TSG-RAN Meeting #10 *RP-000572*
Bangkok, Thailand, 6 - 8 December 2000

Title: **Agreed CRs to TS 25.331 (3)**

Source: **TSG-RAN WG2**

Agenda item: **5.2.3**

Doc-1st-	Status-	Spec	CR	Rev	Subject	Cat	Version	Versio
R2-002388	agreed	25.331	598	1	Paging Procedures	F	3.4.1	3.5.0
R2-002253	agreed	25.331	599		NAS signalling Procedures	F	3.4.1	3.5.0
R2-002456	agreed	25.331	600	3	Radio Bearer Control Procedures	F	3.4.1	3.5.0
R2-002447	agreed	25.331	601	1	Corrections to the Counter Check Procedure	F	3.4.1	3.5.0
R2-002256	agreed	25.331	602		Tabular Information and ASN.1	F	3.4.1	3.5.0
R2-002439	agreed	25.331	604	2	Corrections to Measurement Occasion concept	F	3.4.1	3.5.0
R2-002271	agreed	25.331	606		Corrections concerning optimisation of RB information	F	3.4.1	3.5.0
R2-002352	agreed	25.331	608	1	Corrections to security	F	3.4.1	3.5.0
R2-002384	agreed	25.331	609	1	Ciphering activation time for DPCH	F	3.4.1	3.5.0
R2-002275	agreed	25.331	610		Confirmation of signalling connection establishment	F	3.4.1	3.5.0
R2-002448	agreed	25.331	611	2	RACH Sub-channel signalling	F	3.4.1	3.5.0
R2-002449	agreed	25.331	613	2	Assistance data delivery for UP	F	3.4.1	3.5.0
R2-002382	agreed	25.331	614	1	Clarification of LCS measurements	F	3.4.1	3.5.0
R2-002441	agreed	25.331	615	2	Configuration of RLC PDU sizes for logical channels	F	3.4.1	3.5.0
R2-002300	agreed	25.331	617		Correction for PDSCH power control for TDD	F	3.4.1	3.5.0
R2-002302	agreed	25.331	619		Correction of Midamble Shift for Burst Type 3	F	3.4.1	3.5.0
R2-002304	agreed	25.331	621		Correction of text concerning Scheduling of System Information	F	3.4.1	3.5.0
R2-002479	agreed	25.331	622	1	Alignment of GSM'99 BA Range concept and its inclusion in UTRA	F	3.4.1	3.5.0
R2-002451	agreed	25.331	623	1	Clarification of RB mapping info	F	3.4.1	3.5.0
R2-002430	agreed	25.331	624	1	Correction to UE multi-RAT capability	F	3.4.1	3.5.0

3GPP TSG-RAN WG2 meeting #17
Sophia Antipolis, France, 14-17 Nov. 2000

Tdoc R2-002388

CR-Form-v3

CHANGE REQUEST

⌘ **25.331** **CR** **598** ⌘ rev **r1** ⌘ Current version: **3.4.1** ⌘

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Proposed change affects: ⌘ (U)SIM ☐ ME/UE **X** Radio Access Network **X** Core Network ☐

Title:	⌘	Paging Procedures
Source:	⌘	TSG-RAN WG2
Work item code:	⌘	***Date:*** ⌘ 15th Nov. 2000
Category:	⌘ **F**	***Release:*** ⌘ R99

Use one of the following categories:
F *(essential correction)*
A *(corresponds to a correction in an earlier release)*
B *(Addition of feature),*
C *(Functional modification of feature)*
D *(Editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
REL-4	*(Release 4)*
REL-5	*(Release 5)*

Reason for change: ⌘

A) The usage of PAGING TYPE 1 message for paging an RRC connected UE in CELL_PCH/URA_PCH state has been restricted unnecessarily in the current specification text. The UE is currently not able to receive CN pages on the PCH whilst in connected mode. Changes are introduced to the paging record IE and the procedure description text.

B) In 8.1.2.3, it is clarified that the IE "BCCH modification info" shall be processed irrespective of included paging records that may be included.

C) In "at least one match is found…", the mention "at least" is considered as unnecessary and is removed (CN identities processing in Idle mode).

D) It is clarified that in connected mode UEs the only UTRAN identity used is U-RNTI. Moreover, it is specified that only the first match is considered by the UE (others - if any – should be considered as resulting from an UTRAN flaw and will be ignored by the UE).

E) Some other wordings in 8.1.2 and 8.1.11 are amended. Some indentation modifications, editorial corrections and names alignments are done in several sections.

F) In 10.3.8.1, "BCCH Modification time" IE value "Integer (0..8, 16, 24, .. 4088)" is corrected and set to "Integer (0..4088 by step of 8)".

Summary of change: ⌘

Consequences if not approved: ⌘

- The UE is not able to receive CN pages on the PCH whilst in connected mode
- Some ambiguities remain in paging specification

Clauses affected: ⌘ 8.1.2, 8.1.11, 10.3.1.10, 10.3.3.24, 10.3.8.1, 11.3.3

Other specs affected:	⌘	☐ Other core specifications ☐ Test specifications ☐ O&M Specifications	⌘	
Other comments:	⌘	- track changes may indicate successive modifications that have been made by the various authors of this CR - some concerns about priority of the actions resulting from BCCH modification info and paging records IEs, if both are included, remain to be discussed		

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

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://www.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2000-09 contains the specifications resulting from the September 2000 TSG meetings.

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

8.1.2 Paging

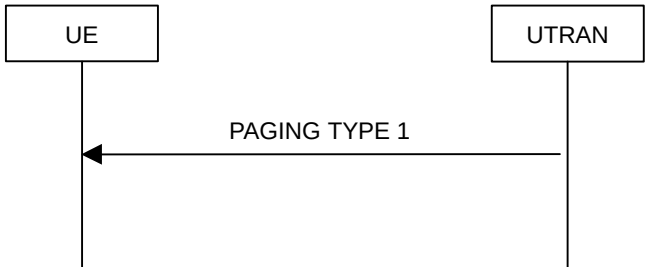

Figure 6: Paging

8.1.2.1 General

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

8.1.2.2 Initiation

UTRAN initiates the paging procedure by transmitting a PAGING TYPE 1 message on an appropriate paging occasion on the PCCH.

UTRAN may repeat transmission of a PAGING TYPE 1 message to a UE in several paging occasions to increase the probability of proper reception of a page.

UTRAN may page several UEs in the same paging occasion by including one IE "Paging record" for each UE in the PAGING TYPE 1 message. UTRAN may also indicate that system information has been updated, by including the value tag of the master information block in the IE "BCCH modification information" in the PAGING TYPE 1 message. In this case, UTRAN may omit the IEs "Paging record".

8.1.2.3 Reception of a~~n~~ PAGING TYPE 1 message by the UE

~~The~~ An UE ~~shall~~ in idle mode, CELL_PCH state or ~~and~~ URA_PCH state shall receive the paging information for all its monitored paging occasions. For an UE in idle mode, the paging occasions are specified in TS 25.304 and depend on the IE "CN domain specific DRX cycle length coefficient", as specified in 8.6.1.1. For an UE in CELL_PCH state or ~~and~~ URA_PCH state, the paging occasions depend also on the IE "UTRAN DRX ~~C~~cycle length coefficient" and the IE "DRX ~~i~~Indicator", as specified in subclauses 8.6.3.2 and 8.6.3.3 respectively.

When the UE receives a PAGING TYPE 1 message, it shall perform the actions as specified below.~~check each occurrence of the IE "Paging record"~~

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

If the UE is in ~~An~~ idle mode ~~UE shall~~, then for each occurrence of the IE "Paging record" if any is included in the message:

- if the IE "Used paging ~~originator~~identity" is a CN identity then ~~:~~
  - ~~-~~ the UE shall compare the included ~~identities of type CN~~ UE identity with all of its allocated CN UE identities~~:~~;
    - if ~~at least~~ one match is found then the UE shall ~~:~~
      - ~~-~~ forward the received UE identity and paging cause to the upper layer entity indicated by the IE "CN domain identity";
  - ~~- if the IE "Used paging originatoridentity" is a UTRAN identity:~~

- otherwise, the UE shall ignore that paging record.

If the UE is in A connected mode UE shall, then for each occurrence of the IE "Paging record" if any is included in the message:

- if the IE "Used paging originatoridentity" is an UTRAN identity and if this :

- compare the included identities of type "UTRAN originator" U-RNTI iss the same as the with its allocated U-RNTI allocated to the UE, then the UE shall:;

  - if the optional IE "CN originated page to connected mode UE" is included, forward the corresponding paging cause and paging record type identifier to the upper layer entity indicated by the IE "CN domain identity";

  - if at least one match is found:

  - perform a cell update procedure with cause "paging response" as specified in subclause 8.3.1.2;

  - ignore any other remaining "Paging record" IE that may be present in the message;

  - For each match that is found, Iif optional IEs "paging cause", " paging record type identifier" and " CN domain identity "IE "CN originated page to connected mode UE" isare included in the message for a UTRAN originated page,

  - indicate paging and forward the paging cause and the paging record type identifier to the upper layer entity indicated by the CN domain identity.

- if the IE "Used paging originatoridentity" is a CN identity:

- otherwise, the UE shall ignore that paging record.

If the IE "BCCH modification info" is included, any the UE in idle mode, CELL_PCH or URA_PCH state shall perform the actions as specified in subclause 8.1.1 irrespective of "Paging record" IE occurrences that may be present in the message.

8.1.11 UE dedicated paging

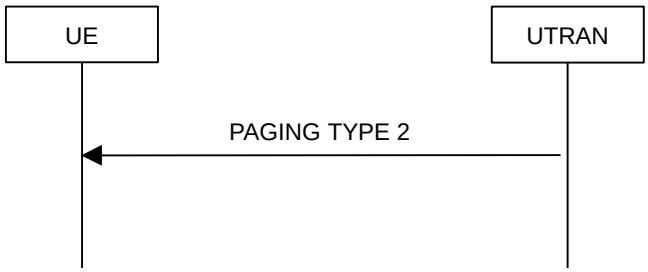

Figure 18: UE dedicated paging

8.1.11.1 General

This procedure is used to transmit dedicated paging information to one UE in connected mode in ~~states~~ CELL_DCH or ~~and~~ CELL_FACH state. Upper layers in the network may request initiation of paging.

8.1.11.2 Initiation

For an UE in ~~states~~ CELL_DCH or CELL_FACH state, UTRAN initiates the procedure by transmitting a PAGING TYPE 2 message on the DCCH using AM RLC. When not stated otherwise elsewhere, the UTRAN may initiate the UE dedicated paging procedure also when another RRC procedure is ongoing, and in that case the state of the latter procedure shall not be affected.

8.1.11.3 Reception of a~~n~~ PAGING TYPE 2 message by the UE

When the UE receives a PAGING TYPE 2 message, it shall not affect the state of any other ongoing RRC procedures, when not stated otherwise elsewhere.

The UE shall indicate that a ~~Paging~~ PAGING TYPE 2 message has been received and forward the corresponding paging cause and ~~the~~ paging record type identifier to the upper layer entity indicated by the IE "CN domain identity".

8.1.11.4 Invalid PAGING TYPE 2 message

If the UE receives a PAGING TYPE 2 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;
- include the IE "Protocol error information" with contents set to the value of the variable PROTOCOL_ERROR_INFORMATION.
- when the successful delivery of the RRC STATUS message has been confirmed by RLC, the UE shall resume normal operation as if the invalid PAGING TYPE 2 message has not been received.

10.3.1.10 Paging record ~~T~~type identifier

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Paging ~~R~~record ~~T~~type ~~i~~Identifier	MP		Enumerated (IMSI (GSM-MAP), TMSI (GSM-MAP)/ P-TMSI, IMSI (DS-41), TMSI (DS-41))	

10.3.3.24 Paging record

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE Used ~~P~~paging ~~originator~~identity	MP			
> CN ~~originator~~identity				
>> Paging cause	MP		Paging cause 10.3.3.23	
>> CN domain identity	MP		CN domain identity 10.3.1.1	
>>CHOICE UE Identity	MP			At least 3 spare choice, Criticality: reject, are needed
>>>IMSI (GSM-MAP)			IMSI (GSM-MAP) 10.3.1.6	
>>>TMSI (GSM-MAP)			TMSI (GSM-MAP) 10.3.1.18	
>>>P-TMSI (GSM-MAP)			P-TMSI (GSM-MAP) 10.3.1.13	
>>>IMSI (DS-41)			TIA/EIA/IS-2000-4	
>>>TMSI (DS-41)			TIA/EIA/IS-2000-4	
> UTRAN ~~originator~~identity				
>>U-RNTI	MP		U-RNTI 10.3.3.45	
>> CN originated page to connected mode UE	OP			
>>> Paging cause	MP		Paging cause 10.3.3.23	
>>> CN domain identity	MP		CN domain identity 10.3.1.1	
>>> Paging ~~R~~record ~~T~~type ~~I~~identifier	MP		Paging ~~R~~record ~~T~~type ~~I~~identifier 10.3.1.10	

Condition	Explanation
CHOICE *Used Ppaging ~~originator~~identity*	**Condition under which the given *used paging ~~originator~~ identity* is chosen**
CN ~~Originating~~identity	For CN originating pages (for idle mode UEs)
UTRAN ~~Originating~~identity	For UTRAN originating pages (for connected mode UEs)

10.3.8.1 BCCH modification info

Indicates modification of the System Information on BCCH.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
MIB Value tag	MP		MIB Value tag 10.3.8.7	
BCCH ~~M~~modification time	OP		Integer (0..~~8, 16, 24, ..~~ 4088 by step of 8)	~~-~~All SFN values in which MIB may be mapped are allowed.

11.3.3 User equipment information elements

```
UserEquipment-IEs DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

    CN-DomainIdentity,
    IMEI,
    IMSI-GSM-MAP,
    LAI,
    P-TMSI-GSM-MAP,
    PagingRecordTypeID,
    RAI,
    TMSI-GSM-MAP
FROM CoreNetwork-IEs

CN-OriginatedToConnectedMode ::=    SEQUENCE {
    pagingCause                         PagingCause,
    cn-DomainIdentity                   CN-DomainIdentity,
    pagingRecordTypeID                  PagingRecordTypeID
}

PagingRecord ::=                    CHOICE {
    cn-Page                             SEQUENCE {
        pagingCause                         PagingCause,
        cn-DomainIdentity                   CN-DomainIdentity,
        cn-pagedUE-Identity                 CN-PagedUE-Identity
    },
    utran-Page                          SEQUENCE {
        u-RNTI                              U-RNTI,
        cn-OriginatedToConnectedMode        CN-OriginatedToConnectedMode    OPTIONAL
        pagingCause                         PagingCause,
        cn-DomainIdentity                   CN-DomainIdentity,
    }
}
```

3GPP TSG-RAN Meeting #17
Sophia Antipolis, France, 14-17 November 2000

Tdoc R2-002253

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CHANGE REQUEST

⌘ **25.331** **CR** **599** ⌘ rev **-** ⌘ Current version: **3.4.1** ⌘

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Proposed change affects: ⌘ (U)SIM ☐ ME/UE **X** Radio Access Network **X** Core Network ☐

Title:	⌘	NAS signalling Procedures
Source:	⌘	TSG-RAN WG2
Work item code:	⌘	***Date:*** ⌘ 2000-11-14
Category:	⌘ **F**	***Release:*** ⌘ R99

Use one of the following categories:
F *(essential correction)*
A *(corresponds to a correction in an earlier release)*
B *(Addition of feature),*
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Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
REL-4 (Release 4)
REL-5 (Release 5)

Reason for change: ⌘ Removal of Flow Id concept (as of CR 573r1):
Dynamic routing based on the flow id is not required to allow considered migration scenarios. Therefore the concept is proposed to be removed and message routing will be performed using the CN domain identity.

Corrections of NAS related issues as identified by the RRC task force (“CR H”):
The Initial direct transfer procedure triggers RRC Connection establishment.
The handling of transaction identities for the NAS related procedures is added.

The changes relative to CR 573r1 are highlighted with yellow.

Summary of change: ⌘

Consequences if not approved: ⌘

Clauses affected: ⌘ 8.1.8.1, 8.1.8.2, 8.1.8.3, 8.1.10.1, 8.1.10.2, 8.1.10.3, 8.1.13, 8.1.13.1, 8.1.13.2, 8.1.13.3, 8.1.13.4, 8.1.14.1, 8.1.14.2, 8.1.14.3, 10.2.12, 10.2.47, 10.2.48, 10.2.59, 10.3.1.1, 10.3.1.4 (removed), 10.3.1.17 (removed), 10.3.10, 11.2, 11.3.1, 11.4

Other specs affected: ⌘
☐ Other core specifications ⌘
☐ Test specifications
☐ O&M Specifications

Other comments: ⌘ The following specifications contain references to the signalling flows (flow id): 24.007, 25.401, 34.108

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8.1.8 Initial Direct transfer

Figure 15: 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 a 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 flowCN domain, 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 establishment of a signalling connection the initialisation of a new flow. This request also includes a request for the transfer of a NAS message.

Upon initiation of the initial direct transfer procedure when the UE is in idle mode, the UE shall

- set the variable ESTABLISHMENT_CAUSE to the cause for establishment indicated by upper layers;
- perform an RRC connection establishment procedure, according to subclause 8.1.3;
- if the RRC connection establishment procedure completed unsuccessfully,
  - indicate failure to establish the signalling connection to upper layers and end the procedure;
- when the RRC connection establishment procedure completed successfully;
  - continue with the initial direct transfer procedure as below;

Upon initiation of the initial direct transfer procedure when the UE is in CELL_PCH or URA_PCH state, the UE shall:

- perform a cell update procedure, according to subclause 8.3.1, using the cause “uplink data transmission”;
- when the cell update procedure completed successfully:
  - continue with the initial direct transfer procedure as below.

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 3.

The UE shall set the IE “CN domain identity” as indicated by the upper layers.

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" (or "system information block type 11" if "system information block type 12" is not being broadcast).

When the successful delivery 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.

8.1.10 Uplink Direct transfer

Figure 17: Uplink Direct transfer, normal flow

8.1.10.1 General

The uplink direct transfer procedure is used in the uplink direction to carry all subsequent higher layer (NAS) messages over the radio interface belonging to a signalling ~~flow~~connection.

8.1.10.2 Initiation of uplink direct transfer procedure in the UE

In the UE, the uplink direct transfer procedure shall be initiated when the upper layers request a transfer of a NAS message ~~after the initial signalling connection is established and upper layer indication is provided indicating that the NAS message belongs to~~on an ~~on-going~~existing signalling ~~flow~~connection. When not stated otherwise elsewhere, the UE may initiate the uplink direct transfer procedure when another procedure is ongoing, and in that case the state of the latter procedure shall not be affected.

Upon initiation of the uplink direct transfer procedure when the UE is in CELL_PCH or URA_PCH state, the UE shall:

- perform a cell update procedure, according to subclause 8.3.1, using the cause “uplink data transmission”;
- when the cell update procedure completed successfully:
  - continue with the uplink direct transfer procedure as below.

The UE shall transmit the UPLINK DIRECT TRANSFER message on the uplink DCCH using AM RLC on RB 3 or RB 4. The UE shall select the RB according to the following:

- if the non-access stratum indicates "low priority" for this message, RB 4 shall be selected, if available. Specifically, for a GSM-MAP based CN, RB 4 shall, if available, be selected when "SAPI 3" is requested. RB 3 shall be selected when RB 4 is not available.

- if the non-access stratum indicates "high priority" for this message, RB 3 shall be selected. Specifically, for a GSM-MAP based CN, RB 3 shall be selected when "SAPI 0" is requested.

The UE shall set the IE “CN domain identity” as indicated by the upper layers. ~~The UE shall set the IE "Flow Identifier" to the same value as that allocated to that particular flow when transmitting the INITIAL DIRECT TRANSFER message for that flow.~~

When the UPLINK DIRECT TRANSFER message has been submitted to lower layers for transmission the procedure ends.

8.1.10.3 Reception of UPLINK DIRECT TRANSFER message by the UTRAN

On reception of the UPLINK DIRECT TRANSFER message the NAS message should be routed using the value indicated in the IE "~~Flow Identifier~~CN domain identity".

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 UPLINK DIRECT TRANSFER message, it shall not affect the state of any other ongoing RRC procedures, when not stated otherwise elsewhere.

8.1.13 Signalling connection ~~flow~~ release procedure

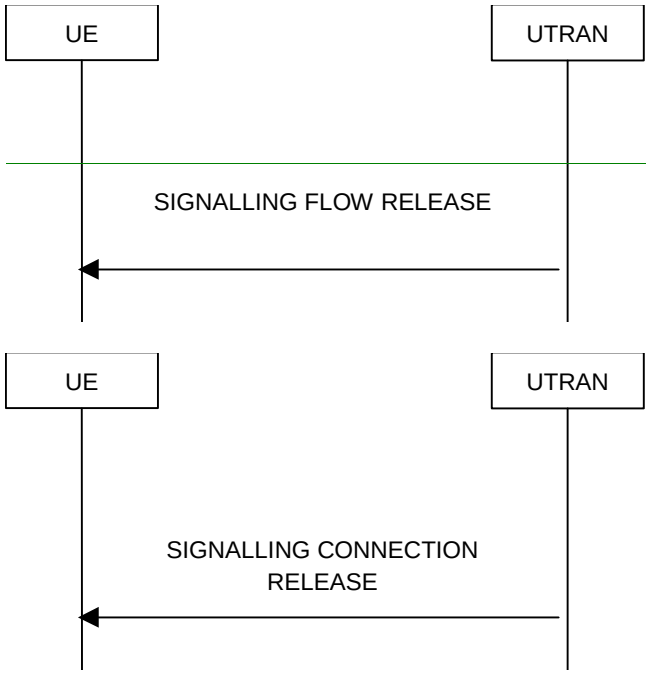

Figure 20: Signalling connection ~~flow~~ release procedure, normal case

8.1.13.1 General

The signalling connection release procedure is used to notify to the UE that one ~~or more~~ of its ~~signalling flows of its~~ ongoing signalling connections has been released. The procedure does not initiate the release of the RRC connection.

8.1.13.2 Initiation of SIGNALLING CONNECTION RELEASE by the UTRAN

~~The UTRAN may initiate the release of one or more signalling flows.~~

To initiate the procedure, the UTRAN transmits a SIGNALLING CONNECTION ~~FLOW~~ RELEASE message on DCCH using AM RLC.

~~The UTRAN should identify the signalling flows to be released using the IE "Flow Identifier".~~

8.1.13.3 Reception of SIGNALLING CONNECTION ~~FLOW~~ RELEASE by the UE

Upon reception of a SIGNALLING CONNECTION ~~FLOW~~ RELEASE message, the UE shall indicate the release of the signalling connection ~~flows~~ identified by the value~~s~~ of the IE " CN domain identity ~~Flow identifier~~" to the corresponding higher layer entities.

The UE shall clear the entry for the SIGNALLING CONNECTION RELEASE message in the table “Accepted transactions” in the variable TRANSACTIONS.

8.1.13.4 Invalid SIGNALLING CONNECTION ~~FLOW~~ RELEASE message

If the UE receives a SIGNALLING CONNECTION ~~FLOW~~ RELEASE 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;
- include the IE “Identification of received message”, and;
- set the IE “Received message type” to SIGNALLING CONNECTION RELEASE;

- set the IE "RRC transaction identifier" to the value of "RRC transaction identifier" in the entry for the SIGNALLING CONNECTION RELEASE message in the table "Rejected transactions" in the variable TRANSACTIONS, and;

- clear that entry;

- include the IE "Protocol error information" with contents set to the value of the variable PROTOCOL_ERROR_INFORMATION;

- when ~~the successful delivery of~~ the RRC STATUS message has been ~~confirmed by RLC~~submitted to lower layers for transmission:

  - resume normal operation as if the invalid SIGNALLING CONNECTION RELEASE message has not been received.

8.1.14 Signalling connection release request procedure

Figure 21: Signalling connection release request procedure, normal case

8.1.14.1 General

The signalling connection release request procedure is used by the UE to request from the UTRAN that one of its signalling connections should be released. The procedure may in turn initiate the signalling connection ~~flow~~ release or RRC connection release procedure.

8.1.14.2 Initiation

The UE shall initiate the signalling connection release request procedure on receiving a request to release the signalling connection from higher layers.

Upon initiation of the signalling connection release request procedure when the UE is in CELL_PCH or URA_PCH state, the UE shall:

- perform a cell update procedure, according to subclause 8.3.1, using the cause "uplink data transmission";

- when the cell update procedure completed successfully:

  - continue with the signalling connection release request procedure as below;

~~To initiate the procedure, T~~the shall UE transmits a SIGNALLING CONNECTION RELEASE REQUEST message on DCCH using AM RLC. ~~When the successful delivery of SIGNALLING CONNECTION RELEASE REQUEST message has been confirmed by RLC, the UE shall delete the released flow identifier(s).~~

The IE " CN domain identity ~~Flow Identifier~~" indicates the signalling connection ~~flow identity~~ which is requested to be released and shall be set as received by upper layers.

When the SIGNALLING CONNECTION RELEASE REQUEST message has been submitted to lower layers for transmission the procedure ends.

8.1.14.3 Reception of SIGNALLING CONNECTION RELEASE REQUEST by the UTRAN

Upon reception of a SIGNALLING CONNECTION RELEASE REQUEST message, the UTRAN requests the release of the signalling connection from the non-access stratum. The non-access stratum may then initiate the release of the signalling connection. ~~may initiate the RRC connection release procedure, if the UE has requested the release of all its remaining signalling connections. If all remaining signalling connections are not requested to be released, the UTRAN should initiate the signalling flow release procedure. In the latter case the UTRAN should include all the signalling flows identified by the "Flow identifiers", associated with the signalling connection being released.~~

10.2.12 INITIAL DIRECT TRANSFER

This message is used to initiate a signalling connection ~~or to establish a new signalling flow~~ based on indication from the upper layers, and to transfer a NAS message~~s~~.

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 10.3.3.14	
CN information elements				
~~Service Descriptor~~	~~MP~~		~~Service Descriptor 10.3.1.17~~	
~~Flow Identifier~~	~~MP~~		~~Flow Identifier 10.3.1.4~~	~~Allocated by UE for a particular flow~~
CN domain identity	MP		CN domain identity 10.3.1.1	
NAS message	MP		NAS message 10.3.1.8	
Measurement information elements				
Measured results on RACH	OP		Measured results on RACH 10.3.7.70	

10.2.47 SIGNALLING CONNECTION RELEASE

This message is used to notify the UE that ~~one of~~ its ongoing signalling connection~~s~~ to a CN domain has been released.

RLC-SAP: AM

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				
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.34a	
Integrity check info	CH		Integrity check info 10.3.3.14	Integrity check info is included if integrity protection is applied
CN information elements				
CN domain identity	MP		CN domain identity 10.3.1.1	
~~Signalling Flow related information list~~	~~MP~~	~~1 to <maxSignallingFlow>~~		~~Flow identifier to be provided for each signalling flow to be released.~~
~~>Flow Identifier~~	~~MP~~		~~Flow Identifier 10.3.1.4~~	

10.2.48 SIGNALLING CONNECTION RELEASE REQUEST

This message is used by the UE to request for the release of a signalling ~~flow~~connection.

RLC-SAP: AM

Logical channel: DCCH

Direction: UE→UTRAN

Information Element/Group name	Need	Multi	IE type and reference	Semantics description
Message Type	MP		Message type	
CN information elements				
CN domain identity	MP		CN domain identity 10.3.1.1	
~~Flow Identifier~~	~~MP~~		~~Flow Identifier 10.3.1.4~~	~~Flow identifier of signalling flow to be released by UTRAN.~~

10.2.59 UPLINK DIRECT TRANSFER

This message is used to transfer NAS messages for an ~~on-going~~existing signalling connection~~flow~~.

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 10.3.3.14	Integrity check info is included if integrity protection is applied
CN information elements				
~~Flow Identifier~~	~~MP~~		~~Flow Identifier 10.3.1.4~~	~~Allocated by UE for a particular flow~~
CN domain identity	MP		CN domain identity 10.3.1.1	
NAS message	MP		NAS message 10.3.1.8	
Measurement information elements				
Measured results on RACH	OP		Measured results on RACH 10.3.7.70	

10.3.1.1 CN domain identity

Identifies the type of core network domain.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CN domain identity	MP		Enumerated (CS domain, PS domain~~, Don't care~~)	At least 1 spare value needed Criticality: criticality reject is needed

*** *Next change* ***

~~10.3.1.4 Flow Identifier~~

~~This IE is allocated by the UE for a particular signalling flow on an indication from the upper layers.~~

~~Information Element/Group name~~	~~Need~~	~~Multi~~	~~Type and reference~~	~~Semantics description~~
~~Flow Identifier~~	~~MP~~		~~Integer (0…63)~~	

10.3.1.17 Service Descriptor

Identifies a service and/or a protocol entity in the core network.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE *Service descriptor type*	MP			
>Service Descriptor (GSM-MAP)			Bit string (4)	Protocol Discriminator [TS 24.007] The value of RR in the above reference is reserved for paging response.
>Service Descriptor (ANSI-41)			Bit string(4)	TIA/EIA IS-834

CHOICE *Service descriptor type*	Condition under which the given *Service descriptor type* is chosen
Service descriptor (GSM-MAP)	PLMN is of type GSM-MAP
Service descriptor (ANSI-41)	PLMN is of type ANSI-41

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 or Radio Access Technologies	maxOtherRAT + 1
MaxOtherRAT	Maximum number or other Radio Access Technologies	15
MaxURA	Maximum number of URAs in a cell	8
MaxInterSysMessages	Maximum number of Inter System Messages	4
MaxRABsetup	Maximum number of RABs to be established	16
UE information		
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 cell	16
MaxSIBperMsg	Maximum number of complete system information blocks per SYSTEM INFORMATION message	16
MaxSIB	Maximum number of references to other system information blocks.	32
maxSIB-FACH	Maximum number of references to system information blocks on the FACH	8
PhyCH information		
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
MaxFACHPCH	Maximum number of FACHs and PCHs mapped onto one secondary CCPCHs	8
MaxRL	Maximum number of radio links	8

MaxSCCPCH	Maximum number of secondary CCPCHs per cell	16
MaxDPDCH-UL	Maximum number of DPDCHs per cell	6
MaxDPCH-DLchan	Maximum number of channelisation codes used for DL DPCH	8
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
MaxTS	Maximum number of timeslots used in one direction (UL or DL)	14
HiPUSCHIdentities	Maximum number of PDSCH Identities	64
HiPDSCHIdentities	Maximum number of PDSCH Identities	64
Measurement information		
MaxTGPS	Maximum number of transmission gap pattern sequences	6
MaxAdditionalMeas	Maximum number of additional measurements for a given measurement identity	4
MaxMeasEvent	Maximum number of events that can be listed in measurement reporting criteria	8
MaxMeasParEvent	Maximum number of measurement parameters (e.g. thresholds) per event	2
MaxMeasIntervals	Maximum number of intervals that define the mapping function between the measurements for the cell quality Q of a cell and the representing quality value	1
MaxCellMeas	Maximum number of cells to measure	32
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
Frequency information		
MaxFDDFreqList	Maximum number of FDD carrier frequencies to be stored in USIM	4
MaxTDDFreqList	Maximum number of TDD carrier frequencies to be stored in USIM	4
MaxFDDFreqCellList	Maximum number of neighbouring FDD cells to be stored in USIM	32
MaxTDDFreqCellList	Maximum number of neighbouring TDD cells to be stored in USIM	32
MaxGSMCellList	Maximum number of GSM cells to be stored in USIM	32

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


...

-- **************************************************
--
-- 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 {}
}

...

-- **************************************************
--
-- SIGNALLING CONNECTION RELEASE
--
-- **************************************************

SignallingConnectionRelease::= CHOICE {
    v1                              SEQUENCE {
        v1-IEs                          SignallingConnectionRelease-v1-IEs,
        nonCriticalExtensions           SEQUENCE {}
    },
    criticalExtensions              SEQUENCE {}
}

SignallingConnectionRelease-v1-IEs ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
    -- Core network IEs
        cn-DomainIdentity               CN-DomainIdentity
        signallingFlowInfoList          SignallingFlowInfoList
}

-- **************************************************
```

```
--
-- SIGNALLING CONNECTION RELEASE REQUEST
--
-- **************************************************

SignallingConnectionReleaseRequest ::= SEQUENCE {
    -- Core network IEs
        cn-DomainIdentity               CN-DomainIdentity       signallingFlowInfoList
    SignallingFlowInfoList,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}
}

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

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

...
END
```

11.3 Information element definitions

11.3.1 Core network information elements

```
CoreNetwork-IEs DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

    CN-DRX-CycleLengthCoefficient
FROM UserEquipment-IEs

    Min-P-REV,
    NAS-SystemInformationANSI-41,
    NID,
    P-REV,
    SID
FROM ANSI-41-IEs

    maxCNdomains,
    maxSignallingFlow
FROM Constant-definitions;

CN-DomainIdentity ::=               ENUMERATED {
                                        cs-domain,
                                        ps-domain,
                                        not-important,
                                        spare1,
                                        spare2 }

...
FlowIdentifier ::=                  INTEGER (0..63)

...
ServiceDescriptor ::=               CHOICE {
    gsm-MAP                             BIT STRING (SIZE (4)),
    ansi-41                             BIT STRING (SIZE (4))
}

SignallingFlowInfoList ::=          SEQUENCE (SIZE (1..maxSignallingFlow)) OF
                                        FlowIdentifier

...
```

```
END
```

11.4 Constant definitions

```
Constant-definitions DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

hiPDSCHidentities           INTEGER ::= 64
hiPUSCHidentities           INTEGER ::= 64
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
maxPredefConfig             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
maxSIBperMsg                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
maxTFCI-2-Combs             INTEGER ::= 512
maxTGPS                     INTEGER ::= 6
maxTrCH                     INTEGER ::= 32
maxTrCHpreconf              INTEGER ::= 16
maxTS                       INTEGER ::= 14
maxTS-1                     INTEGER ::= 13
maxURA                      INTEGER ::= 8
```

