CiphActivationTimeInfo    RB-ActivationTimeInfo           OPTIONAL,
  rb-WithPDCP-InfoList            RB-WithPDCP-InfoList            OPTIONAL,
  -- Extension mechanism for non- release99 information
  nonCriticalExtensions            SEQUENCE {}                     OPTIONAL
}

-- *****
--
-- ACTIVE SET UPDATE FAILURE (FDD only)
--
-- *****

ActiveSetUpdateFailure ::= SEQUENCE {
  -- User equipment IEs
  failureCause                    FailureCauseWithProtErr,
  -- Extension mechanism for non- release99 information
  nonCriticalExtensions            SEQUENCE {}                     OPTIONAL
}

-- *****
--
-- CELL UPDATE
--
-- *****

CellUpdate ::= SEQUENCE {
  -- User equipment IEs
  u-RNTI                          U-RNTI,
  hyperFrameNumber                 HyperFrameNumber,
  am-RLC-ErrorIndicationC-plane    BOOLEAN,
  am-RLC-ErrorIndicationU-plane    BOOLEAN,
  cellUpdateCause                  CellUpdateCause,
  protocolErrorIndicator            ProtocolErrorIndicatorWithInfo,
  -- TABULAR: Protocol error information is nested in

```



```

}

-- *****
--
-- DOWNLINK OUTER LOOP CONTROL
--
-- *****

DownlinkOuterLoopControl ::= SEQUENCE {
    -- Physical channel IES
    dl-OuterLoopControl          DL-OuterLoopControl,
    dl-DPCH-PowerControlInfo     DL-DPCH-PowerControlInfo          OPTIONAL,
    -- Extension mechanism for non- release99 information
    criticalExtension            SEQUENCE {}                       OPTIONAL,
    nonCriticalExtensions        SEQUENCE {}                       OPTIONAL
}

-- *****
--
-- HANDOVER TO UTRAN COMMAND
--
-- *****

HandoverToUTRANCommand ::= SEQUENCE {
    -- User equipment IES
    new-U-RNTI                  U-RNTI-Short,
    activationTime               ActivationTime                    OPTIONAL,
    cipheringAlgorithm           CipheringAlgorithm              OPTIONAL,
    -- Radio bearer IES
    rab-Info                    RAB-Info-Short,
    -- Specification mode information
    specificationMode            CHOICE {
        complete                 SEQUENCE {
            re-EstablishmentTimer      Re-EstablishmentTimer,
            srb-InformationSetupList    SRB-InformationSetupList,
            rb-InformationSetupList     RB-InformationSetupList,
            ul-CommonTransChInfo       UL-CommonTransChInfo,
            ul-AddReconfTransChInfoList UL-AddReconfTransChInfoList,
            dl-CommonTransChInfo       DL-CommonTransChInfo,
            dl-AddReconfTransChInfoList DL-AddReconfTransChInfoList,
            ul-DPCH-Info               UL-DPCH-Info,
            modeSpecificInfo           CHOICE {
                fdd                 SEQUENCE {
dl-CommonInformation          DL-CommonInformation,
dl-PDSCH-Information       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.
            predefinedConfigIdentity PredefinedConfigIdentity,
ul-DPCH-Info                  UL-DPCH-InfoPost,
            modeSpecificInfo         CHOICE {
                fdd                 SEQUENCE {
ul-DPCH-Info                  UL-DPCH-InfoPostFDD,
dl-CommonInformationPost     DL-CommonInformationPost,
dl-InformationPerRL-List     DL-InformationPerRL-ListPostFDD,
frequencyInfo                FrequencyInfoFDD
                },
                tdd                 NULLSEQUENCE {
ul-DPCH-Info                  UL-DPCH-InfoPostTDD,
dl-InformationPerRL           DL-InformationPerRL-PostTDD,
frequencyInfo                FrequencyInfoTDD,
primaryCCPCH-TX-Power       PrimaryCCPCH-TX-Power
            }
        }
    },
dl-InformationPerRL-List     DL-InformationPerRL-ListPost
},
    -- Physical channel IES
frequencyInfo                FrequencyInfo,

```

```
maxAllowedUL-TX-Power      MaxAllowedUL-TX-Power ,
modeSpecificPhysChInfo CHOICE {
  fdd           NULL,
  tdd           SEQUENCE {
    primaryCCPCH-TX-Power PrimaryCCPCH-TX-Power
  }
},
-- Extension mechanism for non- release99 information
criticalExtension SEQUENCE {} OPTIONAL,
nonCriticalExtensions SEQUENCE {} OPTIONAL
}

-- *****
--
-- HANDOVER TO UTRAN COMPLETE
--
-- *****

HandoverToUTRANComplete ::= SEQUENCE {
  -- User equipment IEs
  -- TABULAR: the IE below is conditional on history.
  startList STARTList OPTIONAL,
  -- Extension mechanism for non- release99 information
  nonCriticalExtensions SEQUENCE {} OPTIONAL
}

-- *****
--
-- INITIAL DIRECT TRANSFER
--
-- *****

InitialDirectTransfer ::= SEQUENCE {
  -- Core network IEs
  serviceDescriptor ServiceDescriptor,
  flowIdentifier FlowIdentifier,
  cn-DomainIdentity CN-DomainIdentity,
  nas-Message NAS-Message,
  -- Measurement IEs
  measuredResultsOnRACH MeasuredResultsOnRACH OPTIONAL,
  -- Extension mechanism for non- release99 information
  nonCriticalExtensions SEQUENCE {} OPTIONAL
}

-- *****
--
-- INTER-SYSTEM HANDOVER COMMAND
--
-- *****

InterSystemHandoverCommand ::= SEQUENCE {
  -- User equipment IEs
  activationTime ActivationTime OPTIONAL,
  -- Radio bearer IEs
  remainingRAB-Info RAB-Info OPTIONAL,
  -- Other IEs
  interSystemMessage InterSystemMessage,
  -- Extension mechanism for non- release99 information
  criticalExtension SEQUENCE {} OPTIONAL,
  nonCriticalExtensions SEQUENCE {} OPTIONAL
}

-- *****
--
-- INTER-SYSTEM HANDOVER FAILURE
--
-- *****

InterSystemHandoverFailure ::= SEQUENCE {
  -- Other IEs
  interSystemHO-Failure InterSystemHO-Failure OPTIONAL,
  -- Extension mechanism for non- release99 information
  nonCriticalExtensions SEQUENCE {} OPTIONAL
}

-- *****
--
-- MEASUREMENT CONTROL
```



```

--
-- PHYSICAL CHANNEL RECONFIGURATION
--
-- *****

PhysicalChannelReconfiguration ::= 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,
  drx-Indicator                  DRX-Indicator,
  utran-DRX-CycleLengthCoeff     UTRAN-DRX-CycleLengthCoefficient OPTIONAL,
  -- Core network IES
  cn-InformationInfo             CN-InformationInfo             OPTIONAL,
  -- Radio bearer IES
  rb-WithPDCP-InfoList          RB-WithPDCP-InfoList          OPTIONAL,
  -- Physical channel IES
  frequencyInfo                  FrequencyInfo                   OPTIONAL,
  maxAllowedUL-TX-Power          MaxAllowedUL-TX-Power         OPTIONAL,
  ul-ChannelRequirement          UL-ChannelRequirement         OPTIONAL,
  -- TABULAR: UL-ChannelRequirement contains the choice
  -- between UL DPCH info and PRACH info for RACH.
  modeSpecificInfo              CHOICE {
    fdd                           SEQUENCE {
      dl-CommonInformation      DL-CommonInformation      OPTIONAL,
      dl-PDSCH-Information        DL-PDSCH-Information          OPTIONAL,
      cpch-SetInfo                CPCH-SetInfo                  OPTIONAL,
    },
    tdd                           NULL
  },
  dl-CommonInformation      DL-CommonInformation      OPTIONAL,
  dl-InformationPerRL-List       DL-InformationPerRL-List       OPTIONAL,
  -- Extension mechanism for non- release99 information
  criticalExtension              SEQUENCE {}                   OPTIONAL,
  nonCriticalExtensions          SEQUENCE {}                   OPTIONAL
}

-- *****
--
-- PHYSICAL CHANNEL RECONFIGURATION COMPLETE
--
-- *****

PhysicalChannelReconfigurationComplete ::= SEQUENCE {
  -- User equipment IES
  ul-IntegProtActivationInfo     IntegrityProtActivationInfo     OPTIONAL,
  -- TABULAR: UL-TimingAdvance is applicable for TDD mode only.
  ul-TimingAdvance              UL-TimingAdvance              OPTIONAL,
  -- Radio bearer IES
  rb-UL-CiphActivationTimeInfo   RB-ActivationTimeInfo          OPTIONAL,
  rb-WithPDCP-InfoList          RB-WithPDCP-InfoList          OPTIONAL,
  -- Extension mechanism for non- release99 information
  nonCriticalExtensions          SEQUENCE {}                   OPTIONAL
}

-- *****
--
-- PHYSICAL CHANNEL RECONFIGURATION FAILURE
--
-- *****

PhysicalChannelReconfigurationFailure ::= SEQUENCE {
  -- User equipment IES
  failureCause                   FailureCauseWithProtErr,
  -- Extension mechanism for non- release99 information
  nonCriticalExtensions          SEQUENCE {}                   OPTIONAL
}

-- *****
--
-- PHYSICAL SHARED CHANNEL ALLOCATION (TDD only)
--
-- *****

PhysicalSharedChannelAllocation ::= SEQUENCE {
  -- User equipment IES

```

```

        c-RNTI                               C-RNTI                               OPTIONAL,
-- Physical channel IEs
  ul-TimingAdvance                         UL-TimingAdvance                       OPTIONAL,
  allocationPeriodInfo                     AllocationPeriodInfo                     OPTIONAL,
  pusch-CapacityAllocationInfo             PUSCH-CapacityAllocationInfo           OPTIONAL,
  pdsch-Info                               PDSCH-Info                             OPTIONAL,
  timeslotList                             TimeslotList                            OPTIONAL,
-- Extension mechanism for non- release99 information
  nonCriticalExtensions                     SEQUENCE {}                             OPTIONAL
}

-- *****
--
-- PUSCH CAPACITY REQUEST (TDD only)
--
-- *****

PUSCHCapacityRequest ::= SEQUENCE {
  -- User equipment IEs
  c-RNTI                               C-RNTI                               OPTIONAL,
  -- Measurement IEs
  trafficVolumeMeasuredResultsList
  TrafficVolumeMeasuredResultsList,
  timeslotListWithISCP                   TimeslotListWithISCP                   OPTIONAL,
  primaryCCPCH-RSCP                       PrimaryCCPCH-RSCP                       OPTIONAL,
  -- Extension mechanism for non- release99 information
  nonCriticalExtensions                     SEQUENCE {}                             OPTIONAL
}

-- *****
--
-- RADIO BEARER RECONFIGURATION
--
-- *****

RadioBearerReconfiguration ::= 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,
  drx-Indicator                           DRX-Indicator,
  utran-DRX-CycleLengthCoeff              UTRAN-DRX-CycleLengthCoefficient        OPTIONAL,
  -- Core network IEs
  cn-InformationInfo                       CN-InformationInfo                       OPTIONAL,
  -- Radio bearer IEs
  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
    },
    tdd                                     NULL
  }
  dl-CommonTransChInfo                     DL-CommonTransChInfo                     OPTIONAL,
  dl-DeletedTransChInfoList               DL-DeletedTransChInfoList               OPTIONAL,
  dl-AddReconfTransChInfoList             DL-AddReconfTransChInfo2List            OPTIONAL,
  -- Physical channel IEs
  frequencyInfo                           FrequencyInfo                             OPTIONAL,
  maxAllowedUL-TX-Power                   MaxAllowedUL-TX-Power                   OPTIONAL,
  ul-ChannelRequirement                   UL-ChannelRequirement                   OPTIONAL,
  modeSpecificPhysChInfo                   CHOICE {
    fdd                                     SEQUENCE {
      dl-CommonInformation                   DL-CommonInformation                   OPTIONAL,
      dl-PDSCH-Information                   DL-PDSCH-Information                   OPTIONAL,
      cpch-SetInfo                           CPCH-SetInfo                           OPTIONAL
    },
    tdd                                     NULL
  },
  dl-CommonInformation                     DL-CommonInformation                     OPTIONAL,
  dl-InformationPerRL-List                 DL-InformationPerRL-List,
  -- Extension mechanism for non- release99 information

```

```

        criticalExtension          SEQUENCE {}                OPTIONAL,
        nonCriticalExtensions      SEQUENCE {}                OPTIONAL
    }
-- *****
--
-- RADIO BEARER RECONFIGURATION COMPLETE
--
-- *****

RadioBearerReconfigurationComplete ::= SEQUENCE {
    -- User equipment IEs
    ul-IntegProtActivationInfo     IntegrityProtActivationInfo    OPTIONAL,
    -- TABULAR: UL-TimingAdvance is applicable for TDD mode only.
    ul-TimingAdvance               UL-TimingAdvance                OPTIONAL,
    -- Radio bearer IEs
    rb-UL-CiphActivationTimeInfo   RB-ActivationTimeInfo        OPTIONAL,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions          SEQUENCE {}                OPTIONAL
}
-- *****
--
-- RADIO BEARER RECONFIGURATION FAILURE
--
-- *****

RadioBearerReconfigurationFailure ::= SEQUENCE {
    -- User equipment IEs
    failureCause                   FailureCauseWithProtErr,
    -- Radio bearer IEs
    potentiallySuccessfulBearerList RB-IdentityList            OPTIONAL,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions          SEQUENCE {}                OPTIONAL
}
-- *****
--
-- RADIO BEARER RELEASE
--
-- *****

RadioBearerRelease ::= 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,
    drx-Indicator                  DRX-Indicator,
    utran-DRX-CycleLengthCoeff     UTRAN-DRX-CycleLengthCoefficient OPTIONAL,
    -- Core network IEs
    cn-InformationInfo             CN-InformationInfo            OPTIONAL,
    -- Radio bearer IEs
    rb-InformationReleaseList      RB-InformationReleaseList,
    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
            cpch-SetID             CPCH-SetID                   OPTIONAL,
            addReconfTransChDRAC-Info DRAC-StaticInformationList  OPTIONAL
        },
        tdd
            NULL
    }
    dl-CommonTransChInfo          DL-CommonTransChInfo         OPTIONAL,
    dl-DeletedTransChInfoList     DL-DeletedTransChInfoList    OPTIONAL,
    dl-AddReconfTransChInfoList   DL-AddReconfTransChInfo2List OPTIONAL,
    -- Physical channel IEs
    frequencyInfo                 FrequencyInfo                  OPTIONAL,
    maxAllowedUL-TX-Power         MaxAllowedUL-TX-Power        OPTIONAL,
    ul-ChannelRequirement         UL-ChannelRequirement        OPTIONAL,
    modeSpecificPhysChInfo       CHOICE {
        fdd
            dl-CommonInformation   DL-CommonInformation         OPTIONAL,
            dl-PDSCH-Information   DL-PDSCH-Information         OPTIONAL,

```

```

        cpch-SetInfo          CPCH-SetInfo          OPTIONAL
    },
    tdd                      NULL
},
dl-CommonInformation        DL-CommonInformation    OPTIONAL,
dl-InformationPerRL-List    DL-InformationPerRL-List  OPTIONAL,
-- Extension mechanism for non- release99 information
criticalExtensions          SEQUENCE {}            OPTIONAL,
nonCriticalExtensions       SEQUENCE {}            OPTIONAL
}

-- *****
--
-- RADIO BEARER RELEASE COMPLETE
--
-- *****

RadioBearerReleaseComplete ::= SEQUENCE {
-- User equipment IES
ul-IntegProtActivationInfo IntegrityProtActivationInfo    OPTIONAL,
-- TABULAR: UL-TimingAdvance is applicable for TDD mode only.
ul-TimingAdvance           UL-TimingAdvance           OPTIONAL,
-- Radio bearer IES
rb-UL-CiphActivationTimeInfo RB-ActivationTimeInfo          OPTIONAL,
rb-WithPDCP-InfoList       RB-WithPDCP-InfoList          OPTIONAL,
-- Extension mechanism for non- release99 information
nonCriticalExtensions       SEQUENCE {}            OPTIONAL
}

-- *****
--
-- RADIO BEARER RELEASE FAILURE
--
-- *****

RadioBearerReleaseFailure ::= SEQUENCE {
-- User equipment IES
failureCause                FailureCauseWithProtErr,
-- Radio bearer IES
potentiallySuccessfulBearerList RB-IdentityList          OPTIONAL,
-- Extension mechanism for non- release99 information
nonCriticalExtensions       SEQUENCE {}            OPTIONAL
}

-- *****
--
-- RADIO BEARER SETUP
--
-- *****

RadioBearerSetup ::= 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,
drx-Indicator               DRX-Indicator,
utran-DRX-CycleLengthCoeff  UTRAN-DRX-CycleLengthCoefficient  OPTIONAL,
-- Core network IES
cn-InformationInfo          CN-InformationInfo          OPTIONAL,
-- Radio bearer IES
srb-InformationSetupList    SRB-InformationSetupList    OPTIONAL,
rab-InformationSetupList    RAB-InformationSetupList,
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
    },
    tdd                      NULL
}
dl-CommonTransChInfo        DL-CommonTransChInfo        OPTIONAL,
dl-DeletedTransChInfoList    DL-DeletedTransChInfoList    OPTIONAL
}

```



```

    dl-AddReconfTransChInfoList      DL-AddReconfTransChInfoList      OPTIONAL,
-- Physical channel IEs
    frequencyInfo                    FrequencyInfo                    OPTIONAL,
    maxAllowedUL-TX-Power             MaxAllowedUL-TX-Power             OPTIONAL,
    ul-ChannelRequirement             UL-ChannelRequirement            OPTIONAL,
    modeSpecificPhysChInfo            CHOICE {
        fdd                          SEQUENCE {
            dl-CommonInformation      DL-CommonInformation      OPTIONAL,
            dl-PDSCH-Information      DL-PDSCH-Information            OPTIONAL,
            cpch-SetInfo               CPCH-SetInfo                    OPTIONAL
        },
        tdd                            NULL
    },
    dl-CommonInformation      DL-CommonInformation      OPTIONAL,
    dl-InformationPerRL-List          DL-InformationPerRL-List          OPTIONAL,
-- Extension mechanism for non- release99 information
    criticalExtension                  SEQUENCE {}                      OPTIONAL,
    nonCriticalExtensions              SEQUENCE {}                      OPTIONAL
}

-- *****
--
-- RADIO BEARER SETUP COMPLETE
--
-- *****

RadioBearerSetupComplete ::= SEQUENCE {
-- User equipment IEs
    ul-IntegProtActivationInfo        IntegrityProtActivationInfo        OPTIONAL,
-- TABULAR: UL-TimingAdvance is applicable for TDD mode only.
    ul-TimingAdvance                  UL-TimingAdvance                  OPTIONAL,
    hyperFrameNumber                  HyperFrameNumber                  OPTIONAL,
-- Radio bearer IEs
    rb-UL-CiphActivationTimeInfo      RB-ActivationTimeInfo             OPTIONAL,
-- Extension mechanism for non- release99 information
    nonCriticalExtensions              SEQUENCE {}                      OPTIONAL
}

-- *****
--
-- RADIO BEARER SETUP FAILURE
--
-- *****

RadioBearerSetupFailure ::= SEQUENCE {
-- User equipment IEs
    failureCause                       FailureCauseWithProtErr,
-- Radio bearer IEs
    potentiallySuccessfulBearerList    RB-IdentityList                   OPTIONAL,
-- Extension mechanism for non- release99 information
    nonCriticalExtensions              SEQUENCE {}                      OPTIONAL
}

-- *****
--
-- RNTI REALLOCATION
--
-- *****

RNTIReallocation ::= SEQUENCE {
-- User equipment IEs
    integrityProtectionModeInfo        IntegrityProtectionModeInfo        OPTIONAL,
    cipheringModeInfo                  CipheringModeInfo                  OPTIONAL,
    new-U-RNTI                          U-RNTI                            OPTIONAL,
    new-C-RNTI                          C-RNTI                            OPTIONAL,
    drx-Indicator                       DRX-Indicator,
    utran-DRX-CycleLengthCoeff          UTRAN-DRX-CycleLengthCoefficient  OPTIONAL,
-- CN information elements
    cn-InformationInfo                  CN-InformationInfo                 OPTIONAL,
-- Radio bearer IEs
    rb-WithPDCP-InfoList                RB-WithPDCP-InfoList              OPTIONAL,
-- Extension mechanism for non- release99 information
    nonCriticalExtensions              SEQUENCE {}                      OPTIONAL
}

-- *****
--
-- RNTI REALLOCATION COMPLETE

```

```

--
-- *****
RNTIReallocationComplete ::= SEQUENCE {
-- User equipment IEs
  ul-IntegProtActivationInfo      IntegrityProtActivationInfo      OPTIONAL,
-- Radio bearer IEs
  rb-UL-CiphActivationTimeInfo    RB-ActivationTimeInfo              OPTIONAL,
  rb-WithPDCP-InfoList           RB-WithPDCP-InfoList              OPTIONAL,
-- Extension mechanism for non- release99 information
  nonCriticalExtensions           SEQUENCE {}                        OPTIONAL
}
-- *****
--
-- RNTI REALLOCATION FAILURE
--
-- *****

RNTIReallocationFailure ::= SEQUENCE {
-- UE information elements
  failureCause                   FailureCauseWithProtErr,
-- Extension mechanism for non- release99 information
  nonCriticalExtensions           SEQUENCE {}                        OPTIONAL
}
-- *****
--
-- RRC CONNECTION RE-ESTABLISHMENT
--
-- *****

RRCConnectionReEstablishment ::= 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,
  drx-Indicator                  DRX-Indicator,
  utran-DRX-CycleLengthCoeff    UTRAN-DRX-CycleLengthCoefficient   OPTIONAL,
  rlc-ResetIndicatorC-plane      BOOLEAN,
  rlc-ResetIndicatorU-plane      BOOLEAN,
-- Core network IEs
  cn-InformationInfo            CN-InformationInfo                 OPTIONAL,
-- Radio bearer IEs
  srb-InformationSetupList       SRB-InformationSetupList           OPTIONAL,
  rab-InformationSetupList       RAB-InformationSetupList           OPTIONAL,
  rb-InformationReleaseList      RB-InformationReleaseList           OPTIONAL,
  rb-InformationReconfigList     RB-InformationReconfigList         OPTIONAL,
  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
    },
    tdd                           NULL
  },
  dl-CommonTransChInfo          DL-CommonTransChInfo              OPTIONAL,
  dl-DeletedTransChInfoList      DL-DeletedTransChInfoList         OPTIONAL,
  dl-AddReconfTransChInfoList    DL-AddReconfTransChInfoList       OPTIONAL,
-- Physical channel IEs
  frequencyInfo                 FrequencyInfo                       OPTIONAL,
  maxAllowedUL-TX-Power          MaxAllowedUL-TX-Power              OPTIONAL,
  ul-ChannelRequirement         UL-ChannelRequirement              OPTIONAL,
  modeSpecificPhysChInfo        CHOICE {
    fdd                           SEQUENCE {
      dl-CommonInformation      DL-CommonInformation      OPTIONAL,
      dl-PDSCH-Information          DL-PDSCH-Information              OPTIONAL,
      cpch-SetInfo                  CPCH-SetInfo                      OPTIONAL
    },
    tdd                           NULL
  },
  dl-CommonInformation          DL-CommonInformation      OPTIONAL,
}

```

```
dl-InformationPerRL-List          DL-InformationPerRL-List          OPTIONAL,
-- Extension mechanism for non- release99 information
criticalExtension                 SEQUENCE {}                     OPTIONAL,
nonCriticalExtensions             SEQUENCE {}                     OPTIONAL
}
-- *****
--
-- RRC CONNECTION RE-ESTABLISHMENT for CCCH
--
-- *****

RRCConnectionReEstablishment-CCCH ::= SEQUENCE {
-- User equipment IES
u-RNTI                            U-RNTI,
-- The rest of the message is identical to the one sent on DCCH.
rrcConnectionReEstablishment      RRCConnectionReEstablishment
}
-- *****
--
-- RRC CONNECTION RE-ESTABLISHMENT COMPLETE
--
-- *****

RRCConnectionReEstablishmentComplete ::= SEQUENCE {
-- User equipment IES
ul-IntegProtActivationInfo         IntegrityProtActivationInfo      OPTIONAL,
-- TABULAR: UL-TimingAdvance is applicable for TDD mode only.
ul-TimingAdvance                  UL-TimingAdvance               OPTIONAL,
hyperFrameNumber                  HyperFrameNumber,
-- Radio bearer IES
rb-UL-CiphActivationTimeInfo      RB-ActivationTimeInfo          OPTIONAL,
rb-WithPDCP-InfoList              RB-WithPDCP-InfoList          OPTIONAL,
-- Extension mechanism for non- release99 information
nonCriticalExtensions             SEQUENCE {}                     OPTIONAL
}
-- *****
--
-- RRC CONNECTION RE-ESTABLISHMENT REQUEST
--
-- *****

RRCConnectionReEstablishmentRequest ::= SEQUENCE {
-- User equipment IES
u-RNTI                            U-RNTI,
hyperFrameNumber                  HyperFrameNumber,
am-RLC-ErrorIndicationC-plane     BOOLEAN,
am-RLC-ErrorIndicationU-plane     BOOLEAN,
protocolErrorIndicator             ProtocolErrorIndicatorWithInfo,
-- TABULAR: The IE above is MD in tabular, but making a 2-way choice
-- optional wastes one bit (using PER) and produces no additional
-- information.
-- Measurement IES
measuredResultsOnRACH              MeasuredResultsOnRACH          OPTIONAL,
-- Extension mechanism for non- release99 information
nonCriticalExtensions             SEQUENCE {}                     OPTIONAL
}
-- *****
--
-- RRC CONNECTION REJECT
--
-- *****

RRCConnectionReject ::= SEQUENCE {
-- User equipment IES
initialUE-Identity                 InitialUE-Identity,
rejectionCause                     RejectionCause,
waitTime                           WaitTime,
redirectionInfo                    RedirectionInfo                OPTIONAL,
-- Extension mechanism for non- release99 information
criticalExtension                 SEQUENCE {}                     OPTIONAL,
nonCriticalExtensions             SEQUENCE {}                     OPTIONAL
}
-- *****
```

```

--
-- RRC CONNECTION RELEASE
--
-- *****

RRCConnectionRelease ::= SEQUENCE {
    -- User equipment IEs
    rrc-MessageTX-Count          RRC-MessageTX-Count          OPTIONAL,
    -- The IE above is conditional on the UE state.
    releaseCause                 ReleaseCause,
    -- Extension mechanism for non- release99 information
    criticalExtension             SEQUENCE {}                  OPTIONAL,
    nonCriticalExtensions        SEQUENCE {}                  OPTIONAL
}

-- *****

-- RRC CONNECTION RELEASE for CCCH
--
-- *****

RRCConnectionRelease-CCCH ::= SEQUENCE {
    -- User equipment IEs
    u-RNTI                       U-RNTI,
    -- The rest of the message is identical to the one sent on DCCH.
    rrcConnectionRelease        RRCConnectionRelease
}

-- *****

-- RRC CONNECTION RELEASE COMPLETE
--
-- *****

RRCConnectionReleaseComplete ::= SEQUENCE {
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions        SEQUENCE {}                  OPTIONAL
}

-- *****

-- RRC CONNECTION RELEASE COMPLETE for CCCH
--
-- *****

RRCConnectionReleaseComplete-CCCH ::= SEQUENCE {
    -- User equipment IEs
    u-RNTI                       U-RNTI,
    -- The rest of the message is identical to the one sent on DCCH.
    rrcConnectionReleaseComplete RRCConnectionReleaseComplete
}

-- *****

-- RRC CONNECTION REQUEST
--
-- *****

RRCConnectionRequest ::= SEQUENCE {
    -- User equipment IEs
    initialUE-Identity           InitialUE-Identity,
    establishmentCause           EstablishmentCause,
    protocolErrorIndicator       ProtocolErrorIndicator,
    -- The IE above is MD, but for compactness reasons no default value
    -- has been assigned to it.
    -- Measurement IEs
    measuredResultsOnRACH        MeasuredResultsOnRACH        OPTIONAL,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions        SEQUENCE {}                  OPTIONAL
}

-- *****

-- RRC CONNECTION SETUP
--
-- *****

RRCConnectionSetup ::= SEQUENCE {

```

```

-- User equipment IEs
  initialUE-Identity          InitialUE-Identity,
  activationTime              ActivationTime                OPTIONAL,
  new-U-RNTI                  U-RNTI,
  new-c-RNTI                  C-RNTI                      OPTIONAL,
  utran-DRX-CycleLengthCoeff  UTRAN-DRX-CycleLengthCoefficient,
  capabilityUpdateRequirement CapabilityUpdateRequirement  OPTIONAL,
  -- TABULAR: If the IE is not present, the default value defined in 10.3.3.2 shall
  -- be used.
-- Radio bearer IEs
  srb-InformationSetupList    SRB-InformationSetupList2,
-- Transport channel IEs
  ul-CommonTransChInfo       UL-CommonTransChInfo          OPTIONAL,
  ul-AddReconfTransChInfoList UL-AddReconfTransChInfoList,
  dl-CommonTransChInfo       DL-CommonTransChInfo          OPTIONAL,
  dl-AddReconfTransChInfoList DL-AddReconfTransChInfoList,
-- Physical channel IEs
  frequencyInfo              FrequencyInfo                OPTIONAL,
  maxAllowedUL-TX-Power      MaxAllowedUL-TX-Power          OPTIONAL,
  ul-ChannelRequirement      UL-ChannelRequirement          OPTIONAL,
  modeSpecificInfo           CHOICE {
  fdd                         SEQUENCE {
    dl-CommonInformation      DL-CommonInformation          OPTIONAL,
  },
  tdd                         NULL
  },
  dl-InformationPerRL-List    DL-InformationPerRL-List          OPTIONAL,
-- Extension mechanism for non- release99 information
  criticalExtension           SEQUENCE {}                OPTIONAL,
  nonCriticalExtensions       SEQUENCE {}                OPTIONAL
}

-- *****
--
-- RRC CONNECTION SETUP COMPLETE
--
-- *****

RRCConnectionSetupComplete ::= SEQUENCE {
  -- User equipment IEs
  startList                   STARTList,
  ue-RadioAccessCapability    UE-RadioAccessCapability,
  ue-SystemSpecificCapability InterSystemMessage          OPTIONAL,
  -- Extension mechanism for non- release99 information
  nonCriticalExtensions       SEQUENCE {}                OPTIONAL
}

-- *****
--
-- RRC STATUS
--
-- *****

RRCStatus ::= SEQUENCE {
  -- Other IEs
  protocolErrorInformation    ProtocolErrorInformation,
  -- Extension mechanism for non- release99 information
  nonCriticalExtensions       SEQUENCE {}                OPTIONAL
}

-- *****
--
-- SECURITY MODE COMMAND
--
-- *****

SecurityModeCommand ::= SEQUENCE {
  -- User equipment IEs
  cipheringAlgorithm          SecurityCapability,
  cipheringModeInfo           CipheringModeInfo          OPTIONAL,
  integrityProtectionModeInfo IntegrityProtectionModeInfo  OPTIONAL,
  -- Core network IEs
  cn-DomainIdentity           CN-DomainIdentity,
  -- Extension mechanism for non- release99 information
  criticalExtension           SEQUENCE {}                OPTIONAL,
  nonCriticalExtensions       SEQUENCE {}                OPTIONAL
}

```



```

SubsequentSegment ::=          SEQUENCE {
    -- Other information elements
    sib-Type                    SIB-Type,
    segmentIndex                SegmentIndex,
    sib-Data-fixed              SIB-Data-fixed
}

-- *****
--
-- Last segment
--
-- *****

LastSegment ::=          SEQUENCE {
    -- Other information elements
    sib-Type                    SIB-Type,
    segmentIndex                SegmentIndex,
    sib-Data-variable           SIB-Data-variable
}

-- *****
--
-- Complete SIB
--
-- *****

CompleteSIB-List ::=          SEQUENCE (SIZE (1..maxSIBsegm)) OF
                               CompleteSIB

CompleteSIB ::=          SEQUENCE {
    -- Other information elements
    sib-Type                    SIB-Type,
    sib-Data-variable           SIB-Data-variable
}

-- *****
--
-- SYSTEM INFORMATION CHANGE INDICATION
--
-- *****

SystemInformationChangeIndication ::= SEQUENCE {
    -- Other IEs
    bcch-ModificationInfo       BCCH-ModificationInfo,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions        SEQUENCE {}           OPTIONAL
}

-- *****
--
-- TRANSPORT CHANNEL RECONFIGURATION
--
-- *****

TransportChannelReconfiguration ::= 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,
    drx-Indicator               DRX-Indicator,
    utran-DRX-CycleLengthCoeff  UTRAN-DRX-CycleLengthCoefficient  OPTIONAL,
    -- Core network IEs
    cn-InformationInfo          CN-InformationInfo              OPTIONAL,
    -- Radio bearer IEs
    rb-WithPDCP-InfoList        RB-WithPDCP-InfoList           OPTIONAL,
    -- Transport channel IEs
    ul-CommonTransChInfo        UL-CommonTransChInfo           OPTIONAL,
    ul-AddReconfTransChInfoList UL-AddReconfTransChInfoList,
    modeSpecificTransChInfo     CHOICE {
        fdd                     SEQUENCE {
            cpch-SetID           CPCH-SetID                   OPTIONAL,
            addReconfTransChDRAC-Info DRAC-StaticInformationList  OPTIONAL
        },
        tdd                     NULL
    }
    dl-CommonTransChInfo        DL-CommonTransChInfo           OPTIONAL,
}

```



```

-- *****
--
-- UE CAPABILITY ENQUIRY
--
-- *****

UECapabilityEnquiry ::= SEQUENCE {
    -- User equipment IEs
    capabilityUpdateRequirement    CapabilityUpdateRequirement,
    -- Extension mechanism for non- release99 information
    criticalExtension                SEQUENCE {}                OPTIONAL,
    nonCriticalExtensions            SEQUENCE {}                OPTIONAL
}

-- *****
--
-- UE CAPABILITY INFORMATION
--
-- *****

UECapabilityInformation ::= SEQUENCE {
    -- User equipment IEs
    ue-RadioAccessCapability        UE-RadioAccessCapability        OPTIONAL,
    -- Other IEs
    ue-SystemSpecificCapability     InterSystemMessage        OPTIONAL,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions            SEQUENCE {}                OPTIONAL
}

-- *****
--
-- UE CAPABILITY INFORMATION CONFIRM
--
-- *****

UECapabilityInformationConfirm ::= SEQUENCE {
    -- Extension mechanism for non- release99 information
    criticalExtension                SEQUENCE {}                OPTIONAL,
    nonCriticalExtensions            SEQUENCE {}                OPTIONAL
}

-- *****
--
-- UPLINK DIRECT TRANSFER
--
-- *****

UplinkDirectTransfer ::= SEQUENCE {
    -- Core network IEs
    flowIdentifier                  FlowIdentifier,
    nas-Message                      NAS-Message,
    -- Measurement IEs
    measuredResultsOnRACH           MeasuredResultsOnRACH        OPTIONAL,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions            SEQUENCE {}                OPTIONAL
}

-- *****
--
-- UPLINK PHYSICAL CHANNEL CONTROL
--
-- *****

UplinkPhysicalChannelControl ::= SEQUENCE {
    -- Physical channel IEs
    ccTrCH-PowerControlInfo         CCTrCH-PowerControlInfo        OPTIONAL,
    timingAdvance                    UL-TimingAdvance              OPTIONAL,
    individualTS-InterferenceList    IndividualTS-InterferenceList  OPTIONAL,
    prach-ConstantValue              ConstantValue                  OPTIONAL,
    dpch-ConstantValue              ConstantValue                  OPTIONAL,
    pusch-ConstantValue              ConstantValue                  OPTIONAL,
    -- Extension mechanism for non- release99 information
    criticalExtension                SEQUENCE {}                OPTIONAL,
    nonCriticalExtensions            SEQUENCE {}                OPTIONAL
}

```


11.3.4 Radio bearer information elements

RadioBearer-IEs DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

CN-DomainIdentity,
RAB-Identity
FROM CoreNetwork-IEs

Re-EstablishmentTimer
FROM UserEquipment-IEs

PreDefTransChConfiguration,
TransportChannelIdentity
FROM TransportChannel-IEs

PreDefPhyChConfiguration
FROM PhysicalChannel-IEs

maxLoCHperRLC,
maxPDCPAlgoType,
maxRABsetup,
maxRB,
maxRBallRABs,
maxRBMuxOptions,
maxRBperRAB,
maxSRBsetup
FROM Constant-definitions;

```
AlgorithmSpecificInfo ::= CHOICE {
    rfc2507-Info          RFC2507-Info,
    spare1                NULL,
    spare2                NULL,
    spare3                NULL,
    spare4                NULL,
    spare5                NULL,
    spare6                NULL,
    spare7                NULL
}
```

```
-- Upper limit is 2^32 - 1
COUNT-C ::= INTEGER (0..4294967295)
```

```
-- Upper limit is 2^25 - 1
COUNT-C-MSB ::= INTEGER (0..33554431)
```

```
DL-AM-RLC-Mode ::= SEQUENCE {
    inSequenceDelivery    BOOLEAN,
    receivingWindowSize    ReceivingWindowSize,
    dl-RLC-StatusInfo    DL-RLC-StatusInfo
}
```

```
DL-LogicalChannelMapping ::= SEQUENCE {
    -- TABULAR: DL-TransportChannelType contains TransportChannelIdentity as well.
    dl-TransportChannelType    DL-TransportChannelType,
    logicalChannelIdentity    LogicalChannelIdentity OPTIONAL
}
```

```
DL-LogicalChannelMappingList ::= SEQUENCE (SIZE (1..maxLoCHperRLC)) OF
    DL-LogicalChannelMapping
```

```
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,
    spare                NULL
}
```

```

DL-RLC-StatusInfo ::=          SEQUENCE {
    timerStatusProhibit          TimerStatusProhibit          OPTIONAL,
    timerEPC                     TimerEPC                          OPTIONAL,
    missingPU-Indicator          BOOLEAN,
    timerStatusPeriodic         TimerStatusPeriodic          OPTIONAL
}

DL-TM-RLC-Mode ::=            SEQUENCE {
    segmentationIndication      BOOLEAN
}

DL-TransportChannelType ::=   CHOICE {
    dch                         TransportChannelIdentity,
    fach                        NULL,
    dsch                        TransportChannelIdentity
}

ExpectReordering ::=          ENUMERATED {
    reorderingNotExpected,
    reorderingExpected }

ExplicitDiscard ::=           SEQUENCE {
    timerMRW                    TimerMRW,
    timerDiscard                TimerDiscard,
    maxMRW                      MaxMRW
}

HeaderCompressionInfo ::=     SEQUENCE {
    algorithmSpecificInfo       AlgorithmSpecificInfo
}

HeaderCompressionInfoList ::= SEQUENCE (SIZE (1..maxPDCPALgoType)) OF
    HeaderCompressionInfo

LogicalChannelIdentity ::=     INTEGER (1..15)

LogicalChannelMaxLoss ::=      ENUMERATED {
    lcm0, lcm5, lcm10, lcm15, lcm20, lcm25,
    lcm30, lcm35, lcm40, lcm45, lcm50, lcm55,
    lcm60, lcm65, lcm70, lcm75, lcm80, lcm85,
    lcm90, lcm95, lcm100 }

LosslessSRNS-RelocSupport ::= CHOICE {
    supported                   MaxPDCP-SN,
    notSupported                NULL
}

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, spare1, spare2, spare3,
    spare4, spare5, spare6, spare7, spare8 }

MaxPDCP-SN ::=                 ENUMERATED {
    sn255, sn65535 }

MaxRST ::=                     ENUMERATED {
    rst1, rst4, rst6, rst8, rst12,
    rst16, rst24, rst32,

```

```

        spare1, spare2, spare3, spare4,
        spare5, spare6, spare7, spare8 }

NoExplicitDiscard ::=
    ENUMERATED {
        dt10, dt20, dt30, dt40, dt50,
        dt60, dt70, dt80, dt90, dt100 }

PDCP-Info ::=
    SEQUENCE {
        losslessSRNS-RelocSupport    LosslessSRNS-RelocSupport    OPTIONAL,
        pdcp-PDU-Header              PDCP-PDU-Header,
        -- TABULAR: The IE above is MD in the tabular format and it can be encoded
        -- in one bit, so the OPTIONAL is removed for compactness.
        headerCompressionInfoList    HeaderCompressionInfoList    OPTIONAL
    }

PDCP-InfoReconfig ::=
    SEQUENCE {
        pdcp-Info                    PDCP-Info,
        pdcp-SN-Info                  PDCP-SN-Info
    }

PDCP-PDU-Header ::=
    ENUMERATED {
        present, absent }

PDCP-SN-Info ::=
    INTEGER (0..65535)

Poll-PU ::=
    ENUMERATED {
        pu1, pu2, pu4, pu8, pu16,
        pu32, pu64, pu128,
        spare1, spare2, spare3, spare4,
        spare5, spare6, spare7, spare8 }

Poll-SDU ::=
    ENUMERATED {
        sdu1, sdu4, sdu16, sdu64,
        spare1, spare2, spare3, spare4 }

PollingInfo ::=
    SEQUENCE {
        timerPollProhibit            TimerPollProhibit            OPTIONAL,
        timerPoll                    TimerPoll                    OPTIONAL,
        poll-PU                       Poll-PU                       OPTIONAL,
        poll-SDU                      Poll-SDU                      OPTIONAL,
        lastTransmissionPU-Poll       BOOLEAN,
        lastRetransmissionPU-Poll     BOOLEAN,
        pollWindow                    PollWindow                    OPTIONAL,
        timerPollPeriodic             TimerPollPeriodic            OPTIONAL
    }