```
END
```

3GPP TSG-RAN Meeting #17
Sophia Antipolis, France, 14-17 November 2000

Tdoc R2-002456

CR-Form-v3

CHANGE REQUEST

⌘ **25.331** **CR** **600** ⌘ rev **r3** ⌘ Current version: **3.4.1** ⌘

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

Proposed change affects: ⌘ (U)SIM ☐ ME/UE **X** Radio Access Network **X** Core Network ☐

Title:	⌘	Radio Bearer Control Procedures
Source:	⌘	TSG-RAN WG2
Work item code:	⌘	***Date:*** ⌘ 2000-11-14
Category:	⌘	**F** ***Release:*** ⌘ R99

Use one of the following categories:
F *(essential correction)*
A *(corresponds to a correction in an earlier release)*
B *(Addition of feature),*
C *(Functional modification of feature)*
D *(Editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
REL-4	*(Release 4)*
REL-5	*(Release 5)*

Reason for change: ⌘ This CR contains corrections and editorial changes as identified by the RRC task force:
Text is moved and merged to avoid duplication of text in the Reconfiguration, Radio bearer setup and Radio bearer release procedures.
Addition of RRC transaction id
Clarification of when procedure ends
Clarification of when to use “RLC stop” and “RLC continue”
Interaction with cell re-selection
Clarification of RRC state transitions indicator

Summary of change: ⌘

Consequences if not approved: ⌘

Clauses affected: ⌘ 8.2.1, 8.2.1.1-8.2.1.10 (deleted), 8.2.2, 8.2.2.1-8.2.2.3, 8.2.2.4 (deleted), 8.2.2.4a (new), 8.2.2.5-8.2.2.7, 8.2.2.7a-8.2.2.7b (new), 8.2.2.8, 8.2.2.9-8.2.2.11 (deleted), 8.2.2.12, 8.2.2.13 (deleted), 8.2.2.14, 8.2.2.15, 8.2.3, 8.2.3.1-8.2.3.11 (deleted), 8.2.5.2, 8.2.5.3, 8.2.5.3a (new), 8.2.5.4 (deleted), 8.2.5.5, 8.2.7.1-8.2.7.4, 8.2.8, 8.2.8.2, 8.2.8.2a (new), 8.2.8.4, 8.2.9.2-8.2.9.4, 8.2.10.3-8.2.10.4, 8.2.11.2, 8.6.4.x (new), 8.6.4.a-8.6.4.e (new), 8.6.4.1, 8.6.4.2, 8.6.4.3, 8.6.5.2, 8.6.5.3, 10.2.21, 10.2.26, 10.2.52, 10.3.4.18, 10.3.5.22, 13.4.3 (deleted), 13.4.5, 13.4.x (new), 13.4.14a (new)

Other specs affected: ⌘
☐ Other core specifications ⌘
☐ Test specifications
☐ O&M Specifications

Other comments: ⌘

How to create CRs using this form:

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

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

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://www.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2000-09 contains the specifications resulting from the September 2000 TSG meetings.

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

8.2 Radio Bearer control procedures

8.2.1 Radio bearer establishment

See 8.2.2 (Reconfiguration procedures).

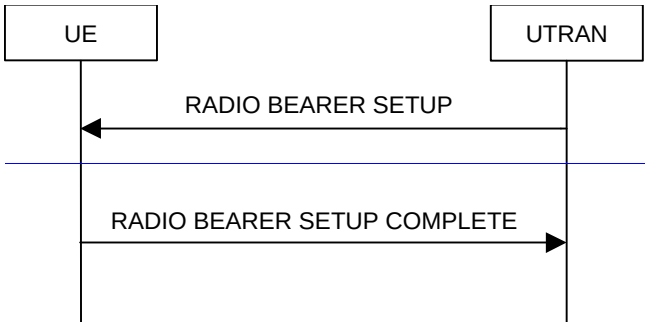

Figure 23: Radio Bearer Establishment, normal case

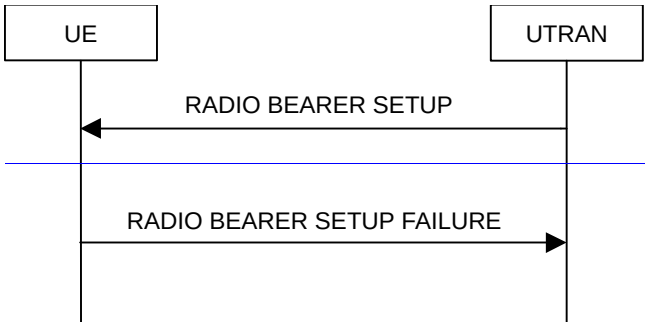

Figure 24: Radio Bearer Establishment, UE reverts to old configuration

8.2.1.1 General

The purpose of this procedure is to establish new radio bearer(s) or re-configure previously established radio bearers. Each radio bearer established by the procedure belongs to one of the following categories:

- a signalling radio bearer, i.e. used for control plane signalling;
- a radio bearer that implements a radio access bearer (RAB) or RAB subflow in the user plane.

While establishing radio bearers, the procedure may perform a hard handover, see 8.3.5.

8.2.1.2 Initiation

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

To initiate the procedure, UTRAN should:

- configure new radio links in any new physical channel configuration and start transmission and reception on the new radio links;
- transmit a RADIO BEARER SETUP message on the downlink DCCH using AM or UM RLC.

If the Radio Bearer Establishment procedure is simultaneously initiated with SRNS relocation procedure, and ciphering and/or integrity protection are activated, UTRAN should:

- transmit new ciphering and/or integrity protection information to be used after reconfiguration.

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

- set TFCS according to the new transport channel(s).

If the IE "Activation Time" is included, UTRAN should:

- set it to a value taking the UE performance requirements into account.

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

If RAB subflows are established, UTRAN should:

- include in the RADIO BEARER SETUP message RAB subflows in ascending order, with the RAB subflow with the smallest number in first position.

8.2.1.3 Reception of a RADIO BEARER SETUP message by the UE

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:

Upon reception of a RADIO BEARER SETUP message the UE shall perform actions as specified below:

- 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;

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 8.6, unless specified otherwise in the following.

The UE shall:

- for the new radio bearer(s):
  - if the variable CIPHERING_STATUS is set to "Started":
    - initialise ciphering on the non-transparent radio bearers using the current START value. All transparent mode radio bearers have a common hyperframe number (MAC-d HFN), which is not incremented due to addition of new transparent radio bearer(s);
- in case of non-transparent mode radio bearers:
  - transmit the current START value to UTRAN in RADIO BEARER SETUP COMPLETE message;
- suspend data transmission on RB 3 and upward, if RLC-AM or RLC-UM is used on those radio bearers.
- if the IE "RAB information for setup" is included, the procedure is used to establish radio bearers belonging to a radio access bearer:
  - associate the new radio bearers that are defined by the IE(s) "RB information to setup" 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:
      - 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:
      - 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:
  - create a new RAB subflow for the radio access bearer;
  - number the RAB subflow in ascending order, assigning the smallest number to the RAB subflow which appear first in the RADIO BEARER SETUP message;
  - store the number of the RAB subflow in the variable ESTABLISHED_RABS;

The UE may first release the current physical channel configuration and shall then establish a new physical channel configuration according to 8.6 and the following.

- if neither the IE "PRACH info" nor the IE "Uplink DPCH info" is included and the UE will be in CELL_FACH state at the conclusion of this procedure:
  - 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 and the UE will be in CELL_FACH state at the conclusion of this procedure:
  - 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 8.6 and:
  - infer that the PDSCH will be transmitted from the BS from which the downlink DPCH is transmitted;

The UE shall use the physical channel(s) applicable to the state in which it will be at the conclusion of this procedure as specified below.

If the UE will be in CELL_FACH state at the conclusion of this procedure the UE shall:

- if the IE "TFS" is neither included nor previously stored in the UE for that transport channel(s):
  - use the TFS given in system information.
- if none of the TFS stored is compatible with the physical channel to be used:
  - delete stored TFS;
  - use the TFS given in system information;

The UE shall transmit a RADIO BEARER SETUP COMPLETE message on the uplink DCCH using AM RLC when the new configuration is in place. In particular the UE shall:

- transmit the RADIO BEARER SETUP COMPLETE message using the new configuration;

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;
- clear the variable ORDERED_CONFIG;
- clear the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO;

The UE shall enter a state according to 8.5.7.

The procedure ends.

8.2.1.4 Unsupported configuration in the UE

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

- transmit a RADIO BEARER SETUP FAILURE message on the DCCH using AM RLC;

- set the IE "failure cause" to the cause value "configuration unsupported". 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 in the RADIO BEARER SETUP FAILURE message.

When the successful delivery 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.

8.2.1.5 Physical channel failure

If the UE failed to establish the physical channel(s) indicated in the RADIO BEARER SETUP message according to the criteria in subclause 8.5.4 the UE shall:

- revert to the configuration prior to the reception of the RADIO BEARER SETUP message (old configuration);
- transmit a RADIO BEARER SETUP FAILURE message on the DCCH using AM RLC;
- resume data transmission on RB 3 and upwards if RLC-AM or RLC-UM is used on those radio bearers;
- resume the normal operation as if no radio bearer establishment attempt had occurred.

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.

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

- initiate an RRC connection re-establishment procedure according to subclause 8.1.5;
- set the IE "failure cause" to the cause value "physical channel failure".

The procedure ends.

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

When UTRAN has received the RADIO BEARER SETUP COMPLETE message, UTRAN may delete any old configuration.

If the IE "UL Timing Advance" is included, UTRAN shall evaluate the timing advance value that the UE has to use in the new cell after handover.

The procedure ends on the UTRAN side

8.2.1.7 Reception of RADIO BEARER SETUP FAILURE by the UTRAN

When UTRAN has received the RADIO BEARER SETUP FAILURE message, UTRAN may restore the old and delete the new configuration. Upper layers should be notified of the failure.

The procedure ends on the UTRAN side

8.2.1.8 Subsequently received RADIO BEARER SETUP messages

If the variable ORDERED_CONFIG is set because of a RADIO BEARER SETUP message previously received, the UE shall:

- ignore the subsequently received RADIO BEARER SETUP message;
- keep the configuration as before the subsequent RADIO BEARER SETUP message was received.

8.2.1.9 Incompatible simultaneous reconfiguration

If the variable ORDERED_CONFIG is set (because of any message other than RADIO BEARER SETUP) upon the reception of the RADIO BEARER SETUP message, the UE shall:

- keep the old configuration as before the RADIO BEARER SETUP message was received;
- transmit a RADIO BEARER SETUP FAILURE message on the DCCH using AM RLC;
- set the IE "failure cause" to "incompatible simultaneous reconfiguration".
- when the successful delivery of RADIO BEARER SETUP FAILURE message has been confirmed by RLC the procedure ends.

8.2.1.10 Invalid RADIO BEARER SETUP message

If the variable ORDERED_CONFIG is not set and the RADIO BEARER SETUP message 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 a RADIO BEARER SETUP FAILURE message on the uplink DCCH using AM RLC;
- set the IE "failure cause" to the cause value "protocol error";
- include the IE "Protocol error information" with contents set to the value of the variable PROTOCOL_ERROR_INFORMATION;
- when the successful delivery of the RADIO BEARER SETUP FAILURE message has been confirmed by RLC:
  - resume data transmission on RB 3 and upwards if RLC-AM or RLC-UM is used on those radio bearers;
  - resume normal operation as if the invalid RADIO BEARER SETUP message has not been received and the procedure ends.

8.2.2 Reconfiguration procedures

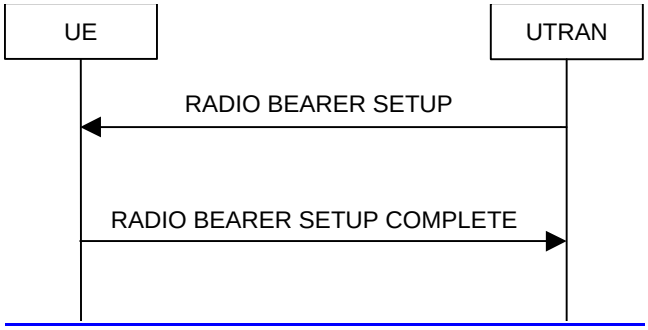

Figure 23: Radio Bearer Establishment, normal case

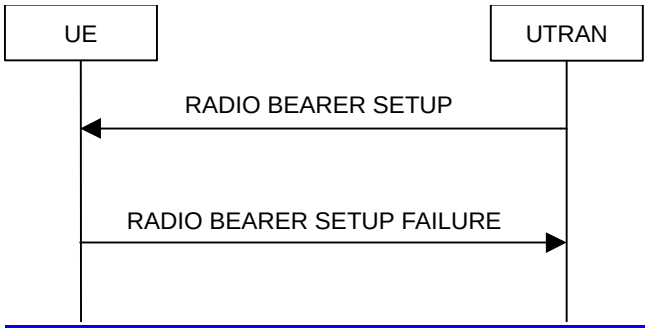

Figure 24: Radio Bearer Establishment, failure case

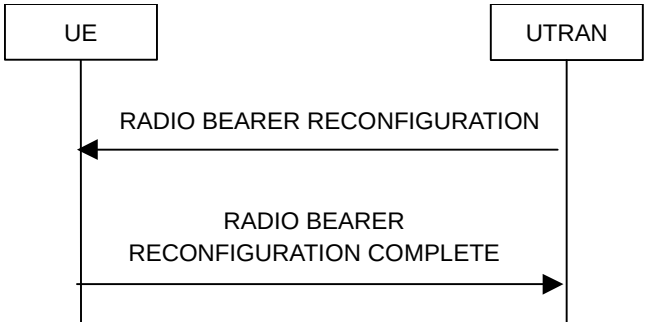

Figure 25: Radio bearer reconfiguration, normal flow

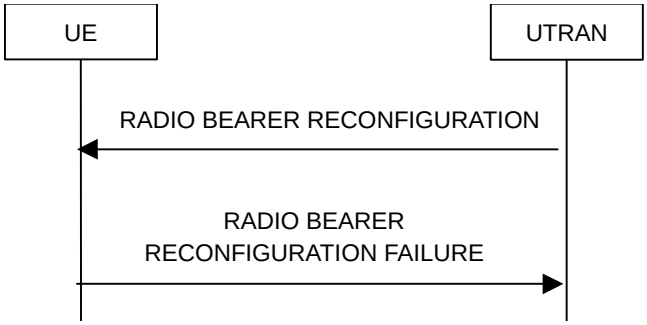

Figure 26: Radio bearer reconfiguration, failure case

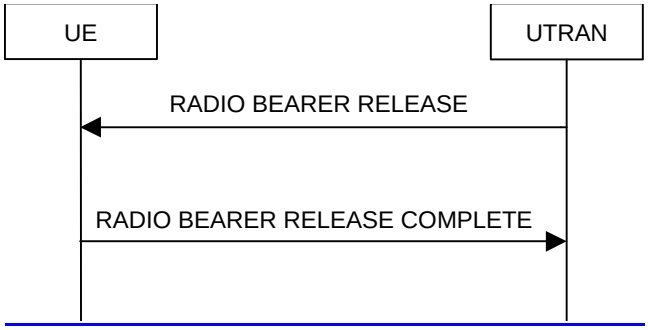

Figure 26a: Radio Bearer Release, normal case

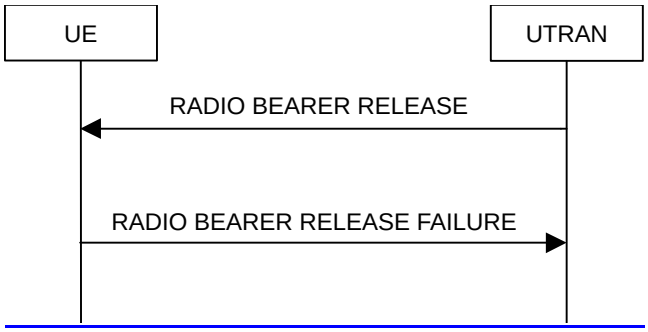

Figure 26b: Radio Bearer Release, failure case

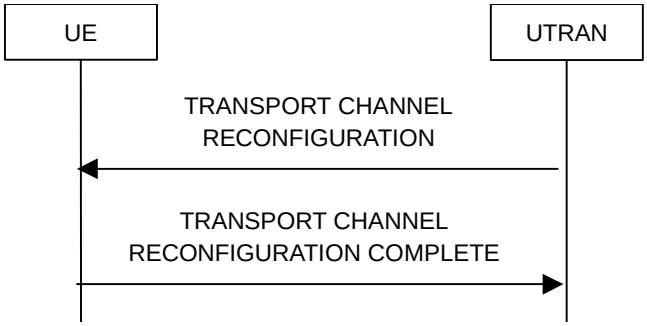

Figure 27: Transport channel reconfiguration, normal flow

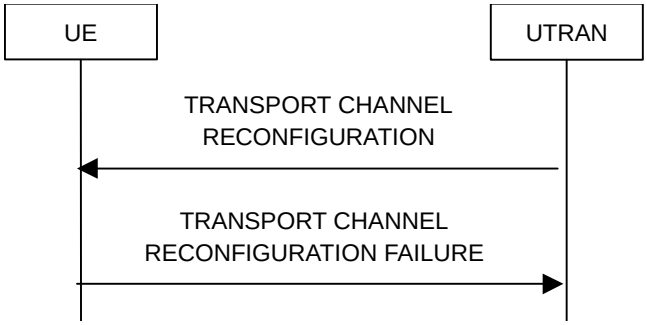

Figure 28: Transport channel reconfiguration, failure case

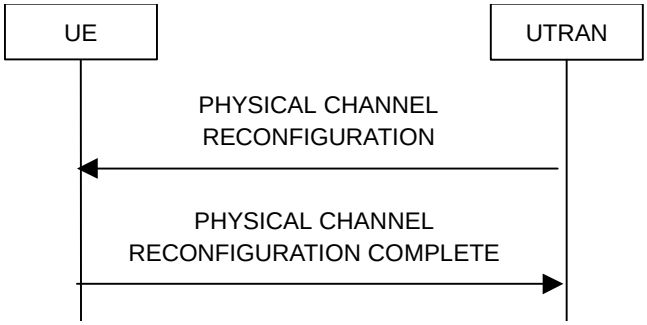

Figure 29: Physical channel reconfiguration, normal flow

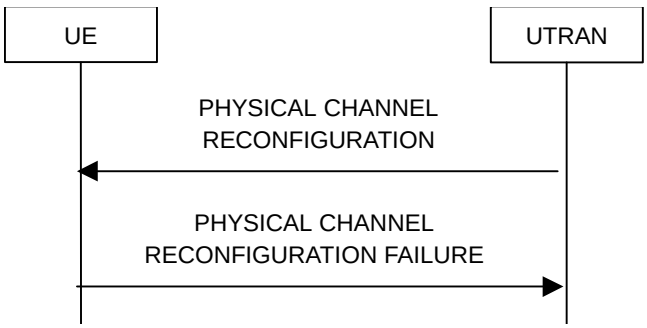

Figure 30: Physical channel reconfiguration, failure case

8.2.2.1 General

Reconfiguration procedures include the following procedures:

- the radio bearer establishment procedure;
- the radio bearer reconfiguration procedure;~~,~~

- the radio bearer release procedure;

- , the transport channel reconfiguration procedure;

and

- ~~and~~ the physical channel reconfiguration procedure.

The radio bearer establishment procedure is used to establish new radio bearer(s).

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

The radio bearer release procedure is used to release radio bearer(s).

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

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

While doing so, these procedures may perform a hard handover, see 8.3.5.

8.2.2.2 Initiation

To initiate one of the reconfiguration procedures, UTRAN should:

- configure new radio links in any new physical channel configuration;
- start transmission and reception on the new radio links;
- for a radio bearer establishment procedure, transmit a RADIO BEARER SETUP message on the downlink DCCH using AM or UM RLC;
- for a radio bearer reconfiguration procedure, transmit a RADIO BEARER RECONFIGURATION message on the downlink DCCH using AM or UM RLC;
- for a radio bearer release procedure, transmit a RADIO BEARER RELEASE message on the downlink DCCH using AM or UM RLC;
- for a transport channel reconfiguration procedure, transmit a TRANSPORT CHANNEL RECONFIGURATION message on the downlink DCCH using AM or UM RLC;
- for a physical channel reconfiguration procedure, transmit a PHYSICAL CHANNEL RECONFIGURATION message on the downlink DCCH using AM or UM RLC;
- ~~transmit a RADIO BEARER RECONFIGURATION or TRANSPORT CHANNEL RECONFIGURATION or PHYSICAL CHANNEL RECONFIGURATION message on the downlink DCCH using AM or UM RLC.~~
- if the reconfiguration procedure is simultaneous with SRNS relocation procedure, and ciphering and/or integrity protection are activated:
  - transmit new ciphering and/or integrity protection information to be used after reconfiguration.
- if transport channels are added, reconfigured or deleted in uplink and/or downlink, the UTRAN should:
  - set TFCS according to the new transport channel(s).
- if transport channels are added or deleted in uplink and/or downlink, the UTRAN should:
  - send the RB Mapping Info for the new configuration

In the Radio Bearer Reconfiguration procedure UTRAN ~~should~~ may indicate that uplink transmission shall be ~~suspended~~ stopped or continued on certain radio bearers. Uplink transmission on a signalling radio bearer used by the RRC signalling (RB 1 or RB 2) should not be ~~suspended~~stopped.

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

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

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

8.2.2.3 Reception of a RADIO BEARER SETUP or RADIO BEARER RECONFIGURATION or RADIO BEARER RELEASE or TRANSPORT CHANNEL RECONFIGURATION or PHYSICAL CHANNEL RECONFIGURATION message by the UE ~~in CELL_DCH state~~

~~Upon reception of a RADIO BEARER RECONFIGURATION or TRANSPORT CHANNEL RECONFIGURATION or PHYSICAL CHANNEL RECONFIGURATION message in CELL_DCH state, the UE shall perform actions specified below:~~

If the UE receives:

- a RADIO BEARER SETUP message, or;
- a RADIO BEARER RECONFIGURATION message, or;
- a RADIO BEARER RELEASE message, or;
- a TRANSPORT CHANNEL RECONFIGURATION message, or;
- a PHYSICAL CHANNEL RECONFIGURATION message

~~in CELL_DCH state, the UE~~it shall perform actions specified below:

- store the received ~~UE Information Elements, RB Information Elements, TrCH Information Elements and PhyCH information elements~~message in the variable ORDERED_CONFIG;
- ~~act upon all received information elements as specified in 8.6, unless specified otherwise in the following.~~

~~The UE shall:~~

- ~~suspend or resume uplink transmission for each radio bearer, as indicated by the IE "RB suspend/resume" information element, if included;~~
- ~~suspend data transmission on RB 3 and upward, if RLC-AM or RLC-UM is used on those radio bearers.~~

[Hans: Identation changes are highlighted in grey !!!]

- The UE may first release the current physical channel configuration and shall then establish a new physical channel configuration and act upon all received information elements as specified in ~~according to~~ 8.6, unless specified in ~~and~~ the following:.
  - ~~If neither the IE "PRACH info" nor the IE "Uplink DPCH info" is included and the UE will be in CELL_FACH state at the conclusion of this procedure, 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 "Downlink DPCH info" is included and the UE will be in CELL_FACH state at the conclusion of this procedure, 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 8.6 and:
    - infer that the PDSCH will be transmitted from the cell from which the downlink DPCH is transmitted.
  - ~~The UE shall use the physical channel(s) applicable to the state in which it will be at the conclusion of this procedure as specified below:~~
    - ~~if the UE will be in CELL_FACH state at the conclusion of this procedure:~~

- ~~and if the IE "TFS" is neither included nor previously stored in the UE for that transport channel(s):~~

  - ~~use the TFS given in system information;~~

- ~~if the UE will be in CELL_FACH state at the conclusion of this procedure and if none of the TFS stored is compatible with the physical channel to be used:~~

  - ~~delete stored TFS;~~

  - ~~use the TFS given in system information;~~

- The UE shall enter a state according to 8.5.7.

~~If the RADIO BEARER RECONFIGURATION message is used to initiate a transition from CELL_DCH to CELL_FACH state and the IE "New C-RNTI" is not included the UE shall:~~

- ~~perform a cell update procedure according to 8.3.1 before sending the RADIO BEARER RECONFIGURATION COMPLETE message;~~

~~In case of reception of a RADIO BEARER RECONFIGURATION message, if the UE is not entering CELL_PCH or URA_PCH, the UE shall:~~

- ~~transmit a RADIO BEARER RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC when the new configuration is in place. In particular:~~

  - ~~transmit the COMPLETE message using the new configuration;~~

~~If the UE is entering CELL_PCH or URA_PCH, the UE shall:~~

- ~~transmit the COMPLETE message on the uplink DCCH using AM RLC and in particular:~~

  - ~~transmit the COMPLETE message using the old configuration;~~

If the UE remains in CELL_DCH state after state transition:

- if the IE "UL DPCH Info" is absent the UE shall not change its current UL Physical channel configuration;

- if the IE "DL DPCH Info for each RL" is absent the UE shall not change its current DL Physical channel configuration.

If the UE after state transition enters CELL_FACH state, it shall

- start the timer T305 if timer T305 is not running;

- select PRACH according to subclause 8.6.6.2;

- select Secondary CCPCH according to subclause 8.6.6.4.

- use the transport format set given in system information;

- if the IE "UTRAN DRX cycle length coefficient" is included in the same message:

  - ignore that IE and stop using DRX.

- if the contents of the variable C_RNTI is empty;

  - ~~received message is used to initiate a transition from CELL_DCH state to new state is , the UE shall enter this state~~perform a cell update procedure according to subclause 8.3.1 and then proceed as below.

- Transmit a response message as specified in subclause 8.2.2.4a, setting the information elements as specified below:

  - 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" ~~in the response message transmitted below~~ to the value of that variable.

  - If the variable START_VALUE_TO_TRANSMIT is set, the UE shall:

- include and set the IE “START” ~~in the response message transmitted below~~ to the value of that variable.

~~The UE shall~~

- set the IE “RRC transaction identifier” ~~in the response message transmitted below~~ to:
  - the value of “RRC transaction identifier” in the entry for the received message in the table “Accepted transactions” in the variable TRANSACTIONS, and;
  - clear that entry.
- ~~include the IE "RB with PDCP information" for each Radio Bearer having PDCP in the case of lossless SRNS relocation.~~
- if the variable PDCP_SN_INFO is non-empty:
  - include the IE “RB with PDCP information list” in any response message transmitted below and set it to the value of the variable PDCP_SN_INFO;
- ~~for each radio bearer in the variable PDCP_SN_INFO:~~
  - ~~include the radio bearer identity and current PDCP sequence number in the IE “RB with PDCP information”;~~
- in TDD, if the procedure is used to perform a handover to a cell where timing advance is enabled, and the UE can calculate the timing advance value in the new cell (i.e. in a synchronous TDD network), the UE shall set the IE "Uplink Timing Advance" to the calculated value.

If the UE after state transition enters CELL_PCH or URA_PCH state, it shall

- remove any C-RNTI from MAC;
- clear the variable C_RNTI;
- start the timer T305 if timer T305 is not running;
- select Secondary CCPCH according to subclause 8.6.6.4.
- if the IE "UTRAN DRX cycle length coefficient" is included in the same message, use the value in the IE "UTRAN DRX Cycle length coefficient" for calculating Paging occasion and PICH Monitoring Occasion as specified in 8.6.3.2.

~~If the UE after state transition enters URA_PCH state, it shall~~

- ~~remove any C-RNTI from MAC;~~
- ~~clear the variable C_RNTI;~~
- ~~start the timer T306 if timer T306 is not running.;~~
- ~~select Secondary CCPCH according to subclause 8.6.6.4.~~

~~The UE shall transmit a response message as specified in subclause 8.2.2.4a.~~

The procedure ends.

~~In case of reception of a TRANSPORT CHANNEL RECONFIGURATION message, the UE shall~~

- ~~transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.;~~

~~In case of reception of a PHYSICAL CHANNEL RECONFIGURATION message, the UE shall~~

- ~~transmit a PHYSICAL CHANNEL RECONFIGURATION 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;

If the RADIO BEARER RECONFIGURATION or TRANSPORT CHANNEL RECONFIGURATION or PHYSICAL CHANNEL RECONFIGURATION message is used to initiate a transition from CELL_DCH to CELL_FACH state, the RADIO BEARER RECONFIGURATION COMPLETE or TRANSPORT CHANNEL RECONFIGURATION COMPLETE or PHYSICAL CHANNEL RECONFIGURATION COMPLETE message shall be transmitted on the RACH after the UE has completed the state transition. When the successful delivery of the RADIO BEARER RECONFIGURATION COMPLETE or TRANSPORT CHANNEL RECONFIGURATION COMPLETE or PHYSICAL CHANNEL RECONFIGURATION COMPLETE message has been confirmed by RLC, the UE shall:

- clear the variable ORDERED_CONFIG;
- clear the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO;
- resume data transmission on each radio bearer fulfilling the following criteria:
  - the radio bearer identity is RB 3 and upward;
  - RLC-AM or RLC-UM is used; and
  - the radio bearers was not indicated to be suspended by the IE "RB suspend/resume" information element in the RADIO BEARER RECONFIGURATION message and the procedure ends.

8.2.2.4 Reception of a RADIO BEARER SETUP or RADIO BEARER RECONFIGURATION or RADIO BEARER RELEASE or TRANSPORT CHANNEL RECONFIGURATION or PHYSICAL CHANNEL RECONFIGURATION message by the UE in CELL_FACH state

Upon reception of a RADIO BEARER RECONFIGURATION or TRANSPORT CHANNEL RECONFIGURATION or PHYSICAL CHANNEL RECONFIGURATION message in CELL_FACH state, the UE shall perform actions specified below:

If the UE receives:

- a RADIO BEARER SETUP message, or;
- a RADIO BEARER RECONFIGURATION message, or;
- a RADIO BEARER RELEASE message, or;
- a TRANSPORT CHANNEL RECONFIGURATION message, or;
- a PHYSICAL CHANNEL RECONFIGURATION message

in CELL_FACH state, the UE shall perform actions specified below:

- store the received UE Information Elements, RB Information Elements, TrCH Information Elements and PhyCH information elementsmessage in the variable ORDERED_CONFIG;
- act upon all received information elements as specified in 8.6, unless specified otherwise in the following.

The UE shall:

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

If neither the IE "PRACH info" nor the IE "Uplink DPCH info" is included and the UE will be in CELL_FACH state at the conclusion of this procedure, 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 and the UE will be in CELL_FACH state at the conclusion of this procedure, 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 then the UE shall act upon the IE "PDSCH code mapping" as specified in Subclause 8.6 and:

- infer that the PDSCH will be transmitted from the cell from which the downlink DPCH is transmitted (there being only one link in the active set).

The UE shall use the physical channel(s) applicable to the state in which it will be at the conclusion of this procedure as specified below.

- if the UE will be in CELL_FACH state at the conclusion of this procedure:
  - if the IE "TFS" is neither included nor previously stored in the UE for that transport channel(s):
    - use the TFS given in system information;
  - if none of the TFS stored is compatible with the physical channel to be used:
    - delete stored TFS;
    - use the TFS given in system information;

The UE shall enter a state according to 8.5.7.

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" in the response message transmitted below to the value of that variable.

If the variable START_VALUE_TO_TRANSMIT is set, the UE shall:

- include and set the IE "START" in the response message transmitted below to the value of that variable.

The UE shall

- set the IE "RRC transaction identifier" in the response message transmitted below to;
  - the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS, and;
  - clear that entry.

The UE shall transmit a response message as specified in subclause 8.2.2.4a.

The procedure ends.

In case of reception of a RADIO BEARER RECONFIGURATION message, the UE shall:

- if the UE is not entering CELL_PCH or URA_PCH:
  - transmit a RADIO BEARER RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC when the new configuration is in place. In particular:
    - transmit the COMPLETE message using the new configuration;
- if the UE is entering CELL_PCH or URA_PCH:
  - transmit the COMPLETE message on the uplink DCCH using AM RLC and in particular:
    - transmit the COMPLETE message using the old configuration;

In case of reception of a TRANSPORT CHANNEL RECONFIGURATION message, the UE shall:

- transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.

In case of reception of a PHYSICAL CHANNEL RECONFIGURATION message, the UE shall:

- transmit a PHYSICAL CHANNEL RECONFIGURATION 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 successful delivery of the RADIO BEARER RECONFIGURATION COMPLETE or TRANSPORT CHANNEL RECONFIGURATION COMPLETE or PHYSICAL CHANNEL RECONFIGURATION COMPLETE message has been confirmed by RLC, the UE shall:

- enter a state according to subclause 8.5.7
- if the UE ends up in the CELL_PCH or URA_PCH state:
  - delete its C-RNTI.
- clear the variable ORDERED_CONFIG;
- clear the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO and the procedure ends.

8.2.2.4a Transmission of a response message by the UE, normal case

In case the procedure was triggered by reception of a RADIO BEARER SETUP message stored in the variable ORDERED_CONFIG, the UE shall

- transmit a RADIO BEARER SETUP COMPLETE as response message on the uplink DCCH using AM RLC.;

In case the procedure was triggered by reception of a RADIO BEARER RECONFIGURATION message stored in the variable ORDERED_CONFIG, the UE shall

- transmit a RADIO BEARER RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.;

In case the procedure was triggered by reception of a RADIO BEARER RELEASE message stored in the variable ORDERED_CONFIG, the UE shall

- transmit a RADIO BEARER RELEASE COMPLETE as response message on the uplink DCCH using AM RLC.;

In case the procedure was triggered by reception of a TRANSPORT CHANNEL RECONFIGURATION message stored in the variable ORDERED_CONFIG, the UE shall

- transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.;

In case the procedure was triggered by reception of a PHYSICAL CHANNEL RECONFIGURATION message stored in the variable ORDERED_CONFIG, the UE shall

- transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC;

If the new state is CELL_DCH or CELL_FACH, the response message shall be transmitted using the new configuration after the state transition., and:

- if the variable PDCP_SN_INFO is empty:
  - if the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO is set:
    - when RLC has confirmed the successful transmission of the response message:
      - perform the actions below.
  - if the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO is not set:
    - when RLC has been requested to transmit the response message, perform the actions below.

- if the variable PDCP_SN_INFO non-empty:
  - when RLC has confirmed the successful transmission of the response message:
    - for each radio bearer in the variable PDCP_SN_INFO:
      - if the IE “RB started” in the variable ESTABLISHED_RABS is set to “started”:
        - configure the RLC entity for that radio bearer to continue;
    - perform the actions below.

If the new state is CELL_PCH or URA_PCH, the response message shall be transmitted using the old configuration before the state transition, and:

- when RLC has confirmed the successful transmission of the response message:
  - for each radio bearer in the variable PDCP_SN_INFO:
    - if the IE “RB started” in the variable ESTABLISHED_RABS is set to “started”:
      - configure the RLC entity for that radio bearer to continue;
  - the UE shall enter the new state (CELL_PCH or URA_PCH, respectively);
  - perform the actions below.

The UE shall:

- clear the variable ORDERED_CONFIG;
- clear the variable PDCP_SN_INFO;
- clear the variable START_VALUE_TO_TRANSMIT;
- clear the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO.

8.2.2.5 Reception of ~~a RADIO BEARER RECONFIGURATION COMPLETE OR TRANSPORT CHANNEL RECONFIGURATION COMPLETE or PHYSICAL CHANNEL RECONFIGURATION COMPLETE~~the response message by the UTRAN, normal case

~~When UTRAN has received the RADIO BEARER RECONFIGURATION COMPLETE TRANSPORT CHANNEL RECONFIGURATION COMPLETE or PHYSICAL CHANNEL RECONFIGURATION COMPLETE message, UTRAN may delete the old configuration.~~

When UTRAN has received

- the RADIO BEARER SETUP COMPLETE message, or;
- the RADIO BEARER RECONFIGURATION COMPLETE message, or;
- the RADIO BEARER RELEASE COMPLETE message, or;
- the TRANSPORT CHANNEL RECONFIGURATION COMPLETE message, or;
- the PHYSICAL CHANNEL RECONFIGURATION COMPLETE message;

UTRAN may delete the old configuration.

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

If the IE "UL Timing Advance" is included, UTRAN shall evaluate the timing advance value that the UE has to use in the new cell after handover.

The procedure ends on the UTRAN side.

8.2.2.6 Unsupported configuration in the UE

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

- transmit a failure response as specified in subclause 8.2.2.7b, setting the information elements as specified below:
  - include the IE “RRC transaction identifier” ~~in the response message transmitted below,~~ and;
    - set it to the value of “RRC transaction identifier” in the entry for the received message in the table “Accepted transactions” in the variable TRANSACTIONS, and;
    - clear that entry.
  - set the IE "failure cause" to "configuration unsupported" ~~in the response message transmitted below;~~
- ~~transmit a response message as specified in subclause 8.2.2.7b.~~
- clear the variable ORDERED_CONFIG;
- clear the variable PDCP_SN_INFO;
- clear the variable INVALID_CONFIGURATION;
- clear the variable UNSUPPORTED_CONFIGURATION;
- clear the variable START_VALUE_TO_TRANSMIT;
- clear the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO;

The procedure ends.

- ~~in case of reception of a RADIO BEARER RECONFIGURATION message:~~
  - ~~transmit a RADIO BEARER RECONFIGURATION FAILURE message on the DCCH using AM RLC;~~
- ~~in case of reception of a TRANSPORT CHANNEL RECONFIGURATION message:~~
  - ~~transmit a TRANSPORT CHANNEL RECONFIGURATION FAILURE message on the DCCH using AM RLC;~~
- ~~in case of reception of a PHYSICAL CHANNEL RECONFIGURATION message:~~
  - ~~transmit a PHYSICAL CHANNEL RECONFIGURATION FAILURE message on the DCCH using AM RLC;~~
- ~~set the cause value in IE "failure cause" to "configuration unsupported";~~
- ~~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 successful delivery of the RADIO BEARER RECONFIGURATION FAILURE or TRANSPORT CHANNEL RECONFIGURATION FAILURE or PHYSICAL CHANNEL RECONFIGURATION FAILURE message has been confirmed by RLC, the UE shall:~~

- ~~clear the variable ORDERED_CONFIG;~~
- ~~resume data transmission on RB 3 and upwards if RLC-AM or RLC-UM is used on those radio bearers;~~
- ~~resume the normal operation as if no reconfiguration attempt had occurred and the procedure ends.~~

8.2.2.7 Physical channel failure

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

If the UE failed to establish the physical channel(s) indicated in the ~~RADIO BEARER RECONFIGURATION or TRANSPORT CHANNEL RECONFIGURATION or PHYSICAL CHANNEL RECONFIGURATION message~~ received message stored in the variable ORDERED_CONFIG the UE shall:

- revert to the configuration prior to the reception of the ~~RADIO BEARER RECONFIGURATION or TRANSPORT CHANNEL RECONFIGURATION or PHYSICAL CHANNEL RECONFIGURATION~~ message (old configuration);

- if the UE is unable to revert to the old configuration or if used, the activation time has expired:
  - initiate cell update procedure according to subclause 8.3.1, using the cause “radio link failure”;
  - after the cell update procedure has completed successfully, proceed as below;
- transmit a failure response message as specified in subclause 8.2.2.7b, setting the information elements as specified below:
  - include the IE “RRC transaction identifier” ~~in the response message transmitted below,~~ and;
    - set it to the value of “RRC transaction identifier” in the entry for the received message in the table “Accepted transactions” in the variable TRANSACTIONS, and;
    - clear that entry.
  - set the IE "failure cause" to "physical channel failure" ~~in the response message transmitted below~~;
  - ~~transmit a response message as specified in subclause 8.2.2.7b.~~
- ~~in case of reception of a RADIO BEARER RECONFIGURATION message:~~
  - ~~transmit a RADIO BEARER RECONFIGURATION FAILURE message on the DCCH using AM RLC;~~
- ~~in case of reception of a TRANSPORT CHANNEL RECONFIGURATION message:~~
  - ~~transmit a TRANSPORT CHANNEL RECONFIGURATION FAILURE message on the DCCH using AM RLC;~~
- ~~in case of reception of a PHYSICAL CHANNEL RECONFIGURATION message:~~
  - ~~transmit a PHYSICAL CHANNEL RECONFIGURATION FAILURE message on the DCCH using AM RLC;~~
  - ~~set the cause value in IE "failure cause" to "physical channel failure";~~
- ~~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 successful delivery of the RADIO BEARER RECONFIGURATION FAILURE or TRANSPORT CHANNEL RECONFIGURATION FAILURE or PHYSICAL CHANNEL RECONFIGURATION FAILURE message has been confirmed by RLC:~~
  - ~~resume data transmission on RB 3 and upwards if RLC-AM or RLC-UM is used on those radio bearers;~~
  - ~~resume the normal operation as if no reconfiguration attempt had occurred.~~

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

- ~~initiate an RRC connection re-establishment procedure according to subclause 8.1.5.~~
- clear the variable ORDERED_CONFIG;
- clear the variable PDCP_SN_INFO;
- clear the variable START_VALUE_TO_TRANSMIT;
- clear the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO;

The procedure ends.

8.2.2.7a Cell re-selection

If the UE performs cell re-selection, the UE shall

- initiate a cell update procedure, as specified in subclause 8.3.1;
- after the cell update procedure has completed successfully, proceed as below;
- if the cell re-selection occurred before the response message was delivered to lower layers for transmission, and;
- the state after the state transition is CELL_FACH, and;
  - if the IE “New C-RNTI” or the IE "DL information for each radio link" is included in the variable ORDERED_CONFIG;
    - transmit a failure response message as specified in subclause 8.2.2.7b, setting the information elements as specified below:
      - include the IE “RRC transaction identifier” ~~in the response message transmitted below,~~ and;
        - set it to the value of “RRC transaction identifier” in the entry for the received message in the table “Accepted transactions” in the variable TRANSACTIONS, and;
        - clear that entry.
      - set the value of the IE "failure cause" to "cell reselection" ~~in the response message transmitted below~~;
    - ~~transmit a response message as specified in subclause 8.2.2.7b and the procedure ends.~~
    - for each radio bearer in the variable PDCP_SN_INFO:
      - if the IE “RB started” in the variable ESTABLISHED_RABS is set to “started”:
        - configure the RLC entity for that radio bearer to continue;
    - clear the variable ORDERED_CONFIG;
    - clear the variable PDCP_SN_INFO;
    - clear the variable INVALID_CONFIGURATION;
    - clear the variable UNSUPPORTED_CONFIGURATION;
    - clear the variable START_VALUE_TO_TRANSMIT;
    - clear the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO;
    - the procedure ends.
  - else if the variable ORDERED_CONFIG contains neither of the IE “New C-RNTI” or the IE " DL information for each radio link";
    - continue with the reconfiguration procedure normally.

8.2.2.7b Transmission of a response message by the UE, failure case

The UE shall

- in case of reception of a RADIO BEARER SETUP message stored in the variable ORDERED_CONFIG:
  - if the radio bearer establishment 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;
  - transmit a RADIO BEARER SETUP FAILURE as response message on the DCCH using AM RLC;

- in case of reception of a RADIO BEARER RECONFIGURATION message stored in the variable ORDERED_CONFIG:

  - 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;

  - transmit a RADIO BEARER RECONFIGURATION FAILURE as response message on the DCCH using AM RLC;

- in case of reception of a RADIO BEARER RELEASE message stored in the variable ORDERED_CONFIG:

  - 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 successful into the RADIO BEARER RELEASE FAILURE message;

  - transmit a RADIO BEARER RELEASE FAILURE as response message on the DCCH using AM RLC;

in case of reception of a TRANSPORT CHANNEL RECONFIGURATION message stored in the variable ORDERED_CONFIG:

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

in case of reception of a PHYSICAL CHANNEL RECONFIGURATION message stored in the variable ORDERED_CONFIG:

  - transmit a PHYSICAL CHANNEL RECONFIGURATION FAILURE as response message on the DCCH using AM RLC;

- when the response message has been submitted to lower layers for transmission:

  - resume the normal operation as if no reconfiguration attempt had occurred.

8.2.2.8 Reception of ~~a RADIO BEARER RECONFIGURATION FAILURE or TRANSPORT CHANNEL RECONFIGURATION FAILURE or PHYSICAL CHANNEL RECONFIGURATION FAILURE~~the response message by the UTRAN, failure case

~~When UTRAN has received the RADIO BEARER RECONFIGURATION FAILURE or TRANSPORT CHANNEL RECONFIGURATION FAILURE or PHYSICAL CHANNEL RECONFIGURATION FAILURE message, UTRAN may restore the old and delete the new configuration. Upper layers should be notified of the failure.~~

When UTRAN has received

- the RADIO BEARER SETUP FAILURE message, or;

- the RADIO BEARER RECONFIGURATION FAILURE message, or;

- the RADIO BEARER RELEASE FAILURE message, or;

- the TRANSPORT CHANNEL RECONFIGURATION FAILURE message, or;

- the PHYSICAL CHANNEL RECONFIGURATION FAILURE message;

UTRAN may restore the old and delete the new configuration. Upper layers should be notified of the failure.

The procedure ends on the UTRAN side.

~~8.2.2.9 No response from the UE in CELL_DCH state~~

~~If no RADIO BEARER RECONFIGURATION COMPLETE or TRANSPORT CHANNEL RECONFIGURATION COMPLETE or PHYSICAL CHANNEL RECONFIGURATION COMPLETE message or RADIO BEARER RECONFIGURATION FAILURE or TRANSPORT CHANNEL RECONFIGURATION FAILURE or PHYSICAL CHANNEL RECONFIGURATION FAILURE message has been received, the UTRAN may delete the old and new~~

~~configuration. If the UE requests a re-establishment of the RRC connection, before all UE dedicated resources have been cleared, the new configuration may be re-assigned in the re-establishment procedure.~~

~~8.2.2.10 No response from the UE in CELL_FACH state~~

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

~~8.2.2.11 Physical channel failure during transition from CELL_DCH to CELL_FACH~~

~~If the UE fails to select the cell, which was assigned in the RADIO BEARER RECONFIGURATION or TRANSPORT CHANNEL RECONFIGURATION or PHYSICAL CHANNEL RECONFIGURATION message initiating transition from CELL_DCH to CELL_FACH, the UE shall:~~

- ~~perform cell reselection;~~
- ~~initiate the cell update procedure (see TS 25.304).~~

8.2.2.12 ~~Suspension of signalling bearer~~Invalid configuration

~~In order to facilitate error recovery, the RADIO BEARER RECONFIGURATION message may include a request to suspend the signalling link with the IE "RB suspend/resume". In this case, the UE shall:~~

If the variable INVALID_CONFIGURATION is set to TRUE the UE shall:

- ~~revert to~~keep the configuration ~~prior to~~existing before the reception of the ~~RADIO BEARER RECONFIGURATION~~ message ~~(old configuration)~~;
- transmit a failure response message as specified in subclause 8.2.2.7b, setting the information elements as specified below:
  - include the IE “RRC transaction identifier” ~~in the response message transmitted below,~~ and;
    - set it to the value of “RRC transaction identifier” in the entry for the received message in the table “Accepted transactions” in the variable TRANSACTIONS, and;
    - clear that entry.
  - set the IE "failure cause" to "invalid configuration" ~~in the response message transmitted below~~;
- ~~transmit a response message as specified in subclause 8.2.2.7b.~~
- ~~send a RADIO BEARER RECONFIGURATION FAILURE message to the UTRAN;~~
- ~~set the cause value in IE "failure cause" to "configuration unsupported";~~
- ~~when the successful delivery of the RADIO BEARER RECONFIGURATION FAILURE message has been confirmed by RLC:~~
  - ~~resume the normal operation as if no radio bearer reconfiguration attempt had occurred.~~
- clear the variable ORDERED_CONFIG;
- clear the variable PDCP_SN_INFO;
- clear the variable INVALID_CONFIGURATION;
- clear the variable UNSUPPORTED_CONFIGURATION;
- clear the variable START_VALUE_TO_TRANSMIT;

- clear the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO;

The procedure ends.

~~8.2.2.13 Subsequently received RADIO BEARER RECONFIGURATION or TRANSPORT CHANNEL RECONFIGURATION or PHYSICAL CHANNEL RECONFIGURATION messages~~

~~If the variable ORDERED_CONFIG has been set because of a RADIO BEARER RECONFIGURATION or TRANSPORT CHANNEL RECONFIGURATION or PHYSICAL CHANNEL RECONFIGURATION message previously received, the UE shall:~~

- ~~ignore the subsequently received RADIO BEARER RECONFIGURATION, TRANSPORT CHANNEL RECONFIGURATION and PHYSICAL CHANNEL RECONFIGURATION messages;~~

- ~~keep the configuration as before the subsequent RADIO BEARER RECONFIGURATION or TRANSPORT CHANNEL RECONFIGURATION or PHYSICAL CHANNEL RECONFIGURATION message was received.~~

8.2.2.14 Incompatible simultaneous reconfiguration

~~If the variable ORDERED_CONFIG is set (because of any message other than RADIO BEARER RECONFIGURATION or TRANSPORT CHANNEL RECONFIGURATION or PHYSICAL CHANNEL RECONFIGURATION) upon the reception of the RADIO BEARER RECONFIGURATION or TRANSPORT CHANNEL RECONFIGURATION or PHYSICAL CHANNEL RECONFIGURATION message~~

If the table “Rejected transactions” in the variable TRANSACTIONS becomes set of the received message, the UE shall:

- ~~keep the old configuration existing before the RADIO BEARER RECONFIGURATION or TRANSPORT CHANNEL RECONFIGURATION or PHYSICAL CHANNEL RECONFIGURATION message was received;~~not apply the configuration contained in the received reconfiguration message;

- transmit a failure response message as specified in subclause 8.2.2.7b, setting the information elements as specified below:

  - include the IE “RRC transaction identifier” ~~in the response message transmitted below,~~ and;

    - set it to the value of “RRC transaction identifier” in the entry for the received message in the table “Rejected transactions” in the variable TRANSACTIONS, and;

    - clear that entry.

  - set the IE "failure cause" ~~in the response message transmitted below~~ to "incompatible simultaneous reconfiguration".

- ~~transmit a response message as specified in subclause 8.2.2.7b.~~

The procedure ends.

- ~~in case of reception of a RADIO BEARER RECONFIGURATION message:~~

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

- ~~in case of reception of a TRANSPORT CHANNEL RECONFIGURATION message:~~

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

- ~~in case of reception of a PHYSICAL CHANNEL RECONFIGURATION message~~

  - ~~transmit a PHYSICAL CHANNEL RECONFIGURATION FAILURE message on the DCCH using AM RLC;~~

- ~~set the IE "failure cause" to "incompatible simultaneous reconfiguration".~~

~~When the successful delivery of RADIO BEARER RECONFIGURATION FAILURE or TRANSPORT CHANNEL RECONFIGURATION FAILURE or PHYSICAL CHANNEL RECONFIGURATION FAILURE message has been confirmed by RLC the procedure ends.~~

8.2.2.15 Invalid ~~RADIO BEARER RECONFIGURATION or TRANSPORT CHANNEL RECONFIGURATION or PHYSICAL CHANNEL RECONFIGURATION~~received message

If the variable ORDERED_CONFIG is not set and the ~~RADIO BEARER RECONFIGURATION or TRANSPORT CHANNEL RECONFIGURATION or PHYSICAL CHANNEL RECONFIGURATION~~received reconfiguration message 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 a failure response message as specified in subclause 8.2.2.7b, setting the information elements as specified below:
  - include the IE “RRC transaction identifier” ~~in the response message transmitted below,~~ and;
    - set it to the value of “RRC transaction identifier” in the entry for the received message in the table “Rejected transactions” in the variable TRANSACTIONS, and;
    - clear that entry.
  - set the IE "failure cause" to the cause value "protocol error" ~~in the response message transmitted below~~;
  - include the IE "Protocol error information" with contents set to the value of the variable PROTOCOL_ERROR_INFORMATION;

~~- transmit a response message as specified in subclause 8.2.2.7b.~~

The procedure ends.

~~- in case of reception of a RADIO BEARER RECONFIGURATION message:~~

~~- transmit a RADIO BEARER RECONFIGURATION FAILURE message on the uplink DCCH using AM RLC;~~
~~- in case of reception of a TRANSPORT CHANNEL RECONFIGURATION message:~~

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

~~- in case of reception of a PHYSICAL CHANNEL RECONFIGURATION message:~~

~~- transmit a PHYSICAL CHANNEL RECONFIGURATION FAILURE message on the uplink DCCH using AM RLC;~~

~~- set the IE "failure cause" to the cause value "protocol error";~~

~~- include the IE "Protocol error information" with contents set to the value of the variable PROTOCOL_ERROR_INFORMATION;~~

~~- when the successful delivery of the RADIO BEARER RECONFIGURATION FAILURE or TRANSPORT CHANNEL RECONFIGURATION FAILURE or PHYSICAL CHANNEL RECONFIGURATION FAILURE message has been confirmed by RLC:~~

~~- resume data transmission on RB 3 and upwards if RLC-AM or RLC-UM is used on those radio bearers;~~

~~- resume normal operation as if the invalid RADIO BEARER RECONFIGURATION or TRANSPORT CHANNEL RECONFIGURATION or PHYSICAL CHANNEL RECONFIGURATION message has not been received and the procedure ends.~~

8.2.3 Radio bearer release

See 8.2.2 (Reconfiguration procedures).

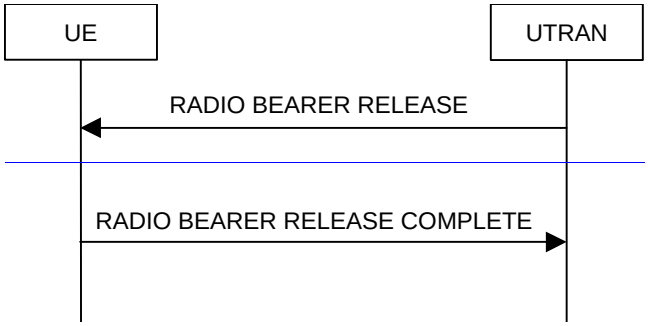

Figure 31: Radio Bearer Release, normal case

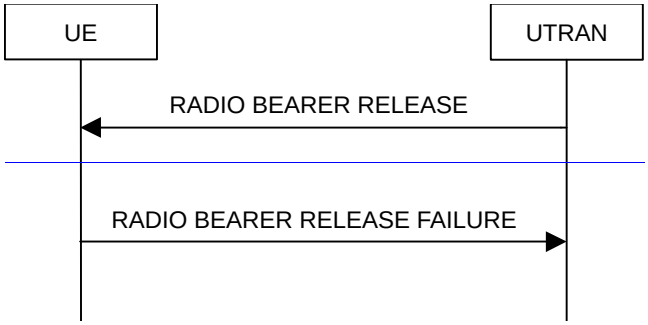

Figure 32: Radio Bearer Release, UE reverts to old configuration

8.2.3.1 General

The purpose of this procedure is to release existing radio bearer(s). While doing so, the procedure may perform a hard handover, see 8.3.5.

8.2.3.2 Initiation

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

To initiate the procedure, UTRAN:

- may configure new radio links in any new physical channel configuration and start transmission and reception on the new radio links;
- transmits a RADIO BEARER RELEASE message on the downlink DCCH using AM or UM RLC.

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

- set TFCS according to the new transport channel(s).

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

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

8.2.3.3 Reception of RADIO BEARER RELEASE by the UE

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

Upon reception of a RADIO BEARER RELEASE message the UE shall perform the following:

- store the received UE Information Elements, RB Information Elements, TrCH Information Elements and PhyCH information elements in the variable ORDERED_CONFIG;
- act upon all received information elements as specified in 8.6, unless specified otherwise in the following:

- for the released radio bearer(s):
  - delete the information about the radio bearer from the variable ESTABLISHED_RABS;
  - when all radio bearers belonging to the same radio access bearer have been released:
    - indicate release of the radio access bearer to the upper layer entity using the CN domain identity together with the RAB identity stored in the variable ESTABLISHED_RABS;
    - delete all information about the radio access bearer from the variable ESTABLISHED_RABS;
- for all remaining radio bearer(s):
  - use the multiplexing option applicable for the transport channels to be used;
  - configure MAC multiplexing if that is needed in order to use appropriate 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;

The UE may first release the current physical channel configuration and shall then establish a new physical channel configuration according to 8.6 and the following. The UE shall:

- if neither the IE "PRACH info" nor the IE "Uplink DPCH info" is included and the UE will be in CELL_FACH state at the conclusion of this procedure:
  - 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 and the UE will be in CELL_FACH state at the conclusion of this procedure:
  - 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:
  - act upon the IE "PDSCH code mapping" as specified in subclause 8.6;
  - infer that the PDSCH will be transmitted from the cell from which the downlink DPCH is transmitted;
- use the physical channel(s) applicable to the state in which it will be at the conclusion of this procedure as specified below;
- if the UE will be in CELL_FACH state at the conclusion of this procedure:
  - if the IE "TFS" is neither included nor previously stored in the UE for that transport channel(s):
    - use the TFS given in system information.
  - if none of the TFS stored is compatible with the physical channel to be used:
    - delete stored TFS and use the TFS given in system information;

The UE shall enter a state according to 8.5.7.

If the RADIO BEARER RELEASE message is used to initiate a transition from CELL_DCH to CELL_FACH state and the IE "New C-RNTI" is not included the UE shall:

- perform a cell update procedure according to 8.3.1 before sending the RADIO BEARER RELEASE COMPLETE message.

The UE shall transmit a RADIO BEARER RELEASE COMPLETE message on the uplink DCCH using AM RLC when the new configuration is in place, with the exception below. 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.

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

If the RADIO BEARER RELEASE message is used to initiate a transition from CELL_DCH to CELL_PCH or to URA_PCH state, the RADIO BEARER RELEASE COMPLETE message shall be transmitted on the old configuration before the UE has completed the state transition.

When the successful delivery of the RADIO BEARER RELEASE COMPLETE message has been confirmed by RLC the UE shall:

- clear the variable ORDERED_CONFIG;
- clear the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO;
- resume data transmission on RB 3 and upwards if RLC-AM or RLC-UM is used on those radio bearers and the procedure ends.

8.2.3.4 Unsupported configuration in the UE

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

- transmit a RADIO BEARER RELEASE FAILURE message on the DCCH using AM RLC;
- set the value of the IE "failure cause" to "configuration unsupported";
- 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 successful into the RADIO BEARER RELEASE FAILURE message.

When the successful delivery of the RADIO BEARER RELEASE FAILURE message has been confirmed by RLC, the UE shall:

- clear the variable ORDERED_CONFIG;
- resume data transmission on RB 3 and upwards if RLC-AM or RLC-UM is used on those radio bearers. The procedure ends.

8.2.3.5 Physical channel failure

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

- revert to the configuration prior to the reception of the RADIO BEARER RELEASE message (old configuration);
- transmit a RADIO BEARER RELEASE FAILURE message on the DCCH using AM RLC;
- set the value of the IE "failure cause" to "physical channel failure";
- 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 successful into the RADIO BEARER RELEASE FAILURE message;
- when the successful delivery of the RADIO BEARER RELEASE FAILURE message has been confirmed by RLC:
  - resume data transmission on RB 3 and upwards if RLC-AM or RLC-UM is used on those radio bearers;
  - resume the normal operation as if no radio bearer release attempt had occurred.

A physical channel failure occurs in case the criteria as defined in 8.5.4 are not fulfilled . If the UE is unable to revert to the old configuration or if used, the activation time has expired, the UE shall:

- initiate a RRC connection re-establishment procedure according to subclause 8.1.5.

The procedure ends.

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

When UTRAN has received the RADIO BEARER RELEASE COMPLETE message, UTRAN may delete any old configuration.

If the IE "UL Timing Advance" is included, UTRAN shall:

- evaluate the timing advance value that the UE has to use in the new cell after handover.

The procedure ends on the UTRAN side.

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

When UTRAN has received the RADIO BEARER RELEASE FAILURE message, UTRAN may restore the old and delete the new configuration. Upper layers should be notified of the failure.

The procedure ends on the UTRAN side.

8.2.3.8 Physical channel failure during transition from CELL_DCH to CELL_FACH

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

If the UE fails to select the cell, which was assigned in the RADIO BEARER RELEASE message initiating transition from CELL_DCH to CELL_FACH, the UE shall:

- perform cell reselection;
- initiate the cell update procedure (see TS 25.304).

8.2.3.9 Subsequently received RADIO BEARER RELEASE messages

If the variable ORDERED_CONFIG is set because of a RADIO BEARER RELEASE message previously received, the UE shall:

- ignore the subsequently received RADIO BEARER RELEASE message;
- keep the configuration existing before the subsequent RADIO BEARER RELEASE message was received.

8.2.3.10 Incompatible simultaneous reconfiguration

If the variable ORDERED_CONFIG is set (because of any message other than RADIO BEARER RELEASE) upon the reception of the RADIO BEARER RELEASE message, the UE shall:

- keep the old configuration existing before the RADIO BEARER RELEASE message was received;
- transmit a RADIO BEARER RELEASE FAILURE message on the DCCH using AM RLC;
- set the IE "failure cause" to "incompatible simultaneous reconfiguration";
- when the successful delivery of RADIO BEARER RELEASE FAILURE message has been confirmed by RLC the procedure ends.

8.2.3.11 Invalid RADIO BEARER RELEASE message

If the variable ORDERED_CONFIG is not set and the RADIO BEARER RELEASE message 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 a RADIO BEARER RELEASE FAILURE message on the uplink DCCH using AM RLC;
- set the IE "failure cause" to the cause value "protocol error";
- include the IE "Protocol error information" with contents set to the value of the variable PROTOCOL_ERROR_INFORMATION;
- when the successful delivery of the RADIO BEARER RELEASE FAILURE message has been confirmed by RLC:
  - resume data transmission on RB 3 and upwards if RLC-AM or RLC-UM is used on those radio bearers;
  - resume normal operation as if the invalid RADIO BEARER RELEASE message has not been received and the procedure ends.

8.2.4 Transport channel reconfiguration

See 8.2.2 (Reconfiguration procedures).

8.2.5 Transport format combination control

Figure 33: Transport format combination control, normal flow

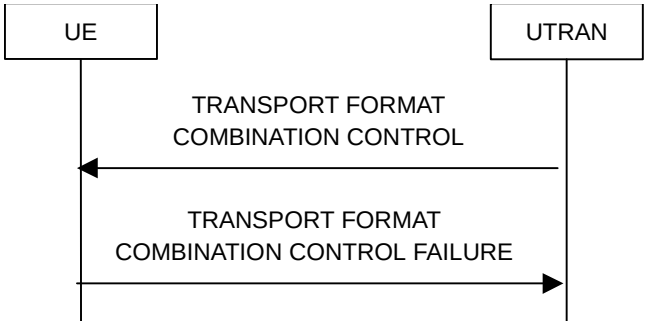

Figure 34: Transport format combination control, failure case

8.2.5.1 General

The transport format combination control procedure is used to control the allowed uplink transport format combinations within the transport format combination set.

8.2.5.2 Initiation

To initiate the transport format combination control procedure, ~~T~~the UTRAN ~~shall~~ transmit~~s~~ the TRANSPORT FORMAT COMBINATION CONTROL message on the downlink DCCH using AM, UM or TM RLC. When not stated otherwise elsewhere, the UE may initiate the transport format combination control procedure also when another procedure is ongoing, and in that case the state of the latter procedure shall not be affected.

~~UTRAN should not initiate a transport format combination control procedure, while awaiting the completion of one of the reconfiguration procedures (subclause 8.2.2).the following procedures:~~

- ~~Radio bearer establishment (subclause 8.2.1);~~
- ~~Radio bearer release (subclause 8.2.3);~~
- ~~Radio bearer reconfiguration (subclause 8.2.2);~~
- ~~Transport channel reconfiguration (subclause 8.2.4);~~
- ~~Physical channel reconfiguration (subclause 8.2.6).~~

To change the sub-set of allowed transport format combinations, the UTRAN shall:

- set the allowed TFCs in the IE "TFC subset". The network can optionally specify the duration for which a new TFC sub-set applies by using the IE "TFC Control duration".

To remove completely the previous restrictions of allowed transport format combinations, the UTRAN shall:

- set the "full transport format combination" in the IE "TFC subset".

8.2.5.3 Reception of a TRANSPORT FORMAT COMBINATION CONTROL message by the UE

Upon reception of the TRANSPORT FORMAT COMBINATION CONTROL message ~~, and if the variable ORDERED_CONFIG is not set~~ the UE shall:

- ~~determine whether the IE "TFC Control duration" is included;~~
- ~~store the received message in the variable ORDERED_CONFIG;~~

- act upon all received information elements as specified in 8.6, unless specified otherwise in the following;
  - perform the actions for the transport format combination subset specified in the IE “DPCH/PUSCH TFCS in uplink” according to subclause 8.6.5.3;
  - if the variable INVALID_CONFIGURATION is set to FALSE:
    - if the IE "TFC Control duration" is included in the message:
      - store the value of the IE "TFC Control duration" in the IE “Duration” in the variable TFC_SUBSET
      - apply the transport format combination subset in the IE “Current TFC subset” stored in the variable TFC_SUBSET for the number of (10 ms) frames specified in the IE "TFC Control duration";
      - at the end of the time period defined by the IE “TFC control duration”:
        - if the IE “Duration” in the variable TFC_SUBSET is set:
          - go back to any previous restriction of the transport format combination set defined by the content of the IE “Default TFC subset” in the variable TFC_SUBSET;
          - set the value of the IE “Current TFC subset” in the variable TFC_SUBSET to the value of the IE “Default TFC subset” in the variable TFC_SUBSET;
          - clear the IE “Duration” in the variable TFC_SUBSET;
    - ~~if the IE "TFC Control duration" is not included in the message:~~
  - ~~store the newly specified TFC (sub)set specified in the IE "DPCH/PUSCH TFCS in uplink" in the variable DEFAULT_TFC_SUBSETto be called 'default TFC (sub)set';~~
  - ~~configure the allowed transport format combinations (in case of TDD for the uplink CCTrCH specified by the IE "TFCS Id") as defined in subclause 8.6.5.3;~~
  - ~~if the IE "TFC Control duration" is included in the message:~~

- ~~apply the specified TFC set or sub-set (in case of TDD for the uplink CCTrCH specified by the IE "TFCS Id") for the number of (10 ms) frames specified in the IE "TFC Control duration".~~

- ~~if no further TFC Control messages are received during this interval the UE shall:~~

  - ~~at the end of the defined period change the TFC (sub)set back to the 'default TFC (sub)set';~~

- ~~if further TFC Control messages are received during the 'TFC Control duration' period (containing the same value in the IE "TFCS Id" in case of TDD):~~

  - ~~re-configure itself in accordance with the TFC (sub)set defined in the most recently received message.~~

In all cases, the TFC set or TFC sub-set specified in the message shall be used in:

- Frame n+5, when frame n+5 also corresponds to the first 10 ms frame following the framing boundary between transport blocks with the largest TTI which are configured on the same uplink CCTrCH; n is the downlink DPCH frame (with 10 ms resolution) during which the UE received the complete RRC "Transport Format Combination Control" message,

- Or if the above condition is not met, the first 10 ms frame following the first framing boundary after frame n+5, where the framing boundary is that between the transport blocks with the largest TTI which are configured on the specified uplink CCTrCH.

The UE shall clear the entry for the TRANSPORT FORMAT COMBINATION CONTROL message in the table "Accepted transactions" in the variable TRANSACTIONS and the procedure ends.

8.2.5.3a Invalid configuration

If the variable INVALID_CONFIGURATION is set to TRUE the UE shall:

- if the TRANSPORT FORMAT COMBINATION CONTROL message was received on AM RLC:

  - keep the TFC subset existing before the TRANSPORT FORMAT COMBINATION CONTROL message was received;

  - transmit a TRANSPORT FORMAT COMBINATION CONTROL FAILURE message on the DCCH using AM RLC;

  - set the IE "RRC transaction identifier" in the TRANSPORT FORMAT COMBINATION CONTROL FAILURE message to;

    - the value of "RRC transaction identifier" in the entry for the TRANSPORT FORMAT COMBINATION CONTROL message in the table "Accepted transactions" in the variable TRANSACTIONS, and;

    - clear that entry;

  - set the IE "failure cause" to "invalid configuration";

  - when the TRANSPORT FORMAT COMBINATION CONTROL FAILURE message has been submitted to lower layers for transmission the procedure ends.

- if the TRANSPORT FORMAT COMBINATION CONTROL message was received on UM RLC:

- ignore the TRANSPORT FORMAT COMBINATION CONTROL message.

~~8.2.5.4 Incompatible simultaneous reconfiguration~~

~~If a message other than a TRANSPORT FORMAT COMBINATION CONTROL message is stored in the variable ORDERED_CONFIG upon receiving the TRANSPORT FORMAT COMBINATION CONTROL messageis set because of any message other than TRANSPORT FORMAT COMBINATION CONTROL, the UE shall:~~

- ~~keep the TFC subset existing before the TRANSPORT FORMAT COMBINATION CONTROL message was received;~~

~~- transmit a TRANSPORT FORMAT COMBINATION CONTROL FAILURE message on the DCCH using AM RLC, setting the information elements as specified below:;~~

~~- set the IE "failure cause" to "incompatible simultaneous reconfiguration";~~

~~- when the successful delivery of TRANSPORT FORMAT COMBINATION CONTROL FAILURE message has been confirmed by RLC the procedure ends.~~

8.2.5.5 Invalid TRANSPORT FORMAT COMBINATION CONTROL message

If ~~the variable ORDERED_CONFIG is not set and~~ the TRANSPORT FORMAT COMBINATION CONTROL message 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 a TRANSPORT FORMAT COMBINATION CONTROL FAILURE message on the uplink DCCH using AM RLC setting the information elements as specified below;

  - set the IE "RRC transaction identifier" in the TRANSPORT FORMAT COMBINATION CONTROL FAILURE message to;

    - the value of "RRC transaction identifier" in the entry for the TRANSPORT FORMAT COMBINATION CONTROL message in the table "Rejected transactions" in the variable TRANSACTIONS, and;

    - clear that entry;

  - set the IE "failure cause" to the cause value "protocol error";

  - include the IE "Protocol error information" with contents set to the value of the variable PROTOCOL_ERROR_INFORMATION;

- when ~~the successful delivery of~~ the TRANSPORT FORMAT COMBINATION CONTROL FAILURE message has been submitted to lower layers for transmission~~confirmed by RLC~~:

  - resume data transmission on RB 3 and upwards if RLC-AM or RLC-UM is used on those radio bearers;

  - resume normal operation as if the invalid TRANSPORT FORMAT COMBINATION CONTROL message has not been received and the procedure ends.

8.2.6 Physical channel reconfiguration

See 8.2.2 (Reconfiguration procedures).

8.2.7 Physical Shared Channel Allocation [TDD only]

Figure 35: Physical Shared Channel Allocation

8.2.7.1 General

The purpose of this procedure is to allocate radio resources to USCH and/or DSCH transport channels in TDD mode, for usage by a UE. This procedure can also be used to indicate to the UE, that a PUSCH allocation is pending, in order to prevent further capacity requests from the UE.

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

8.2.7.2 Initiation

To initiate the Physical Shared Channel Allocation procedure, ~~T~~the UTRAN sends the "PHYSICAL SHARED CHANNEL ALLOCATION" message ~~via~~on the downlink SHCCH or on the downlink DCCH using UM RLC.~~, to allocate PUSCH and/or PDSCH resources to exactly one CCTrCH, or to reply to a "PUSCH CAPACITY REQUEST" message, indicating to the UE that a PUSCH capacity allocation is pending.~~ The C-RNTI shall be included for UE identification, if the message is sent on the SHCCH. ~~In CELL_DCH state, the message may also be transmitted on DCCH using UM RLC mapped to DCH transport channel. When transmitted on DCCH, there is no need to include the C-RNTI.~~

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

Upon reception of a "PHYSICAL SHARED CHANNEL ALLOCATION" message, the UE shall:

- if the message is received on the downlink SHCCH check the C-RNTI to see if the UE is addressed by the message. ~~if the C-RNTI is included.~~ If the UE is addressed by the message, ~~i.e. using C-RNTI or the message is received on a physical resource that is assigned to only this UE,~~ or if the message is received on the downlink DCCH, the UE shall perform the following actions, otherwise the UE shall ignore the message:
  - act upon all received information elements as specified in 8.6~~5.7~~, unless specified otherwise in the following:
  - if the IE "ISCP Timeslot list" is included:
    - store the timeslot numbers given there for future Timeslot ISCP measurements and reports;
  - if the IE "PDSCH capacity allocation info" is included:
    - configure the physical resources used for the downlink CCTrCH given by the IE "TFCS ID" according to the following:
      - if the CHOICE "Configuration" has the value "Old configuration":
        - if the UE has stored a PDSCH configuration with the given "PDSCH Identity":
          - configure the physical resources according to that configuration;
        - otherwise:
          - ignore the "PDSCH capacity allocation info" IE;
      - if the CHOICE "Configuration" has the value "New configuration":
        - configure the physical resources according to the information given in "PDSCH Info". If no "Common timeslot info" or no "PDSCH timeslots and codes" IE is given in "PDSCH Info":
          - reuse the configuration specified in the previous "PHYSICAL SHARED CHANNEL ALLOCATION" message for this CCTrCH;
        - if the IE "PDSCH Identity" is included:
          - store the new configuration using that identity;
    - start using the new configuration at the CFN specified by the IE "Allocation activation time", and use that for the duration given by the IE "Allocation duration";
    - if the IE "Confirm request" has the value "Confirm PDSCH" and a "PDSCH Identity" is included:
      - initiate the ~~send a~~ PUSCH CAPACITY REQUEST procedure~~message~~ as described in 8.2.8.~~, including the given "PDSCH Identity" in the "PDSCH confirmation" IE.~~
  - if the IE "PUSCH capacity allocation info" is included:
    - stop the timer T310, if running;
    - if the CHOICE "PUSCH allocation" has the value "PUSCH allocation pending":

- start the timer T311;

- if the CHOICE "PUSCH allocation" has the value "PUSCH allocation assignment":

  - stop the timer T311, if running;

  - configure the physical resources used for the uplink CCTrCH given by the IE "TFCS ID" according to the following:

    - if the CHOICE "Configuration" has the value "Old configuration":

      - if the UE has stored a PUSCH configuration with the given "PUSCH Identity":

        - configure the physical resources according to that configuration;

      - otherwise:

        - ignore the "PUSCH capacity allocation info" IE;

    - if the CHOICE "Configuration" has the value "New configuration", the UE shall:

      - configure the physical resources according to the information given in "PUSCH Info". If no "Common timeslot info" or no "PUSCH timeslots and codes" IE is given in "PUSCH Info":

        - reuse the configuration specified in the previous "PHYSICAL SHARED CHANNEL ALLOCATION" message for this CCTrCH.

      - if the IE "PUSCH Identity" is included:

        - store the new configuration using that identity;

  - start using the new configuration at the CFN specified by the IE "Allocation activation time", and use that for the duration given by the IE "Allocation duration";

  - if the IE "Confirm request" has the value "Confirm PUSCH" and a "PUSCH Identity" is included:

    - initiate the ~~send a~~ PUSCH CAPACITY REQUEST procedure~~message~~ as described in 8.2.8.~~, including the given "PUSCH Identity" in the "PUSCH confirmation" IE.~~

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

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

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

NOTE: If the UE has just entered a new cell and SIB#6 USCH or DSCH information has not yet been scheduled, USCH/DSCH information ~~is~~should be specified in the allocation message.

The UE shall clear the entry for the PHYSICAL SHARED CHANNEL ALLOCATION message in the table "Accepted transactions" in the variable TRANSACTIONS and the procedure ends.

8.2.7.4 Invalid PHYSICAL SHARED CHANNEL ALLOCATION message

If the UE receives a PHYSICAL SHARED CHANNEL ALLOCATION 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:

- ignore the invalid PHYSICAL SHARED CHANNEL ALLOCATION message;

- ~~set the IEs in the PUSCH CAPACITY REQUEST message according to subclause 8.2.8.2a;~~

- ~~send~~ submit the~~a~~ PUSCH CAPACITY REQUEST message for transmission on the uplink SHCCH, setting the information elements in the message as specified in subclause 8,2,8,2a;

- reset counter V310;

- start timer T310;

- proceed as described in 8.2.8~~, including the IE "Protocol error information" with contents according to clause 16~~.

8.2.8 PUSCH capacity request [TDD only]

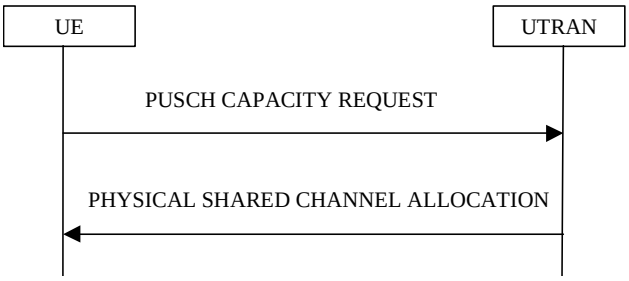

Figure 36: PUSCH Capacity request procedure

8.2.8.1 General

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

This procedure can also be used to acknowledge the reception of a PHYSICAL SHARED CHANNEL ALLOCATION message, or to indicate a protocol error in that message.

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

8.2.8.2 Initiation

The UE is in the CELL_FACH or CELL_DCH state, and at least one RB using USCH has been established. The RRC in the UE sees the requirement to request physical resources (PUSCH) for an USCH channel or there is the need to reply to a PHYSICAL SHARED CHANNEL ALLOCATION message as described in clause 8.2.7 (i.e. to confirm the reception of a message, if requested to do so, or to indicate a protocol error).

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

- Timer T311 is not running.
- The timer T310 (capacity request repetition timer) is not running.

The UE shall:

- set the IEs in the PUSCH CAPACITY REQUEST message according to subclause 8.2.8.2a;
- submit the PUSCH CAPACITY REQUEST message for transmission on the uplink SHCCH;
- reset counter V310;
- start timer T310.

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

8.2.8.2a PUSCH CAPACITY REQUEST message contents to set

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

- C-RNTI to be used as UE identity if the message is sent on RACH;

- Traffic volume measured results for each radio bearer satisfying the reporting criteria as specified in the MEASUREMENT CONTROL procedure (if no radio bearer satisfies the reporting criteria, traffic volume measured results shall not be included). These results shall include:
  - Radio Bearer ID of the Radio Bearer being reported;
  - RLC buffer payload for these radio bearers, as specified by the MEASUREMENT CONTROL procedure;
- ~~If the message is sent to confirm the reception of a PHYSICAL SHARED CHANNEL ALLOCATION message, the CHOICE "Allocation confirmation" shall be included, as specified in the PHYSICAL SHARED CHANNEL ALLOCATION procedure.~~If the initiation of the procedure is triggered by the IE "Confirm request" set to "Confirm PDSCH" in a previously received PHYSICAL SHARED CHANNEL ALLOCATION message, the UE shall:
  - set the CHOICE "Allocation confirmation" to "PDSCH Confirmation" with the value given in the IE "PDSCH Identity" in the received message.
- If the initiation of the procedure is triggered by the IE "Confirm request" set to "Confirm PUSCH" in a previously received PHYSICAL SHARED CHANNEL ALLOCATION message, the UE shall:
  - set the CHOICE "Allocation confirmation" to "PUSCH Confirmation" with the value given in the IE "PUSCH Identity" in the received message.
- If the variable PROTOCOL_ERROR_REJECT is set to TRUE, the UE shall:
  - include the IE “RRC transaction identifier” in the response message transmitted below, and;
    - set it to the value of “RRC transaction identifier” in the entry for the PHYSICAL SHARED CHANNEL ALLOCATION message in the table “Rejected transactions” in the variable TRANSACTIONS, and;
    - clear that entry.
  - set the IE "protocol error indicator" to TRUE;
  - include the IE "Protocol error information" with contents set to the value of the variable PROTOCOL_ERROR_INFORMATION.
- if the value of the variable PROTOCOL_ERROR_REJECT is FALSE;
  - set the IE "Protocol error indicator" to FALSE;

As an option, the message may include "Timeslot ISCP" and "Primary CCPCH RSCP".

The timeslots for which "Timeslot ISCP" may be reported shall have been configured with a previous PHYSICAL SHARED CHANNEL ALLOCATION message.

8.2.8.3 Reception of a PUSCH CAPACITY REQUEST message by the UTRAN

Upon receiving a PUSCH CAPACITY REQUEST message with traffic volume measurement included for at least one radio bearer, the UTRAN should initiate the PHYSICAL SHARED CHANNEL ALLOCATION procedure, either for allocating PUSCH or PDSCH resources as required, or just as an acknowledgement, announcing a pending PUSCH allocation, as described in 8.2.7.

8.2.8.4 T310 time out

Upon expiry of timer T310, the UE shall

- if V310 is smaller than N310:
  - transmit a new PUSCH CAPACITY REQUEST message on the Uplink SHCCH;
  - restart timer T310;
  - increase counter V310;
  - set the IEs in the PUSCH CAPACITY REQUEST message as specified ~~above~~in subclause 8.2.8.2a;

- if V310 is greater than or equal to N310:
  - stop the procedure.

8.2.9 Downlink outer loop control

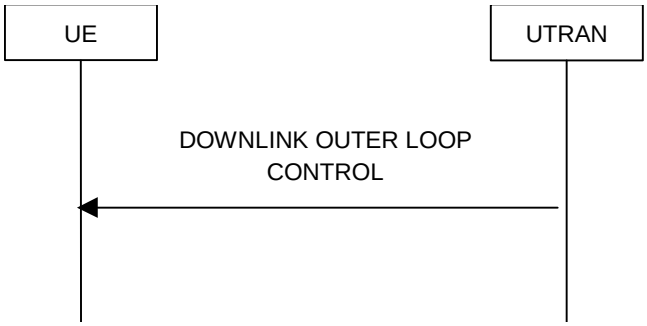

Figure 37: Downlink Outer Loop Control, normal flow

8.2.9.1 General

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

8.2.9.2 Initiation

To initiate the procedure, ~~T~~the UTRAN ~~may~~ transmits the DOWNLINK OUTER LOOP CONTROL message on the downlink DCCH using AM or UM RLC.

To prevent the UE from increasing its DL SIR target value above its current value, the UTRAN should:

- set the IE "Downlink Outer Loop Control" to the value "Increase not allowed".

To remove the previous restriction on the downlink outer loop power control, the UTRAN should:

- set the IE "Downlink Outer Loop Control" to the value "Increase allowed".

8.2.9.3 Reception of DOWNLINK OUTER LOOP CONTROL message by the UE

Upon reception of the DOWNLINK OUTER LOOP CONTROL message, the UE shall perform actions specified in 8.6 unless otherwise specified below:

- if the IE "Downlink Outer Loop Control" is set to "Increase not allowed":
  - prevent its DL SIR target value from increasing above the current value.
- if the IE "Downlink Outer Loop Control" is set to "Increase allowed":
  - remove the above restriction.

The UE shall clear the entry for the DOWNLINK OUTER LOOP CONTROL message in the table “Accepted transactions” in the variable TRANSACTIONS and the procedure ends.

8.2.9.4 Invalid DOWNLINK OUTER LOOP CONTROL message

If the UE receives a DOWNLINK OUTER LOOP CONTROL 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, setting the information elements as specified below:~~;~~
  - include the IE “Identification of received message”, and;

- set the IE “Received message type” to DOWNLINK OUTER LOOP CONTROL;
- set the IE “RRC transaction identifier” to the value of “RRC transaction identifier” in the entry for the DOWNLINK OUTER LOOP CONTROL message in the table “Rejected transactions” in the variable TRANSACTIONS, and;
- clear that entry;

- include the IE "Protocol error information" with contents set to the value of the variable PROTOCOL_ERROR_INFORMATION;

- when ~~the successful delivery of~~ the RRC STATUS message has been submitted to lower layers for transmission~~confirmed by RLC~~:
  - resume normal operation as if the invalid DOWNLINK OUTER LOOP CONTROL message has not been received.

8.2.10 Uplink Physical Channel Control [TDD only]

Figure 38: Uplink Physical Channel Control

8.2.10.1 General

The uplink physical channel control procedure is used in TDD to control the uplink outer loop power control and timing advance running in the UE.

8.2.10.2 Initiation

The UTRAN initiates the procedure by transmitting the UPLINK PHYSICAL CHANNEL CONTROL message on the downlink DCCH using AM or UM RLC in order to update parameters for uplink open loop power control in the UE for one CCTrCH or to inform the UE about a new timing advance value to be applied. Especially, uplink interference information measured by the UTRAN can be included for the uplink timeslots used for the CCTrCH.

8.2.10.3 Reception of UPLINK PHYSICAL CHANNEL CONTROL message by the UE

Upon reception of the UPLINK PHYSICAL CHANNEL CONTROL message, the UE shall act upon all received information elements as specified in 8.6.

If the IEs "Uplink DPCH Power Control Info", "Constant Value", or IE group "list of UL Timeslot Interference" are transmitted, this information shall be taken into account by the UE for uplink open loop power control as specified in 8.5.8.

The UE shall clear the entry for the UPLINK PHYSICAL CHANNEL CONTROL message in the table “Accepted transactions” in the variable TRANSACTIONS and the procedure ends.

8.2.10.4 Invalid UPLINK PHYSICAL CHANNEL CONTROL message

If the UE receives a UPLINK PHYSICAL CHANNEL CONTROL 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, setting the information elements as specified below:~~;~~

  - include the IE “Identification of received message”, and;

    - set the IE “Received message type” to UPLINK PHYSICAL CHANNEL CONTROL;

    - set the IE “RRC transaction identifier” to the value of “RRC transaction identifier” in the entry for the UPLINK PHYSICAL CHANNEL CONTROL message in the table “Rejected transactions” in the variable TRANSACTIONS, and;

    - clear that entry;

  - include the IE "Protocol error information" with contents set to the value of the variable PROTOCOL_ERROR_INFORMATION;

- when ~~the successful delivery of~~ the RRC STATUS message has been submitted to lower layers for transmission~~confirmed by RLC~~:

  - resume normal operation as if the invalid UPLINK PHYSICAL CHANNEL CONTROL message has not been received.

8.2.11 Physical channel reconfiguration failure

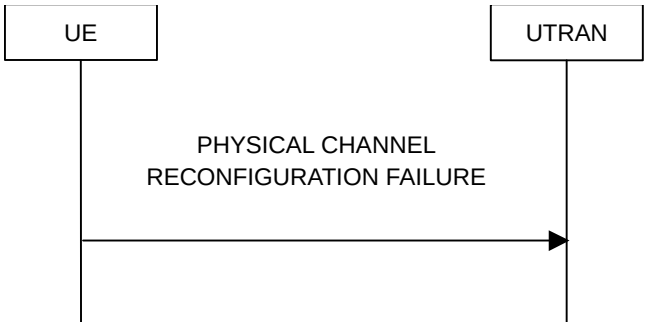

Figure 39: Physical channel reconfiguration failure in case of runtime configuration error

8.2.11.1 General

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

8.2.11.2 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. The UE shall:

- if the parallel transmission gap pattern sequences create no illegal overlap:

  - set the variable COMPRESSED_MODE_ERROR to FALSE;

- otherwise:

  - 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, setting the information elements as specified below:~~;~~

- not include the IE “RRC transaction identifier”;

- set the cause value in IE "failure cause" to value "compressed mode runtime error";

- terminate the inter-frequency and/or inter-system measurements corresponding to the deleted transmission gap pattern sequence;

- when the PHYSICAL CHANNEL RECONFIGURATION FAILURE message has been submitted to lower layers for transmission the procedure ends.

8.6.4 Radio bearer information elements

8.6.4.x PDCP SN Info

If the IE “PDCP SN Info” is included, the UE shall:

- transfer the sequence number to the PDCP entity for the radio bearer;
- configure the RLC entity for the radio bearer to stop;
- include the current PDCP receive sequence number and the radio bearer identity for the radio bearer in the variable PDCP_SN_INFO.

8.6.4.a RAB information for setup

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

- if the radio access bearer identified with the IE “RAB info” does not exist in the variable ESTABLISHED_RABS;
    - create a new entry for the radio access bearer in the variable ESTABLISHED_RABS;
    - store the content of the IE “RAB info” in the entry for the radio access bearer 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 radio bearer in the IE “RB information to setup”:
    - perform the actions specified in subclause 8.6.4.d;
    - create a new RAB subflow for the radio access bearer;
    - number the RAB subflow in ascending order, assigning the smallest number to the RAB subflow corresponding to the first radio bearer in the list;
    - store information about the new radio bearer in the entry for the radio access bearer identified by “RAB info” in the variable ESTABLISHED_RABS;

8.6.4.b RB information to be affected

If the IE “RB information to be affected” is included, the UE shall apply the following actions on the radio bearer identified with the value of the IE “RB identity”:

- perform the actions for the IE “RB mapping info”, according to subclause 8.6.4.1, applied for the radio bearer.

8.6.4.d RB information to reconfigure

If the IE “RB information to reconfigure” is included, the UE shall apply the following actions on the radio bearer identified with the value of the IE “RB identity”:

- perform the actions for the IE “PDCP info”, if present, according to subclause 8.6.4.3, applied for the radio bearer;
- perform the actions for the IE “RLC info”, according to subclause 8.6.4.2, applied for the radio bearer;
- perform the actions for the IE “RB mapping info”, according to subclause 8.6.4.1, applied for the radio bearer;
- if the IE “PDCP SN info” is included, perform the actions as specified in 8.6.4.x applied for the radio bearer;
- if the IE "RB stop/continue" is included, and;

- if the “RB identity” has a value greater than 2, and;
  - if the value of the IE "RB stop/continue" is “stop”:
    - configure the RLC entity for the radio bearer to stop;
    - set the IE “RB started” in the variable ESTABLISHED_RABS to “stopped” for that radio bearer;
  - if the value of the IE "RB stop/continue" is “continue”:
    - configure the RLC entity for the radio bearer to continue.
    - set the IE “RB started” in the variable ESTABLISHED_RABS to “started” for that radio bearer;
- if the IE “RB identity” is set to a value less than 2;
  - set the variable INVALID_CONFIGURATION to TRUE.

8.6.4.c RB information to release

If the IE “RB information to release” is included, the UE shall apply the following actions on the radio bearer identified with the value of the IE “RB identity”:

- release the entities in lower layers dedicated for that radio bearer;
- if the information about the radio bearer is stored in the variable ESTABLISHED_RABS:
  - delete the information about the radio bearer from the variable ESTABLISHED_RABS;
  - when all radio bearers belonging to the same radio access bearer have been released:
    - indicate release of the radio access bearer to the upper layer entity using the “CN domain identity” together with the “RAB identity” stored in the variable ESTABLISHED_RABS;
    - delete all information about the radio access bearer from the variable ESTABLISHED_RABS.

8.6.4.d RB information to setup

If the IE “RB information to setup” is included, the UE shall apply the following actions on the radio bearer identified with the value of the IE “RB identity”:

- perform the actions for the IE “PDCP info”, if present, according to subclause 8.6.4.3, applied for the radio bearer;
- perform the actions for the IE “RLC info”, according to subclause 8.6.4.2, applied for the radio bearer;
- perform the actions for the IE “RB mapping info”, according to subclause 8.6.4.1, applied for the radio bearer;
- if the variable CIPHERING_STATUS is set to "Started", and;
  - if the IE “Uplink RLC mode” or the IE “Downlink RLC mode” in the IE “RLC info” is set to “AM RLC” or “UM RLC”:
    - calculate the START value according to subclause 8.5.11;
    - store the calculated START value in the variable START_VALUE_TO_TRANSMIT;
    - initialise ciphering on the radio bearer using the calculated START value.

8.6.4.e RB with PDCP information

If the IE “RB with PDCP information” is included, the UE shall apply the following actions on the radio bearer identified with the value of the IE “RB identity”:

- for the IE “PDCP SN info” perform the actions as specified in 8.6.4.x.

8.6.4.1 RB mapping info

If ~~the IE "RB identity" and~~ the IE "RB mapping info" ~~are~~ is included, the UE shall:

~~- for each RB:~~

- delete all previously stored multiplexing options for that radio bearer;
- store each new multiplexing option for that radio bearer;
- use the multiplexing options applicable for the transport channels to be used;
- configure MAC multiplexing if that is needed in order to use those transport channels;
- use "MAC logical channel priority" when selecting TFC in MAC.

8.6.4.2 RLC Info

If ~~the IE "RB identity" and~~ the IE "RLC Info" ~~are~~ is included, the UE shall:

- Configure the transmitting and receiving RLC entities in the UE for that radio bearer accordingly.

8.6.4.3 PDCP Info

If the ~~IEs "RB identity" and~~IE "PDCP info" ~~are~~ is included, the UE shall:

- Configure the PDCP entity for that radio bearer accordingly.

8.6.5.2 Transport format combination set

If the IE "Transport format combination set" is included, the UE shall for that direction (uplink or downlink):

- remove a previously stored transport format combination set if this exists;
- clear the IE “Duration” in the variable TFC_SUBSET;
- clear the IE “Default TFC subset” in the variable TFC_SUBSET;
- set the IE “Current TFC subset” in the variable TFC_SUBSET to the value indicating “full transport format combination set”;
- remove any previous restriction of the transport format combination set;
- store the new transport format combination set present in the IE "Transport format combination set";
- start to respect those transport format combinations.

For downlink CCTrCHs if no TFCS is stored in the UE the UE shall consider all possible transport format combinations and calculate the possible TFCI values according to the IE transport format combination set.

For downlink CCTrCHs if a TFCS is stored in the UE and

- if the IE "Transport format combination set" is not included and transport channels are deleted in the message, the UE shall:
  - remove the affected transport format combinations from the transport format combination set, recalculate the TFCI values and start to respect those transport format combinations
- if the IE "Transport format combination set" is not included and transport channels are added in the message, the UE shall:
  - consider all possible new combinations to be valid and recalculate the TFCI values and start to respect those transport format combinations. In TDD the new transport format combinations are considered to belong to the TFCS with the ID 1 of DCH type.
- if the IE "Transport format combination set" is not included and transport channels are replaced the UE shall:
  - consider all possible transport format combinations to be valid and calculate the TFCI values accordingly.

8.6.5.3 Transport format combination subset

If the IE "Transport format combination subset"(“TFC subset”) is included, the UE shall:

- if the IE “Minimum allowed Transport format combination index” is included and,
  - the value of the IE “Minimum allowed Transport format combination index” is outside the range of transport format combinations in the current transport format combination set:
    - consider the TFC subset to be incompatible with the current transport format combination set;
- if the IE “Allowed transport format combination list” is included and,
  - the value of any of the IEs “Allowed transport format combination” included in the IE “Allowed transport format combination list” is outside the range of transport format combinations in the current transport format combination set:
    - consider the TFC subset to be incompatible with the current transport format combination set;

  if the IE “Non-allowed transport format combination list” is included and,
  - the value of any of the IEs “Non-allowed transport format combination” included in the IE “Non-allowed transport format combination list” ” is outside the range of transport format combinations in the current transport format combination set:

- consider the TFC subset to be incompatible with the current transport format combination set;

- if the IE “Restricted TrCH information” is included:

  - if the value of any of the IEs “Restricted UL TrCH identity” included in the IE “Restricted TrCH information” does not correspond to any of the transport channels for which the current transport format combination set is valid:

    - consider the TFC subset to be incompatible with the current transport format combination set;

  - if the IE “Allowed TFIs” is included, and;

    - the value of any of the IEs “Allowed TFI” included in the IE “Allowed TFIs” does not correspond to a transport format for that transport channel within the current transport format combination set:

      - consider the TFC subset to be incompatible with the current transport format combination set;

- if the UE considers the TFC subset to be incompatible with the current Transport format combination set according to the above:

  - keep any previous restriction of the transport format combination set;

  - set the variable INVALID_CONFIGURATION to TRUE;

- if the UE does not consider the TFC subset to be incompatible with the current Transport format combination set according to the above:

  - restrict the transport format combination set in the uplink to the value of the IE “Transport format combination subset” (in case of TDD for the uplink CCTrCH specified by the IE "TFCS Id");

  - set the value of the IE “Default TFC subset” (in case of TDD for the uplink CCTrCH specified by the IE "TFCS Id") in the variable TFC_SUBSET to the value of the IE “Current TFC subset” in the variable TFC_SUBSET;

  - set the IE “Current TFC subset” (in case of TDD for the uplink CCTrCH specified by the IE "TFCS Id") in the variable TFC_SUBSET to the value of the IE “Transport format combination subset”;

  - clear the IE “Duration” in the variable TFC_SUBSET;

  - if the transport format combination subset indicates the "full transport format combination set":

    - any restriction on transport format combination set is released and the UE may use the full transport format combination set.

~~If the IE "Transport format combination subset" is included, the UE shall:~~

- ~~restrict the transport format combination set in the uplink to that transport format combination subset. If the transport format combination subset indicates the "full transport format combination set" any restriction on transport format combination set is released and the UE may use the full transport format combination set.~~

10.2.21 PHYSICAL CHANNEL RECONFIGURATION COMPLETE

This message is sent from the UE when a physical channel reconfiguration has been done.

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 10.3.3.14	
Uplink integrity protection activation info	OP		Integrity protection activation info 10.3.3.15	
CHOICE mode	MP			
>FDD				(no data)
>TDD				
>>Uplink Timing Advance	OP		Uplink Timing Advance 10.3.6.93	~~This information element shall be present in case of handover procedure if timing advance is enabled. Calculated timing advance value for the new cell after handover in a synchronous TDD network~~
RB Information elements				
Radio bearer uplink ciphering activation time info	OP		RB activation time info 10.3.4.13	
RB with PDCP information list	OP	1 to <maxRBallRABs>		~~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 10.3.4.22	

10.2.26 RADIO BEARER RECONFIGURATION COMPLETE

This message is sent from the UE when a RB and signalling link reconfiguration has been done.

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 10.3.3.14	
Uplink integrity protection activation info	OP		Integrity protection activation info 10.3.3.15	
CHOICE mode	MP			
>FDD				(no data)
>TDD				
>>Uplink Timing Advance	OP		Uplink Timing Advance 10.3.6.93	~~This information element shall be present in case of handover procedure if timing advance is enabled. Calculated timing advance value for the new cell after handover in a synchronous TDD network~~
RB Information elements				
Radio bearer uplink ciphering activation time info	OP		RB activation time info 10.3.4.13	
RB with PDCP information list	OP	1 to <maxRBallRABs>		~~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 10.3.4.22	

10.2.52 TRANSPORT CHANNEL RECONFIGURATION COMPLETE

This message is sent from the UE when a transport channel reconfiguration has been done.

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 10.3.3.14	
Uplink integrity protection activation info	OP		Integrity protection activation info 10.3.3.15	
CHOICE mode	OP			
>FDD				(no data)
>TDD				
>>Uplink Timing Advance	OP		Uplink Timing Advance 10.3.6.93	~~This information element shall be present in case of handover procedure if timing advance is enabled. Calculated timing advance value for the new cell after handover in a synchronous TDD network~~
RB Information elements				
Radio bearer uplink ciphering activation time info	OP		RB activation time info 10.3.4.13	
RB with PDCP information list	OP	1 to <maxRBallRABs>		~~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 10.3.4.22	

10.3.4.18 RB information to reconfigure

Information Element/Group name	Need	Multi	Type and reference	Semantics description
RB identity	MP		RB identity 10.3.4.16	
PDCP info	OP		PDCP info 10.3.4.2	
PDCP SN info	C PDCP		PDCP SN info 10.3.4.3	PDCP sequence number info from the network. Present only in case of lossless SRNS relocation.
CHOICE *RLC info type*	OP			
>RLC info			RLC info 10.3.4.23	
RB mapping info	OP		RB mapping info 10.3.4.21	
RB ~~suspend/resume~~stop/continue	OP		Enumerated(~~suspend~~stop , ~~resume~~continue)	

Condition	Explanation
PDCP	This IE is optional only if "PDCP info" is present. Otherwise it is absent.

10.3.5.22 Transport Format Combination Subset

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

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE Subset representation	MP			
>Minimum allowed Transport format combination index	~~MP~~		Transport format combination 10.3.5.19	The integer number is a reference to the *Transport format combination,* which arrived at that position in the *Transport Format Combination Set.*
>Allowed transport format combination list	~~MP~~	1 to <maxTFC>		
>>Allowed transport format combination	MP		Transport format combination 10.3.5.19	The integer number is a reference to the *Transport format combination,* which arrived at that position in the *Transport Format Combination Set.*
>Non-allowed transport format combination list	~~MP~~	1 to <maxTFC>		
>>Non-allowed transport format combination	MP		Transport format combination 10.3.5.19	The integer number is a reference to the *Transport format combination,* which arrived at that position in the *Transport Format Combination Set.*
>Restricted TrCH information	~~MP~~	1 to <maxTrCH>		
>>Restricted UL TrCH identity	MP		Transport channel identity 10.3.5.18	The integer number(s) is a reference to the transport channel that is restricted.
>>Allowed TFIs	OP	1 to <maxTF>		
>>>Allowed TFI	MP		Integer(0..31)	The integer number is a reference to the transport format that is allowed. If no elements are given, all transport formats or the TrCH with non-zero rate are restricted.
>Full transport format combination set				(No data)

13.4.3 DEFAULT_TFC_SUBSET

This variable contains the TFC subset to go back to when a temporary TFC limitation is released.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
TFC subset	MP		Transport Format Combination Subset 10.3.5.22	

13.4.5 ESTABLISHED_RABS

This variable is used to store information about the established radio access bearers and signalling radio bearers in the UE.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
RAB information	OP	1 to <maxRABsetup>		For each RAB established
>RAB info	MP		RAB info 10.3.4.8	
>RB information	MP	1 to <maxRBperRAB>		For each RB belonging to the RAB
>>RB identity	MP		RB identity 10.3.4.16	
>>Subflow	MP		Integer(0..<maxSubflowcount>)	Reference to the RAB subflow implemented by this RB
>> RB started	MD		Enumerated(stopped, started)	Default value is started
Signalling radio bearer information	MP	1 to <maxSRBsetup>		In the order of RB 0 and upwards
> RB started	MD		Enumerated(stopped, started)	Default value is started

13.4.x PDCP_SN_INFO

This variable contains PDCP receive sequence numbers for one or several radio bearers to be included in a response message to UTRAN.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
RB with PDCP information list	OP	1 to <maxRBallRABs>		
>RB with PDCP information	MP		RB with PDCP information 10.3.4.22	

13.4.14 SELECTED_PLMN

This variable contains the type of and identity of the selected PLMN.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
PLMN Type	MP		PLMN Type 10.3.1.12	
CHOICE *identity type*	MP			
>PLMN identity			PLMN identity 10.3.1.11	
>SID			SID 10.3.9.11	

CHOICE *identity type*	Condition under which the given *identity type* is chosen
PLMN identity	PLMN Type is "GSM-MAP"
SID	PLMN Type is "ANSI-41"

13.4.14a TFC_SUBSET

This variable contains information about the TFC subset currently applied.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE mode				
> FDD				
>> Current TFC subset	MP		Transport Format Combination Subset 10.3.5.22	
>> Duration	OP		TFC Control duration 10.3.6.78	
>> Default TFC subset	OP		Transport Format Combination Subset 10.3.5.22	The TFC subset to go back to when any temporary limitation is released
> TDD				
>> TFCS list		1 to < maxCCTrCH >		
>>> TFCS identity	MP			
>>> Current TFC subset	MP		Transport Format Combination Subset 10.3.5.22	
>>>> Duration	OP		TFC Control duration 10.3.6.78	
>>>> Default TFC subset	OP		Transport Format Combination Subset 10.3.5.22	The TFC subset to go back to when any temporary limitation is released

13.4.15 TGPS_IDENTITY

This variable contains the configuration parameters of a compressed mode transmission gap pattern sequence

Information Element/Group name	Need	Multi	Type and reference	Semantics description
TGPS_IDENTITY	MP		DPCH compressed mode info 10.3.6.32	Information as contained in the IE group "Transmission gap pattern sequence configuration parameters".

3GPP TSG-RAN-WG2 Meeting #17 **Tdoc R2-002447**
Sophia Antipolis, France, 13th-17th November 2000

CR-Form-v3

CHANGE REQUEST

⌘ **25.331** **CR** **601** ⌘ rev **r1** ⌘ Current version: **3.4.1** ⌘

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

Proposed change affects: ⌘ (U)SIM ☐ ME/UE **X** Radio Access Network **X** Core Network ☐

Title:	⌘	Corrections to the Counter Check Procedure
Source:	⌘	TSG-RAN WG2
Work item code:	⌘	***Date:*** ⌘ 9 November 2000
Category:	⌘	**F** ***Release:*** ⌘ R99

Use one of the following categories:
F *(essential correction)*
A *(corresponds to a correction in an earlier release)*
B *(Addition of feature),*
C *(Functional modification of feature)*
D *(Editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
REL-4	*(Release 4)*
REL-5	*(Release 5)*

Reason for change:	⌘	To align and correct the procedure to the Stage 2 description in 33.102.
Summary of change:	⌘	Inclusion of procedural aspects currently left from 25.331 compared to 33.102.
Consequences if not approved:	⌘	The COUNTER CHECK procedure used for local re-authentication will not work.

Clauses affected:	⌘	8.1.15.3		
Other specs affected:	⌘	☐ Other core specifications ☐ Test specifications ☐ O&M Specifications	⌘	
Other comments:	⌘			

How to create CRs using this form:
Comprehensive information and tips about how to create CRs can be found at: http://www.3gpp.org/3G_Specs/CRs.htm. Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.
2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://www.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2000-09 contains the specifications resulting from the September 2000 TSG meetings.
3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

8.1.15.3 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 IE "RB COUNT-C MSB information" in the COUNTER CHECK message to the COUNT-C MSB values of the corresponding radio bearers.

The UE shall

- set the IE "RRC transaction identifier" in the COUNTER CHECK RESPONSE message to
  - the value of "RRC transaction identifier" in the entry for the COUNTER CHECK message in the table "Accepted transactions" in the variable TRANSACTIONS, and;
  - clear that entry.

If

- the number of radio bearers using UM or AM RLC mode stored in the varible ESTABLISHED_RABS are different from the number of radio bearers in the IE "RB COUNT-C MSB information", or;
- any of the COUNT-C MSB values areis different to the mismatched COUNT-C values; then

the UE shall:

- include these radio bearers shall be included in the IE "RB COUNT-C information" in a the COUNTER CHECK RESPONSE message;.

The UE shall send thesubmit a COUNTER CHECK RESPONSE message to lower layers for transmission on the uplink DCCH using AM RLC.

3GPP RAN WG2 Meeting #17
Sophia Antipolis, France, 14-17 November 2000

Document R2-002256
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

CHANGE REQUEST

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

25.331	CR	602	Current Version:	3.4.1

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

For submission to:	TSG-RAN #10	for approval	X	strategic		(for SMG use only)
list expected approval meeting # here ↑		for information		non-strategic		

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	X	UTRAN / Radio	X	Core Network	

Source: TSG-RAN WG2 **Date:** 2000-11-24

Subject: Tabular Information and ASN.1

Work item:

Category: *(only one category shall be marked with an X)*

F	Correction	X	**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	X
				Release 00	

Reason for change:

This CR includes the changes from the RRC review to sections 10 and 11 (Tabular.

Changes from CRs from the RRC review are included
Clauses 11.3.1 to 11.3.9 merged into one clause (11.3) to avoid circular references
Some inconsistencies between the tabular and ASN.1 were corrected
Some small corrections pointed out in the WG2 mailing list
Naming convention for critical extensions updated as specified in R2-002373.
Critical spare values in downlink messages removed, as they can be included in future versions with the normal extension mechanisms anyway.
Spare values in uplink were kept only in cause IEs (e.g. failure cause), with the criticality information for these spare values deleted, because it is UTRAN specific how to react to an unknown value in these elements. The rest can be handled by the normal extension mechanisms.
Timer poll Prohibit timer is updated in tabular according to ASN.1

Clauses affected: 10, 11

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: Changes in sections 10 and 11 from the CRs produced during the RRC review (CRs 587, 595-601) are included in this CR.

help.doc

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

10 Message and information element functional definition and content

10.1 General

The function of each Radio Resource Control message together with message contents in the form of a list of information elements is defined in subclause 10.2.

Functional definitions of the information elements are then described in subclause 10.3.

Information elements are marked as either MP- Mandatory present, MD - Mandatory with default value, OP - Optional, CV - Conditional on value or CH -Conditional on history (see Table 10.1 with information extracted from [14]).

Table 10.1: Meaning of abbreviations used in RRC messages and information elements

Abbreviation	Meaning
MP	Mandatory present A value for that information is always needed, and no information is provided about a particular default value. If ever the transfer syntax allows absence (e.g., due to extension), then absence leads to an error diagnosis.
MD	Mandatory with default value A value for that information is always needed, and a particular default value is mentioned (in the 'Semantical information' column). This opens the possibility for the transfer syntax to use absence or a special pattern to encode the default value.
CV	Conditional on value A value for that information is needed (presence needed) or unacceptable (absence needed) when some conditions are met that can be evaluated on the sole basis of the content of the message. If conditions for presence needed are specified, the transfer syntax must allow for the presence of the information. If the transfer syntax allows absence, absence when the conditions for presence are met leads to an error diagnosis. If conditions for absence needed are specified, the transfer syntax must allow to encode the absence. If the information is present and the conditions for absence are met, an error is diagnosed. When neither conditions for presence or absence are met, the information is treated as optional, as described for 'OP'.
CH	Conditional on history A value for that information is needed (presence needed) or unacceptable (absence needed) when some conditions are met that must be evaluated on the basis of information obtained in the past (e.g., from messages received in the past from the other party). If conditions for presence needed are specified, the transfer syntax must allow for the presence of the information. If the transfer syntax allows absence, absence when the conditions for presence are met leads to an error diagnosis. If conditions for absence needed are specified, the transfer syntax must allow to encode the absence. If the information is present and the conditions for absence are met, an error is diagnosed. When neither conditions for presence or absence are met, the information is treated as optional, as described for 'OP'.
OP	Optional

Abbreviation	Meaning
	The presence or absence is significant and modifies the behaviour of the receiver. However whether the information is present or not does not lead to an error diagnosis.

10.1.1 Protocol extensions

In this specification, two kind of protocol extensions are distinguished:

- extension of an information element with additional values or choices;
- extension of a message with additional information elements.

This standard fully specifies the behaviour of the UE, conforming to this revision of the standard, upon receiving a not comprehended future extension. The details of this error handling behaviour are provided in clause 16.

NOTE: By avoiding the need for partial decoding (skipping uncomprehended IEs to continue decoding the remainder of the message), the RRC protocol extension mechanism also avoids the overhead of length determinants for extensions.

10.1.1.1 Extension of an information element with additional values or choices

In future releases of this protocol, some of the value ranges and choices may be extended. For these value ranges and choices, one or more additional values are reserved. The size of the encoded information element shall not depend on whether or not the values reserved for extension are used. Information elements applicable to choices reserved for future releases of the protocol, shall be added to the end of the message.

For each of the values and choices reserved for future extension, the behaviour of a UE conforming to this revision of the standard is defined within the message and information element specifications provided in subclause 10.1 and 10.2. The UE may either apply a defined value, ignore the information element and/ or reject the request entire message. Which action applies is indicated within the "semantics" column of the tables specifying the messages and information elements as the "criticality" ("default", "ignore" or "reject").

10.1.1.2 Extension of a message with additional information elements

In future releases of this protocol, RRC messages may be extended with new information elements. These additional information elements shall always be included at the end of the message.

UTRAN is able to control the behaviour of a UE receiving a message extended with a not comprehended additional information element by indicating for each extension the "criticality" which may be "ignore" or "reject". Therefore UTRAN indicates the criticality for extensions provided in all messages it sends towards the UE, with the exception of broadcast messages. In the direction from UE to UTRAN, not criticality information is included for protocol extensions added at the end of a message. This is shown in the following table. Furthermore, the table indicates at which level extensions are included for the SYSTEM INFORMATION message.

Type	Message
Extensions and criticality	ACTIVE SET UPDATE 10.2.1 CELL UPDATE CONFIRM 10.2.5 DOWNLINK DIRECT TRANSFER 10.2.8 DOWNLINK OUTER LOOP CONTROL 10.2.9 HANDOVER TO UTRAN COMMAND 10.2.10 INTER SYSTEM HANDOVER COMMAND 10.2.13 MEASUREMENT CONTROL 10.2.15 PAGING TYPE 1 10.2.18 PAGING TYPE 2 10.2.19 PHYSICAL CHANNEL RECONFIGURATION 10.2.20 PHYSICAL SHARED CHANNEL ALLOCATION 10.2.23 RADIO BEARER RECONFIGURATION 10.2.25 RADIO BEARER RELEASE 10.2.28 RADIO BEARER SETUP 10.2.31 ~~RRC CONNECTION RE- ESTABLISHMENT 10.2.34~~ RRC CONNECTION REJECT 10.2.37 RRC CONNECTION RELEASE 10.2.38 RRC CONNECTION SETUP 10.2.41 SECURITY MODE COMMAND 10.2.44 SIGNALLING CONNECTION RELEASE 10.2.47 SIGNALLING CONNECTION RELEASE REQUEST 10.2.48 TRANSPORT CHANNEL RECONFIGURATION 10.2.51 TRANSPORT FORMAT COMBINATION CONTROL 10.2.54 UE CAPABILITY ENQUIRY 10.2.56 UE CAPABILITY INFORMATION CONFIRM 10.2.58 UPLINK PHYSICAL CHANNEL CONTROL 10.2.60 URA UPDATE CONFIRM 10.2.62 UTRAN MOBILITY INFORMATION 10.2.63
Extensions	ACTIVE SET UPDATE COMPLETE 10.2.2 ACTIVE SET UPDATE FAILURE 10.2.3 CELL UPDATE 10.2.4 COUNTER CHECK RESPONSE 10.2.7 HANDOVER TO UTRAN COMPLETE 10.2.11 INITIAL DIRECT TRANSFER 10.2.12 INTER SYSTEM HANDOVER FAILURE 10.2.14 MEASUREMENT CONTROL FAILURE 10.2.16 MEASUREMENT REPORT 10.2.17 PHYSICAL CHANNEL RECONFIGURATION COMPLETE 10.2.21 PHYSICAL CHANNEL RECONFIGURATION FAILURE 10.2.22 PUSCH CAPACITY REQUEST 10.2.24 RADIO BEARER RECONFIGURATION COMPLETE 10.2.26 RADIO BEARER RECONFIGURATION FAILURE 10.2.27 RADIO BEARER RELEASE COMPLETE 10.2.29 RADIO BEARER RELEASE FAILURE 10.2.30 RADIO BEARER SETUP COMPLETE 10.2.32 RADIO BEARER SETUP FAILURE 10.2.33 ~~RRC CONNECTION RE- ESTABLISHMENT COMPLETE 10.2.35~~ ~~RRC CONNECTION RE- ESTABLISHMENT REQUEST 10.2.36~~ ~~RRC CONNECTION RE- ESTABLISHMENT REJECT 10.2.37~~ RRC CONNECTION RELEASE COMPLETE 10.2.39 RRC CONNECTION REQUEST 10.2.40 RRC CONNECTION SETUP COMPLETE 10.2.42 RRC STATUS 10.2.43 SECURITY MODE COMPLETE 10.2.45 SECURITY MODE FAILURE 10.2.46 Master Information Block 10.2.49.8.1 System Information Block type 1 to System Information Block type 17~~6~~ 10.2.49.8.2 to 10.2.49.8.19~~8~~ SYSTEM INFORMATION CHANGE INDICATION 10.2.50 TRANSPORT CHANNEL RECONFIGURATION COMPLETE 10.2.52 TRANSPORT CHANNEL RECONFIGURATION FAILURE 10.2.53 TRANSPORT FORMAT COMBINATION CONTROL FAILURE 10.2.55 UE CAPABILITY INFORMATION 10.2.57 UPLINK DIRECT TRANSFER 10.2.59 URA UPDATE 10.2.61 UTRAN MOBILITY INFORMATION CONFIRM 10.2.64 UTRAN MOBILITY INFORMATION FAILURE 10.2.65

Type	Message
None	SYSTEM INFORMATION 10.2.49 First Segment 10.2.49.1 Subsequent or last Segment 10.2.49.3 Complete SIB 10.2.49.5 SIB content 10.2.49.8.1

NOTE 1: For the SYSTEM INFORMATION message protocol extensions are only possible at the level of system information blocks. If extension is needed at the level of SYSTEM INFORMATION, another message should be defined.

The "Extensions and criticality" may include both critical and non- critical extensions. Within the encoded message, the critical extensions shall always appear before non-critical extensions.

NOTE 2: The above implies that a UE may stop decoding upon the first not comprehended IE it encounters.

The UE shall comprehend all information elements within a message upto the revision of the protocol it supports for the concerned message.

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 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.
- RRC messages on the SHCCH are mapped either on RACH or on the USCH with the lowest assigned Transport Channel Id in the uplink and either on FACH or on the DSCH with the lowest assigned Transport Channel Id using RLC-TM.
  These messages are only specified for TDD mode.

When an RRC message is transmitted in DL on CCCH or SHCCH using RLC UM, RRC should indicate to RLC that a special RLC length indicator should be used [16]. The UE shall assume that this indication has been given. The special length indicator indicates that an RLC SDU begins in the beginning of an RLC PDU.

10.2.1 ACTIVE SET UPDATE

NOTE: Only for FDD.

This message is used by UTRAN to add, replace or delete radio links in the active set of the UE.

RLC-SAP: AM

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				
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.34a	
Integrity check info	CH		Integrity check info 10.3.3.14	
Integrity protection mode info	OP		Integrity protection mode info 10.3.3.17	
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	
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 <maxRBallRABs>		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 10.3.4.22	
Phy CH information elements				
Uplink radio resources				
Maximum allowed UL TX power	MD		Maximum allowed UL TX power 10.3.6.38	Default value is the existing "maximum UL TX power.
Downlink radio resources				
Radio link addition information	OP	1 to <maxRL-1>		Radio link addition information required for each RL to add
>Radio link addition information	MP		Radio link addition information 10.3.6.67	
Radio link removal information	OP	1 to <maxRL-1>		Radio link removal information required for each RL to remove
> Radio link removal information	MP		Radio link removal information 10.3.6.68	
TX Diversity Mode	MD		TX Diversity Mode 10.3.6.84	Default value is the existing TX diversity mode.
SSDT information	OP		SSDT information	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
			10.3.6.76	

10.2.2 ACTIVE SET UPDATE COMPLETE

NOTE: For FDD only.

This message is sent by UE when active set update 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	
UE information elements				
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.34a	
Integrity check info	CH		Integrity check info 10.3.3.14	
Uplink integrity protection activation info	OP		Integrity protection activation info 10.3.3.15	
RB Information elements				
Radio bearer uplink ciphering activation time info	OP		RB activation time info 10.3.4.13	
RB with PDCP information list	OP	1 to <maxRBallRABs>		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 10.3.4.22	

10.2.3 ACTIVE SET UPDATE FAILURE

NOTE: Only for FDD.

This message is sent by UE if the update of the active set has failed, e.g. because the radio link is not a part of the active set.

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				
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.34a	
Integrity check info	CH		Integrity check info 10.3.3.14	
Failure cause	MP		Failure cause and error information 10.3.3.12	

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	
RRC transaction identifier	CV-*Failure*		RRC transaction identifier 10.3.3.34a	
Integrity check info	CH		Integrity check info 10.3.3.14	
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 10.3.3.36	START value to be used in this CN domain.
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	
Failure cause	OP		Failure cause and error information 10.3.3.12	
~~Protocol error indicator~~	~~MD~~		~~Protocol error indicator 10.3.3.27~~	~~Default value is FALSE~~
RB timer indicator	MP		RB timer indicator 10.3.3.27a	
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
Failure~~ProtErr~~	~~If the IE "Protocol error indicator" has the value "TRUE"~~ This IE is mandatory if the IE "Failure cause" is present. Otherwise it is absent.

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	
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.34a	
Integrity check info	CH		Integrity check info 10.3.3.14	
Integrity protection mode info	OP		Integrity protection mode info 10.3.3.17	
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~~RRC State Indicator	MP		~~DRX Indicator~~RRC State 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 10.3.3.34	
RLC reset indicator (for U-plane)	MD		RLC reset indicator 10.3.3.34	
CN Information Elements				
CN Information info	OP		CN Information info 10.3.1.3	
UTRAN Information Elements				
URA identity	OP		URA identity 10.3.2.6	
RB information elements				
RB information to release list	OP	1 to <maxRB>		
>RB information to release	MP		RB information to release 10.3.4.19	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
RB information to reconfigure list	OP	1 to <maxRB>		
>RB information to reconfigure	MP		RB information to reconfigure 10.3.4.18	
RB information to be affected list	OP	1 to <maxRB>		
>RB information to be affected	MP		RB information to be affected 10.3.4.17	
RB with PDCP information list	OP	1 to <maxRBallRABs>		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 10.3.4.22	
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		

Information Element/Group name	Need	Multi	Type and reference	Semantics description
		<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 10.3.6.35	Default value is the existing value of frequency information
Uplink radio resources				
Maximum allowed UL TX power	MD		Maximum allowed UL TX power 10.3.6.38	Default value is the existing maximum UL TX power
~~PRACH Info (for RACH)~~	~~OP~~		~~PRACH Info (for RACH) 10.3.6.51~~	
CHOICE *channel requirement*	OP			~~At least one spare choice (criticality = reject) required~~
>Uplink DPCH info			Uplink DPCH info 10.3.6.86.	
>CPCH SET Info			CPCH SET Info 10.3.6.12	
Downlink radio resources				
CHOICE *mode*				
>FDD				
>>Downlink PDSCH information	OP		Downlink PDSCH information 10.3.6.29	
>TDD				(no data)
Downlink information common for all radio links	OP		Downlink information common for all radio links 10.3.6.23	
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 10.3.6.26	
~~**Downlink radio resources**~~				
~~Downlink information for one radio link~~	~~OP~~		~~Downlink information for each radio link 10.3.6.26~~	

Condition	Explanation
CCCH	This IE is ~~only sent~~mandatory when CCCH is used and ciphering is not required. Otherwise it is absent.

10.2.6 COUNTER CHECK

This message is used by the UTRAN to indicate the current COUNT-C MSB values associated to each radio bearer utilising UM or AM RLC mode and to request the UE to compare these to its COUNT-C MSB values and to report the comparison results to UTRAN.

RLC-SAP: AM

Logical channel: DCCH

Direction: UTRAN→UE

Information Element/Group name	Presence	Multi	IE type and reference	Semantics description
Message Type	MP			
UE information elements				
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.34a	
Integrity check info	MP		Integrity check info 10.3.3.14	
RB information elements				
RB COUNT-C MSB information	MP	1 to < maxRBallRABs >		For each RB (excluding SRBs) using UM or AM RLC.
>RB COUNT-C MSB information	MP		RB COUNT-C MSB information 10.3.4.14	

10.2.7 COUNTER CHECK RESPONSE

This message is used by the UE to respond to a COUNTER CHECK message.

RLC-SAP: AM

Logical channel: DCCH

Direction: UE→UTRAN

Information Element/Group name	Presence	Multi	IE type and reference	Semantics description
Message Type	MP			
UE information elements				
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.34a	
Integrity check info	MP		Integrity check info 10.3.3.14	
RB information elements				
RB COUNT-C information	OP	1 to < maxRBallRABs >		For each RB (excluding SRBs) using UM or AM RLC whose COUNT-C MSB values did not match with the values received from the UTRAN.
>RB COUNT-C information	MP		RB COUNT-C information 10.3.4.15	

10.2.8 DOWNLINK DIRECT TRANSFER

This message is sent by UTRAN to transfer higher layer messages.

RLC-SAP: AM

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				
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.34a	
Integrity check info	CH		Integrity check info 10.3.3.14	
CN information elements				
CN Domain Identity	MP		Core Network Domain Identity 10.3.1.1	
NAS message	MP		NAS message 10.3.1.8	

10.2.9 DOWNLINK OUTER LOOP CONTROL

This message is sent to suspend and resume the setting of the SIR target value for downlink outer loop power control.

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				
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.34a	
Integrity check info	CH		Integrity check info 10.3.3.14	
PhyCH information elements				
Downlink Outer Loop Control	MP		Downlink Outer Loop Control 10.3.6.28	Indicates whether the UE is allowed or not to increase its SIR-target value above its current value
Downlink DPCH power control information	MD		Downlink DPCH power control information 10.3.6.22	Default value is the existing "Downlink DPCH power control information"

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 short 10.3.4.9	One RAB is established
CHOICE specification mode	MP			
>Complete specification				
UE information elements				
>>Re-establishment timer	MP		Re-establishment timer 10.3.3.29	
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 10.3.4.24	
>>RB information to setup list	MP	1 to <maxRBperRAB>		
>>>RB information to setup	MP		RB information to setup 10.3.4.20	
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 10.3.6.86	
>>CHOICE *mode*	MP			
>>>FDD				
>>>>CPCH SET Info	OP		CPCH SET Info 10.3.6.12	
Downlink radio resources				
~~>>CHOICE *mode*~~	~~MP~~			
~~>>>FDD~~				
>>>>Downlink PDSCH information	OP		Downlink PDSCH information 10.3.6.29	
>>>TDD				(no data)
>>Downlink information common for all radio links	MP		Downlink information common for all radio links 10.3.6.23	
>>Downlink information per radio link	MP	1 to <maxRL>		
>>>Downlink information for each radio link	MP		Downlink information for each radio link 10.3.6.26	
>Preconfiguration				
>>Predefined configuration identity	MP		Predefined configuration identity 10.3.4.5	
>>Uplink DPCH info	MP		Uplink DPCH info Post 10.3.6.87	
Downlink radio resources				
>>CHOICE *mode*				
>>>FDD				
>>>>Downlink information common for all radio links			Downlink information common for all radio links Post 10.3.6.24	
>>>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 Post 10.3.6.27	
Frequency info	MP		Frequency	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
			info 10.3.6.35	
Maximum allowed UL TX power	MP		Maximum allowed UL TX power 10.3.6.38	
CHOICE mode	MP			
>FDD				(no data)
>TDD				
>>Primary CCPCH Tx Power	MP		Primary CCPCH Tx Power 10.3.6.58	

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 <maxCNdomains>		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	MP		START 10.3.3.36	

10.2.12 INITIAL DIRECT TRANSFER

This message is used to initiate a signalling connection ~~or to establish a new signalling flow~~ based on indication from the upper layers, and to transfer a NAS message~~s~~.

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 10.3.3.14	
CN information elements				
~~Service Descriptor~~	~~MP~~		~~Service Descriptor 10.3.1.17~~	
~~Flow Identifier~~	~~MP~~		~~Flow Identifier 10.3.1.4~~	~~Allocated by UE for a particular flow~~
CN domain identity	MP		CN domain identity 10.3.1.1	
NAS message	MP		NAS message 10.3.1.8	
Measurement information elements				
Measured results on RACH	OP		Measured results on RACH 10.3.7.70	

10.2.13 INTER-SYSTEM HANDOVER COMMAND

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

RLC-SAP: AM

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				
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.34a	
Integrity check info	CH		Integrity check info 10.3.3.14	
Activation time	MD		Activation time 10.3.3.1	Default value is "now"
RB information elements				
RAB info	OP		RAB info 10.3.4.8	Remaining radio access bearer if any
Other information elements				
Inter-System message	MP		Inter-System message 10.3.8.6	

10.2.14 INTER-SYSTEM HANDOVER FAILURE

This message is sent on the RRC connection used before the Inter-System Handover was executed. The message indicates that the UE has failed to seize the new channel in the other system.

RLC-SAP: 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				
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.34a	
Integrity check info	CH		Integrity check info 10.3.3.14	
Other information elements				
Inter-System handover failure	OP		Inter-System handover failure 10.3.8.5	

10.2.15 MEASUREMENT CONTROL

This message is sent by UTRAN to setup, modify or release a measurement in the UE.

RLC-SAP: AM

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				
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.34a	
Integrity check info	CH		Integrity check info 10.3.3.14	
Measurement Information elements				
Measurement Identity Number	MP		Measurement Identity Number 10.3.7.73	
Measurement Command	MP		Measurement Command 10.3.7.71	
Measurement Reporting Mode	OP		Measurement Reporting Mode 10.3.7.74	
Additional measurements list	OP		Additional measurements list 10.3.7.1	
CHOICE Measurement type	CV *command*			
>Intra-frequency measurement			Intra-frequency measurement 10.3.7.36	
>Inter-frequency measurement			Inter-frequency measurement 10.3.7.16	
>Inter-system measurement			Inter-system measurement 10.3.7.27	
>LCS measurement			LCS measurement 10.3.7.57	
>Traffic Volume measurement			Traffic Volume measurement 10.3.7.93	
>Quality measurement			Quality measurement 10.3.7.81	
>UE internal measurement			UE internal measurement 10.3.7.102	
Physical channel information elements				
DPCH compressed mode status info	OP		DPCH compressed mode status info 10.3.6.33	

Condition	Explanation
Command	The IE is mandatory if the "Measurement command" IE is set to "Setup", optional if the "Measurement command" IE is set to "modify", otherwise the IE is not needed.

10.2.16 MEASUREMENT CONTROL FAILURE

This message is sent by UE, if it can not initiate a measurement as instructed by UTRAN.

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				
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.34a	
Integrity check info	CH		Integrity check info 10.3.3.14	
Failure cause	MP		Failure cause and error information 10.3.3.12	

10.2.17 MEASUREMENT REPORT

This message is used by UE to transfer measurement results to the UTRAN.

RLC-SAP: AM or UM

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 10.3.3.14	
Measurement Information Elements				
Measurement identity number	MP		Measurement identity number 10.3.7.73	
Measured Results	OP		Measured Results 10.3.7.69	
Measured Results on RACH	OP		Measured Results on RACH 10.3.7.70	
Additional Measured results	OP	1 to <maxAdditionalMeas>		
>Measured Results	MP		Measured Results 10.3.7.69	
Event results	OP		Event results 10.3.7.7	

10.2.18 PAGING TYPE 1

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

RLC-SAP: TM

Logical channel: PCCH

Direction: UTRAN → UE

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE Information elements				
Paging record list	OP	1 to <maxPage1>		
>Paging record	MP		Paging record 10.3.3.23	
Other information elements				
BCCH modification info	OP		BCCH modification info 10.3.8.1	

If the encoded message does not fill a transport block, the RRC layer shall add padding according to subclause 12.1.

10.2.19 PAGING TYPE 2

This message is used to page an UE in connected mode, when using the DCCH for CN originated paging.

RLC-SAP: AM

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				
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.34a	
Integrity check info	CH		Integrity check info 10.3.3.14	
Paging cause	MP		Paging cause 10.3.3.22	
CN Information elements				
CN domain identity	MP		CN domain identity 10.3.1.1	
Paging Record Type Identifier	MP		Paging Record Type Identifier 10.3.1.10	

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				
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.34a	
Integrity check info	CH		Integrity check info 10.3.3.1415	
Integrity protection mode info	OP		Integrity protection mode info 10.3.3.17	
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~~RRC State Indicator	MP		~~DRX Indicator~~ RRC State 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	
UTRAN mobility information elements				
URA identity	OP		URA identity 10.3.2.6	
RB information elements				
RB with PDCP information list	OP	1 to <maxRBallRABs>		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 10.3.4.22	
PhyCH information elements				
Frequency info	MD		Frequency info 10.3.6.35	Default value is the existing value of frequency information
Uplink radio resources				
Maximum allowed UL TX power	MD		Maximum allowed UL	Default value is the existing value of the maximum allowed

Information Element/Group name	Need	Multi	Type and reference	Semantics description
			TX power 10.3.6.38	UL TX power
CHOICE *channel requirement*	OP			~~At least one criticality=reject spare value needed for future extension~~
>Uplink DPCH info			Uplink DPCH info 10.3.6.86	
~~>PRACH Info (for RACH)~~			~~PRACH Info (for RACH) 10.3.6.51~~	
>CPCH SET Info			CPCH SET Info 10.3.6.12	
>CPCH set ID			CPCH set ID 10.3.5.3	
Downlink radio resources				
CHOICE *mode*	MP			
>FDD				
>>Downlink PDSCH information	OP		Downlink PDSCH information 10.3.6.29	
> TDD				(no data)
Downlink information common for all radio links	OP		Downlink information common for all radio links 10.3.6.23	
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 10.3.6.26	

10.2.21 PHYSICAL CHANNEL RECONFIGURATION COMPLETE

This message is sent from the UE when a physical channel reconfiguration has been done.

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				
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.34a	
Integrity check info	CH		Integrity check info 10.3.3.14	
Uplink integrity protection activation info	OP		Integrity protection activation info 10.3.3.15	
CHOICE mode	MP			
>FDD				(no data)
>TDD				
>>Uplink Timing Advance	OP		Uplink Timing Advance 10.3.6.93	~~This information element shall be present in case of handover procedure if timing advance is enabled. Calculated timing advance value for the new cell after handover in a synchronous TDD network~~
RB Information elements				
Radio bearer uplink ciphering activation time info	OP		RB activation time info 10.3.4.13	
RB with PDCP information list	OP	1 to <maxRBallRABs>		~~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 10.3.4.22	

10.2.22 PHYSICAL CHANNEL RECONFIGURATION FAILURE

This message is sent by UE if the configuration given by UTRAN is unacceptable or if the UE failed to assign, replace or release a set of physical channel(s).

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				
RRC transaction identifier	OP		RRC transaction identifier 10.3.3.34a	
Integrity check info	CH		Integrity check info 10.3.3.14	
Failure cause	MP		Failure cause and error information 10.3.3.12	

10.2.23 PHYSICAL SHARED CHANNEL ALLOCATION

NOTE: Only for TDD.

This message is used by UTRAN to assign physical resources to USCH/DSCH transport channels in TDD, for temporary usage by the UE.

RLC-SAP: UM on SHCCH, UM on DCCH

Logical channel: SHCCH or DCCH

Direction: UTRAN → UE

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message type	
C-RNTI	OP		C-RNTI 10.3.3.8	
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.34a	
Uplink timing advance Control	MD		Uplink Timing Advance Control 10.3.6.94	Default value is the existing value for uplink timing advance
PUSCH capacity allocation info	OP		PUSCH Capacity Allocation info 10.3.6.63	
PDSCH capacity allocation info	OP		PDSCH Capacity Allocation info 10.3.6.41	
Confirm request	MD		Enumerated(No Confirm, Confirm PDSCH, Confirm PUSCH)	Default value is No Confirm
ISCP Timeslot list	OP	1 to maxTS		
>Timeslot number	MP		Timeslot number 10.3.6.81	Timeslot numbers, for which the UE shall report the timeslot ISCP in PUSCH CAPACITY REQUEST message.

10.2.24 PUSCH CAPACITY REQUEST

NOTE: Only for TDD.

This message is used by the UE for request of PUSCH resources to the UTRAN.

RLC-SAP: TM

Logical channel: SHCCH

Direction: UE → UTRAN

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
C-RNTI	OP		C-RNTI 10.3.3.8	
RRC transaction identifier	CV-*ProtErr*		RRC transaction identifier 10.3.3.34a	
Traffic Volume	OP		Traffic Volume, measured results list 10.3.7.92	
Timeslot list	OP	1 to maxTS		
>Timeslot number	MP		Timeslot number 10.3.6.81	
>Timeslot ISCP	MP		Timeslot ISCP info 10.3.7.90	
Primary CCPCH RSCP	OP		Primary CCPCH RSCP info 10.3.7.79	
CHOICE Allocation confirmation	OP			
>PDSCH Confirmation	MP		Integer(1..HiPDSCHIdentities)	
>PUSCH Confirmation	MP		Integer(1..HiPUSCHIdentities)	
Protocol error indicator	MD		Protocol error indicator 10.3.3.27	Default value is FALSE
Protocol error information	CV-*ProtErr*		Protocol error information 10.3.8.10	

Condition	Explanation
ProtErr	If the IE "Protocol error indicator" has the value "TRUE"

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				
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.34a	
Integrity check info	CH		Integrity check info 10.3.3.14	
Integrity protection mode info	OP		Integrity protection mode info 10.3.3.17	
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~~RRC State Indicator	MP		~~DRX Indicator~~ RRC State 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	
UTRAN mobility information elements				
URA identity	OP		URA identity 10.3.2.6	
RB information elements				
RAB information to reconfigure list	OP	1 to < maxRABsetup >		
>RAB information to reconfigure	MP		RAB information to reconfigure 10.3.4.11	
RB information to reconfigure list	OP	1to <maxRB>		
>RB information to reconfigure	MP		RB information to	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
			reconfigure 10.3.4.18	
RB information to be affected list	OP	1 to <maxRB>		
>RB information to be affected	MP		RB information to be affected 10.3.4.17	
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 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 Element/Group name	Need	Multi	Type and reference	Semantics description
			information 10.3.5.1	
PhyCH information elements				
Frequency info	MD		Frequency info 10.3.6.35	Default value is the existing value of frequency information
Uplink radio resources				
Maximum allowed UL TX power	MD		Maximum allowed UL TX power 10.3.6.38	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 10.3.6.86	
~~>PRACH Info (for RACH)~~			~~PRACH Info (for RACH) 10.3.6.51~~	
>CPCH SET Info			CPCH SET Info 10.3.6.12	
Downlink radio resources				
CHOICE *mode*	MP			
>FDD				
>>Downlink PDSCH information	OP		Downlink PDSCH information 10.3.6.29	
>TDD				(no data)
Downlink information common for all radio links	OP		Downlink information common for all radio links 10.3.6.23	
Downlink information per radio link list	OP	1 to <maxRL>		
>Downlink information for each radio link	MP		Downlink information for each radio link 10.3.6.26	

10.2.26 RADIO BEARER RECONFIGURATION COMPLETE

This message is sent from the UE when a RB and signalling link reconfiguration has been done.

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				
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.34a	
Integrity check info	CH		Integrity check info 10.3.3.14	
Uplink integrity protection activation info	OP		Integrity protection activation info 10.3.3.15	
CHOICE mode	MP			
>FDD				(no data)
>TDD				
>>Uplink Timing Advance	OP		Uplink Timing Advance 10.3.6.93	~~This information element shall be present in case of handover procedure if timing advance is enabled. Calculated timing advance value for the new cell after handover in a synchronous TDD network~~
RB Information elements				
Radio bearer uplink ciphering activation time info	OP		RB activation time info 10.3.4.13	
RB with PDCP information list	OP	1 to <maxRBallRABs>		~~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 10.3.4.22	

10.2.27 RADIO BEARER RECONFIGURATION FAILURE

This message is sent by UE if the configuration given by UTRAN is unacceptable or if the UE failed to establish the physical channel(s).

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				
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.34a	
Integrity check info	CH		Integrity check info 10.3.3.14	
Failure cause	MP		Failure cause and error information 10.3.3.12	
RB information elements				
Radio bearers for which reconfiguration would have succeeded List	OP	1.to.<max RB>	~~RB identity, 10.3.4.16~~	
> Radio bearer for which reconfiguration would have succeeded	MP		RB identity, 10.3.4.16	

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				
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.34a	
Integrity check info	CH		Integrity check info 10.3.3.14	
Integrity protection mode info	OP		Integrity protection mode info 10.3.3.17	
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~~RRC State Indicator	MP		~~DRX Indicator~~ RRC State 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	
UTRAN mobility information elements				
URA identity	OP		URA identity 10.3.2.6	
RB Information Elements				
RAB information to reconfigure list	OP	1 to < maxRABsetup >		
>RAB information to reconfigure	MP		RAB information to reconfigure 10.3.4.11	
RB information to release list	MP	1 to <maxRB>		
>RB information to release	MP		RB information to release 10.3.4.19	
RB information to be affected list	OP	1 to <maxRB>		
>RB information to be affected	MP		RB information	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
			to be affected 10.3.4.17	
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 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 10.3.6.35	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 10.3.6.38	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 10.3.6.86	
~~>PRACH Info (for RACH)~~			~~PRACH Info (for RACH) 10.3.6.51~~	
>CPCH SET Info			CPCH SET Info 10.3.6.12	
Downlink radio resources				
CHOICE *mode*	MP			
>FDD				
>>Downlink PDSCH information	OP		Downlink PDSCH information 10.3.6.29	
>TDD				(no data)
Downlink information common for all radio links	OP		Downlink information common for all radio links 10.3.6.23	
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 10.3.6.26	

10.2.29 RADIO BEARER RELEASE COMPLETE

This message is sent from the UE when radio bearer release 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	
UE information elements				
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.34a	
Integrity check info	CH		Integrity check info 10.3.3.14	Integrity check info is included if integrity protection is applied
Uplink integrity protection activation info	OP		Integrity protection activation info 10.3.3.15	
CHOICE mode	MP			
>FDD				(no data)
>TDD				
>>Uplink Timing Advance	OP		Uplink Timing Advance 10.3.6.93	This information element shall be present in case of handover procedure if timing advance is enabled. Calculated timing advance value for the new cell after handover in a synchronous TDD network
RB Information elements				
Radio bearer uplink ciphering activation time info	OP		RB activation time info 10.3.4.13	

10.2.30 RADIO BEARER RELEASE FAILURE

This message is sent by UE if the configuration given by UTRAN is unacceptable or if radio bearer can not be released.

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				
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.34a	
Integrity check info	CH		Integrity check info 10.3.3.14	
Failure cause	MP		Failure cause and error information 10.3.3.12	
RB information elements				
Radio bearers for which reconfiguration would have succeeded	OP	1.to.<max RB>	~~RB identity, 10.3.4.16~~	
> Radio bearer for which reconfiguration would have been succeeded	MP		RB identity, 10.3.4.16	

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				
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.34a	
Integrity check info	CH		Integrity check info 10.3.3.14	
Integrity protection mode info	OP		Integrity protection mode info 10.3.3.17	
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~~RRC State Indicator	MP		~~DRX Indicator~~ RRC State 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	
UTRAN mobility information elements				
URA identity	OP		URA identity 10.3.2.6	
RB Information Elements				
Signalling RB information to setup list	OP	1 to <maxSRBsetup>		For each signalling radio bearer established
>Signalling RB information to setup	MP		Signalling RB information to setup 10.3.4.24	
RAB information to setup list	OP	1 to <maxRABsetup>		For each RAB established
>RAB information for setup	MP		RAB information for setup 10.3.4.10	
RB information to be affected list	OP	1 to <maxRB>		
>RB information to be affected	MP		RB	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
			information to be affected 10.3.4.17	
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 channels10.3.5.6	
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	Default value is the existing value of frequency information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
			10.3.6.35	
Uplink radio resources				
Maximum allowed UL TX power	MD		Maximum allowed UL TX power 10.3.6.38	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 10.3.6.86	
~~>PRACH Info (for RACH)~~			~~PRACH Info (for RACH) 10.3.6.51~~	
>CPCH SET Info			CPCH SET Info 10.3.6.12	
Downlink radio resources				
CHOICE *mode*	MP			
>FDD				
>>Downlink PDSCH information	OP		Downlink PDSCH information 10.3.6.29	
>TDD				(no data)
Downlink information common for all radio links	OP		Downlink information common for all radio links 10.3.6.23	
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 10.3.6.26	

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				
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.34a	
Integrity check info	CH		Integrity check info 10.3.3.14	
Uplink integrity protection activation info	OP		Integrity protection activation info 10.3.3.15	
CHOICE mode	OP			
>FDD				(no data)
>TDD				
>>Uplink Timing Advance	OP		Uplink Timing Advance 10.3.6.93	This information element shall be present in case of handover procedure if timing advance is enabled. Calculated timing advance value for the new cell after handover in a synchronous TDD network
START	OP		START 10.3.3.36	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 10.3.4.13	

10.2.33 RADIO BEARER SETUP FAILURE

This message is sent by UE, if it does not support the configuration given by UTRAN.

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				
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.34a	
Integrity check info	CH		Integrity check info 10.3.3.14	
Failure cause	MP		Failure cause and error information 10.3.3.12	
RB information elements				
Radio bearers for which reconfiguration would have succeeded	OP	1.to.<max RB>	~~RB identity, 10.3.4.16~~	
> Radio bearer for which reconfiguration would have succeeded	MP		RB identity, 10.3.4.16	

~~10.2.34 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 10.3.3.14	
Integrity protection mode info	OP		Integrity protection mode info 10.3.3.17	
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 <maxSRBsetup>		For each signalling radio bearer established
>Signalling RB information to setup	MP		Signalling RB information to setup 10.3.4.24	
RAB information for setup list	OP	1 to <maxRABsetup>		For each RAB established
>RAB information for setup	MP		RAB information for setup 10.3.4.10	
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
			10.3.4.19	
RB information to reconfigure list	OP	1 to <maxRB>		
>RB information to reconfigure	MP		RB information to reconfigure 10.3.4.18	
RB information to be affected list	OP	1 to <maxRB>		
>RB information to be affected	MP		RB information to be affected 10.3.4.17	
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 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 10.3.6.35	Default value is the existing value of frequency information
Uplink radio resources				
Maximum allowed UL TX power	MD		Maximum allowed UL TX power 10.3.6.38	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 10.3.6.86.	
>PRACH Info (for RACH)			PRACH Info (for RACH) 10.3.6.51	
>CPCH SET Info			CPCH SET Info 10.3.6.12	
Downlink radio resources				
CHOICE *mode*				
>FDD				
>>Downlink PDSCH information	OP		Downlink PDSCH information 10.3.6.29	
>TDD				(no data)
Downlink information common for all radio links	OP		Downlink information common for all radio links 10.3.6.23	
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 10.3.6.26	

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

10.2.35 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 10.3.3.14	
Uplink integrity protection activation info	OP		Integrity protection activation info 10.3.3.15	
CHOICE mode	OP			
>FDD				(no data)
>TDD				
>>Uplink Timing Advance	OP		Uplink Timing Advance 10.3.6.93	This information element shall be present in case of handover procedure if timing advance is enabled. Calculated timing advance value for the new cell after handover in a synchronous TDD network
START	OP		START 10.3.3.36	
RB Information elements				
Radio bearer uplink ciphering activation time info	OP		RB activation time info 10.3.4.13	
RB with PDCP information list	OP	1 to <maxRBallRABs>		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 10.3.4.22	

10.2.36 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 10.3.3.14	
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 10.3.3.36	START value to be used in this CN domain.
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 10.3.3.27	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
ProtErr	If the IE "Protocol error indicator" has the value "TRUE"

10.2.37 RRC CONNECTION REJECT

The network transmits this message when the requested RRC connection cannot be accepted.

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 10.3.3.13	
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.34a	
Rejection cause	MP		Rejection cause 10.3.3.30	
Wait time	MP		Wait time 10.3.3.48	
Redirection info	OP		Redirection info 10.3.3.28	

10.2.38 RRC CONNECTION RELEASE

This message is sent by UTRAN to release the RRC connection. The message also releases the signalling connection and all radio bearers between the UE and UTRAN.

RLC-SAP: UM ~~or TM~~

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	
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.34a	
Integrity check info	CH		Integrity check info 10.3.3.14	Integrity check info is included if integrity protection is applied
~~Number of RRC Message Transmissions~~N308	CH Cell_DCH		~~Number of RRC Message Transmissions 10.3.3.21~~Integer(1..8)	
Release cause	MP		Release cause 10.3.3.31	

Condition	Explanation
CCCH	This IE is only sent when CCCH is used.
Cell_DCH	This IE is present when UE is in CELL_DCH state.

10.2.39 RRC CONNECTION RELEASE COMPLETE

This message is sent by UE to confirm that the RRC connection has been released.

RLC-SAP: AM or UM ~~or TM~~

Logical channel: ~~CCCH or~~ DCCH

Direction: UE → UTRAN

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	
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.34a	
Integrity check info	CH		Integrity check info 10.3.3.14	
Error indication	OP		Failure cause and error information 10.3.3.12	

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

10.2.40 RRC CONNECTION REQUEST

RRC Connection Request is the first message transmitted by the UE when setting up an RRC Connection to the network.

RLC-SAP: 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				
Initial UE identity	MP		Initial UE identity 10.3.3.13	
Establishment cause	MP		Establishment cause 10.3.3.11	
Protocol error indicator	MD		Protocol error indicator 10.3.3.27	Default value is FALSE
Measurement information elements				
Measured results on RACH	OP		Measured results on RACH 10.3.7.70	

If the encoded message does not fill a transport block, the RRC layer shall insert padding according to subclause 12.1.

10.2.41 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 10.3.3.13	
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.34a	
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	3 to 4		Information for signalling radio bearers, in the order RB 1 up to 4.
>Signalling RB information to setup	MP		Signalling RB information to setup 10.3.4.24	
TrCH Information Elements				
Uplink transport channels				
UL Transport channel information common for all transport channels	OP		UL Transport channel information common for all transport channels 10.3.5.24	
Added or Reconfigured TrCH information list	MP	1 to <maxTrCH>		
>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	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
			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 10.3.6.35	Default value is the existing value of frequency information
Uplink radio resources				
Maximum allowed UL TX power	MD		Maximum allowed UL TX power 10.3.6.38	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 10.3.6.86	
~~>PRACH Info (for RACH)~~			~~PRACH Info (for RACH) 10.3.6.51~~	
>CPCH SET Info			CPCH SET Info 10.3.6.12	
Downlink radio resources				
Downlink information common for all radio links	OP		Downlink information common for all radio links 10.3.6.23	
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 10.3.6.26	

10.2.42 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	
UE Information Elements				
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.34a	
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 10.3.3.36	START value to be used in this CN domain.
~~**UE information elements**~~				
UE radio access capability	OP		UE radio access capability 10.3.3.40	
UE system specific capability	OP		Inter-system message 10.3.8.6	

10.2.43 RRC STATUS

This message is sent to indicate a protocol error.

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 10.3.3.14	Integrity check info is included if integrity protection is applied
Identification of received message	CV-*Message identified*			
> Received message type	MP		Message Type	
> RRC transaction identifier	MP		RRC transaction identifier 10.3.3.34a	
Other information elements				
Protocol error information	MP		Protocol error information 10.3.8.10	

Condition	Explanation
Message identified	If the IE "Protocol error cause" in the IE “Protocol error information” has any other value than “ASN.1 violation or encoding error” or “Message type non-existent or not implemented”

10.2.44 SECURITY MODE COMMAND

This message is sent by UTRAN to start or reconfigure ciphering and/or integrity protection parameters.

RLC-SAP: AM

Logical channel: DCCH

Direction: UTRAN to UE

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE information elements				
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.34a	
Integrity check info	MP		Integrity check info 10.3.3.14	
Security capability	MP		Security capability 10.3.3.36	
Ciphering mode info	OP		Ciphering mode info 10.3.3.5	Only present if ciphering shall be controlled
Integrity protection mode info	OP		Integrity protection mode info 10.3.3.1718	Only present if integrity protection shall be controlled
CN Information elements				
CN domain identity	MP		CN domain identity 10.3.1.1	Indicates which cipher and integrity protection keys are applicable

10.2.45 SECURITY MODE COMPLETE

This message is sent by UE to confirm the reconfiguration of ciphering and/or integrity protection.

RLC-SAP: AM

Logical channel: DCCH

Direction: UE to UTRAN

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE information elements				
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.34a	
Integrity check info	MP		Integrity check info 10.3.3.14	
Uplink integrity protection activation info	OP		Integrity protection activation info 10.3.3.15	
RB Information elements				
Radio bearer uplink ciphering activation time info	OP		RB activation time info 10.3.4.13	

10.2.46 SECURITY MODE FAILURE

This message is sent to indicate a failure to act on a received SECURITY MODE CONTROL message.