PollWindow ::=
    ENUMERATED {
        pw50, pw60, pw70, pw80, pw85,
        pw90, pw95, pw99,
        spare1, spare2, spare3, spare4,
        spare5, spare6, spare7, spare8 }

PredefinedConfigIdentity ::=
    INTEGER (0..15)

PredefinedConfigValueTag ::=
    INTEGER (0..15)

PredefinedRB-Configuration ::=
    SEQUENCE {
        srb-InformationList          SRB-InformationSetupList,
        rb-InformationList           RB-InformationSetupList
    }

PreDefRadioConfiguration ::=
    SEQUENCE {
        -- User equipment IEs
        re-EstablishmentTimer        Re-EstablishmentTimer,
        -- Radio bearer IEs
        predefinedRB-Configuration    PredefinedRB-Configuration,
        -- Transport channel IEs
        preDefTransChConfiguration    PreDefTransChConfiguration,
        -- Physical channel IEs
        preDefPhyChConfiguration      PreDefPhyChConfiguration
    }

RAB-Info ::=
    SEQUENCE {

```

```

rab-Identity          RAB-Identity,
cn-DomainIdentity    CN-DomainIdentity,
re-EstablishmentTimer Re-EstablishmentTimer
}

RAB-Info-Short ::= SEQUENCE {
  rab-Identity      RAB-Identity,
  cn-DomainIdentity CN-DomainIdentity
}

RAB-InformationSetup ::= SEQUENCE {
  rab-Info          RAB-Info,
  rb-InformationSetupList RB-InformationSetupList
}

RAB-InformationSetupList ::= SEQUENCE (SIZE (1..maxRABsetup)) OF
  RAB-InformationSetup

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-UL       COUNT-C,
  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 (0..31)

RB-IdentityList ::= SEQUENCE (SIZE (1..maxRB)) OF
  RB-Identity

RB-InformationAffected ::= SEQUENCE {
  rb-Identity      RB-Identity,
  rb-MappingInfo   RB-MappingInfo
}

RB-InformationAffectedList ::= SEQUENCE (SIZE (1..maxRB)) OF
  RB-InformationAffected

RB-InformationReconfig ::= SEQUENCE {
  rb-Identity      RB-Identity,
  pdcp-Info        PDCP-InfoReconfig OPTIONAL,
  rlc-InfoChoice   RLC-InfoChoice   OPTIONAL,
  rb-MappingInfo   RB-MappingInfo   OPTIONAL,
  rb-SuspendResume RB-SuspendResume OPTIONAL
}

RB-InformationReconfigList ::= SEQUENCE (SIZE (1..maxRB)) OF
  RB-InformationReconfig

RB-InformationReleaseList ::= SEQUENCE (SIZE (1..maxRB)) OF
  RB-Identity

RB-InformationSetup ::= SEQUENCE {

```

```

    rb-Identity          RB-Identity,
    pdcp-Info           PDCP-Info          OPTIONAL,
    rlc-Info            RLC-Info,
    rb-MappingInfo     RB-MappingInfo
}

RB-InformationSetupList ::= SEQUENCE (SIZE (1..maxRBperRAB)) OF
    RB-InformationSetup

RB-MappingInfo ::= SEQUENCE (SIZE (1..maxRBMuxOptions)) OF
    RB-MappingOption

RB-MappingOption ::= SEQUENCE {
    ul-LogicalChannelMappings    UL-LogicalChannelMappings    OPTIONAL,
    dl-LogicalChannelMappingList DL-LogicalChannelMappingList    OPTIONAL
}

RB-SuspendResume ::= ENUMERATED {
    suspend, resume }

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 {
    rw1, rw8, rw16, rw32, rw128, rw256,
    rw512, rw768, rw1024, rw1536, rw2047,
    rw2560, rw3072, rw3584, rw4095, spare1 }

5
RFC2507-Info ::= SEQUENCE {
    f-MAX-PERIOD          INTEGER (1..65535)          DEFAULT 256,
    f-MAX-TIME           INTEGER (1..255)           DEFAULT 5,
    max-HEADER           INTEGER (60..65535)        DEFAULT 168,
    tcp-SPACE            INTEGER (3..255)           DEFAULT 15,
    non-TCP-SPACE        INTEGER (3..65535)         DEFAULT 15,
    expectReordering     ExpectReordering
    -- TABULAR: The IE above has only two possible values, so using Optional or Default
    -- would be wasteful
}

RLC-Info ::= SEQUENCE {
    ul-RLC-Mode          UL-RLC-Mode              OPTIONAL,
    dl-RLC-Mode          DL-RLC-Mode              OPTIONAL
}

RLC-InfoChoice ::= CHOICE {
    rlc-Info             RLC-Info,
    spare                NULL
}

RLC-SequenceNumber ::= INTEGER (0..4095)

SRB-InformationSetup ::= SEQUENCE {
    rb-Identity          RB-Identity              OPTIONAL,
    -- The default value for the IE above is the smallest value not used yet.
    rlc-InfoChoice       RLC-InfoChoice,
    rb-MappingInfo       RB-MappingInfo
}

SRB-InformationSetupList ::= SEQUENCE (SIZE (1..maxSRBsetup)) OF
    SRB-InformationSetup

SRB-InformationSetupList2 ::= SEQUENCE (SIZE (4..5)) OF
    SRB-InformationSetup

TimerDiscard ::= ENUMERATED {
    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, spare1, spare2, spare3,
        spare4, spare5, spare6, spare7,
        spare8, spare9, spare10, spare11,
        spare12, spare13, spare14, spare15,
        spare16 }

TimerMRW ::=
    ENUMERATED {
        te50, te0, te70, te80, te90, te100,
        te120, te140, te160, te180, te200,
        te300, te400, te500, te700, te900,
        spare1, spare2, spare3, spare4, spare5,
        spare6, spare7, spare8, spare9, spare10,
        spare11, spare12, spare13, spare14,
        spare15, spare16 }

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,

        spare1, spare2, spare3, spare4, spare5,
        spare6, spare7, spare8, spare9, spare10,
        spare11, spare12, spare13, spare14,
        spare15, spare16 }

TimerPollPeriodic ::=
    ENUMERATED {
        tper100, tper200, tper300, tper400,
        tper500, tper750, tper1000, tper2000,
        spare1, spare2, spare3, spare4,
        spare5, spare6, spare7, spare8 }

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, tpp900, tpp950, tpp1000,
        spare1, spare2, spare3, spare4, spare5,
        spare6, spare7, spare8, spare9, spare10,
        spare11, spare12, spare13, spare14,
        spare15, spare16 }

TimerRST ::=
    ENUMERATED {
        tr50, tr100, tr150, tr200, tr250, tr300,
        tr350, tr400, tr450, tr500, tr550,
        tr600, tr700, tr800, tr900, tr1000,
        spare1, spare2, spare3, spare4, spare5,
        spare6, spare7, spare8, spare9, spare10,
        spare11, spare12, spare13, spare14,

```

```
        spare15, spare16 }

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,
                                     spare1, spare2, spare3, spare4, spare5,
                                     spare6, spare7, spare8, spare9, spare10,
                                     spare11, spare12, spare13, spare14,
                                     spare15, spare16 }

TransmissionRLC-Discard ::=      CHOICE {
    timerBasedExplicit            ExplicitDiscard,
    timerBasedNoExplicit          NoExplicitDiscard,
    maxDAT-Retransmissions       MaxDAT-Retransmissions,
    noDiscard                    MaxDAT
}

TransmissionWindowSize ::=      ENUMERATED {
    tw1, tw8, tw16, tw32, tw128, tw256,
    tw512, tw768, tw1024, tw1536, tw2047,
    tw2560, tw3072, tw3584, tw4095, spare1 }

UL-AM-RLC-Mode ::=            SEQUENCE {
    transmissionRLC-Discard      TransmissionRLC-Discard,
    transmissionWindowSize      TransmissionWindowSize,
    receivingWindowSize        ReceivingWindowSize,
    timerRST                    TimerRST,
    max-RST                     MaxRST,
    pollingInfo                 PollingInfo
}

UL-LogicalChannelMapping ::=   SEQUENCE {
    -- TABULAR: UL-TransportChannelType contains TransportChannelIdentity as well.
    ul-TransportChannelType     UL-TransportChannelType,
    logicalChannelIdentity      LogicalChannelIdentity           OPTIONAL,
    mac-LogicalChannelPriority   MAC-LogicalChannelPriority,
    logicalChannelMaxLoss      LogicalChannelMaxLoss           DEFAULT lcm0
}

UL-LogicalChannelMapping2 ::=  SEQUENCE {
    rlc-LogicalChannelMappingIndicator BOOLEAN,
    -- TABULAR: UL-TransportChannelType contains TransportChannelIdentity as well.
    ul-TransportChannelType     UL-TransportChannelType,
    logicalChannelIdentity      LogicalChannelIdentity           OPTIONAL,
    mac-LogicalChannelPriority   MAC-LogicalChannelPriority,
    logicalChannelMaxLoss      LogicalChannelMaxLoss           DEFAULT lcm0
}

UL-LogicalChannelMappingList ::= SEQUENCE (SIZE (maxLoCHperRLC)) OF
    UL-LogicalChannelMapping2

UL-LogicalChannelMappings ::=  CHOICE {
    oneLogicalChannel           UL-LogicalChannelMapping,
    twoLogicalChannels          UL-LogicalChannelMappingList
}
```

```
UL-RLC-Mode ::=
    ul-AM-RLC-Mode
    ul-UM-RLC-Mode
    ul-TM-RLC-Mode
    spare
}

CHOICE {
    UL-AM-RLC-Mode,
    TransmissionRLC-Discard,
    UL-TM-RLC-Mode,
    NULL
}

UL-TM-RLC-Mode ::=
    transmissionRLC-Discard
}

SEQUENCE {
    TransmissionRLC-Discard OPTIONAL
}

UL-TransportChannelType ::=
    dch
    rach
    cpch
    usch
}

CHOICE {
    TransportChannelIdentity,
    NULL,
    NULL,
    NULL
}

END
```

11.3.6 Physical channel information elements

```

PhysicalChannel-IEs DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

    maxASC,
    maxASCmap,
    maxASCpersist,
    maxCCTrCH,
    maxCPCHsets,
    maxDPCH-DLchan,
    maxDPCHcodesPerTS,
    maxDPDCH-UL,
    maxFACH,
    maxPCPCH-APsig,
    maxPCPCH-APsubCh,
    maxPCPCH-CDsig,
    maxPCPCH-CDsubCh,
    maxPCPCH-SF,
    maxPCPCHs,
    maxPDSCH,
    maxPDSCH-TFCIgroups,
    maxPRACH,
    maxPUSCH,
    maxRL,
    maxRL-1,
    maxSCCPCH,
    maxSig,
    maxSubCh,
    maxTF-CPCH,
    maxTFCI-2-Combs,
    maxTGPS,
    maxTS
    maxTS-1
FROM Constant-definitions

    ActivationTime
FROM UserEquipment-IEs

    CPCH-SetID,
    TFCS,
    TFCS-Identity,
    TransportChannelIdentity,
    TransportFormatSet
FROM TransportChannel-IEs

    SIB-ReferenceListFACH
FROM Other-IEs;

AC-To-ASC-Mapping ::= INTEGER (0..7)

AC-To-ASC-MappingTable ::= SEQUENCE (SIZE (maxASCmap)) OF
    AC-To-ASC-Mapping

AccessServiceClass ::= SEQUENCE {
    availableSignatureStartIndex    INTEGER (0..15),
    availableSignatureEndIndex      INTEGER (0..15),
    availableSubChannelStartIndex   INTEGER (0..11),
    availableSubChannelEndIndex    INTEGER (0..11)
}

AccessServiceClassIndex ::= INTEGER (1..8)

AICH-Info ::= SEQUENCE {
    secondaryScramblingCode        SecondaryScramblingCode          OPTIONAL,
    channelisationCode256          ChannelisationCode256,
    sttd-Indicator                 BOOLEAN,
    aich-TransmissionTiming        AICH-TransmissionTiming
}

AICH-PowerOffset ::= INTEGER (-10..5)

AICH-TransmissionTiming ::= ENUMERATED {
    e0, e1
}

```

```

AllocationPeriodInfo ::=          SEQUENCE {
    allocationActivationTime      INTEGER (1..256),
    allocationDuration            INTEGER (1..256)
}

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)

ASC ::=                           SEQUENCE {
    accessServiceClass            AccessServiceClassIndex,
    repetitionPeriodAndOffset     ASC-RepetitionPeriodAndOffset    OPTIONAL
    -- TABULAR: The offset is nested in the repetition period
}

ASC-RepetitionPeriodAndOffset ::= CHOICE {
    rp1                           NULL,
    rp2                           INTEGER (0..1),
    rp4                           INTEGER (0..3),
    rp8                           INTEGER (0..7)
}

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
}

AvailableSignatureList ::=       SEQUENCE (SIZE (1..maxSig)) OF
    Signature

AvailableSubChannelNumber ::=    INTEGER (0..11)

AvailableSubChannelNumberList ::= SEQUENCE (SIZE (1..maxSubCh)) OF
    AvailableSubChannelNumber

BurstType ::=                    ENUMERATED {
    short1, long2 }

BurstType1 ::=                   ENUMERATED { ms4, ms8, ms16 }

BurstType2 ::=                   ENUMERATED { ms3, ms6 }

CCTrCh-PowerControlInfo ::=      SEQUENCE {
    tfcs-Identity                  TFCS-Identity    OPTIONAL,
    ul-DPCH-PowerControlInfo      UL-DPCH-PowerControlInfo
}

```

```

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)

CD-SignatureCode ::=                 INTEGER (0..15)

CD-SignatureCodeList ::=             SEQUENCE (SIZE (1..maxPCPCH-CDsig)) OF
                                       CD-SignatureCode

CellParametersID ::=                 INTEGER (0..127)

ChannelAssignmentActive ::=          CHOICE {
    notActive                          NULL,
    isActive                          AvailableMinimumSF-ListVCAM
}

ChannelisationCode256 ::=            INTEGER (0..255)

ChannelReqParamsForUCSM ::=          SEQUENCE {
    availableAP-SignatureList          AvailableAP-SignatureList,
    availableAP-SubchannelList        AvailableAP-SubchannelList           OPTIONAL
}

ClosedLoopTimingAdjMode ::=          ENUMERATED {
    slot1, slot2 }

CodeNumberDSCH ::=                   INTEGER (0..255)

CodeRange ::=                         SEQUENCE {
    pdsch-CodeMapList                 PDSCH-CodeMapList,
    codeNumberStart                   CodeNumberDSCH,
    codeNumberStop                     CodeNumberDSCH
}

CodeWordSet ::=                       ENUMERATED {
    longCWS,
    mediumCWS,
    shortCWS,
    ssdtOff }

CommonTimeslotInfo ::=                SEQUENCE {
    -- TABULAR: The IE below is MD, but since it can be encoded in a single
    -- bit it is not defined as OPTIONAL.
    secondInterleavingMode            SecondInterleavingMode,
    tfci-Coding                       TFCCI-Coding                       OPTIONAL,
    puncturingLimit                   PuncturingLimit,
    repetitionPeriodAndLength         RepetitionPeriodAndLength         OPTIONAL
}

CommonTimeslotInfoSCCPCH ::=          SEQUENCE {
    -- TABULAR: The IE below is MD, but since it can be encoded in a single
    -- bit it is not defined as OPTIONAL.
    secondInterleavingMode            SecondInterleavingMode,
    tfci-Coding                       TFCCI-Coding                       OPTIONAL,
    puncturingLimit                   PuncturingLimit,
    repetitionPeriodLengthAndOffset    RepetitionPeriodLengthAndOffset    OPTIONAL
}

-- Values from -10 to 10 are used in Release 99
ConstantValue ::=                     INTEGER (-10..21)

CPCH-PersistenceLevels ::=            SEQUENCE {
    cpch-SetID                        CPCH-SetID,
    dynamicPersistenceLevelTF-List    DynamicPersistenceLevelTF-List
}

CPCH-PersistenceLevelsList ::=        SEQUENCE (SIZE (1..maxCPCHsets)) OF
                                       CPCH-PersistenceLevels

```

```

CPCH-SetInfo ::=
    cpch-SetID                SEQUENCE {
    transportFormatSet        CPCH-SetID,
    tfcs                      TransportFormatSet,
    ap-PreambleScramblingCode TFCS,
    ap-AICH-ScramblingCode    AP-PreambleScramblingCode,
    ap-AICH-ChannelisationCode SecondaryScramblingCode OPTIONAL,
    cd-PreambleScramblingCode AP-AICH-ChannelisationCode,
    cd-CA-ICH-ScramblingCode  CD-PreambleScramblingCode,
    cd-CA-ICH-ChannelisationCode SecondaryScramblingCode OPTIONAL,
    cd-AccessSlotSubchannelList CD-CA-ICH-ChannelisationCode,
    cd-SignatureCodeList     CD-AccessSlotSubchannelList OPTIONAL,
    deltaPp-m                CD-SignatureCodeList OPTIONAL,
    ul-DPCCH-SlotFormat      DeltaPp-m,
    n-StartMessage           UL-DPCCH-SlotFormat,
    n-EOT                    N-StartMessage,
    channelAssignmentActive  N-EOT,
    -- TABULAR: VCAM info has been nested inside ChannelAssignmentActive,
    -- which in turn is mandatory since it's only a binary choice.
    cpch-StatusIndicationMode ChannelAssignmentActive,
    pcpch-ChannelInfoList   CPCH-StatusIndicationMode,
    }                      PCPCH-ChannelInfoList

CPCH-SetInfoList ::=
    SEQUENCE (SIZE (1..maxCPCHsets)) OF
    CPCH-SetInfo

CPCH-StatusIndicationMode ::=
    ENUMERATED {
    pcpch-Availability,
    pcpch-AvailabilityAndMinAvailableSF }

CSICH-PowerOffset ::=
    INTEGER (-10..5)

-- Actual value = IE value * 512, only values from 0 to 599 used in Release 99.
DefaultDPCH-OffsetValue ::=
    INTEGER (0..1023)

DeltaPp-m ::=
    INTEGER (-10..10)

-- Actual value = IE value * 0.1
DeltaSIR ::=
    INTEGER (0..30)

DL-CCTrCh ::=
    SEQUENCE {
    tfcs-Identity             TFCS-Identity          OPTIONAL,
    timeInfo                 TimeInfo,
    commonTimeslotInfo CommonTimeslotInfo    OPTIONAL,
    individualTS-InfoDL-CCTrCHList IndividualTS-InfoDL-CCTrCHList OPTIONAL,
    dl-CCTrCH-TimeslotsCodes DownlinkTimeslotsCodes    OPTIONAL
    }

DL-CCTrCh-Post ::=
    SEQUENCE {
    timeInfo                 TimeInfo,
    commonTimeslotInfo      CommonTimeslotInfo,
    individualTS-InfoDL-CCTrCHList IndividualTS-InfoDL-CCTrCHList
    }


DL-CCTrCHList ::=
    SEQUENCE (SIZE (1..maxCCTrCH)) OF
    DL-CCTrCh

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,
modeSpecificInfo          CHOICE {
  fdd                      SEQUENCE {
    dl-DPCH-InfoCommon          DL-DPCH-InfoCommon          OPTIONAL,
    defaultDPCH-OffsetValue      DefaultDPCH-OffsetValue      DEFAULT 0,
    dpch-CompressedModeInfo      DPCH-CompressedModeInfo      OPTIONAL,
    tx-DiversityMode            TX-DiversityMode            OPTIONAL,
    ssdt-Information            SSDT-Information            OPTIONAL
  },
  tdd                      NULL
}

```

```

DL-CommonInformationPost ::= SEQUENCE {
  dl-DPCH-InfoCommon          DL-DPCH-InfoCommon          OPTIONAL
}

```

```

DL-CommonInformationPredef ::= SEQUENCE {
  dl-DPCH-InfoCommon          DL-DPCH-InfoCommonPredef    OPTIONAL,
  modeSpecificInfo          CHOICE {
    fdd                      SEQUENCE {
      defaultDPCH-OffsetValue      DefaultDPCH-OffsetValue      OPTIONAL
    }
  }
}

```

```

DL-CompressedModeMethod ::= ENUMERATED {
  puncturing, sf-2,
  higherLayerScheduling }

```

```

DL-DPCH-InfoCommon ::= SEQUENCE {
  modeSpecificInfo          CHOICE {
    fdd                      SEQUENCE {
      dl-DPCH-PowerControlInfo      DL-DPCH-PowerControlInfo      OPTIONAL,
      spreadingFactorAndPilot      SF512-AndPilot,
      -- TABULAR: The number of pilot bits is nested inside the spreading factor.
      positionFixedOrFlexible      PositionFixedOrFlexible,
      tfci-Existence                BOOLEAN
    },
    tdd                      SEQUENCE {
      commonTimeslotInfo            CommonTimeslotInfo            OPTIONAL
    }
  }
}

```

```

DL-DPCH-InfoCommonPost ::= SEQUENCE {
  dl-DPCH-PowerControlInfo      DL-DPCH-PowerControlInfo      OPTIONAL
}

```

```

DL-DPCH-InfoCommonPredef ::= SEQUENCE {
  modeSpecificInfo          CHOICE {
    fdd                      SEQUENCE {
      spreadingFactorAndPilot      SF512-AndPilot,
      -- TABULAR: The number of pilot bits is nested inside the spreading factor.
      positionFixedOrFlexible      PositionFixedOrFlexible,
      tfci-Existence                BOOLEAN
    },
    tdd                      SEQUENCE {
      commonTimeslotInfo            CommonTimeslotInfo
    }
  }
}

```

```

DL-DPCH-InfoPerRL ::= CHOICE {
  fdd                      SEQUENCE {
    pCPICH-UsageForChannelEst      PCPICH-UsageForChannelEst,
    dcph-FrameOffset              DPCH-FrameOffset,
    secondaryCPICH-Info            SecondaryCPICH-Info            OPTIONAL,
    dl-ChannelisationCodeList      DL-ChannelisationCodeList,
    tpc-CombinationIndex            TPC-CombinationIndex,
    ssdt-CellIdentity              SSDT-CellIdentity            OPTIONAL,
    closedLoopTimingAdjMode        ClosedLoopTimingAdjMode        OPTIONAL
  }
}

```



```

    },
    tdd
}

DL-DPCH-InfoPerRL-PostFDD ::= CHOICESEQUENCE {

    fdd SEQUENCE {
        pCPICH-UsageForChannelEst PCPICH-UsageForChannelEst OPTIONAL,
        dl-ChannelisationCode DL-ChannelisationCode,
        tpc-CombinationIndex TPC-CombinationIndex
    },
    tdd SEQUENCE {
        dl-CCTrCh-Post DL-CCTrCh-Post
    }
}

DL-DPCH-InfoPerRL-PostTDD ::= SEQUENCE {

    dl-CCTrCH-TimeslotsCodes DownlinkTimeslotsCodes
}

DL-DPCH-PowerControlInfo ::= SEQUENCE {
    -- TABULAR: DPC-Mode is applicable for FDD mode only.
    dpc-Mode DPC-Mode OPTIONAL
}

DL-FrameType ::= ENUMERATED {
    dl-FrameTypeA, dl-FrameTypeB }

DL-InformationPerRL ::= SEQUENCE {
    modeSpecificInfo CHOICE {
        fdd SEQUENCE {
            primaryCPICH-Info PrimaryCPICH-Info,
            pdsch-SHO-DCH-Info PDSCH-SHO-DCH-Info OPTIONAL,
            pdsch-CodeMapping PDSCH-CodeMapping OPTIONAL
        },
        tdd PrimaryCCPCH-Info
    },
    dl-DPCH-InfoPerRL DL-DPCH-InfoPerRL OPTIONAL,
    secondaryCCPCH-Info SecondaryCCPCH-Info OPTIONAL,
    tfcs TFCS OPTIONAL,
    fach-PCH-InformationList FACH-PCH-InformationList OPTIONAL,
    sib-ReferenceList SIB-ReferenceListFACH OPTIONAL
}

DL-InformationPerRL-List ::= SEQUENCE (SIZE (1..maxRL)) OF
    DL-InformationPerRL

DL-InformationPerRL-ListPostFDD ::= SEQUENCE (SIZE (1..maxRL)) OF
    DL-InformationPerRL-PostFDD

DL-InformationPerRL-PostFDD ::= SEQUENCE {

    modeSpecificInfo CHOICE {
        fdd SEQUENCE {
            primaryCPICH-Info PrimaryCPICH-Info,
        },
        tdd SEQUENCE {
            primaryCCPCH-Info PrimaryCCPCH-Info OPTIONAL
        }
    },
    dl-DPCH-InfoPerRL DL-DPCH-InfoPerRL-PostFDD
}

DL-InformationPerRL-PostTDD ::= SEQUENCE {

    primaryCCPCH-Info PrimaryCCPCH-InfoPost,
    dl-DPCH-InfoPerRL DL-DPCH-InfoPerRL-PostTDD
}

DL-OuterLoopControl ::= ENUMERATED {
    increaseAllowed, increaseNotAllowed }

DL-PDSCH-Information ::= SEQUENCE {
    pdsch-SHO-DCH-Info PDSCH-SHO-DCH-Info OPTIONAL,
    pdsch-CodeMapping PDSCH-CodeMapping OPTIONAL
}


```

```

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-ChannelisationCodeList ::= SEQUENCE (SIZE (1..maxDPCHcodesPerTS)) OF
DL-TS-ChannelisationCode

DL-TS-ChannelisationCodesShort ::= SEQUENCE {
    codesRepresentation CHOICE {
        consecutive SEQUENCE {
            firstChannelisationCode DL-TS-ChannelisationCode,
            lastChannelisationCode DL-TS-ChannelisationCode
        },
        bitmap BIT STRING (SIZE (16))
    }
}

DownlinkAdditionalTimeslots ::= SEQUENCE {
    parameters CHOICE {
        sameAsLast SEQUENCE {
            timeslotNumber TimeslotNumber
        },
        newParameters SEQUENCE {
            individualTimeslotInfo IndividualTimeslotInfo,
            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),
            timeslotList SEQUENCE (SIZE (1..maxTS-1)) OF
                DownlinkAdditionalTimeslots
        }
    }
}

DPC-Mode ::=          ENUMERATED {
                        singleTPC,
                        tpcTripletInSoft }

-- The actual value of DPCCH power offset is the value of this IE * 2.
DPCCH-PowerOffset ::=          INTEGER (-82..-3)

DPCH-CompressedModeInfo ::=          SEQUENCE {
    tgp-SequenceList TGP-SequenceList
}

DPCH-CompressedModeStatusInfo ::= SEQUENCE (SIZE (1..maxTGPS)) OF
    TGP-SequenceShort

-- TABULAR: Actual value = IE value * 256
DPCH-FrameOffset ::=          INTEGER (0..149)

DSCH-Mapping ::=          SEQUENCE {
    maxTFCI-Field2Value MaxTFCI-Field2Value,
    spreadingFactor SF-PDSCH,
    codeNumber CodeNumberDSCH,
    multiCodeInfo MultiCodeInfo
}

DSCH-MappingList ::=          SEQUENCE (SIZE (1..maxPDSCH-TFCIgroups)) OF
    DSCH-Mapping

```

```

DSCH-RadioLinkIdentifier ::=      INTEGER (0..511)

DurationTimeInfo ::=              INTEGER (1..4096)

DynamicPersistenceLevel ::=       INTEGER (1..8)

DynamicPersistenceLevelList ::=   SEQUENCE (SIZE (1..maxPRACH)) OF
    DynamicPersistenceLevel

DynamicPersistenceLevelTF-List ::= SEQUENCE (SIZE (1..maxTF-CPCH)) OF
    DynamicPersistenceLevel

FACH-PCH-Information ::=          SEQUENCE {
    transportFormatSet              TransportFormatSet,
    transportChannelIdentity        TransportChannelIdentity,
    ctch-Indicator                  BOOLEAN
}

FACH-PCH-InformationList ::=      SEQUENCE (SIZE (1..maxFACH)) OF
    FACH-PCH-Information

FrequencyInfo ::=                 SEQUENCE {
    modeSpecificInfo                CHOICE {
        fdd                          FrequencyInfoFDD,
        tdd                          FrequencyInfoTDD
    },
    fdd                             SEQUENCE {
        uarfcn-UL                    UARFCN,
        uarfcn-DL                    UARFCN                         OPTIONAL
    },
    tdd                             SEQUENCE {
        uarfcn-Nt                    UARFCN
    }
}

FrequencyInfoFDD ::=              SEQUENCE {
    uarfcn-UL                       UARFCN,
    uarfcn-DL                       UARFCN                         OPTIONAL
}

FrequencyInfoTDD ::=              SEQUENCE {
    uarfcn-Nt                       UARFCN
}

IndividualTimeslotInfo ::=        SEQUENCE {
    timeslotNumber                  TimeslotNumber,
    tfci-Existence                  BOOLEAN                         OPTIONAL,
    burstType                       CHOICE {
        type-1                      SEQUENCE {
            midambleShift            MidambleShiftLong          OPTIONAL
        },
        type-2                      SEQUENCE {
            midambleShift            MidambleShiftShort          OPTIONAL
        }
    }
}

IndividualTS-InfoDL-CCTrCH ::=    SEQUENCE {
    individualTimeslotInfo          IndividualTimeslotInfo,
    dl-TS-ChannelisationCodeList    DL-TS-ChannelisationCodeList
}

IndividualTS-InfoDL-CCTrCHList ::= SEQUENCE (SIZE (1..maxTS)) OF
    IndividualTS-InfoDL-CCTrCH

IndividualTS-InfoPDSCH ::=        SEQUENCE {
    individualTimeslotInfo          IndividualTimeslotInfo,
    pdsch-ChannelisationCode        DL-TS-ChannelisationCodeList
}

IndividualTS-InfoPDSCH-List ::=   SEQUENCE (SIZE (1..maxTS)) OF
    IndividualTS-InfoPDSCH

```

```

IndividualTS-InfoPUSCH ::= SEQUENCE {
    individualTimeslotInfo IndividualTimeslotInfo,
    ul-ChannelisationCode UL-TS-ChannelisationCodeList
}

IndividualTS-InfoPUSCH-List ::= SEQUENCE (SIZE (1..maxTS)) OF
    IndividualTS-InfoPUSCH

IndividualTS-InfoUL-CCTrCH ::= SEQUENCE {
    individualTimeslotInfo IndividualTimeslotInfo,
    channelisationCodeList UL-TS-ChannelisationCodeList
}

IndividualTS-InfoUL-CCTrCH-List ::= SEQUENCE (SIZE (1..maxTS)) OF
    IndividualTS-InfoUL-CCTrCH

IndividualTS-Interference ::= SEQUENCE {
    timeslot TimeslotNumber,
    ul-TimeslotInterference UL-Interference
}

IndividualTS-InterferenceList ::= SEQUENCE (SIZE (1..maxTS)) OF
    IndividualTS-Interference

ITP ::= ENUMERATED {
    mode0, mode1 }

-- Value range of -50..33 is used for Release 99
MaxAllowedUL-TX-Power ::= INTEGER (-50..77)

MaxAvailablePCPCH-Number ::= INTEGER (1..64)

MaxTFCI-Field2Value ::= INTEGER (1..1023)

MidambleConfiguration ::= SEQUENCE {
    burstType1 BurstType1 DEFAULT ms8,
    -- TABULAR: The default value for BurstType2 has not been specified due to
    -- compactness reasons.
    burstType2 BurstType2
}

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)

N-StartMessage ::= INTEGER (1..8)

NB01 ::= INTEGER (0..50)

NF-Max ::= INTEGER (1..64)

NumberOfDPDCH ::= INTEGER (1..maxDPDCH-UL)

NumberOfFBI-Bits ::= INTEGER (1..2)

PagingIndicatorLength ::= ENUMERATED {
    pi2, pi4, pi8 }
    
```

```

PC-Preamble ::=
    ENUMERATED {
        pcp0, pcp15 }

PCP-Length ::=
    ENUMERATED {
        as0, as8 }

PCPCH-ChannelInfo ::=
    SEQUENCE {
        pcpch-UL-ScramblingCode    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-CodeInfo ::=
    SEQUENCE {
        spreadingFactor    SF-PDSCH,
        codeNumber          CodeNumberDSCH,
        multiCodeInfo       MultiCodeInfo
    }

PDSCH-CodeInfoList ::=
    SEQUENCE (SIZE (1..maxTFCI-2-Combs)) OF
        PDSCH-CodeInfo

PDSCH-CodeMap ::=
    SEQUENCE {
        spreadingFactor    SF-PDSCH,
        multiCodeInfo       MultiCodeInfo
    }

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              PDSCH-CodeInfoList,
            replace               ReplacedPDSCH-CodeInfoList
        }
    }

PDSCH-Info ::=
    SEQUENCE {
        tfcs-Identity          TFCS-Identity          OPTIONAL,
        sfn-TimeInfo           SFN-TimeInfo           OPTIONAL,
        commonTimeslotInfo     CommonTimeslotInfo     OPTIONAL,
        individualTimeslotInfoList IndividualTS-InfoPDSCH-List OPTIONAL
        pdsch-TimeslotsCodes DownlinkTimeslotsCodes OPTIONAL
    }

PDSCH-SHO-DCH-Info ::=
    SEQUENCE {
        dsch-RadioLinkIdentifier DSCH-RadioLinkIdentifier,
        tfci-CombiningSet        TFCI-CombiningSet        OPTIONAL,
        rl-IdentifierList        RL-IdentifierList        OPTIONAL
    }

PDSCH-SysInfo ::=
    SEQUENCE {
        pdsch-Info              PDSCH-Info,
        dsch-TFS                TransportFormatSet,
        dsch-TFCS               TFCS
    }

PDSCH-SysInfoList ::=
    SEQUENCE (SIZE (1..maxPDSCH)) OF
        PDSCH-SysInfo

PersistenceScalingFactor ::=
    ENUMERATED {

```

```

        psf0-9, psf0-8, psf0-7, psf0-6,
        psf0-5, psf0-4, psf0-3, psf0-2 }

PersistenceScalingFactorList ::= SEQUENCE (SIZE (1..maxASCPersist)) OF
        PersistenceScalingFactor

PI-CountPerFrame ::= ENUMERATED {
        e18, e36, e72, e144 }

PICH-Info ::= CHOICE {
    fdd SEQUENCE {
        secondaryScramblingCode SecondaryScramblingCode OPTIONAL,
        channelisationCode256 ChannelisationCode256,
        pi-CountPerFrame PI-CountPerFrame,
        sttd-Indicator BOOLEAN
    },
    tdd SEQUENCE {
        channelisationCode TDD-PICH-CCode OPTIONAL,
        timeslot TimeslotNumber OPTIONAL,
        burstType CHOICE {
            type-1 MidambleShiftLong,
            type-2 MidambleShiftShort
        }
        repetitionPeriodLengthOffset RepPerLengthOffset-PICH OPTIONAL,
        pagingIndicatorLength PagingIndicatorLength DEFAULT pi2,
        n-GAP N-GAP DEFAULT f4,
        n-PCH N-PCH DEFAULT 2
    }
}

PICH-PowerOffset ::= INTEGER (-10..5)

PilotBits128 ::= ENUMERATED {
        pb4, pb8 }

PilotBits256 ::= ENUMERATED {
        pb2, pb4, pb8 }

PositionFixedOrFlexible ::= ENUMERATED {
        fixed,
        flexible }

PowerControlAlgorithm ::= CHOICE {
    algorithm1 TPC-StepSize,
    algorithm2 NULL
}

PowerOffsetP0 ::= INTEGER (1..8)

PRACH-Midamble ::= ENUMERATED {
        direct,
        direct-Inverted }

PRACH-Partitioning ::= CHOICE {
    fdd SEQUENCE (SIZE (1..maxASC)) OF
        AccessServiceClass,
    tdd SEQUENCE (SIZE (1..maxASC)) OF
        ASC
}

PRACH-PowerOffset ::= SEQUENCE {
        powerOffsetP0,
        preambleRetransMax
}

PRACH-RACH-Info ::= SEQUENCE {
        modeSpecificInfo CHOICE {
            fdd SEQUENCE {
                availableSignatureList AvailableSignatureList,
                availableSF SF-PRACH,
                scramblingCodeWordNumber ScramblingCodeWordNumber,
                puncturingLimit PuncturingLimit,
                availableSubChannelNumberList AvailableSubChannelNumberList
            },
            tdd SEQUENCE {
                timeslot TimeslotNumber,

```



```

    primaryScramblingCode          PrimaryScramblingCode
}

-- Value range -10 .. 50 used for Release 99
PrimaryCPICH-TX-Power ::=          INTEGER (-10..53)

PrimaryScramblingCode ::=          INTEGER (0..511)

PuncturingLimit ::=                ENUMERATED {
    p10-40, p10-44, p10-48, p10-52, p10-56,
    p10-60, p10-64, p10-68, p10-72, p10-76,
    p10-80, p10-84, p10-88, p10-92, p10-96, p11 }

PUSCH-CapacityAllocationInfo ::=  SEQUENCE {
    pusch-Allocation                CHOICE {
        pusch-AllocationPending     NULL,
        pusch-AllocationAssignment  SEQUENCE {
            pusch-PowerControlInfo  UL-TargetSIR          OPTIONAL,
            pusch-Info              PUSCH-Info
        }
    }
}

PUSCH-Info ::=                    SEQUENCE {
    tfcs-Identity                   TFCS-Identity          OPTIONAL,
    sfn-timeInfo                    SFN-TimeInfo            OPTIONAL,
    commonTimeslotInfo              CommonTimeslotInfo      OPTIONAL,
timeslotInfoList                 IndividualTS-InfoPUSCH-List  OPTIONAL
    pusch-TimeslotsCodes            UplinkTimeslotsCodes  OPTIONAL
}

PUSCH-SysInfo ::=                 SEQUENCE {
    pusch-Info                      PUSCH-Info,
    usch-TFS                        TransportFormatSet,
    usch-TFCS                        TFCS
}

PUSCH-SysInfoList ::=             SEQUENCE (SIZE (1..maxPUSCH)) OF
    PUSCH-SysInfo

RACH-TransmissionParameters ::=   SEQUENCE {
    mmax                            INTEGER (1..32),
    nb01Min                         NB01,
    nb01Max                         NB01
}

ReducedScramblingCodeNumber ::=   INTEGER (0..8191)

RepetitionPeriodAndLength ::=     CHOICE {
    repetitionPeriod1               NULL,
    repetitionPeriod2               INTEGER (1..1),
    -- repetitionPeriod2 could just as well be NULL also.
    repetitionPeriod4               INTEGER (1..3),
    repetitionPeriod8               INTEGER (1..7),
    repetitionPeriod16              INTEGER (1..15),
    repetitionPeriod32              INTEGER (1..31),
    repetitionPeriod64              INTEGER (1..63)
}

RepetitionPeriodLengthAndOffset ::= CHOICE {
    repetitionPeriod1               NULL,
    repetitionPeriod2               SEQUENCE {
        length                       NULL,
        offset                       INTEGER (0..1)
    },
    repetitionPeriod4               SEQUENCE {
        length                       INTEGER (1..3),
        offset                       INTEGER (0..3)
    },
    repetitionPeriod8               SEQUENCE {
        length                       INTEGER (1..7),
}

```



```

        offset                                INTEGER (0..7)
    },
    repetitionPeriod16                         SEQUENCE {
        length                                INTEGER (1..15),
        offset                                INTEGER (0..15)
    },
    repetitionPeriod32                         SEQUENCE {
        length                                INTEGER (1..31),
        offset                                INTEGER (0..31)
    },
    repetitionPeriod64                         SEQUENCE {
        length                                INTEGER (1..63),
        offset                                INTEGER (0..63)
    }
}

ReplacedPDSCH-CodeInfo ::=
    tfci-Field2                               MaxTFCI-Field2Value,
    spreadingFactor                           SF-PDSCH,
    codeNumber                                CodeNumberDSCH,
    multiCodeInfo                             MultiCodeInfo
}

ReplacedPDSCH-CodeInfoList ::=
    SEQUENCE (SIZE (1..maxTFCI-2-Combs)) OF
    ReplacedPDSCH-CodeInfo

RepPerLengthOffset-PICH ::=
    CHOICE {
        rpp4-2                                INTEGER (0..3),
        rpp8-2                                INTEGER (0..7),
        rpp8-4                                INTEGER (0..7),
        rpp16-2                               INTEGER (0..15),
        rpp16-4                               INTEGER (0..15),
        rpp32-2                               INTEGER (0..31),
        rpp32-4                               INTEGER (0..31),
        rpp64-2                               INTEGER (0..63),
        rpp64-4                               INTEGER (0..63)
    }

RL-AdditionInformation ::=
    primaryCPICH-Info                         PrimaryCPICH-Info,
    dl-DPCH-InfoPerRL                         DL-DPCH-InfoPerRL,
    tfci-CombiningIndicator                   BOOLEAN,
    secondaryCCPCH-Info                       SecondaryCCPCH-Info           OPTIONAL,
    tfcs                                       TFCS                       OPTIONAL,
    fach-PCH-InformationList                  FACH-PCH-InformationList     OPTIONAL,
    sib-ReferenceListFACH                     SIB-ReferenceListFACH       OPTIONAL
}

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 {
        e1bit, 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-SystemInformation ::=
    secondaryCCPCH-Info                       SecondaryCCPCH-Info,
    tfcs                                       TFCS                       OPTIONAL,

```

```

fach-PCH-InformationList          FACH-PCH-InformationList          OPTIONAL,
pich-Info                         PICH-Info                         OPTIONAL
}