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				
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.34a	
Integrity check info	CH		Integrity check info 10.3.3.14	
Failure cause	MP		Failure cause and error information 10.3.3.12	

10.2.47 SIGNALLING CONNECTION RELEASE

This message is used to notify the UE that ~~one of~~ its ongoing signalling connection~~s~~ to a CN domain has been released.

RLC-SAP: AM

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				
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.34a	
Integrity check info	CH		Integrity check info 10.3.3.14	Integrity check info is included if integrity protection is applied
CN information elements				
CN domain identity	MP		CN domain identity 10.3.1.1	
~~Signalling Flow related information list~~	~~MP~~	~~1 to <maxSignallingFlow>~~		~~Flow identifier to be provided for each signalling flow to be released.~~
~~>Flow Identifier~~	~~MP~~		~~Flow Identifier 10.3.1.4~~	

10.2.48 SIGNALLING CONNECTION RELEASE REQUEST

This message is used by the UE to request for the release of a signalling ~~flow~~connection.

RLC-SAP: AM

Logical channel: DCCH

Direction: UE→UTRAN

Information Element/Group name	Need	Multi	IE type and reference	Semantics description
Message Type	MP		Message type	
CN information elements				
CN domain identity	MP		CN domain identity 10.3.1.1	
~~Flow Identifier~~	~~MP~~		~~Flow Identifier 10.3.1.4~~	~~Flow identifier of signalling flow to be released by UTRAN.~~

10.2.49 SYSTEM INFORMATION

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Message type	OP		Message type	The message type is mandatory on the FACH, and absent on the BCH
SFNprime	CV channel		Integer(0..4094 by step of 2)	SFN=SFNprime (for first 10ms frame of 20ms TTI), SFN=SFNprime+1 (for last 10ms frame of 20ms TTI)
CHOICE Segment combination	MP			
>Combination 1				(no data)
>Combination 2				
>>First Segment	MP		First Segment, 10.2.49.1	
>Combination 3				
>>Subsequent Segment	MP		Subsequent Segment, 10.2.49.3	
>Combination 4				
>>Last segment	MP		Last segment (short), 10.2.49.5	
>Combination 5				
>>Last segment	MP		Last Segment (short) 10.2.49.5	
>>First Segment	MP		First Segment (short), 10.2.49.2	
>Combination 6				
>>Last Segment	MP		Last Segment (short), 10.2.49.5	
>>Complete list		1 to maxSIBperMsg		Note 1
>>>Complete			Complete SIB (short), 10.2.49.7	
>Combination 7				
>>Last Segment	MP		Last Segment (short), 10.2.49.5	
>>Complete list	MP	1..16		Note 1
>>>Complete	MP		Complete SIB (short), 10.2.49.7	
>>First Segment	MP		First Segment (short), 10.2.49.2	
>Combination 8				
>>Complete list	MP	1 to maxSIBperMsg		Note 1
>>>Complete	MP		Complete SIB (short), 10.2.49.7	
>Combination 9				

>>Complete list	MP	1..MaxSIB perMsg		Note 1
>>>Complete	MP		Complete SIB (short), 10.2.49.7	
>>First Segment	MP		First Segment (short), 10.2.49.2	
>Combination 10				
>>> Complete SIB of size 21~~95~~ to 22~~62~~	MP		Complete SIB, 10.2.49.6	
>Combination 11				
>>Last segment of size 215 to 222	MP		Last segment, 10.2.49.4	

If the encoded message does not fill a transport block, the RRC layer shall insert padding according to subclause 12.1. Padding is needed e.g. if the remaining space is insufficient to start a new First Segment (which requires several bits for SIB type, SEG_COUNT and SIB data).

NOTE 1: If Combination 6 - 9 contains a Master information block Master information shall be located as the first IE in the list.

10.2.49.1 First Segment

This segment type is used to transfer the first segment of a segmented system information block. The IE is used when the first segment fills the entire transport block (Combination 1).

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Other information elements				
SIB type	MP		SIB Type, 10.3.8.17	
SEG_COUNT	MP		SEG COUNT, 10.3.8.13	
SIB data fixed	MP		SIB data fixed, 10.3.8.15	

10.2.49.2 First Segment (short)

This segment type is used to transfer the first segment of a segmented system information block. The IE is used when the first segment is concatenated after other segments in a transport block (Combination 5, 7 and 9).

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Other information elements				
SIB type	MP		SIB Type, 10.3.8.17	
SEG_COUNT	MP		SEG COUNT, 10.3.8.13	
SIB data variable	MP		SIB data variable, 10.3.8.16	

10.2.49.3 Subsequent Segment

This segment type is used to transfer a subsequent segment of a segmented system information block.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Other information elements				
SIB type	MP		SIB Type, 10.3.8.17	
Segment index	MP		Segment Index, 10.3.8.14	
SIB data fixed	MP		SIB data fixed, 10.3.8.15	

10.2.49.4 Last Segment

This segment type is used to transfer the last segment of a segmented system information block. The IE is used when the last segment has a length, excluding length denominator, from 215 through 222 (Combination 11).

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Other information elements				
SIB type	MP		SIB Type, 10.3.8.17	
Segment index	MP		Segment Index, 10.3.8.14	
SIB data fixed	MP		SIB data fixed, 10.3.8.15	In case the SIB data is less than 222 bits, padding shall be used. The same padding bits shall be used as defined in clause 12.1

10.2.49.5 Last Segment (short)

This segment type is used to transfer the last segment of a segmented system information block. The IE is used when the last segment has a length, excluding length denominator, of upto 214 bits (Combination 4, 5, 6 and 7).

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Other information elements				
SIB type	MP		SIB Type, 10.3.8.17	
Segment index	MP		Segment Index, 10.3.8.14	
SIB data variable	MP		SIB data variable, 10.3.8.15	

10.2.49.6 Complete SIB

This segment type is used to transfer a non-segmented system information block. The IE is used when the complete SIB has a length, excluding length denominator, from 215 through 222 (Combination 10).

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Other information elements				
SIB type	MP		SIB Type, 10.3.8.17	
SIB data fixed	MP		Bit string (226)~~SIB data fixed, 10.3.8.15~~	In case the SIB data is less than 222 bits, padding shall be used. The same padding bits shall be used as defined in clause 12.1

10.2.49.7 Complete SIB (short)

This segment type is used to transfer a non-segmented system information block. The IE is used when the complete SIB has a length, excluding length denominator, of upto 214 bits (Combination 6, 7, 8, 9 and 10).

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Other information elements				
SIB type	MP		SIB Type, 10.3.8.17	
SIB data variable	MP		Bit string (1..218)~~10.2.49.6 SIB data variable, 10.3.8.16~~	

10.2.49.8 System Information Blocks

The IE "SIB data" within the IEs, "First Segment", "Subsequent or last Segment" and "Complete SIB" contains either complete system information block or a segment of a system information block. The actual system information blocks are defined in the following clauses.

10.2.49.8.1 Master Information Block

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Other information elements				
MIB Value tag	MP		MIB Value tag 10.3.8.7	
CN information elements				
Supported PLMN types	MP		PLMN Type 10.3.1.12	
PLMN Identity	CV GSM		PLMN Identity 10.3.1.11	
ANSI-41 information elements				
ANSI-41 Core Network Information	CV ANSI-41		ANSI-41 Core Network Information 10.3.9.1	
References to other system information blocks and scheduling blocks	MP		References to other system information blocks and scheduling blocks 10.3.8.11	

Condition	Explanation
GSM	The IE is mandatory if the IE "Supported PLMN Types" is set to 'GSM-MAP' or 'GSM-MAP AND ANSI-41', and not needed otherwise
ANSI-41	The IE is mandatory if the IE "Supported PLMN Types" is set to 'ANSI-41' or 'GSM-MAP AND ANSI-41', and not needed otherwise

10.2.49.8.1a Scheduling Block 1

Information Element/Group name	Need	Multi	Type and reference	Semantics description
References to other system information blocks	MP		References to other system information blocks 10.3.8.11a	

10.2.49.8.1b Scheduling Block 2

Information Element/Group name	Need	Multi	Type and reference	Semantics description
References to other system information blocks	MP		References to other system information blocks 10.3.8.11a	

10.2.49.8.2 System Information Block type 1

The system information block type 1 contains NAS system information as well as UE timers and counters to be used in idle mode and in ~~CELL_DCH~~connected mode.

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 "PLMN" and update mechanism "value tag" may be referenced.~~
CN information elements				
CN common GSM-MAP NAS system information	MP		NAS system information (GSM-MAP) 10.3.1.9	
CN domain system information list	MP	1 to <maxCNdomains>		Send CN information for each CN domain.
>CN domain system information	MP		CN domain system information 10.3.1.2	
UE information				
~~UE Timers and constants in CELL_DCH~~	~~MD~~		~~UE Timers and constants in CELL_DCH 10.3.3.41~~	~~Default value means that for all timers and constants - For parameters with need MD, the defaults specified in 10.3.3.41 apply and - For parameters with need OP, the parameters are absent~~
UE Timers and constants in idle mode	MD		UE Timers and constants in idle mode 10.3.3.43	Default value means that for all timers and constants - For parameters with need MD, the defaults specified in 10.3.3.43 apply and - For parameters with need OP, the parameters are absent
UE Timers and constants in connected mode	MD		UE Timers and constants in connected mode 10.3.3.42	Default value means that for all timers and constants - For parameters with need MD, the defaults specified in 10.3.3.42 apply and - For parameters with need OP, the parameters are absent

10.2.49.8.3 System Information Block type 2

The system information block type 2 contains the URA identity~~. and information for periodic cell and URA update. It also includes the UE timers and counters to be used in connected mode.~~

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 "PLMN" and update mechanism "value tag" may be referenced.~~
UTRAN mobility information elements				
URA identity list	MP	1 ..<maxURA>		
>URA identity	MP		URA identity 10.3.2.6	
~~**UE information elements**~~				
~~UE Timers and constants in connected mode~~	~~MP~~		~~UE Timers and constants in connected mode 10.3.3.42~~	~~Default value means that for all timers and constants - For parameters with need MD, the defaults specified in 10.3.3.42 apply and - For parameters with need OP, the parameters are absent~~

10.2.49.8.4 System Information Block type 3

The system information block type 3 contains parameters for cell selection and re-selection. ~~The block may also contain scheduling information for other system information blocks.~~

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.~~
SIB4 Indicator	MP		Boolean	TRUE indicates that SIB4 is broadcast in the cell.
UTRAN mobility information elements				
Cell identity	MP		Cell identity 10.3.2.2	
Cell selection and re-selection info	MP		Cell selection and re-selection info for SIB3/4 10.3.2.3	
Cell Access Restriction	MP		Cell Access Restriction 10.3.2.1	

10.2.49.8.5 System Information Block type 4

The system information block type 4 contains parameters for cell selection and re-selection to be used in 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
~~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.~~
UTRAN mobility information elements				
Cell identity	MP		Cell identity 10.3.2.2	
Cell selection and re-selection info	MP		Cell selection and re-selection info for SIB3/4 10.3.2.3	
Cell Access Restriction	MP		Cell Access Restriction 10.3.2.1	

10.2.49.8.6 System Information Block type 5

The system information block type 5 contains parameters for the configuration of the common physical channels in the cell. ~~The block may also contain scheduling information for other system information blocks.~~

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.~~
SIB6 Indicator	MP		Boolean	TRUE indicates that SIB6 is broadcast in the cell.
PhyCH information elements				
CHOICE *mode*	MP			
>FDD				
>>PICH Power offset	MP		PICH Power offset 10.3.6.49	
>>AICH Power offset	MP		AICH Power offset 10.3.6.3	
>TDD				
>>PUSCH system information	OP		PUSCH system information 10.3.6.65	
>>PDSCH system information	OP		PDSCH system information 10.3.6.45	
>>Midamble configuration	MD		Midamble configuration 10.3.6.39	Default value is defined in 10.3.6.39

>>Primary CCPCH Tx Power	OP		Primary CCPCH Tx Power 10.3.6.58	For path loss calculation
>>PRACH Constant Value	OP		Constant Value 10.3.6.10	Operator controlled PRACH Margin
>>DPCH Constant Value	OP		Constant Value 10.3.6.10	Operator controlled UL DPCH Margin
>>PUSCH Constant Value	OP		Constant Value 10.3.6.10	Operator controlled PUSCH Margin
Primary CCPCH info	OP		Primary CCPCH info 10.3.6.56	Note 1
PRACH system information list	MP		PRACH system information list 10.3.6.54	
Secondary CCPCH system information	MP		Secondary CCPCH system information 10.3.6.71	
CBS DRX Level 1 information	CV CTCH		CBS DRX Level 1 information 10.3.8.3	

NOTE 1: DL scrambling code of the Primary CCPCH is the same as the one for Primary CPICH (FDD only).

Condition	Explanation
CTCH	The IE is mandatory if the IE "CTCH indicator" is equal to TRUE for at least one FACH, otherwise the IE is not needed in the message

10.2.49.8.7 System Information Block type 6

The system information block type 6 contains parameters for the configuration of the common and shared physical channels to be used in 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
~~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				
CHOICE *mode*	MP			
>FDD				
>>PICH Power offset	MP		PICH Power offset 10.3.6.49	
>>AICH Power offset	MP		AICH Power offset 10.3.6.3	
>>CSICH Power offset	OP		CSICH Power offset 10.3.6.14	
>TDD				
>>PUSCH system information	OP		PUSCH system information 10.3.6.65	
>>PDSCH system information	OP		PDSCH system information 10.3.6.45	
>>Midamble configuration	MD		Midamble configuration 10.3.6.39	Default value is defined in 10.3.6.39

>>Primary CCPCH Tx Power	OP		Primary CCPCH Tx Power 10.3.6.58	For path loss calculation
>>PRACH Constant Value	OP		Constant Value 10.3.6.10	Operator controlled PRACH Margin for SF 16 case. In the SF 8 case 3dB is added.
>>DPCH Constant Value	OP		Constant Value 10.3.6.10	Operator controlled UL DPCH Margin
>>PUSCH Constant Value	OP		Constant Value 10.3.6.10	Operator controlled PUSCH Margin
Primary CCPCH info	OP		Primary CCPCH info 10.3.6.56	Note 1
PRACH system information list	MP		PRACH system information list 10.3.6.54	
Secondary CCPCH system information	MP		Secondary CCPCH system information 10.3.6.71	
CBS DRX Level 1 information	CV CTCH		CBS DRX Level 1 information 10.3.8.3	

NOTE 1: DL scrambling code of the Primary CCPCH is the same as the one for Primary CPICH (FDD only).

Condition	Explanation
CTCH	The IE is mandatory if the IE "CTCH indicator" is equal to TRUE for at least one FACH, otherwise the IE is not needed

10.2.49.8.8 System Information Block type 7

The system information block type 7 contains the fast changing parameters UL interference and Dynamic persistence level

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 "expiration timer" may be referenced.~~
CHOICE mode	MP			
>FDD				
>>UL interference	MP		UL interference 10.3.6.85	
>TDD				(no data)
PhyCH information elements				
PRACHs listed in system information block type 5	MP	1 to<maxPRACH>		The order of the PRACHs is the same as in system information block type 5.
>Dynamic persistence level	MP		Dynamic persistence level 10.3.6.34	
PRACHs listed in system information block type 6	OP	1 to <maxPRACH>		The order of the PRACHs is the same as in system information block type 6.
>Dynamic persistence level	MP		Dynamic persistence level 10.3.6.34	

10.2.49.8.9 System Information Block type 8

NOTE: Only for FDD.

The system information block type 8 contains static CPCH information to be used in the cell.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
~~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				
CPCH parameters	MP		CPCH parameters 10.3.3.7	
PhyCH information elements				
CPCH set info list	MP	1 to <maxCPCHsets>		
>CPCH set info	MP		CPCH set info 10.3.6.12	

10.2.49.8.10 System Information Block type 9

NOTE: Only for FDD.

The system information block type 9 contains CPCH information to be used in the cell.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
~~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 "expiration timer" may be referenced.~~
PhyCH information elements				
CPCH set persistence levels list	MP	..1 to <maxCPCHsets>		
>CPCH set persistence levels	MP		CPCH persistence levels 10.3.6.11	

10.2.49.8.11 System Information Block type 10

NOTE: Only for FDD.

The system information block type 10 contains information to be used by UEs having their DCH controlled by a DRAC procedure.

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 "expiration timer" may be referenced.~~
UE information				
DRAC system information	MP		DRAC system information 10.3.3.9	DRAC information is sent for each class of terminal

10.2.49.8.12 System Information Block type 11

The system information block type 11 contains measurement control information to be used in the cell. ~~The block may also contain scheduling information for other system information blocks.~~

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.~~
SIB12 Indicator	MP		Boolean	TRUE indicates that SIB12 is broadcast in the cell.
Measurement information elements				
FACH measurement occasion info	OP		FACH measurement occasion info 10.3.7.8	
Measurement control system information	MP		Measurement control system information 10.3.7.72	

10.2.49.8.13 System Information Block type 12

The system information block type 12 contains measurement control information to be used in connected mode.

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.~~
Measurement information elements				
FACH measurement occasion info	OP		FACH measurement occasion info 10.3.7.8	
Measurement control system information	MP		Measurement control system information 10.3.7.72	

10.2.49.8.14 System Information Block type 13

The system information block type 13 contains ANSI-41 system information.

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.~~
CN Information Elements				
CN Domain system information list	MP	1 to <maxCNdomains>		Send CN information for each CN domain.
>CN Domain system information	MP		CN Domain system information 10.3.1.2	
UE Information				
UE timers and constants in idle mode	OP		UE timers and constants in idle mode 10.3.3.43	
Capability update requirement	OP		Capability update requirement 10.3.3.2	

10.2.49.8.14.1 System Information Block type 13.1

The system information block type 13.1 contains the ANSI-41 RAND information.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
ANSI-41 information elements				
ANSI-41 RAND information	MP		ANSI-41 RAND information 10.3.9.6	

10.2.49.8.14.2 System Information Block type 13.2

The system information block type 13.2 contains the ANSI-41 User Zone Identification information.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
ANSI-41 information elements				
ANSI-41 User Zone Identification information	MP		ANSI-41 User Zone Identification information 10.3.9.7	

10.2.49.8.14.3 System Information Block type 13.3

The system information block type 13.3 contains the ANSI-41 Private ~~Neighbor~~ Neighbour List information.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
ANSI-41 information elements				
ANSI-41 Private ~~Neighbor~~ Neighbour List information	MP		ANSI-41 Private ~~Neighbor~~ Neighbour List information 10.3.9.5	

10.2.49.8.14.4 System Information Block type 13.4

The system information block type 13.4 contains the ANSI-41 Global Service Redirection information.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
ANSI-41 information elements				
ANSI-41 Global Service Redirection information	MP		ANSI-41 Global Service Redirection information 10.3.9.2	

10.2.49.8.15 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				
Individual Timeslot interference list	MP	1 to <maxTS>		
>Individual Timeslot interference	MP		Individual Timeslot interference 10.3.6.37	

10.2.49.8.16 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	OP		LCS Cipher GPS Data Indicator 10.3.7.43	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	

10.2.49.8.16.1 System Information Block type 15.1

The system information block type 15.1 contains information useful for LCS DGPS Corrections. The DGPS Corrections message contents are based on a Type-1 message of version 2.2 of the RTCM-SC-104 recommendation for differential service. This format is a standard of the navigation industry and is supported by all DGPS receivers.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
UTRAN Time Flag	MP		Bitstring(1)	
Node B Clock Drift Flag	MP		Bitstring(1)	
Node B Clock Drift	OP		Real(-0.1..0.1 by a proper step)	This IE provides an estimate of the drift rate of the Node B clock relative to GPS time. It has units of μsec/sec (ppm) and a range of ±0.1. This IE aids the UE in maintaining the relation between GPS and cell timing over a period of time. A positive value for Node B Clock Drift indicates that the Node B clock is running at a greater frequency than desired.
Reference Location	MP		As defined in TS23.032	Provides a prior knowledge of the approximate location of the UE
SFN	OP		Integer(0..4095)	The SFN that occurs at the Reference GPS TOW time
Reference GPS TOW	MP		Integer(0..6.047*10^{11})	GPS Time of Week with scaling factor of 1 usec. This field time-stamps the start of the frame with SFN=0.
Status/Health	MP		Enumerated(UDRE scale 1.0, UDRE scale 0.75, UDRE scale 0.5, UDRE scale 0.3, UDRE scale 0.2, UDRE scale 0.1, no data, invalid data)	This field indicates the status of the differential corrections.
DPGS information	CV-Status	1..<maxSat>		The following fields contain the DPGS corrections. If the Cipher information is included these fields are ciphered.
>SatID	MP		Enumerated (0…63)	The satellite ID number.
>IODE	MP		Integer(0..255)	This IE is the sequence number for the ephemeris for the particular satellite. The MS can use this IE to determine if new ephemeris is used for calculating the corrections that are provided in the broadcast message. This eight-bit IE is incremented for each new set of ephemeris for the satellite and may occupy the numerical range of [0, 239] during normal operations.
>UDRE	MP		Enumerated(UDRE ≤ 1.0 m, 1.0m < UDRE ≤	User Differential Range Error. This field provides an estimate of the uncertainty (1-σ) in the corrections for the particular satellite. The value in this field

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
			UDRE ≤ 4.0m, 4.0m < UDRE ≤ 8.0m, 8.0m < UDRE)	shall be multiplied by the UDRE Scale Factor in the Status field to determine the final UDRE estimate for the particular satellite.
>PRC	MP		Integer(-2047..2047)	Scaling factor 0.32 meters (different from [13])
>RRC	MP		Integer(-127..127)	Scaling factor 0.032 meters/sec (different from [13])
>Delta PRC2	MP		Integer(-127..127)	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	MP		Integer(-7..7)	The difference in the pseudorange rate-of-change correction between the satellite's ephemeris identified by IODE and IODE-2.

NOTE: Each UDRE value shall be adjusted based on the operation of an Integrity Monitor (IM) function which exists at the network (SRNC, GPS server, or reference GPS receiver itself). Positioning errors derived at the IM which are excessive relative to DGPS expected accuracy levels shall be used to scale the UDRE values to produce consistency.

Condition	Explanation
Status/Health	This IE is mandatory if "status" is not equal to "no data" or "invalid data", otherwise the IE is not needed

10.2.49.8.16.2 System Information Block type 15.2

The system information block type 15.2 contains information useful for ephemeris and clock corrections of a particular satellite. These IE fields are extracted from the subframes 1 to 3 of the GPS navigation message [12].

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Transmission TOW	MP		Enumerated(0. 1048575)	The approximate GPS time-of-week when the message is broadcast
SatID	MP		Enumerated(0..63)	Satellite ID
TLM Message	MP		Bit string(14)	
TLM Revd (C)	MP		Bit string(2)	
HOW	MP		Bit string(22)	
WN	MP		Bit string(10)	
C/A or P on L2	MP		Bit string(2)	
URA Index	MP		Bit string(4)	
SV Health	MP		Bit string(6)	
IODC	MP		Bit string($10^{(1)}$)	
L2 P Data Flag	MP		Bit string(1)	
SF 1 Reserved	MP		Bit string(87)	
T_{GD}	MP		Bit string(8)	
t_{oc}	MP		Bit string($16^{(1)}$)	
af_2	MP		Bit string(8)	
af_1	MP		Bit string(16)	
af_0	MP		Bit string(22)	
C_{rs}	MP		Bit string(16)	
Δn	MP		Bit string(16)	
M_0	MP		Bit string(32)	
C_{uc}	MP		Bit string(16)	
e	MP		Bit string($32^{(1)}$)	
C_{us}	MP		Bit string(16)	
$(A)^{1/2}$	MP		Bit string($32^{(1)}$)	
t_{oe}	MP		Bit string($16^{(1)}$)	
Fit Interval Flag	MP		Bit string(1)	
AODO	MP		Bit string(5)	
C_{ic}	MP		Bit string(16)	
$OMEGA_0$	MP		Bit string(32)	
C_{is}	MP		Bit string(16)	
i_0	MP		Bit string(32)	
C_{rc}	MP		Bit string(16)	
ω	MP		Bit string(32)	
OMEGAdot	MP		Bit string(24)	
Idot	MP		Bit string(14)	
Spare/zero fill	MP		Bit string(20)	

10.2.49.8.16.3 System Information Block type 15.3

The system information block type 15.3 contains information useful for ionospheric delay, UTC offset, and Almanac. These IE fields are extracted from the subframes 4 and 5 of the GPS navigation message, excluding the parity bits and other redundant bits [12].

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Transmission TOW	MP		Enumerated(0. 1048575)	The approximate GPS time-of-week when the message is broadcast
SatMask	MP		Bitstring(1..32)	indicates the satellites that contain the pages being broadcast in this data set
LSB TOW	MP		Bit string(8)	
GPS Info	MP	1 to <Max_Dat _rep>		
>SFIO 0	MP		Bit string(1)	Each repetition corresponds to a different page no. as described in the table below
>Data ID	MP		Bit string(2)	
>Page No.	MP		Bit string(6)	
>Word 3	MP		Bit string(16)	
>Word 4	MP		Bit string(24)	
>Word 5	MP		Bit string(24)	
>Word 6	MP		Bit string(24)	
>Word 7	MP		Bit string(24)	
>Word 8	MP		Bit string(24)	
>Word 9	MP		Bit string(24)	
>Word 10	MP		Bit string(22)	
Spare/zero fill	MP		Bit string(5)	

Mapping of Almanac, Health, Iono, and UTC Data to Subframe Number and Page Number

Data Type	Subframe	Page(s)
Almanac Data (SV1 – 24)	5	1 - 24
Almanac Data (SV25 – 32)	4	2, 3, 4, 5, 7, 8, 9, 10
SV Health (SV1 – 24)	5	25
SV Health (SV25 – 32)	4	25
Iono/UTC Corrections	4	18

Multi Bound	Explanation
Max_Dat_rep	Maximum number of repeats=3

10.2.49.8.17 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 10.3.3.29	
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 10.3.6.55	

10.2.49.8.18 System Information Block type 17

NOTE: Only for TDD.

The system information block type 17 contains fast changing parameters for the configuration of the shared physical channels to be used in 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
~~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				
PUSCH system information	OP		PUSCH system information 10.3.6.65	
PDSCH system information	OP		PDSCH system information 10.3.6.45	

10.2.50 SYSTEM INFORMATION CHANGE INDICATION

This message is used to send information on FACH to the UEs in state CELL_FACH about coming modification of the system information.

RLC-SAP: TM

Logical channel: BCCH

Direction: UTRAN → UE

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
Other information elements				
BCCH modification info	MP		BCCH modification info 10.3.8.1	

If the encoded message does not fill a transport block, the RRC layer shall insert padding according to subclause 12.1.

10.2.51 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				
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.34a	
Integrity check info	CH		Integrity check info 10.3.3.14	
Integrity protection mode info	OP		Integrity protection mode info 10.3.3.17	
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~~RRC State Indicator	MP		~~DRX Indicator~~ RRC State 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	
UTRAN mobility information elements				
URA identity	OP		URA identity 10.3.2.6	
RB information elements				
RB with PDCP information list	OP	1 to <maxRBallRABs>		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 10.3.4.22	
TrCH Information Elements				
Uplink transport channels				

Information Element/Group name	Need	Multi	Type and reference	Semantics description
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 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 10.3.6.35	Default value is the existing value of frequency information
Uplink radio resources				
Maximum allowed UL TX power	MD		Maximum allowed UL TX power 10.3.6.38	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 10.3.6.86	
~~>PRACH Info (for RACH)~~			~~PRACH Info (for RACH) 10.3.6.51~~	
>CPCH SET Info			CPCH SET Info 10.3.6.12	
Downlink radio resources				
CHOICE *mode*				
>FDD				

Information Element/Group name	Need	Multi	Type and reference	Semantics description
>>Downlink PDSCH information	OP		Downlink PDSCH information 10.3.6.29	
>TDD				(no data)
Downlink information common for all radio links	OP		Downlink information common for all radio links 10.3.6.23	
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 10.3.6.26	

10.2.52 TRANSPORT CHANNEL RECONFIGURATION COMPLETE

This message is sent from the UE when a transport channel reconfiguration has been done.

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				
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.34a	
Integrity check info	CH		Integrity check info 10.3.3.14	
Uplink integrity protection activation info	OP		Integrity protection activation info 10.3.3.15	
CHOICE mode	OP			
>FDD				(no data)
>TDD				
>>Uplink Timing Advance	OP		Uplink Timing Advance 10.3.6.93	~~This information element shall be present in case of handover procedure if timing advance is enabled. Calculated timing advance value for the new cell after handover in a synchronous TDD network~~
RB Information elements				
Radio bearer uplink ciphering activation time info	OP		RB activation time info 10.3.4.13	
RB with PDCP information list	OP	1 to <maxRBallRABs>		~~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 10.3.4.22	

10.2.53 TRANSPORT CHANNEL RECONFIGURATION FAILURE

This message is sent by UE if the configuration given by UTRAN is unacceptable or if the UE failed to establish the physical channel(s).

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				
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.34a	
Integrity check info	CH		Integrity check info 10.3.3.14	
Failure cause	MP		Failure cause and error information 10.3.3.12	

10.2.54 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				
RRC transaction identifier	CV-*notTM*		RRC transaction identifier 10.3.3.34a	
Integrity check info	CV-*notTM*		Integrity check info 10.3.3.14	
TrCH information elements				
CHOICE mode	MP			
>FDD				(no data)
>TDD				
>>TFCS Id	OP		Transport Format Combination Set Identity 10.3.5.21	
DPCH/PUSCH TFCS in uplink	MP		Transport Format Combination subset 10.3.5.22	
TFC Control duration	CV-notTMopt		TFC Control duration 10.3.6.78	

Condition	Explanation
NotTM	The message type is not included when transmitting the message on the transparent mode signalling DCCH
NotTMopt	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 12.1.

10.2.55 TRANSPORT FORMAT COMBINATION CONTROL FAILURE

This message is sent to indicate that a received TRANSPORT FORMAT COMBINATION CONTROL message could not be handled 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	
UE information elements				
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.34a	
Integrity check info	CH		Integrity check info 10.3.3.14	
Failure cause	MP		Failure cause and error information 10.3.3.12	

10.2.56 UE CAPABILITY ENQUIRY

The UE CAPABILITY ENQUIRY is used by the UTRAN to enquire inter-system classmarks from the UE.

RLC-SAP: ~~TBD~~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				
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.34a	
Integrity check info	CH		Integrity check info 10.3.3.14	Integrity check info is included if integrity protection is applied
Capability update requirement	MP		Capability update requirement 10.3.3.2	

10.2.57 UE CAPABILITY INFORMATION

This message is sent by UE to convey UE specific capability information to the UTRAN.

RLC-SAP: AM ~~or UM~~

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				
RRC transaction identifier	OP		RRC transaction identifier 10.3.3.34a	
Integrity check info	CH		Integrity check info 10.3.3.14	Integrity check info is included if integrity protection is applied
UE radio access capability	OP		UE radio access capability 10.3.3.40	
Other information elements				
UE system specific capability	OP		Inter-system message 10.3.8.6	Includes inter-system classmark

10.2.58 UE CAPABILITY INFORMATION CONFIRM

This message is sent by UTRAN to confirm that UE capability information has been received.

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				
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.34a	
Integrity check info	CH		Integrity check info 10.3.3.14	Integrity check info is included if integrity protection is applied

10.2.59 UPLINK DIRECT TRANSFER

This message is used to transfer NAS messages for an ~~on-going~~ existing signalling connection~~flow~~.

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 10.3.3.14	Integrity check info is included if integrity protection is applied
CN information elements				
~~Flow Identifier~~	~~MP~~		~~Flow Identifier 10.3.1.4~~	~~Allocated by UE for a particular flow~~
CN domain identity	MP		CN domain identity 10.3.1.1	
NAS message	MP		NAS message 10.3.1.8	
Measurement information elements				
Measured results on RACH	OP		Measured results on RACH 10.3.7.70	

10.2.60 UPLINK PHYSICAL CHANNEL CONTROL

NOTE: Only for TDD.

~~In TDD this~~ This message is used to transfer uplink physical channel parameters to the 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				
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.34a	
Integrity check info	OP		Integrity check info 10.3.3.14	
PhyCH information elements				
CCTrCH power control info	OP		CCTrCH power control info 10.3.6.7	Power control information for one CCTrCH
Timing Advance Control	OP		UL Timing Advance Control 10.3.6.94	
PRACH Constant Value	OP		Constant value 10.3.6.10	Operator controlled PRACH Margin
PUSCH Constant Value	OP		Constant value 10.3.6.10	Operator controlled PUSCH Margin

10.2.61 URA UPDATE

This message is used by the UE to initiate a URA 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	
RRC transaction identifier	CV-*ProtErr*		RRC transaction identifier 10.3.3.34a	
Integrity check info	CH		Integrity check info 10.3.3.14	
URA update cause	MP		URA update cause 10.3.3.44	
Protocol error indicator	MD		Protocol error indicator 10.3.3.27	Default value is FALSE
Other information elements				
Protocol error information	CV-*ProtErr*		Protocol error information 10.3.8.10	

Condition	Explanation
ProtErr	If the IE "Protocol error indicator" has the value "TRUE"

10.2.62 URA UPDATE CONFIRM

This message confirms the URA update procedure and can be used to reallocate new RNTI information for the UE valid after the URA update.

RLC-SAP: 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	
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.34a	
Integrity check info	CH		Integrity check info 10.3.3.14	Integrity check info is included if integrity protection is applied
Integrity protection mode info	OP		Integrity protection mode info 10.3.3.17	
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~~RRC State Indicator	MP		~~DRX Indicator~~ RRC State 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	
UTRAN mobility information elements				
URA identity	OP		URA identity 10.3.2.6	
RB information elements				
RB with PDCP information list	OP	1 to <maxRBallRABs>		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 10.3.4.22	

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

10.2.63 UTRAN MOBILITY INFORMATION

This message is used by UTRAN to allocate a new RNTI and to convey other UTRAN mobility related information to 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 10.3.3.14	
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.34a	
Integrity protection mode info	OP		Integrity protection mode info 10.3.3.17	
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 value of UTRAN DRX cycle length coefficient~~
UE Timers and constants in connected mode	MD		UE Timers and constants in connected mode 10.3.3.42	Default value means that for all timers and constants - For parameters with need MD, the defaults specified in 10.3.3.42 apply and - For parameters with need OP, the parameters are absent
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 <maxRBallRABs>		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 10.3.4.22	

10.2.64 UTRAN MOBILITY INFORMATION CONFIRM

This message is used to confirm the new UTRAN mobility information for 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	
UE information elements				
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.34a	
Integrity check info	CH		Integrity check info 10.3.3.14	
Uplink integrity protection activation info	OP		Integrity protection activation info 10.3.3.15	
RB Information elements				
Radio bearer uplink ciphering activation time info	OP		RB activation time info 10.3.4.13	
RB with PDCP information list	OP	1 to <maxRBallRABs>		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 10.3.4.22	

10.2.65 UTRAN MOBILITY INFORMATION FAILURE

This message is sent to indicate a failure to act on a received UTRAN MOBILITY INFORMATION message.

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				
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.34a	
Integrity check info	CH		Integrity check info 10.3.3.14	
Failure cause	MP		Failure cause and error information 10.3.3.12	

10.3 Information element functional definitions

10.3.1 CN Information elements

10.3.1.1 CN domain identity

Identifies the type of core network domain.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CN domain identity	MP		Enumerated (CS domain, PS domain~~, Don't care~~)	~~At least 1 spare value needed Criticality: criticality reject is needed~~

10.3.1.2 CN Domain System Information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CN domain identity	MP		CN domain identity 10.3.1.1	
CHOICE CN Type	MP			
>GSM-MAP				
>>CN domain specific NAS system information	MP		NAS system information (GSM-MAP) 10.3.1.9	
>ANSI-41				
>>CN domain specific NAS system information	MP		ANSI-41 NAS system information, 10.3.9.4	
CN domain specific DRX cycle length coefficient	MP		CN domain specific DRX cycle length coefficient, 10.3.3.6	

10.3.1.3 CN Information info

Information Element/Group name	Need	Multi	Type and reference	Semantics description
PLMN identity	OP		PLMN identity 10.3.1.11	
CN common GSM-MAP NAS system information	OP		NAS system information (GSM-MAP) 10.3.1.9	
CN domain related information	OP	1 to <maxCNdomains>		
>CN domain identity	MP		CN domain identity 10.3.1.1	
>CN domain specific GSM-MAP NAS system info	MP		NAS system information (GSM-MAP) 10.3.1.9	

NOTE 1: Necessity of PLMN is FFS and for CN domain identity and NAS system information, the confirmation in SA WG2 is needed.

~~10.3.1.4 Flow Identifier~~

~~This IE is allocated by the UE for a particular signalling flow on an indication from the upper layers.~~

~~Information Element/Group name~~	~~Need~~	~~Multi~~	~~Type and reference~~	~~Semantics description~~
~~Flow Identifier~~	~~MP~~		~~Integer (0…63)~~	

10.3.1.5 IMEI

This IE contains an International Mobile Equipment Identity. Setting specified in [TS 23.003]

Information Element/Group name	Need	Multi	Type and reference	Semantics description
IMEI	MP	15		
>IMEI digit	MP		INTEGER(0. .15)	

10.3.1.6 IMSI (GSM-MAP)

This IE contains an International Mobile Subscriber Identity, used towards a GSM-MAP type of PLMN. Setting specified in [TS 23.003]

Information Element/Group name	Need	Multi	Type and reference	Semantics description
IMSI	MP	6 to 15		
>IMSI digit	MP		INTEGER(0. .9)	

10.3.1.7 Location Area Identification

Identifies uniquely a location area for a GSM-MAP type of PLMN. Setting specified in [TS24.008].

Information Element/Group name	Need	Multi	Type and reference	Semantics description
PLMN identity	MP		PLMN identity 10.3.1.11	
LAC	MP		Bit string(16)	

10.3.1.8 NAS message

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

Information Element/Group name	Need	Multi	Type and reference	Semantics description
NAS message	MP		Octet string (1..4095)	

10.3.1.9 NAS system information (GSM-MAP)

This information element contains system information that belongs to the non-access stratum for a GSM-MAP type of PLMN. This information is transparent to RRC. It may contain either information specific to one CN domain (CS or PS) or information common for both CN domains.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
GSM-MAP NAS system information	MP		Octet string(1..8)	

10.3.1.10 Paging record ~~T~~type identifier

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Paging ~~R~~record ~~T~~type ~~I~~identifier	MP		Enumerated (IMSI (GSM-MAP), TMSI (GSM-MAP)/ P-TMSI, IMSI (DS-41), TMSI (DS-41))	

10.3.1.11 PLMN identity

This information element identifies a Public Land Mobile Network for a GSM-MAP type of PLMN. Setting of digits is defined in [TS 23.003].

Information Element/Group name	Need	Multi	Type and reference	Semantics description
MCC	MP	3		
>MCC digit	MP		INTEGER(0..9)	
MNC	MP	2 to 3		
>MNC digit	MP		INTEGER(0..9)	

10.3.1.12 PLMN Type

Identifies the type of Public Land Mobile Network (PLMN). This IE shall be used to control the interpretation of network dependent messages and information elements in the RRC protocol.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
PLMN Type	MP		Enumerated (GSM-MAP, ANSI-41, GSM-MAP and ANSI-41)	~~At least 1 spare value needed~~ ~~Criticality: reject is needed~~

10.3.1.13 P-TMSI (GSM-MAP)

This IE contains a Packet Temporary Mobile Subscriber Identity, used towards a GSM-MAP type of PLMN.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
P-TMSI	MP		Bit string (32)	Setting specified in [TS 23.003]

10.3.1.14 RAB identity

This information element uniquely identifies a radio access bearer within a CN domain.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE *RAB identity type*	MP			
>RAB identity (GSM-MAP)			Bit string (8)	Formatted according to [TS 24.008].
>RAB identity (ANSI-41)			Bit string (8)	

CHOICE *NAS binding info type*	Condition under which the given *RAB identity type* is chosen
RAB identity (GSM-MAP)	PLMN is of type GSM-MAP
RAB identity (ANSI-41)	PLMN is of type ANSI-41

10.3.1.15 Routing Area Code

Identifies a routing area within a location area for a GSM-MAP type of PLMN.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Routing Area Code	MP		Bit string(8)	Setting specified in [TS 23.003]

10.3.1.16 Routing Area Identification

Identifies uniquely a routing area for a GSM-MAP type of PLMN. Setting specified in [TS 23.003].

Information Element/Group name	Need	Multi	Type and reference	Semantics description
LAI	MP		Location area identification 10.3.1.7	
RAC	MP		Routing area code 10.3.1.15	

~~10.3.1.17 Service Descriptor~~

~~Identifies a service and/or a protocol entity in the core network.~~

~~Information Element/Group name~~	~~Need~~	~~Multi~~	~~Type and reference~~	~~Semantics description~~
~~CHOICE *Service descriptor type*~~	~~MP~~			
~~>Service Descriptor (GSM-MAP)~~			~~Bit string (4)~~	~~Protocol Discriminator [TS 24.007]~~ ~~The value of RR in the above reference is reserved for paging response.~~
~~>Service Descriptor (ANSI-41)~~			~~Bit string(4)~~	~~TIA/EIA IS-834~~

~~CHOICE *Service descriptor type*~~	~~Condition under which the given *Service descriptor type* is chosen~~
~~Service descriptor (GSM-MAP)~~	~~PLMN is of type GSM-MAP~~
~~Service descriptor (ANSI-41)~~	~~PLMN is of type ANSI-41~~

10.3.1.18 TMSI (GSM-MAP)

This IE contains a Temporary Mobile Subscriber Identity, used towards a GSM-MAP type of PLMN.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
TMSI (GSM-MAP)	MP		Bit string (32)	Setting specified in [TS 23.003]

10.3.2 UTRAN mobility Information elements

10.3.2.1 Cell Access Restriction

Indicates the restrictions to cell access.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Cell Barred	MP		Enumerated(not barred, barred)	
Intra-frequency cell re-selection indicator	CV-Barred		Enumerated(not allowed, allowed)	
T_{barred}	CV-Barred		Integer (10,20,40,80 ,160,320,640 ,1280)	[4] (TS25.304)
Cell Reserved for operator use	MP		Enumerated(reserved, not reserved)	
Cell Reserved for SoLSA exclusive use	MP		Enumerated(reserved, not reserved)	
Access Class Barred list	MD	maxAC		Default is no access class barred is applied. The first instance of the parameter corresponds to Access Class 0, the second to Access Class 1 and so on up to Access Class 15. UE reads this IE of its access class stored in SIM.
>Access Class Barred	MP		Enumerated(not barred, barred)	

Condition	Explanation
Barred	Presence is mandatory if the IE "Cell Barred" has the value "Barred"; otherwise the element is not needed in the message.

10.3.2.2 Cell identity

This information element identifies a cell unambiguously within a PLMN.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Cell identity	MP		bit string(28)	

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.
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 for FDD cells.
CHOICE *mode*	MP			
>FDD				
>>$S_{intrasearch}$	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 (-105..91 by step of 2)	TS 25.304 [dB]
>>RAT List	OP	1 to <maxOtherRAT>		
>>>RAT identifier	MP		Enumerated (GSM, cdma2000)	~~At least 2 spare values Criticality: reject are needed~~
>>>$S_{search,RAT}$	MP		Integer (-105..91 by step of 2)	TS 25.304 [dB]
>>>$S_{HCS,RAT}$	OP		Integer (-32..20 by step of 2)	TS 25.304 [dB]
>>$S_{limit,ShearchRAT}$	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 <maxOtherRAT>		
>>>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]
>>>$S_{limit,ShearchRAT}$	OP		Integer (-105..91 by step of 2)	TS 25.304 [dB]
$Qhyst1_S$	MP		Integer (0..40 by step of 2)	TS 25.304
$Qhyst2_S$	CV-FDD-Quality-Measure		Integer (0..40 by step of 2)	Default value is $Qhist1_S$ TS 25.304
$Treselection_S$	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 10.3.6.38	[dBm] UE_TXPWR_MAX_RACH in 25.304.
CHOICE *mode*	MP			
>FDD				
>>Qqualmin	MP		Integer (-20..0)	Ec/N0, [dB]
>>>Qrxlevmin	MP		Integer (-115..-25 by step of 2)	RSCP, [dBm]
>TDD				
>>Qrxlevmin	MP		Integer (-115..-25 by step of 2)	RSCP, [dBm]

Condition	Explanation
CV-FDD-Quality-Measure	Presence is not allowed if the IE "Cell_selection_and_reselection_quality_measure" has the value CPICH RSCP, otherwise the IE is mandatory and has a default value.

10.3.2.4 Cell selection and re-selection info for SIB11/12

Information Element/Group name	Need	Multi	Type and reference	Semantics description
$Qoffset1_{s,n}$	MD		Real(-50.0..50.0 by step of 1)	Default value is 0.
$Qoffset2_{s,n}$	*CV-FDD-Quality-Measure*		Real(-50.0..50.0 by step of 1)	Default value is 0.
Maximum allowed UL TX power	MD		Maximum allowed UL TX power 10.3.6.38	[dBm] UE_TXPWR_MAX_RACH in 25.304. Default is the Maximum allowed UL TX power for the serving cell
HCS neighbouring cell information	OP		HCS Neighbouring cell information 10.3.7.11	
CHOICE *mode*	MP			
>FDD				
>>Qqualmin	MD		Integer (-20..0)	Ec/N0, [dB] Default value is Qqualmin for the serving cell
>>Qrxlevmin	MD		Integer (-115..-25 by step of 2)	RSCP, [dBm] Default value is Qrxlevmin for the serving cell
>TDD				
>>Qrxlevmin	MD		Integer (-115..-25 by step of 2)	RSCP, [dBm] Default value is Qrxlevmin for the serving cell
>GSM				
>>Qrxlevmin	MD		Integer (-115..-25 by step of 2)	RSCP, [dBm] Default value is Qrxlevmin for the serving cell

Condition	Explanation
FDD-Quality-Measure	Presence is not allowed if the IE "Cell_selection_and_reselection_quality_measure" has the value CPICH RSCP, otherwise the IE is mandatory and has a default value.

10.3.2.5 Mapping Info

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Mapping List	MP	1 to <MaxRAT>		
>RAT	MP		Enumerated (UTRA FDD, UTRA TDD, GSM, cdma2000)	
>Mapping Function Parameter List	MP	1 to <maxMeas Intervals>		
>> Function type	MP		Enumerated (linear, function type 2, function type 3, function type 4)	Type of the function within the interval.
>>Map_parameter_1	MD		Integer (0..99)	Parameter describing the mapping function between the quality measurement and the representing quality value, see TS 25.304. Default value is zero for the first interval or otherwise the value of Map_parameter_2 of the interval before.
>>Map_parameter_2	MP		Integer (0..99)	Parameter describing the mapping function between the quality measurement and the representing quality value, see TS 25.304.
>>Upper_limit	CV - MaxInt		Integer (1..MaxMeas)	Upper limit of interval for which the Map_parameter_1 and Map_parameter_2 are valid. MaxMeas = 25 if RAT = UTRA FDD / CPICH Ec/N0, MaxMeas = 91 if RAT = UTRA TDD or if RAT = UTRA FDD/ CPICH RSCP, MaxMeas = 63 if RAT = GSM.

Condition	Explanation
MaxInt	This information is only sent if Mapping Function Parameter List has not reached maxMeasIntervals.

10.3.2.6 URA identity

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

Information Element/Group name	Need	Multi	Type and reference	Semantics description
URA identity	MP		bit string(16)	

10.3.3 UE Information elements

10.3.3.1 Activation time

Activation Time defines the frame number/time at which the operation/changes caused by the related message shall be executed. Values between 0 and 255 indicate the absolute value of CFN (Connection Frame Number) of that frame number/time.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Activation time	MP		Integer(0..255, Now)	CFN [TS 25.402]

10.3.3.2 Capability Update Requirement

This IE indicates to the UE which specific capabilities to transfer to the network.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
UE radio access capability update requirement	MP		Boolean	TRUE indicates update required
System specific capability update requirement list	OP	1 to <maxSystemCapability>		
>System specific capability update requirement	MP		Enumerated (GSM)	~~At least 15 spare values Criticality: reject are needed~~

Default value is:

"UE radio capability update requirement" = false

"System specific capability update requirement" not present.

10.3.3.3 Cell update cause

Indicates the cause for cell update.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Cell update cause	MP		Enumerated (cell reselection, periodical cell update, ~~UL~~uplink data transmission, paging response, ~~RB control response,~~ re-entered service area, radio link failure, RLC unrecoverable error)	At least ~~2~~ one spare value~~s~~ needed., ~~Criticality: reject, are needed~~

10.3.3.4 Ciphering Algorithm

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Ciphering algorithm	MP		Enumerated (UEA0, UEA1)	~~14 spare values needed. Criticality: criticality reject is needed.~~

10.3.3.5 Ciphering mode info

This information element contains the ciphering specific security mode control information.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Ciphering mode command	MP		Enumerated (start/restart, stop)	