SCCPCH-SystemInformationList ::= SEQUENCE (SIZE (1..maxSCCPCH)) OF
                                SCCPCH-SystemInformation

ScramblingCodeChange ::=        ENUMERATED {
                                codeChange, noCodeChange }

ScramblingCodeType ::=          ENUMERATED {
                                shortSC,
                                longSC }

ScramblingCodeWordNumber ::=    INTEGER (0..15)

SecondaryCCPCH-Info ::=         SEQUENCE {
  selectionIndicator              SelectionIndicator              OPTIONAL,
  -- The IE above is conditional on the logical channel type.
  modeSpecificInfo               CHOICE {
    fdd                           SEQUENCE {
      pCPICH-UsageForChannelEst   PCPICH-UsageForChannelEst,
      secondaryCPICH-Info         SecondaryCPICH-Info            OPTIONAL,
      secondaryScramblingCode     SecondaryScramblingCode       OPTIONAL,
      sttd-Indicator              BOOLEAN,
      sf-AndCodeNumber            SF256-AndCodeNumber,
      pilotSymbolExistence        BOOLEAN,
      tfci-Existence              BOOLEAN,
      positionFixedOrFlexible     PositionFixedOrFlexible,
      timingOffset                TimingOffset                DEFAULT 0
    },
    tdd                           SEQUENCE {
      -- TABULAR: the offset is included in CommonTimeslotInfoSCCPCH
      commonTimeslotInfo          CommonTimeslotInfoSCCPCH,
      individualTimeslotInfo      IndividualTimeslotInfo,
      channelisationCode          SCCPCH-ChannelisationCodeList
    }
  }
}

SecondaryCPICH-Info ::=         SEQUENCE {
  secondaryDL-ScramblingCode     SecondaryScramblingCode       OPTIONAL,
  channelisationCode256          ChannelisationCode256
}

-- Value range 1..15 used for Release 99
SecondaryScramblingCode ::=     INTEGER (1..16)

SecondInterleavingMode ::=     ENUMERATED {
                                frameRelated, timeslotRelated }

SelectionIndicator ::=          ENUMERATED {
                                on, off }

-- SF256-AndCodeNumber encodes both "Spreading factor" and "Code Number"
SF256-AndCodeNumber ::=        CHOICE {
  sf4                            INTEGER (0..3),
  sf8                            INTEGER (0..7),
  sf16                           INTEGER (0..15),
  sf32                           INTEGER (0..31),
  sf64                           INTEGER (0..63),
  sf128                          INTEGER (0..127),
  sf256                          INTEGER (0..255)
}

-- SF512-AndCodeNumber encodes both "Spreading factor" and "Code Number"
SF512-AndCodeNumber ::=        CHOICE {
  sf4                            INTEGER (0..3),
  sf8                            INTEGER (0..7),
  sf16                           INTEGER (0..15),
  sf32                           INTEGER (0..31),
  sf64                           INTEGER (0..63),
  sf128                          INTEGER (0..127),
  sf256                          INTEGER (0..255),
  sf512                          INTEGER (0..511)
}

```

```

}

-- 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
    }
SF-PDSCH ::=
    ENUMERATED {
        sfp4, sfp8, sfp16, sfp32,
        sfp64, sfp128, sfp256, spare }

SF-PRACH ::=
    ENUMERATED {
        sfpr32, sfpr64, sfpr128, sfpr256 }

SFN-TimeInfo ::=
    SEQUENCE {
        activationTime    INTEGER (0..4094)           OPTIONAL,
        physChDuration    DurationTimeInfo          OPTIONAL
    }

Signature ::=
    INTEGER (0..15)

SpreadingFactor ::=
    ENUMERATED {
        sf4, sf8, sf16, sf32,
        sf64, sf128, sf256 }

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
    }

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-CCodeList ::=
    CHOICE {
        sf8          SEQUENCE (SIZE (1..8)) OF
                    TDD-PRACH-CCode8,
        sf16         SEQUENCE (SIZE (1..8)) OF
                    TDD-PRACH-CCode16
    }

TFC-ControlDuration ::=
    ENUMERATED {
        tfc-cd1, tfc-cd16, tfc-cd24, tfc-cd32,
        tfc-cd48, tfc-cd64, tfc-cd128,
        tfc-cd192, tfc-cd256, tfc-cd512,
        spare1, spare2, spare3, spare4,
        spare5, spare6, spare7, spare8 }

```

```

TFCI-Coding ::=
    ENUMERATED {
        tfci-bits-4, tfci-bits-8,
        tfci-bits-16, tfci-bits-32 }

-- **TODO**, not defined
TFCI-CombiningSet ::=
    SEQUENCE {
    }

TGCFN ::=
    INTEGER (0..255)

-- The value 270 represents "undefined" in the tabular description.
TGD ::=
    INTEGER (15..270)

TGL ::=
    INTEGER (1..14)

TGMP ::=
    ENUMERATED {
        tdd-Measurement, fdd-Measurement,
        gsm-Measurement, otherMP }

TGP-Sequence ::=
    SEQUENCE {
        tgpsi
        tgps-StatusFlag
        tgps-ConfigurationParams
    }
    TGPSI,
    TGPS-StatusFlag,
    TGPS-ConfigurationParams
    OPTIONAL

TGP-SequenceList ::=
    SEQUENCE (SIZE (1..maxTGPS)) OF
    TGP-Sequence

TGP-SequenceShort ::=
    SEQUENCE {
        tgpsi
        tgps-StatusFlag
    }
    TGPSI,
    TGPS-StatusFlag

TGPL ::=
    INTEGER (1..144)

-- TABULAR: The value 0 represents "infinity" in the tabular description.
TGPRC ::=
    INTEGER (0..63)

TGPS-ConfigurationParams ::=
    SEQUENCE {
        tgmp
        tgprc
        tgcfn
        tgsn
        tgl1
        tgl2
        tgd
        tgpl1
        tgpl2
        rpp
        itp
        ul-DL-Mode
        -- TABULAR: Compressed mode method is nested inside UL-DL-Mode
        dl-FrameType
        deltaSIR1
        deltaSIRAfter1
        deltaSIR2
        deltaSIRAfter2
    }
    TGMP,
    TGPRC,
    TGCFN,
    TGSN,
    TGL,
    TGL
    OPTIONAL,
    TGD,
    TGPL,
    TGPL
    OPTIONAL,
    RPP,
    ITP,
    UL-DL-Mode,
    DL-FrameType,
    DeltaSIR,
    DeltaSIR,
    DeltaSIR
    OPTIONAL,
    DeltaSIR
    OPTIONAL

TGPS-StatusFlag ::=
    ENUMERATED {
        tgpsActive, tgpsInactive }

TGPSI ::=
    INTEGER (1..maxTGPS)

TGSN ::=
    INTEGER (0..14)

TimeInfo ::=
    SEQUENCE {
        activationTime
        durationTimeInfo
    }
    ActivationTime
    DurationTimeInfo
    OPTIONAL,
    OPTIONAL
    
```

```

TimeslotList ::=
    SEQUENCE (SIZE (1..maxTS)) OF
        TimeslotNumber

TimeslotNumber ::=
    INTEGER (0..14)

TimeslotSync2 ::=
    INTEGER (0..6)

-- Actual value = IE value * 256
TimingOffset ::=
    INTEGER (0..149)

TPC-CombinationIndex ::=
    INTEGER (0..5)

TPC-StepSize ::=
    INTEGER (0..1)

TX-DiversityMode ::=
    ENUMERATED {
        noDiversity,
        sttd,
        closedLoopModel,
        closedLoopMode2 }

UARFCN ::=
    INTEGER (0..16383)

UCSM-Info ::=
    SEQUENCE {
        minimumSpreadingFactor
            MinimumSpreadingFactor,
        nf-Max
            NF-Max,
        channelReqParamsForUCSM
            ChannelReqParamsForUCSM
    }

UL-CCTrCH ::=
    SEQUENCE {
        tfcs-Identity
            TFCS-Identity
            OPTIONAL,
        timeInfo
            TimeInfo,
        commonTimeslotInfo
            CommonTimeslotInfo
            OPTIONAL,
        timeslotInfoList
            IndividualTS-InfoUL-CCTrCH-List
            OPTIONAL
        ul-CCTrCH-TimeslotsCodes
            UplinkTimeslotsCodes
            OPTIONAL
    }

UL-CCTrCHList ::=
    SEQUENCE (SIZE (1..maxCCTrCH)) OF
        UL-CCTrCH

UL-ChannelRequirement ::=
    CHOICE {
        ul-DPCH-Info
            UL-DPCH-Info,
        prach-RACH-Info
            PRACH-RACH-Info,
        spare
            NULL
    }

UL-CompressedModeMethod ::=
    ENUMERATED {
        sf-2, noCompressing,
        higherLayerScheduling }

UL-DL-Mode ::=
    CHOICE {
        ul
            UL-CompressedModeMethod,
        dl
            DL-CompressedModeMethod
    }

UL-DPCCH-SlotFormat ::=
    ENUMERATED {
        slf0, slf1, slf2 }

UL-DPCH-Info ::=
    SEQUENCE {
        ul-DPCH-PowerControlInfo
            UL-DPCH-PowerControlInfo
            OPTIONAL,
        modeSpecificInfo
            CHOICE {
                fdd
                    SEQUENCE {
                        scramblingCodeType
                            ScramblingCodeType,
                        scramblingCode
                            UL-ScramblingCode,
                        numberOfDPDCH
                            NumberOfDPDCH
                            DEFAULT 1,
                        spreadingFactor
                            SpreadingFactor,
                        tfci-Existence
                            BOOLEAN,
                        numberOfFBI-Bits
                            NumberOfFBI-Bits
                            OPTIONAL,
                        -- The IE above is conditional based on history
                        puncturingLimit
                            PuncturingLimit
                    },
                tdd
                    SEQUENCE {
                        ul-TimingAdvance
                            UL-TimingAdvance
                            OPTIONAL,
                        ul-CCTrCHList
                            UL-CCTrCHList
                    }
            }
    }

```

```

    }
}

UL-DPCH-InfoPostFDD ::= SEQUENCE {
    ul-DPCH-PowerControlInfo      UL-DPCH-PowerControlInfoPostFDD,
    modeSpecificInfo              CHOICE {
        fdd                       SEQUENCE {
            scramblingCodeType     ScramblingCodeType,
            reducedScramblingCodeNumber ReducedScramblingCodeNumber,
            spreadingFactor         SpreadingFactor
        },
        tdd                       SEQUENCE {
            ul-TimingAdvance       UL-TimingAdvance OPTIONAL,
            timeInfo               TimeInfo,
            commonTimeslotInfo     CommonTimeslotInfo,
            timeslotInfoList       IndividualTS-InfoUL-CCTrCH-List
        }
    }
}

```

```

UL-DPCH-InfoPostTDD ::= SEQUENCE {
    ul-DPCH-PowerControlInfo      UL-DPCH-PowerControlInfoPostTDD,
    ul-TimingAdvance              UL-TimingAdvance OPTIONAL,
    ul-CCTrCH-TimeslotsCodes      UplinkTimeslotsCodes
}

```

```

UL-DPCH-InfoPredef ::= SEQUENCE {
    ul-DPCH-PowerControlInfo      UL-DPCH-PowerControlInfoPredef,
    modeSpecificInfo              CHOICE {
        fdd                       SEQUENCE {
            tfci-Existence         BOOLEAN,
            puncturingLimit        PuncturingLimit
        },
        tdd                       NULLSEQUENCE {
            commonTimeslotInfo     CommonTimeslotInfo
        }
    }
}

```

```

UL-DPCH-PowerControlInfo ::= CHOICE {
    fdd                           SEQUENCE {
        dpcch-PowerOffset         DPCCH-PowerOffset,
        pc-Preamble               PC-Preamble,
        powerControlAlgorithm     PowerControlAlgorithm
        -- TABULAR: TPC step size nested inside PowerControlAlgorithm
    },
    tdd                           SEQUENCE {
        ul-TargetSIR              UL-TargetSIR,
        handoverGroup             SEQUENCE {
            individualTS-InterferenceList IndividualTS-InterferenceList,
            dpch-ConstantValue      ConstantValue
        }
    }
}

```

```

UL-DPCH-PowerControlInfoPostFDD ::= SEQUENCE {
    modeSpecificInfo              CHOICE {
        fdd                       SEQUENCE {
            powerControlAlgorithm   PowerControlAlgorithm
            -- TABULAR: TPC step size nested inside PowerControlAlgorithm
        },
        tdd                       SEQUENCE {
            ul-TargetSIR            UL-TargetSIR,
            individualTS-InterferenceList IndividualTS-InterferenceList
        }
    }
}

```

```

UL-DPCH-PowerControlInfoPostTDD ::= SEQUENCE {
    ul-TargetSIR                  UL-TargetSIR,
    ul-TimeslotInterference       UL-Interference
}

```

```

UL-DPCH-PowerControlInfoPredef ::= CHOICE {
  fdd SEQUENCE {
    dpcch-PowerOffset DPCCH-PowerOffset,
    pc-Preamble PC-Preamble
  },
  tdd SEQUENCE {
    dpch-ConstantValue ConstantValue
  }
}

-- Value range -110 .. -70 used for Release 99
UL-Interference ::= INTEGER (-110..-47)

--
UL-ScramblingCode ::= INTEGER (0..16777215)

-- Actual value = (IE value * 0.5) - 11
UL-TargetSIR ::= INTEGER (0..62)

UL-TimingAdvance ::= INTEGER (0..63)

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 {
    sameAsLast SEQUENCE {
      timeslotNumber TimeslotNumber
    },
    newParameters SEQUENCE {
      individualTimeslotInfo IndividualTimeslotInfo,
      ul-TS-ChannelisationCodesList UL-TS-ChannelisationCodesList
    }
  }
}

```

```

UplinkTimeslotsCodes ::= SEQUENCE {
  firstIndividualTimeslotInfo IndividualTimeslotInfo,
  ul-TS-ChannelisationCodesList UL-TS-ChannelisationCodesList,
  moreTimeslots CHOICE {
    noMore NULL,
    additionalTimeslots CHOICE {
      consecutive SEQUENCE {
        numAdditionalTimeslots INTEGER (1..maxTS-1)
      },
      timeslotList SEQUENCE (SIZE (1..maxTS-1)) OF
        UplinkAdditionalTimeslots
    }
  }
}

```

END

11.4 Constant definitions

Constant-definitions DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

```

hiRM                INTEGER ::= 256
maxAC               INTEGER ::= 16
maxAdditionalMeas   INTEGER ::= 4
maxASC             INTEGER ::= 8
maxASCmap          INTEGER ::= 7
maxASCpersist      INTEGER ::= 6
maxCCTrCH          INTEGER ::= 8
maxCellMeas        INTEGER ::= 32
maxCellMeas-1      INTEGER ::= 31

maxCNdomains       INTEGER ::= 4
maxCPCHsets        INTEGER ::= 16
maxDPCH-DLchan     INTEGER ::= 8
maxDPCHcodesPerTS INTEGER ::= 16

-- **TODO**
maxDPDCH-UL        INTEGER ::= 6
maxDRACclasses     INTEGER ::= 8
-- **TODO**
maxFACH            INTEGER ::= 8
maxFreq            INTEGER ::= 8
maxFrequencybands  INTEGER ::= 4
maxInterSysMessages INTEGER ::= 4
maxLoCHperRLC      INTEGER ::= 2
maxMeasEvent       INTEGER ::= 8
maxMeasIntervals   INTEGER ::= 3
maxMeasParEvent    INTEGER ::= 2
maxNoOfMeas        INTEGER ::= 16
maxOtherRAT        INTEGER ::= 15
maxPage1           INTEGER ::= 8
maxPCPCH-Apsig     INTEGER ::= 16
maxPCPCH-ApsubCh   INTEGER ::= 12
maxPCPCH-CDsig     INTEGER ::= 16
maxPCPCH-CDsubCh   INTEGER ::= 12
maxPCPCH-SF        INTEGER ::= 7
maxPCPCHs          INTEGER ::= 64
maxPDCPalgoType    INTEGER ::= 8
maxPDSCH           INTEGER ::= 8
maxPDSCH-TFCIgroups INTEGER ::= 256
maxPRACH           INTEGER ::= 16
maxPUSCH           INTEGER ::= 8
maxRABsetup        INTEGER ::= 16
maxRAT             INTEGER ::= 16

maxRB              INTEGER ::= 32
maxRBallRABs       INTEGER ::= 27
maxRBMuxOptions    INTEGER ::= 8
maxRBperRAB        INTEGER ::= 8
maxRL              INTEGER ::= 8
maxRL-1            INTEGER ::= 7
maxSat             INTEGER ::= 16
maxSCCPCH          INTEGER ::= 16
maxSIB             INTEGER ::= 32
-- **TODO**
maxSIB-FACH        INTEGER ::= 8
maxSIBsegm         INTEGER ::= 16
maxSig             INTEGER ::= 16
maxSignallingFlow  INTEGER ::= 16
maxSRBsetup        INTEGER ::= 8
maxSubCh           INTEGER ::= 12
maxSystemCapability INTEGER ::= 16
maxTF              INTEGER ::= 32
maxTF-CPCH         INTEGER ::= 16
maxTFC             INTEGER ::= 1024
maxTF-2-Combs      INTEGER ::= 512
maxTGPS           INTEGER ::= 6
maxTrCH           INTEGER ::= 32
maxTrCHpreconf     INTEGER ::= 16
maxTS              INTEGER ::= 14
maxTS-1            INTEGER ::= 13

```



```
maxURA          INTEGER ::= 8
END
```

CHANGE REQUEST

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

25.331 CR 445

Current Version: **3.3.0**

GSM (AA.BB) or 3G (AA.BBB) specification number ↑

↑ CR number as allocated by MCC support team

For submission to: **TSG-RAN #9**
list expected approval meeting # here ↑

for approval
for information

strategic
non-strategic (for SMG use only)

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

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

Source: TSG-RAN WG2 **Date:** 30.06.2000

Subject: Editorial corrections

Work item:

Category: F Correction **Release:** Phase 2
(only one category shall be marked with an X) A Corresponds to a correction in an earlier release Release 96
B Addition of feature Release 97
C Functional modification of feature Release 98
D Editorial modification Release 99
Release 00

Reason for change: Some small editorial corrections.

Clauses affected: 10.2.52.6.17, 10.3.4.7, 10.3.6.23

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

Other comments:



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

10.2.52.6.17 System Information Block type 16

The system information block type 16 contains radio bearer, transport channel and physical channel parameters to be stored by UE in idle and connected mode for use during handover to UTRAN. The block may also contain scheduling information for other system information blocks.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Other information elements				
References to other system information blocks	OP		References to other system information blocks 10.3.8.11	Only system information blocks with area scope "Cell" and update mechanism "value tag" may be referenced.
UE information elements				
>Re-establishment timer	MP		Re-establishment timer 10.3.3.30	
RB information elements				
Predefined RB configuration	MP		Predefined RB configuration 10.3.4.7	
TrCH Information Elements				
Predefined TrCH configuration	MP		Predefined TrCH configuration 10.3.5.9	
PhyCH Information Elements				
Predefined PhyCH configuration	MP		Predefined PhyCH configuration 10.3.6.48	

10.3.4.7 Predefined RB configuration

This information element concerns a pre- defined configuration of radio bearer parameters

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Signalling radio bearer information				
Signalling RB information to setup List	MP	1 to <maxSRBs etup>		For each signalling radio bearer
>Signalling RB information to setup	MP		Signalling RB information to setup 10.3.4.21	
RB information				Only one RAB supported
>RB information to setup list	MP	1 to <maxRBcount>	RB information to setup 10.3.4.17	
>RB information to setup	MP		RB information to setup 10.3.4.17	

10.3.6.23 Downlink information for each radio link

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Choice mode	MP			
>FDD				
>>Primary CPICH info	MP		Primary CPICH info 10.3.6.51	
>>PDSCH with SHO DCH Info	OP		PDSCH with SHO DCH Info 10.3.6.39	
>>PDSCH code mapping	OP		PDSCH code mapping 10.3.6.36	
>TDD				
>>Primary CCPCH info	<u>OP</u>		Primary CCPCH info 10.3.6.49	
Downlink DPCH info for each RL	OP		Downlink DPCH info for each RL 10.3.6.17	Note 1
Secondary CCPCH info	OP		Secondary CCPCH info 10.3.6.61	
References to system information blocks	OP	1 to <maxSIB-FACH>		Note 1
>Scheduling information	MP		Scheduling information 10.3.8.12	Note 1

NOTE 1: This IE shall not be set in case of CELL UPDATE CONFIRM message.

CHANGE REQUEST

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

25.331 CR 448r1

Current Version: **3.3.0**

GSM (AA.BB) or 3G (AA.BBB) specification number ↑

↑ CR number as allocated by MCC support team

For submission to: **TSG-RAN #9**

list expected approval meeting # here ↑

for approval
for information

strategic
non-strategic (for SMG use only)

Form: CR cover sheet, version 2 for 3GPP and SMG

The latest version of this form is available from: <ftp://ftp.3gpp.org/Information/CR-Form-v2.doc>

Proposed change affects:

(at least one should be marked with an X)

(U)SIM

ME

UTRAN / Radio

Core Network

Source:

TSG-RAN WG2

Date:

2000-7-3

Subject:

Mapping of channelisation code

Work item:

Category:

(only one category shall be marked with an X)

- F Correction
- A Corresponds to a correction in an earlier release
- B Addition of feature
- C Functional modification of feature
- D Editorial modification

Release:

- Phase 2
- Release 96
- Release 97
- Release 98
- Release 99
- Release 00

Reason for change:

Current RRC specification does not clearly specify how the segmented Physical Channel shall be mapped on to plural codes in the Multiple DPDCH cases. The physical channel segmentation rule should refer to TS25.212 section 4.2.10

Clauses affected:

8.5.7.6.x

Other specs affected:

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

Other comments:



help.doc

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

8.5.7.6.x ~~DL~~Secondary Scrambling Code, ~~DL~~ Channelisation Code Code Number

The following description applies to FDD.

~~DL~~ Channelisation Code Code Number can be assigned by following rules:

When more than one DL DPDCH are assigned per RL, the segmented physical channel shall be mapped on to DL DPDCHs according to TS25.212. When p number of DL DPDCHs are assigned to each RL, the first pair of ~~DL~~Secondary Scrambling Code and ~~DL~~ Channelisation Code Code Number corresponds to “PhCH number 1”, the second to “PhCH number 2”, and so on until the p th to “PhCH number p ”

CHANGE REQUEST

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

25.331 CR 449r2

Current Version: **3.3.0**

GSM (AA.BB) or 3G (AA.BBB) specification number ↑

↑ CR number as allocated by MCC support team

For submission to: **TSG-RAN #9**
list expected approval meeting # here ↑

for approval
for information

strategic
non-strategic (for SMG use only)

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

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

Source: TSG-RAN WG2 **Date:** 2000-8-21

Subject: DL TFCS Limitation

Work item:

Category: F Correction
A Corresponds to a correction in an earlier release
B Addition of feature
C Functional modification of feature
D Editorial modification
(only one category Shall be marked With an X)

Release: Phase 2
Release 96
Release 97
Release 98
Release 99
Release 00

Reason for change: This CR proposes to solve the problem in the DL TFCS limitation mechanism. By this CR, Physical CH Reconfiguration procedure with increasing/decreasing the spreading factor of the physical dedicated channel due to the fluctuation of user data traffic can be achieved without sending DL TFCS every time Physical CH is reconfigured.

Clauses affected: 10.3.6.14, 10.3.6.X (new), 11.3.6

Other specs Affected:

Other 3G core specifications	<input type="checkbox"/>	→ List of CRs:	
Other GSM core specifications	<input type="checkbox"/>	→ List of CRs:	
MS test specifications	<input type="checkbox"/>	→ List of CRs:	
BSS test specifications	<input type="checkbox"/>	→ List of CRs:	
O&M specifications	<input type="checkbox"/>	→ List of CRs:	

Other comments:



help.doc

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

10.3.6.14 Downlink DPCH info common for all RL

NOTE: Only for FDD

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Downlink DPCH power control information	OP		Downlink DPCH power control information 10.3.6.19	
DL rate matching restriction information	OP		DL rate matching restriction information 10.3.6.X	If this IE is set to "absent", no Transport CH is restricted in TFI.
Spreading factor	MP		Integer(4, 8, 16, 32, 64, 128, 256, 512)	
Fixed or Flexible Position	MP		Enumerated (Fixed, Flexible)	
TFCI existence	MP		Boolean	TRUE indicates that TFCI exists
CHOICE SF	MP			
> SF = 256				
>> Number of bits for Pilot bits	MP		Integer (2,4,8)	In bits
> SF = 128				
>>Number of bits for Pilot bits	MP		Integer(4,8)	In bits
> Otherwise				(no data)

CHOICE SF	Condition under which the given SF is chosen
SF=128	"Spreading factor" is set to 128
SF=256	"Spreading factor" is set to 256
Otherwise	"Spreading factor" is set to a value distinct from 128 and 256

[10.3.6.X DL rate matching restriction information](#)

[This IE indicates which TrCH is restricted in TFI. DL rate matching should be done based on the TFCS which is the subset of the "DL TFCS with no restricted Transport channel".](#)

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Restricted TrCH information	OP	1 to <maxTrCH> ≥		
>Restricted DL TrCH identity	MP		Transport channel identity 10.3.5.18	
>Allowed TFIs	MP	1 to <maxTF>		
>>Allowed TFI	MP		Integer(0..31)	

11.3.6 Physical channel information elements

IMPORTS

```
maxASC,  
maxASCmap,  
maxASCpersist,  
maxCCTrCH,  
maxCPCHsets,  
maxDPCH-DLchan,  
maxDPCHcodesPerTS,  
maxDPDCH-UL,  
maxFACH,  
maxPCPCH-APsig,  
maxPCPCH-APsubCh,  
maxPCPCH-CDsig,  
maxPCPCH-CDsubCh,  
maxPCPCH-SF,  
maxPCPCHs,  
maxPDSCH,  
maxPDSCH-TFCIgroups,  
maxPRACH,  
maxPUSCH,  
maxRL,  
maxRL-1,  
maxSCCPCH,  
maxSig,  
maxSubCh,  
maxTF-CPCH,  
maxTFCI-2-Combs,  
maxTGPS,  
maxTrCH,  
maxTS
```

FROM Constant-definitions

```
AllowedTFI-List,  
CPCH-SetID,  
TFCS,  
TFCS-Identity,  
TransportChannelIdentity,  
TransportFormatSet
```

FROM TransportChannel-IEs

```
DL-DPCH-InfoCommon ::= SEQUENCE {  
    dl-DPCH-PowerControlInfo DL-DPCH-PowerControlInfo OPTIONAL,  
    dl-rate-matching-restriction Dl-rate-matching-restriction OPTIONAL,  
    spreadingFactorAndPilot SF512-AndPilot,  
    -- TABULAR: The number of pilot bits is nested inside the spreading factor.  
    positionFixedOrFlexible PositionFixedOrFlexible,  
    tfci-Existence BOOLEAN  
}
```

```
Dl-rate-matching-restriction ::= SEQUENCE {  
    restrictedTrCH-InfoList RestrictedTrCH-InfoList OPTIONAL  
}
```

```
RestrictedTrCH ::= SEQUENCE {  
    restrictedDL-TrCH-Identity TransportChannelIdentity,  
    allowedTFIList AllowedTFI-List  
}
```

```
RestrictedTrCH-InfoList ::= SEQUENCE (SIZE(1..maxTrCH)) OF  
    RestrictedTrCH
```

CHANGE REQUEST		Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.	
25.331	CR	450	Current Version: 3.3.0
GSM (AA.BB) or 3G (AA.BBB) specification number ↑		↑ CR number as allocated by MCC support team	
For submission to: TSG-RAN #9	for approval <input checked="" type="checkbox"/>	strategic <input type="checkbox"/>	(for SMG use only)
<i>list expected approval meeting # here ↑</i>	for information <input type="checkbox"/>	non-strategic <input type="checkbox"/>	

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

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

Source: TSG-RAN WG2 **Date:** 3rd July 2000

Subject: SIB offset

Work item:

Category:	F Correction <input checked="" type="checkbox"/> A Corresponds to a correction in an earlier release <input type="checkbox"/> B Addition of feature <input type="checkbox"/> C Functional modification of feature <input type="checkbox"/> D Editorial modification <input type="checkbox"/>	Release:	Phase 2 <input type="checkbox"/> Release 96 <input type="checkbox"/> Release 97 <input type="checkbox"/> Release 98 <input type="checkbox"/> Release 99 <input checked="" type="checkbox"/> Release 00 <input type="checkbox"/>
------------------	--	-----------------	--

(only one category Shall be marked With an X)

Reason for change: Currently, the default value for SIB_OFF is defined to be 2. This implies when System Information Block is divided into more than 3 segments, SIB_OFF must be specified for that particular SIB in the scheduling information for FDD. When SIBs need to be segmented, they need to be divided into more than 3 segments in many cases, so the current definition is not very effective in reducing the size of the message. It is proposed to modify the definition of SIB_OFF default value, so that the default value may be used even when SIB is segmented to more than 3 segments.

Clauses affected: 10.3.8.12

Other specs Affected:	Other 3G core specifications <input type="checkbox"/> Other GSM core specifications <input type="checkbox"/> MS test specifications <input type="checkbox"/> BSS test specifications <input type="checkbox"/> O&M specifications <input type="checkbox"/>	→ List of CRs: <input type="text"/> → List of CRs: <input type="text"/> → List of CRs: <input type="text"/> → List of CRs: <input type="text"/> → List of CRs: <input type="text"/>
------------------------------	---	---

Other comments:



help.doc

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

10.3.8.12 Scheduling information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
SIB type	MP		SIB Type, 10.3.8.17	
CHOICE Value tag	OP			
>PLMN Value tag			PLMN Value tag 10.3.8.8	This IE is included if the following conditions are fulfilled: the area scope for the system information block is set to "PLMN" in table 8.1.1. a value tag is used to indicate changes in the system information block. the SIB type does not equal system information block type 16
>Predefined configuration identity and value tag			Predefined configuration identity and value tag 10.3.8.9	This IE is included if the following conditions are fulfilled: the SIB type equals system information block type 16
>Cell Value tag			Cell Value tag 10.3.8.4	This IE is included if the following conditions are fulfilled: the area scope for the system information block is set to "cell" in table 8.1.1. a value tag is used to indicate changes in the system information block.
Scheduling	MD			see below for default value
>SEG_COUNT	MD		SEG COUNT 10.3.8.13	Default value is 1
>SIB_REP	MP		Integer (4, 8, 16, 32, 64, 128, 256, 512, 1024, 2048, 4096)	Repetition period for the SIB in frames
>SIB_POS	MP		Integer (0 ..Rep-2 by step of 2)	Position of the first segment Rep is the value of the SIB_REP IE
>SIB_POS offset info	MD	1..15		see below for default value
>>SIB_OFF	MP		Integer(2..32 by step of 2)	Offset of subsequent segments

Field	Default value
SIB_POS offset info	The default value is that all segments are consecutive, i.e., that the SIB_OFF = 2 for all segments <u>except when MIB segment/complete MIB is scheduled to be transmitted in between segments from same SIB. In that case, SIB_OFF=4 in between segments which are scheduled to be transmitted at SFNprime = 8 *n-2 and 8*n + 2, and SIB_OFF=2 for the rest of the segments.</u>
Scheduling	The default value is the scheduling of the SIB as specified in another SIB.

CHANGE REQUEST

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

25.331 CR 451

Current Version: **3.3.0**

GSM (AA.BB) or 3G (AA.BBB) specification number ↑

↑ CR number as allocated by MCC support team

For submission to: **TSG-RAN #9**

list expected approval meeting # here ↑

for approval
 for information

strategic
 non-strategic (for SMG use only)

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

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

Source: TSG-RAN WG2 **Date:** 2000-7-3

Subject: RRC CONNECTION RELEASE cause

Work item:

Category: F Correction **Release:** Phase 2
 A Corresponds to a correction in an earlier release Release 96
 B Addition of feature Release 97
 C Functional modification of feature Release 98
 D Editorial modification Release 99
 Release 00
 (only one category shall be marked with an X)

Reason for change: In TS25.413, it is specified RNC has a capability to release RRC connection due to user inactivity. It is notified to CN with cause: "user inactivity" in RANAP. The same cause is applied in the case of RRC Connection Release to the UE.

Clauses affected: 10.3.3.32

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

Other comments:



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

10.3.3.32 Release cause

Cause for release of RRC connection.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Release cause	MP		Enumerated (normal event, unspecified, pre-emptive release, congestion, re-establishment reject, <u>user inactivity</u>)	At least 3 ₂ spare values, Criticality: reject, are needed

11.3.3 User equipment information elements

```
ReleaseCause ::=
    ENUMERATED {
        normalEvent,
        unspecified,
        pre-emptiveRelease,
        congestion,
        re-establishmentReject,
        userInactivity,
        spare1, spare2, spare3 }
```

<h2 style="margin: 0;">CHANGE REQUEST</h2>		<i>Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.</i>
25.331	CR	452
<i>GSM (AA.BB) or 3G (AA.BBB) specification number ↑</i>		<i>↑ CR number as allocated by MCC support team</i>
For submission to: TSG-RAN #9		Current Version: 3.3.0
<i>list expected approval meeting # here ↑</i>		for approval <input checked="" type="checkbox"/>
for information <input type="checkbox"/>		strategic <input type="checkbox"/> <i>(for SMG use only)</i>
		non-strategic <input type="checkbox"/>

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

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

Source: TSG-RAN WG2 **Date:** 3rd July 2000

Subject: Addition of RACH TFCS

Work item:

Category:	F Correction <input checked="" type="checkbox"/> A Corresponds to a correction in an earlier release <input type="checkbox"/> B Addition of feature <input type="checkbox"/> C Functional modification of feature <input type="checkbox"/> D Editorial modification <input type="checkbox"/>	Release:	Phase 2 <input type="checkbox"/> Release 96 <input type="checkbox"/> Release 97 <input type="checkbox"/> Release 98 <input type="checkbox"/> Release 99 <input checked="" type="checkbox"/> Release 00 <input type="checkbox"/>
------------------	--	-----------------	--

(only one category shall be marked With an X)

Reason for change: When switching from DCH to common CH, information regarding PRACH and SCCPCH may be specified. It is proposed to allow TFCS for PRACH and SCCPCH to be specified as well.

Clauses affected: 10.3.5.24, 11.3.5

Other specs Affected:	Other 3G core specifications <input type="checkbox"/> Other GSM core specifications <input type="checkbox"/> MS test specifications <input type="checkbox"/> BSS test specifications <input type="checkbox"/> O&M specifications <input type="checkbox"/>	→ List of CRs: → List of CRs: → List of CRs: → List of CRs: → List of CRs:	
------------------------------	---	--	--

Other comments:



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

10.3.5.24 UL Transport channel information common for all transport channels

Information Element/Group name	Need	Multi	Type and reference	Semantics description
TFC subset	MD		Transport Format Combination Subset 10.3.5.22	Default value is the complete existing set of transport format combinations
<u>PRACH TFCS</u>	<u>OP</u>		<u>Transport format combination set 10.3.5.20</u>	<u>This IE should be absent within IE "Predefined RB configuration"</u>
CHOICE mode	OP			
>FDD				
>>UL DCH TFCS	MP		Transport formation combination set 10.3.5.20	
>TDD				
>>Individual UL CCTrCH information	OP	1 to <maxCCTrCH>		
>>>UL TFCS Identity	MP		Transport format combination set identity 10.3.5.21	Identifies a special CCTrCH for shared or dedicated channels.
>>>UL TFCS	MP		Transport format combination set 10.3.5.20	

NOTE This information element is included within IE "Predefined TrCh configuration"

11.3.5 Transport channel information elements

```

UL-CommonTransChInfo ::= SEQUENCE {
    tfc-Subset                TFC-Subset                OPTIONAL,
    prach-TFCS                TFCS                        OPTIONAL,
    modeSpecificInfo          CHOICE {
        fdd                    SEQUENCE {
            ul-TFCS
        },
        tdd                    SEQUENCE {
            individualUL-CCTrCH-InfoList IndividualUL-CCTrCH-InfoList OPTIONAL,
            ul-TFCS              TFCS
        }
    }
}
    