Ciphering algorithm	CV-*notStop*		Ciphering algorithm 10.3.3.4	
Activation time for DPCH	OP		Activation time 10.3.3.1	Used for radio bearers mapped on RLC-TM
Radio bearer downlink ciphering activation time info	OP		RB activation time info, 10.3.4.13	Used for radio bearers mapped on RLC-AM or RLC-UM

Condition	Explanation
notStop	The IE is mandatory if the IE "Ciphering mode command" has the value "start/restart", otherwise the IE is not needed in the message.

10.3.3.6 CN domain specific DRX cycle length coefficient

A coefficient in the formula to count the paging occasions to be used by a specific UE (specified in 25.304) .

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CN domain specific DRX cycle length coefficient	MP		Integer(6...12)	Refers to 'k' in the formula as specified in 25.304, Discontinuous reception

10.3.3.7 CPCH Parameters

NOTE: Only for FDD.

These parameters are used by any UE using any CPCH set allocated to the cell that is broadcasting this system information.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Initial Priority Delay	OP	1 to maxASC		Initial delays for ASC priority.
>NS_{IP}	MP		Integer (0…28)	Number of slots for initial fixed delay for each ASC priority level
Backoff control parameters	MP			
>$N_{ap\_retrans\_max}$	MP		Integer (1…64)	Max number of AP transmissions without AP-AICH response, a PHY parameter.
>N_{access_fails}	MP		Integer (1…64)	Max number of preamble ramping cycles when NAK response received, a MAC parameter.
>$NF_{bo\_no\ aich}$	MP		Integer (0…31)	Number of frames for UE backoff after $N_{ap\_retrans\_max}$ unsuccessful AP access attempts, a MAC parameter.
>NS_{bo_busy}	MP		Integer (0…63)	Number of slots for UE fixed backoff after access attempt to busy CPCH, a MAC parameter.
>$NF_{bo\_all\_busy}$	MP		Integer (0…31)	Max number of frames for UE backoff after access attempt to last busy CPCH, a MAC parameter. UE randomly selects backoff value from range (0..NF_bo_all_busy)
>$NF_{bo\_mismatch}$	MP		Integer (0…127)	Max number of frames for the UE backoff after received mismatch on CD/CA-ICH, a MAC parameter. UE randomly selects backoff value from range (0..NF_bo_mismatch)
>T_{CPCH}	MP		Enumerated (0, 1)	CPCH channel timing used to determine Tau, a PHY parameter
Power Control Algorithm	MP		Enumerated (algorithm 1, algorithm 2)	Specifies algorithm to be used by UE to interpret TPC commands
TPC step size	CV algo		Integer (1, 2)	In dB
DL DPCCH BER	MP		Integer (0..63)	The BER quality value shall be set in the range $0 \leq$ DPCCH BER ≤ 1 in the unit BER_dB where: BER_dB_0: DPCCH BER = 0 BER_dB_1: $-\infty <$ Log10(DPCCH BER) < -4.03 BER_dB_2: -4.03 $\leq$ Log10(DPCCH BER) < -3.965 BER_dB_3: -3.965 $\leq$ Log10(DPCCH BER) < -3.9 ... BER_dB_61: -0.195 $\leq$ Log10(DPCCH BER) < -0.13 BER_dB_62: -0.13 $\leq$

				Log10(DPCCH BER) < -0.065 BER_dB_63: -0.065 ≤ Log10(DPCCH BER) ≤ 0

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

10.3.3.8 C-RNTI

The cell RNTI (C-RNTI) identifies an UE having a RRC connection within a cell.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
C-RNTI	MP		bit string(16)	

10.3.3.9 DRAC system information

Information element	Need	Multi	Type and reference	Semantics description
DRAC system information	MP	1 to <maxDRACclasses>		DRAC information is sent for each class of terminal
>Transmission probability	MP		Transmission probability 10.3.3.37	
>Maximum bit rate	MP		Maximum bit rate 10.3.3.19	

10.3.3.10 ~~DRX Indicator~~RRC State Indicator

~~Indicates to a UE if DRX shall be used with Cell updating or URA updating or if no DRX at all shall be used.~~

Information Element/Group name	Need	Multi	Type and reference	Semantics description
~~DRX indicator~~RRC State Indicator	MP		Enumerated(~~no DRX, DRX with cell updating, DRX with URA updating~~CELL_DCH, CELL_FACH, CELL_PCH, URA_PCH)	~~At least 1 spare value, Criticality: reject, are needed~~

10.3.3.11 Establishment cause

Cause for an RRC connection establishment request.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Establishment cause	MP		Enumerated(Originating Conversational Call, Originating Streaming Call, Originating Interactive Call, Originating Background Call, Originating Subscribed traffic Call, Terminating Conversational Call, Terminating Streaming Call, Terminating Interactive Call, Terminating Background Call, Emergency Call, Inter-system cell re-selection, Registration, Detach, SMS, Call re-establishment)	At least ~~17~~one spare value needed.~~s, Criticality: reject, are needed~~

NOTE: These causes shall be aligned with causes received from higher layers.

10.3.3.11a Failure cause

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, physical channel failure, incompatible simultaneous reconfiguration, protocol error, compressed mode runtime error, cell reselection, invalid configuration, configuration incomplete, unsupported measurement)	At least ~~3~~one spare value needed.~~s, Criticality: reject, are needed~~

10.3.3.12 Failure cause and error information

Cause for failure to perform the requested procedure and diagnostics information.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Failure cause	MP		~~Enumerated (Configuration unsupported, configuration incomplete, physical channel failure, incompatible simultaneous reconfiguration, protocol error) , compressed mode runtime error, unsupported measurement)~~Failure cause 10.3.3.11a	~~At least 1~~3 ~~spare values, Criticality: reject, are needed~~
Protocol error information	CV-*ProtErr*		Protocol error information 10.3.8.10	
Deleted TGPSI	*CV-CompModeErr*		TGPSI 10.3.6.80	

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

10.3.3.13 Initial UE identity

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

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE UE id type	MP			~~At least 8 spare choices, Criticality: reject, is needed~~
>IMSI (GSM-MAP)			IMSI (GSM-MAP) 10.3.1.6	
>TMSI and LAI (GSM-MAP)				
>>TMSI (GSM-MAP)	MP		TMSI (GSM-MAP) 10.3.1.18	
>>LAI (GSM-MAP)	MP		Location Area Identification 10.3.1.7	
>P-TMSI and RAI (GSM-MAP)				
>>P-TMSI (GSM-MAP)	MP		P-TMSI (GSM-MAP) 10.3.1.13	
>>RAI (GSM-MAP)	MP		Routing Area Identification 10.3.1.16	
>IMEI			IMEI 10.3.1.5	
>ESN (DS-41)			TIA/EIA/IS-2000-4	
>IMSI (DS-41)			TIA/EIA/IS-2000-4	
>IMSI and ESN (DS-41)			TIA/EIA/IS-2000-4	
>TMSI (DS-41)			TIA/EIA/IS-2000-4	

10.3.3.14 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] 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.
RRC Message sequence number	MP		Integer (0..15)	The local RRC hyper frame number (RRC HFN) is concatenated with the RRC message sequence number to form the input parameter COUNT-I for the integrity protection algorithm. The IE value shall be set to zero when the encoded RRC message is used as the MESSAGE parameter in the integrity protection algorithm.

10.3.3.15 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)	

10.3.3.16 Integrity protection Algorithm

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Integrity protection algorithm	MP		Enumerated (UIA1)	~~15 spare values needed. Criticality: criticality reject is needed.~~

10.3.3.17 Integrity protection mode info

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Integrity protection mode command	MP		Enumerated(start, modify)	~~At least 2 spare values, Criticality: reject, are needed~~
Downlink integrity protection activation info	CV-*modify*		Integrity protection activation info 10.3.3.15	
Integrity protection algorithm	OP		Integrity protection algorithm 10.3.3.16	
Integrity protection initialisation number	CV-*start*		Bitstring(32)	FRESH [TS 33.102]

Condition	Explanation
Start	The IE is mandatory if the IE "Integrity protection mode command" has the value "start ", otherwise it is not needed in the message.
Modify	The IE is only present if the IE "Integrity protection mode command" has the value "modify"

10.3.3.18 LCS capability

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Standalone location method(s) supported	MP		Boolean	Defines if a UE can measure its location by some means unrelated to UTRAN TRUE means supported
UE based OTDOA supported	MP		Boolean	TRUE means supported
Network Assisted GPS support	MP		Enumerated ('Network based', 'UE based', 'Both', 'None')	Defines if the UE supports network based or UE based GPS methods.
GPS reference time capable	MP		Boolean	Defines if a UE has the capability to measure GPS reference time as defined in 25.215. TRUE means capable
Support for IPDL	MP		Boolean	Defines if a UE has the capability to use IPDL to enhance its 'SFN-SFN observed time difference –type 2' measurement. TRUE means supported

10.3.3.19 Maximum bit rate

NOTE: Only for FDD.

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

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Maximum bit rate	MP		integer(0..512 by step of 16)	=kbit/s

10.3.3.20 Measurement capability

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Need for downlink compressed mode				
FDD measurements DL	MP		Boolean	TRUE means that the UE requires DL compressed mode in order to perform measurements on FDD
TDD measurements DL	CV *tdd_sup*		Boolean	TRUE means that the UE requires DL compressed mode in order to perform measurements on TDD
GSM measurements DL	CV *gsm_sup*			
> GSM 900 DL	MP		Boolean	TRUE means that the UE requires DL compressed mode in order to perform measurements on GSM 900
> DCS 1800 DL	MP		Boolean	TRUE means that the UE requires DL compressed mode in order to perform measurements on DCS 1800
> GSM 1900 DL	MP		Boolean	TRUE means that the UE requires DL compressed mode in order to perform measurements on GSM 1900
Multi-carrier measurement DL	CV *mc_sup*		Boolean	TRUE means that the UE requires DL compressed mode in order to perform measurements on multi-carrier
Need for uplink compressed mode				
FDD measurements UL	MP		Boolean	TRUE means that the UE requires UL compressed mode in order to perform measurements on FDD
TDD measurements UL	CV *tdd_sup*		Boolean	TRUE means that the UE requires UL compressed mode in order to perform measurements on TDD
GSM measurements UL	CV *gsm_sup*			
> GSM 900 UL	MP		Boolean	TRUE means that the UE requires UL compressed mode in order to perform measurements on GSM 900
> DCS 1800 UL	MP		Boolean	TRUE means that the UE requires UL compressed mode in order to perform measurements on DCS 1800
> GSM 1900 UL	MP		Boolean	TRUE means that the UE requires UL compressed mode in order to perform measurements on GSM 1900
Multi-carrier measurement UL	CV *mc_sup*		Boolean	TRUE means that the UE requires UL compressed mode in order to perform measurements on multi-carrier

Condition	Explanation
tdd_sup	Presence is mandatory if IE Multi-mode capability = TDD. Otherwise this field is not needed in the message.
gsm_sup	Presence is mandatory if IE Multi-RAT capability = GSM. Otherwise this field is not needed in the message.
mc_sup	Presence is mandatory if IE Multi-RAT capability = multi-carrier. Otherwise this field is not needed in the message.

~~10.3.3.21 Number of RRC Message Transmissions~~

~~This IE indicates how many times the receiver of a message containing this IE shall transmit the RRC response message.~~

~~Information Element/Group name~~	~~Need~~	~~Multi~~	~~Type and reference~~	~~Semantics description~~
~~Number of RRC Message Transmissions~~	~~MP~~		~~Integer(1..8)~~	

10.3.3.22 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 3 spare values, Criticality: reject, are needed~~

NOTE: These causes shall be aligned with causes received from higher layers.

10.3.3.23 Paging record

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE Used paging identity~~originator~~	MP			
> CN identity~~originator~~				
>> Paging cause	MP		Paging cause 10.3.3.22	
>> CN domain identity	MP		CN domain identity 10.3.1.1	
>>CHOICE UE Identity	MP			~~At least 3 spare choice, Criticality: reject, are needed~~
>>>IMSI (GSM-MAP)			IMSI (GSM-MAP) 10.3.1.6	
>>>TMSI (GSM-MAP)			TMSI (GSM-MAP) 10.3.1.18	
>>>P-TMSI (GSM-MAP)			P-TMSI (GSM-MAP) 10.3.1.13	
>>>IMSI (DS-41)			TIA/EIA/IS-2000-4	
>>>TMSI (DS-41)			TIA/EIA/IS-2000-4	
> UTRAN identity~~originator~~				
>>U-RNTI	MP		U-RNTI 10.3.3.45	
>>CN originated page to connected mode UE	OP			
>>>Paging cause	MP		Paging cause 10.3.3.22	
>>>CN domain identity	MP		CN domain identity 10.3.1.1	
>>>Paging record type identifier	MP		Paging record type identifier 10.3.1.10	

Condition	Explanation
CHOICE *Used Ppaging identity~~originator~~*	**Condition under which the given *used paging identity ~~originator~~* is chosen**
CN ~~Originating~~identity	For CN originating pages (for idle mode UEs)
UTRAN ~~Originating~~identity	For UTRAN originating pages (for connected mode UEs)

10.3.3.24 PDCP capability

Indicates which algorithms and which value range of their parameters are supported by the UE.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Support for lossless SRNS relocation	MP		Boolean	TRUE means supported
Support for RFC2507	MP		Boolean	TRUE means supported
Max HC context space	CV-*hc_sup*		Integer(512, 1024, 2048, 4096, 8192)	~~Maximum header compression context space in bytes supported by the UE~~ ~~At least 3 spare values needed, criticality: reject~~

Condition	Explanation
hc_sup	Presence is mandatory if IE Support for RFC 2507 = TRUE. Otherwise this field is not needed in the message

10.3.3.25 Physical channel capability

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Downlink physical channel capability information elements				
CHOICE *mode*	MP			
>FDD				
>>Maximum number of simultaneous CCTrCH	MP		Integer (1..8)	
>> Max no DPCH/PDSCH codes	MP		Integer (1..8)	Maximum number of DPCH/PDSCH codes to be simultaneously received
>> Max no physical channel bits received	MP		Integer (600, 1200, 2400, 3600, 4800, 7200, 9600, 14400, 19200, 28800, 38400, 48000, 57600, 67200, 76800)	Maximum number of physical channel bits received in any 10 ms interval (DPCH, PDSCH, S-CCPCH) ~~At least 1 spare values needed~~
>>Support for SF 512	MP		Boolean	TRUE means supported
>>Support of PDSCH	MP		Boolean	TRUE means supported
>>Simultaneous reception of SCCPCH and DPCH	MP		Boolean	TRUE means supported
>>Simultaneous reception of SCCPCH, DPCH and PDSCH	CV-*if_sim_rec_pdsch_sup*		Boolean	TRUE means supported
>>Max no of S-CCPCH RL	CV-*if_sim_rec*		Integer(1)	Maximum number of simultaneous S-CCPCH radio links ~~At least 7 spare values needed.~~
>TDD				
>>Maximum number of simultaneous CCTrCH	MP		Integer (1..8)	
>>Maximum number of timeslots per frame	MP		Integer (1..14)	~~At least 2 spare values needed.~~
>>Maximum number of physical channels per frame	MP		Integer (1..224)	~~At least 32 spare values needed~~
>>Minimum SF	MP		Integer (1, 16)	
>>Support of PDSCH	MP		Boolean	TRUE means supported
>>Maximum number of physical channels per timeslot	MP		Integer (1..16)	
Uplink physical channel capability information elements				
CHOICE *mode*	MP			
>FDD				
>>Maximum number of DPDCH bits transmitted per 10 ms	MP		Integer (600, 1200, 2400, 4800. 9600, 19200. 28800, 38400, 48000, 57600)	~~At least 6 spare values needed~~
>>Support of PCPCH	MP		Boolean	TRUE means supported
>TDD				
>>Maximum number of	MP		Integer (1..8)	

simultaneous CCTrCH				
>>Maximum Number of timeslots per frame	MP		Integer (1..14)	~~At least 2 spare values needed~~
>>Maximum number of physical channels per timeslot	MP		Integer (1, 2)	
>>Minimum SF	MP		Integer (1, 2, 4, 8, 16)	~~At least 3 spare values needed~~
>>Support of PUSCH	MP		Boolean	TRUE means supported

Condition	Explanation
if_sim_rec_pdsch_sup	Presence is mandatory if IE Simultaneous reception of SCCPCH and DPCH = True and IE Support of PDSCH = True. Otherwise this field is not needed in the message.
if_sim_rec	Presence is mandatory if IE capability Simultaneous reception of SCCPCH and DPCH = True. Otherwise this field is not needed in the message.

10.3.3.26 Protocol error cause

This IE indicates the cause for a message or information which was not comprehended.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Protocol error cause	MP		Enumerated (ASN.1 violation or encoding error, Message type non-existent or not implemented, Message not compatible with receiver state, Information element value not comprehended, Conditional information element error, Message extension not comprehended)	At least ~~2~~one spare value~~s are~~ needed.

10.3.3.27 Protocol error indicator

This IE indicates whether a message was transmitted due to a protocol error or not.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Protocol error indicator	MP		Boolean	TRUE means a protocol error occurred. FALSE means a protocol error did not occur.

10.3.3.27a RB timer indicator

This IE is used to indicate to UTRAN if the timers T314 or T315 has expired in the UE.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
T314 expired	MP		Boolean	TRUE means that the timer has expired or the stored value is zero. FALSE means that the timer has not expired.
T315 expired	MP		Boolean	TRUE means that the timer has expired or the stored value is zero. FALSE means that the timer has not expired.

10.3.3.28 Redirection info

This IE is used to redirect the UE to another frequency or other system.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE Redirection Information	MP			~~At least one spare choice, Criticality: reject, is needed.~~
>Frequency info			Frequency info 10.3.6.35	
>Inter-system info			Inter-system info 10.3.7.25	

10.3.3.29 Re-establishment timer

This information element indicates which timer to associate with RAB. ~~SRBs are associated with T314. IE "T314 value" and IE "T315 value" are used to update timer value stored in the UE. The value of timers shall not be updated in UE locally by decoding SYSTEM INFORMATION during connected mode.~~

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Re-establishment timer	MP		Enumerated(useT314, useT315)	
~~CHOICE Timer value~~	~~MP~~			
~~>T314~~				
~~>>T314 value~~	~~OP~~		~~Integer(0, 2, 4, 6, 8, 12, 16, 20)~~	
~~>T315~~				
~~>>T315 value~~	~~OP~~		~~Integer(0,10, 30, 60, 180, 600, 1200, 1800)~~	

10.3.3.30 Rejection cause

Cause for rejection of RRC connection establishment request.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Rejection cause	MP		Enumerated(congestion, unspecified)	~~At least 2 spare values, Criticality: reject, are needed~~

10.3.3.31 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, user inactivity), directed signalling connection re-establishment)	~~At least 9 spare values, Criticality: reject, are needed~~

10.3.3.32 RF capability

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
CHOICE *mode*	MP			
>FDD				
>>UE power class	MP		Enumerated(1..4)	as defined in 25.101 subclause 6.2.1
>>Tx/Rx frequency separation	MP		Enumerated(190, 174.8-205.2, 134.8-245.2)	In MHz as defined in 25.101 subclause 5.3. NOTE: Not applicable if UE is not operating in frequency band a (as defined in 25.101). ~~At least 1 spare value needed~~
>TDD				
>>UE power class	MP		Enumerated (1..4)	as defined in 25.102 subclause 6.2.1
>>Radio frequency bands	MP	1 to <maxFrequencybands>	Enumerated(a, b, c)	as defined in 25.102 subclause 5.2 ~~At least 1 spare value needed~~
>>Chip rate capability	MP		Enumerated(3.84Mcps,1.28Mcps)	as defined in 25.102

10.3.3.33 RLC capability

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Total RLC AM buffer size	MP		Integer (2,10,50,100,150,500,1000)	Total receiving and transmitting RLC AM buffer capability in kBytes ~~At least 1 spare value needed~~
Maximum RLC AM Window Size	MP		Integer(2047,4095)	Maximum supported RLC TX and RX window in UE
Maximum number of AM entities	MP		Integer (3,4,5,6,8,16,32)	~~At least 1 spare value needed~~

10.3.3.34 RLC reset indicator

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

Information Element/Group name	Need	Multi	Type and reference	Semantics description
RLC reset indicator	MP		Boolean	TRUE means reset required FALSE means reset not required

10.3.3.34a RRC transaction identifier

This IE contains an identification of the RRC procedure transaction local for the type of the message this IE was included within.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
RRC transaction identifier	MP		Integer (0..3)	

10.3.3.35 Security capability

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Ciphering algorithm capability	MP		Bit string(16)	"0000000000000001_2": UEA0, no encryption supported; "0000000000000010_2": UEA1, Kasumi supported
Integrity protection algorithm capability	MP		Bit string(16)	"0000000000000010_2": UIA1, Kasumi supported

NOTE: Each bit is 0 or 1 to indicate support for the corresponding UEAx or UIAx, x=0 to 15. The UE shall support at least one UEAx other than UEA0 and one UIAx. The ciphering algorithm capability bit for UEA0 indicates to UTRAN if the UE accepts unciphered connection(s) after the security mode control procedure.

10.3.3.36 START

There is a START value per CN domain. The START the 20 MSBs of all hyper frame numbers (MAC-d HFN, RLC UM HFN, RLC AM HFN, RRC HFN) for a CN domain.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
START	MP		Bit string (20)	[TS 33.102]

10.3.3.37 Transmission probability

NOTE: Only for FDD.

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

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Transmission probability	MP		Real(0.125.. 1.0 by step of 0.125)	probability

10.3.3.38 Transport channel capability

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Downlink transport channel capability information elements				
Max no of bits received	MP		Integer(640, 1280, 2560, 3840, 5120, 6400, 7680, 8960, 10240, 20480, 40960, 81920, 163840)	Maximum sum of number of bits of all transport blocks received in TTIs that end within the same arbitrary interval of length T<10 ms ~~At least 3 spare values are needed.~~
Max convolutionally coded bits received	MP		Integer(640, 1280, 2560, 3840, 5120, 6400, 7680, 8960, 10240, 20480, 40960, 81920, 163840)	Maximum sum of number of bits of all convolutionally coded transport blocks received in TTIs that end within the same arbitrary interval of length T<10 ms ~~At least 3 spare values are needed~~
Max turbo coded bits received	CV *turbo_dec_sup*		Integer(640, 1280, 2560, 3840, 5120, 6400, 7680, 8960, 10240, 20480, 40960, 81920, 163840)	Maximum sum of number of bits of all turbo coded transport blocks received in TTIs that end within the same arbitrary interval of length T<10 ms ~~At least 3 spare values are needed~~
Maximum number of simultaneous transport channels	MP		Integer(4, 8, 16, 32)	
Max no of received transport blocks	MP		Integer(4, 8, 16, 32, 48, 64, 96, 128, 256, 512)	Maximum total number of transport blocks received within TTIs that end at within the same 10ms interval ~~At least 6 spare values needed~~
Maximum number of TFC in the TFCS	MP		Integer(16, 32, 48, 64, 96, 128, 256, 512, 1024)	~~At least 7 spare values needed~~
Maximum number of TF	MP		Integer(32, 64, 128, 256, 512, 1024)	~~At least 2 spare values needed~~
Support for turbo decoding	MP		Boolean	TRUE means supported
Uplink transport channel capability information elements				
Max no of bits transmitted	MP		Integer(640, 1280, 2560, 3840, 5120, 6400, 7680, 8960, 10240, 20480, 40960, 81920, 163840)	Maximum sum of number of bits of all transport blocks transmitted in TTIs that start at the same time ~~At least 3 spare values needed~~
Max convolutionally coded bits transmitted	MP		Integer(640, 1280, 2560, 3840, 5120, 6400, 7680, 8960, 10240, 20480,	Maximum sum of number of bits of all convolutionally coded transport blocks transmitted in TTIs that start at the same time

			40960, 81920, 163840)	~~At least 3 spare values needed~~
Max turbo coded bits transmitted	CV *turbo_enc_sup*		Integer(640, 1280, 2560, 3840, 5120, 6400, 7680, 8960, 10240, 20480, 40960, 81920, 163840)	Maximum sum of number of bits of all turbo coded transport blocks transmitted in TTIs that start at the same time ~~At least 3 spare values needed~~
Maximum number of simultaneous transport channels	MP		Integer(2, 4, 8, 16, 32)	~~At least 3 spare values needed~~
Max no of transmitted transport blocks	MP		Integer(2, 4, 8, 16, 32, 48, 64, 96, 128, 256, 512)	Maximum total number of transport blocks transmitted within TTIs that start at the same time ~~At least 5 spare values needed~~
Maximum number of TFC in the TFCS	MP		Integer(4, 8, 16, 32, 48, 64, 96, 128, 256, 512, 1024)	~~At least 5 spare values needed~~
Maximum number of TF	MP		Integer(32, 64, 128, 256, 512, 1024)	~~At least 2 spare values needed~~
Support for turbo encoding	MP		Boolean	TRUE means supported

Condition	Explanation
turbo_dec_sup	Presence is mandatory if IE Support of turbo decoding = True. Otherwise this field is not needed in the message.
turbo_enc_sup	Presence is mandatory if IE Support of turbo encoding = True. Otherwise this field is not needed in the message.

10.3.3.39 UE multi-mode/multi-RAT capability

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Multi-RAT capability				
Support of GSM	MP		Boolean	
Support of multi-carrier	MP		Boolean	
Multi-mode capability	MP		Enumerated (TDD, FDD, FDD/TDD)	

10.3.3.40 UE radio access capability

Information Element/Group name	Need	Multi	Type and reference	Semantics description
ICS version	MP		Enumerated(R99)	Indicates the release version of TS 34.123-2 (Implementation Conformance Statement (ICS) proforma specification) that is applicable for the UE.. ~~At least 7 spare values needed~~
PDCP capability	MP		PDCP capability 10.3.3.24	
RLC capability	MP		RLC capability 10.3.3.33	
Transport channel capability	MP		Transport channel capability 10.3.3.38	
RF capability	MP		RF capability 10.3.3.32	
Physical channel capability	MP		Physical channel capability 10.3.3.25	
UE multi-mode/multi-RAT capability	MP		UE multi-mode/multi-RAT capability 10.3.3.39	
Security capability	MP		Security capability 10.3.3.35	
LCS capability	MP		LCS capability 10.3.3.18	
CHOICE *mode*	MP			
>FDD				
>>Measurement capability	MP		Measurement capability 10.3.3.20	
>TDD				(no data)

~~10.3.3.41 UE Timers and Constants in CELL_DCH~~

~~This information element specifies timer- and constant values used by the UE in state CELL_DCH.~~

Information Element/Group name	Need	Multi	Type and reference	Semantics description
T304	MD		Integer(100, 200, 400, 1000, 2000)	Value in milliseconds. Default value is 2000. At least 3 spare values are needed Criticality: reject is needed
N304	MD		Integer(0..7)	Default value is 2.
T308	MD		Integer(40, 80, 160, 320)	Value in milliseconds. Default value is 160.
T309	MD		Integer(1…8)	Value in seconds. Default value is 5.
T310	MD		Integer(40 .. 320 by step of 40)	Value in milliseconds. Default value is 160
N310	MD		Integer(0 .. 7)	Default value is 4
T311	MD		Integer(250 .. 2000 by step of 250)	Value in milliseconds. Default value is 2000
T313	MD		Integer (0..15)	Value in seconds. Default value is 3.
N313	MD		Integer (1, 2, 4, 10, 20, 50, 100, 200)	Default value is 20.
T314	MD		Integer (2,4,6,8,12, 16,20)	Value in seconds. Default value is 12.
T315	MD		Integer (0,10, 30, 60, 180, 600, 1200, 1800)	Value in seconds. Default value is 180.
N315	MD		Integer (1, 50, 100, 200, 400, 600, 800, 1000)	Default value is 1.

10.3.3.42 UE Timers and Constants in connected mode

This information element specifies timer- and constants values used by the UE in connected mode.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
T301	MD		Integer(100, 200 .. 2000 by step of 200, 3000, 4000, 6000, 8000)	Value in milliseconds. Default value is 2000.
N301	MD		Integer(0..7)	Default value is 2.
T302	MD		Integer(100, 200... 2000 by step of 200, 3000, 4000, 6000, 8000)	Value in milliseconds. Default value is 4000.
N302	MD		Integer(0..7)	Default value is 3.
~~T303~~	~~MD~~		~~Integer(100, 200... 2000 by step of 200, 3000, 4000, 6000, 8000)~~	~~Value in milliseconds. Default value is 2000.~~
~~N303~~	~~MD~~		~~Integer(0..7)~~	~~Default value is 3.~~
T304	MD		Integer(100, 200, 400, 1000, 2000)	Value in milliseconds. Default value is the actual value of the equivalent parameter in IE "UE timers and Constants in CELL_DCH" received within SIB1. Note 1. ~~At least 3 spare values are needed~~ ~~Criticality: reject is needed~~
N304	MD		Integer(0..7)	Default value is the actual value of the equivalent parameter in IE "UE timers and Constants in CELL_DCH" received within SIB1. Note 1.
T305	MD		Integer(5, 10, 30, 60, 120, 360, 720, infinity)	Value in minutes. Default value is 30. Infinity means no update
~~T306~~	~~MD~~		~~Integer(5, 10, 30, 60, 120, 360, 720, infinity)~~	~~Value in minutes. Default value is 30.~~ ~~Infinity means no update~~
T307	MD		Integer(5, 10, 15, 20, 30, 40, 50)	Value in seconds. Default value is 30. ~~At least 1 spare value needed~~ ~~Criticality: reject is needed~~
T308	MD		Integer(40, 80, 160, 320)	Value in milliseconds. Default value is the actual value of the equivalent parameter in IE "UE timers and Constants in CELL_DCH" received within SIB1. Note 1.
T309	MD		Integer(1…8)	Value in seconds. Default value is the actual value of the

				equivalent parameter in IE "UE timers and Constants in CELL_DCH" received within SIB1. Note 1.
T310	MD		Integer(40 .. 320 by step of 40)	Value in milliseconds. Default value is the actual value of the equivalent parameter in IE "UE timers and Constants in CELL_DCH" received within SIB1. Note 1.
N310	MD		Integer(0 .. 7)	Default value is the actual value of the equivalent parameter in IE "UE timers and Constants in CELL_DCH" received within SIB1. Note 1.
T311	MD		Integer(250 .. 2000 by step of 250)	Value in milliseconds. Default value is the actual value of the equivalent parameter in IE "UE timers and Constants in CELL_DCH" received within SIB1. Note 1.
T312	MD		Integer (0..15)	Value in seconds. Default value is 1.
N312	MD		Integer (1, 50, 100, 200, 400, 600, 800, 1000)	Default value is 1.
T313	MD		Integer (0..15)	Value in seconds. Default value is the actual value of the equivalent parameter in IE "UE timers and Constants in CELL_DCH" received within SIB1. Note 1.
N313	MD		Integer (1, 2, 4, 10, 20, 50, 100, 200)	Default value is the actual value of the equivalent parameter in IE "UE timers and Constants in CELL_DCH" received within SIB1. Note 1.
T314	MD		Integer(0, 2, 4, 6, 8, 12, 16, 20)	Value in seconds. Default value is the actual value of the equivalent parameter in IE "UE timers and Constants in CELL_DCH" received within SIB1. Note 1.
T315	MD		Integer (0,10, 30, 60, 180, 600, 1200, 1800)	Value in seconds. Default value is the actual value of the equivalent parameter in IE "UE timers and Constants in CELL_DCH" received within SIB1. Note 1.
N315	MD		Integer (1, 50, 100, 200, 400, 600, 800, 1000)	Default value is the actual value of the equivalent parameter in IE "UE timers and Constants in CELL_DCH" received within SIB1. Note 1.
T316	MD		Integer(0, 10, 20, 30, 40, 50, infinity)	Value in seconds. Default value is XX. ~~At least 1 spare value needed~~ ~~Criticality: reject is needed~~
T317	MD		Integer (0,10, 30, 60, 180, 600, 1200, 1800)	Value in seconds Default value is XX

NOTE 1: If the value of SIB1 changes, the UE shall re-read SIB1 and use the new value of the parameter, if modified.

10.3.3.43 UE Timers and Constants in idle mode

This information element specifies timer- and constant values used by the UE in idle mode.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
T300	MP		Integer(100, 200... 2000 by step of 200, 3000, 4000, 6000, 8000)	Value in milliseconds
N300	MP		Integer(0..7)	
T312	MP		Integer(0 .. 15)	Value in seconds
N312	MP		Integer (1, 50, 100, 200, 400, 600, 800, 1000)	

10.3.3.44 URA update cause

Indicates the cause for s URA update.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
URA update cause	MP		Enumerated(change of URA, periodic URA update, re-entered service area)	At least ~~5~~one spare value needed.~~s Criticality: reject, are needed~~

10.3.3.45 U-RNTI

The U-RNTI (UTRAN Radio Network Temporary Identity) is allocated to an UE having a RRC connection and identifies the UE within UTRAN.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
SRNC identity	MP		bit string(12)	
S-RNTI	MP		bit string(20)	

10.3.3.46 U-RNTI Short

The U-RNTI (UTRAN Radio Network Temporary Identity) is allocated to an UE having a RRC connection and identifies the UE within UTRAN.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
SRNC identity	MP		bit string(12)	
S-RNTI 2	MP		bit string(10)	

10.3.3.47 UTRAN DRX cycle length coefficient

A coefficient in the formula to count the paging occasions to be used by a specific UE (specified in 25.304).

Information Element/Group name	Need	Multi	Type and reference	Semantics description
DRX cycle length coefficient	MP		Integer(3...12)	Refers to 'k' in the formula as specified in 25.304, Discontinuous reception

10.3.3.48 Wait time

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

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Wait time	MP		Integer(0..15)	Wait time in seconds The value 0 indicates that repetition is not allowed.

10.3.4 Radio Bearer Information elements

10.3.4.1 Downlink RLC STATUS info

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Timer_Status_Prohibit	OP		Integer(10..550 by step of 10)	Minimum time in ms between STATUS reports ~~At least 16 spare values with criticality reject is needed~~
Timer_EPC	OP		Integer(50, 60, 70, 80, 90, 100, 120, 140, 160, 180, 200, 300, 400, 500, 700, 900)	Time in ms ~~At least 16 spare values with criticality reject is needed~~
Missing PU Indicator	MP		Boolean	Value true indicates that UE should send a STATUS report for each missing PU that is detected
Timer_STATUS_periodic	OP		Integer(100, 200, 300, 400, 500, 750, 1000, 2000)	Time in milliseconds

10.3.4.2 PDCP info

The purpose of the PDCP info IE is to indicate which algorithms shall be established and to configure the parameters of each of the algorithms.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Support for lossless SRNS relocation	CV-*LosslessCriteria*		Boolean	TRUE means support
Max PDCP SN	CV *Lossless*		Integer (255, 65535)	Maximum PDCP sequence number. Default value is 65535.
PDCP PDU header	MD		Enumerated (present, absent)	Whether a PDCP PDU header is existent or not. Default value is "present"
Header compression information	OP	1 to <maxPDCPAlgoType>		
>CHOICE *algorithm type*	MP			~~7 spare values needed, criticality: reject~~
>>RFC2507				Header compression according to IETF standard RFC2507
>>>F_MAX_PERIOD	MD		Integer (1..65535)	Largest number of compressed non-TCP headers that may be sent without sending a full header. Default value is 256.
>>>F_MAX_TIME	MD		Integer (1..255)	Compressed headers may not be sent more than F_MAX_TIME seconds after sending last full header. Default value is 5.
>>>MAX_HEADER	MD		Integer (60..65535)	The largest header size in octets that may be compressed. Default value is 168.
>>>TCP_SPACE	MD		Integer (3..255)	Maximum CID value for TCP connections. Default value is 15.
>>>NON_TCP_SPACE	MD		Integer (3..65535)	Maximum CID value for non-TCP connections. Default value is 15.
>>>EXPECT_REORDERING	MD		Enumerated (reordering not expected, reordering expected)	Whether the algorithm shall reorder PDCP SDUs or not. Default value is "reordering not expected".

Condition	Explanation
LosslessCriteria	This IE is present only if the IE "RLC mode" is "Acknowledged" and the IE "In-sequence delivery " is "True".
Lossless	This IE shall be present if the IE "Support for lossless SRNS relocation" Is TRUE, otherwise it shall be absent.

10.3.4.3 PDCP SN info

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Receive PDCP sequence number	MP		Integer(0..65 535)	The PDCP sequence number which the sender of the message is expecting next to be received.

10.3.4.4 Polling info

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Timer_poll_prohibit	OP		Integer(~~50, 60, 70, 80, 90, 100, 120, 140, 160, 180, 200, 300, 400, 500, 700, 9001~~0..550 by step of 10, 600..1000 by step of 50)	Minimum time between polls in ms ~~16 spare values needed, criticality: reject~~
Timer_poll	OP		Integer(10..550 by step of 10, 600..1000 by step of 50)	Time in ms. ~~16 spare values needed, criticality: reject~~
Poll_PU	OP		Integer(1,2,4,8,16,32,64,128)	Number of PUs, interval between pollings ~~8 spare values needed, criticality: reject~~
Poll_SDU	OP		Integer(1,4,16,64)	Number of SDUs, interval between pollings ~~4 spare values needed, criticality: reject~~
Last transmission PU poll	MP		Boolean	TRUE indicates that poll is made at last PU in transmission buffer
Last retransmission PU poll	MP		Boolean	TRUE indicates that poll is made at last PU in retransmission buffer
Poll_Window	OP		Integer(50,60,70,80,85,90,95,99)	Percentage of transmission window, threshold for polling ~~8 spare values needed, criticality: reject~~
Timer_poll_periodic	OP		Integer(100, 200, 300, 400, 500, 750, 1000, 2000)	Time in milliseconds Timer for periodic polling. ~~8 spare values needed, criticality: reject~~

10.3.4.5 Predefined configuration identity

This information element identifies a pre- defined radio parameter configuration.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Predefined radio configuration identity	MP		Integer (0..15)	

10.3.4.6 Predefined configuration value tag

This information element is used to identify different versions of a radio bearer configuration as may be used within one PLMN e.g. to support different UTRAN implementations.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Predefined configuration value tag	MP		Integer(0..15)	

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 <maxSRBsetup>		For each signalling radio bearer
>Signalling RB information to setup	MP		Signalling RB information to setup 10.3.4.24	
RB information				Only one RAB supported
RB information to setup list	MP	1 to <maxRBcount>		
>RB information to setup	MP		RB information to setup 10.3.4.20	

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	
RAB NAS Synchronisation Indicator	OP		RAB NAS Synchronisation info 10.3.4.12	
Re-establishment timer	MP		Re-establishment timer 10.3.3.29	

10.3.4.9 RAB info short

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	

10.3.4.10 RAB information for setup

Information Element/Group name	Need	Multi	Type and reference	Semantics description
RAB info	MP		RAB info 10.3.4.8	
RB information to setup list	MP	1 to <maxRBperRAB>		
>RB information to setup	MP		RB information to setup 10.3.4.20	

10.3.4.11 RAB information to reconfigure

Information Element/Group name	Need	Multi	Type and reference	Semantics description
RAB identity	MP		RAB Identity 10.3.1.14	
RAB NAS synchronisation indicator	MP		RAB NAS Synchronisation info 10.3.4.12	

10.3.4.12 RAB NAS Synchronisation info

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

Information Element/Group name	Need	Multi	Type and reference	Semantics description
NAS Synchronisation info	MP		Bitstring(4)	

10.3.4.13 RB activation time info

This IE contains the time, in terms of RLC sequence numbers, when a certain configuration shall be activated, for a number of radio bearers.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Radio bearer activation time	OP	1 to <maxRB>		
>RB identity	MP		RB identity 10.3.4.16	
>RLC sequence number	MP		Integer (0..4095)	RLC SN [TS 25.322]

10.3.4.14 RB COUNT-C MSB information

The MSB of the COUNT-C values of the radio bearer.

Information Element/Group name	Needed	Multi	Type and reference	Semantics description
RB identity	MP		RB identity 10.3.4.16	
COUNT-C-MSB-uplink	MP		Integer (0.. 2^25-1)	25 MSBs from COUNT-C associated to this RB
COUNT-C-MSB-downlink	MP		Integer (0.. 2^25-1)	25 MSBs from COUNT-C associated to this RB

10.3.4.15 RB COUNT-C information

The COUNT-C values of the radio bearer.

Information Element/Group name	Needed	Multi	Type and reference	Semantics description
RB identity	MP		RB identity 10.3.4.16	
COUNT-C-uplink	MP		Integer (0.. 2^32-1)	
COUNT-C-downlink	MP		Integer (0.. 2^32-1)	

10.3.4.16 RB identity

An identification number for the radio bearer affected by a certain message.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
RB identity	MP		Integer(1..32 ~~0..31~~)	Values 0-4 shall only be used for signalling radio bearers

10.3.4.17 RB information to be affected

Information Element/Group name	Need	Multi	Type and reference	Semantics description
RB identity	MP		RB identity 10.3.4.16	
RB mapping info	MP		RB mapping info 10.3.4.21	

10.3.4.18 RB information to reconfigure

Information Element/Group name	Need	Multi	Type and reference	Semantics description
RB identity	MP		RB identity 10.3.4.16	
PDCP info	OP		PDCP info 10.3.4.2	
PDCP SN info	C PDCP		PDCP SN info 10.3.4.3	PDCP sequence number info from the network. Present only in case of lossless SRNS relocation.
~~CHOICE *RLC info type*~~	~~OP~~			
~~>~~RLC info	OP		RLC info 10.3.4.23	
RB mapping info	OP		RB mapping info 10.3.4.21	
RB stop/continue~~suspend/resume~~	OP		Enumerated(~~suspend, resume~~stop, continue)	

Condition	Explanation
PDCP	This IE is optional only if "PDCP info" is present. Otherwise it is absent.

10.3.4.19 RB information to release

Information Element/Group name	Need	Multi	Type and reference	Semantics description
RB identity	MP		RB identity 10.3.4.16	

10.3.4.20 RB information to setup

Information Element/Group name	Need	Multi	Type and reference	Semantics description
RB identity	MP		RB identity 10.3.4.16	
PDCP info	OP		PDCP info 10.3.4.2	
RLC info	MP		RLC info 10.3.4.23	
RB mapping info	MP		RB mapping info 10.3.4.21	

Multi Bound	Explanation
MaxSetupRBcount	The maximum number of RBs to setup.

NOTE This information element is included within IE "Predefined RB configuration"

10.3.4.21 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-ULRLCLogicalChannels		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 uplink 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]
>>Uplink transport channel type	MP		Enumerated(DCH,RACH, CPCH,USCH)	CPCH is FDD only USCH is TDD only
>>ULTransport channel identity	CV-*UL-DCH/USCH*		Transport channel identity 10.3.5.18	This is the ID of a DCH or USCH (TDD only) that this RB could be mapped onto.
>>Logical channel identity	OP		Integer(1..15)	This parameter is used to distinguish logical channels multiplexed by MAC on a transport channel.
>>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)	[see 25.321]. Default value is 0.
>Number of downlink RLC logical channels	CV-*DL-RLC info*	1 to MaxLoCHperRLC		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 uplink RLC logical channels" in IE "RB mapping info" is 2, then this is present. Otherwise this IE is not needed.
UL-DCH/USCH	If IE "Uplink transport channel type" is equal to "DCH" or "USCH" (TDD only) this IE is 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.

10.3.4.22 RB with PDCP information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
RB identity	MP		RB identity 10.3.4.16	
PDCP SN info	MP		PDCP SN info 10.3.4.3	PDCP sequence number info from the sender of the message for lossless SRNS relocation.

10.3.4.23 RLC info

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE *Uplink RLC mode*	OP			Indicates if Acknowledged, Unacknowledged or Transparent mode RLC shall be used. ~~One spare value needed, criticality: reject.~~
>AM RLC				
>>Transmission RLC discard	MP		Transmission RLC discard 10.3.4.25	
>>Transmission window size	MP		Integer(1,8,16,32,64,128,256,512,768,1024,1536,2047,2560,3072,3584,4095)	Maximum number of RLC PUs sent without getting them acknowledged. This parameter is needed if acknowledged mode is used. UE shall also assume that the UTRAN receiver window is equal to this value.
>>Timer_RST	MP		Integer(50, 100, 150, 200, 250, 300, 350, 400, 450, 500, 550, 600, 700, 800, 900, 1000)	It is used to detect the loss of RESET ACK PDU. ~~16 spare values needed, criticality: reject~~
>>Max_RST	MP		Integer(1, 4, 6, 8, 12 16, 24, 32)	The maximum number of retransmission of RESET PDU. ~~8 spare values needed, criticality: reject~~
>> Polling info	OP		Polling info 10.3.4.4	
>UM RLC				
>> Transmission RLC discard	OP		Transmission RLC discard 10.3.4.25	
>TM RLC				
>>Transmission RLC discard	OP		Transmission RLC discard 10.3.4.25	
>>Segmentation indication	MP		Boolean	TRUE indicates that segmentation is performed.
CHOICE *Downlink RLC mode*	OP			Indicates if Acknowledged, Unacknowledged or Transparent mode RLC shall be used. ~~One spare value needed, criticality: reject.~~
>AM RLC				
>>In-sequence delivery	MP		Boolean	TRUE indicates that RLC shall preserve the order of higher layer PDUs when these are delivered. FALSE indicates that receiving RLC entity could allow SDUs to be delivered to the higher layer in different order than submitted to RLC sublayer at the transmitting side.
>>Receiving window size	MP		Integer(1,8,16,32,64,128,256,512,768,1024,1536,2047,2560,3072,3584,4095)	Maximum number of RLC PUs allowed to be received. This parameter is needed if acknowledged mode is used. UE shall also assume that the

				UTRAN transmitter window is equal to this value. ~~At least one spare value with criticality reject needed~~
>>Downlink RLC status Info	MP		Downlink RLC status info 10.3.4.1	
>UM RLC				(No data)
>TM RLC				~~(No data)~~
>>Segmentation indication	MP		Boolean	TRUE indicates that segmentation is performed.

NOTE This information element is included within IE "Predefined RB configuration"

10.3.4.24 Signalling RB information to setup

Information Element/Group name	Need	Multi	Type and reference	Semantics description
RB identity	MD		RB identity 10.3.4.16	Default value is ~~the smallest value not yet used as default in the message (e.g., 0, then 1, and so on)~~specified in subclause 8.6.4.4
~~CHOICE *RLC info type*~~	~~MP~~			~~At least one spare choice needed,~~ ~~critically: reject~~
~~>~~RLC info	OP		RLC info 10.3.4.23	
RB mapping info	MP		RB mapping info 10.3.4.21	

NOTE This information element is included within IE "Predefined RB configuration"

10.3.4.25 Transmission RLC Discard

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE SDU Discard Mode	MP			Different modes for discharge the RLC buffer on the transmitter side; "Timer based with explicit signalling", "Timer based without explicit signalling", "Discard after Max_DAT retransmissions" or "No_discard". For unacknowledged mode and transparent mode, only Timer based without explicit signalling is applicable. If "No_discard" is used, reset procedure shall be done after Max_DAT retransmissions
>Timer based explicit				
>>Timer_MRW	MP		Integer(50,60, 70, 80, 90, 100, 120, 140, 160, 180, 200, 300, 400, 500, 700, 900)	It is used to trigger the retransmission of a STATUS PDU containing an MRW SUFI field. ~~16 spare values needed, criticality: reject~~
>>Timer_discard	MP		Integer(100, 250, 500, 750, 1000, 1250, 1500, 1750, 2000, 2500, 3000, 3500, 4000, 4500, 5000, 7500)	Elapsed time in milliseconds before a SDU is discarded.
>>MaxMRW	MP		Integer(1, 4, 6, 8, 12 16, 24, 32)	It is the maximum value for the number of retransmissions of a MRW command ~~8 spare values needed, criticality: ffs~~
>Timer based no explicit				
>>Timer_discard	MP		Integer(10,20,30,40,50,60,70,80,90,100)	Elapsed time in milliseconds before a SDU is discarded.
>Max DAT retransmissions				
>> Max_DAT	MP		Integer(1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 15, 20, 25, 30, 35, 40)	Number of retransmissions of a PU before a SDU is discarded.
>>Timer_MRW	MP		Integer(50, 60, 70, 80, 90, 100, 120, 140, 160, 180, 200, 300, 400, 500, 700, 900)	It is used to trigger the retransmission of a STATUS PDU containing an MRW SUFI field. ~~16 spare values needed, criticality: reject~~
>>MaxMRW	MP		Integer(1, 4, 6, 8, 12 16, 24, 32)	It is the maximum value for the number of retransmissions of a MRW command ~~8 spare values needed, criticality: ffs~~
>No discard				

>> Max_DAT	MP		Integer(1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 15, 20, 25, 30, 35, 40)	Number of retransmissions of a PU before the RLC entity is reset.

CHOICE *SDU Discard Mode*	**Condition under which the given *SDU Discard Mode* is chosen**
Timer based explicit	If the modes for discharge of the RLC buffer on the transmitter side is "Timer based with explicit signalling"
Timer based no explicit	If the modes for discharge of the RLC buffer on the transmitter side is "Timer based without explicit signalling" For unacknowledged mode, only Timer based without explicit signalling is applicable.
Max DAT retransmissions	If the modes for discharge of the RLC buffer on the transmitter side is "Discard after Max_DAT retransmissions"
No discard	If the modes for discharge the of RLC buffer on the transmitter side is "Reset procedure shall be done after Max_DAT retransmissions"

10.3.5 Transport CH Information elements

10.3.5.1 Added or Reconfigured DL TrCH information

Information Element/Group name	**Need**	**Multi**	**Type and reference**	**Semantics description**
DL Transport channel identity	MP		Transport channel identity 10.3.5.18	
CHOICE DL parameters				
>Independent				
>>TFS	MP		Transport Format Set 10.3.5.23	
>SameAsUL				
>>UL TrCH identity	MP		Transport channel identity 10.3.5.18	Same TFS applies as specified for indicated UL TrCH
DCH quality target	OP		Quality target 10.3.5.10	
Transparent mode signalling info	~~OP~~CV-MessageType		Transparent mode signalling info 10.3.5.17	This IE is not used in RB RELEASE message nor RB RECONFIGURATION message

Condition	**Explanation**
MessageType	This IE is absent in Radio Bearer Release message and Radio Bearer Reconfiguration message. Otherwise it is OPTIONAL.

10.3.5.2 Added or Reconfigured UL TrCH information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
UL Transport channel identity	MP		Transport channel identity 10.3.5.18	
TFS	MP		Transport Format Set 10.3.5.23	

NOTE This information element is included within IE "Predefined RB configuration""

10.3.5.3 CPCH set ID

NOTE: Only for FDD.

This information element indicates that this transport channel may use any of the Physical CPCH channels defined in the CPCH set info which contains the same CPCH set ID. The CPCH set ID associates the transport channel with a set of PCPCH channels defined in a CPCH set info IE and a set of CPCH persistency values. The CPCH set info IE(s) and the CPCH persistency values IE(s) each include the CPCH set ID and are part of the SYSTEM INFORMATION message

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CPCH set ID	MP		Integer(1...maxCPCHsets)	Identifier for CPCH set info and CPCH persistency value messages

10.3.5.4 Deleted DL TrCH information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
DL Transport channel identity	MP		Transport channel identity 10.3.5.18	

10.3.5.5 Deleted UL TrCH information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
UL Transport channel identity	MP		Transport channel identity 10.3.5.18	

10.3.5.6 DL Transport channel information common for all transport channels

Information Element/Group name	Need	Multi	Type and reference	Semantics description
SCCPCH TFCS	OP		Transport Format Combination Set 10.3.5.20	This IE should be absent within IE "Predefined RB configuration"
CHOICE *mode*	OP			
>FDD				
>>CHOICE DL parameters	MP			
>>>Independent				
>>>>DL DCH TFCS	OP		Transport Format Combination Set 10.3.5.20	
>>>SameAsUL				(no data)
>TDD				
>>Individual DL CCTrCH information	OP	1 to >maxCCTrCH>		
>>>DL TFCS Identity	MP		Transport format combination set identity 10.3.5.21	Identifies a special CCTrCH for shared or dedicated channels.
>>>CHOICE DL parameters	MP			
>>>>Independent				
>>>>>DL TFCS	MP		Transport format combination set 10.3.5.20	
>>>>SameAsUL				