```


CHANGE REQUEST		Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.
25.331	CR	453r2
GSM (AA.BB) or 3G (AA.BBB) specification number ↑		↑ CR number as allocated by MCC support team
For submission to: TSG-RAN #9	for approval <input checked="" type="checkbox"/>	Current Version: 3.3.0
List expected approval meeting # here ↑	for information <input type="checkbox"/>	strategic <input type="checkbox"/> (for SMG use only)
		non-strategic <input type="checkbox"/>

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

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

Source: TSG-RAN WG2 **Date:** 21st August, '00

Subject: Cell Identity

Work item:

Category:	F Correction <input checked="" type="checkbox"/> A Corresponds to a correction in an earlier release <input type="checkbox"/> B Addition of feature <input type="checkbox"/> C Functional modification of feature <input type="checkbox"/> D Editorial modification <input type="checkbox"/>	Release:	Phase 2 <input type="checkbox"/> Release 96 <input type="checkbox"/> Release 97 <input type="checkbox"/> Release 98 <input type="checkbox"/> Release 99 <input checked="" type="checkbox"/> Release 00 <input type="checkbox"/>
------------------	--	-----------------	--

(only one category Shall be marked With an X)

Reason for change: UE may be required to report "Cell Identity" in "Measured Results". "Cell Identity", however, is only present in System Information Block type 3 and type 4, which are not read if UE is in CELL_DCH state, and UE can potentially report invalid "Cell Identity" after moving in CELL_DCH state. A way to provide correct "Cell Identity" to UE in CELL_DCH state is proposed. It is proposed to specify UE is not required to report "Cell Identity" when it is in CELL_DCH state.
Revision 2: The text was modified to include the general UE behaviour upon reception of the IE, not only the specific case.

Clauses affected: 8.5.7.7.x

Other specs Affected:	Other 3G core specifications <input type="checkbox"/> Other GSM core specifications <input type="checkbox"/> MS test specifications <input type="checkbox"/> BSS test specifications <input type="checkbox"/> O&M specifications <input type="checkbox"/>	→ List of CRs: → List of CRs: → List of CRs: → List of CRs: → List of CRs:
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Other comments:



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

8.5.7.7 Measurement information elements

8.5.7.7.x Cell Reporting Quantities

If the IE “Cell Reporting Quantities” is received by the UE, the UE shall store the content of the IE “Cell Reporting Quantities” to the variable MEASUREMENT_IDENTITY.

The UE shall include measured results in MEASUREMENT REPORT as specified in the IE “Cell Reporting Quantity”, except for the following case:

If the IE “Cell Identity” is set to TRUE:

- the UE in CELL_FACH state is required to report the IE “Cell Identity” that is given in System Information Block type 4 (or type 3, if System Information Block type4 is not being broadcast).
- the UE in CELL_DCH state shall treat the IE as if the IE “Cell Identity” is set to FALSE.

CHANGE REQUEST			<i>Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.</i>		
25.331 CR 454			Current Version: 3.3.0		
GSM (AA.BB) or 3G (AA.BBB) specification number ↑			↑ CR number as allocated by MCC support team		
For submission to: TSG-RAN #9	for approval	<input checked="" type="checkbox"/>	strategic	<input type="checkbox"/>	(for SMG use only)
<i>list expected approval meeting # here</i>	for information	<input type="checkbox"/>	non-strategic	<input type="checkbox"/>	

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

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

Source: TSG-RAN WG2 **Date:** 3rd July 2000

Subject: Editorial Correction

Work item:

Category: F Correction **Release:** Phase 2
 A Corresponds to a correction in an earlier release Release 96
 B Addition of feature Release 97
 C Functional modification of feature Release 98
 D Editorial modification Release 99
 Release 00

(only one category Shall be marked With an X)

Reason for change:

- The word "Indicator" was missing from "RLC Reset Indicator (for U-plane)" in CELL UPDATE CONFIRM.
- In RRC CONNECTION RE-ESTABLISHMENT COMPLETE, "Need" column of HFN is changed to OP for alignment with RADIO BEARER SETUP COMPLETE.
- In RRC CONNECTION SETUP, Signalling RB Information is not necessary for RB0 (CCCH), therefore the description is modified accordingly.
- "Need" column of Qrxlevmin, Qqualmin in "Cell Selection and Reselection Info for SIB3/4" is changed to MP, since these are information provided in serving cell.
- A spare value was removed from Paging Cause, to make the number of alternatives to 8.
- In "Radio link addition information", several IEs are grouped together.

Clauses affected: 10.2.5, 10.2.38, 10.2.44, 10.3.2.3, 10.3.3.23, 10.3.6.59, 10.3.6.x, 11.2, 11.3.3, 11.3.4, 11.3.6

Other specs Affected:

Other 3G core specifications	<input type="checkbox"/>	→ List of CRs:	
Other GSM core specifications	<input type="checkbox"/>	→ List of CRs:	
MS test specifications	<input type="checkbox"/>	→ List of CRs:	
BSS test specifications	<input type="checkbox"/>	→ List of CRs:	
O&M specifications	<input type="checkbox"/>	→ List of CRs:	

Other comments:



help.doc

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

10.2.5 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: DCCH

Direction: UTRAN→UE

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE Information Elements				
Integrity check info	CH		Integrity check info 10.3.3.15	
Integrity protection mode info	OP		Integrity protection mode info 10.3.3.18	
Ciphering mode info	OP		Ciphering mode info 10.3.3.5	
New U-RNTI	OP		U-RNTI 10.3.3.45	
New C-RNTI	OP		C-RNTI 10.3.3.8	
DRX Indicator	MP		DRX Indicator 10.3.3.10	
UTRAN DRX cycle length coefficient	MD		UTRAN DRX cycle length coefficient 10.3.3.47	Default value is the existing DRX cycle length coefficient
RLC reset indicator (for C-plane)	MD		RLC reset indicator 10.3.3.35	
RLC reset indicator (for U-plane)	MD		RLC reset indicator 10.3.3.35	
CN Information Elements				
CN Information info	OP		CN Information info 10.3.1.3	
UTRAN Information Elements				
URA identity	OP		URA identity 10.3.2.6	
RB information elements				
RB with PDCP information list	OP	1 to <maxRBall RABs>		This IE is needed for each RB having PDCP in the case of lossless SRNS relocation
>RB with PDCP information	MP		RB with PDCP information 10.3.4.19	
PhyCH information elements				
Uplink radio resources				
Maximum allowed UL TX power	MD		Maximum allowed UL TX power 10.3.6.33	Default value is the existing maximum UL TX power
PRACH Info (for RACH)	OP		PRACH Info (for RACH) 10.3.6.44	
Downlink radio resources				
Downlink information for one radio link	OP		Downlink information for each radio link 10.3.6.23	

10.2.38 RRC CONNECTION RE-ESTABLISHMENT COMPLETE

This message is used by UE to confirm the re-establishment of an RRC connection.

RLC-SAP: AM

Logical channel: DCCH

Direction: UE → UTRAN

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE information elements				
Integrity check info	CH		Integrity check info 10.3.3.15	
Uplink integrity protection activation info	OP		Integrity protection activation info 10.3.3.16	
CHOICE mode	OP			
>FDD				(no data)
>TDD				
>>Uplink Timing Advance	OP		Uplink Timing Advance 10.3.6.82	This information element shall be present in case of handover procedure. Calculated timing advance value for the new cell after handover in a synchronous TDD network
Hyperframe number	<u>MPOP</u>		Hyper Frame Number 10.3.3.13	
RB Information elements				
Radio bearer uplink ciphering activation time info	OP		RB activation time info 10.3.4.10	
RB with PDCP information list	OP	1 to <maxRBall RABs>		This IE is needed for each RB having PDCP in the case of lossless SRNS relocation
>RB with PDCP information	MP		RB with PDCP information 10.3.4.19	

10.2.44 RRC CONNECTION SETUP

This message is used by the network to accept the establishment of an RRC connection for an UE, including assignment of signalling link information, transport channel information and optionally physical channel information.

RLC-SAP: UM

Logical channel: CCCH

Direction: UTRAN → UE

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE Information Elements				
Initial UE identity	MP		Initial UE identity 10.3.3.14	
Activation time	MD		Activation time 10.3.3.1	Default value is "now"
New U-RNTI	MP		U-RNTI 10.3.3.45	
New C-RNTI	OP		C-RNTI 10.3.3.8	
UTRAN DRX cycle length coefficient	MP		UTRAN DRX cycle length coefficient 10.3.3.47	
Capability update requirement	MD		Capability update requirement 10.3.3.2	Default value is defined in subclause 10.3.3.3
RB Information Elements				
Signalling RB information to setup list	MP	<u>4 to 53 to 4</u>		Information for signalling radio bearers, in the order RB <u>10</u> up to 4.
>Signalling RB information to setup	MP		Signalling RB information to setup 10.3.4.21	
TrCH Information Elements				
Uplink transport channels				
UL Transport channel information common for all transport channels	OP		UL Transport channel information common for all transport channels 10.3.5.24	
Added or Reconfigured TrCH information list	MP	1 to <maxTrCH >		
>Added or Reconfigured UL TrCH information	MP		Added or Reconfigured UL TrCH information 10.3.5.2	
Downlink transport channels				
DL Transport channel information common for all transport channels	OP		DL Transport channel information common for all transport channels 10.3.5.6	
Added or Reconfigured TrCH information list	MP	1 to <maxTrCH >		
>Added or Reconfigured DL TrCH information	MP		Added or Reconfigured DL TrCH information 10.3.5.1	
PhyCH information elements				
Frequency info	MD		Frequency info 10.3.6.30	Default value is the existing value of frequency information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Uplink radio resources				
Maximum allowed UL TX power	MD		Maximum allowed UL TX power 10.3.6.33	Default value is the existing maximum UL TX power
CHOICE <i>channel requirement</i>	OP			At least one spare choice (criticality = reject) required
>Uplink DPCH info			Uplink DPCH info 10.3.6.76	
>PRACH Info (for RACH)			PRACH Info (for RACH) 10.3.6.44	
Downlink radio resources				
CHOICE <i>mode</i>	MP			
>FDD				
>>Downlink information common for all radio links	OP		Downlink information common for all radio links 10.3.6.20	
>TDD				(no data)
Downlink information per radio link list	OP	1 to <MaxRL>		Send downlink information for each radio link to be set-up
>Downlink information for each radio link	MP		Downlink information for each radio link 10.3.6.23	

10.3.2.3 Cell selection and re-selection info for SIB3/4

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Mapping Info	MD		Mapping info 10.3.2.5	Contains mapping function for quality measurements. Default is an implicit mapping: $Q_{map} = Q_{meas,LEV}$, TS 25.304.
CHOICE <i>mode</i>	MP			
>FDD				
>>Cell_selection_and_reselection_quality_measure	MP		Enumerated (CPICH Ec/N0, CPICH RSCP)	Choice of measurement (CPICH Ec/N0 or CPICH RSCP) to use as quality measure Q.
>>S _{intrasearch}	OP		Integer (-32..20 by step of 2)	TS 25.304 [dB]

>>S _{intersearch}	OP		Integer (-32..20 by step of 2)	TS 25.304 [dB]
>>S _{searchHCS}	OP		Integer (-32..20 by step of 2)	TS 25.304 [dB]
>>RAT List	OP	1 to <maxOther RAT>		
>>>RAT identifier	MP		Enumerated (GSM, cdma2000)	At least 2 spare values Criticality: reject are needed
>>>S _{search,RAT}	MP		Integer (-32..20 by step of 2)	TS 25.304 [dB]
>>>S _{HCS,RAT}	OP		Integer (-32..20 by step of 2)	TS 25.304 [dB]
>TDD				
>>S _{intrasearch}	OP		Integer (-105..91 by step of 2)	TS 25.304 [dB]
>>S _{intersearch}	OP		Integer (-105..91 by step of 2)	TS 25.304 [dB]
>>S _{searchHCS}	OP		Integer (-105..91 by step of 2)	TS 25.304 [dB]
>>RAT List	OP	1 to <maxOther RAT>		
>>>RAT identifier	MP		Enumerated (GSM, cdma2000)	At least 2 spare values Criticality: reject are needed
>>>S _{search,RAT}	OP		Integer (-105..91 by step of 2)	TS 25.304 [dB]
>>>S _{HCS,RAT}	OP		Integer (-105..91 by step of 2)	TS 25.304 [dB]
Qhyst _s	MP		Integer (0..40 by step of 2)	
Treselection _s	MP		Integer (0..31)	[s]
HCS Serving cell Information	OP		HCS Serving cell information 10.3.7.12	
Maximum allowed UL TX power	MP		Maximum allowed UL TX power 10.3.6.33	[dBm] UE_TXPWR_MAX_RACH in 25.304.
CHOICE <i>mode</i>	MP			
>FDD				
>>Qqualmin	<u>MDMP</u>		Integer (-20..0)	Ec/N0, [dB] Default value is Qrxlevmin for the serving cell
>>>Qrxlevmin	<u>MDMP</u>		Integer (-115..-25 by step of 2)	RSCP, [dBm] Default value is Qrxlevmin for the serving cell
>TDD				
>>Qrxlevmin	MP		Integer (-115..-25 by step of 2)	RSCP, [dBm] Default value is Qrxlevmin for the serving cell

10.3.3.23 Paging cause

Cause for a CN originated page.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Paging cause	MP		Enumerated(Terminating Conversational Call, Terminating Streaming Call, Terminating Interactive Call, Terminating Background Call, SMS)	At least <u>43</u> spare values, Criticality: reject, are needed

NOTE: These causes shall be aligned with causes received from higher layers.

10.3.6.59 Radio link addition information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Primary CPICH info	MP		Primary CPICH info 10.3.6.51	
Downlink DPCH info for each RL	MP		Downlink DPCH info for each RL 10.3.6.17	
TFCI combining indicator	OP		TFCI combining indicator 10.3.6.70	
<u>SCCPCH Information for FACH</u>	<u>OP</u>		<u>SCCPCH Information for FACH 10.3.6.x</u>	<u>Note 1</u>
<u>Secondary CCPCH info</u>	<u>OP</u>		<u>Secondary CCPCH info 10.3.6.61</u>	<u>Note 1</u>
<u>TFCs</u>	<u>OP</u>		<u>Transport format set 10.3.5.23</u>	<u>For FACHs and PCH Note 1</u>
<u>FACH/PCH information</u>	<u>OP</u>	<u>1 to <maxFAG Hcount></u>		<u>Note 1</u>
<u>>TFS</u>	<u>OP</u>		<u>Transport format set 10.3.5.23</u>	<u>For each FACHs and PCH Note 1</u>
<u>References to system information blocks</u>	<u>OP</u>	<u>1 to <maxSIB-FACH></u>		<u>Note 1</u>
<u>>Scheduling information</u>	<u>MP</u>		<u>Scheduling information 10.3.8.12</u>	<u>Note 1</u>

NOTE 1: These IEs are present when the UE needs to listen to system information on FACH in CELL_DCH state.

10.3.6.x SCCPCH Information for FACH

<u>Secondary CCPCH info</u>	<u>MP</u>		<u>Secondary CCPCH info 10.3.6.61</u>	
<u>TFCS</u>	<u>MP</u>		<u>Transport format set 10.3.5.23</u>	<u>For FACHs and PCH</u>
<u>FACH/PCH information</u>	<u>MP</u>	<u>1 to <maxFACH Hcount></u>		
<u>>TFS</u>	<u>MP</u>		<u>Transport format set 10.3.5.23</u>	<u>For each FACHs and PCH</u>
<u>References to system information blocks</u>	<u>MP</u>	<u>1 to <maxSIB-FACH></u>		
<u>>Scheduling information</u>	<u>MP</u>		<u>Scheduling information 10.3.8.12</u>	

11.2 PDU definitions

```
-- *****
--
-- RRC CONNECTION RE-ESTABLISHMENT COMPLETE
--
-- *****

RRCConnectionReEstablishmentComplete ::= SEQUENCE {
    -- User equipment IES
    ul-IntegProtActivationInfo      IntegrityProtActivationInfo      OPTIONAL,
    -- TABULAR: UL-TimingAdvance is applicable for TDD mode only.
    ul-TimingAdvance                UL-TimingAdvance                OPTIONAL,
    hyperFrameNumber                HyperFrameNumber                OPTIONAL,
    -- Radio bearer IES
    rb-UL-CiphActivationTimeInfo    RB-ActivationTimeInfo          OPTIONAL,
    rb-WithPDCP-InfoList            RB-WithPDCP-InfoList          OPTIONAL,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions            SEQUENCE {}                    OPTIONAL
}

```

11.3.2 UTRAN mobility information elements

```
CellSelectReselectInfoSIB-3-4 ::= SEQUENCE {
    mappingInfo                    MappingInfo                    OPTIONAL,
    modeSpecificInfo               CHOICE {
        fdd                        SEQUENCE {
            cellSelectQualityMeasure CellSelectQualityMeasure,
            s-Intrasearch            S-SearchFDD                  OPTIONAL,
            s-Intersearch           S-SearchFDD                  OPTIONAL,
            s-SearchHCS              S-SearchFDD                  OPTIONAL,
            rat-List                 RAT-FDD-InfoList             OPTIONAL,
            q-QualMin                 Q-QualMin                    OPTIONAL,
            q-RxlevMin                Q-RxlevMin                    OPTIONAL
        },
        tdd                        SEQUENCE {
            s-Intrasearch            S-SearchTDD                  OPTIONAL,
            s-Intersearch           S-SearchTDD                  OPTIONAL,
            s-SearchHCS              S-SearchTDD                  OPTIONAL,
            rat-List                 RAT-TDD-InfoList             OPTIONAL,
            q-RxlevMin                Q-RxlevMin                    OPTIONAL
        }
    },
    q-Hyst-S                        Q-Hyst-S,
    t-Reselection-S                T-Reselection-S,
    hcs-ServingCellInformation      HCS-ServingCellInformation    OPTIONAL,
    maxAllowedUL-TX-Power           MaxAllowedUL-TX-Power
}

```

11.3.3 User equipment information elements

```
PagingCause ::=
    ENUMERATED {
        terminatingConversationalCall,
        terminatingStreamingCall,
        terminatingInteractiveCall,
        terminatingBackgroundCall,
        sms,
        spare1, spare2, spare3, spare4 }
|
```

11.3.4 Radio bearer information elements

```
| SRB-InformationSetupList2 ::=
    SEQUENCE (SIZE (3..4..5)) OF
        SRB-InformationSetup
```

11.3.6 Physical channel information elements

```
RL-AdditionInformation ::=
    SEQUENCE {
        primaryCPICH-Info          PrimaryCPICH-Info,
        dl-DPCH-InfoPerRL         DL-DPCH-InfoPerRL,
        tfci-CombiningIndicator    BOOLEAN,
        sccpchInfo-forFACH          SccpchInfo-forFACH          OPTIONAL,
        secondaryCCPCH-Info        SecondaryCCPCH-Info        OPTIONAL,
        tfcs                          TFCS                          OPTIONAL,
        fach-PCH-InformationList     FACH-PCH-InformationList     OPTIONAL,
        sib-ReferenceListFACH        SIB-ReferenceListFACH        OPTIONAL,
    }
|
```

```
| SccpchInfo-forFACH ::=
    SEQUENCE{
        secondaryCCPCH-Info        SecondaryCCPCH-Info ,
        tfcs                        TFCS,
        fach-PCH-InformationList     FACH-PCH-InformationList,
        sib-ReferenceListFACH        SIB-ReferenceListFACH
    }
|
```

CHANGE REQUEST			Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.
25.331	CR	455r1	Current Version: 3.3.0
GSM (AA.BB) or 3G (AA.BBB) specification number ↑		↑ CR number as allocated by MCC support team	
For submission to: TSG-RAN #9 <small>list expected approval meeting # here</small>	For approval <input checked="" type="checkbox"/>	Strategic <input type="checkbox"/>	(for SMG use only)
	For information <input type="checkbox"/>	Non-strategic <input type="checkbox"/>	

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

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

Source: TSG-RAN WG2 **Date:** 20/06/00

Subject: TDD PRACH Power Control for Spreading Factor 8/16

Work item:

Category: (only one category Shall be marked With an X)	F Correction	<input checked="" type="checkbox"/>	Release: Phase 2 <input type="checkbox"/> Release 96 <input type="checkbox"/> Release 97 <input type="checkbox"/> Release 98 <input type="checkbox"/> Release 99 <input checked="" type="checkbox"/> Release 00 <input type="checkbox"/>
	A Corresponds to a correction in an earlier release	<input type="checkbox"/>	
	B Addition of feature	<input type="checkbox"/>	
	C Functional modification of feature	<input type="checkbox"/>	
	D Editorial modification	<input type="checkbox"/>	
		<input type="checkbox"/>	

Reason for change: PRACH open loop power control Constant Value needs to be specified for SF 8 or 16 options.

Clauses affected:

Other specs Affected:	Other 3G core specifications	<input type="checkbox"/>	→ List of CRs:	
	Other GSM core specifications	<input type="checkbox"/>	→ List of CRs:	
	MS test specifications	<input type="checkbox"/>	→ List of CRs:	
	BSS test specifications	<input type="checkbox"/>	→ List of CRs:	
	O&M specifications	<input type="checkbox"/>	→ List of CRs:	

Other comments:

8.5.9 Open loop power control

For FDD and prior to PRACH or PCPCH transmission the UE shall calculate the power for the first preamble as:

$$\text{Preamble_Initial_Power} = \text{Primary CPICH DL TX power} - \text{CPICH_RSCP} + \text{UL interference} + \text{Constant Value}$$

Where

Primary CPICH DL TX power shall have the value of IE "Primary CPICH DL TX power",

UL interference shall have the value of IE "UL interference"; and

Constant Value shall have the value of IE "Constant Value".

The IEs "Primary CPICH DL TX power", "UL interference" and "Constant value" shall be read on system information in system information block 6 and system information block 7. The value for the CPICH_RSCP shall be measured by the UE. As long as the physical layer is configured for PRACH or PCPCH transmission, the UE shall continuously

recalculate the Preamble_Initial_Power when any of the broadcast parameters used in the above formula changes. The new Preamble_Initial_Power shall then be resubmitted to the physical layer.

For TDD the UE shall calculate the UL transmit power according to the following formulas for the PRACH, DPCH and USCH continuously while the physical channel is active:

$$P_{PRACH} = L_{PCCPCH} + I_{BTS} + RACH \text{ Constant value}$$

NOTE: For the RACH Spreading Factor = 8 case 3dB is added to RACH Constant Value

And for uplink dedicated physical channels:

$$P_{DPCH} = \alpha L_{PCCPCH} + (1-\alpha)L_0 + I_{BTS} + SIR_{TARGET} + DPCH \text{ Constant value}$$

And for uplink shared physical channels:

$$P_{USCH} = \alpha L_{PCCPCH} + (1-\alpha)L_0 + I_{BTS} + SIR_{TARGET} + USCH \text{ Constant value}$$

Where:

P_{PRACH} , P_{DPCH} , & P_{USCH} : Transmitter power level in dBm,

L_{PCCPCH} : Measure representing path loss in dB (reference transmit power "Primary CCPCH Tx Power" is broadcast on BCH in system information block 14).

L_0 : Long term average of path loss in dB

I_{BTS} : Interference signal power level at cell's receiver in dBm ("UL Interference" is broadcast on BCH in system information block 14 for each active uplink timeslot).

α : α is a weighting parameter, which represents the quality of path loss measurements. α may be a function of the time delay between the uplink time slot and the most recent down link PCCPCH time slot. α is calculated at the UE.

SIR_{TARGET} : Target SNR in dB. This value is individually signaled to UEs in UL DPCH Power Control Info and PUSCH Power Control Info IEs.

RACH Constant value: This value is broadcast on BCH and shall be read on system information block 14.

DPCH Constant value: This value is broadcast on BCH and shall be read on system information block 14.

USCH Constant Value: This value is broadcast on BCH and shall be read on system information block 14.

10.2.52.6.15 System Information Block type 14

NOTE: Only for TDD.

The system information block type 14 contains parameters for common and dedicated physical channel uplink outer loop power control information to be used in both idle and connected mode. The block may also contain scheduling information for other system information blocks.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Other information elements				
References to other system information blocks	OP		References to other system information blocks 10.3.8.11	Only system information blocks with area scope "Cell" and update mechanism "value tag" may be referenced.
PhyCH information elements				
Primary CCPCH Tx Power	OP		Primary CCPCH Tx Power 10.3.6.50	For path loss calculation
Individual Timeslot interference list	MP	1 to <maxTS>		
>Individual Timeslot interference	MP		Individual Timeslot interference 10.3.6.32	

PRACH Constant Value	OP		Constant Value 10.3.6.8	Operator controlled PRACH Margin <u>for SF 16 case. In the SF 8 case 3dB is added.</u>
DPCH Constant Value	OP		Constant Value 10.3.6.8	Operator controlled UL DPCH Margin
PUSCH Constant Value	OP		Constant Value 10.3.6.8	Operator controlled PUSCH Margin

10.3.6.8 Constant value

This constant value is used by the UE to calculate the initial output power on PRACH according to the Open loop power control procedure. In TDD constant values are used for open loop power control of PRACH, USCH and UL DPCH as defined in section 8.5.9.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Constant value	MP		Integer (-10..10)	At least 11 spare values needed Criticality: reject is needed

<h2 style="margin: 0;">CHANGE REQUEST</h2>			Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.
25.331	CR	456	Current Version: 3.3.0
GSM (AA.BB) or 3G (AA.BBB) specification number ↑		↑ CR number as allocated by MCC support team	
For submission to: TSG-RAN #9 <small>list expected approval meeting # here ↑</small>	For approval <input checked="" type="checkbox"/> For information <input type="checkbox"/>	Strategic <input type="checkbox"/> Non-strategic <input type="checkbox"/>	(for SMG use only)

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

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

Source: TSG-RAN WG2 **Date:** 20/06/00

Subject: TDD CCTrCH Repetition Length Definition

Work item:

Category:	F Correction <input checked="" type="checkbox"/> A Corresponds to a correction in an earlier release <input type="checkbox"/> B Addition of feature <input type="checkbox"/> C Functional modification of feature <input type="checkbox"/> D Editorial modification <input type="checkbox"/>	Release:	Phase 2 <input type="checkbox"/> Release 96 <input type="checkbox"/> Release 97 <input type="checkbox"/> Release 98 <input type="checkbox"/> Release 99 <input checked="" type="checkbox"/> Release 00 <input type="checkbox"/>
------------------	--	-----------------	--

(only one category shall be marked With an X)

Reason for change: TDD CCTrCH Repetition Lengths need to be calculated as multiple of the largest TTI within the CCTrCH.

Clauses affected: 8.5.7.6.15

Other specs Affected:	Other 3G core specifications <input type="checkbox"/> Other GSM core specifications <input type="checkbox"/> MS test specifications <input type="checkbox"/> BSS test specifications <input type="checkbox"/> O&M specifications <input type="checkbox"/>	→ List of CRs: → List of CRs: → List of CRs: → List of CRs: → List of CRs:	
------------------------------	---	--	--

Other comments:

8.5.7.6.15 Repetition period, Repetition length, Offset

The following description applies to TDD only.

The frame allocation can be derived by following rules:

If no IE "Offset" is explicitly given the parameter "Offset" to be used is calculated by the following equation:

$$\text{Activation time mod Repetition period} = \text{Offset.}$$

Frames from CFN_{off} to CFN_{off} + Repetition length belong to the allocation with CFN_{off} fulfilling the following equation:

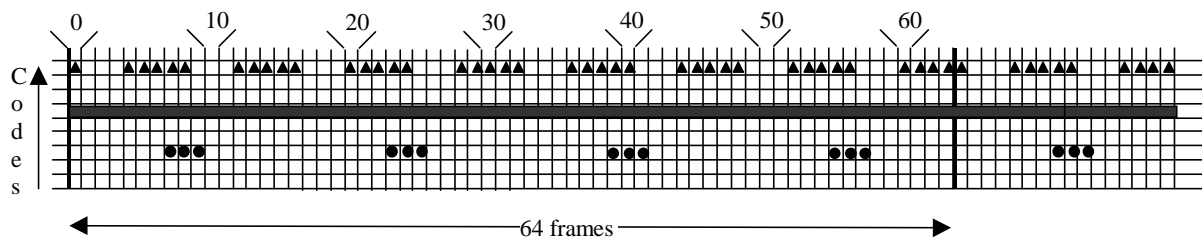
$$\text{CFN}_{\text{off}} \text{ mod Repetition period} = \text{Offset.}$$

Repetition length is always a multiple of the largest TTI within the CCTrCH fulfilling the following equation:

$$\text{(largest TTI within CCTrCH)} * X = \text{Repetition Length}$$

Where X is an integer.

Example of usage:



- ▲ physic. channel (Code 7; Repetition period=8; Repetition length=5; Activation time = 4 => Offset = 4 => CFN_{off} = 4, 12, 20, 28, 36, 44, 52, 60)
- physic. channel (Code 5; Repetition Period=1 => Repetition length=0; Offset = 0 => CFN_{off} = 0, 1, 2, 3, 4, ... (continuous allocation))
- physic. channel (Code 3; Repetition period=16; Repetition length=3; Activation time = 23 =>Offset = 7 => CFN_{off} = 7, 23, 39, 55)

Figure 54: Examples for frame allocations in TDD

CHANGE REQUEST

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

25.331 CR 457r1

Current Version: **3.3.0**

GSM (AA.BB) or 3G (AA.BBB) specification number ↑

↑ CR number as allocated by MCC support team

For submission to: **TSG-RAN #9** for approval
list expected approval meeting # here ↑ for information

strategic
non-strategic (for SMG use only)

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

Proposed change affects:
(at least one should be marked with an X)

(U)SIM ME UTRAN / Radio Core Network

Source: TSG-RAN WG2

Date: June 30th 2000

Subject: Reporting threshold of traffic volume measurements

Work item:

Category:
(only one category Shall be marked With an X)

F Correction
A Corresponds to a correction in an earlier release
B Addition of feature
C Functional modification of feature
D Editorial modification

Release:
Phase 2
Release 96
Release 97
Release 98
Release 99
Release 00

Reason for change:

The maximum reporting threshold of traffic volume measurements is currently 8192 bytes. Compared to the RLC buffers payload, this value seems to be too small to use in Event 4a, because the maximum value of RLC buffers payload is 1024 Kbytes. Therefore, it is needed to add some higher threshold values in reporting threshold of traffic volume measurements.

Clauses affected: 10.3.7.98, 11.1

Other specs Affected:

Other 3G core specifications	<input type="checkbox"/>	→ List of CRs:	
Other GSM core specifications	<input type="checkbox"/>	→ List of CRs:	
MS test specifications	<input type="checkbox"/>	→ List of CRs:	
BSS test specifications	<input type="checkbox"/>	→ List of CRs:	
O&M specifications	<input type="checkbox"/>	→ List of CRs:	

Other comments:



help.doc

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

10.3.7.97 Traffic volume measurement reporting criteria

Contains the measurement reporting criteria information for a traffic volume measurement.

Event 4a: RLC buffer payload exceeds an absolute threshold.

Event 4b: RLC buffer payload becomes smaller than an absolute threshold.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Parameters sent for each transport channel	OP	1 to <maxTrCH >		
>UL Transport Channel ID	OP		Transport channel identity 10.3.5.18	If the transport channel identity is not included, the measurement reporting criteria are applied to all transport channels.
>Parameters required for each Event	OP	1 to <maxMeas perEvent>		
>>Traffic volume event identity	MP		Traffic volume event identity 10.3.7.91	
>>Reporting Threshold	MP		<u>Enumerated integer</u> (8,16,32,64,128,256,512,1024,1536,2048,3072,4096,6144,8192,2K,3K,4K,6K,8K,12K,16K,24K,32K,48K,64K,96K,128K,192K,256K,384K,512K,768K)	Threshold in bytes <u>And N Kbytes = N*1024 bytes</u>
Time to trigger	OP		Time to trigger 10.3.7.89	Indicates the period of time between the timing of event detection and the timing of sending Measurement Report. Time in ms
Pending time after trigger	OP		Integer(250, 500, 1000, 2000, 4000, 8000, 16000)	Time in seconds. Indicates the period of time during which it is forbidden to send any new measurement reports with the same measurement ID even if the triggering condition is fulfilled again. Time in milliseconds
Tx interruption after trigger	OP		Integer (250, 500, 1000, 2000, 4000, 8000, 16000)	Time in milliseconds. Indicates whether or not the UE shall block DTCH transmissions on the RACH after a measurement report is triggered.
Amount of reporting	OP		Integer(1, 2, 4, 8, 16, 32, 64, Infinity)	Measurement is "released" after the indicated amount of reporting from the UE itself.

11 Message and Information element abstract syntax (with ASN.1)

This clause contains definitions for RRC PDUs and IEs using a subset of ASN.1 as specified in TR 25.921. PDU and IE definitions are grouped into separate ASN.1 modules.

NOTE: The proposal is to keep both clause 10 and 11 (at least until all messages and information elements are fully discussed and agreed by 3GPP RAN WG2). Clause 10 is intended to give an abstract description (in English) of the messages and information elements whereas clause 11 should contain the exact normative definitions with all necessary details.

11.1 General message structure

```
TrafficVolumeThreshold ::=          ENUMERATED {  
                                     th8, th16, th32, th64, th128,  
                                     th256, th512, th1024, th1536,  
                                     th2048, th3072, th4096, th6144,  
                                     th8192 th2k, th3k, th4k, th6k, th8k,  
                                     th12k, th16k, th24k, th32k, th48k,  
                                     th64k, th96k, th128k, th192k,  
                                     th256k, th384k, th512k, th768k }
```

CHANGE REQUEST

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

25.331 CR 459r2

Current Version: **3.3.0**

GSM (AA.BB) or 3G (AA.BBB) specification number ↑

↑ CR number as allocated by MCC support team

For submission to: **TSG-RAN # 9**
list expected approval meeting # here ↑

for approval

For information

strategic

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(for SMG use only)

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

Proposed change affects:

(at least one should be marked with an X)

(U)SIM

ME

UTRAN / Radio

Core Network

Source:

TSG-RAN WG2

Date:

4th July 2000

Subject:

LCS GPS assistance data for SIB

Work item:

Category:

(only one category shall be marked with an X)

- F Correction
- A Corresponds to a correction in an earlier release
- B Addition of feature
- C Functional modification of feature
- D Editorial modification

Release:

- Phase 2
- Release 96
- Release 97
- Release 98
- Release 99
- Release 00

Reason for change:

As a result of CR400r2 changes were made to the 'LCS GPS assistance for SIB' message. This message now contains no GPS data, and now only indicates the ciphering requirements for the GPS information, this GPS information is now incorporated within SIB types 15.1, 15.2 and 15.3. This CR proposes renaming of this message accordingly. In addition the IE 'ciphering parameter' was renamed to 'cipher on/off', which now inconsistent with the same IE within the message 'LCS OTDOA assistance for SIB'. It is therefore proposed that this IE be re-aligned. No functional change is implied, as the IE (ciphering parameter) is optional, wherein its inclusion within the message acts as an indication of the need for ciphering to be applied to the relevant GPS data being broadcast in the associated SIBs. Some other small editorial changes to align the ciphering procedure for these two 'assistance SIB' messages are also made.

The description of how to interpret the IE 'LCS Cipher GPS data Indicator' in section 8.1.1.5.15 is not clear from a UE's perspective. This has been improved to clarify what the reception of this IE means to the UE and how the UE should use this received information.

Clauses affected:

2, 8.1.1.5.15, 10.2.52.6.16, 10.3.7.47, 11.3.7, 11.3.8

Other specs affected:

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

**Other
comments:**



help.doc



<----- [double-click here for help and instructions on how to create a CR.](#)

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies.

- [1] 3G TR 25.990: "Vocabulary for the UTRAN".
- [2] 3G TS 25.301: "Radio Interface Protocol Architecture".
- [3] 3G TS 25.303: "Interlayer Procedures in Connected Mode".
- [4] 3G TS 25.304: "UE Procedures in Idle Mode and Procedures for Cell Reselection in Connected Mode".
- [5] 3G TS 24.008: "Mobile radio interface layer 3 specification, Core Network Protocols - Stage 3".
- [6] 3G TS 25.103: "RF Parameters in Support of RRM".
- [7] 3G TS 25.215: "Physical layer – Measurements (FDD)".
- [8] 3G TS 25.225: "Physical layer – Measurements (TDD)".
- [9] 3G TS 25.401: "UTRAN overall description".
- [10] 3G TS 25.402: "Synchronisation in UTRAN, stage 2".
- [11] 3G TS 23.003: "Numbering, addressing and identification".
- [12] ICD-GPS-200: "Navstar GPS Space Segment/Navigation User Interface".
- [13] RTCM-SC104: "RTCM Recommended Standards for Differential GNSS Service (v.2.2)".
- [14] 3G TR 25.921: "Guidelines and Principles for protocol description and error handling".

[x] 3G TS 25.305: "Stage 2 Functional Specification of Location Services in UTRAN".

***** NEXT MODIFIED SECTION *****

8.1.1.5.15 System Information Block type 15

If the UE is in idle or connected mode, and supports GPS location services and/or OTDOA location services it should store all relevant IEs included in this system information block. The UE shall also:

- if IEs containing scheduling information for other system information blocks are included, the UE shall act on those in a similar manner as specified for the scheduling information contained within the master information block.

~~if the IE 'LCS Cipher GPS Data Indicator assistance for SIB' is included, and the UE has a full or reduced complexity GPS receiver the UE shall store the relevant information, and shall store the relevant information~~

if and apply ciphering as indicated in this IE. The inclusion of this IE is included within SIB type 15 indicates that apply ciphering is carried out in accordance with the parameters within this IE, and is applied to the SIB types 15.1, 15.2 and 15.3. (refer to 10.3.7.47 for details). The LCS GPS assistance SIB should be applied to SIB type 15.1, type 15.2 and type 15.3. If "Cipher On/Off" is included, it indicates whether ciphering is carried out or not.

if the IE 'LCS Cipher GPS Data Indicator' is included, and the UE has a full or reduced complexity GPS receiver, the UE will know that the broadcast GPS data is ciphered in accordance with the Data Assistance Ciphering Algorithm detailed in [18]. The UE shall therefore store the parameters contained within this IE (see 10.3.7.47 for details), and use them to decipher the broadcast LCS GPS information contained within the SIB types 15.1, 15.2 and 15.3.

- if the IE 'LCS OTDOA assistance for SIB' is included:
store the relevant information (refer to 10.3.7.61 for details).

8.1.1.5.15.1 System Information Block type 15.1

The UE should store all the relevant IEs included in this system information block . The UE shall also:

- interpret a value of "1" of "UTRAN Time Flag" to mean that UTRAN timing information value (SFN) is present, and "0" to mean that only the Reference GPS TOW field value is provided.
- interpret a value of "1" of "NODE B Clock Drift Flag" to mean that NODE B Clock Drift information value is present, and "0" to mean that this IE value is not provided.
- if NODE B Clock Drift is included:
use it as an estimate of the drift rate of the NODE B clock relative to GPS time.
If this IE is not included:
assume the value 0.
- use "Reference Location" as a prior knowledge of the approximate location of the UE.
- if SFN is included:
use it as the relationship between GPS time and air-interface timing of the NODE B transmission in the serving cell.
- use "Reference GPS TOW" as GPS Time of Week which is the start of the frame with SFN=0.
- use "Status/Health" to indicate the status of the differential corrections.
- act on "DGPS information" IEs in a similar manner as specified in [13] except that the scale factors for PRC and RRC are different. In addition, the DGPS information IEs also include Delta PRC2 and Delta RRC2. Delta PRC2 is the difference in the pseudorange correction between the satellite's ephemeris identified by IODE and the previous ephemeris two issues ago IODE-2. Delta RRC2 is the difference in the pseudorange rate-of-change correction between the satellite's ephemeris identified by IODE and IODE-2. These two additional IEs shall extend the life of the raw ephemeris data up to 6 hours.

8.1.1.5.15.2 System Information Block type 15.2

The UE should store all the relevant IEs included in this system information block . The UE shall also:

- interpret "Transmission TOW" as a very coarse estimate of the current time, i.e., the approximate GPS time-of-week when the message is broadcast.
- interpret "SatID" as the satellite ID of the data from which this message was obtained.
- act on the rest of the IEs in a similar manner as specified in [12].

8.1.1.5.15.3 System Information Block type 15.3

The UE should store all the relevant IEs included in this system information block . The UE shall also:

- interpret "Transmission TOW" as a very coarse estimate of the current time, i.e., the approximate GPS time-of-week when the message is broadcast.
- interpret "SatMask" as the satellites that contain the pages being broadcast in this message.
- interpret "LSB TOW" as the least significant 8 bits of the TOW (Figure 20-2 of [12]).
- interpret "SFIO" as the least significant bit of the SubFrame (SF) ID for which the following word 3 through word 10 data applies. Zero indicates subframe ID = 4, and One indicates Subframe ID = 5.
- interpret "Data ID" as the Data ID field contained in the indicated subframe, word 3, most significant 2 bits, as defined by [12].
- interpret "Page No" as the Page ID of the indicated subframe for which the following Word 3 through Word 10 data applies.
- act on the rest of the IEs (Word 3 to Word 10) in a similar manner as specified in [12], excluding non-information bits, "Data ID" and "SV ID" from Word 3 (16 bits left), 2 bit "t" from Word 10 (22 bits left). Word 4 through Word 9 have 24 bits left.

******* NEXT MODIFIED SECTION *******

10.2.52.6.16 System Information Block type 15

The system information block type 15 contains information useful for LCS. In particular it allows the UE based method to perform localisation without dedicated signalling. For the UE assisted methods the signalling is reduced.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
References to other system information blocks	OP		References to other system information blocks 10.3.8.11	Only system information blocks with area scope "Cell" and update mechanism "value tag" may be referenced.
LCS Cipher GPS Data Indicator assistance for SIB	OP		LCS Cipher GPS Data Indicator assistance for SIB 10.3.7.47	This is included if the SIB types 15.1, 15.2 & 15.3 are ciphered in accordance with the Data Assistance Ciphering Algorithm specified in [18]
LCS OTDOA assistance for SIB	OP		LCS OTDOA assistance for SIB 10.3.7.61	

******* NEXT MODIFIED SECTION *******

10.3.7.47 LCS Cipher GPS Data Indicator ~~assistance for SIB~~

The LCS Cipher GPS Data Indicator ~~Assistance ciphering for SIB~~ IE contains information for the ciphering of SIB types 15.1, 15.2 and 15.3 ~~GPS differential corrections, ephemeris and clock corrections, as well as Almanac and other data.~~

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
<u>Ciphering On/Off parameters</u>	OP			
>Ciphering Key Flag	MP		Bitstring(1)	See note 1
>Ciphering Serial Number	<u>OPMP</u>	■	<u>Integer(0..65535)</u>	<u>The serial number used in the DES ciphering algorithm</u>

NOTE 1: The UE always receives two (2) cipher keys during the location update procedure. One of the keys is time-stamped to be current one and the other is time-stamped to be the next one. Thus, the UE always has two cipher keys in memory. The Cipher Key Change Indicator in this broadcast message instructs the UE whether to use current or next cipher key for deciphering the received broadcast message. The UE shall interpret this IE as follows:

- **Ciphering Key Flag**(previous message) = **Ciphering Key Flag**(this message) => Deciphering Key not changed
- **Ciphering Key Flag**(previous message) <> **Ciphering Key Flag**(this message) => Deciphering Key changed

******* NEXT MODIFIED SECTION *******

11.3.7 Measurement information elements

Measurement-IEs DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

CellIdentity
FROM UTRANMobility-IEs

UTRAN-DRX-CycleLengthCoefficient
FROM UserEquipment-IEs

RB-Identity
FROM RadioBearer-IEs

TFCS-IdentityPlain,
TransportChannelIdentity
FROM TransportChannel-IEs

BurstType,
FrequencyInfo,
MaxAllowedUL-TX-Power,
PrimaryCCPCH-Info,
PrimaryCCPCH-TX-Power,
PrimaryCPICH-Info,
PrimaryCPICH-TX-Power,
TimeslotNumber,
UL-TimingAdvance
FROM PhysicalChannel-IEs

BSIC
FROM Other-IEs

maxAdditionalMeas,
maxCCTrCH,
maxCellMeas,

```

maxCellMeas-1,
maxFreq,
maxMeasEvent,
maxMeasParEvent,
• maxOtherRAT,
maxRB,
maxRL,
maxRL-1,
maxSat,
maxTrCH,
maxTS
FROM Constant-definitions;

AcquisitionSatInfo ::=
    satID
    doppler0thOrder
    extraDopplerInfo
    codePhase
    integerCodePhase
    gps-BitNumber
    codePhaseSearchWindow
    azimuthAndElevation
}

AcquisitionSatInfoList ::=
    SEQUENCE (SIZE (1..maxSat)) OF
        AcquisitionSatInfo

AdditionalAssistanceData ::=
    OCTET STRING (SIZE (1..38))

AdditionalMeasurementID-List ::=
    SEQUENCE (SIZE (1..maxAdditionalMeas)) OF
        MeasurementIdentityNumber

AlmanacSatInfo ::=
    satID
    e
    t-0a
    deltaI
    omegaDot
    satHealth
    a-Sqrt
    omega0
    m0
    omega
    af0
    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 }

AzimuthAndElevation ::=
    azimuth
    elevation
}

BadSatList ::=
    SEQUENCE (SIZE (1..maxSat)) OF
        INTEGER (0..63)

BCCH-ARFCN ::=
    INTEGER (0..1023)

BLER-MeasurementResults ::=
    transportChannelIdentity
    dl-TransportChannelBLER
}

BLER-MeasurementResultsList ::=
    SEQUENCE (SIZE (1..maxTrCH)) OF
        BLER-MeasurementResults

BLER-TransChIdList ::=
    SEQUENCE (SIZE (1..maxTrCH)) OF

```

TransportChannelIdentity

```

BSIC-VerificationRequired ::=      ENUMERATED {
                                     required, notRequired }

BurstModeParameters ::=
    burstStart                      INTEGER (0..15),
    burstLength                     INTEGER (10..25),
    burstFreq                       INTEGER (1..16)
}

CellDCH-ReportCriteria ::=
    intraFreqReportingCriteria     IntraFreqReportingCriteria,
    periodicalReportingCriteria    PeriodicalReportingCriteria
}

-- Actual value = IE value * 0.5
CellIndividualOffset ::=          INTEGER (-20..20)

CellInfo ::=
    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
        }
    }
}

CellInfoSI ::=
    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
        }
    },
    cellSelectionReselectionInfo  CellSelectReselectInfoSIB-11-12  OPTIONAL
}

CellMeasuredResults ::=
    cellIdentity                   CellIdentity                      OPTIONAL,
    sfm-SFM-ObsTimeDifference     SFM-SFM-ObsTimeDifference    OPTIONAL,
    cfm-SFM-ObsTimeDifference     CFM-SFM-ObsTimeDifference    OPTIONAL,
    modeSpecificInfo              CHOICE {
        fdd                       SEQUENCE {
            primaryCPICH-Info      PrimaryCPICH-Info,
            cpich-Ec-N0            CPICH-Ec-N0                    OPTIONAL,
            cpich-RSCP             CPICH-RSCP                      OPTIONAL,
            pathloss               Pathloss                          OPTIONAL
        },
        tdd                       SEQUENCE {
            primaryCCPCH-Info      PrimaryCCPCH-Info,
            primaryCCPCH-RSCP      PrimaryCCPCH-RSCP              OPTIONAL
        }
    }
}

```

```

        timeslotISCP-List          TimeslotISCP-List          OPTIONAL
    }
}

CellMeasurementEventResults ::= CHOICE {
    fdd          SEQUENCE (SIZE (1..maxCellMeas)) OF
                PrimaryCPICH-Info,
    tdd          SEQUENCE (SIZE (1..maxCellMeas)) OF
                PrimaryCCPCH-Info
}

CellPosition ::= SEQUENCE {
    relativeNorth    INTEGER (-32767..32767),
    relativeEast     INTEGER (-32767..32767),
    relativeAltitude INTEGER (-4095..4095)
}

CellReportingQuantities ::= SEQUENCE {
    sfm-SFM-OTD-Type SFM-SFM-OTD-Type,
    cellIdentity     BOOLEAN,
    cfm-SFM-ObsTimeDifference BOOLEAN,
    modeSpecificInfo CHOICE {
        fdd          SEQUENCE {
            cpich-Ec-N0    BOOLEAN,
            cpich-RSCP     BOOLEAN,
            pathloss       BOOLEAN
        },
        tdd          SEQUENCE {
            timeslotISCP   BOOLEAN,
            primaryCCPCH-RSCP BOOLEAN,
            pathloss       BOOLEAN
        }
    }
}

CellSelectReselectInfoSIB-11-12 ::= SEQUENCE {
    q-OffsetS-N          Q-OffsetS-N          DEFAULT 0,
    maxAllowedUL-TX-Power MaxAllowedUL-TX-Power OPTIONAL,
    hcs-NeighbouringCellInformation HCS-NeighbouringCellInformation OPTIONAL,
    modeSpecificInfo     CHOICE {
        fdd          SEQUENCE {
            q-QualMin    Q-QualMin    OPTIONAL,
            q-RxlevMin   Q-RxlevMin   OPTIONAL
        },
        tdd          SEQUENCE {
            q-RxlevMin   Q-RxlevMin   OPTIONAL
        }
    }
}

CellToMeasure ::= SEQUENCE {
    sfm-sfm-Drift      INTEGER (0..30)          OPTIONAL,
    primaryCPICH-Info PrimaryCPICH-Info,
    frequencyInfo      FrequencyInfo          OPTIONAL,
    sfm-SFM-ObservedTimeDifference SFM-SFM-ObsTimeDifference1,
    fineSFM-SFM        FineSFM-SFM,
    cellPosition       CellPosition          OPTIONAL
}

CellToMeasureInfoList ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
    CellToMeasure

CellToReport ::= SEQUENCE {
    frequency    Frequency,
    bsic         BSIC
}

CellToReportList ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
    CellToReport

CFM-SFM-ObsTimeDifference ::= CHOICE {
    fdd-ChipDiff    INTEGER (0..157286399),
    tdd-FrameDiff   INTEGER (0..4095)
}

```

```

}

CodePhaseSearchWindow ::=          ENUMERATED {
                                     w1023, w1, w2, w3, w4, w6, w8,
                                     w12, w16, w24, w32, w48, w64,
                                     w96, w128, w192 }

CPICH-Ec-N0 ::=                    INTEGER (-20..0)

-- IE value 0 = <-24 dB, 1 = between -24 and -23 and so on
CPICH-Ec-N0-OTDOA ::=              INTEGER (0..26)

CPICH-RSCP ::=                      INTEGER (-115..-40)

DeltaPRC ::=                        INTEGER (-127..127)

DeltaRRC ::=                        INTEGER (-7..7)

DGPS-CorrectionSatInfo ::=         SEQUENCE {
    satID                            INTEGER (0..63),
    iode                              BIT STRING (SIZE (8)),
    udre                              UDRE,
    prc                               PRC,
    rrc                               RRC,
    deltaPRC2                         DeltaPRC,
    deltaRRC2                         DeltaRRC,
    deltaPRC3                         DeltaPRC,
    deltaRRC3                         DeltaRRC
}

DGPS-CorrectionSatInfoList ::=     SEQUENCE (SIZE (1..maxSat)) OF
                                     DGPS-CorrectionSatInfo

DGPS-Information ::=               SEQUENCE {
    satID                            SatID,
    iode                              IODE,
    udre                              UDRE,
    prc                               PRC,
    rrc                               RRC,
    deltaPRC2                         DeltaPRC,
    deltaRRC2                         DeltaRRC
}

DGPS-InformationList ::=           SEQUENCE (SIZE (1..maxSat)) OF
                                     DGPS-Information

DiffCorrectionStatus ::=           ENUMERATED {
    udre-1-0, udre-0-75, udre-0-5, udre-0-3,
    udre-0-2, udre-0-1, noData, invalidData }

-- Actual value = IE value * 0.02
DL-PhysicalChannelBER ::=          INTEGER (0..255)

-- Actual value = IE value * 0.02
DL-TransportChannelBLER ::=        INTEGER (0..255)

DopplerUncertainty ::=             ENUMERATED {
    hz12-5, hz25, hz50, hz100, hz200 }

EllipsoidPoint ::=                 OCTET STRING (SIZE (7))

EllipsoidPointAltitude ::=         OCTET STRING (SIZE (9))

EllipsoidPointAltitudeEllipse ::=  OCTET STRING (SIZE (14))

EllipsoidPointUncertCircle ::=     OCTET STRING (SIZE (8))

EllipsoidPointUncertEllipse ::=    OCTET STRING (SIZE (11))

EnvironmentCharacterization ::=     ENUMERATED {
    possibleHeavyMultipathNLOS,
    lightMultipathLOS,
    notDefined }

```

<pre> Event1a ::= triggeringCondition reportingRange forbiddenAffectCellList w reportDeactivationThreshold } </pre>	<pre> SEQUENCE { TriggeringCondition, ReportingRange, ForbiddenAffectCellList W, ReportDeactivationThreshold } </pre>	<pre> OPTIONAL, </pre>
<pre> Event1b ::= triggeringCondition reportingRange forbiddenAffectCellList w } </pre>	<pre> SEQUENCE { TriggeringCondition, ReportingRange, ForbiddenAffectCellList W } </pre>	<pre> OPTIONAL, </pre>
<pre> Event1c ::= replacementActivationThreshold } </pre>	<pre> SEQUENCE { ReplacementActivationThreshold } </pre>	
<pre> Event1ef ::= triggeringCondition thresholdUsedFrequency } </pre>	<pre> SEQUENCE { TriggeringCondition, ThresholdUsedFrequency } </pre>	
<pre> Event2a ::= usedFreqThreshold usedFreqW hysteresis timeToTrigger reportingAmount reportingInterval reportingCellStatus nonUsedFreqParameterList } </pre>	<pre> SEQUENCE { Threshold, W, HysteresisInterFreq, TimeToTrigger, ReportingAmount, ReportingInterval, ReportingCellStatus NonUsedFreqParameterList } </pre>	<pre> OPTIONAL, OPTIONAL </pre>
<pre> Event2b ::= usedFreqThreshold usedFreqW hysteresis timeToTrigger reportingAmount reportingInterval reportingCellStatus nonUsedFreqParameterList } </pre>	<pre> SEQUENCE { Threshold, W, HysteresisInterFreq, TimeToTrigger, ReportingAmount, ReportingInterval, ReportingCellStatus NonUsedFreqParameterList } </pre>	<pre> OPTIONAL, OPTIONAL </pre>
<pre> Event2c ::= hysteresis timeToTrigger reportingAmount reportingInterval reportingCellStatus nonUsedFreqParameterList } </pre>	<pre> SEQUENCE { HysteresisInterFreq, TimeToTrigger, ReportingAmount, ReportingInterval, ReportingCellStatus NonUsedFreqParameterList } </pre>	<pre> OPTIONAL, OPTIONAL </pre>
<pre> Event2d ::= usedFreqThreshold usedFreqW hysteresis timeToTrigger reportingAmount reportingInterval reportingCellStatus } </pre>	<pre> SEQUENCE { Threshold, W, HysteresisInterFreq, TimeToTrigger, ReportingAmount, ReportingInterval, ReportingCellStatus } </pre>	<pre> OPTIONAL </pre>
<pre> Event2e ::= hysteresis timeToTrigger reportingAmount } </pre>	<pre> SEQUENCE { HysteresisInterFreq, TimeToTrigger, ReportingAmount, } </pre>	

<pre> reportingInterval reportingCellStatus nonUsedFreqParameterList } </pre>	<pre> ReportingInterval, ReportingCellStatus NonUsedFreqParameterList </pre>	<pre> OPTIONAL, OPTIONAL </pre>
<pre> Event2f ::= usedFreqThreshold usedFreqW hysteresis timeToTrigger reportingAmount reportingInterval reportingCellStatus } </pre>	<pre> SEQUENCE { Threshold, W, HysteresisInterFreq, TimeToTrigger, ReportingAmount, ReportingInterval, ReportingCellStatus } </pre>	<pre> OPTIONAL </pre>
<pre> Event3a ::= thresholdOwnSystem w thresholdOtherSystem hysteresis timeToTrigger reportingAmount reportingInterval reportingCellStatus } </pre>	<pre> SEQUENCE { Threshold, W, Threshold, Hysteresis, TimeToTrigger, ReportingAmount, ReportingInterval, ReportingCellStatus } </pre>	<pre> OPTIONAL </pre>
<pre> Event3b ::= thresholdOtherSystem hysteresis timeToTrigger reportingAmount reportingInterval reportingCellStatus } </pre>	<pre> SEQUENCE { Threshold, Hysteresis, TimeToTrigger, ReportingAmount, ReportingInterval, ReportingCellStatus } </pre>	<pre> OPTIONAL </pre>
<pre> Event3c ::= thresholdOtherSystem hysteresis timeToTrigger reportingAmount reportingInterval reportingCellStatus } </pre>	<pre> SEQUENCE { Threshold, Hysteresis, TimeToTrigger, ReportingAmount, ReportingInterval, ReportingCellStatus } </pre>	<pre> OPTIONAL </pre>
<pre> Event3d ::= hysteresis timeToTrigger reportingAmount reportingInterval reportingCellStatus } </pre>	<pre> SEQUENCE { Hysteresis, TimeToTrigger, ReportingAmount, ReportingInterval, ReportingCellStatus } </pre>	<pre> OPTIONAL </pre>
<pre> EventIDInterFreq ::= </pre>	<pre> ENUMERATED { e2a, e2b, e2c, e2d, e2e, e2f } </pre>	
<pre> EventIDInterSystem ::= </pre>	<pre> ENUMERATED { e3a, e3b, e3c, e3d } </pre>	
<pre> EventIDIntraFreq ::= </pre>	<pre> ENUMERATED { e1a, e1b, e1c, e1d, e1e, e1f, e1g, e1h, e1i } </pre>	
<pre> EventResults ::= intraFreqEventResults interFreqEventResults interSystemEventResults trafficVolumeEventResults qualityEventResults </pre>	<pre> CHOICE { IntraFreqEventResults, InterFreqEventResults, InterSystemEventResults, TrafficVolumeEventResults, QualityEventResults, } </pre>	

```

        ue-InternalEventResults      UE-InternalEventResults,
        lcs-MeasurementEventResults  LCS-MeasurementEventResults
    }

    ExtraDopplerInfo ::=
        doppler1stOrder              INTEGER (-42..21),
        dopplerUncertainty            DopplerUncertainty
    }

    FACH-MeasurementOccasionInfo ::=
        k-UTRA                        UTRAN-DRX-CycleLengthCoefficient,
        otherRAT-InSysInfoList        OtherRAT-InSysInfoList
    }
    OPTIONAL

    FilterCoefficient ::=
        ENUMERATED {
            fc0, fc1, fc2, fc3, fc4, fc5,
            fc6, fc7, fc8, fc9, fc11, fc13,
            fc15, fc17, fc19, spare1 }

    FineSFN-SFN ::=
        ENUMERATED {
            fs0, fs0-25, fs0-5, fs0-75 }

    ForbiddenAffectCell ::=
        fdd                            PrimaryCPICH-Info,
        tdd                            PrimaryCCPCH-Info
    }

    ForbiddenAffectCellList ::=
        SEQUENCE (SIZE (1..maxCellMeas)) OF
        ForbiddenAffectCell

    FreqQualityEstimateQuantity-FDD ::= ENUMERATED {
        cpich-Ec-N0,
        cpich-RSCP }

    FreqQualityEstimateQuantity-TDD ::= ENUMERATED {
        primaryCCPCH-RSCP }

    -- **TODO**, not defined yet
    Frequency ::=
        SEQUENCE {
    }

    GSM-CarrierRSSI ::=
        BIT STRING (SIZE (6))

    GPS-MeasurementParam ::=
        satelliteID                    INTEGER (0..63),
        c-N0                           INTEGER (0..63),
        doppler                         INTEGER (-32768..32768),
        wholeGPS-Chips                  INTEGER (0..1023),
        fractionalGPS-Chips             INTEGER (0..1023),
        multipathIndicator              MultipathIndicator,
        pseudorangeRMS-Error           INTEGER (0..63)
    }

    GPS-MeasurementParamList ::=
        SEQUENCE (SIZE (1..maxSat)) OF
        GPS-MeasurementParam

    -- **TODO**, not defined yet
    GSM-OutputPower ::=
        SEQUENCE {
    }

    GPS-TOW-1msec ::=
        INTEGER (0..604799999)

    GPS-TOW-1usec ::=
        SEQUENCE {
            tow-1msec                    GPS-TOW-1msec,
            tow-rem-usec                 GPS-TOW-rem-usec
        }

    GPS-TOW-Assist ::=
        SEQUENCE {
            satID                        INTEGER (0..63),
            tlm-Message                   BIT STRING (SIZE (14)),
            antiSpoof                     BOOLEAN,
            alert                          BOOLEAN,
            tlm-Reserved                   BIT STRING (SIZE (2))
        }

```

```

}

GPS-TOW-AssistList ::=                               SEQUENCE (SIZE (1..maxSat)) OF
                                                       GPS-TOW-Assist

GPS-TOW-rem-usec ::=                                 INTEGER (0..999)

HCS-CellReselectInformation ::= SEQUENCE {
    penaltyTime           PenaltyTime                OPTIONAL
    -- TABULAR: The default value is "notUsed", temporary offset is nested inside
    PenaltyTime
}

HCS-NeighbouringCellInformation ::= SEQUENCE {
    hcs-PRIO              HCS-PRIO                   DEFAULT 0,
    q-HCS                 Q-HCS                      DEFAULT 0,
    hcs-CellReselectInformation HCS-CellReselectInformation OPTIONAL
}

HCS-PRIO ::=                                         INTEGER (0..7)

HCS-ServingCellInformation ::= SEQUENCE {
    hcs-PRIO              HCS-PRIO                   DEFAULT 0,
    q-HCS                 Q-HCS                      DEFAULT 0,
    t-CR-Max              T-CRMax                    OPTIONAL
}

-- Actual value = IE value * 0.5
Hysteresis ::=                                       INTEGER (0..15)

-- Actual value = IE value * 0.5
HysteresisInterFreq ::=                             INTEGER (0..29)

InterFreqCell ::= SEQUENCE {
    frequencyInfo         FrequencyInfo,
    nonFreqRelatedEventResults CellMeasurementEventResults
}

InterFreqCellID ::= INTEGER (0..maxCellMeas-1)
•
InterFreqCellInfoList ::= SEQUENCE {
    removedInterFreqCellList RemovedInterFreqCellList OPTIONAL,
    newInterFreqCellList     NewInterFreqCellList     OPTIONAL
}

InterFreqCellInfoSI-List ::= SEQUENCE {
    removedInterFreqCellList RemovedInterFreqCellList OPTIONAL,
    newInterFreqCellList     NewInterFreqCellSI-List  OPTIONAL
}

InterFreqCellList ::= SEQUENCE (SIZE (1..maxFreq)) OF
                       InterFreqCell

InterFreqCellMeasuredResultsList ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
                                       CellMeasuredResults

InterFreqEvent ::= CHOICE {
    event2a      Event2a,
    event2b      Event2b,
    event2c      Event2c,
    event2d      Event2d,
    event2e      Event2e,
    event2f      Event2f
}

InterFreqEventList ::= SEQUENCE (SIZE (1..maxMeasEvent)) OF
                       InterFreqEvent

InterFreqEventResults ::= SEQUENCE {
    eventID      EventIDInterFreq,
    interFreqCellList InterFreqCellList
}

InterFreqMeasQuantity ::= SEQUENCE {

```

```

reportingCriteria CHOICE {
  intraFreqReportingCriteria SEQUENCE {
    intraFreqMeasQuantity IntraFreqMeasQuantity
  },
  interFreqReportingCriteria SEQUENCE {
    filterCoefficient FilterCoefficient DEFAULT
fc0,
    modeSpecificInfo CHOICE {
      fdd SEQUENCE {
FDD      freqQualityEstimateQuantity-FDD FreqQualityEstimateQuantity-
      },
      tdd SEQUENCE {
TDD      freqQualityEstimateQuantity-TDD FreqQualityEstimateQuantity-
      }
    }
  }
}

InterFreqMeasuredResults ::= SEQUENCE {
  frequencyInfo FrequencyInfo OPTIONAL,
  ultra-CarrierRSSI UTRA-CarrierRSSI OPTIONAL,
  interFreqCellMeasuredResultsList InterFreqCellMeasuredResultsList OPTIONAL
}

InterFreqMeasuredResultsList ::= SEQUENCE (SIZE (1..maxFreq)) OF
  InterFreqMeasuredResults

InterFreqMeasurementSysInfo ::= SEQUENCE {
  interFreqMeasurementID MeasurementIdentityNumber DEFAULT 2,
  interFreqCellInfoSI-List InterFreqCellInfoSI-List OPTIONAL,
  interFreqMeasQuantity InterFreqMeasQuantity OPTIONAL,
  interFreqReportingCriteria InterFreqReportingCriteria OPTIONAL
}

InterFreqReportCriteria ::= CHOICE {
  intraFreqReportingCriteria IntraFreqReportingCriteria,
  interFreqReportingCriteria InterFreqReportingCriteria,
  periodicalReportingCriteria PeriodicalWithReportingCellStatus,
  noReporting ReportingCellStatusOpt
}

InterFreqReportingCriteria ::= SEQUENCE {
  interFreqEventList InterFreqEventList OPTIONAL
}

InterFreqReportingQuantity ::= SEQUENCE {
  ultra-Carrier-RSSI BOOLEAN,
  frequencyQualityEstimate BOOLEAN,
  nonFreqRelatedQuantities CellReportingQuantities
}

InterFrequencyMeasurement ::= SEQUENCE {
  interFreqCellInfoList InterFreqCellInfoList,
  interFreqMeasQuantity InterFreqMeasQuantity OPTIONAL,
  interFreqReportingQuantity InterFreqReportingQuantity OPTIONAL,
  measurementValidity MeasurementValidity OPTIONAL,
  interFreqSetUpdate UE-AutonomousUpdateMode OPTIONAL,
  reportCriteria InterFreqReportCriteria
}

InterSystemCellID ::= INTEGER (0..maxCellMeas-1)

InterSystemCellInfoList ::= SEQUENCE {
  removedInterSystemCellList RemovedInterSystemCellList,
  newInterSystemCellList NewInterSystemCellList
}

InterSystemEvent ::= CHOICE {
  event3a Event3a,
  event3b Event3b,
  event3c Event3c,

```

```

    event3d                                Event3d
}

InterSystemEventList ::=                   SEQUENCE (SIZE (1..maxMeasEvent)) OF
                                           InterSystemEvent

InterSystemEventResults ::=                SEQUENCE {
    eventID                                EventIDInterSystem,
    cellToReportList                       CellToReportList
}

InterSystemInfo ::=                        ENUMERATED {
    gsm, spare1 }

InterSystemMeasQuantity ::=                SEQUENCE {
    measQuantityUTRAN-QualityEstimate      IntraFreqMeasQuantity,
    systemSpecificInfo                     CHOICE {
        gsm                                SEQUENCE {
            measurementQuantity            MeasurementQuantityGSM,
            filterCoefficient              FilterCoefficient           DEFAULT
        },
        fcl,                               BSIC-VerificationRequired
        bsic-VerificationRequired          BSIC-VerificationRequired
    },
    is-2000                                SEQUENCE {
        tadd-EcIo                          INTEGER (0..63),
        tcomp-EcIo                         INTEGER (0..15),
        softSlope                          INTEGER (0..63)           OPTIONAL,
        addIntercept                       INTEGER (0..63)           OPTIONAL
    }
}

InterSystemMeasuredResults ::=             CHOICE {
    gsm                                     SEQUENCE {
        frequency                          Frequency,
        gsm-CarrierRSSI                   GSM-CarrierRSSI           OPTIONAL,
        pathloss                          Pathloss                 OPTIONAL,
        bsic                              BSIC                    OPTIONAL,
        observedTimeDifferenceToGSM        ObservedTimeDifferenceToGSM OPTIONAL
    },
    spare                                  NULL
}

InterSystemMeasuredResultsList ::=         SEQUENCE (SIZE (1..maxOtherRAT)) OF
                                           InterSystemMeasuredResults

InterSystemMeasurement ::=                 SEQUENCE {
    interSystemCellInfoList               InterSystemCellInfoList   OPTIONAL,
    interSystemMeasQuantity                InterSystemMeasQuantity   OPTIONAL,
    interSystemReportingQuantity           InterSystemReportingQuantity OPTIONAL,
    reportCriteria                         InterSystemReportCriteria
}

InterSystemMeasurementSysInfo ::=          SEQUENCE {
    interSystemMeasurementID               MeasurementIdentityNumber  DEFAULT 3,
    interSystemCellInfoList               InterSystemCellInfoList   OPTIONAL,
    interSystemMeasQuantity                InterSystemMeasQuantity   OPTIONAL
}

InterSystemReportCriteria ::=              CHOICE {
    interSystemReportingCriteria           InterSystemReportingCriteria,
    periodicalReportingCriteria           PeriodicalWithReportingCellStatus,
    noReporting                           ReportingCellStatusOpt
}

InterSystemReportingCriteria ::=           SEQUENCE {
    interSystemEventList                   InterSystemEventList      OPTIONAL
}

InterSystemReportingQuantity ::=           SEQUENCE {
    utran-EstimatedQuality                 BOOLEAN,
    systemSpecificInfo                     CHOICE {
        gsm                                SEQUENCE {
            pathloss                       BOOLEAN,

```

```

        observedTimeDifferenceGSM          BOOLEAN,
        gsm-Carrier-RSSI                  BOOLEAN,
        bsic                               BOOLEAN
    },
    spare1                                NULL
}

IntraFreqCellID ::=                      INTEGER (0..maxCellMeas-1)

IntraFreqCellInfoList ::=                SEQUENCE {
    removedIntraFreqCellList              RemovedIntraFreqCellList          OPTIONAL,
    newIntraFreqCellList                  NewIntraFreqCellList              OPTIONAL
}

IntraFreqCellInfoSI-List ::=             SEQUENCE {
    removedIntraFreqCellList              RemovedIntraFreqCellList          OPTIONAL,
    newIntraFreqCellSI-List              NewIntraFreqCellSI-List
}

IntraFreqEvent ::=                       CHOICE {
    ela                                   Event1a,
    elb                                   Event1b,
    elc                                   Event1c,
    eld                                   NULL,
    ele                                   Event1ef,
    elf                                   Event1ef,
    elg                                   NULL,
    elh                                   ThresholdUsedFrequency,
    eli                                   ThresholdUsedFrequency
}

IntraFreqEventCriteria ::=               SEQUENCE {
    event                                  IntraFreqEvent,
    hysteresis                             Hysteresis,
    timeToTrigger                          TimeToTrigger,
    reportingAmount                        ReportingAmount,
    reportingInterval                      ReportingInterval,
    reportingCellStatus                    ReportingCellStatus          OPTIONAL
}

IntraFreqEventCriteriaList ::=           SEQUENCE (SIZE (1..maxMeasEvent)) OF
    IntraFreqEventCriteria

IntraFreqEventResults ::=                SEQUENCE {
    eventID                                EventIDIntraFreq,
    cellMeasurementEventResults            CellMeasurementEventResults
}

IntraFreqMeasQuantity ::=                SEQUENCE {
    filterCoefficient                     FilterCoefficient          DEFAULT
fcl,
    modeSpecificInfo                       CHOICE {
        fdd                                SEQUENCE {
            intraFreqMeasQuantity-FDD      IntraFreqMeasQuantity-FDD
        },
        tdd                                SEQUENCE {
            intraFreqMeasQuantity-TDDList   IntraFreqMeasQuantity-TDDList
        }
    }
}

IntraFreqMeasQuantity-FDD ::=            ENUMERATED {
    cpich-Ec-NO,
    cpich-RSCP,
    pathloss,
    ultra-CarrierRSSI }

IntraFreqMeasQuantity-TDD ::=            ENUMERATED {
    primaryCCPCH-RSCP,
    pathloss,
    timeslotISCP,
}

```

```

        ultra-CarrierRSSI }

IntraFreqMeasQuantity-TDDList ::= SEQUENCE (SIZE (1..4)) OF
    IntraFreqMeasQuantity-TDD

IntraFreqMeasuredResultsList ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
    CellMeasuredResults

IntraFreqMeasurementSysInfo ::= SEQUENCE {
    intraFreqMeasurementID          MeasurementIdentityNumber          DEFAULT 1,
    intraFreqCellInfoSI-List        IntraFreqCellInfoSI-List          OPTIONAL,
    intraFreqMeasQuantity            IntraFreqMeasQuantity            OPTIONAL,
    intraFreqReportingQuantityForRACH IntraFreqReportingQuantityForRACH OPTIONAL,
    maxReportedCellsOnRACH          MaxReportedCellsOnRACH          OPTIONAL,
    reportingInfoForCellDCH         ReportingInfoForCellDCH         OPTIONAL
}

IntraFreqReportCriteria ::= CHOICE {
    intraFreqReportingCriteria      IntraFreqReportingCriteria,
    periodicalReportingCriteria     PeriodicalWithReportingCellStatus,
    noReporting                      ReportingCellStatusOpt
}

IntraFreqReportingCriteria ::= SEQUENCE {
    eventCriteriaList              IntraFreqEventCriteriaList
}

IntraFreqReportingQuantity ::= SEQUENCE {
    activeSetReportingQuantities    CellReportingQuantities,
    monitoredSetReportingQuantities CellReportingQuantities,
    detectedSetReportingQuantities CellReportingQuantities          OPTIONAL
}

IntraFreqReportingQuantityForRACH ::= SEQUENCE {
    sfn-SFN-OTD-Type              SFN-SFN-OTD-Type,
    modeSpecificInfo              CHOICE {
        fdd                        SEQUENCE {
            intraFreqRepQuantityRACH-FDD IntraFreqRepQuantityRACH-FDD
        },
        tdd                        SEQUENCE {
            intraFreqRepQuantityRACH-TDDList IntraFreqRepQuantityRACH-TDDList
        }
    }
}

IntraFreqRepQuantityRACH-FDD ::= ENUMERATED {
    cpich-EcN0, cpich-RSCP,
    pathloss, noReport }

IntraFreqRepQuantityRACH-TDD ::= ENUMERATED {
    timeslotISCP,
    primaryCCPCH-RSCP,
    noReport }

IntraFreqRepQuantityRACH-TDDList ::= SEQUENCE (SIZE (1..2)) OF
    IntraFreqRepQuantityRACH-TDD

IntraFrequencyMeasurement ::= SEQUENCE {
    intraFreqCellInfoList          IntraFreqCellInfoList          OPTIONAL,
    intraFreqMeasQuantity          IntraFreqMeasQuantity          OPTIONAL,
    intraFreqReportingQuantity     IntraFreqReportingQuantity     OPTIONAL,
    measurementValidity            MeasurementValidity            OPTIONAL,
    reportCriteria                 IntraFreqReportCriteria
}

IODE ::= INTEGER (0..255)

IP-Length ::= ENUMERATED {
    ip15, ip110 }

IP-Spacing ::= ENUMERATED {
    e5, e7, e10, e15, e20,

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```

        e30, e40, e50 }

IS-2000SpecificMeasInfo ::=      ENUMERATED {
        frequency, timeslot, colourcode,
        outputpower, pn-Offset }

K-InterRAT ::=                    INTEGER (0..12)

LCS-Accuracy ::=                  BIT STRING (SIZE (7))

-- For sfID=0 (sf4), pageNo=18, and sfID=0 & sfID=1 (sf4 & sf5), pageNo=25,
-- the IE fields for word3 - word10 are the same as LCS-GPS-IonosphericModel
-- and LCS-GPS-UTC-Model. For the rest of the pages, they are the same as
-- LCS-GPS-Almanac.
LCS-Alma-SIB-Data ::=             SEQUENCE {
        sfID                        INTEGER (0..1),
        dataID                      INTEGER (0..3),
        pageNo                      INTEGER (0..63),
        word3                       BIT STRING (SIZE (16)),
        word4                       BIT STRING (SIZE (24)),
        word5                       BIT STRING (SIZE (24)),
        word6                       BIT STRING (SIZE (24)),
        word7                       BIT STRING (SIZE (24)),
        word8                       BIT STRING (SIZE (24)),
        word9                       BIT STRING (SIZE (24)),
        word10                      BIT STRING (SIZE (22))
}

LCS-Alma-SIB-DataList ::=         SEQUENCE (SIZE (1..3)) OF
        LCS-Alma-SIB-Data

LCS-CipherParameters ::=         SEQUENCE {
        cipheringKeyFlag           BIT STRING (SIZE (1)),
        cipheringSerialNumber      INTEGER (0..65535) OPTIONAL
}

LCS-DGPS-SIB-Data ::=            SEQUENCE {
        nodeBClockDrift            NodeB-ClockDrift                OPTIONAL,
        referenceLocationforSIB ReferenceLocationforSIB,
        referenceSFN               ReferenceSFN                    OPTIONAL,
        referenceGPS-TOW           GPS-TOW-lusec,
        statusHealth              DiffCorrectionStatus,
        dgps-InformationList       DGPS-InformationList
}

LCS-Ephe-SIB-Data ::=            SEQUENCE {
        transmissionTOW            INTEGER (0..1048575),
        satID                      INTEGER (0..63),
        tlmMessage                 BIT STRING (SIZE (14)),
        tlmRevd                   BIT STRING (SIZE (2)),
        how                        BIT STRING (SIZE (22)),
        wn                         BIT STRING (SIZE (10)),
        navModel                   NavModel
}

LCS-Error ::=                    SEQUENCE {
        errorReason                 LCS-ErrorCause,
        additionalAssistanceData    AdditionalAssistanceData
}

LCS-ErrorCause ::=              ENUMERATED {
        notEnoughOTDOA-Cells,
        notEnoughGPS-Satellites,
        assistanceDataMissing,
        methodNotSupported,
        undefinedError,
        requestDeniedByUser,
        notProcessedAndTimeout }

LCS-EventID ::=                 ENUMERATED {
        e7a, e7b, e7c }

LCS-EventParam ::=              SEQUENCE {
        eventID                     LCS-EventID,
        reportingAmount             ReportingAmount,
        reportFirstFix              BOOLEAN,

```



```

    measurementInterval          LCS-MeasurementInterval,
    eventSpecificInfo            LCS-EventSpecificInfo
}

LCS-EventParamList ::=          SEQUENCE (SIZE (1..maxMeasEvent)) OF
                                LCS-EventParam

LCS-EventSpecificInfo ::=      CHOICE {
    e7a                          ThresholdPositionChange,
    e7b                          ThresholdSFN-SFN-Change,
    e7c                          ThresholdSFN-GPS-TOW
}

LCS-GPS-AcquisitionAssistance ::= SEQUENCE {
    referenceTime                 CHOICE {
        utran-ReferenceTime      UTRAN-ReferenceTime,
        gps-ReferenceTimeOnly    INTEGER (0..604799999)
    },
    satelliteInformationList      AcquisitionSatInfoList
}

0
LCS-GPS-Almanac ::=            SEQUENCE {
    wn-a                          BIT STRING (SIZE (8)),
    almanacSatInfoList           AlmanacSatInfoList
}

LCS-GPS-AssistanceData ::=     SEQUENCE {
    lcs-GPS-ReferenceTime         LCS-GPS-ReferenceTime           OPTIONAL,
    lcs-GPS-ReferenceLocation     EllipsoidPointAltitude         OPTIONAL,
    lcs-GPS-DGPS-Corrections      LCS-GPS-DGPS-Corrections        OPTIONAL,
    lcs-GPS-NavigationModel       LCS-GPS-NavigationModel         OPTIONAL,
    lcs-GPS-IonosphericModel      LCS-GPS-IonosphericModel        OPTIONAL,
    lcs-GPS-UTC-Model             LCS-GPS-UTC-Model               OPTIONAL,
    lcs-GPS-Almanac               LCS-GPS-Almanac                 OPTIONAL,
    lcs-GPS-AcquisitionAssistance LCS-GPS-AcquisitionAssistance  OPTIONAL,
    lcs-GPS-Real-timeIntegrity    BadSatList                       OPTIONAL
}

LCS-Cipher-GPS-Data-IndicatorAssistanceSIB ::= SEQUENCE {
    lcs-CipherParameters          LCS-CipherParameters          OPTIONAL
}

LCS-GPS-DGPS-Corrections ::=   SEQUENCE {
    gps-TOW                       INTEGER (0..604799),
    statusHealth                   DiffCorrectionStatus,
    dgps-CorrectionSatInfoList    DGPS-CorrectionSatInfoList
}

LCS-GPS-IonosphericModel ::=   SEQUENCE {
    alfa0                          BIT STRING (SIZE (8)),
    alfa1                          BIT STRING (SIZE (8)),
    alfa2                          BIT STRING (SIZE (8)),
    alfa3                          BIT STRING (SIZE (8)),
    beta0                          BIT STRING (SIZE (8)),
    beta1                          BIT STRING (SIZE (8)),
    beta2                          BIT STRING (SIZE (8)),
    beta3                          BIT STRING (SIZE (8))
}

LCS-GPS-Measurement ::=        SEQUENCE {
    referenceSFN                   ReferenceSFN                       OPTIONAL,
    gps-TOW-1msec                  GPS-TOW-1msec,
    gps-TOW-rem-usec                GPS-TOW-rem-usec                 OPTIONAL,
    gps-MeasurementParamList        GPS-MeasurementParamList
}

LCS-GPS-NavigationModel ::=    SEQUENCE {
    n-SAT                          INTEGER (1..16),
    navigationModelSatInfoList     NavigationModelSatInfoList
}

LCS-GPS-ReferenceTime ::=      SEQUENCE {
    gps-Week                       INTEGER (0..1023),

```

```

gps-TOW                GPS-TOW-lusec,
sfn                    INTEGER (0..4095),
gps-TOW-AssistList    GPS-TOW-AssistList                OPTIONAL
}

LCS-GPS-UTC-Model ::= SEQUENCE {
    a1                BIT STRING (SIZE (24)),
    a0                BIT STRING (SIZE (32)),
    t-ot              BIT STRING (SIZE (8)),
    wn-t              BIT STRING (SIZE (8)),
    delta-t-LS        BIT STRING (SIZE (8)),
    wn-lsf            BIT STRING (SIZE (8)),
    dn                BIT STRING (SIZE (8)),
    delta-t-LSF        BIT STRING (SIZE (8))
}

LCS-IPDL-Parameters ::= SEQUENCE {
    ip-Spacing        IP-Spacing,
    ip-Length          IP-Length,
    ip-Offset          INTEGER (0..9),
    seed              INTEGER (0..63),
    burstModeParameters BurstModeParameters
}

LCS-MeasuredResults ::= SEQUENCE {
    lcs-MultipleSets  LCS-MultipleSets                OPTIONAL,
    lcs-ReferenceCellIdentity PrimaryCPICH-Info            OPTIONAL,
    lcs-OTDOA-Measurement LCS-OTDOA-Measurement        OPTIONAL,
    lcs-Position        LCS-Position                OPTIONAL,
    lcs-GPS-Measurement LCS-GPS-Measurement        OPTIONAL,
    lcs-Error            LCS-Error                OPTIONAL
}

LCS-Measurement ::= SEQUENCE {
    lcs-ReportingQuantity LCS-ReportingQuantity,
    reportCriteria        LCS-ReportCriteria,
    lcs-OTDOA-AssistanceData LCS-OTDOA-AssistanceData    OPTIONAL,
    lcs-GPS-AssistanceData LCS-GPS-AssistanceData    OPTIONAL
}

LCS-MeasurementEventResults ::= SEQUENCE {
    event7a            LCS-Position,
    event7b            LCS-OTDOA-Measurement,
    event7c            LCS-GPS-Measurement
}

LCS-MeasurementInterval ::= ENUMERATED {
    e5, e15, e60, e300,
    e900, e1800, e3600, e7200 }

LCS-MethodType ::= ENUMERATED {
    ue-Assisted,
    ue-Based,
    ue-BasedPreferred,
    ue-AssistedPreferred }

LCS-MultipleSets ::= SEQUENCE {
    numberOfOTDOA-IPDL-GPS-Sets INTEGER (2..3),
    numberOfReferenceCells      INTEGER (1..3),
    referenceCellRelation        ReferenceCellRelation
}

LCS-OTDOA-AssistanceData ::= SEQUENCE {
    lcs-OTDOA-ReferenceCell        LCS-OTDOA-ReferenceCell        OPTIONAL,
    lcs-OTDOA-MeasurementAssistDataList LCS-OTDOA-MeasurementAssistDataList OPTIONAL,
    lcs-IPDL-Parameters            LCS-IPDL-Parameters            OPTIONAL
}

LCS-OTDOA-AssistanceSIB ::= SEQUENCE {
    lcs-CipherParameters            LCS-CipherParameters            OPTIONAL,
    searchWindowSize                OTDOA-SearchWindowSize,
    referenceCellPosition            ReferenceCellPosition,
    lcs-IPDL-Parameters            LCS-IPDL-Parameters            OPTIONAL,
    cellToMeasureInfoList           CellToMeasureInfoList
}

LCS-OTDOA-Measurement ::= SEQUENCE {

```

```

sfn                                INTEGER (0..4095),
-- Actual value = IE value * 0.25 + 876
ue-Rx-Tx-TimeDifference            INTEGER (0..1184),
qualityType                        QualityType,
qualityChoice                      CHOICE {
    std-10                          ReferenceQuality10,
    std-50                          ReferenceQuality50,
    cpich-EcN0                       CPICH-Ec-N0-OTDOA,
    defaultQuality                   ReferenceQuality
},
neighborList                       NeighborList                                OPTIONAL
}

LCS-OTDOA-MeasurementAssistData ::= SEQUENCE {
    primaryCPICH-Info               PrimaryCPICH-Info,
    frequencyInfo                   FrequencyInfo                                OPTIONAL,
    sfn-SFN-ObsTimeDifference        SFN-SFN-ObsTimeDifference1,
    fineSFN-SFN                     FineSFN-SFN                                OPTIONAL,
    searchWindowSize                OTDOA-SearchWindowSize,
    relativeNorth                    INTEGER (-20000..20000)                    OPTIONAL,
    relativeEast                     INTEGER (-20000..20000)                    OPTIONAL,
    relativeAltitude                 INTEGER (-4000..4000)                                OPTIONAL
}

LCS-OTDOA-MeasurementAssistDataList ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
    LCS-OTDOA-MeasurementAssistData

LCS-OTDOA-ReferenceCell ::= SEQUENCE {
    primaryCPICH-Info               PrimaryCPICH-Info,
    frequencyInfo                   FrequencyInfo                                OPTIONAL,
    cellPosition                    ReferenceCellPosition                    OPTIONAL
}

LCS-Position ::= SEQUENCE {
    referenceSFN                    ReferenceSFN,
    gps-TOW                          GPS-TOW-lusec,
    positionEstimate                 PositionEstimate
}

LCS-ReportCriteria ::= CHOICE {
    lcs-ReportingCriteria            LCS-EventParamList,
    periodicalReportingCriteria      PeriodicalReportingCriteria,
    noReporting                       NULL
}

LCS-ReportingQuantity ::= SEQUENCE {
    methodType                       LCS-MethodType,
    positioningMethod                PositioningMethod,
    responseTime                      LCS-ResponseTime,
    accuracy                          LCS-Accuracy                                OPTIONAL,
    gps-TimingOfCellWanted            BOOLEAN,
    multipleSets                      BOOLEAN,
    environmentCharacterization        EnvironmentCharacterization            OPTIONAL
}

LCS-ResponseTime ::= ENUMERATED {
    s1, s2, s4, s8, s16,
    s32, s64, s128 }

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,
currentAnd-5-BestNeighbour,
currentAnd-6-BestNeighbour }

MeasuredResults ::=
    intraFreqMeasuredResultsList
    interFreqMeasuredResultsList
    interSystemMeasuredResultsList
    trafficVolumeMeasuredResultsList
    qualityMeasuredResults
    ue-InternalMeasuredResults
    lcs-MeasuredResults
}

MeasuredResultsList ::=
    CHOICE {
        IntraFreqMeasuredResultsList,
        InterFreqMeasuredResultsList,
        InterSystemMeasuredResultsList,
        TrafficVolumeMeasuredResultsList,
        QualityMeasuredResults,
        UE-InternalMeasuredResults,
        LCS-MeasuredResults
    }

MeasuredResultsOnRACH ::=
    SEQUENCE (SIZE (1..maxAdditionalMeas)) OF
        MeasuredResults