>>>>>UL DCH TFCS Identity	MP		Transport format combination set identity 10.3.5.21	Same TFCS applies as specified for the indicated UL DCH TFCS identity except for information applicable for UL only

NOTE This information element is included within IE "Predefined TrCh configuration"

10.3.5.7 DRAC Static Information

NOTE: Only for FDD.

Contains static parameters used by the DRAC procedure. Meaning and use is described in subclause 14.6.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Transmission Time Validity	MP		Integer(1..256)	number of frames
Time duration before retry	MP		Integer(1..256)	number of frames
DRAC Class Identity	MP		Integer(1..8)	Indicates the class of DRAC parameters to use in SIB10 message

10.3.5.8 Power Offset Information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE *Gain Factors*	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 in FDD and all uplink channels in TDD
>>Reference TFC ID	OP		Integer (0..3)	If this TFC is a reference TFC, indicates the reference ID.
>Computed Gain Factors				
>>Reference TFC ID	MP		Integer (0.. 3)	Indicates the reference TFC Id of the TFC to be used to calculate the gain factors for this TFC. In case of using computed gain factors, at least one signalled gain factor is necessary for reference.
CHOICE 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 *Gain Factors*	**Condition under which the way to signal the *Gain Factors* is chosen**
Signalled Gain Factors	The values for gain factors β_c (only in FDD mode) and β_d are signalled directly for a TFC.
Computed Gain Factors	The gain factors β_c (only in FDD mode) and β_d are computed for a TFC, based on the signalled settings for the associated reference TFC.

10.3.5.9 Predefined TrCH configuration

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

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
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				
Added or Reconfigured UL TrCH information	MP	1 to <maxTrCH preconf>		
>Added or Reconfigured UL TrCH information	MP		Added or Reconfigured UL TrCH information 10.3.5.2	
DL Transport channel information common for all transport channels	MP		DL Transport channel information common for all transport channels 10.3.5.6	
Downlink transport channels				
Added or Reconfigured DL TrCH information	MP	1 to <maxTrCH preconf>		
>Added or Reconfigured DL TrCH information	MP		Added or Reconfigured DL TrCH information 10.3.5.1	

10.3.5.10 Quality Target

Information Element/Group name	Need	Multi	Type and reference	Semantics description
BLER Quality value	MP		Real(0.00 ..1.00, by step of 0.02)	In dB= -Log10(Transport channel BLER)

10.3.5.11 Semi-static Transport Format Information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Transmission time interval	MP		Integer(10, 20, 40, 80, dynamic)	In ms. The value dynamic is only used in TDD mode ~~3 spare values are needed~~ ~~Criticality reject~~
Type of channel coding	MP		Enumerated(No coding, Convolutional, Turbo)	
Coding Rate	CV-Coding		Enumerated(1/2, 1/3)	
Rate matching attribute	MP		Integer(1..hiRM)	
CRC size	MP		Integer(0, 8, 12, 16, 24)	in bits

Condition	Explanation
Coding	This IE is only present if IE "Type of channel coding" is "Convolutional"

10.3.5.12 TFCI Field 2 Information

UTRAN has the choice of two methods for signalling the mapping between TFCI (field 2) values and the corresponding TFC:

Method #1 - TFCI range

The mapping is described in terms of a number of groups, each group corresponding to a given transport format combination (value of CTFC(field2)). The CTFC(field2) value specified in the first group applies for all values of TFCI(field 2) between 0 and the specified 'Max TFCI(field2) value'. The CTFC(field2) value specified in the second group applies for all values of TFCI(field 2) between the 'Max TFCI(field2) value' specified in the last group plus one and the specified 'Max TFCI(field2) value' in the second group. The process continues in the same way for the following groups with the TFCI(field 2) value used by the UE in constructing its mapping table starting at the largest value reached in the previous group plus one. A range of TFCI values on the transport channel level can be configured to correspond to a range of codes in PDSCH mapping table.

Method #2 - Explicit

The mapping between TFCI(field 2) value and CTFC(field2) is spelt out explicitly for each value of TFCI (field2).

Information Element/Group name	**Need**	**Multi**	**IE type and reference**	**Semantics description**
CHOICE *Signalling method*	MP			
> TFCI range				
>> TFCI(field 2) range	MP	1 to <maxPDSCH-TFCIgroups>		
>>>Max TFCI(field2) value	MP		Integer(1..1023)	This is the Maximum value in the range of TFCI(field2) values for which the specified CTFC(field2) applies
>>>TFCS Information for DSCH (TFCI range method)	MP		TFCS Information for DSCH (TFCI range method) 10.3.5.14	
> Explicit				
>>TFCS explicit configuration	MP		TFCS explicit configuration 10.3.5.13	

CHOICE *Signalling method*	**Condition under which *Split type* is chosen**
TFCI range	
Explicit	

10.3.5.13 TFCS Explicit Configuration

Information Element/Group name	Need	Multi	IE type and reference	Semantics description
CHOICE TFCS representation	MP			
>Complete reconfiguration				
>>TFCS complete reconfiguration information	MP		TFCS Reconfiguration/Addition information 10.3.5.15	
>Addition				
>> TFCS addition information	MP		TFCS Reconfiguration/Addition information 10.3.5.15	
>Removal				
>> TFCS removal information	MP		TFCS Removal	

Information Element/Group name	Need	Multi	IE type and reference	Semantics description
			Information 10.3.5.16	
>Replace				
>> TFCS removal information	MP		TFCS Removal Information 10.3.5.16	
>> TFCS addition information	MP		TFCS Reconfiguration/Addition information 10.3.5.15	

10.3.5.14 TFCS Information for DSCH (TFCI range method)

The CTFC size should be chosen based on the maximum CTFC size for the UE. Integer number calculated according to clause 14. The calculation of CTFC ignores any DCH transport channels which may be assigned.

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				
>>2bit CTFC	MP		Integer(0..3)	
>4 bit CTFC				
>>4bit CTFC	MP		Integer(0..15)	
>6 bit CTFC				
>>6 bit CTFC	MP		Integer(0..63)	
>8 bit CTFC				
>>8 bit CTFC	MP		Integer(0..255)	
>12 bit CTFC				
>>12 bit CTFC	MP		Integer(0..4095)	
>16 bit CTFC				
>>16 bit CTFC	MP		Integer(0..65535)	
>24 bit CTFC				
>>24 bit CTFC	MP		Integer(0..16777215)	

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 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.
>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.
>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.
>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.
>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.
>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.

10.3.5.16 TFCS Removal Information

The integer number(s) is a reference to the transport format combinations to be removed.

Information Element/Group name	Need	Multi	IE type and reference	Semantics description
Removal TFCI information	MP	1 to <maxTFC>		
>TFCI	MP		Integer(0..1023)	

Range Bound	Explanation
MaxDelTFCcount	Maximum number of Transport Format Combinations to be removed.

10.3.5.17 Transparent mode signalling info

This information element points out a transport channel that is used for transparent mode signalling, and which type of message that is sent on the DCCH mapped on that channel.

There are two modes of this transparent mode signaling. Mode 1 controls all transport channels for one UE. Mode 2 only control a subset of the transport channels for one UE.

Information Element	Need	Multi	Type and reference	Semantics description
Type of message	MP		Enumerated (TRANSPORT FORMAT COMBINATION CONTROL)	Indicates which type of message sent on the transparent mode signalling DCCH ~~At least 1 spare value needed~~ ~~Criticality: criticality reject is needed~~
CHOICE *Transparent signalling mode*	MP			
>Mode 1				(no data)
>Mode 2				
>>Controlled transport channels list	MP	1 to <maxTrCH>		The transport channels that are effected by the rate control commands sent on this transparent mode DCCH
>>>UL Controlled transport channels	MP		Transport channel identity, 10.3.5.18	

10.3.5.18 Transport channel identity

This information element is used to distinguish transport channels. Transport channels of different type (RACH, CPCH, USCH, FACH/PCH, DSCH or DCH) have separate series of identities. This also holds for uplink and downlink transport channel identities (i.e. for DCH). Depending on in which context a transport channel identity *n* that is sent, it will have different meaning

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Transport channel identity	MP		Integer(1..32)	

10.3.5.19 Transport Format Combination (TFC)

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Transport format combination	MP		Integer (0.. 1023)	

10.3.5.20 Transport Format Combination Set

Indicates the allowed combinations of already defined Transport formats and the mapping between these allowed TFCs and the corresponding TFCI values.

For TDD, different coded composite transport channels have independent transport format combination sets and thus independent TFCI values.

For FDD, Where the UE is assigned access to one or more DSCH transport channels, a TFCI(field2) is used to signal the transport format combination for the DSCH. The following two cases exist:

- Case 1:
  Using one TFCI-word on the physical layer. A logical split determines the available number of transport format combinations for DCH and DSCH.

- Case 2:
  Using split TFCI on the physical layer. Two TFCI-words, each having a static length of five bits, are used.

Information Element/Group name	Need	Multi	IE type and reference	Semantics description
CHOICE *TFCI signalling*	MP			'Normal' : meaning no split in the TFCI field (either 'Logical' or 'Hard') 'Split' : meaning there is a split in the TFCI field (either 'Logical' or 'Hard'). This value is only valid for FDD downlink when using DSCH.
> Normal				
>> TFCI Field 1 Information	MP		TFCS explicit Configuration 10.3.5.13	
> Split				
>> Split type	OP		Enumerated ('Hard', 'Logical')	'Hard' : meaning that TFCI (field 1) and TFCI (field 2) are each 5 bits long and each field is block coded separately. 'Logical' : meaning that on the physical layer TFCI (field 1) and TFCI (field 2) are concatenated, field 1 taking the most significant bits and field 2 taking the least significant bits). The whole is then encoded with a single block code.
>> Length of TFCI(field2)	OP		Integer (1..10)	This IE indicates the length measured in number of bits of TFCI(field2)
>> TFCI Field 1 Information	OP		TFCS explicit Configuration 10.3.5.13	
>> TFCI Field 2 Information	OP		TFCI field 2 information 10.3.5.12	

CHOICE *TFCI signalling*	**Condition under which *TFCI signalling type* is chosen**
Normal	It is chosen when no split in the TFCI field.
Split	It is chosen when split in the TFCI field. This value is only valid for FDD downlink when using DSCH.

10.3.5.21 Transport Format Combination Set Identity

NOTE: Only for TDD.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
TFCS ID	MD		Integer (1...8)	Indicates the identity of every TFCS within a UE. Default value is 1.
Shared Channel Indicator	MP		Boolean	TRUE indicates the use of shared channels. Default is false.

10.3.5.22 Transport Format Combination Subset

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

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE Subset representation	MP			
>Minimum allowed Transport format combination index	~~MP~~		Transport format combination 10.3.5.19	The integer number is a reference to the *Transport format combination,* which arrived at that position in the *Transport Format Combination Set.*
>Allowed transport format combination list	~~MP~~	1 to <maxTFC>		
>>Allowed transport format combination	MP		Transport format combination 10.3.5.19	The integer number is a reference to the *Transport format combination,* which arrived at that position in the *Transport Format Combination Set.*
>Non-allowed transport format combination list	~~MP~~	1 to <maxTFC>		
>>Non-allowed transport format combination	MP		Transport format combination 10.3.5.19	The integer number is a reference to the *Transport format combination,* which arrived at that position in the *Transport Format Combination Set.*
>Restricted TrCH information	~~MP~~	1 to <maxTrCH>		
>>Restricted UL TrCH identity	MP		Transport channel identity 10.3.5.18	The integer number(s) is a reference to the transport channel that is restricted.
>>Allowed TFIs	OP	1 to <maxTF>		
>>>Allowed TFI	MP		Integer(0..31)	The integer number is a reference to the transport format that is allowed. If no elements are given, all transport formats or the TrCH with non-zero rate are restricted.
>Full transport format combination set				(No data)

10.3.5.23 Transport Format Set

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE *Transport channel type*	MP			
>Dedicated transport channels				The transport channel that is configured with this TFS is of type DCH
>>Dynamic Transport Format Information	MP	1 to <maxTF>		The first instance of the parameter *Dynamic transport format information* correspond to Transport format 0 for this transport channel, the second to transport format 1 and so on.
>>>Transmission Time Interval	CV-dynamicTTI		Integer(10,20,40,80)	ms ~~4 spare values are needed~~ ~~Criticality reject~~
>>>Number of Transport blocks	MP		Integer(0..512)	Note
>>>RLC Size	MP		Integer(0..4992)	Unit is bits
>>Semi-static Transport Format Information	MP		Semi-static Transport Format Information 10.3.5.11	
>Common transport channels				The transport channel that is configured with this TFS is of a type not equal to DCH
>>Dynamic Transport Format Information	MP	1 to <maxTF>		The first instance of the parameter *Dynamic transport format information* correspond to Transport format 0 for this transport channel, the second to transport format 1 and so on.
>>>Number of Transport blocks	MP		Integer(0..512)	Note
>>>RLC Size	MP		Integer(0..4992)	Unit is bits
>>>CHOICE mode	MP			
>>>>FDD				(no data)
>>>>TDD				
>>>>> Transmission Time Interval	CV-dynamicTTI		Integer(10,20,40,80)	ms ~~4 spare values needed.~~ ~~Criticality reject~~
>>Semi-static Transport Format Information	MP		Semi-static Transport Format Information 10.3.5.11	

Condition	Explanation
dynamicTTI	This IE is included if dynamic TTI usage is indicated in IE Transmission Time Interval in Semi-static Transport Format Information. Otherwise it is not needed.

NOTE: The parameter "rate matching attribute" is in line with the RAN WG1 specifications. However, it is not currently in line with the description in 25.302.

NOTE: For dedicated channels, 'RLC size' reflects RLC PDU size. In FDD for common channels 'RLC size' reflects actual TB size. In TDD for common channels since MAC headers are not octet aligned, to calculate TB size the MAC header bit offset is added to the specified size (similar to the dedicated case). Therefore for TDD DCH TrCHs the 4 bit C/T is added if MAC multiplexing is applied, for FACH the 3 bit TCTF offset is added and for RACH the 2 bit TCTF offset is added.

NOTE: If the number of transport blocks <> 0, and Optional IE "CHOICE RLC mode" or "CHOICE Transport block size is absent, it implies that no RLC PDU data exists but only parity bits exist. If the number of transport blocks = 0, it implies that neither RLC PDU data nor parity bits exist. In order to ensure the possibility of CRC based Blind Transport Format Detection, UTRAN should configure a transport format with number of transport block <> 0, with a zero-size transport block.

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
PRACH TFCS	OP		Transport format combination set 10.3.5.20	This IE should be absent within IE "Predefined RB configuration"
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"

10.3.6 Physical CH Information elements

10.3.6.1 AC-to-ASC mapping

Information Element/Group name	Need	Multi	Type and reference	Semantics description
AC-to-ASC mapping table	MP	maxASCmap		
> AC-to-ASC mapping	MP		Integer(0…7)	Mapping of Access Classes to Access Service Classes (cf. Sec. 8.5.15.)

10.3.6.2 AICH Info

NOTE: Only for FDD.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Secondary scrambling code	MD		Secondary scrambling code 10.3.6.73	Default is the same scrambling code as for the Primary CPICH
Channelisation code	MP		Integer(0..255)	SF is fixed and equal to 256
STTD indicator	MP		STTD Indicator 10.3.6.77	
AICH transmission timing	MP		Enumerated (0, 1)	See parameter AICH_Transmission_Timing in TS 25.211

10.3.6.3 AICH Power offset

NOTE: Only for FDD.

This is the power per transmitted Acquisition Indicator minus power of the Primary CPICH.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
AICH Power offset	MP		Integer(-22..+5)	Offset in dB

10.3.6.4 Allocation period info

NOTE: Only for TDD.

Parameters used by UE to determine period of shared channel allocation.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Allocation Activation Time	MP		Integer (1..256)	Frame number start of the allocation period.
Allocation Duration	MP		Integer (1..256)	Total number of frames for the allocation period.

10.3.6.5 ASC setting

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Available signature Start Index	MP		Integer(0..15)	
Available signature End Index	MP		Integer(0..15)	
Available sub-channel Start Index	MP		Integer(0..11)	
Available sub-channel End Index	MP		Integer(0..11)	

10.3.6.6 Block STTD indicator

NOTE: Only for TDD

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Block STTD indicator	MP		Boolean	TRUE indicates that block STTD is used

10.3.6.7 CCTrCH power control info

Parameters used by UE to set the SIR target value for uplink open loop power control in TDD.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
TFCS Identity	OP		Transport Format Combination Set Identity 10.3.5.21	TFCS Identity of this CCTrCH. Default value is 1.
Uplink DPCH power control info	MP		Uplink DPCH power control info 10.3.6.89	

10.3.6.8 Cell parameters Id

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Cell parameter Id	MP		Integer(0..127)	

10.3.6.9 Common timeslot info

Information Element/Group name	Need	Multi	Type and reference	Semantics description
2nd interleaving mode	MD		Enumerated(Frame, Timeslot)	Frame timeslot related interleaving. Default value is "Frame"
TFCI coding	MD		Integer(4,8,16,32)	Describes the way the TFCI bits are coded in bits. Defaults is no TFCI bit: 4 means 1 TFCI bit is coded with 4 bits. 8 means 2 TFCI bits are coded with 8 bits. 16 means 3 – 5 TFCI bits are coded with 16 bits. 32 means 6 – 10 TFCI bits coded with 32 bits.
Puncturing limit	MP		Real(0.40..1.0 by step of 0.04)	
Repetition period	MD		Integer(1, 2,4,8,16,32,64)	Default is continuous allocation. Value 1 indicate continuous
Repetition length	MP		Integer(1.. Repetition period –1)	Note that this is empty if repetition period is set to 1

10.3.6.10 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 8.5.8.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Constant value	MP		Integer (-35..-10)	~~At least 6 spare values needed~~ ~~Criticality: reject is needed~~

10.3.6.11 CPCH persistence levels

NOTE: Only for FDD.

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

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CPCH set ID	MP		Integer (1 .. <maxCPCHsets>)	Identifier for CPCH set info.
Dynamic persistence level	MP	1 to <maxTF-CPCH>	~~Dynamic persistence level 10.3.6.34~~	~~Persistence level for transport format.~~
>Dynamic persistence level	MP		Dynamic persistence level 10.3.6.34	Persistence level for transport format.

10.3.6.12 CPCH set info

NOTE: Only for FDD.

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

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CPCH set ID	MP		CPCH set ID 10.3.5.3	Indicates the ID number for a particular CPCH set allocated to a cell.
TFS	MP		Transport Format Set 10.3.5.23	Transport Format Set Information allocated to this CPCH set.
TFCS	MP		Transport Format Combination Set 10.3.5.20	Transport Format Set Information allocated to this CPCH set
AP preamble scrambling code	MP		Integer (0..79)	Preamble scrambling code for AP in UL
AP-AICH scrambling code	MP		Secondary Scrambling Code 10.3.6.73	Default is the same scrambling code as for the primary CPICH.
AP-AICH channelisation code	MP		Integer(0..255)	Channelisation code for AP-AICH in DL
CD preamble scrambling code	MP		Integer (0..79)	Preamble scrambling code for CD in UL
CD/CA-ICH scrambling code	MD		Secondary Scrambling Code 10.3.6.73	Default is the same scrambling code as for the primary CPICH.
CD/CA-ICH channelisation code	MP		Integer (0..255)	Channelisation code for CD/CA-ICH in DL
Available CD access slot subchannel	CV-CDSigPresent	1 to <maxPCPCH-CDsubCh>		Lists the set of subchannels to be used for CD access preambles. Note: if not present, all subchannels are to be used without access delays.
>CD access slot subchannel	MP		Integer (0..11)	
Available CD signatures	OP	1 to <maxPCPCH-CDsig>		Signatures for CD preamble in UL. Note: if not present, all signatures are available for use.
>CD signatures	MP		Integer (0..15)	
DeltaPp-m	MP		Integer (-10..10)	In dB. Power offset between the transmitted CD preamble and UL DPCCH of the power control preamble or message part (added to the preamble power to calculate the power of the UL DPCCH)
UL DPCCH Slot Format	MP		Enumerated (0,1,2)	Slot format for UL DPCCH in power control preamble and in message part
N_start_message	MP		Integer (1..8)	Number of Frames for start of message indication
N_EOT	MP		Integer(0...7)	Actual number of appended EOT indicators is T_EOT = N_TTI * ceil(N_EOT/N_TTI), where N_TTI is the number of frames per TTI and "ceil" refers to rounding up to

				nearest integer.
Channel Assignment Active	OP		Boolean	When present, indicates that Node B send a CA message and VCAM mapping rule (14.11) shall be used.
CPCH status indication mode	MP		Enumerated (PCPCH availability, PCPCH availability and minimum available Spreading Factor)	Defines the status information type broadcast on the CPCH Status Indication Channel (CSICH)
PCPCH Channel Info.	MP	1 to <maxPCPCHs>		
> UL scrambling code	MP		Integer (0..79)	For PCPCH message part
> DL channelisation code	MP		Integer (0…511)	For DL DPCCH for PCPCH message part
> DL scrambling code	MD		Secondary Scrambling Code 10.3.6.73	Default is the same scrambling code as for the primary CPICH.
> PCP length	MP		Enumerated (0, 8)	Indicates length of power control preamble, 0slots (no preamble used) or 8 slots
> UCSM Info	CV-NCAA			
>>Minimum Spreading Factor	MP		Integer (4,8,16,32,64,128,256)	The UE may use this PCPCH at any Spreading Factor equal to or greater than the indicated minimum Spreading Factor. The Spreading Factor for initial access is the minimum Spreading Factor.
>> NF_max	MP		Integer (1…64)	Maximum number of frames for PCPCH message part
>> Channel request parameters for UCSM	MP	1 to <maxSig>		Required in UE channel selection mode.
>>>Available AP signature	MP	1 to <maxPCPCH-APsig>		AP preamble signature codes for selection of this PCPCH channel.
>>>> AP signature	MP		Integer (0..15)	
>>>Available AP access slot subchannel	OP	1 to <maxPCPCH-APsubCh>		Lists the set of subchannels to be used for AP access preambles in combination with the above AP signature(s). Note: if not present, all subchannels are to be used without access delays.
>>>> AP access slot subchannel	MP		Integer (0..11)	
VCAM info	CV-CAA			
> Available Minimum Spreading Factor	MP	1 to <maxPCPCH-SF>		
>> Minimum Spreading Factor	MP		Enumerated (4,8,16,32,64,128,256)	
>>NF_max	MP		Integer (1..64)	Maximum number of frames for PCPCH message part
>> Maximum available number of PCPCH	MP		Integer (1..64)	Maximum available number of PCPCH for the indicated

				Spreading Factor.
>> Available AP signatures	MP	1 to <maxPCPCH-APsig>		Signatures for AP preamble in UL.
>>> AP signature			Integer (0..15)	
>> Available AP sub-channel	OP	1 to <maxPCPCH-APsubCh>		AP sub-channels for the given AP signature in UL. Note: if not present, all subchannels are to be used without access delays.
>>> AP sub-channel	MP		Integer (0..11)	

Condition	Explanation
CDSigPresent	This IE may be included if IE "Available CD signatures" is present.
NCAA	This IE is included if IE "Channel Assignment Active" is not present
CAA	This IE is included if IE ""Channel Assignment Active" is present.

10.3.6.13 CPCH Status Indication mode

CPCH Status Indication mode can take 2 values: PCPCH Availability (PA) mode and PCPCH Availability with Minimum Available Spreading Factor (PAMASF) mode. PAMASF mode is used when Channel Assignment is active. PA mode is used when Channel Assignment is not active (UE Channel Selection is active). These two separate modes are described independently in the subclause that follows. TS25.211 defines the Status Indicators (SIs) of the CSICH channel which convey the CPCH status information described here. A CSICH may contain from 3 upto a maximum of 60 Status Indicators.

10.3.6.13.1 PCPCH Availability (PA) mode

In PA mode, CPCH Status Indication conveys the PCPCH Channel Availability value which is a 1 to 16 bit value which indicates the availability of each of the 1 to 16 defined PCPCHs in the CPCH set. PCPCHs are numbered from PCPCH0 through PCPCH15. There is one bit of the PCPCH Channel Availability (PCA) value for each defined PCPCH channel. If there are 2 PCPCHs defined in the CPCH set, then there are 2 bits in the PCA value. And likewise for other numbers of defined PCPCH channels up to 16 maximum CPCH channels per set when UE Channel Selection is active.

The number of SIs (Status Indicators) per frame is a function of the number of defined PCPCH channels.

Number of defined PCPCHs(=K)	Number of SIs per frame(=N)
1, 2, 3	*3*
4,5	*5*
6,7,8,9,10,11,12,13,14,15	*15*
16	*30*

The value of the SI shall indicate the PCA value for one of the defined PCPCHs, where PCA(n)=1 indicates that the PCPCH is available, and PCA(n)=0 indicates that the PCPCHn is not available. SI(0) shall indicate PCA(0) for PCPCH0, SI(1) shall indicate PCA(1) for PCPCH1, etc., for each defined PCPCH. When the number of SIs per frame exceeds the number of defined PCPCHs (K), the SIs which exceed K shall be set to repeat the PCA values for the defined PCPCHs. In general ,

$$SI(n) = PCA(n \bmod (K)),$$

where PCA(i) is availability of PCPCHi,

and n ranges from 0 to N-1.

10.3.6.13.2 PCPCH Availability with Minimum Available Spreading Factor (PAMASF) mode

In PAMASF mode, CPCH Status Indication conveys two pieces of information. One is the Minimum Available Spreading Factor (MASF) value and the other is the PCPCH Channel Availability (PCA) value.

- MASF is a 3 bit number with bits MASF0 through MASF2 where MASF0 is the MSB of the MASF value and MASF2 is the LSB of the MASF value.

The following table defines MASF(0), MASF(1) and MASF(2) values to convey the MASF. All spreading factors greater than MASF are available

Minimum Available Spreading Factor (MASF)	**MASF(0)**	**MASF(1)**	**MASF(2)**	
N/A (No available CPCH resources)	0	0	0	
256	0	0	1	
128	0	1	0	
64	0	1	1	
32	1	0	0	
16	1	0	1	
08	1	1	0	
04	1	1	1	

The number of SIs (Status Indicators) per frame, N is a function of the number of defined PCPCH channels, K.

Number of defined PCPCHs(K)	**Number of SIs per frame(N)**
1, 2,	*5*
3,4,5,6,7,8,9,10,11,12	*15*
13,14,15,16,17,18,19,20,21,22,23,24,25,26,27	*30*
28….57	*60*

PCA(n)=1 indicates that the PCPCHn is available, and PCA(n)=0 indicates that the PCPCHn is not available. PCA value for each PCPCH channel defined in a CPCH set shall be assigned to one SI (Status Indicator), and 3-bit MASF value shall be assigned to SIs as shown in Figure 61.

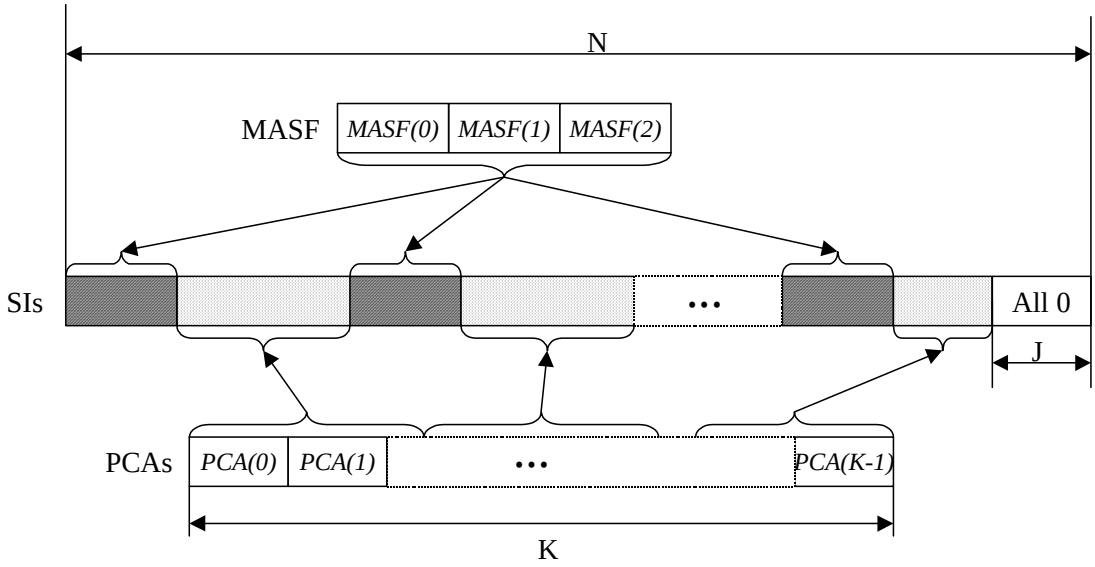

Figure 61: Mapping of MASF and PCAs to SIs in CSICH

The number of repetition that 3-bit MASF values shall be repeated is

$$T = \lfloor (N - K)/3 \rfloor$$

where $\lfloor x \rfloor$ is largest integer less than or equal to x. Each MASF value it, MASF(n), shall be mapped to SI as follows.

$$SI_{l(t+4)+i} = MASF(i), \quad 0 \le i \le 2 \quad l = 0,1,\cdots,s-1$$
$$SI_{s+l(t+3)+i} = MASF(i), \quad 0 \le i \le 2 \quad l = s, s+1,\cdots,T-1$$

where

$$t = \lfloor K / T \rfloor$$

and

$$s = K - t \cdot T$$

Each PCA value bit, PCA(n), shall be mapped to SI as follows.

$$SI_{l(t+4)+j+3} = PCA(l + l \cdot t + j), \quad 0 \le j \le t \qquad l = 0,1,\cdots,s-1$$
$$SI_{s+l(t+3)+j+3} = PCA(s + l \cdot t + j), \quad 0 \le j \le t-1 \quad l = s, s+1,\cdots,T-1$$

The remaining

$$J = N - (3T + K)$$

SIs shall be set to 0.

10.3.6.14 CSICH Power offset

NOTE: Only for FDD.

This is the power per transmitted CSICH Indicator minus power of the Primary CPICH.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CSICH Power offset	MP		Integer(-10..+5)	Offset in dB, granularity of 1 dB

10.3.6.15 Default DPCH Offset Value

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
CHOICE mode				
>FDD				
>>Default DPCH Offset Value (DOFF)	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~~
>TDD				
>>Default DPCH Offset Value (DOFF)	MP		Integer(0..7)	Number of frames; See TS 25.402

10.3.6.16 Downlink channelisation codes

NOTE: Only for TDD

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE *codes representation*	MP			
>Consecutive codes				
>>First channelisation code	MP		Enumerated ((16/1)...(16/16))	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.
>>Last channelisation code	MP		Enumerated ((16/1)...(16/16))	If this is the same as First channelisation code, only one code is used by the physical layer.
>Bitmap				
>>Channelisation codes bitmap	MP		Bitmap(16)	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.

10.3.6.17 Downlink DPCH info common for all RL

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Timing Indication	MP		Enumerated(Initialise, Maintain)	
CFN-targetSFN frame offset	OP		Integer(0..255)	In frame
CHOICE *mode*				
>FDD				
>>Downlink DPCH power control information	OP		Downlink DPCH power control information 10.3.6.22	
>>Downlink rate matching restriction information	OP		Downlink rate matching restriction information 10.3.6.30	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)
>TDD				
>>Common timeslot info	MD		Common Timeslot Info 10.3.6.9	Default is the current Common timeslot info

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

10.3.6.18 Downlink DPCH info common for all RL Post

NOTE: Only for FDD

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Timing Indication	MP		Enumerated(Initialise, Maintain)	
CFN-targetSFN frame offset	OP		Integer(0..255)	In frame
Downlink DPCH power control information	OP		Downlink DPCH power control information 10.3.6.22	

10.3.6.19 Downlink DPCH info common for all RL Pre

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE *mode*	MP			
>FDD				
>>Timing Indication	MP		Enumerated(Initialise, Maintain)	
>>CFN-targetSFN frame offset	OP		Integer(0..255)	In frame
>>Spreading factor	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
>>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)
>TDD				
>>Common timeslot info	MP		Common Timeslot Info 10.3.6.9	

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

10.3.6.20 Downlink DPCH info for each RL

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 10.3.6.61	
>>DPCH frame offset	MP		Integer(0..38144 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 10.3.6.72	
>>DL channelisation code	MP	1 to <maxDPCH-DLchan>		SF of the channelisation code of the data part for each DPCH
>>>Secondary scrambling code	MD		Secondary scrambling code 10.3.6.73	Default is the same scrambling code as for the Primary CPICH
>>> CHOICE *Spreading factor*	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 10.3.6.83	
>>SSDT Cell Identity	OP		SSDT Cell Identity 10.3.6.75	
>>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..<maxCCTrCH>		
>>>TFCS ID	MD		Integer(1..8)	Identity of this CCTrCh. Default value is 1
>>>Time info	MP		Time Info 10.3.6.81	
>>>Downlink DPCH timeslots and codes	MD		Downlink Timeslots and Codes 10.3.6.31	Default is to use the old timeslots and codes.
>>>UL CCTrCH TPC List	MD	1..<maxCCTrCH>		UL CCTrCH identities for TPC commands associated with this DL CCTrCH. Default is previous list or all defined UL CCTrCHs
>>>>UL TPC TFCS Identity	MP		Transport Format	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
			Combination Set Identity 10.3.5.21	

Condition	Explanation
SF/2	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.
TxDiversity Mode	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.

10.3.6.21 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 10.3.6.61	
>>Secondary scrambling code	MD		Secondary scrambling code 10.3.6.73	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 10.3.6.83	
>TDD				
>>Downlink DPCH timeslots and codes	MP		Downlink Timeslots and Codes 10.3.6.31	

10.3.6.22 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				
>>TPC Step Size	OP		Integer (1, 2, 3)	In dB

10.3.6.23 Downlink information common for all radio links

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 10.3.6.17	
CHOICE *mode*				
>FDD				
>>DPCH compressed mode info	MD		DPCH compressed mode info 10.3.6.32	Default value is the existing value of DPCH compressed mode information
>>TX Diversity Mode	MD		TX Diversity Mode 10.3.6.84	Default value is the existing value of TX Diversity mode
>>SSDT information	OP		SSDT information 10.3.6.76	
>TDD				(no data)
>>Default DPCH Offset Value	OP		Default DPCH Offset Value, 10.3.6.15	

10.3.6.24 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 10.3.6.18	

10.3.6.25 Downlink information common for all radio links Pre

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 10.3.6.19	
Default DPCH Offset Value	OP		Default DPCH Offset Value, 10.3.6.15	

10.3.6.26 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 10.3.6.59	
>>PDSCH with SHO DCH Info	OP		PDSCH with SHO DCH Info 10.3.6.46	
>>PDSCH code mapping	OP		PDSCH code mapping 10.3.6.42	
>TDD				
>>Primary CCPCH info	~~OP~~MP		Primary CCPCH info 10.3.6.56	
Downlink DPCH info for each RL	OP		Downlink DPCH info for each RL 10.3.6.20	~~Note 1~~
Secondary CCPCH info	OP		Secondary CCPCH info 10.3.6.70	
References to system information blocks	OP	1 to <maxSIB-FACH>		~~Note 1~~
>Scheduling information	MP		Scheduling information 10.3.8.12	~~Note 1~~
>SIB type SIBs only	MP		SIB Type SIBs only, 10.3.8.17a	

~~NOTE 1: This IE shall not be set in case of CELL UPDATE CONFIRM message.~~

10.3.6.27 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 10.3.6.59	
>TDD				
>>Primary CCPCH info	MP		Primary CCPCH info post 10.3.6.49a	
Downlink DPCH info for each RL	MP		Downlink DPCH info for each RL Post 10.3.6.18	

10.3.6.28 Downlink Outer Loop Control

This information element indicates whether the UE is allowed or not to increase its downlink SIR target value above the current value.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
DL Outer loop control	MP		Enumerated(Increase allowed, Increase not allowed)	

10.3.6.29 Downlink PDSCH information

NOTE: Only for FDD.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
>>PDSCH with SHO DCH Info	OP		PDSCH with SHO DCH Info 10.3.6.46	
>>PDSCH code mapping	OP		PDSCH code mapping 10.3.6.42	

10.3.6.30 Downlink 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)	

10.3.6.31 Downlink Timeslots and Codes

NOTE: Only for TDD

Information Element/Group name	Need	Multi	Type and reference	Semantics description
First Individual timeslot info	MP		Individual timeslot info 10.3.6.36	Individual timeslot info for the first timeslot used by the physical layer.
First timeslot channelisation codes	MP		Downlink channelisation codes 10.3.6.16	These codes shall be used by the physical layer in the timeslot given in First Individual timeslot info.
CHOICE *more timeslots*	MP			
>No more timeslots				(no data)
>Consecutive timeslots				
>>Number of additional timeslots	MP		Integer(1..maxTS-1)	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.
>Timeslot list				
>>Additional timeslot list	MP	1 to <maxTS-1>		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.
>>>CHOICE *parameters*	MP			
>>>>Same as last				
>>>>>Timeslot number	MP		Timeslot Number 10.3.6.81	The physical layer shall use the same parameters (e.g. channelisation codes, midamble shifts etc.) for this timeslot as for the last one.
>>>>New parameters				
>>>>>Individual timeslot info	MP		Individual timeslot info 10.3.6.36	
>>>>>Channelisation codes	MP		Downlink channelisation codes 10.3.6.16	

10.3.6.32 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		TGPSI	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
			10.3.6.80	
>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.
> TGCFN	MP		Integer (0..255)	Connection Frame Number of the first frame of the first pattern within the Transmission Gap Pattern Sequence.
>Transmission gap pattern sequence configuration parameters	OP			
>> TGMP	MP		Enumerated(TDD measurement, FDD measurement, GSM 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, 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.
>>DeltaSIRafter2	OP		Real(0..3 by step of 0.1)	Delta in DL SIR target value to be set in the UE one frame after the compressed frames corresponding to the second transmission gap in the transmission gap pattern. When omitted, DeltaSIRafter2 = DeltaSIRafter1.

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

10.3.6.33 DPCH Compressed Mode Status Info

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Transmission gap pattern sequence		1 to <maxTGPS>		
> TGPSI	MP		TGPSI 10.3.6.80	Transmission Gap Pattern Sequence Identifier
> TGPS Status Flag	MP		Enumerated(active, inactive)	This flag indicates the current status of the Transmission Gap Pattern Sequence, whether it shall be active or inactive.
> TGCFN	MP		Integer (0..255)	Connection Frame Number of the first frame of the first pattern within the Transmission Gap Pattern Sequence.

10.3.6.34 Dynamic persistence level

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Dynamic persistence level	MP		Integer(1..8)	Level shall be mapped to a dynamic persistence value in the range 0 .. 1.

10.3.6.35 Frequency info

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE mode	MP			
>FDD				
>>UARFCN uplink (Nu)	OP		Integer(0.. 16383)	[25.101] If IE not present, default duplex distance of 190 MHz shall be used.
>>UARFCN downlink (Nd)	MP		Integer(0 .. 16383)	[25.101]
>TDD				
>>UARFCN (Nt)	MP		Integer(0 .. 16383)	[25.102]

10.3.6.36 Individual timeslot info

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Timeslot number	MP		Timeslot number 10.3.6.81	Timeslot within a frame
TFCI existence	MP		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 10.3.6.40	

10.3.6.37 Individual Timeslot interference

Parameters used by the UE for uplink open loop power control in TDD.

Information element	Need	Multi	Type and reference	Semantics description
Timeslot number	MP		Timeslot number 10.3.6.81	
UL Timeslot Interference	MP		ULInterference 10.3.6.85	

10.3.6.38 Maximum allowed UL TX power

This information element indicates the maximum allowed uplink transmit power.

Information Element	Need	Multi	Type and reference	Semantics description
Maximum allowed UL TX power	MP		Integer(-50..33)	In dBm ~~At least 44 spare values are needed~~ ~~Criticality: reject is needed~~

10.3.6.39 Midamble configuration

NOTE: Only for TDD.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Midamble burst type 1	MD		Integer(4, 8,16)	Maximum number of midamble shifts for burst type 1. Default value is 8.
Midamble burst type 2	MD		Integer(3, 6)	Maximum number of midamble shifts for bursttype 2. Default value is 3.

Default value is all the subfields set to their default value.

10.3.6.40 Midamble shift and burst type

NOTE: Only for TDD.

This information element indicates burst type and midamble allocation. Three different midamble allocation schemes exist:

- Default midamble: the midamble shift is selected by layer 1 depending on the associated channelisation code (DL and UL)
- Common midamble: the midamble shift is chosen by layer 1 depending on the number of channelisation codes (possible in DL only)
- UE specific midamble: a UE specific midamble is explicitly assigned (DL and UL).

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE Burst Type	MP			
>Type 1				
>>Midamble Allocation Mode	MP		Enumerated (Default midamble, Common midamble, UE specific midamble)	~~At least 1 spare value (criticality = reject) required.~~
>>Midamble Shift	CV UE		Integer(0..15)	
>Type 2				
>>Midamble Allocation Mode	MP		Enumerated (Default midamble, Common midamble, UE specific midamble)	~~At least 1 spare value (criticality = reject) required.~~
>>Midamble Shift	CV UE		Integer(0..5)	
>Type 3				
>>Midamble Allocation Mode	MP		Enumerated (Default midamble, UE specific midamble)	
>>Midamble Shift	CV UE		Integer (0..7)	NOTE: Burst Type 3 is only used in uplink.

Condition	Explanation
UE	This information element is only sent when the value of the "Midamble Allocation Mode" IE is "UE-specific midamble".

10.3.6.41 PDSCH Capacity Allocation info

NOTE: Only for TDD.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
PDSCH allocation period info	MP		Allocation Period Info 10.3.6.4	
TFCS ID	MD		Integer(1..8)	Default is 1.
CHOICE *Configuration*	MP			
>Old configuration				
>>PDSCH Identity	MP		Integer(1..HiPDSCHIdentities)	
>New configuration				
>>PDSCH Info	MP		PDSCH Info 10.3.6.43	
>>PDSCH Identity	OP		Integer(1..HiPDSCHIdentities)	
>>PDSCH power control info	OP		PDSCH power control info 10.3.6.44	

10.3.6.42 PDSCH code mapping

NOTE: Only for FDD.

This IE indicates the association between each possible value of TFCI(field 2) and the corresponding PDSCH channelisation code(s). There are three fundamentally different ways that the UTRAN must choose between in order to signal the mapping information, these are described below. The signalling capacity consumed by the different methods will vary depending on the way in which the UTRAN configures usage of the DSCH. A fourth option is also provided which allows the UTRAN to replace individual entries in the TFCI(field 2) to PDSCH code mapping table with new PDSCH code values.

There are four different signalling methods defined. The signalling method shall be selected by the UTRAN.

Method #1 - Using code range

The mapping is described in terms of a number of groups, each group associated with a given spreading factor. The UE maps TFCI(field2) values to PDSCH codes in the following way. The PDSCH code used for TFCI(field 2) = 0, is given by the SF and code number = 'PDSCH code start' of Group = 1. The PDSCH code used for TFCI(field 2) = 1, is given by the SF and code number = 'PDSCH code start' + 1. This continues, with unit increments in the value of TFCI(field 2) mapping to unit increments in code number up until the point that code number = 'PDSCH code stop'. The process continues in the same way for the next group with the TFCI(field 2) value used by the UE when constructing its mapping table starting at the largest value reached in the previous group plus one. In the event that 'PDSCH code start' = 'PDSCH code stop' (as may occur when mapping the PDSCH root code to a TFCI (field 2) value) then this is to be interpreted as defining the mapping between the channelisation code and a single TFCI (i.e., TFCI(field 2) should not be incremented twice).

Note that each value of TFCI (field 2) is associated with a given 'code number' and when the 'multi-code info' parameter is greater than 1, then each value of TFCI (field 2) actually maps to a set of PDSCH codes. In this case contiguous codes are assigned, starting at the channelisation code denoted by the 'code number' parameter and including all codes with code numbers up to and including 'code number' - 1 + the value given in the parameter 'multi-code info'.

Method #2 - Using TFCI range

The mapping is described in terms of a number of groups, each group corresponding to a given PDSCH channelisation code. The PDSCH code specified in the first group applies for all values of TFCI(field 2) between 0 and the specified 'Max TFCI(field2)'. The PDSCH code specified in the second group applies for all values of TFCI(field 2) between the 'Max TFCI(field2) value' specified in the last group plus one and the specified 'Max TFCI(field2)' in the second group. The process continues in the same way for the following groups with the TFCI(field 2) value starting at the largest value reached in the previous group plus one.

Method #3 - Explicit

The mapping between TFCI(field 2) value and PDSCH channelisation code is spelt out explicitly for each value of TFCI (field2)

Information Element/Group name	Need	Multi	Type and reference	Semantics description
DL Scrambling Code	MD		Secondary scrambling code 10.3.6.73	Scrambling code on which PDSCH is transmitted. Default is the same scrambling code as for the Primary CPICH
Choice *signalling method*	MP			
>code range				
>>PDSCH code mapping	MP	1 to < maxPDSCH-TFCIgroups >		
>>>Spreading factor	MP		Integer(4, 8, 16, 32, 64, 128, 256)	~~At least 1 spare value needed~~ ~~Criticality: reject is needed~~
>>>multi-code info	MP		Integer(1..16)	This parameter indicates the number of PDSCH transmitted to the UE. The PDSCH codes all have the same SF as denoted by the 'Spreading factor' parameter. Contiguous codes are assigned, starting at the channelisation code

Information Element/Group name	Need	Multi	Type and reference	Semantics description
				denoted by the spreading factor and code number parameter and including all codes, with code numbers up to and including 'code number' - 1 + 'multi-code info'. Note that 'code number'-1+'multi-code info' will not be allowed to exceed 'Spreading factor - 1'
>>Code number (for PDSCH code start)	MP		Integer(0..Spreading factor-1)	
>>Code number (for PDSCH code stop)	MP		Integer(0..Spreading factor-1)	
>TFCI range				
>>DSCH mapping	MP	1 to < maxPDSCH-TFCIgroups >		
>>>Max TFCI(field2) value	MP		Integer(1..1023)	This is the maximum value in the range of TFCI(field 2) values for which the specified PDSCH code applies
>>>Spreading factor (for PDSCH code)	MP		Integer(4, 8, 16, 32, 64, 128, 256)	~~At least 1 spare value needed Criticality: reject is needed~~
>>>Code number (for PDSCH code)	MP		Integer(0..Spreading factor-1)	
>>>multi-code info	MP		Integer(1..16)	Semantics as described for this parameter above
>Explicit				
>>PDSCH code info	MP	1 to < maxTFCI-2-Combs >		The first instance of the parameter *PDSCH code* corresponds to TFCI (field2) = 0, the second to TFCI(field 2) = 1and so on.
>>>Spreading factor (for PDSCH code)	MP		Integer(4, 8, 16, 32, 64, 128, 256)	~~At least 1 spare value needed Criticality: reject is needed~~
>>>Code number (for PDSCH code)	MP		Integer(0..Spreading factor-1)	
>>>multi-code info	MP		Integer(1..16)	Semantics as described for this parameter above
>Replace				This choice is made if the PDSCH code(s) associated with a given value of TFCI(field 2) is to be replaced.
>>Replaced PDSCH code	MP	1 to < maxTFCI-2-Combs >		Identity of the PDSCH code(s) to be used for the specified value of TFCI(field 2). These code identity(s) replace any that had been specified before
>>>TFCI (field 2)	MP		Integer (0..1023)	Value of TFCI(field 2) for which PDSCH code mapping will be changed
>>>Spreading factor (for PDSCH code)	MP		Integer(4, 8, 16, 32, 64, 128, 256)	
>>>Code number (for PDSCH code)	MP		Integer(0..Spreading factor-1)	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
>>>multi-code info	MP		Integer(1..16)	Semantics as described for this parameter above

10.3.6.43 PDSCH info

NOTE: Only for TDD.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
TFCS ID	MD		Integer(1..8)	TFCS to be used. Default value is 1.
Common timeslot info	OP		Common timeslot info 10.3.6.9	
PDSCH timeslots and codes	OP	1 to <maxTS>	Downlink Timeslots and Codes 10.3.6.31	Default is to use the old timeslots and codes.

10.3.6.44 PDSCH Power Control info

NOTE: Only for TDD.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
TPC Step Size	OP		Integer (1, 2, 3)	In dB
UL CCTrCH TPC List	MD	1..<maxCCTrCH>		UL CCTrCH identities for TPC commands associated with this DL CCTrCH. Default is previous list or all defined UL CCTrCHs
>UL TPC TFCS Identity	MP		Transport Format Combination Set Identity 10.3.5.21	

10.3.6.45 PDSCH system information

NOTE: Only for TDD.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
PDSCH information	MP	1 to <maxPDSCH>		
>PDSCH Identity	MP		Integer(1..HiPDSCHIdentities)	
>PDSCH info	MP		PDSCH info 10.3.6.43	
>SFN Time Info	CH-Block17		SFN Time Info 10.3.6.74	
>DSCH TFS	OP		Transport format set 10.3.5.23	
>DSCH TFCS	OP		Transport Format Combination Set 10.3.5.20	

Condition	Explanation
Block17	This IE is absent in System Information Block 17. Otherwise it is optional.

10.3.6.46 PDSCH with SHO DCH Info

NOTE: Only for FDD

Information Element/Group name	Need	Multi	Type and reference	Semantics description
DSCH radio link identifier	MP		Integer(0..511)	This parameter indicates on which radio link the user will be allocated resource on the DSCH. The CPICH scrambling code will be used for this purpose.
TFCI Combining set	OP			This is used to indicate which of the downlink TFCI(field 2) transmissions made on the DPCCHs within the active set should be soft combined on the physical layer. This parameter may only be sent if there is a 'hard' split of the TFCI field and in this case the sending of the parameter is optional.
Radio link identifier	OP	1 to <maxRL>		
>Primary CPICH info	MP		Primary CPICH info 10.3.6.59	The CPICH scrambling code is used for this purpose

10.3.6.47 Persistence scaling factors

This IE defines scaling factors associated with ASC 2 – ASC 7 (multiplicity corresponds to the number of PRACH partitions minus 2) to be applied to the dynamic persistence value. This IE shall not be present in system information if only ASC 0 and ASC 1 are defined. If it is not present for ASC >1, default persistence scaling factor 1 shall be used (see Sec. 8.5.14).

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Access Service Class		1 to maxASCpersist		
> Persistence scaling factor	MP		Real(0.9..0.2, by step of 0.1)	Scaling factors in the range 0,…,1

10.3.6.48 PICH Info

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE *mode*	MP			
>FDD				
>>Secondary scrambling code	MD		Secondary scrambling code 10.3.6.73	Default is the same scrambling code as for the Primary CPICH
>>Channelisation code	MP		Integer(0..255)	SF is fixed and equal to 256
>>Number of PI per frame	MP		Integer (18, 36 72 144)	
>>STTD indicator	MP		STTD Indicator 10.3.6.77	
>TDD				
>>Channelisation code	MD		Enumerated ((16/1)...(16/16))	Default value is the channelisation code used by the SCCPCH carrying the associated PCH.
>>Timeslot	MD		Timeslot number 10.3.6.81	Default value is the timeslot used by the SCCPCH carrying the associated PCH.
~~>>Burst type~~	~~MP~~		~~Enumerated (Typ1,Typ2)~~	
~~>>Midamble shift~~	~~MD~~		~~Midamble shift 10.3.6.40~~	~~Default value is the midamble shift used by the SCCPCH carrying the associated PCH.~~
>> CHOICE Burst Type	MP			
>>>Type 1				
>>>>Midamble Shift	MP		Integer(0..15)	
>>>Type 2				
>>>>Midamble Shift	MP		Integer(0..5)	
>>Repetition period/length	MD		Enumerated((4/2),(8/2), (8/4),(16/2), (16/4), (32/2),(32/4), (64/2),(64/4))	Default value is "(64/2)".
>>Offset	MP		Integer (0...Repetition period -1)	SFN mod Repetitionperiod = Offset.