MeasuredResultsOnRACH ::=
    SEQUENCE {
        currentCell
        modeSpecificInfo
            fdd
                measurementQuantity
                    cpich-Ec-NO
                    cpich-RSCP
                    pathloss
            },
        tdd
            timeslotISCP
            primaryCCPCH-RSCP
        }
    },
    monitoredCells
}

MeasurementCommand ::=
    CHOICE {
        setup
        modify
            measurementType
        },
        release
    }

MeasurementControlSysInfo ::=
    SEQUENCE {
        intraFreqMeasurementSysInfo
        interFreqMeasurementSysInfo
        interSystemMeasurementSysInfo
        trafficVolumeMeasSysInfo
        ue-InternalMeasurementSysInfo
    }

MeasurementIdentityNumber ::=
    INTEGER (1..16)

MeasurementQuantityGSM ::=
    ENUMERATED {
        gsm-CarrierRSSI,
        pathloss
    }

MeasurementReportingMode ::=
    SEQUENCE {
        measurementReportTransferMode
        periodicalOrEventTrigger
    }

MeasurementType ::=
    CHOICE {
        IntraFrequencyMeasurement,
        InterFrequencyMeasurement,
        InterSystemMeasurement,
        LCS-Measurement,
        TrafficVolumeMeasurement,
        QualityMeasurement,
    }

```

```

    ue-InternalMeasurement          UE-InternalMeasurement
}

MeasurementValidity ::=
    resume-Release
}

MonitoredCellRACH-List ::=
    SEQUENCE (SIZE (1..7)) OF
        MonitoredCellRACH-Result

MonitoredCellRACH-Result ::=
    sfn-SFN-ObsTimeDifference      OPTIONAL,
    modeSpecificInfo              CHOICE {
        fdd                        SEQUENCE {
            primaryCPICH-Info      PrimaryCPICH-Info,
            measurementQuantity    CHOICE {
                cpich-Ec-N0        CPICH-Ec-N0,
                cpich-RSCP         CPICH-RSCP,
                pathloss           Pathloss
            }
        },
        tdd                        SEQUENCE {
            primaryCCPCH-Info      PrimaryCCPCH-Info,
            primaryCCPCH-RSCP     PrimaryCCPCH-RSCP
        }
    }
}

MultipathIndicator ::=
    ENUMERATED {
        nm,
        low,
        medium,
        high
    }

N-CR-T-CRMaxHyst ::=
    n-CR                          INTEGER (1..16)      DEFAULT 8,
    t-CRMaxHyst                   T-CRMaxHyst

NavigationModelSatInfo ::=
    satID                         INTEGER (0..63),
    satelliteStatus               SatelliteStatus,
    navModel                      NavModel
}

NavigationModelSatInfoList ::=
    SEQUENCE (SIZE (1..maxSat)) OF
        NavigationModelSatInfo

NavModel ::=
    codeOnL2                      BIT STRING (SIZE (2)),
    uraIndex                      BIT STRING (SIZE (4)),
    satHealth                     BIT STRING (SIZE (6)),
    iodc                          BIT STRING (SIZE (10)),
    l2Pflag                       BIT STRING (SIZE (1)),
    sflRevd                       SubFrame1Reserved,
    t-GD                          BIT STRING (SIZE (8)),
    t-oc                          BIT STRING (SIZE (16)),
    af2                           BIT STRING (SIZE (8)),
    af1                           BIT STRING (SIZE (16)),
    af0                           BIT STRING (SIZE (22)),
    c-rs                          BIT STRING (SIZE (16)),
    delta-n                       BIT STRING (SIZE (16)),
    m0                            BIT STRING (SIZE (32)),
    c-uc                          BIT STRING (SIZE (16)),
    e                             BIT STRING (SIZE (32)),
    c-us                          BIT STRING (SIZE (16)),
    a-Sqrt                        BIT STRING (SIZE (32)),
    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)),
    c-rc                          BIT STRING (SIZE (16)),
    omega                         BIT STRING (SIZE (32)),

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```

    omegaDot                BIT STRING (SIZE (24)),
    iDot                    BIT STRING (SIZE (14))
}

Neighbor ::=
    neighborIdentity        PrimaryCPICH-Info                OPTIONAL,
    neighborQuantity        NeighborQuantity,
    sfn-SFN-ObsTimeDifference2 SFN-SFN-ObsTimeDifference2
}

NeighborList ::=
    SEQUENCE (SIZE (1..maxCellMeas)) OF
    Neighbor

-- **TODO**, to be defined fully
NeighborQuantity ::=
    SEQUENCE {

NewInterFreqCell ::=
    interFreqCellID        InterFreqCellID                OPTIONAL,
    frequencyInfo          FrequencyInfo                    OPTIONAL,
    cellInfo               CellInfo
}

NewInterFreqCellList ::=
    SEQUENCE (SIZE (1..maxCellMeas)) OF
    NewInterFreqCell

NewInterFreqCellSI ::=
    interFreqCellID        InterFreqCellID                OPTIONAL,
    frequencyInfo          FrequencyInfo                    OPTIONAL,
    cellInfo               CellInfoSI
}

NewInterFreqCellSI-List ::=
    SEQUENCE (SIZE (1..maxCellMeas)) OF
    NewInterFreqCellSI

NewInterSystemCell ::=
    technologySpecificInfo CHOICE {
        gsm                SEQUENCE {
            q-Offset        Q-Offset                OPTIONAL,
            hcs-NeighbouringCellInformation HCS-NeighbouringCellInformation OPTIONAL,
            q-RxlevMin      Q-RxlevMin,
            maxAllowedUL-TX-Power MaxAllowedUL-TX-Power,
            bsic            BSIC,
            bcch-ARFCN     BCCH-ARFCN,
            gsm-OutputPower GSM-OutputPower        OPTIONAL
        },
        is-2000            SEQUENCE {
            is-2000SpecificMeasInfo IS-2000SpecificMeasInfo
        },
        spare              NULL
    }
}

NewInterSystemCellList ::=
    SEQUENCE (SIZE (1..maxCellMeas)) OF
    NewInterSystemCell

NewIntraFreqCell ::=
    intraFreqCellID        IntraFreqCellID                OPTIONAL,
    cellInfo               CellInfo
}

NewIntraFreqCellList ::=
    SEQUENCE (SIZE (1..maxCellMeas)) OF
    NewIntraFreqCell

NewIntraFreqCellSI ::=
    intraFreqCellID        IntraFreqCellID                OPTIONAL,
    cellInfo               CellInfoSI
}

NewIntraFreqCellSI-List ::=
    SEQUENCE (SIZE (1..maxCellMeas)) OF
    NewIntraFreqCellSI

NodeB-ClockDrift ::=
    INTEGER (0..15)

```

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NonUsedFreqParameter ::= SEQUENCE {
    nonUsedFreqThreshold Threshold,
    nonUsedFreqW W
}

NonUsedFreqParameterList ::= SEQUENCE (SIZE (1..maxFreq)) OF
    NonUsedFreqParameter

ObservedTimeDifferenceToGSM ::= INTEGER (0..4095)

OTDOA-SearchWindowSize ::= ENUMERATED {
    c10, c20, c30, c40, c50,
    c60, c70, moreThan70 }

OtherRAT-InSysInfo ::= SEQUENCE {
    rat-Type RAT-Type,
    k-InterRAT K-InterRAT
}

OtherRAT-InSysInfoList ::= SEQUENCE (SIZE (1..maxOtherRAT)) OF
    OtherRAT-InSysInfo

Pathloss ::= INTEGER (46..158)

PenaltyTime ::= CHOICE {
    notUsed NULL,
    pt10 TemporaryOffset,
    pt20 TemporaryOffset,
    pt30 TemporaryOffset,
    pt40 TemporaryOffset,
    pt50 TemporaryOffset,
    pt60 TemporaryOffset
}

PendingTimeAfterTrigger ::= ENUMERATED {
    ptat0-25, ptat0-5, ptat1,
    ptat2, ptat4, ptat8, ptat16 }

PeriodicalOrEventTrigger ::= ENUMERATED {
    periodical,
    eventTrigger }

PeriodicalReportingCriteria ::= SEQUENCE {
    reportingAmount ReportingAmount DEFAULT ra-
    Infinity,
    reportingInterval ReportingIntervalLong
}

PeriodicalWithReportingCellStatus ::= SEQUENCE {
    periodicalReportingCriteria PeriodicalReportingCriteria,
    reportingCellStatus ReportingCellStatus OPTIONAL
}

PositionEstimate ::= CHOICE {
    ellipsoidPoint EllipsoidPoint,
    ellipsoidPointUncertCircle EllipsoidPointUncertCircle,
    ellipsoidPointUncertEllipse EllipsoidPointUncertEllipse,
    ellipsoidPointAltitude EllipsoidPointAltitude,
    ellipsoidPointAltitudeEllipse EllipsoidPointAltitudeEllipse
}

PositioningMethod ::= ENUMERATED {
    otdoa,
    gps,
    otdoaOrGPS }

PRC ::= INTEGER (-2047..2047)

PrimaryCCPCH-RSCP ::= INTEGER (-115..-25)

Q-HCS ::= INTEGER (0..99)

Q-Offset ::= INTEGER (-50..50)

```

```

Q-OffsetS-N ::= INTEGER (-50..50)

Q-QualMin ::= INTEGER (-20..0)

-- Actual value = (IE value * 2) + 1
Q-RxlevMin ::= INTEGER (-58..-13)

QualityEventResults ::= SEQUENCE (SIZE (1..maxTrCH)) OF
    TransportChannelIdentity

QualityMeasuredResults ::= SEQUENCE {
    blerMeasurementResultsList BLER-MeasurementResultsList OPTIONAL,
    dl-PhysicalChannelBER DL-PhysicalChannelBER OPTIONAL,
    modeSpecificInfo CHOICE {
        fdd SEQUENCE {
            sir SIR OPTIONAL
        },
        tdd SEQUENCE {
            sir-MeasurementResults SIR-MeasurementList OPTIONAL
        }
    }
}

QualityMeasurement ::= SEQUENCE {
    qualityReportingQuantity QualityReportingQuantity OPTIONAL,
    reportCriteria QualityReportCriteria
}

QualityReportCriteria ::= CHOICE {
    qualityReportingCriteria QualityReportingCriteria,
    periodicalReportingCriteria PeriodicalReportingCriteria,
    noReporting NULL
}

QualityReportingCriteria ::= SEQUENCE (SIZE (1..maxTrCH)) OF
    QualityReportingCriteriaSingle

QualityReportingCriteriaSingle ::= SEQUENCE {
    transportChannelIdentity TransportChannelIdentity,
    totalCRC INTEGER (1..512),
    badCRC INTEGER (1..512),
    pendingAfterTrigger INTEGER (1..512)
}

QualityReportingQuantity ::= SEQUENCE {
    dl-TransChBLER BOOLEAN,
    bler-dl-TransChIdList BLER-TransChIdList OPTIONAL,
    modeSpecificInfo CHOICE {
        fdd SEQUENCE {
            sir BOOLEAN
        },
        tdd SEQUENCE {
            sir-TFCS-List SIR-TFCS-List OPTIONAL
        }
    }
}

QualityType ::= ENUMERATED {
    std-10, std-50, cpich-Ec-N0 }

RAT-Type ::= ENUMERATED {
    gsm, is2000, spare1, spare2,
    spare3, spare4, spare5, spare6,
    spare7, spare8, spare9, spare10,
    spare11, spare12, spare13, spare14 }

ReferenceCellPosition ::= CHOICE {
    ellipsoidPoint EllipsoidPoint,
    ellipsoidPointWithAltitude EllipsoidPointAltitude
}

ReferenceCellRelation ::= ENUMERATED {
    first-12-second-3,

```



```

        first-13-second-2,
        first-1-second-23 }

, the reference to ReferenceGPS-TOW is replaced with GPS-TOW-lusec
-- As defined in 23.032 (2D with 24bits for each coordinate)
ReferenceLocationforSIB ::= SEQUENCE {
    ellipsoidPoint          EllipsoidPoint
}

ReferenceQuality ::= ENUMERATED {
    m0-19, m20-39, m40-79,
    m80-159, m160-319, m320-639,
    m640-1319, m1320Plus }

-- Actual value = IE value * 10
ReferenceQuality10 ::= INTEGER (1..32)

-- Actual value = IE value * 50
ReferenceQuality50 ::= INTEGER (1..32)

ReferenceSFN ::= INTEGER (0..4095)

-- Actual value = IE value * 512
ReferenceTimeDifferenceToCell ::= CHOICE {
    -- Actual value = IE value * 40
    accuracy40          INTEGER (0..960),
    -- Actual value = IE value * 256
    accuracy256         INTEGER (0..150),
    -- Actual value = IE value * 2560
    accuracy2560        INTEGER (0..15)
}

RemovedInterFreqCellList ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
    InterFreqCellID

RemovedInterSystemCellList ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
    InterSystemCellID

RemovedIntraFreqCellList ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
    IntraFreqCellID

ReplacementActivationThreshold ::= ENUMERATED {
    notApplicable, t1, t2,
    t3, t4, t5, t6, t7 }

ReportDeactivationThreshold ::= ENUMERATED {
    notApplicable, t1, t2,
    t3, t4, t5, t6, t7 }

ReportingAmount ::= ENUMERATED {
    ra1, ra2, ra4, ra8, ra16, ra32,
    ra64, ra-Infinity }

ReportingCellStatus ::= CHOICE{
    withinActiveSet          MaxNumberOfReportingCellsType1,
    withinMonitoredSetUsedFreq MaxNumberOfReportingCellsType1,
    withinMonitoredUsedFreq  MaxNumberOfReportingCellsType1,
    allActiveplusMonitoredSet MaxNumberOfReportingCellsType3,
    withinVirtualActSet      MaxNumberOfReportingCellsType1,
    withinMonitoredSetNonUsedFreq MaxNumberOfReportingCellsType1,
    withinMonitoredNonUsedFreq MaxNumberOfReportingCellsType1,
    allVirtualActSetplusMonitoredSetNonUsedFreq
        MaxNumberOfReportingCellsType3,
    withinActSetOrVirtualActSet MaxNumberOfReportingCellsType2,
    withinMonitoredUsedFreqOrMonitoredNonUsedFreq
        MaxNumberOfReportingCellsType2
}

ReportingCellStatusOpt ::= SEQUENCE {
    reportingCellStatus ReportingCellStatus OPTIONAL
}

ReportingInfoForCellDCH ::= SEQUENCE {
    intraFreqReportingQuantity IntraFreqReportingQuantity,

```

```

    measurementReportingMode      MeasurementReportingMode,
    reportCriteria                 CellDCH-ReportCriteria
}

ReportingInterval ::=
    ENUMERATED {
        noPeriodicalreporting, ri0-25,
        ri0-5, ril, ri2, ri4, ri8, ril6 }

ReportingIntervalLong ::=
    ENUMERATED {
        ril0, ril0-25, ril0-5, ril1,
        ril2, ril3, ril4, ril6, ril8,
        ril12, ril16, ril20, ril24,
        ril28, ril32, ril64 }

-- Actual value = IE value * 0.5
ReportingRange ::=
    INTEGER (0..29)

Resume-Release ::=
    CHOICE {
        resume
        release
    }

RL-AdditionInfoList ::=
    SEQUENCE (SIZE (1..maxRL-1)) OF
        PrimaryCPICH-Info

RL-InformationLists ::=
    SEQUENCE {
        rl-AdditionInfoList          OPTIONAL,
        rl-RemovalInfoList          OPTIONAL
    }

RL-RemovalInfoList ::=
    SEQUENCE (SIZE (1..maxRL)) OF
        PrimaryCPICH-Info

RLC-BuffersPayload ::=
    ENUMERATED {
        pl0, pl4, pl8, pl16, pl32, pl64, pl128,
        pl256, pl512, pl1024, pl2k, pl4k,
        pl8k, pl16k, pl32k, pl64k, pl128k,
        pl256k, pl512k, pl1024k }

RRC ::=
    INTEGER (-127..127)

SatelliteStatus ::=
    ENUMERATED {
        ns-NN-U,
        es-SN,
        es-NN-U,
        es-NN-C }

SatID ::=
    INTEGER (0..31)

SFN-SFN-ObsTimeDifference ::=
    CHOICE {
        type1                SFN-SFN-ObsTimeDifference1,
        -- Actual value for type2 = IE value * 0.25
        type2                SFN-SFN-ObsTimeDifference2
    }

SFN-SFN-ObsTimeDifference1 ::=
    INTEGER (0..9830399)

SFN-SFN-ObsTimeDifference2 ::=
    INTEGER (-5119..5120)

SFN-SFN-OTD-Type ::=
    ENUMERATED {
        noReport,
        type1,
        type2 }

SIR ::=
    INTEGER (-10..20)

SIR-MeasurementList ::=
    SEQUENCE (SIZE (1..maxCCTrCH)) OF
        SIR-MeasurementResults

SIR-MeasurementResults ::=
    SEQUENCE {
        tfcs-ID                TFCS-IdentityPlain,
        sir-TimeslotList       SIR-TimeslotList
    }

```



```

TimeslotWithISCP ::= SEQUENCE {
    timeslot
    timeslotISCP
}

TimeToTrigger ::= ENUMERATED {
    ttt0, ttt10, ttt20, ttt40, ttt60,
    ttt80, ttt100, ttt120, ttt160,
    ttt200, ttt240, ttt320, ttt640,
    ttt1280, ttt2560, ttt5000 }

TrafficVolumeEventParam ::= SEQUENCE {
    eventID
    reportingThreshold
}

TrafficVolumeEventResults ::= SEQUENCE {
    ul-transportChannelCausingEvent
    trafficVolumeEventIdentity
}

TrafficVolumeEventType ::= ENUMERATED {
    e4a,
    e4b }

TrafficVolumeMeasQuantity ::= CHOICE {
    rlc-BufferPayload
    averageRLC-BufferPayload
    varianceOfRLC-BufferPayload
}

TrafficVolumeMeasSysInfo ::= SEQUENCE {
    trafficVolumeMeasurementID
    trafficVolumeMeasurementObjectList
    trafficVolumeMeasQuantity
    trafficVolumeReportingQuantity
    trafficVolumeMeasRepCriteria
    measurementValidity
    measurementReportingMode
    reportCriteriaSysInf
}

TrafficVolumeMeasuredResults ::= SEQUENCE {
    rb-Identity
    rlc-BufferPayload
    averageRLC-BufferPayload
    varianceOfRLC-BufferPayload
}

TrafficVolumeMeasuredResultsList ::= SEQUENCE (SIZE (1..maxRB)) OF
    TrafficVolumeMeasuredResults

TrafficVolumeMeasurement ::= SEQUENCE {
    trafficVolumeMeasurementObjectList
    trafficVolumeMeasQuantity
    trafficVolumeReportingQuantity
    measurementValidity
    reportCriteria
}

TrafficVolumeMeasurementObjectList ::= SEQUENCE (SIZE (1..maxTrCH)) OF
    TransportChannelIdentity

TrafficVolumeReportCriteria ::= CHOICE {
    trafficVolumeReportingCriteria
    periodicalReportingCriteria
    noReporting
}

TrafficVolumeReportCriteriaSysInfo ::= CHOICE {
    trafficVolumeReportingCriteria
    periodicalReportingCriteria
}

```

```

TrafficVolumeReportingCriteria ::= SEQUENCE {
    transChCriteriaList          TransChCriteriaList          OPTIONAL,
    timeToTrigger                TimeToTrigger                OPTIONAL,
    pendingTimeAfterTrigger      PendingTimeAfterTrigger      OPTIONAL,
    tx-InterruptionAfterTrigger  TX-InterruptionAfterTrigger  OPTIONAL,
    reportingAmount              ReportingAmount              OPTIONAL
}

TrafficVolumeReportingQuantity ::= SEQUENCE {
    rlc-RB-BufferPayload         BOOLEAN,
    rlc-RB-BufferPayloadAverage  BOOLEAN,
    rlc-RB-BufferPayloadVariance BOOLEAN
}

TrafficVolumeThreshold ::=          ENUMERATED {
    th8, th16, th32, th64, th128,
    th256, th512, th1024, th1536,
    th2048, th3072, th4096, th6144,
    th8192 }

TransChCriteria ::=                SEQUENCE {
    ul-transportChannelID        TransportChannelIdentity      OPTIONAL,
    eventSpecificParameters      SEQUENCE (SIZE (1..maxMeasParEvent)) OF
    TrafficVolumeEventParam      OPTIONAL
}

TransChCriteriaList ::=            SEQUENCE (SIZE (1..maxTrCH)) OF
    TransChCriteria

TransferMode ::=                   ENUMERATED {
    acknowledgedModeRLC,
    unacknowledgedModeRLC }

TransmittedPowerThreshold ::=      INTEGER (-50..33)

TriggeringCondition ::=            ENUMERATED {
    activeSetCellsOnly,
    monitoredCellsOnly,
    activeSetAndMonitoredCells }

TX-InterruptionAfterTrigger ::=    ENUMERATED {
    txiat0-25, txiat0-5, txiat1,
    txiat2, txiat4, txiat8, txiat16 }

UDRE ::=                           ENUMERATED {
    lessThan1,
    between1-and-4,
    between4-and-8,
    over8 }

UE-6AB-Event ::=                   SEQUENCE {
    timeToTrigger                TimeToTrigger,
    transmittedPowerThreshold    TransmittedPowerThreshold
}

UE-6FG-Event ::=                   SEQUENCE {
    timeToTrigger                TimeToTrigger,
    ue-RX-TX-TimeDifferenceThreshold UE-RX-TX-TimeDifferenceThreshold
}

UE-AutonomousUpdateMode ::=        CHOICE {
    on                            NULL,
    onWithNoReporting             NULL,
    off                            RL-InformationLists
}

UE-InternalEventParam ::=          CHOICE {
    event6a                       UE-6AB-Event,
    event6b                       UE-6AB-Event,
    event6c                       TimeToTrigger,
    event6d                       TimeToTrigger,
    event6e                       TimeToTrigger,
    event6f                       UE-6FG-Event,
}

```

```

    event6g                                UE-6FG-Event
}

UE-InternalEventParamList ::=              SEQUENCE (SIZE (1..maxMeasEvent)) OF
                                           UE-InternalEventParam

UE-InternalEventResults ::=               CHOICE {
    event6a                                NULL,
    event6b                                NULL,
    event6c                                NULL,
    event6d                                NULL,
    event6e                                NULL,
    event6f                                PrimaryCPICH-Info,
    event6g                                PrimaryCPICH-Info
}

UE-InternalMeasQuantity ::=               SEQUENCE {
    measurementQuantity                    UE-MeasurementQuantity,
    filterCoefficient                      FilterCoefficient,
    fcl                                     DEFAULT
}

UE-InternalMeasuredResults ::=            SEQUENCE {
    modeSpecificInfo                       CHOICE {
        fdd                                 SEQUENCE {
            ue-TransmittedPowerFDD         UE-TransmittedPower           OPTIONAL,
            ue-RX-TX-ReportEntryList      UE-RX-TX-ReportEntryList     OPTIONAL
        },
        tdd                                 SEQUENCE {
            ue-TransmittedPowerTDD-List    UE-TransmittedPowerTDD-List  OPTIONAL,
            appliedTA                       UL-TimingAdvance             OPTIONAL
        }
    }
}

UE-InternalMeasurement ::=               SEQUENCE {
    ue-InternalMeasQuantity                UE-InternalMeasQuantity       OPTIONAL,
    ue-InternalReportingQuantity           UE-InternalReportingQuantity  OPTIONAL,
    reportCriteria                         UE-InternalReportCriteria
}

UE-InternalMeasurementSysInfo ::=        SEQUENCE {
    ue-InternalMeasurementID              MeasurementIdentityNumber     DEFAULT 5,
    ue-InternalMeasQuantity               UE-InternalMeasQuantity
}

UE-InternalReportCriteria ::=            CHOICE {
    ue-InternalReportingCriteria           UE-InternalReportingCriteria,
    periodicalReportingCriteria           PeriodicalReportingCriteria,
    noReporting                            NULL
}

UE-InternalReportingCriteria ::=         SEQUENCE {
    ue-InternalEventParamList             UE-InternalEventParamList     OPTIONAL
}

UE-InternalReportingQuantity ::=         SEQUENCE {
    ue-TransmittedPower                    BOOLEAN,
    modeSpecificInfo                       CHOICE {
        fdd                                 SEQUENCE {
            ue-RX-TX-TimeDifferece        BOOLEAN
        },
        tdd                                 SEQUENCE {
            appliedTA                       BOOLEAN
        }
    }
}

-- TABULAR: For TDD only the first two values are used.
UE-MeasurementQuantity ::=               ENUMERATED {
    ue-TransmittedPower,
    utra-Carrier-RSSI,
    ue-RX-TX-TimeDifference }

```

```

UE-RX-TX-ReportEntry ::=          SEQUENCE {
    primaryCPICH-Info              PrimaryCPICH-Info,
    ue-RX-TX-TimeDifference        UE-RX-TX-TimeDifference
}

UE-RX-TX-ReportEntryList ::=      SEQUENCE (SIZE (1..maxRL)) OF
    UE-RX-TX-ReportEntry

UE-RX-TX-TimeDifference ::=       INTEGER (876..1172)

UE-RX-TX-TimeDifferenceThreshold ::= INTEGER (769..1280)

UE-State ::=                      ENUMERATED {
    cell-DCH, all-But-Cell-DCH, all-States }

UE-TransmittedPower ::=          INTEGER (-50..33)

UE-TransmittedPowerTDD-List ::=  SEQUENCE (SIZE (1..maxTS)) OF
    UE-TransmittedPower

UTRA-CarrierRSSI ::=             INTEGER (-95..-30)

UTRAN-ReferenceTime ::=          SEQUENCE {
    gps-TOW                        GPS-TOW-lusec,
    sfn                            INTEGER (0..4095)
}

VarianceOfRLC-BufferPayload ::=  ENUMERATED {
    plv0, plv4, plv8, plv16, plv32, plv64,
    plv128, plv256, plv512, plv1024,
    plv2k, plv4k, plv8k, plv16k }

-- Actual value = IE value * 0.1
W ::=                             INTEGER (0..20)

```

END

11.3.8 Other information elements

```
Other-IEs DEFINITIONS AUTOMATIC TAGS ::=
```

```
BEGIN
```

```
IMPORTS
```

```

    CN-DomainSysInfoList,
    NAS-SystemInformationGSM-MAP,
    PLMN-Type
FROM CoreNetwork-IEs

    CellAccessRestriction,
    CellIdentity,
    CellSelectReselectInfoSIB-3-4,
    URA-IdentityList
FROM UTRANMobility-IEs

    CapabilityUpdateRequirement,
    CPCH-Parameters,
    DRAC-SysInfoList,
    ProtocolErrorCause,
    UE-ConnTimersAndConstants,
    UE-DCHTimersAndConstants,
    UE-IdleTimersAndConstants
FROM UserEquipment-IEs

    PredefinedConfigIdentity,
    PredefinedConfigValueTag,
    PreDefRadioConfiguration
FROM RadioBearer-IEs

    AICH-PowerOffset,
    ConstantValue,
    CPCH-PersistenceLevelsList,

```

```

CPCH-SetInfoList,
CSICH-PowerOffset,
DynamicPersistenceLevelList,
IndividualTS-InterferenceList,
MidambleConfiguration,
PDSCH-SysInfoList,
PICH-PowerOffset,
PRACH-SystemInformationList,
PrimaryCCPCH-Info,
PrimaryCCPCH-TX-Power,
PUSCH-SysInfoList,
SCCPCH-SystemInformationList,
UL-Interference
FROM PhysicalChannel-IEs

FACH-MeasurementOccasionInfo,
LCS-Alma-SIB-DataList,
LCS-DGPS-SIB-Data,
LCS-Ephe-SIB-Data,
LCS-Cipher-GPS-Data-IndicatorAssistanceSIB,
LCS-OTDOA-AssistanceSIB,
MeasurementControlSysInfo
FROM Measurement-IEs

ANSI-41-GlobalServiceRedirectInfo,
ANSI-41-PrivateNeighborListInfo,
ANSI-41-RAND-Information,
ANSI-41-UserZoneID-Information
FROM ANSI-41-IEs

maxInterSysMessages,
maxSIB,
maxSIB-FACH
FROM Constant-definitions;

BCC ::=                                INTEGER (0..7)

BCCH-ModificationInfo ::=             SEQUENCE {
    mib-ValueTag                       MIB-ValueTag,
    bcch-ModificationTime              BCCH-ModificationTime              OPTIONAL
}

-- Actual value = IE value * 8
BCCH-ModificationTime ::=             INTEGER (0..511)

BSIC ::=                               SEQUENCE {
    ncc                                 NCC,
    bcc                                 BCC
}

CBS-DRX-Level1Information ::=         SEQUENCE {
    ctch-AllocationPeriod              INTEGER (1..256),
    cbs-FrameOffset                    INTEGER (0..255)
}

CDMA2000-Message ::=                 SEQUENCE {
    msg-Type                            BIT STRING (SIZE (8)),
    payload                             BIT STRING (SIZE (1..512))
}

CDMA2000-MessageList ::=              SEQUENCE (SIZE (1..maxInterSysMessages)) OF
                                        CDMA2000-Message

CellValueTag ::=                      INTEGER (1..4)

GSM-MessageList ::=                   SEQUENCE (SIZE (1..maxInterSysMessages)) OF
                                        BIT STRING (SIZE (1..512))

InterSystemHO-Failure ::=             SEQUENCE {
    interSystemHO-FailureCause         InterSystemHO-FailureCause         OPTIONAL,
    interSystemMessage                 InterSystemMessage                 OPTIONAL
}

InterSystemHO-FailureCause ::=        CHOICE {
    configurationUnacceptable          NULL,
    physicalChannelFailure             NULL,
}

```



```

        protocolError                ProtocolErrorInformation,
        unspecified                   NULL,
        spare1                       NULL,
        spare2                       NULL,
        spare3                       NULL
    }

InterSystemMessage ::=                CHOICE {
    gsm                               SEQUENCE {
        gsm-MessageList              GSM-MessageList
    },
    cdma2000                          SEQUENCE {
        cdma2000-MessageList         CDMA2000-MessageList
    },
    spare1                           NULL,
    spare2                           NULL,
    spare3                           NULL,
    spare4                           NULL,
    spare5                           NULL,
    spare6                           NULL
}

MasterInformationBlock ::=           SEQUENCE {
    mib-ValueTag                     MIB-ValueTag,
    plmn-Type                        PLMN-Type,
    -- TABULAR: The PLMN identity and ANSI-41 core network information
    -- are included in PLMN-Type.
    sib-ReferenceList                SIB-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 {
        type1                        SEQUENCE {
            protocolErrorCause        ProtocolErrorCause
        },
        spare                        NULL
    }
}

SchedulingInformation ::=           SEQUENCE {
    sib-Type                          SIB-TypeAndTag,
    scheduling                        SEQUENCE {
        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.
        rep4                         INTEGER (0..1),
        rep8                         INTEGER (0..3),
        rep16                        INTEGER (0..7),
        rep32                        INTEGER (0..15),
        rep64                        INTEGER (0..31),
        rep128                       INTEGER (0..63),
        rep256                       INTEGER (0..127),
        rep512                       INTEGER (0..255),
        rep1024                      INTEGER (0..511),
        rep2048                      INTEGER (0..1023),
        rep4096                      INTEGER (0..2047)
    },
    sib-PosOffsetInfo                SibOFF-List                                OPTIONAL
}
}

```



```

SibOFF-List ::=                               SEQUENCE (SIZE (1..15)) OF
                                              SibOFF

SysInfoType1 ::=                             SEQUENCE {
  -- Other IEs
  sib-ReferenceList                          SIB-ReferenceList          OPTIONAL,
  -- Core network IEs
  cn-CommonGSM-MAP-NAS-SysInfo              NAS-SystemInformationGSM-MAP,
  cn-DomainSysInfoList                      CN-DomainSysInfoList,
  -- User equipment IEs
  ue-IdleTimersAndConstants                  UE-IdleTimersAndConstants,
  ue-DCHTimersAndConstants                  UE-DCHTimersAndConstants,
  -- Extension mechanism for non- release99 information
  nonCriticalExtensions                      SEQUENCE {}                OPTIONAL
}

SysInfoType2 ::=                             SEQUENCE {
  -- Other IEs
  sib-ReferenceList                          SIB-ReferenceList          OPTIONAL,
  -- UTRAN mobility IEs
  ura-IdentityList                          URA-IdentityList,
  -- User equipment IEs
  ue-ConnTimersAndConstants                  UE-ConnTimersAndConstants,
  -- Extension mechanism for non- release99 information
  nonCriticalExtensions                      SEQUENCE {}                OPTIONAL
}

SysInfoType3 ::=                             SEQUENCE {
  -- Other IEs
  sib-ReferenceList                          SIB-ReferenceList          OPTIONAL,
  -- UTRAN mobility IEs
  cellIdentity                              CellIdentity,
  cellSelectReselectInfo                    CellSelectReselectInfoSIB-3-4,
  cellAccessRestriction                    CellAccessRestriction,
  -- Extension mechanism for non- release99 information
  nonCriticalExtensions                      SEQUENCE {}                OPTIONAL
}

SysInfoType4 ::=                             SEQUENCE {
  -- Other IEs
  sib-ReferenceList                          SIB-ReferenceList          OPTIONAL,
  -- UTRAN mobility IEs
  cellIdentity                              CellIdentity,
  cellSelectReselectInfo                    CellSelectReselectInfoSIB-3-4,
  cellAccessRestriction                    CellAccessRestriction,
  -- Extension mechanism for non- release99 information
  nonCriticalExtensions                      SEQUENCE {}                OPTIONAL
}

SysInfoType5 ::=                             SEQUENCE {
  -- Other IEs
  sib-ReferenceList                          SIB-ReferenceList          OPTIONAL,
  -- Physical channel IEs
  modeSpecificInfo                          CHOICE {
    fdd                                       SEQUENCE {
      pich-PowerOffset                        PICH-PowerOffset,
      aich-PowerOffset                        AICH-PowerOffset
    },
    tdd                                       SEQUENCE {
      pusch-SysInfo                          PUSCH-SysInfoList          OPTIONAL,
      pdsch-SysInfo                          PDSCH-SysInfoList          OPTIONAL,
      midambleConfiguration                  MidambleConfiguration      OPTIONAL
    }
  },
  primaryCCPCH-Info                          PrimaryCCPCH-Info          OPTIONAL,
  prach-SystemInformationList                PRACH-SystemInformationList,
  sccpch-SystemInformationList              SCCPCH-SystemInformationList,
  cbs-DRX-Level1Information                  CBS-DRX-Level1Information  OPTIONAL,
  -- Conditional on any of the CTCH indicator IEs in
  -- sccpch-SystemInformationList
  -- Extension mechanism for non- release99 information
  nonCriticalExtensions                      SEQUENCE {}                OPTIONAL
}

```

```

}

SysInfoType6 ::=                               SEQUENCE {
-- Other IEs
  sib-ReferenceList                            SIB-ReferenceList                            OPTIONAL,
-- Physical channel IEs
  modeSpecificInfo                             CHOICE {
    fdd                                         SEQUENCE {
      pich-PowerOffset                         PICH-PowerOffset,
      aich-PowerOffset                         AICH-PowerOffset,
      csich-PowerOffset                       CSICH-PowerOffset                            OPTIONAL
    },
    tdd                                         SEQUENCE {
      pusch-SysInfo                           PUSCH-SysInfoList                            OPTIONAL,
      pdsch-SysInfo                           PDSCH-SysInfoList                            OPTIONAL,
      midambleConfiguration                   MidambleConfiguration                        OPTIONAL
    }
  },
  primaryCCPCH-Info                            PrimaryCCPCH-Info                            OPTIONAL,
  prach-SystemInformationList                  PRACH-SystemInformationList,
  sCCPCH-SystemInformationList                 SCCPCH-SystemInformationList,
  cbs-DRX-Level1Information                    CBS-DRX-Level1Information                    OPTIONAL,
-- Conditional on any of the CTCH indicator IEs in
-- sCCPCH-SystemInformationList
-- Extension mechanism for non- release99 information
  nonCriticalExtensions                        SEQUENCE {}                                  OPTIONAL
}

SysInfoType7 ::=                               SEQUENCE {
-- Other IEs
  sib-ReferenceList                            SIB-ReferenceList                            OPTIONAL,
-- Physical channel IEs
  modeSpecificInfo                             CHOICE {
    fdd                                         SEQUENCE {
      ul-Interference                          UL-Interference
    },
    tdd                                         NULL
  },
  prach-Information-SIB5-List                  DynamicPersistenceLevelList,
  prach-Information-SIB6-List                  DynamicPersistenceLevelList                    OPTIONAL,
-- Extension mechanism for non- release99 information
  nonCriticalExtensions                        SEQUENCE {}                                  OPTIONAL
}

SysInfoType8 ::=                               SEQUENCE {
-- Other IEs
  sib-ReferenceList                            SIB-ReferenceList                            OPTIONAL,
-- User equipment IEs
  cpch-Parameters                             CPCH-Parameters,
-- Physical channel IEs
  cpch-SetInfoList                             CPCH-SetInfoList,
-- Extension mechanism for non- release99 information
  nonCriticalExtensions                        SEQUENCE {}                                  OPTIONAL
}

SysInfoType9 ::=                               SEQUENCE {
-- Other IEs
  sib-ReferenceList                            SIB-ReferenceList                            OPTIONAL,
-- Physical channel IEs
  cpch-PersistenceLevelsList                  CPCH-PersistenceLevelsList,
-- Extension mechanism for non- release99 information
  nonCriticalExtensions                        SEQUENCE {}                                  OPTIONAL
}

SysInfoType10 ::=                              SEQUENCE {
-- Other IEs
  sib-ReferenceList                            SIB-ReferenceList                            OPTIONAL,
-- User equipment IEs
  drac-SysInfoList                             DRAC-SysInfoList,
-- Extension mechanism for non- release99 information
  nonCriticalExtensions                        SEQUENCE {}                                  OPTIONAL
}

```

```

SysInfoType11 ::=                               SEQUENCE {
-- Other IEs
  sib-ReferenceList                             SIB-ReferenceList           OPTIONAL,
-- Measurement IEs
  fach-MeasurementOccasionInfo                 FACH-MeasurementOccasionInfo OPTIONAL,
  measurementControlSysInfo                   MeasurementControlSysInfo,
-- Extension mechanism for non- release99 information
  nonCriticalExtensions                         SEQUENCE {}                OPTIONAL
}

SysInfoType12 ::=                               SEQUENCE {
-- Other IEs
  sib-ReferenceList                             SIB-ReferenceList           OPTIONAL,
-- Measurement IEs
  fach-MeasurementOccasionInfo                 FACH-MeasurementOccasionInfo OPTIONAL,
  measurementControlSysInfo                   MeasurementControlSysInfo,
-- Extension mechanism for non- release99 information
  nonCriticalExtensions                         SEQUENCE {}                OPTIONAL
}

SysInfoType13 ::=                               SEQUENCE {
-- Other IEs
  sib-ReferenceList                             SIB-ReferenceList           OPTIONAL,
-- Core network IEs
  cn-DomainSysInfoList                       CN-DomainSysInfoList,
-- User equipment IEs
  ue-IdleTimersAndConstants                   UE-IdleTimersAndConstants   OPTIONAL,
  capabilityUpdateRequirement                 CapabilityUpdateRequirement  OPTIONAL,
-- Extension mechanism for non- release99 information
  nonCriticalExtensions                         SEQUENCE {}                OPTIONAL
}

SysInfoType13-1 ::=                             SEQUENCE {
-- ANSI-41 IEs
  ansi-41-RAND-Information                    ANSI-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
  nonCriticalExtensions                         SEQUENCE {}                OPTIONAL
}

SysInfoType13-3 ::=                             SEQUENCE {
-- ANSI-41 IEs
  ansi-41-PrivateNeighborListInfo            ANSI-41-PrivateNeighborListInfo,
-- Extension mechanism for non- release99 information
  nonCriticalExtensions                         SEQUENCE {}                OPTIONAL
}

SysInfoType13-4 ::=                             SEQUENCE {
-- ANSI-41 IEs
  ansi-41-GlobalServiceRedirectInfo           ANSI-41-GlobalServiceRedirectInfo,
-- Extension mechanism for non- release99 information
  nonCriticalExtensions                         SEQUENCE {}                OPTIONAL
}

SysInfoType14 ::=                               SEQUENCE {
-- Other IEs
  sib-ReferenceList                             SIB-ReferenceList           OPTIONAL,
-- Physical channel IEs
  primaryCCPCH-TX-Power                       PrimaryCCPCH-TX-Power       OPTIONAL,
  individualTS-InterferenceList               IndividualTS-InterferenceList,
  prach-ConstantValue                         ConstantValue                OPTIONAL,
  dpch-ConstantValue                         ConstantValue                OPTIONAL,
  pusch-ConstantValue                         ConstantValue                OPTIONAL,
-- Extension mechanism for non- release99 information
  nonCriticalExtensions                         SEQUENCE {}                OPTIONAL
}

SysInfoType15 ::=                               SEQUENCE {

```

```

-- Other IEs
  sib-ReferenceList          SIB-ReferenceList          OPTIONAL,
-- Measurement IEs
  lcs-GPS-Assistance        LCS-Cipher-GPS-Data-IndicatorAssistanceSIB _____ OPTI
  lcs-OTDOA-Assistance      LCS-OTDOA-AssistanceSIB          OPTIONAL,
-- Extension mechanism for non-release99 information
  nonCriticalExtensions      SEQUENCE {}                OPTIONAL
}

SysInfoType15-1 ::=          SEQUENCE {
  -- DGPS corrections
  lcs-DGPS-SIB-Data          LCS-DGPS-SIB-Data
}

SysInfoType15-2 ::=          SEQUENCE {
  -- Ephemeris and clock corrections
  lcs-Ephe-SIB-Data          LCS-Ephe-SIB-Data
}

SysInfoType15-3 ::=          SEQUENCE {
  -- Almanac and other data
  transmissionTOW            INTEGER (0..1048575),
  satMask                    BIT STRING (SIZE (32)),
  lsbTOW                     BIT STRING (SIZE (8)),
  lcs-Alma-SIB-DataList      LCS-Alma-SIB-DataList
}

SysInfoType16 ::=           SEQUENCE {
  -- Other IEs
  sib-ReferenceList          SIB-ReferenceList          OPTIONAL,
  -- Radio bearer IEs
  preDefinedRadioConfiguration PreDefRadioConfiguration,
  -- Extension mechanism for non-release99 information
  nonCriticalExtensions      SEQUENCE {}                OPTIONAL
}

END

```

CHANGE REQUEST

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

25.331 CR 461r1

Current Version: **3.3.0**

GSM (AA.BB) or 3G (AA.BBB) specification number ↑

↑ CR number as allocated by MCC support team

For submission to: **TSG-RAN # 9**
list expected approval meeting # here
↑

for approval
For information

strategic
non-strategic (for SMG use only)

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

Proposed change affects:

(at least one should be marked with an X)

(U)SIM

ME

UTRAN / Radio

Core Network

Source:

TSG-RAN WG2

Date: 4th July 2000

Subject:

Support of cell update confirm on CCCH

Work item:

Category:

(only one category shall be marked with an X)

- F Correction
A Corresponds to a correction in an earlier release
B Addition of feature
C Functional modification of feature
D Editorial modification

Release:

- Phase 2
Release 96
Release 97
Release 98
Release 99
Release 00

Reason for change:

Currently the procedure for cell update confirm does not allow for the possibility to transfer this message across the CCCH. The URA update confirm message does however, allow for the utilisation of the CCCH for the transfer of this message. The possible use of the CCCH for the transfer of the URA update confirm message is supported to reduce complexity for the transfer of this message across the lur. The CCCH is only used when ciphering is not required for this message, otherwise the DCCH is used. The optional use of the CCCH for the transfer of the cell update confirm message would also simplify the implementation over the lur, when ciphering is not required, and also align this procedure with the URA update confirmation procedure.

Clauses affected:

8.3.1, 10.2.5, 11.1, 11.2

Other specs affected:

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

Other comments:



help.doc

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

8.3.1 Cell update

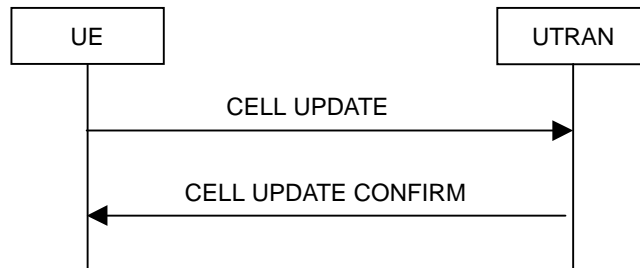


Figure 38: Cell update procedure, basic flow

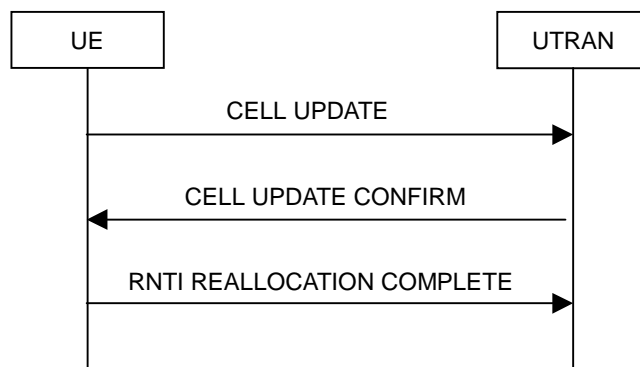


Figure 39: Cell update procedure with RNTI reallocation

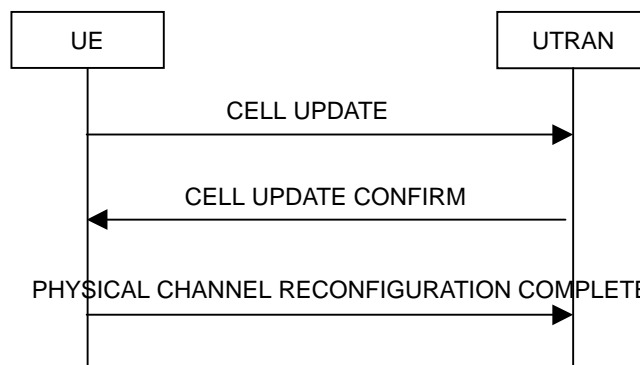


Figure 40: Cell update procedure with physical channel reconfiguration

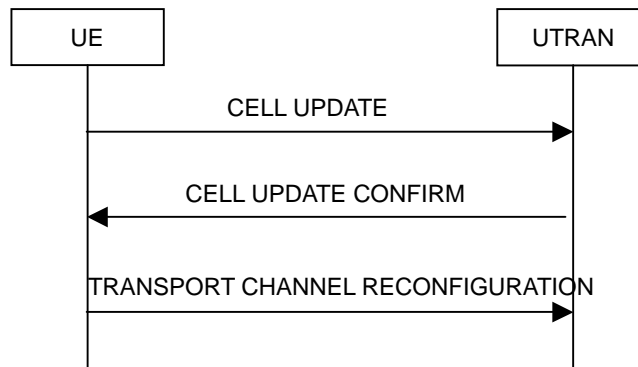


Figure 41: Cell update procedure with transport channel reconfiguration

8.3.1.1 General

The main purpose of the cell update procedure is to update UTRAN with the current cell of the UE after cell reselection in CELL_FACH or CELL_PCH state. It may also be used for supervision of the RRC connection, even if no cell reselection takes place. The cell update procedure can also be used to reset the AM RLC entities for the signalling link and the u-plane link. The UE can use a CELL UPDATE message to notify the unrecoverable error (Amount of the retransmission of RESET PDU reaches the value of Max DAT and receives no ACK) in an AM RLC entity for the signalling link.

NOTE: PHYSICAL/TRANSPORT CHANNEL RECONFIGURATION COMPLETE message is only used when common channels are configured (doesn't apply to dedicated channels)

8.3.1.2 Initiation

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

- Upon initiation of the procedure, the UE shall set the variable `PROTOCOL_ERROR_INDICATOR` to FALSE.
- In CELL_FACH or CELL_PCH state, the UE shall perform the cell update procedure when selecting another cell (cell reselection).
- In CELL_FACH and CELL_PCH state, the UE shall perform the cell update procedure upon expiry of T305 while the UE is in the service area. The UE shall only perform this periodic cell updating if configured by means of the IE "Information for periodical cell and URA update" in System Information Block Type 2. The UE shall initially start timer T305 upon entering CELL_FACH or CELL_PCH state (periodic cell update).
- In transition to CELL_DCH to CELL_FACH by receiving RB control message with no indication which cell to camp, the UE should select a cell and perform the cell update procedure (RB control response).
- In CELL_PCH state and URA_PCH state, the UE shall initiate the cell update procedure if it wants to transmit UL data (UL data transmission).
- In CELL_PCH and URA_PCH state, the UE shall perform the cell update procedure when receiving a PAGING TYPE 1 message as in subclause 8.1.2.3 (paging response).
- moving to CELL_FACH state, if not already in that state.
- consider stored C-RNTI to be invalid until CELL UPDATE CONFIRM message is received when UE detects a new cell.
- suspend data transmission on RB 3 and upward, if RLC-AM or RLC-UM is used on those radio bearers.
- sending a CELL UPDATE message on the uplink CCCH.

- starting timer T302 and resetting counter V302.

The IE "cell update cause" shall be used as follows:

- In case of cell reselection: "cell reselection";
- In case of periodic cell updating: "periodic cell update";
- In case of RB control response: "RB control response";
- In case of UL data transmission: "UL data transmission";
- In case of paging response: "paging response".

If the value of the variable `PROTOCOL_ERROR_INDICATOR` is TRUE, the UE shall set the IE "Protocol error indicator" to TRUE and include the IE "Protocol error information" set to the value of the variable `PROTOCOL_ERROR_INFORMATION`.

If the value of the variable `PROTOCOL_ERROR_INDICATOR` is FALSE, the UE shall set the IE "Protocol error indicator" to FALSE.

The IE "AM_RLC error indication" shall be set when the UE detects unrecoverable error (amount of the retransmission of RESET PDU reaches the value of Max DAT and receives no ACK) in an AM RLC entity for the signalling link. The IE "AM_RLC error indication (for u-plane)" shall be set when the UE detects unrecoverable error in an AM RLC entity (for u-plane) for for u-plane link.

UE shall include "the maximum value in the currently used HFNs among CS and PS domains" + "1" in IE "HFN" in CELL UPDATE message.

The UE shall include an intra-frequency measurement report in the CELL UPDATE message, as specified in the IE "Intra-frequency reporting quantity for RACH reporting" and the IE "Maximum number of reported cells on RACH" in system information block type 12.

8.3.1.3 T305 expiry and the UE detects that it is out of service area

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

- start timer T307;
- search for cell to camp.

8.3.1.3.1 Re-entering of service area

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

- transmit a CELL UPDATE message on the uplink CCCH

8.3.1.3.2 Expiry of timer T307

When the T307 expires, the UE shall:

- move to idle mode;
- release all dedicated resources;
- indicate a RRC connection failure to the non-access stratum.

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

8.3.1.4 Reception of an CELL UPDATE message by the UTRAN

When the UTRAN receives a CELL UPDATE message, it should transmit a CELL UPDATE CONFIRM message on the downlink DCCH [or optionally on the CCCH but only if ciphering is not required.](#)

When the UTRAN detects AM_RLC unrecoverable error (Amount of the retransmission of RESET PDU reaches the value of Max DAT and receives no ACK), it waits for CELL UPDATE message from the UE and when the UTRAN receives it, UTRAN commands the UE to reset AM_RLC by sending CELL UPDATE CONFIRM message. This procedure can be used not only in the case of AM_RLC unrecoverable error but also in the case that UTRAN wants to reset AM_RLC for other reasons such as

in the case when SRNC Relocation is initiated without keeping RLC status (current counters) from old SRNC to new SRNC.

8.3.1.5 Reception of the CELL UPDATE CONFIRM message by the UE

Upon receiving the CELL UPDATE CONFIRM message (old C-RNTI or U-RNTI may be used for MAC header), the UE shall stop timer T302.

The UE shall delete old C-RNTI when a new C-RNTI is allocated. If not allocated, use old C-RNTI as a valid C-RNTI.

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

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

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

If IE "DRX indicator" in the CELL UPDATE CONFIRM message is not set to "no DRX", no RRC response message is sent to the UTRAN.

If the CELL UPDATE CONFIRM message does not include IE "new C-RNTI", IE "new U-RNTI", IE "PRACH info" nor IE "Secondary CCPCH info", following actions are taken;

- If cell update is due to "periodical cell update", no RRC response message is sent to the UTRAN.
- If cell update is due to "UL data transmission" or "paging response" and if there is no difference in TFS and/or TFCS stored in UE compared to PRACH/SCCPCH indicated in the broadcast system information, PHYSICAL CHANNEL RECONFIGURATION COMPLETE message is sent to the UTRAN using the PRACH indicated in the broadcast system information.
- If cell update is due to "UL data transmission" or "paging response" and if there is a difference in TFS and/or TFCS stored in UE compared to PRACH/SCCPCH indicated in the broadcast system information,, TRANSPORT CHANNEL RECONFIGURATION COMPLETE message is sent to the UTRAN using the PRACH indicated in the broadcast system information.
- No case for cell update due to "cell reselection" or "RB control response".

If the CELL UPDATE CONFIRM message includes the IE "new C-RNTI" and optionally the IE "new U-RNTI" but does not include IE "PRACH info" or IE "Secondary CCPCH info", the UE shall update its identities and following actions are taken:

- If cell update is due to "periodical cell update", transmit an RNTI REALLOCATION COMPLETE message on the uplink DCCH using the PRACH stored in the UE.
- If cell update is due to "cell reselection", "UL data transmission" or "paging response" and if there is no difference in TFS and/or TFCS stored in UE compared to PRACH/SCCPCH indicated in the broadcast system information, PHYSICAL CHANNEL RECONFIGURATION COMPLETE message is sent to the UTRAN using the PRACH indicated in the broadcast system information.
- If cell update is due to "UL data transmission" or "paging response" and if there is a difference in TFS and/or TFCS stored in UE compared to PRACH/SCCPCH indicated in the broadcast system information,, TRANSPORT CHANNEL RECONFIGURATION COMPLETE message is sent to the UTRAN using the PRACH indicated in the broadcast system information.
- If cell update is due to "RB control response", transmit a RB control response message on the uplink DCCH using the PRACH indicated in the broadcast system information.

If the CELL UPDATE CONFIRM message includes the IE "RLC reset indicator (for C-plane)" the UE shall reset the AM RLC entities on C-plane.

If the CELL UPDATE CONFIRM message includes the IE "RLC reset indicator (for U-plane)" the UE shall reset the AM RLC entities on U-plane.

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

- Perform the actions stated in subclauses 8.5.7.6.2 and 8.5.7.6.3.

- Update its identities if the CELL UPDATE CONFIRM message includes the IE "new C-RNTI" and optionally the IE "new U-RNTI".
- If cell update is due to "periodical cell update", "cell reselection", "UL data transmission" or "paging response", transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using the PRACH indicated in CELL UPDATE CONFIRM message.
- If cell update is due to "RB control response", transmit a RB control response message on the uplink DCCH using the PRACH indicated in the broadcast system information.

The UE shall enter a state according to subclause 8.5.8 applied on the CELL UPDATE CONFIRM message.

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

In case the UE does not end in CELL_FACH state, it shall delete its C-RNTI and PRACH/SCCPCH information.

If the UE remains in CELL_FACH state and the CELL UPDATE CONFIRM message includes the IE "New C-RNTI" the UE shall then resume data transmission on RB 3 and upward, if RLC-AM or RLC-UM is used on those radio bearers.

8.3.1.6 Invalid CELL UPDATE CONFIRM message

If the UE receives an CELL UPDATE CONFIRM message, which contains a protocol error causing the variable PROTOCOL_ERROR_REJECT to be set to TRUE according to clause 16, the UE shall perform procedure specific error handling as follows:

The UE shall check the value of V302 and

- If V302 is smaller or equal than N302, the UE shall set the variable PROTOCOL_ERROR_INDICATOR to TRUE, retransmit a CELL UPDATE message on the uplink CCCH, restart timer T302 and increase counter V302. The IE "Cell update cause" shall be set to the event causing the transmission of the CELL UPDATE message, see subclause 8.3.1.2.
- If V302 is greater than N302, the UE shall enter idle mode. The procedure ends and a connection failure may be indicated to the non-access stratum. Other actions the UE shall perform when entering idle mode from connected mode are specified in subclause 8.5.2.

8.3.1.7 T302 expiry or cell reselection

- Upon expiry of timer T302; and/or
- upon reselection of another UTRA cell when waiting for the CELL UPDATE CONFIRM message,

the UE shall check the value of V302 and:

- If V302 is smaller or equal than N302, the UE shall retransmit a CELL UPDATE message on the uplink CCCH, restart timer T302 and increase counter V302. The IE "Cell update cause" shall be set to the event causing the transmission of the CELL UPDATE message, see subclause 8.3.1.2.
- If V302 is greater than N302, the UE shall enter idle mode. The procedure ends and a connection failure may be indicated to the non-access stratum. Other actions the UE shall perform when entering idle mode from connected mode are specified in subclause 8.5.2.

8.3.1.8 Reception of the RNTI REALLOCATION COMPLETE message by the UTRAN

See subclause 8.3.3.4.

8.3.1.9 Reception of the PHYSICAL CHANNEL RECONFIGURATION COMPLETE message by the UTRAN

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

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

When the UTRAN receives TRANSPORT CHANNEL RECONFIGURATION message, the procedure ends.

|

*******NEXT MODIFIED SECTION *******

10.2.5 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
Message Type	MP		Message Type	
UE Information Elements				
U-RNTI	CV-CCCH		U-RNTI 10.3.3.45	
Integrity check info	CH		Integrity check info 10.3.3.15	
Integrity protection mode info	OP		Integrity protection mode info 10.3.3.18	
Ciphering mode info	OP		Ciphering mode info 10.3.3.5	
New U-RNTI	OP		U-RNTI 10.3.3.45	
New C-RNTI	OP		C-RNTI 10.3.3.8	
DRX Indicator	MP		DRX Indicator 10.3.3.10	
UTRAN DRX cycle length coefficient	MD		UTRAN DRX cycle length coefficient 10.3.3.47	Default value is the existing DRX cycle length coefficient
RLC reset indicator (for C-plane)	MD		RLC reset indicator 10.3.3.35	
RLC reset (for U-plane)	MD		RLC reset indicator 10.3.3.35	
CN Information Elements				
CN Information info	OP		CN Information info 10.3.1.3	
UTRAN Information Elements				
URA identity	OP		URA identity 10.3.2.6	
RB information elements				
RB with PDCP information list	OP	1 to <maxRBall RABs>		This IE is needed for each RB having PDCP in the case of lossless SRNS relocation
>RB with PDCP information	MP		RB with PDCP information 10.3.4.19	
PhyCH information elements				
Uplink radio resources				
Maximum allowed UL TX power	MD		Maximum allowed UL	Default value is the existing maximum UL TX power

Information Element/Group name	Need	Multi	Type and reference	Semantics description
			TX power 10.3.6.33	
PRACH Info (for RACH)	OP		PRACH Info (for RACH) 10.3.6.44	
Downlink radio resources				
Downlink information for one radio link	OP		Downlink information for each radio link 10.3.6.23	

Condition	Explanation
<u>CCCH</u>	<u>This IE is only sent when CCCH is used and ciphering is not required</u>

*******NEXT MODIFIED SECTION *******

11.1 General message structure

Class-definitions DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

ActiveSetUpdate,
 ActiveSetUpdateComplete,
 ActiveSetUpdateFailure,
 CellUpdate,
 CellUpdateConfirm,
CellUpdateConfirm-CCCH,
 CounterCheck,
 CounterCheckResponse,
 DownlinkDirectTransfer,
 DownlinkOuterLoopControl,
 HandoverToUTRANCommand,
 HandoverToUTRANComplete,
 InitialDirectTransfer,
 InterSystemHandoverCommand,
 InterSystemHandoverFailure,
 MeasurementControl,
 MeasurementControlFailure,
 MeasurementReport,
 PagingType1,
 PagingType2,
 PhysicalChannelReconfiguration,
 PhysicalChannelReconfigurationComplete,
 PhysicalChannelReconfigurationFailure,
 PhysicalSharedChannelAllocation,
 PUSCHCapacityRequest,
 RadioBearerReconfiguration,
 RadioBearerReconfigurationComplete,
 RadioBearerReconfigurationFailure,
 RadioBearerRelease,
 RadioBearerReleaseComplete,
 RadioBearerReleaseFailure,
 RadioBearerSetup,
 RadioBearerSetupComplete,
 RadioBearerSetupFailure,
 RNTIReallocation,
 RNTIReallocationComplete,
 RNTIReallocationFailure,
 RRCConnectionReEstablishment,
 RRCConnectionReEstablishment-CCCH,
 RRCConnectionReEstablishmentComplete,
 RRCConnectionReEstablishmentRequest,
 RRCConnectionReject,
 RRCConnectionRelease,


```

RRCCConnectionRelease-CCCH,
RRCCConnectionReleaseComplete,
RRCCConnectionReleaseComplete-CCCH,
RRCCConnectionRequest,
RRCCConnectionSetup,
RRCCConnectionSetupComplete,
RRCStatus,
SecurityModeCommand,
SecurityModeComplete,
SecurityModeFailure,
SignallingConnectionRelease,
SignallingConnectionReleaseRequest,
SystemInformation-BCH,
SystemInformation-FACH,
SystemInformationChangeIndication,
TransportChannelReconfiguration,
TransportChannelReconfigurationComplete,
TransportChannelReconfigurationFailure,
TransportFormatCombinationControl,
TransportFormatCombinationControlFailure,
UECapabilityEnquiry,
UECapabilityInformation,
UECapabilityInformationConfirm,
UplinkDirectTransfer,
UplinkPhysicalChannelControl,
URAUUpdate,
URAUUpdateConfirm,
URAUUpdateConfirm-CCCH
FROM PDU-definitions

    IntegrityCheckInfo
FROM UserEquipment-IEs;

--*****
--
-- Downlink DCCH messages
--
--*****

DL-DCCH-Message ::= SEQUENCE {
    integrityCheckInfo      IntegrityCheckInfo      OPTIONAL,
    message                  DL-DCCH-MessageType
}

DL-DCCH-MessageType ::= CHOICE {
    activeSetUpdate          ActiveSetUpdate,
    cellUpdateConfirm        CellUpdateConfirm,
    counterCheck             CounterCheck,
    downlinkDirectTransfer   DownlinkDirectTransfer,
    downlinkOuterLoopControl DownlinkOuterLoopControl,
    interSystemHandoverCommand InterSystemHandoverCommand,
    measurementControl       MeasurementControl,
    pagingType2              PagingType2,
    physicalChannelReconfiguration PhysicalChannelReconfiguration,
    physicalSharedChannelAllocation PhysicalSharedChannelAllocation,
    radioBearerReconfiguration RadioBearerReconfiguration,
    radioBearerRelease       RadioBearerRelease,
    radioBearerSetup         RadioBearerSetup,
    rntiReallocation         RNTIReallocation,
    rrcConnectionReEstablishment RRCConnectionReEstablishment,
    rrcConnectionRelease     RRCConnectionRelease,
    securityModeCommand      SecurityModeCommand,
    signallingConnectionRelease SignallingConnectionRelease,
    transportChannelReconfiguration TransportChannelReconfiguration,
    transportFormatCombinationControl TransportFormatCombinationControl,
    ueCapabilityEnquiry      UECapabilityEnquiry,
    ueCapabilityInformationConfirm UECapabilityInformationConfirm,
    uplinkPhysicalChannelControl UplinkPhysicalChannelControl,
    uraUpdateConfirm         URAUpdateConfirm,
    extension                NULL
}

--*****
--
-- Uplink DCCH messages
--
--*****

```

```

UL-DCCH-Message ::= SEQUENCE {
    integrityCheckInfo      IntegrityCheckInfo      OPTIONAL,
    message                  UL-DCCH-MessageType
}

UL-DCCH-MessageType ::= CHOICE {
    activeSetUpdateComplete      ActiveSetUpdateComplete,
    activeSetUpdateFailure      ActiveSetUpdateFailure,
    counterCheckResponse        CounterCheckResponse,
    handoverToUTRANComplete      HandoverToUTRANComplete,
    initialDirectTransfer        InitialDirectTransfer,
    interSystemHandoverFailure   InterSystemHandoverFailure,
    measurementControlFailure    MeasurementControlFailure,
    measurementReport            MeasurementReport,
    physicalChannelReconfigurationComplete      PhysicalChannelReconfigurationComplete,
    physicalChannelReconfigurationFailure      PhysicalChannelReconfigurationFailure,
    radioBearerReconfigurationComplete      RadioBearerReconfigurationComplete,
    radioBearerReconfigurationFailure      RadioBearerReconfigurationFailure,
    radioBearerReleaseComplete      RadioBearerReleaseComplete,
    radioBearerReleaseFailure        RadioBearerReleaseFailure,
    radioBearerSetupComplete        RadioBearerSetupComplete,
    radioBearerSetupFailure          RadioBearerSetupFailure,
    rntiReallocationComplete        RNTIReallocationComplete,
    rntiReallocationFailure          RNTIReallocationFailure,
    rrcConnectionReEstablishmentComplete      RRCConnectionReEstablishmentComplete,
    rrcConnectionReleaseComplete      RRCConnectionReleaseComplete,
    rrcConnectionSetupComplete        RRCConnectionSetupComplete,
    rrcStatus                        RRCStatus,
    securityModeComplete             SecurityModeComplete,
    securityModeFailure              SecurityModeFailure,
    signallingConnectionReleaseRequest      SignallingConnectionReleaseRequest,
    transportChannelReconfigurationComplete      TransportChannelReconfigurationComplete,
    transportChannelReconfigurationFailure      TransportChannelReconfigurationFailure,
    transportFormatCombinationControlFailure      TransportFormatCombinationControlFailure,
    ueCapabilityInformation           UECapabilityInformation,
    uplinkDirectTransfer              UplinkDirectTransfer,
    extension                          NULL
}

--*****
--
-- Downlink CCCH messages
--
--*****

DL-CCCH-Message ::= SEQUENCE {
    integrityCheckInfo      IntegrityCheckInfo      OPTIONAL,
    message                  DL-CCCH-MessageType
}

DL-CCCH-MessageType ::= CHOICE {
    CellUpdateConfirm              CellUpdateConfirm-CCCH,
    rrcConnectionReEstablishment      RRCConnectionReEstablishment-CCCH,
    rrcConnectionReject               RRCConnectionReject,
    rrcConnectionRelease               RRCConnectionRelease-CCCH,
    rrcConnectionSetup                 RRCConnectionSetup,
    uraUpdateConfirm                   URAUpdateConfirm-CCCH,
    extension                          NULL
}

--*****
--
-- Uplink CCCH messages
--
--*****

UL-CCCH-Message ::= SEQUENCE {
    integrityCheckInfo      IntegrityCheckInfo      OPTIONAL,
    message                  UL-CCCH-MessageType
}

```

```

UL-CCCH-MessageType ::= CHOICE {
    cellUpdate                CellUpdate,
    rrcConnectionReEstablishmentRequest RRCConnectionReEstablishmentRequest,
    rrcConnectionReleaseComplete    RRCConnectionReleaseComplete-CCCH,
    rrcConnectionRequest            RRCConnectionRequest,
    uraUpdate                        URAUpdate,
    extension                        NULL
}

--*****
--
-- PCCH messages
--
--*****

PCCH-Message ::= SEQUENCE {
    message                PCCH-MessageType
}

PCCH-MessageType ::= CHOICE {
    pagingType1            PagingType1,
    extension                NULL
}

--*****
--
-- Downlink SHCCH messages
--
--*****

DL-SHCCH-Message ::= SEQUENCE {
    integrityCheckInfo    IntegrityCheckInfo    OPTIONAL,
    message                DL-SHCCH-MessageType
}

DL-SHCCH-MessageType ::= CHOICE {
    physicalSharedChannelAllocation    PhysicalSharedChannelAllocation,
    extension                NULL
}

--*****
--
-- Uplink SHCCH messages
--
--*****

UL-SHCCH-Message ::= SEQUENCE {
    integrityCheckInfo    IntegrityCheckInfo    OPTIONAL,
    message                UL-SHCCH-MessageType
}

UL-SHCCH-MessageType ::= CHOICE {
    puschCapacityRequest    PUSCHCapacityRequest,
    extension                NULL
}

--*****
--
-- Handover to UTRAN command
--
--*****

HO-ToUTRAN-CommandMessage ::= SEQUENCE {
    message                HandoverToUTRANCommand
}

--*****
--
-- BCCH messages sent on FACH
--
--*****

BCCH-FACH-Message ::= SEQUENCE {
    message                BCCH-FACH-MessageType
}

```

```

BCCH-FACH-MessageType ::= CHOICE {
    systemInformation          SystemInformation-FACH,
    systemInformationChangeIndication SystemInformationChangeIndication,
    extension                  NULL
}

--*****
--
-- BCCH messages sent on BCH
--
--*****

BCCH-BCH-Message ::= SEQUENCE {
    message          SystemInformation-BCH
}

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
-- and TDD second, just for consistency.
--
--*****

PDU-definitions DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

--*****
--
-- IE parameter types from other modules
--
--*****

IMPORTS

    CN-DomainIdentity,
    CN-InformationInfo,
    FlowIdentifier,
    NAS-Message,
    PagingRecordTypeID,
    ServiceDescriptor,
    SignallingFlowInfoList
FROM CoreNetwork-IEs

    URA-Identity
FROM UTRANMobility-IEs

    ActivationTime,
    C-RNTI,
    CapabilityUpdateRequirement,
    CellUpdateCause,
    CipheringAlgorithm,
    CipheringModeInfo,
    DRX-Indicator,
    EstablishmentCause,
    FailureCauseWithProtErr,
    HyperFrameNumber,
    InitialUE-Identity,
    IntegrityProtActivationInfo,
    IntegrityProtectionModeInfo,
    PagingCause,
    PagingRecordList,
    ProtocolErrorIndicator,
    ProtocolErrorIndicatorWithInfo,
    Re-EstablishmentTimer,
    RedirectionInfo,
    RejectionCause,
    ReleaseCause,
    RRC-MessageTX-Count,
    SecurityCapability,

```

STARTList,
U-RNTI,
U-RNTI-Short,
UE-RadioAccessCapability,
URA-UpdateCause,
UTRAN-DRX-CycleLengthCoefficient,
WaitTime
FROM UserEquipment-IEs

PredefinedConfigIdentity,
RAB-Info,
RAB-InformationSetupList,
RB-ActivationTimeInfo,
RB-ActivationTimeInfoList,
RB-COUNT-C-InformationList,
RB-COUNT-C-MSB-InformationList,
RB-IdentityList,
RB-InformationAffectedList,
RB-InformationReconfigList,
RB-InformationReleaseList,
RB-InformationSetupList,
RB-WithPDCP-InfoList,
SRB-InformationSetupList,
SRB-InformationSetupList2
FROM RadioBearer-IEs

CPCH-SetID,
DL-AddReconfTransChInfo2List,
DL-AddReconfTransChInfoList,
DL-CommonTransChInfo,
DL-DeletedTransChInfoList,
DRAC-StaticInformationList,
TFC-Subset,
UL-AddReconfTransChInfoList,
UL-CommonTransChInfo,
UL-DeletedTransChInfoList
FROM TransportChannel-IEs

AllocationPeriodInfo,
CCTrCH-PowerControlInfo,
ConstantValue,
CPCH-SetInfo,
DL-CommonInformation,
DL-CommonInformationPost,
DL-InformationPerRL,
DL-InformationPerRL-List,
DL-InformationPerRL-ListPost,
DL-DPCH-PowerControlInfo,
DL-OuterLoopControl,
DL-PDSCH-Information,
DPCH-CompressedModeStatusInfo,
FrequencyInfo,
IndividualTS-InterferenceList,
MaxAllowedUL-TX-Power,
PDSCH-Info,
PRACH-RACH-Info,
PrimaryCCPCH-TX-Power,
PUSCH-CapacityAllocationInfo,
RL-AdditionInformationList,
RL-RemovalInformationList,
SSDT-Information,
TFC-ControlDuration,
TimeslotList,
TX-DiversityMode,
UL-ChannelRequirement,
UL-DPCH-Info,
UL-DPCH-InfoPost,
UL-TimingAdvance
FROM PhysicalChannel-IEs

AdditionalMeasurementID-List,
EventResults,
MeasuredResults,
MeasuredResultsList,
MeasuredResultsOnRACH,
MeasurementCommand,
MeasurementIdentityNumber,

```

MeasurementReportingMode,
PrimaryCCPCH-RSCP,
TimeslotListWithISCP,
TrafficVolumeMeasuredResultsList
FROM Measurement-IEs

```

```

BCCH-ModificationInfo,
InterSystemHO-Failure,
InterSystemMessage,
ProtocolErrorInformation,
SegCount,
SegmentIndex,
SFN-Prime,
SIB-Data-fixed,
SIB-Data-variable,
SIB-Type
FROM Other-IEs

```

```

maxSIBsegm
FROM Constant-definitions;

```

```

-- *****
--
-- ACTIVE SET UPDATE (FDD only)
--
-- *****

```

```

ActiveSetUpdate ::= SEQUENCE {
  -- User equipment IEs
  integrityProtectionModeInfo    IntegrityProtectionModeInfo    OPTIONAL,
  cipheringModeInfo              CipheringModeInfo                OPTIONAL,
  activationTime                  ActivationTime                    OPTIONAL,
  newU-RNTI                       U-RNTI                          OPTIONAL,
  -- Core network IEs
  cn-InformationInfo              CN-InformationInfo                OPTIONAL,
  -- Radio bearer IEs
  rb-WithPDCP-InfoList            RB-WithPDCP-InfoList            OPTIONAL,
  -- Physical channel IEs
  maxAllowedUL-TX-Power           MaxAllowedUL-TX-Power           OPTIONAL,
  rl-AdditionInformationList       RL-AdditionInformationList       OPTIONAL,
  rl-RemovalInformationList        RL-RemovalInformationList        OPTIONAL,
  tx-DiversityMode                TX-DiversityMode                 OPTIONAL,
  ssdt-Information                 SSDT-Information                 OPTIONAL,
  -- Extension mechanism for non- release99 information
  criticalExtension                 SEQUENCE {}                      OPTIONAL,
  nonCriticalExtensions             SEQUENCE {}                      OPTIONAL
}

```

```

-- *****
--
-- ACTIVE SET UPDATE COMPLETE (FDD only)
--
-- *****

```

```

ActiveSetUpdateComplete ::= SEQUENCE {
  -- User equipment IEs
  ul-IntegProtActivationInfo       IntegrityProtActivationInfo       OPTIONAL,
  -- Radio bearer IEs
  rb-UL-CiphActivationTimeInfo     RB-ActivationTimeInfo            OPTIONAL,
  rb-WithPDCP-InfoList             RB-WithPDCP-InfoList            OPTIONAL,
  -- Extension mechanism for non- release99 information
  nonCriticalExtensions             SEQUENCE {}                      OPTIONAL
}

```

```

-- *****
--
-- ACTIVE SET UPDATE FAILURE (FDD only)
--
-- *****

```

```

ActiveSetUpdateFailure ::= SEQUENCE {
  -- User equipment IEs
  failureCause                     FailureCauseWithProtErr,
  -- Extension mechanism for non- release99 information
  nonCriticalExtensions             SEQUENCE {}                      OPTIONAL
}

```

```

-- *****
--
-- CELL UPDATE
--
-- *****

CellUpdate ::= SEQUENCE {
  -- User equipment IEs
  u-RNTI                U-RNTI,
  hyperFrameNumber     HyperFrameNumber,
  am-RLC-ErrorIndicationC-plane  BOOLEAN,
  am-RLC-ErrorIndicationU-plane  BOOLEAN,
  cellUpdateCause      CellUpdateCause,
  protocolErrorIndicator  ProtocolErrorIndicatorWithInfo,
  -- TABULAR: Protocol error information is nested in
  -- ProtocolErrorIndicatorWithInfo.
  -- Measurement IEs
  measuredResultsOnRACH  MeasuredResultsOnRACH          OPTIONAL,
  -- Extension mechanism for non- release99 information
  nonCriticalExtensions  SEQUENCE {}                   OPTIONAL
}

-- *****
--
-- CELL UPDATE CONFIRM
--
-- *****

CellUpdateConfirm ::= SEQUENCE {
  -- User equipment IEs
  integrityProtectionModeInfo  IntegrityProtectionModeInfo  OPTIONAL,
  cipheringModeInfo           CipheringModeInfo             OPTIONAL,
  new-U-RNTI                  U-RNTI                        OPTIONAL,
  new-C-RNTI                  C-RNTI                        OPTIONAL,
  drx-Indicator               DRX-Indicator,
  utran-DRX-CycleLengthCoeff  UTRAN-DRX-CycleLengthCoefficient  OPTIONAL,
  rlc-ResetIndicatorC-Plane   BOOLEAN,
  rlc-ResetIndicatorU-Plane   BOOLEAN,
  -- CN information elements
  cn-InformationInfo          CN-InformationInfo             OPTIONAL,
  -- UTRAN mobility IEs
  ura-Identity                URA-Identity                  OPTIONAL,
  -- Radio bearer IEs
  rb-WithPDCP-InfoList       RB-WithPDCP-InfoList          OPTIONAL,
  -- Physical channel IEs
  maxAllowedUL-TX-Power       MaxAllowedUL-TX-Power         OPTIONAL,
  prach-RACH-Info            PRACH-RACH-Info                OPTIONAL,
  dl-InformationPerRL         DL-InformationPerRL           OPTIONAL,
  -- Extension mechanism for non- release99 information
  criticalExtension           SEQUENCE {}                   OPTIONAL,
  nonCriticalExtensions       SEQUENCE {}                   OPTIONAL
}

-- *****
--
-- CELL UPDATE CONFIRM for CCCH
--
-- *****

CellUpdateConfirm-CCCH ::= SEQUENCE {
  -- User equipment IEs
  u-RNTI                U-RNTI,
  -- The rest of the message is identical to the one sent on DCCH.
  eCellUpdateConfirm    CellUpdateConfirm
}

-- *****
--
-- COUNTER CHECK
--
-- *****

CounterCheck ::= SEQUENCE {
  -- Radio bearer IEs
  rb-COUNT-C-MSB-InformationList  RB-COUNT-C-MSB-InformationList,
  -- Extension mechanism for non- release99 information

```

```

        criticalExtension          SEQUENCE {}          OPTIONAL,
        nonCriticalExtensions      SEQUENCE {}          OPTIONAL
    }
-- *****
--
-- COUNTER CHECK RESPONSE
--
-- *****

CounterCheckResponse ::= SEQUENCE {
    -- Radio bearer IEs
    rb-COUNT-C-InformationList     RB-COUNT-C-InformationList     OPTIONAL,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions          SEQUENCE {}                    OPTIONAL
}
-- *****
--
-- DOWNLINK DIRECT TRANSFER
--
-- *****

DownlinkDirectTransfer ::= SEQUENCE {
    -- Core network IEs
    cn-DomainIdentity              CN-DomainIdentity,
    nas-Message                    NAS-Message,
    -- Extension mechanism for non- release99 information
    criticalExtension              SEQUENCE {}                    OPTIONAL,
    nonCriticalExtensions          SEQUENCE {}                    OPTIONAL
}
-- *****
--
-- DOWNLINK OUTER LOOP CONTROL
--
-- *****

DownlinkOuterLoopControl ::= SEQUENCE {
    -- Physical channel IEs
    dl-OuterLoopControl            DL-OuterLoopControl,
    dl-DPCH-PowerControlInfo       DL-DPCH-PowerControlInfo     OPTIONAL,
    -- Extension mechanism for non- release99 information
    criticalExtension              SEQUENCE {}                    OPTIONAL,
    nonCriticalExtensions          SEQUENCE {}                    OPTIONAL
}
-- *****
--
-- HANDOVER TO UTRAN COMMAND
--
-- *****

HandoverToUTRANCommand ::= SEQUENCE {
    -- User equipment IEs
    new-U-RNTI                    U-RNTI-Short,
    activationTime                 ActivationTime              OPTIONAL,
    cipheringAlgorithm             CipheringAlgorithm         OPTIONAL,
    -- Radio bearer IEs
    rab-Info                       RAB-Info,
    -- Specification mode information
    specificationMode              CHOICE {
        complete                   SEQUENCE {
            re-EstablishmentTimer   Re-EstablishmentTimer,
            srb-InformationSetupList SRB-InformationSetupList,
            rb-InformationSetupList  RB-InformationSetupList,
            ul-CommonTransChInfo    UL-CommonTransChInfo,
            ul-AddReconfTransChInfoList UL-AddReconfTransChInfoList,
            dl-CommonTransChInfo    DL-CommonTransChInfo,
            dl-AddReconfTransChInfoList DL-AddReconfTransChInfoList,
            ul-DPCH-Info            UL-DPCH-Info,
            modeSpecificInfo        CHOICE {
                fdd                 SEQUENCE {
                    dl-CommonInformation DL-CommonInformation,
                    dl-PDSCH-Information DL-PDSCH-Information OPTIONAL,
                    cpch-SetInfo        CPCH-SetInfo          OPTIONAL
                },
            },
        },
    },
}

```



```

        tdd                                NULL
    },
    dl-InformationPerRL-List                DL-InformationPerRL-List
},
preconfiguration                          SEQUENCE {
    predefinedConfigIdentity                PredefinedConfigIdentity,
    ul-DPCH-Info                            UL-DPCH-InfoPost,
    modeSpecificInfo                        CHOICE {
        fdd                                SEQUENCE {
            dl-CommonInformationPost        DL-CommonInformationPost
        },
        tdd                                NULL
    },
    dl-InformationPerRL-List                DL-InformationPerRL-ListPost
}
},
-- Physical channel IEs
frequencyInfo                             FrequencyInfo,
maxAllowedUL-TX-Power                      MaxAllowedUL-TX-Power,
modeSpecificPhysChInfo                    CHOICE {
    fdd                                    NULL,
    tdd                                    SEQUENCE {
        primaryCCPCH-TX-Power              PrimaryCCPCH-TX-Power
    }
},
-- Extension mechanism for non- release99 information
criticalExtension                          SEQUENCE {}
nonCriticalExtensions                      SEQUENCE {}
}

-- *****
--
-- HANDOVER TO UTRAN COMPLETE
--
-- *****

HandoverToUTRANComplete ::= SEQUENCE {
    -- User equipment IEs
    -- TABULAR: the IE below is conditional on history.
    startList                               STARTList                                OPTIONAL,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions                    SEQUENCE {}                                OPTIONAL
}

-- *****
--
-- INITIAL DIRECT TRANSFER
--
-- *****

InitialDirectTransfer ::= SEQUENCE {
    -- Core network IEs
    serviceDescriptor                       ServiceDescriptor,
    flowIdentifier                           FlowIdentifier,
    cn-DomainIdentity                       CN-DomainIdentity,
    nas-Message                              NAS-Message,
    -- Measurement IEs
    measuredResultsOnRACH                   MeasuredResultsOnRACH                    OPTIONAL,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions                    SEQUENCE {}                                OPTIONAL
}

-- *****
--
-- INTER-SYSTEM HANDOVER COMMAND
--
-- *****

InterSystemHandoverCommand ::= SEQUENCE {
    -- User equipment IEs
    activationTime                           ActivationTime                                OPTIONAL,
    -- Radio bearer IEs
    remainingRAB-Info                       RAB-Info                                    OPTIONAL,
    -- Other IEs
    interSystemMessage                      InterSystemMessage,
    -- Extension mechanism for non- release99 information
    criticalExtension                        SEQUENCE {}                                OPTIONAL,
}

```

```

        nonCriticalExtensions          SEQUENCE {}                                OPTIONAL
    }

-- *****
--
-- INTER-SYSTEM HANDOVER FAILURE
--
-- *****

InterSystemHandoverFailure ::= SEQUENCE {
    -- Other IEs
    interSystemHO-Failure              InterSystemHO-Failure                OPTIONAL,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions              SEQUENCE {}                                OPTIONAL
}

-- *****
--
-- MEASUREMENT CONTROL
--
-- *****

MeasurementControl ::= SEQUENCE {
    -- Measurement IEs
    measurementIdentityNumber          MeasurementIdentityNumber,
    measurementCommand                MeasurementCommand,
    -- TABULAR: The measurement type is included in MeasurementCommand.
    measurementReportingMode           MeasurementReportingMode                OPTIONAL,
    additionalMeasurementList          AdditionalMeasurementID-List          OPTIONAL,
    -- Physical channel IEs
    dpch-CompressedModeStatusInfo      DPCH-CompressedModeStatusInfo          OPTIONAL,
    -- Extension mechanism for non- release99 information
    criticalExtension                  SEQUENCE {}                                OPTIONAL,
    nonCriticalExtensions              SEQUENCE {}                                OPTIONAL
}

-- *****
--
-- MEASUREMENT CONTROL FAILURE
--
-- *****

MeasurementControlFailure ::= SEQUENCE {
    -- User equipment IEs
    failureCause                      FailureCauseWithProtErr,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions              SEQUENCE {}                                OPTIONAL
}

-- *****
--
-- MEASUREMENT REPORT
--
-- *****

MeasurementReport ::= SEQUENCE {
    -- Measurement IEs
    measurementIdentityNumber          MeasurementIdentityNumber,
    measuredResults                   MeasuredResults                        OPTIONAL,
    additionalMeasuredResults          MeasuredResultsList                    OPTIONAL,
    eventResults                      EventResults                            OPTIONAL,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions              SEQUENCE {}                                OPTIONAL
}

-- *****
--
-- PAGING TYPE 1
--
-- *****

PagingType1 ::= SEQUENCE {
    -- User equipment IEs
    pagingRecordList                  PagingRecordList                        OPTIONAL,
    -- Other IEs
    bcch-ModificationInfo             BCCH-ModificationInfo                  OPTIONAL,
    -- Extension mechanism for non- release99 information

```

```

        nonCriticalExtensions          SEQUENCE {}                                OPTIONAL
    }

-- *****
--
-- PAGING TYPE 2
--
-- *****

PagingType2 ::= SEQUENCE {
    -- User equipment IES
    pagingCause          PagingCause,
    -- Core network IES
    cn-DomainIdentity    CN-DomainIdentity,
    pagingRecordTypeID   PagingRecordTypeID,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions SEQUENCE {}                                OPTIONAL
}

-- *****
--
-- PHYSICAL CHANNEL RECONFIGURATION
--
-- *****

PhysicalChannelReconfiguration ::= 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,
    drx-Indicator                   DRX-Indicator,
    utran-DRX-CycleLengthCoeff      UTRAN-DRX-CycleLengthCoefficient    OPTIONAL,
    -- Core network IES
    cn-InformationInfo              CN-InformationInfo        OPTIONAL,
    -- Radio bearer IES
    rb-WithPDCP-InfoList            RB-WithPDCP-InfoList      OPTIONAL,
    -- Physical channel IES
    frequencyInfo                   FrequencyInfo              OPTIONAL,
    maxAllowedUL-TX-Power            MaxAllowedUL-TX-Power     OPTIONAL,
    ul-ChannelRequirement            UL-ChannelRequirement     OPTIONAL,
    -- TABULAR: UL-ChannelRequirement contains the choice
    -- between UL DPCH info and PRACH info for RACH.
    modeSpecificInfo                CHOICE {
        fdd                          SEQUENCE {
            dl-CommonInformation      DL-CommonInformation      OPTIONAL,
            dl-PDSCH-Information      DL-PDSCH-Information      OPTIONAL,
            cpch-SetInfo              CPCH-SetInfo              OPTIONAL
        },
        tdd                          NULL
    },
    dl-InformationPerRL-List         DL-InformationPerRL-List  OPTIONAL,
    -- Extension mechanism for non- release99 information
    criticalExtension                SEQUENCE {}                OPTIONAL,
    nonCriticalExtensions            SEQUENCE {}                OPTIONAL
}

-- *****
--
-- PHYSICAL CHANNEL RECONFIGURATION COMPLETE
--
-- *****

PhysicalChannelReconfigurationComplete ::= SEQUENCE {
    -- User equipment IES
    ul-IntegProtActivationInfo       IntegrityProtActivationInfo    OPTIONAL,
    -- TABULAR: UL-TimingAdvance is applicable for TDD mode only.
    ul-TimingAdvance                 UL-TimingAdvance              OPTIONAL,
    -- Radio bearer IES
    rb-UL-CiphActivationTimeInfo     RB-ActivationTimeInfo         OPTIONAL,
    rb-WithPDCP-InfoList              RB-WithPDCP-InfoList          OPTIONAL,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions             SEQUENCE {}                    OPTIONAL
}

-- *****

```

```

--
-- PHYSICAL CHANNEL RECONFIGURATION FAILURE
--
-- *****

PhysicalChannelReconfigurationFailure ::= SEQUENCE {
  -- User equipment IEs
  failureCause                FailureCauseWithProtErr,
  -- Extension mechanism for non- release99 information
  nonCriticalExtensions        SEQUENCE {}
}

-- *****
--
-- PHYSICAL SHARED CHANNEL ALLOCATION (TDD only)
--
-- *****

PhysicalSharedChannelAllocation ::= SEQUENCE {
  -- User equipment IEs
  c-RNTI                       C-RNTI
  -- Physical channel IEs
  ul-TimingAdvance             UL-TimingAdvance
  allocationPeriodInfo         AllocationPeriodInfo
  pusch-CapacityAllocationInfo PUSCH-CapacityAllocationInfo
  pdsch-Info                   PDSCH-Info
  timeslotList                 TimeslotList
  -- Extension mechanism for non- release99 information
  nonCriticalExtensions        SEQUENCE {}
}

-- *****
--
-- PUSCH CAPACITY REQUEST (TDD only)
--
-- *****

PUSCHCapacityRequest ::= SEQUENCE {
  -- User equipment IEs
  c-RNTI                       C-RNTI
  -- Measurement IEs
  trafficVolumeMeasuredResultsList
  timeslotListWithISCP         TimeslotListWithISCP
  primaryCCPCH-RSCP            PrimaryCCPCH-RSCP
  -- Extension mechanism for non- release99 information
  nonCriticalExtensions        SEQUENCE {}
}

-- *****
--
-- RADIO BEARER RECONFIGURATION
--
-- *****

RadioBearerReconfiguration ::= SEQUENCE {
  -- User equipment IEs
  integrityProtectionModeInfo  IntegrityProtectionModeInfo
  cipheringModeInfo            CipheringModeInfo
  activationTime                ActivationTime
  new-U-RNTI                   U-RNTI
  new-C-RNTI                   C-RNTI
  drx-Indicator                 DRX-Indicator,
  utran-DRX-CycleLengthCoeff   UTRAN-DRX-CycleLengthCoefficient
  -- Core network IEs
  cn-InformationInfo           CN-InformationInfo
  -- Radio bearer IEs
  rb-InformationReconfigList    RB-InformationReconfigList,
  rb-InformationAffectedList    RB-InformationAffectedList
  -- Transport channel IEs
  ul-CommonTransChInfo         UL-CommonTransChInfo
  ul-deletedTransChInfoList    UL-DeletedTransChInfoList
  ul-AddReconfTransChInfoList  UL-AddReconfTransChInfoList
  modeSpecificTransChInfo      CHOICE {
    fdd
    cpch-SetID                  CPCH-SetID
    addReconfTransChDRAC-Info   DRAC-StaticInformationList
  }
}

```

```

        },
        tdd
    }
    dl-CommonTransChInfo          DL-CommonTransChInfo          OPTIONAL,
    dl-DeletedTransChInfoList     DL-DeletedTransChInfoList     OPTIONAL,
    dl-AddReconfTransChInfoList   DL-AddReconfTransChInfo2List   OPTIONAL,
-- Physical channel IEs
    frequencyInfo                 FrequencyInfo                 OPTIONAL,
    maxAllowedUL-TX-Power         MaxAllowedUL-TX-Power         OPTIONAL,
    ul-ChannelRequirement         UL-ChannelRequirement         OPTIONAL,
    modeSpecificPhysChInfo        CHOICE {
        fdd
            dl-CommonInformation     DL-CommonInformation     OPTIONAL,
            dl-PDSCH-Information     DL-PDSCH-Information     OPTIONAL,
            cpch-SetInfo             CPCH-SetInfo             OPTIONAL,
        },
        tdd
    },
    dl-InformationPerRL-List       DL-InformationPerRL-List,
-- Extension mechanism for non- release99 information
    criticalExtension              SEQUENCE {}                OPTIONAL,
    nonCriticalExtensions          SEQUENCE {}                OPTIONAL,
}

-- *****
--
-- RADIO BEARER RECONFIGURATION COMPLETE
--
-- *****

RadioBearerReconfigurationComplete ::= SEQUENCE {
-- User equipment IEs
    ul-IntegProtActivationInfo     IntegrityProtActivationInfo     OPTIONAL,
    -- TABULAR: UL-TimingAdvance is applicable for TDD mode only.
    ul-TimingAdvance              UL-TimingAdvance              OPTIONAL,
-- Radio bearer IEs
    rb-UL-CiphActivationTimeInfo   RB-ActivationTimeInfo         OPTIONAL,
-- Extension mechanism for non- release99 information
    nonCriticalExtensions          SEQUENCE {}                OPTIONAL,
}

-- *****
--
-- RADIO BEARER RECONFIGURATION FAILURE
--
-- *****

RadioBearerReconfigurationFailure ::= SEQUENCE {
-- User equipment IEs
    failureCause                  FailureCauseWithProtErr,
-- Radio bearer IEs
    potentiallySuccessfulBearerList RB-IdentityList              OPTIONAL,
-- Extension mechanism for non- release99 information
    nonCriticalExtensions          SEQUENCE {}                OPTIONAL,
}

-- *****
--
-- RADIO BEARER RELEASE
--
-- *****

RadioBearerRelease ::= 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,
    drx-Indicator                  DRX-Indicator,
    utran-DRX-CycleLengthCoeff     UTRAN-DRX-CycleLengthCoefficient OPTIONAL,
-- Core network IEs
    cn-InformationInfo             CN-InformationInfo            OPTIONAL,
-- Radio bearer IEs
    rb-InformationReleaseList       RB-InformationReleaseList,
    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
            },
            tdd                        NULL
        }
        dl-CommonTransChInfo          DL-CommonTransChInfo          OPTIONAL,
        dl-DeletedTransChInfoList     DL-DeletedTransChInfoList     OPTIONAL,
        dl-AddReconfTransChInfoList   DL-AddReconfTransChInfo2List  OPTIONAL,
-- Physical channel IEs
        frequencyInfo                 FrequencyInfo                   OPTIONAL,
        maxAllowedUL-TX-Power         MaxAllowedUL-TX-Power         OPTIONAL,
        ul-ChannelRequirement         UL-ChannelRequirement         OPTIONAL,
        modeSpecificPhysChInfo       CHOICE {
            fdd                        SEQUENCE {
                dl-CommonInformation    DL-CommonInformation         OPTIONAL,
                dl-PDSCH-Information    DL-PDSCH-Information         OPTIONAL,
                cpch-SetInfo            CPCH-SetInfo                 OPTIONAL
            },
            tdd                        NULL
        },
        dl-InformationPerRL-List      DL-InformationPerRL-List      OPTIONAL,
-- Extension mechanism for non- release99 information
        criticalExtension              SEQUENCE {}                   OPTIONAL,
        nonCriticalExtensions          SEQUENCE {}                   OPTIONAL
    }
}

-- *****
--
-- RADIO BEARER RELEASE COMPLETE
--
-- *****

RadioBearerReleaseComplete ::= SEQUENCE {
-- User equipment IEs
    ul-IntegProtActivationInfo        IntegrityProtActivationInfo     OPTIONAL,
-- TABULAR: UL-TimingAdvance is applicable for TDD mode only.
    ul-TimingAdvance                  UL-TimingAdvance               OPTIONAL,
-- Radio bearer IEs
    rb-UL-CiphActivationTimeInfo      RB-ActivationTimeInfo          OPTIONAL,
    rb-WithPDCP-InfoList              RB-WithPDCP-InfoList           OPTIONAL,
-- Extension mechanism for non- release99 information
    nonCriticalExtensions              SEQUENCE {}                   OPTIONAL
}

-- *****
--
-- RADIO BEARER RELEASE FAILURE
--
-- *****

RadioBearerReleaseFailure ::= SEQUENCE {
-- User equipment IEs
    failureCause                      FailureCauseWithProtErr,
-- Radio bearer IEs
    potentiallySuccessfulBearerList    RB-IdentityList                OPTIONAL,
-- Extension mechanism for non- release99 information
    nonCriticalExtensions              SEQUENCE {}                   OPTIONAL
}

-- *****
--
-- RADIO BEARER SETUP
--
-- *****

RadioBearerSetup ::= 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,
}

```

```

drx-Indicator                DRX-Indicator,
utran-DRX-CycleLengthCoeff  UTRAN-DRX-CycleLengthCoefficient  OPTIONAL,
-- Core network IES
  cn-InformationInfo          CN-InformationInfo          OPTIONAL,
-- Radio bearer IES
  srb-InformationSetupList    SRB-InformationSetupList    OPTIONAL,
  rab-InformationSetupList    RAB-InformationSetupList,
  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
    },
    tdd                        NULL
  }
  dl-CommonTransChInfo        DL-CommonTransChInfo        OPTIONAL,
  dl-DeletedTransChInfoList   DL-DeletedTransChInfoList   OPTIONAL,
  dl-AddReconfTransChInfoList DL-AddReconfTransChInfoList  OPTIONAL,
-- Physical channel IES
  frequencyInfo               FrequencyInfo               OPTIONAL,
  maxAllowedUL-TX-Power       MaxAllowedUL-TX-Power       OPTIONAL,
  ul-ChannelRequirement        UL-ChannelRequirement        OPTIONAL,
  modeSpecificPhysChInfo      CHOICE {
    fdd                        SEQUENCE {
      dl-CommonInformation    DL-CommonInformation    OPTIONAL,
      dl-PDSCH-Information    DL-PDSCH-Information    OPTIONAL,
      cpch-SetInfo            CPCH-SetInfo            OPTIONAL
    },
    tdd                        NULL
  },
  dl-InformationPerRL-List     DL-InformationPerRL-List     OPTIONAL,
-- Extension mechanism for non- release99 information
  criticalExtension            SEQUENCE {}                  OPTIONAL,
  nonCriticalExtensions        SEQUENCE {}                  OPTIONAL
}

-- *****
--
-- RADIO BEARER SETUP COMPLETE
--
-- *****

RadioBearerSetupComplete ::= SEQUENCE {
  -- User equipment IES
  ul-IntegProtActivationInfo  IntegrityProtActivationInfo  OPTIONAL,
  -- TABULAR: UL-TimingAdvance is applicable for TDD mode only.
  ul-TimingAdvance            UL-TimingAdvance            OPTIONAL,
  hyperFrameNumber           HyperFrameNumber           OPTIONAL,
  -- Radio bearer IES
  rb-UL-CiphActivationTimeInfo RB-ActivationTimeInfo       OPTIONAL,
  -- Extension mechanism for non- release99 information
  nonCriticalExtensions       SEQUENCE {}                  OPTIONAL
}

-- *****
--
-- RADIO BEARER SETUP FAILURE
--
-- *****

RadioBearerSetupFailure ::= SEQUENCE {
  -- User equipment IES
  failureCause                FailureCauseWithProtErr,
  -- Radio bearer IES
  potentiallySuccessfulBearerList RB-IdentityList             OPTIONAL,
  -- Extension mechanism for non- release99 information
  nonCriticalExtensions        SEQUENCE {}                  OPTIONAL
}

-- *****
--
-- RNTI REALLOCATION
--

```

```

-- *****
RNTIReallocation ::= SEQUENCE {
-- User equipment IEs
    integrityProtectionModeInfo    IntegrityProtectionModeInfo    OPTIONAL,
    cipheringModeInfo              CipheringModeInfo              OPTIONAL,
    new-U-RNTI                     U-RNTI                        OPTIONAL,
    new-C-RNTI                     C-RNTI                        OPTIONAL,
    drx-Indicator                  DRX-Indicator,
    utran-DRX-CycleLengthCoeff     UTRAN-DRX-CycleLengthCoefficient OPTIONAL,
-- CN information elements
    cn-InformationInfo             CN-InformationInfo            OPTIONAL,
-- Radio bearer IEs
    rb-WithPDCP-InfoList          RB-WithPDCP-InfoList         OPTIONAL,
-- Extension mechanism for non- release99 information
    nonCriticalExtensions          SEQUENCE {}                  OPTIONAL
}

-- *****
--
-- RNTI REALLOCATION COMPLETE
--
-- *****

RNTIReallocationComplete ::= SEQUENCE {
-- User equipment IEs
    ul-IntegProtActivationInfo     IntegrityProtActivationInfo    OPTIONAL,
-- Radio bearer IEs
    rb-UL-CiphActivationTimeInfo   RB-ActivationTimeInfo         OPTIONAL,
    rb-WithPDCP-InfoList          RB-WithPDCP-InfoList         OPTIONAL,
-- Extension mechanism for non- release99 information
    nonCriticalExtensions          SEQUENCE {}                  OPTIONAL
}

-- *****
--
-- RNTI REALLOCATION FAILURE
--
-- *****

RNTIReallocationFailure ::= SEQUENCE {
-- UE information elements
    failureCause                  FailureCauseWithProtErr,
-- Extension mechanism for non- release99 information
    nonCriticalExtensions          SEQUENCE {}                  OPTIONAL
}

-- *****
--
-- RRC CONNECTION RE-ESTABLISHMENT
--
-- *****

RRCConnectionReEstablishment ::= 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,
    drx-Indicator                  DRX-Indicator,
    utran-DRX-CycleLengthCoeff     UTRAN-DRX-CycleLengthCoefficient OPTIONAL,
    rlc-ResetIndicatorC-plane      BOOLEAN,
    rlc-ResetIndicatorU-plane      BOOLEAN,
-- Core network IEs
    cn-InformationInfo             CN-InformationInfo            OPTIONAL,
-- Radio bearer IEs
    srb-InformationSetupList       SRB-InformationSetupList      OPTIONAL,
    rab-InformationSetupList       RAB-InformationSetupList      OPTIONAL,
    rb-InformationReleaseList      RB-InformationReleaseList     OPTIONAL,
    rb-InformationReconfigList     RB-InformationReconfigList    OPTIONAL,
    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
        },
        tdd                                NULL
    },
    dl-CommonTransChInfo                  DL-CommonTransChInfo          OPTIONAL,
    dl-DeletedTransChInfoList             DL-DeletedTransChInfoList     OPTIONAL,
    dl-AddReconfTransChInfoList           DL-AddReconfTransChInfoList   OPTIONAL,
-- Physical channel IEs
    frequencyInfo                         FrequencyInfo                   OPTIONAL,
    maxAllowedUL-TX-Power                  MaxAllowedUL-TX-Power         OPTIONAL,
    ul-ChannelRequirement                  UL-ChannelRequirement         OPTIONAL,
    modeSpecificPhysChInfo                 CHOICE {
        fdd                                SEQUENCE {
            dl-CommonInformation            DL-CommonInformation          OPTIONAL,
            dl-PDSCH-Information            DL-PDSCH-Information          OPTIONAL,
            cpch-SetInfo                    CPCH-SetInfo                  OPTIONAL
        },
        tdd                                NULL
    },
    dl-InformationPerRL-List               DL-InformationPerRL-List      OPTIONAL,
-- Extension mechanism for non- release99 information
    criticalExtension                       SEQUENCE {}                   OPTIONAL,
    nonCriticalExtensions                   SEQUENCE {}                   OPTIONAL
}

-- *****
--
-- RRC CONNECTION RE-ESTABLISHMENT for CCCH
--
-- *****

RRCConnectionReEstablishment-CCCH ::= SEQUENCE {
-- User equipment IEs
    u-RNTI                                U-RNTI,
-- The rest of the message is identical to the one sent on DCCH.
    rrcConnectionReEstablishment          RRCConnectionReEstablishment
}

-- *****
--
-- RRC CONNECTION RE-ESTABLISHMENT COMPLETE
--
-- *****

RRCConnectionReEstablishmentComplete ::= SEQUENCE {
-- User equipment IEs
    ul-IntegProtActivationInfo            IntegrityProtActivationInfo     OPTIONAL,
-- TABULAR: UL-TimingAdvance is applicable for TDD mode only.
    ul-TimingAdvance                       UL-TimingAdvance               OPTIONAL,
    hyperFrameNumber                       HyperFrameNumber,
-- Radio bearer IEs
    rb-UL-CiphActivationTimeInfo           RB-ActivationTimeInfo          OPTIONAL,
    rb-WithPDCP-InfoList                   RB-WithPDCP-InfoList           OPTIONAL,
-- Extension mechanism for non- release99 information
    nonCriticalExtensions                   SEQUENCE {}                   OPTIONAL
}

-- *****
--
-- RRC CONNECTION RE-ESTABLISHMENT REQUEST
--
-- *****

RRCConnectionReEstablishmentRequest ::= SEQUENCE {
-- User equipment IEs
    u-RNTI                                U-RNTI,
    hyperFrameNumber                       HyperFrameNumber,
    am-RLC-ErrorIndicationC-plane          BOOLEAN,
    am-RLC-ErrorIndicationU-plane          BOOLEAN,
    protocolErrorIndicator                  ProtocolErrorIndicatorWithInfo,
-- TABULAR: The IE above is MD in tabular, but making a 2-way choice
-- optional wastes one bit (using PER) and produces no additional
-- information.
-- Measurement IEs
    measuredResultsOnRACH                   MeasuredResultsOnRACH          OPTIONAL,

```

```

-- Extension mechanism for non- release99 information
nonCriticalExtensions          SEQUENCE {}
}
OPTIONAL

-- *****
--
-- RRC CONNECTION REJECT
--
-- *****

RRCConnectionReject ::= SEQUENCE {
-- User equipment IEs
initialUE-Identity             InitialUE-Identity,
rejectionCause                 RejectionCause,
waitTime                       WaitTime,
redirectionInfo               RedirectionInfo
}
OPTIONAL,
-- Extension mechanism for non- release99 information
criticalExtension              SEQUENCE {}
nonCriticalExtensions          SEQUENCE {}
}
OPTIONAL,

-- *****
--
-- RRC CONNECTION RELEASE
--
-- *****

RRCConnectionRelease ::= SEQUENCE {
-- User equipment IEs
rrc-MessageTX-Count           RRC-MessageTX-Count
}
OPTIONAL,
-- The IE above is conditional on the UE state.
releaseCause                   ReleaseCause,
-- Extension mechanism for non- release99 information
criticalExtension              SEQUENCE {}
nonCriticalExtensions          SEQUENCE {}
}
OPTIONAL,

-- *****
--
-- RRC CONNECTION RELEASE for CCCH
--
-- *****

RRCConnectionRelease-CCCH ::= SEQUENCE {
-- User equipment IEs
u-RNTI                         U-RNTI,
}
-- The rest of the message is identical to the one sent on DCCH.
rrcConnectionRelease          RRCConnectionRelease
}

-- *****
--
-- RRC CONNECTION RELEASE COMPLETE
--
-- *****

RRCConnectionReleaseComplete ::= SEQUENCE {
-- Extension mechanism for non- release99 information
nonCriticalExtensions          SEQUENCE {}
}
OPTIONAL

-- *****
--
-- RRC CONNECTION RELEASE COMPLETE for CCCH
--
-- *****

RRCConnectionReleaseComplete-CCCH ::= SEQUENCE {
-- User equipment IEs
u-RNTI                         U-RNTI,
}
-- The rest of the message is identical to the one sent on DCCH.
rrcConnectionReleaseComplete  RRCConnectionReleaseComplete
}

-- *****
--
-- RRC CONNECTION REQUEST

```

```

--
-- *****
RRCConnectionRequest ::= SEQUENCE {
  -- User equipment IEs
  initialUE-Identity      InitialUE-Identity,
  establishmentCause      EstablishmentCause,
  protocolErrorIndicator  ProtocolErrorIndicator,
  -- The IE above is MD, but for compactness reasons no default value
  -- has been assigned to it.
  -- Measurement IEs
  measuredResultsOnRACH   MeasuredResultsOnRACH           OPTIONAL,
  -- Extension mechanism for non- release99 information
  nonCriticalExtensions   SEQUENCE {}                    OPTIONAL
}

```

```

-- *****
--
-- RRC CONNECTION SETUP
--
-- *****

```

```

RRCConnectionSetup ::= SEQUENCE {
  -- User equipment IEs
  initialUE-Identity      InitialUE-Identity,
  activationTime          ActivationTime                   OPTIONAL,
  new-U-RNTI              U-RNTI,
  new-c-RNTI              C-RNTI                         OPTIONAL,
  utran-DRX-CycleLengthCoeff  UTRAN-DRX-CycleLengthCoefficient,
  capabilityUpdateRequirement  CapabilityUpdateRequirement  OPTIONAL,
  -- TABULAR: If the IE is not present, the default value defined in 10.3.3.2
shall
  -- be used.
  -- Radio bearer IEs
  srb-InformationSetupList  SRB-InformationSetupList2,
  -- Transport channel IEs
  ul-CommonTransChInfo     UL-CommonTransChInfo         OPTIONAL,
  ul-AddReconfTransChInfoList  UL-AddReconfTransChInfoList,
  dl-CommonTransChInfo     DL-CommonTransChInfo         OPTIONAL,
  dl-AddReconfTransChInfoList  DL-AddReconfTransChInfoList,
  -- Physical channel IEs
  frequencyInfo            FrequencyInfo                 OPTIONAL,
  maxAllowedUL-TX-Power     MaxAllowedUL-TX-Power        OPTIONAL,
  ul-ChannelRequirement     UL-ChannelRequirement        OPTIONAL,
  modeSpecificInfo         CHOICE {
    fdd                     SEQUENCE {
      dl-CommonInformation  DL-CommonInformation        OPTIONAL
    },
    tdd                     NULL
  },
  dl-InformationPerRL-List  DL-InformationPerRL-List     OPTIONAL,
  -- Extension mechanism for non- release99 information
  criticalExtension         SEQUENCE {}                  OPTIONAL,
  nonCriticalExtensions     SEQUENCE {}                  OPTIONAL
}

```

```

-- *****
--
-- RRC CONNECTION SETUP COMPLETE
--
-- *****

```

```

RRCConnectionSetupComplete ::= SEQUENCE {
  -- User equipment IEs
  startList                STARTList,
  ue-RadioAccessCapability  UE-RadioAccessCapability,
  ue-SystemSpecificCapability  InterSystemMessage        OPTIONAL,
  -- Extension mechanism for non- release99 information
  nonCriticalExtensions     SEQUENCE {}                  OPTIONAL
}

```

```

-- *****
--
-- RRC STATUS
--
-- *****

```

```

RRCStatus ::= SEQUENCE {
  -- Other IEs
  protocolErrorInformation      ProtocolErrorInformation,
  -- Extension mechanism for non- release99 information
  nonCriticalExtensions         SEQUENCE {}
}
}
OPTIONAL

-- *****
--
-- SECURITY MODE COMMAND
--
-- *****

SecurityModeCommand ::= SEQUENCE {
  -- User equipment IEs
  cipheringAlgorithm            SecurityCapability,
  cipheringModeInfo            CipheringModeInfo
  integrityProtectionModeInfo  IntegrityProtectionModeInfo
}
OPTIONAL,
OPTIONAL,
OPTIONAL,
OPTIONAL

-- *****
--
-- SECURITY MODE COMPLETE
--
-- *****

SecurityModeComplete ::= SEQUENCE {
  -- User equipment IEs
  ul-IntegProtActivationInfo    IntegrityProtActivationInfo
  -- Radio bearer IEs
  rb-UL-CiphActivationTimeInfo  RB-ActivationTimeInfoList
  -- Extension mechanism for non- release99 information
  nonCriticalExtensions         SEQUENCE {}
}
OPTIONAL,
OPTIONAL,
OPTIONAL

-- *****
--
-- SECURITY MODE FAILURE
--
-- *****

SecurityModeFailure ::= SEQUENCE {
  -- User equipment IEs
  failureCause                  FailureCauseWithProtErr,
  -- Extension mechanism for non- release99 information
  nonCriticalExtensions         SEQUENCE {}
}
OPTIONAL

-- *****
--
-- SIGNALLING CONNECTION RELEASE
--
-- *****

SignallingConnectionRelease ::= SEQUENCE {
  -- Core network IEs
  signallingFlowInfoList       SignallingFlowInfoList,
  -- Extension mechanism for non- release99 information
  criticalExtension            SEQUENCE {}
  nonCriticalExtensions        SEQUENCE {}
}
OPTIONAL,
OPTIONAL

-- *****
--
-- SIGNALLING CONNECTION RELEASE REQUEST
--
-- *****

SignallingConnectionReleaseRequest ::= SEQUENCE {
  -- Core network IEs
  signallingFlowInfoList       SignallingFlowInfoList,
}

```

```

-- Extension mechanism for non- release99 information
nonCriticalExtensions          SEQUENCE {}                                OPTIONAL}

-- *****
--
-- SYSTEM INFORMATION for BCH
--
-- *****

SystemInformation-BCH ::= SEQUENCE {
-- Other information elements
    sfn-Prime                    SFN-Prime,
    payload                       CHOICE {
        noSegment                NULL,
        firstSegment             FirstSegment,
        subsequentSegment        SubsequentSegment,
        lastSegment              LastSegment,
        lastAndFirst             SEQUENCE {
            lastSegment          LastSegment,
            firstSegment         FirstSegmentShort
        },
        lastAndComplete          SEQUENCE {
            completeSIB-List     CompleteSIB-List,
            lastSegment          LastSegment
        },
        lastAndCompleteAndFirst SEQUENCE {
            lastSegment          LastSegment,
            completeSIB-List     CompleteSIB-List,
            firstSegment         FirstSegmentShort
        },
        completeSIB-List         CompleteSIB-List,
        completeAndFirst         SEQUENCE {
            completeSIB-List     CompleteSIB-List,
            firstSegment         FirstSegmentShort
        }
    }
}

-- *****
--
-- SYSTEM INFORMATION for FACH
--
-- *****

SystemInformation-FACH ::= SEQUENCE {
-- Other information elements
    payload                       CHOICE {
        noSegment                NULL,
        firstSegment             FirstSegment,
        subsequentSegment        SubsequentSegment,
        lastSegment              LastSegment,
        lastAndFirst             SEQUENCE {
            lastSegment          LastSegment,
            firstSegment         FirstSegmentShort
        },
        lastAndComplete          SEQUENCE {
            completeSIB-List     CompleteSIB-List,
            lastSegment          LastSegment
        },
        lastAndCompleteAndFirst SEQUENCE {
            lastSegment          LastSegment,
            completeSIB-List     CompleteSIB-List,
            firstSegment         FirstSegmentShort
        },
        completeSIB-List         CompleteSIB-List,
        completeAndFirst         SEQUENCE {
            completeSIB-List     CompleteSIB-List,
            firstSegment         FirstSegmentShort
        }
    }
}

-- *****
--
-- First segment
--
-- *****

```

```

FirstSegment ::=                               SEQUENCE {
    -- Other information elements
    sib-Type                SIB-Type,
    seg-Count               SegCount,
    sib-Data-fixed          SIB-Data-fixed
}

-- *****
--
-- First segment (short)
--
-- *****

FirstSegmentShort ::=                         SEQUENCE {
    -- Other information elements
    sib-Type                SIB-Type,
    seg-Count               SegCount,
    sib-Data-variable       SIB-Data-variable
}

-- *****
--
-- Subsequent segment
--
-- *****

SubsequentSegment ::=                       SEQUENCE {
    -- Other information elements
    sib-Type                SIB-Type,
    segmentIndex            SegmentIndex,
    sib-Data-fixed          SIB-Data-fixed
}

-- *****
--
-- Last segment
--
-- *****

LastSegment ::=                             SEQUENCE {
    -- Other information elements
    sib-Type                SIB-Type,
    segmentIndex            SegmentIndex,
    sib-Data-variable       SIB-Data-variable
}

-- *****
--
-- Complete SIB
--
-- *****

CompleteSIB-List ::=                        SEQUENCE (SIZE (1..maxSIBsegs)) OF
    CompleteSIB

CompleteSIB ::=                             SEQUENCE {
    -- Other information elements
    sib-Type                SIB-Type,
    sib-Data-variable       SIB-Data-variable
}

-- *****
--
-- SYSTEM INFORMATION CHANGE INDICATION
--
-- *****

SystemInformationChangeIndication ::=      SEQUENCE {
    -- Other IEs
    bcch-ModificationInfo   BCCH-ModificationInfo,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions    SEQUENCE {}
}
OPTIONAL

-- *****
--

```

```

-- TRANSPORT CHANNEL RECONFIGURATION
--
-- *****

TransportChannelReconfiguration ::= 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,
  drx-Indicator                   DRX-Indicator,
  utran-DRX-CycleLengthCoeff     UTRAN-DRX-CycleLengthCoefficient OPTIONAL,
  -- Core network IEs
  cn-InformationInfo             CN-InformationInfo              OPTIONAL,
  -- Radio bearer IEs
  rb-WithPDCP-InfoList          RB-WithPDCP-InfoList           OPTIONAL,
  -- Transport channel IEs
  ul-CommonTransChInfo          UL-CommonTransChInfo           OPTIONAL,
  ul-AddReconfTransChInfoList   UL-AddReconfTransChInfoList,
  modeSpecificTransChInfo       CHOICE {
    fdd                           SEQUENCE {
      cpch-SetID                  CPCH-SetID                      OPTIONAL,
      addReconfTransChDRAC-Info   DRAC-StaticInformationList     OPTIONAL
    },
    tdd                           NULL
  },
  dl-CommonTransChInfo          DL-CommonTransChInfo           OPTIONAL,
  dl-AddReconfTransChInfoList   DL-AddReconfTransChInfoList,
  -- Physical channel IEs
  frequencyInfo                  FrequencyInfo                    OPTIONAL,
  maxAllowedUL-TX-Power          MaxAllowedUL-TX-Power          OPTIONAL,
  ul-ChannelRequirement          UL-ChannelRequirement          OPTIONAL,
  modeSpecificPhysChInfo        CHOICE {
    fdd                           SEQUENCE {
      dl-CommonInformation        DL-CommonInformation           OPTIONAL,
      dl-PDSCH-Information        DL-PDSCH-Information           OPTIONAL,
      cpch-SetInfo                CPCH-SetInfo                   OPTIONAL
    },
    tdd                           NULL
  },
  dl-InformationPerRL-List      DL-InformationPerRL-List       OPTIONAL,
  -- Extension mechanism for non- release99 information
  criticalExtension              SEQUENCE {}                     OPTIONAL,
  nonCriticalExtensions          SEQUENCE {}                     OPTIONAL
}

-- *****
--
-- TRANSPORT CHANNEL RECONFIGURATION COMPLETE
--
-- *****

TransportChannelReconfigurationComplete ::= SEQUENCE {
  -- User equipment IEs
  ul-IntegProtActivationInfo     IntegrityProtActivationInfo     OPTIONAL,
  -- TABULAR: UL-TimingAdvance is applicable for TDD mode only.
  ul-TimingAdvance               UL-TimingAdvance               OPTIONAL,
  -- Radio bearer IEs
  rb-UL-CiphActivationTimeInfo   RB-ActivationTimeInfo          OPTIONAL,
  rb-WithPDCP-InfoList          RB-WithPDCP-InfoList           OPTIONAL,
  -- Extension mechanism for non- release99 information
  nonCriticalExtensions          SEQUENCE {}                     OPTIONAL
}

-- *****
--
-- TRANSPORT CHANNEL RECONFIGURATION FAILURE
--
-- *****

TransportChannelReconfigurationFailure ::= SEQUENCE {
  -- User equipment IEs
  failureCause                   FailureCauseWithProtErr,
  -- Extension mechanism for non- release99 information
  nonCriticalExtensions          SEQUENCE {}                     OPTIONAL
}

```

```

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

TransportFormatCombinationControl ::= SEQUENCE {
    dpch-TFCS-InUplink          TFC-Subset,
    tfc-ControlDuration          TFC-ControlDuration          OPTIONAL,
    -- The information element is not included when transmitting the message
    -- on the transparent mode signalling DCCH and is optional otherwise
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions        SEQUENCE {}                  OPTIONAL
}

-- *****
--
-- TRANSPORT FORMAT COMBINATION CONTROL FAILURE
--
-- *****

TransportFormatCombinationControlFailure ::= SEQUENCE {
    -- User equipment IEs
    failureCause                 FailureCauseWithProtErr,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions        SEQUENCE {}                  OPTIONAL
}

-- *****
--
-- UE CAPABILITY ENQUIRY
--
-- *****

UECapabilityEnquiry ::= SEQUENCE {
    -- User equipment IEs
    capabilityUpdateRequirement  CapabilityUpdateRequirement,
    -- Extension mechanism for non- release99 information
    criticalExtension            SEQUENCE {}                  OPTIONAL,
    nonCriticalExtensions        SEQUENCE {}                  OPTIONAL
}

-- *****
--
-- UE CAPABILITY INFORMATION
--
-- *****

UECapabilityInformation ::= SEQUENCE {
    -- User equipment IEs
    ue-RadioAccessCapability      UE-RadioAccessCapability    OPTIONAL,
    -- Other IEs
    ue-SystemSpecificCapability   InterSystemMessage        OPTIONAL,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions        SEQUENCE {}                  OPTIONAL
}

-- *****
--
-- UE CAPABILITY INFORMATION CONFIRM
--
-- *****

UECapabilityInformationConfirm ::= SEQUENCE {
    -- Extension mechanism for non- release99 information
    criticalExtension            SEQUENCE {}                  OPTIONAL,
    nonCriticalExtensions        SEQUENCE {}                  OPTIONAL
}

-- *****
--
-- UPLINK DIRECT TRANSFER
--
-- *****

UplinkDirectTransfer ::= SEQUENCE {

```



```

-- Core network IEs
    flowIdentifier          FlowIdentifier,
    nas-Message            NAS-Message,
-- Measurement IEs
    measuredResultsOnRACH  MeasuredResultsOnRACH      OPTIONAL,
-- Extension mechanism for non- release99 information
    nonCriticalExtensions  SEQUENCE {}                OPTIONAL
}

-- *****
--
-- UPLINK PHYSICAL CHANNEL CONTROL
--
-- *****

UplinkPhysicalChannelControl ::= SEQUENCE {
-- Physical channel IEs
    ccTrCH-PowerControlInfo  CCTrCH-PowerControlInfo  OPTIONAL,
    timingAdvance            UL-TimingAdvance          OPTIONAL,
    individualTS-InterferenceList  IndividualTS-InterferenceList  OPTIONAL,
    prach-ConstantValue      ConstantValue            OPTIONAL,
    dpch-ConstantValue       ConstantValue            OPTIONAL,
    pusch-ConstantValue      ConstantValue            OPTIONAL,
-- Extension mechanism for non- release99 information
    criticalExtension        SEQUENCE {}                OPTIONAL,
    nonCriticalExtensions    SEQUENCE {}                OPTIONAL
}

-- *****
--
-- URA UPDATE
--
-- *****

URAUUpdate ::= SEQUENCE {
-- User equipment IEs
    u-RNTI                  U-RNTI,
    ura-UpdateCause        URA-UpdateCause,
    protocolErrorIndicator ProtocolErrorIndicatorWithInfo,
-- Extension mechanism for non- release99 information
    nonCriticalExtensions  SEQUENCE {}                OPTIONAL
}

-- *****
--
-- URA UPDATE CONFIRM
--
-- *****

URAUUpdateConfirm ::= SEQUENCE {
-- User equipment IEs
    integrityProtectionModeInfo  IntegrityProtectionModeInfo  OPTIONAL,
    cipheringModeInfo            CipheringModeInfo            OPTIONAL,
    new-U-RNTI                   U-RNTI                        OPTIONAL,
    new-C-RNTI                   C-RNTI                        OPTIONAL,
    drx-Indicator                DRX-Indicator,
    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
    rb-WithPDCP-InfoList       RB-WithPDCP-InfoList       OPTIONAL,
-- Extension mechanism for non- release99 information
    criticalExtension          SEQUENCE {}                OPTIONAL,
    nonCriticalExtensions      SEQUENCE {}                OPTIONAL
}

-- *****
--
-- URA UPDATE CONFIRM for CCCH
--
-- *****

URAUUpdateConfirm-CCCH ::= SEQUENCE {
-- User equipment IEs
    u-RNTI                    U-RNTI,

```

```
-- The rest of the message is identical to the one sent on DCCH.  
uraUpdateConfirm          URAUpdateConfirm  
}  
END
```