>>Paging indicator length	MD		Integer (4, 8, 16)	Indicates the length of one paging indicator in Bits. Default value is 4.
>>N_{GAP}	MD		Integer(2, 4, 8)	Number of frames between the last frame carrying PICH for this Paging Occasion and the first frame carrying paging messages for this Paging Occasion. Default value is 4.
>>N_{PCH}	MD		Integer(1 .. 8)	Number of paging groups. Default value is 2.

10.3.6.49 PICH Power offset

NOTE: Only for FDD.

This is the power transmitted on the PICH minus power of the Primary CPICH.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
PICH Power offset	MP		Integer(-10 .. +5)	Offset in dB

10.3.6.50 PRACH Channelisation Code

NOTE: Only for TDD.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE SF	MP			
>SF16				
>>Channelisation Code List	MP	1 to 8		
>>>Channelisation code	MP		Enumerated ((16/1)...(16/16))	1:1 mapping between spreading code and midamble shift
>SF8				
>>Channelisation Code List	MP	1 to 8		
>>>Channelisation Code	MP		Enumerated((8/1)..(8/8))	

10.3.6.51 PRACH info (for RACH)

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE *mode*	MP			
>FDD				
>> Available Signature	MP		Bitstring(16)	(Note1) 0000000000000001:Signature 0 0000000000000010:Signature 1 0000000000000011:Signature 0&1 .....: 1111111111111111:Signature 0to15
>>Available SF	MP		Integer (32,64,128,256)	In chips per symbol Defines the smallest permitted SF (i.e. the maximum rate)
>>Preamble scrambling code number	MP		Integer (0 .. 15)	Identification of scrambling code see TS 25.213
>>Puncturing Limit	MP		Real(0.40..1.00 by step of 0.04)	
>> Available Sub Channel Number	MP		Bitstring(12)	(Note2) 000000000001:SubChNumber 0 000000000010:SubChNumber 1 000000000011:SubChNumber 0&1 ...: 111111111111:SubChNumber 0to11
>TDD				
>>Timeslot	MP		Timeslot number 10.3.6.81	
>>PRACH Channelisation Code	MP		PRACH Channelisation Code 10.3.6.50	
>>PRACH Midamble	OP		Enumerated (Direct, Direct/Inverted)	Direct or direct and inverted midamble are used for PRACH

NOTE 1: Each bit is 0 or 1 to indicate available signature_x, x= 0 to 15.

NOTE 2: Each bit is 0 or 1 to indicate available sub channel number _x, x= 0 to 11.

10.3.6.52 PRACH partitioning

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE mode				
>FDD				
>>Access Service class	MP	1 to maxASC		
>>>ASC Setting	MD		ASC setting 10.3.6.5	The default values are same as the previous ASC. If the "default" is used for the first ASC, the default values are all available signatures and "all available sub-channels".
>>TDD				
>>>Access Service class List	MP	1 to maxASC		List of Access Service classes
>>>>Access service class Index	MP		Integer(1..8)	
>>>>Repetition Period	MD		Integer(1, 2, 4, 8)	Default value is continuous. Value 1 indicates continuous allocation
>>>>Offset	MP		Integer(0..Repetition Period - 1)	Note that this is empty if repetition period is set to 1

The following description applies to FDD only.

The list of available signatures is renumbered from signature index 0 to signature index N-1, where N is the number of available signatures, starting with the lowest available signature number and continuing in sequence, in the order of increasing signature numbers.

- List of available signatures : 16 or less signatures are available.
- Ex : only signatures 0, 5, 10 and 15 are available, then :
- Signature 0 is : available signature index 0
- Signature 5 is : available signature index 1
- Signature 10 is : available signature index 2
- Signature 15 is : available signature index 3

The list of available access-slot sub-channels is renumbered from access-slot sub-channel index 0 to access-slot sub-channel index M-1, where M is the number of available access-slot sub-channels, starting with the lowest available access-slot sub-channel number and continuing in sequence, in the order of increasing access-slot sub-channel numbers.

- List of available Access Slot channels : 12 or less sub-channels are available.
- Ex : only sub-channels 0,1; 4,5; 8,9 are present, then :
- Sub-channel 0 is : available sub-channel index 0
- Sub-channel 1 is : available sub-channel index 1
- Sub-channel 4 is : available sub-channel index 2
- Sub-channel 5 is : available sub-channel index 3
- Sub-channel 8 is : available sub-channel index 4
- Sub-channel 9 is : available sub-channel index 5

One ASC has access to all the access-slot sub-channels between the Available sub-channel Start Index and the Available sub-channel End Index, and to all the signatures between the Available signature Start Index and the Available signature End Index.

NOTE: The above text may eventually be moved to a more appropriate location.

10.3.6.53 PRACH power offset

NOTE: Only for FDD.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Power Ramp Step	MP		Integer (1..8)	Power step when no acquisition indicator is received in dB
Preamble Retrans Max	MP		Integer (1..64)	Maximum number of preambles in one preamble ramping cycle

10.3.6.54 PRACH system information list

Information element	Need	Multi	Type and reference	Semantics description
PRACH system information	MP	1 .. <maxPRACH>		
>PRACH info	MP		PRACH info (for RACH) 10.3.6.51	
>Transport channel identity	MP		Transport channel identity 10.3.5.18	
>RACH TFS	MD		Transport format set 10.3.5.23	Default value is the value of "RACH TFS" for the previous PRACH in the list (note : the first occurrence is then MP)
>RACH TFCS	MD		Transport Format Combination Set 10.3.5.20	Default value is the value of "RACH TFCS" for the previous PRACH in the list (note : the first occurrence is then MP)
>PRACH partitioning	MD		PRACH partitioning 10.3.6.45	Default value is the value of "PRACH partitioning" for the previous PRACH in the list (note : the first occurrence is then MP)
>Persistence scaling factors	OP		Persistence scaling factors 10.3.6.47	If this IE is absent, value is the value of "Persistence scaling factors" for the previous PRACH in the list if value exists
>AC-to-ASC mapping	OP		AC-to-ASC mapping 10.3.6.1	Only present in SIB 5 If this IE is absent, value is the value of "Persistence scaling factors" for the previous PRACH in the list if value exists
>CHOICE *mode*	MP			
>>FDD				
>>>Primary CPICH TX power	MD		Primary CPICH TX power 10.3.6.60	Default value is the value of "Primary CPICH TX power" for the previous PRACH in the list (note : the first occurrence is then MP)
>>>Constant value	MD		Constant value 10.3.6.10	Default value is the value of "Constant value" for the previous PRACH in the list (note : the first occurrence is then MP)
>>>PRACH power offset	MD		PRACH power offset 10.3.6.53	Default value is the value of "PRACH power offset" for the previous PRACH in the list (note : the first occurrence is then MP)
>>>RACH transmission parameters	MD		RACH transmission parameters 10.3.6.66	Default value is the value of "RACH transmission parameters" for the previous PRACH in the list (note : the first occurrence is then MP)
>>>AICH info	MD		AICH info 10.3.6.2	Default value is the value of "AICH info" for the previous PRACH in the list (note : the first occurrence is then MP)
>>TDD				(no data)

NOTE: If the setting of the PRACH information results in that a combination of a signature, preamble scrambling code and subchannel corresponds to a RACH with a TTI of both 10 ms and 20 ms, then for that combination only the TTI of value 10 ms is valid.

10.3.6.55 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 10.3.6.88	
Downlink radio resources				
Downlink information common for all radio links			Downlink information common for all radio links Pre 10.3.6.25	

10.3.6.56 Primary CCPCH info

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE *mode*	MP			
>FDD				
>>TX Diversity indicator	MP		Boolean	
>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		Cell parameters Id 10.3.6.8	The Cell parameters ID is described in 25.223.
>>Block STTD indicator	MP		Block STTD indicator 10.3.6.6	

10.3.6.57 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		Cell parameters Id 10.3.6.8	The Cell parameters ID is described in 25.223.
Block STTD indicator	MP		Block STTD indicator 10.3.6.5	

10.3.6.58 Primary CCPCH TX Power

NOTE: Only for TDD.

Information Element/group name	Need	Multi	Type and reference	Semantics description
Primary CCPCH Tx Power	MP		Integer(6..43)	In dBm

10.3.6.59 Primary CPICH info

NOTE: Only for FDD.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Primary scrambling code	MP		Integer(0..511)	

10.3.6.60 Primary CPICH Tx power

NOTE: Only for FDD.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Primary CPICH Tx Power	MP		Integer(-10..50)	~~At least 3 spare values are needed for future extensions with criticality reject~~

10.3.6.61 Primary CPICH usage for channel estimation

NOTE: Only for FDD.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Primary CPICH usage for channel estimation	MP		Enumerated(Primary CPICH may be used, Primary CPICH shall not be used)	

10.3.6.62 PUSCH info

NOTE: Only for TDD.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
TFCS ID	MD		Integer(1..8)	Default value is 1
Common timeslot info	OP		Common timeslot info 10.3.6.9	
PUSCH timeslots and codes	OP	~~1 to <maxTS>~~	Uplink Timeslots and Codes 10.3.6.92	

10.3.6.63 PUSCH Capacity Allocation info

NOTE: Only for TDD.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE PUSCH allocation	MP			
>PUSCH allocation pending				(no data)
>PUSCH allocation assignment				
>>PUSCH allocation period info	MP		Allocation Period Info 10.3.6.4	
>>PUSCH power control info	OP		PUSCH power control info 10.3.6.64	
>>TFCS ID	MD		Integer(1..8)	Default is 1.
>>CHOICE *Configuration*	MP			
>>>Old configuration				
>>>>PUSCH Identity	MP		Integer(1..HiPUSCHIdentities)	
>>>New configuration				
>>>>PUSCH info	MP		PUSCH info 10.3.6.62	
>>>>PUSCH Identity	OP		Integer(1..maxPDSCHIdentity)	

10.3.6.64 PUSCH power control info

NOTE: Only for TDD.

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

Information Element/Group name	Need	Multi	Type and reference	Semantics description
UL target SIR	MP		Real (-11 .. 20 by step of 0.5)	in dB

10.3.6.65 PUSCH system information

NOTE: Only for TDD.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
PUSCH information	MP	1 to <maxPUSCH>		
>PUSCH Identity	MP		Integer(1..HiPUSCHIdentities)	
>PUSCH info	MP		PUSCH info 10.3.6.62	
>SFN Time Info	CH-Block17		SFN Time Info 10.3.6.74	
>USCH TFS	OP		Transport format set 10.3.5.23	
>USCH TFCS	MP		Transport Format Combination	

			Set 10.3.5.20	

Condition	Explanation
Block17	This IE is absent in System Information Block 17. Otherwise it is optional.

10.3.6.66 RACH transmission parameters

NOTE: Only for FDD.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Mmax	MP		Integer(1..32)	Maximum number of preamble cycles
NB01min	MP		Integer(0..50)	Sets lower bound for random back-off
NB01max	MP		Integer(0..50)	Sets upper bound for random back-off

10.3.6.67 Radio link addition information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Primary CPICH info	MP		Primary CPICH info 10.3.6.59	
Downlink DPCH info for each RL	MP		Downlink DPCH info for each RL 10.3.6.20	
TFCI combining indicator	OP		TFCI combining indicator 10.3.6.79	
SCCPCH Information for FACH	OP		SCCPCH Information for FACH 10.3.6.69	Note 1

NOTE 1: These IEs are present when the UE needs to listen to system information on FACH in CELL_DCH state.

10.3.6.68 Radio link removal information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Primary CPICH info	MP		Primary CPICH info 10.3.6.59	

10.3.6.69 SCCPCH Information for FACH

Secondary CCPCH info	MP		Secondary CCPCH info 10.3.6.70	
TFCS	MP		Transport format combination set 10.3.5.203	For FACHs and PCH
FACH/PCH information	MP	1 to <maxFACHPCH>		
>TFS	MP		Transport format set 10.3.5.23	For each FACHs and PCH
References to system information blocks	MP	1 to <maxSIB-FACH>		
>Scheduling information	MP		Scheduling information 10.3.8.12	
>SIB type SIBs only	MP		SIB Type SIBs only, 10.3.8.17a	

10.3.6.70 Secondary CCPCH info

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 10.3.6.61	
>>Secondary CPICH info	OP		Secondary CPICH info 10.3.6.72	
>>Secondary scrambling code	MD		Secondary scrambling code 10.3.6.73	Default is the same scrambling code as for the Primary CPICH
>>STTD indicator	MD		STTD Indicator 10.3.6.77	Default value is "TRUE"
>>Spreading factor	MP		Integer(4, 8, 16, 32, 64, 128, 256)	
>>Code number	MP		Integer(0..Spreading factor - 1)	
>>Pilot symbol existence	MD		Boolean	TRUE means the existence. Default value is "TRUE"
>>TFCI existence	MD		Boolean	TRUE means the existence. Default value is "TRUE"
>>Fixed or Flexible Position	MD		Enumerated (Fixed, Flexible)	Default value is "Flexible"
>>Timing Offset	MD		Integer(0..38144 by step of 256)	Chip Delay of the Secondary CCPCH relative to the Primary CCPCH. Default value is 0.
>TDD				
>>Offset	MD		Integer (0...Repetition Period -1)	SFN modulo Repetition period = offset. Repetition period is the one indicated in the accompanying Common timeslot info IE
>>Common timeslot info	MP		Common timeslot info 10.3.6.9	
>>Individual timeslot info	MP		Individual timeslot info 10.3.6.36	
>>Code List	MP	1..<maxCodesCount>		
>>>Channelisation Code	MP		Enumerated((16/1)..(16/16))	

10.3.6.71 Secondary CCPCH system information

Information element	Need	Multi	Type and reference	Semantics description
Secondary CCPCH system information	MP	1 to <maxSCCPCH>		
>Secondary CCPCH info	MP		Secondary CCPCH info 10.3.6.70	Note 1
>TFCS	MD		Transport format set 10.3.5.23	For FACHs and PCH Default value is the value of "TFCS" for the previous SCCPCH in the list (note : the first occurrence is then MP)
>FACH/PCH information	MD	1 to <maxFACHPCH>		Default value is the value of "FACH/PCH" for the previous SCCPCH in the list (note : the first occurrence is then MP)
>>Transport channel identity	MP		Transport channel identity 10.3.5.18	
>>TFS	MP		Transport format set 10.3.5.23	For each FACH and PCH Note 2
>>CTCH indicator	MP		Boolean	The value "TRUE" indicates that a CTCH is mapped on the FACH, and "FALSE" that no CTCH is mapped.
>PICH info	OP		PICH info 10.3.6.48	PICH info is present only when PCH is multiplexed on Secondary CCPCH

NOTE 1: The secondary CCPCHs carrying a PCH shall be listed first.

NOTE 2: TFS for PCH shall be the first "FACH/PCH information" in the list if a PCH exists for the respective secondary CCPCH.

10.3.6.72 Secondary CPICH info

NOTE: Only for FDD.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Secondary scrambling code	MD		Secondary scrambling code 10.3.6.73	Default is the same scrambling code as for the Primary CPICH
Channelisation code	MP		Integer(0..255)	SF=256

10.3.6.73 Secondary scrambling code

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Secondary scrambling code	MP		Integer(1..15)	~~At least 1 spare value needed~~ ~~Criticality: reject is needed~~

10.3.6.74 SFN Time info

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Activation time SFN	MP		Integer (0..4095)	System frame number start of the physical channel existence.
Duration	MP		Integer(1..4096)	Total number of frames the physical channel will exist.

10.3.6.75 SSDT cell identity

NOTE: Only for FDD.

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

Information Element/Group name	Need	Multi	Type and reference	Semantics description
SSDT cell id	MP		Enumerated (a, b, c, d, e, f, g, h)	

10.3.6.76 SSDT information

NOTE: Only for FDD.

This information element indicates the status (e.g. initiated/terminated) of the Site Selection.

Diversity Transmit power control (SSDT). It is used to change the SSDT status. The parameter 'code word set' indicates how cell identities are coded (using many bits or few, values are long, medium, or short).

Information Element/Group name	Need	Multi	Type and reference	Semantics description
S field	MP		Integer (1, 2)	in bits
Code Word Set	MP		Enumerated (long, medium, short, SSDT off)	

NOTE: These parameters shall be set optionally associated with DL DPCH info but not for each RL.

10.3.6.77 STTD indicator

Indicates whether STTD is used or not.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
STTD Indicator	MP		Boolean	TRUE means that STTD is used

10.3.6.78 TFC Control duration

Information Element/Group name	Need	Multi	Type and reference	Semantics description
TFC Control duration	MP		Integer (1, 2, 4, 8, 16, 24, 32, 48, 64, 128, 192, 256, 512)	Defines the period in multiples of 10 ms frames for which the defined TFC sub-set is to be applied. ~~At least 3 spare values for future extensions with criticality reject are needed.~~

10.3.6.79 TFCI Combining Indicator

NOTE: Only for FDD.

This IE indicates whether the TFCI (field 2) which will be transmitted on the DPCCH of a newly added radio link should be soft combined with the others in the TFCI (field 2) combining set. This IE can only be sent when the UE is in CELL_DCH state with a DSCH transport channel assigned and when there is a 'hard' split in the TFCI field (such that TFCI1 and TFCI2 have their own separate block coding).

Information Element/Group name	Need	Multi	Type and reference	Semantics description
TFCI combining indicator	MP		Boolean	TRUE means that TFCI is combined

10.3.6.80 TGPSI

Information Element/Group name	Need	Multi	Type and reference	Semantics description
TGPSI	MP		Integer(1..MaxTGPS)	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.

10.3.6.81 Time info

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Activation time	MD		Activation time 10.3.3.1	Frame number start of the physical channel existence. Default value is "Now"
Duration	MD		Integer(1..4096, infinite)	Total number of frames the physical channel will exist. Default value is "infinite".

10.3.6.82 Timeslot number

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Timeslot number	MP		Integer(0..14)	Timeslot within a frame

10.3.6.83 TPC combination index

NOTE: Only for FDD.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
TPC combination index	MP		Integer(0..5)	Radio links with the same index have TPC bits, which for the UE are known to be the same.

10.3.6.84 TX Diversity Mode

NOTE: Only for FDD.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Tx diversity Mode	MP		Enumerated (none, STTD, closed loop mode1, closed loop mode2)	

10.3.6.85 UL interference

Information Element/Group name	Need	Multi	Type and reference	Semantics description
UL interference	MP		Integer (-110..-70)	In dBm ~~At least 23 spare values with criticality reject are needed~~

NOTE: In TDD, this IE is a timeslot specific value.

10.3.6.86 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 10.3.6.89	
CHOICE *mode*	MP			
>FDD				
>>Scrambling code type	MP		Enumerated(short, long)	
>>Scrambling code number	MP		Integer(0..16 777215)	
>>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 Control	OP		Uplink Timing Advance Control 10.3.6.94	
>>UL CCTrCH List	MP	1 to <maxCCTrCH>		
>>>TFCS ID	MD		Integer(1..8)	Default value is 1.
>>>Time info	MP		Time info 10.3.6.81	
>>>Common timeslot info	MD		Common timeslot info 10.3.6.9	Default is the current Common timeslot info
>>>Uplink DPCH timeslots and codes	MD		Uplink Timeslots and Codes 10.3.6.92	Default is to use the old timeslots and codes.

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

10.3.6.87 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 10.3.6.90	
CHOICE *mode*	MP			
>FDD				
>>Scrambling code type	MP		Enumerated(short, long)	
>>Reduced scrambling code number	MP		Integer(0..81 91)	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				
>>Uplink Timing Advance Control	OP		Uplink Timing Advance Control 10.3.6.94	
>>Uplink DPCH timeslots and codes	MP		Uplink Timeslots and Codes 10.3.6.92	

10.3.6.88 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 10.3.6.91	
CHOICE *mode*	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				
>>Common timeslot info	MP		Common Timeslot Info 10.3.6.9	

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

10.3.6.89 Uplink DPCH power control info

Parameters used by UE to set DPCH initial output power and to use for closed-loop power control in FDD and parameters for uplink open loop power control in TDD.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE *mode*	MP			
>FDD				
>>DPCCH Power offset	MP		Integer(-164,..-6 by step of 2)	In dB
>>PC Preamble	MP		Integer (0, 15)	
>>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				
>>UL target SIR	MP		Real (-11 .. 20 by step of 0.5dB)	In dB
>>CHOICE UL OL PC info	MP			
>>>Broadcast UL OL PC info			Null	No data
>>>Individually Signalled	OP			
>>>>Individual timeslot interference info	MP	1 to <maxTS>		
>>>>> Individual timeslot interference	MP		Individual timeslot interference 10.3.6.37	
>>>>DPCH Constant Value	OP		Constant Value 10.3.6.10	Quality Margin
>>>>Primary CCPCH Tx Power	OP		Primary CCPCH Tx Power 10.3.6.58	For Pathloss Calculation

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

10.3.6.90 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 *mode*	MP			
>FDD				
>>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				
>>UL target SIR	MP		Real (-11 .. 20 by step of 0.5dB)	In dB
>>UL Timeslot Interference	MP		UL Interference 10.3.6.85	

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

10.3.6.91 Uplink DPCH power control info Pre

Parameters used by UE to set DPCH initial output power and to use for closed-loop power control in FDD and parameters for uplink open loop power control in TDD.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE *mode*	MP			
>FDD				
>>DPCCH Power offset	MP		Integer(-164..-6 by step of 2)	In dB
>>PC Preamble	MP		Integer (0, 15)	
>TDD				(No data)
>>DPCH Constant Value	MP		Constant Value 10.3.6.10	Quality Margin

Condition	Explanation
Algo	The IE is mandatory if "Power Control Algorithm" is set to "algorithm 1", otherwise the IE is not needed

10.3.6.92 Uplink Timeslots and Codes

NOTE: Only for TDD

Information Element/Group name	Need	Multi	Type and reference	Semantics description
First Individual timeslot info	MP		Individual timeslot info 10.3.6.36	Individual timeslot info for the first timeslot used by the physical layer.
First timeslot Code List	MP	1..2		Code list used in the timeslot. given in First individual timeslot info.
>Channelisation Code	MP		Enumerated((1/1),)(2/1),(2/2),(4/1)..(4/ 4),(8/1)..(8/8) ,(16/1)..(16/1 6))	
CHOICE *more timeslots*	MP			
>No more timeslots				(no data)
>Consecutive timeslots				
>>Number of additional timeslots	MP		Integer(1..m axTS-1)	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.
>Timeslot list				
>>Additional timeslot list	MP	1 to <maxTS-1>		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.
>>>CHOICE *parameters*	MP			
>>>>Same as last				
>>>>>Timeslot number	MP		Timeslot Number 10.3.6.81	This physical layer shall use the same parameters (e.g. channelisation codes, midamble shifts etc.) for this timeslot as for the last one.
>>>>New parameters				
>>>>>Individual timeslot info	MP		Individual timeslot info 10.3.6.36	
>>>>>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)..(16/1 6))	

10.3.6.93 Uplink Timing Advance

NOTE: Only for TDD.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
UL Timing Advance	MP		Integer (0..63)	Absolute timing advance value to be used to avoid large delay spread at the NodeB

10.3.6.94 Uplink Timing Advance Control

NOTE: Only for TDD

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE Timing Advance	MP			
>Disabled			Null	Indicates that no timing advance is applied
>Enabled				
>>UL Timing Advance	MD		Uplink Timing Advance 10.3.6.93	Absolute timing advance value to be used to avoid large delay spread at the NodeB. Default value is the existing value for uplink timing advance.
>>Activation Time	OP		Activation Time 10.3.3.1	Frame number timing advance is to be applied. This IE is required when a new UL Timing Advance adjustment is specified and Activation Time is not otherwise specified in the RRC message.

10.3.7 Measurement Information elements

10.3.7.1 Additional measurements list

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Additional measurements	MP	1 to <MaxAdditionalMeas>		
>Additional measurement identity	MP		Measurement identity number 10.3.7.73	

10.3.7.2 Cell info

Includes non-frequency related cell info used in the IE "inter-frequency cell info list" and "intra frequency cell info list".

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Cell individual offset	MD		Real(-10..10 by step of 0.5)	In dB Default value is 0 dB Used to offset measured quantity value
Reference time difference to cell	OP		Reference time difference to cell 10.3.7.85	In chips. This IE is absent for serving cell.
CHOICE *mode*	MP			
>FDD				
>>Primary CPICH info	OP		Primary CPICH info 10.3.6.59	This IE is absent only if measuring RSSI only (broadband measurement.)
>>Primary CPICH Tx power	OP		Primary CPICH Tx power 10.3.6.60	Required if calculating pathloss.
>>Read SFN indicator	MP		Boolean	TRUE indicates that read of SFN is requested for the target cell
>>TX Diversity Indicator	MP		Boolean	
>TDD				
>>Primary CCPCH info	MP		Primary CCPCH info 10.3.6.56	
>>Primary CCPCH TX power	OP		Primary CCPCH TX power 10.3.6.58	
>> Timeslot list	OP	1 to <maxTS>		The UE shall report Timeslot ISCP values according the order of the listed Timeslot numbers
>>>Timeslot number	MP		Integer (0...14)	Timeslot numbers, for which the UE shall report Timeslot ISCP
>>>Burst Type	MD		Enumerated (Type1, Type2)	Use for Timeslot ISCP measurements only. Default value is "Type1"
Cell Selection and Re-selection Info	CV-BCHopt		Cell Selection and Re-selection for SIB11/12Info 10.3.2.4	Only when sent in system information. This IE is absent for serving cell. For neighbouring cell, if HCS is not used and all the parameters in cell selection and re-selection info are default value, this IE is absent.

10.3.7.3 Cell measured results

Includes non frequency related measured results for a cell.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Cell Identity	OP		Cell Identity 10.3.2.2	
SFN-SFN observed time difference	OP		SFN-SFN observed time difference 10.3.7.88	
CFN-SFN observed time difference	OP		CFN-SFN observed time difference 10.3.7.6	~~Note 2~~
CHOICE *mode*	MP			
>FDD				
>>Primary CPICH info	MP		Primary CPICH info 10.3.6.59	
>>CPICH Ec/N0	OP		Integer(-20..0)	In dB
>>CPICH RSCP	OP		Integer(-115..-40)	In dBm
>>Pathloss	OP		Integer(46..158)	In dB
>TDD				
>>Cell parameters Id	MP		Cell parameters Id 10.3.6.8	
>>Primary CCPCH RSCP	OP		Primary CCPCH RSCP info 10.3.7.79	
>>Pathloss	OP		Integer(46..158)	In dB
>> Timeslot list	OP	1 to < maxTS>		
>>>Timeslot ISCP	MP		Timeslot ISCP Info 10.3.7.90	The UE shall report the Timeslot ISCP in the same order as indicated in the cell info

~~NOTE 1: Feasibility of performing these measurements with compressed mode is unclear.~~

10.3.7.4 Cell measurement event results

Includes non frequency related cell reporting quantities.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE *mode*	MP			
>FDD				
>>Primary CPICH info	MP	1 to <maxCellMeas>	Primary CPICH info 10.3.6.59	
>TDD				
>>Primary CCPCH info	MP	1 to <maxCellMeas>	Primary CCPCH info 10.3.6.56	

10.3.7.5 Cell reporting quantities

Includes non frequency related cell reporting quantities.

For all boolean types TRUE means inclusion in the report is requested.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
SFN-SFN observed time difference	MP		Enumerated(No report, type 1, type 2)	
CFN-SFN observed time difference	MP		Boolean	
Cell Identity	MP		Boolean	
CHOICE *mode*	MP			
>FDD				
>>CPICH Ec/N0	MP		Boolean	
>>CPICH RSCP	MP		Boolean	
>>Pathloss	MP		Boolean	
>TDD				
>>Timeslot ISCP	MP		Boolean	
>>Primary CCPCH RSCP	MP		Boolean	
>>Pathloss	MP		Boolean	

10.3.7.6 CFN-SFN observed time difference

The measured time difference to cell indicates the time difference that is measured by UE between RLC Transparent Mode COUNT-C in the UE and the SFN of the target neighbouring cell. It is notified to SRNC by Measurement Report message or Measurement Information Element in other RRC messages

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE mode	MP			
>FDD				
>>CFN-SFN observed time difference	MP		Integer(0.. 157286399)	Number of chips
>TDD				
>> CFN-SFN observed time difference	MP		Integer(0..4095)	Number of frames

NOTE: This measurement is only used in TDD when cells are not SFN synchronised

10.3.7.7 Event results

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE event result	MP			
>Intra-frequency measurement event results			Intra-frequency measurement event results 10.3.7.37	
>Inter-frequency measurement event results			Inter-frequency measurement event results 10.3.7.17	
>Inter-system measurement event results			Inter-system measurement event results 10.3.7.28	For IS-2000 results, include fields of the *Pilot Strength Measurement Message* from subclause 2.7.2.3.2.5 of TIA/EIA/IS-2000.5
>Traffic volume measurement event results			Traffic volume measurement event results 10.3.7.94	
>Quality measurement event results			Quality measurement event results 10.3.7.82	
>UE internal measurement event results			UE internal measurement event results 10.3.7.103	
>LCS measurement event results			LCS measurement event results 10.3.7.58	

CHOICE *event result*	**Condition under which the given *event result* is chosen**
Intra-frequency measurement event results	If measurement type = intra-frequency measurement
Inter-frequency measurement event results	If measurement type = inter-frequency measurement
Inter-system measurement event results	If measurement type = inter-system measurement
Traffic volume measurement event results	If measurement type = traffic volume measurement
Quality measurement event results	If measurement type = Quality measurement
UE internal measurement event results	If measurement type = UE internal measurement
LCS measurement event results	If measurement type = LCS measurement

10.3.7.8 FACH measurement occasion info

This IE is for FDD only.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
k_UTRA	MP		UTRAN DRX cycle length coefficient 10.3.3.47	Default value is the existing value of UTRAN DRX cycle length coefficient
Other RAT present in inter-system cell info	OP	1 to <maxOtherRAT>		
>RAT type	MP		Enumerated(GSM, IS2000)	~~At least 14 spare values, Criticality: Reject, are needed~~
>k_Inter_Rat	MP		Integer(0..12)	

10.3.7.9 Filter coefficient

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Filter coefficient	MD		Integer(0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 11, 13, 15, 17, 19)	Default value is 0 ~~At least one, criticality: reject, spare value needed for future extension~~

10.3.7.10 HCS Cell re-selection information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Penalty_time	MD		Integer(0, 10, 20, 30, 40, 50, 60)	Default value is 0 which means = not used In seconds
Temporary_offsets	CV-*Penalty used*			
>Temporary_offset1			Integer(10, 20, 30, 40, 50, 60, 70, infinity)	In seconds
>Temporary_offset2	*CV-FDD-Quality-Measure*		Integer(10, 20, 30, 40, 50, 60, 70, infinity)	Default value is Temporary_offset1

Condition	Explanation
Penalty used	Not allowed if IE Penalty time equals 'not used' else MP
FDD-Quality-Measure	Presence is not allowed if the IE "Cell_selection_and_reselection_quality_measure" has the value CPICH RSCP, otherwise the IE is mandatory and has a default value.

10.3.7.11 HCS neighbouring cell information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
HCS_PRIO	MD		Integer (0..7)	Default value = 0
Q_{HCS}	MD		Integer (-0..99)	Default value = 0
HCS Cell Re-selection Information	OP		HCS Cell Re-selection Information 10.3.7.10	

10.3.7.12 HCS Serving cell information

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
HCS_PRIO	MD		Integer (0..7)	Default value = 0
Q_{HCS}	MD		Integer(0..99)	Default value = 0
T_{CRmax}	MD		Integer(0, 30, 60, 120, 180, 240)	[s] Default value is 0 which means = not used
N_{CR}	CV-*UE speed detector*		Integer(1..16)	Default value = 8
$T_{CrmaxHyst}$	CV-*UE speed detector*		Integer(0, 10..70 by step of 10)	[s] Default value is 0 which means = not used

Condition	Explanation
UE Speed detector	Not allowed if T_{Crmax} equals 'not used' else MP

10.3.7.13 Inter-frequency cell info list

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

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE Inter-frequency cell removal	MP			
> Remove all inter-frequency cells				No data
> Remove some inter-frequency cells				
>>Removed inter-frequency cells	~~O~~MP	1 .. <maxCellMeas>		
>>>Inter-frequency cell id	MP		Integer(0 .. <MaxInterCells>)	
> No inter-frequency cells removed				No data
New inter-frequency cells	OP	1 to <maxCellMeas>		
>Inter-frequency cell id	MD		Integer(0 .. <MaxInterCells>)	The first inter-frequency cell in the list corresponds to inter-frequency cell id 0, the second corresponds to inter-frequency cell id 1 etc
>Frequency info	MD		Frequency info 10.3.6.35	Default value is the value of the previous "frequency info" in the list (note : the first occurrence is then MP)
>Cell info	MP		Cell info 10.3.7.2	

10.3.7.14 Inter-frequency event identity

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Inter-frequency event identity	MP		Enumerated(2a, 2b, 2c, 2d, 2e, 2f)	

10.3.7.15 Inter-frequency measured results list

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Inter-frequency measurement results	OP	1 to <maxFreq>		
>Frequency info	MD		Frequency info 10.3.6.35	Default value is the value of the previous "frequency info" in the list (note : the first occurrence is then MP)
>UTRA carrier RSSI	OP		Integer(-95..-30)	In dBm
>Inter-frequency cell measurement results	OP	1 to <maxCellMeas>		
>>Cell measured results	MP		Cell measured results 10.3.7.3	

10.3.7.16 Inter-frequency measurement

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Inter-frequency cell info list	MP		Inter-frequency cell info list 10.3.7.13	Measurement object
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	CV-*reporting*		Reporting cell status 10.3.7.86	
Measurement validity	OP		Measurement validity 10.3.7.76	
Inter-frequency set update	OP		Inter-frequency set update 10.3.7.22	
CHOICE report criteria	MP			
>Intra-frequency measurement reporting criteria			Intra-frequency measurement reporting criteria 10.3.7.39	
>Inter-frequency measurement reporting criteria			Inter-frequency measurement reporting criteria 10.3.7.19	
>Periodical reporting criteria			Periodical reporting criteria 10.3.7.78	
>No reporting				(no data) Chosen when this measurement only is used as additional measurement to another measurement

Condition	Explanation
reporting	This IE is optional if the CHOICE "report criteria" is equal to "periodical reporting criteria" or "No reporting", otherwise the IE is not needed

10.3.7.17 Inter-frequency measurement event results

This IE contains the measurement event results that are reported to UTRAN for inter-frequency measurements.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Inter-frequency event identity	MP		Inter-frequency event identity 10.3.7.~~3~~14	
Inter-frequency cells	OP	1 to <maxFreq>		
>Frequency info	MP		Frequency info 10.3.6.35	
>Non frequency related measurement event results	MP		Cell measurement event results 10.3.7.4	

10.3.7.18 Inter-frequency measurement quantity

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

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE *reporting criteria*	MP			
>Intra-frequency reporting criteria				
>>Intra-frequency measurement quantity	MP		Intra-frequency measurement quantity 10.3.7.38	
>Inter-frequency reporting criteria				
>>Filter coefficient	MP		Filter coefficient 10.3.7.9	
>>CHOICE *mode*	MP			
>>>FDD				
>>>>Measurement quantity for frequency quality estimate	MP		Enumerated(CPICH Ec/N0, CPICH RSCP)	
>>>TDD				
>>>>Measurement quantity for frequency quality estimate	MP		Enumerated(Primary CCPCH RSCP)	

10.3.7.19 Inter-frequency measurement reporting criteria

The triggering of the event-triggered reporting for an inter-frequency measurements. All events concerning inter-frequency measurements are labelled 2x where x is a,b,c..

Event 2a: Change of best frequency.

Event 2b: The estimated quality of the currently used frequency is below a certain threshold **and** the estimated quality of a non-used frequency is above a certain threshold.

Event 2c: The estimated quality of a non-used frequency is above a certain threshold.

Event 2d: The estimated quality of the currently used frequency is below a certain threshold.

Event 2e: The estimated quality of a non-used frequency is below a certain threshold.

Event 2f: The estimated quality of the currently used frequency is above a certain threshold.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Parameters required for each event	OP	1 to <maxMeasEvent>		
>Inter-frequency event identity	MP		Inter-frequency event identity 10.3.7.14	
>Threshold used frequency	CV – clause 0		Integer(-115..0)	Ranges used depend on measurement quantity. CPICH Ec/No -24..0dB CPICH/Primary CCPCH RSCP -115..-25dBm
>W used frequency	CV – clause 0		Real(0, 0.1..2.0 by step of 0.1)	
>Hysteresis	MP		Real(0, 0.5..14.5 by step of 0.5)	In event 2a, 2b, 2c, 2d, 2e, 2f
>Time to trigger	MP		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.
~~>Amount of reporting~~	~~MP~~		~~Integer(1, 2, 4, 8, 16, 32, 64, infinity)~~	
~~>Reporting interval~~	~~MP~~		~~Integer(0, 250, 500, 1000, 2000, 4000, 8000, 16000)~~	~~Indicates the interval of periodical reporting when such reporting is triggered by an event. A zero value indicates that event triggered periodical reporting shall not be applied. Interval in milliseconds~~
>Reporting cell status	OP		Reporting cell status 10.3.7.86	
>Parameters required for each non-used frequency	OP	1 to <maxFreq>		
>>Threshold non used frequency	CV – clause 1		Integer(-115..0)	Ranges used depend on measurement quantity. CPICH Ec/No -24..0dB CPICH/Primary CCPCH RSCP -115..-25dBm
>>W non-used frequency	CV-clause 1		Real(0, 0.1..2.0 by step of 0.1)	

Condition	Explanation
Clause 0	2a,2b, 2d, or 2f, otherwise the IE is not needed
Clause 1	The IE is mandatory in if "inter frequency event identity" is set to 2a, 2b, 2c or 2^e, otherwise the IE is not needed

10.3.7.20 Inter-frequency measurement system information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
~~Inter-frequency measurement identity number~~	~~MD~~		~~Measurement identity number 10.3.7.73~~	~~The inter-frequency measurement identity number has default value 2.~~
Inter-frequency cell info list	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 measurement reporting criteria~~	~~OP~~		~~Inter-frequency measurement reporting criteria 10.3.7.19~~	

10.3.7.21 Inter-frequency reporting quantity

Information Element/Group name	Need	Multi	Type and reference	Semantics description
UTRA Carrier RSSI	MP		Boolean	TRUE means report is requested
Frequency quality estimate	MP		Boolean	TRUE means that report is requested
Non frequency related cell reporting quantities	MP		Cell reporting quantities 10.3.7.5	

10.3.7.22 Inter-frequency SET UPDATE

NOTE: Only for FDD.

Contains the changes of the active set associated with a non-used frequency. This information makes it possible to use events defined for Intra-frequency measurement within the same non-used frequency for Inter-frequency measurement reporting criteria. This information also controls if the UE should use autonomous updating of the active set associated with a non-used frequency.

Information Element/group name	Need	Multi	Type and reference	Semantics description
UE autonomous update mode	MP		Enumerated (On, On with no reporting, Off)	
Non autonomous update mode	CV-Update			
>Radio link addition information	OP	1 to <maxRL>		Radio link addition information required for each RL to add
>>Primary CPICH info	MP		Primary CPICH info 10.3.6.59	Note 1
>Radio link removal information	OP	1 to <MaxRL>		Radio link removal information required for each RL to remove
>>Primary CPICH info	MP		Primary CPICH info 10.3.6.59	Note 1

Condition	Explanation
Update	The IE is mandatory if IE"UE autonomous update mode" is set to "Off", otherwise the IE is not needed.

NOTE 1: If it is assumed that CPICH downlink scrambling code is always allocated with sufficient reuse distances, CPICH downlink scrambling code will be enough for designating the different radio links.

10.3.7.23 Inter-system cell info list

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

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE Inter-system cell removal	MP			
> Remove all inter-system cells				No data
> Remove some inter-system cells				
>>Removed inter-system cells	~~O~~MP	1 to <maxCellMeas>		
>>>Inter-system cell id	MP		Integer(0 .. <maxCellMeas> - 1)	
> Remove no inter-system cells				No data
New inter-system cells	OP	1 to <maxCellMeas>		
>Inter-system cell id	MD		Integer(0 .. <maxCellMeas> - 1)	The first inter-system cell in the list corresponds to inter-system cell id 0, the second corresponds to inter-system cell id 1 etc.
>CHOICE *Radio Access Technology*	MP			~~At least one spare choice, Criticality: Reject, is needed.~~
>>GSM				
~~>>>Qoffset$_{s,n}$~~	~~MD~~		~~Integer (-50..50)~~	~~Default value if the value of the previous Qoffset$_{s,n}$ in the list (NOTE: the first occurrence is then MP)~~
~~>>>HCS Neighbouring cell information~~	~~OP~~		~~HCS Neighbouring cell information 10.3.7.11~~	
~~>>>Qrxlevmin~~	~~MP~~			
~~>>>Maximum allowed UL TX power~~	~~MP~~		~~Maximum allowed UL TX power 10.3.6.38~~	
>>> Cell selection and re-selection info	CV-BCHopt		Cell selection and re-selection info for SIB11/12 10.3.2.4	Only when sent in system information. If HCS is not used and all the parameters in cell selection and re-selection info are default values, this IE is absent.
>>> BSIC	MP		BSIC 10.3.8.2	
>>>BCCH ARFCN	MP		Integer (0..1023)	GSM TS 04.18
>>>Output power	OP			
>>IS-2000				
>>>System specific measurement info			enumerated (frequency, timeslot, colour code, output power, PN offset)	For IS-2000, use fields from TIA/EIA/IS-2000.5, Section 3. 7.3.3.2.27, *Candidate Frequency ~~Neighbor~~ Neighbour List Message*

10.3.7.24 Inter-system event identity

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Inter-system event identity	MP		Enumerated (3a, 3b, 3c, 3d)	

10.3.7.25 Inter-system info

Inter-system info defines the target system for redirected cell selection.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Inter-system info	MP		Enumerated (GSM)	~~At least 1 spare value, criticality = reject, required~~

10.3.7.26 Inter-system measured results list

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Inter-system measurement results	OP	1 to <maxOtherRAT>		
>CHOICE system				At least one spare value needed.~~, criticality = reject, required~~
>>GSM				
>>>Frequency	MP			
>>>GSM carrier RSSI	OP		bit string(6)	RXLEV GSM TS 05.08
>>>Pathloss	OP		Integer(46..158)	In dB
>>>BSIC	OP		BSIC 10.3.8.2	
>>>Observed time difference to GSM cell	OP		Observed time difference to GSM cell 10.3.7.77	

10.3.7.27 Inter-system measurement

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Inter-system cell info list	OP		Inter-system cell info list 10.3.7.23	Measurement object
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	CV-*reporting*		Reporting cell status 10.3.7.86	
CHOICE report criteria	MP			
>Inter-system measurement reporting criteria			Inter-system measurement reporting criteria 10.3.7.30	
>Periodical reporting criteria			Periodical reporting criteria 10.3.7.78	
>No reporting				(no data) Chosen when this measurement only is used as additional measurement to another measurement

Condition	Explanation
reporting	This IE is optional if the CHOICE "report criteria" is equal to "periodical reporting criteria" or "No reporting", otherwise the IE is not needed

10.3.7.28 Inter-system measurement event results

This IE contains the measurement event results that are reported to UTRAN for inter-system measurements.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Inter-system event identity	MP		Inter-system event identity 10.3.7.24	
Cells to report	MP	1 to <maxCellMeas>		
>Frequency	MP			
>BSIC	MP		BSIC 10.3.8.2	

10.3.7.29 Inter-system measurement quantity

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

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Measurement quantity for UTRAN quality estimate	~~MP~~OP		Intra-frequency measurement quantity 10.3.7.38	
CHOICE *system*	MP			
>GSM				
>>Measurement quantity	MP		Enumerated(GSM Carrier RSSI, Pathloss)	
>>Filter coefficient	MP		Filter coefficient 10.3.7.9	
>>BSIC verification required	MP		Enumerated(required, not required)	~~Note 1~~
>IS2000				
>>TADD E_c/I_0	MP		Integer(0..63)	Admission criteria for neighbours, see subclause 2.6.6.2.6 of TIA/EIA/IS-2000.5
>>TCOMP E_c/I_0	MP		Integer(0..15)	Admission criteria for neighbours, see subclause 2.6.6.2.5.2 of TIA/EIA/IS-2000.5
>>SOFT SLOPE	OP		Integer(0..63)	Admission criteria for neighbours, see subclause 2.6.6.2.3 and 2.6.6.2.5.2 of TIA/EIA/IS-2000.5
>>ADD_INTERCEPT	OP		Integer(0..63)	Admission criteria for neighbours, see subclause 2.6.6.2.5.2 of TIA/EIA/IS-2000.5

~~NOTE 1: The possibility to use this IE is dependant on comments from SMG2.~~

Also, this IE must be set to "required" if IE "Observed time difference to GSM cell" in IE "Inter-system reporting quantity "is set to "true".

10.3.7.30 Inter-system measurement reporting criteria

The triggering of the event-triggered reporting for an inter-system measurement. All events concerning inter-system measurements are labelled 3x where x is a,b,c..

Event 3a: The estimated quality of the currently used UTRAN frequency is below a certain threshold **and** the estimated quality of the other system is above a certain threshold.

Event 3b: The estimated quality of other system is below a certain threshold.

Event 3c: The estimated quality of other system is above a certain threshold.

Event 3d: Change of best cell in other system.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Parameters required for each event	OP	1 to <maxMeasEvent>		
>Inter-system event identity	MP		Inter-system event identity 10.3.7.24	
>Threshold own system	CV – clause 0			
>W	CV – clause 0			In event 3a
>Threshold other system	CV – clause 1			In event 3a, 3b, 3c
>Hysteresis	MP			
>Time to trigger	MP		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.
~~>Amount of reporting~~	~~MP~~			
~~>Reporting interval~~	~~MP~~			~~Indicates the interval of periodical reporting when such reporting is triggered by an event. A zero value indicates that event triggered periodical reporting shall not be applied.~~
>Reporting cell status	OP		Reporting cell status 10.3.7.86	

Condition	Explanation
Clause 0	The IE is mandatory if " Inter-system event identity" is set to "3a", otherwise the IE is not needed
Clause 1	The IE is mandatory if " Inter-system event identity" is set to 3a, 3b or 3c, otherwise the IE is not needed

10.3.7.31 Inter-system measurement system information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
~~Inter-system measurement identity number~~	~~MD~~		~~Measurement identity number 10.3.7.73~~	~~The inter-system measurement identity number has default value 3.~~
Inter-system cell info list	OP		Inter-system cell info list 10.3.7.23	
~~Inter-system measurement quantity~~	~~OP~~		~~Inter-system measurement quantity 10.3.7.29~~	

10.3.7.32 Inter-system reporting quantity

For all boolean types TRUE means inclusion in the report is requested.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
UTRAN estimated quality	MP		Boolean	
CHOICE *system*	MP			~~At least one spare choice, criticality = reject, required~~
>GSM				
>>Pathloss	MP		Boolean	
>>Observed time difference to GSM cell	MP		Boolean	
>>GSM Carrier RSSI	MP		Boolean	
>>BSIC	MP		Boolean	

10.3.7.33 Intra-frequency cell info list

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

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE Intra-frequency cell removal	MP			
> Remove all intra-frequency cells				No data
> Remove some intra-frequency cells				
>>Removed intra-frequency cells	~~O~~MP	1 to <maxCellMeas>		
>>>Intra-frequency cell id	MP		Integer(0 .. <maxCellMeas> - 1)	
> Remove no intra-frequency cells				No data
New intra-frequency cell	OP	1 to <maxCellMeas>		This information element must be present when "Intra-frequency cell info list" is included in the system information
>Intra-frequency cell id	MD		Integer(0 .. <maxCellMeas> - 1)	The first intra-frequency cell in the list corresponds to intra-frequency cell id 0, the second corresponds to intra-frequency cell id 1 etc.
>Cell info	MP		Cell info 10.3.7.2	

10.3.7.34 Intra-frequency event identity

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Intra-frequency event identity	MP		Enumerated (1a,1b,1c,1d, 1e,1f,1g,1h,1 I)	

10.3.7.35 Intra-frequency measured results list

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Intra-frequency measured results	OP	1 to <maxCellMeas>		
>Cell measured results	MP		Cell measured results 10.3.7.3	

10.3.7.36 Intra-frequency measurement

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Intra-frequency cell info list	OP		Intra-frequency cell info list 10.3.7.33	Measurement object ~~Not included for measurement of detected set.~~
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	CV-*reporting*		Reporting cell status 10.3.7.86	
Measurement validity	OP		Measurement validity 10.3.7.76	
CHOICE report criteria	~~MP~~OP			
>Intra-frequency measurement reporting criteria			Intra-frequency measurement reporting criteria 10.3.7.39	
>Periodical reporting criteria			Periodical reporting criteria 10.3.7.78	
>No reporting				(no data) Chosen when this measurement only is used as additional measurement to another measurement

Condition	Explanation
reporting	This IE is optional if the CHOICE "report criteria" is equal to "periodical reporting criteria" or "No reporting", otherwise the IE is not needed

10.3.7.37 Intra-frequency measurement event results

This IE contains the measurement event results that are reported to UTRAN for intra-frequency measurements.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Intra-frequency event identity	MP		Intra-frequency event identity 10.3.7.34	
Cell measured event results	MP		Cell measured event results 10.3.7.4	

10.3.7.38 Intra-frequency measurement quantity

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

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Filter coefficient	MP		Filter coefficient 10.3.7.9	
CHOICE *mode*	MP			
>FDD				
>>Measurement quantity	MP		Enumerated(CPICH Ec/N0, CPICH RSCP, Pathloss, UTRA Carrier RSSI)	Pathloss=Primary CPICH Tx power-CPICH RSCP If used in Inter system measurement quantity only Ec/N0 an RSCP is allowed. If used in inter-frequency measurement quantity RSSI is not allowed.
>TDD				
>>Measurement quantity list	MP	1 to 4		
>>>Measurement quantity	MP		Enumerated(Primary CCPCH RSCP, Pathloss, Timeslot ISCP, UTRA Carrier RSSI)	Pathloss=Primary CCPCH Tx power-Primary CCPCH RSCP If used in inter-frequency measurement quantity RSSI is not allowed.

10.3.7.39 Intra-frequency measurement reporting criteria

The triggering of the event-triggered reporting for an intra-frequency measurement. All events concerning intra-frequency measurements are labelled 1x where x is a, b, c….

Event 1a: A Primary CPICH enters the Reporting Range (FDD only).

Event 1b: A Primary CPICH leaves the Reporting Range (FDD only).

Event 1c: A Non-active Primary CPICH becomes better than an active Primary CPICH (FDD only).

Event 1d: Change of best cell [Note 1] (FDD only).

Event 1e: A Primary CPICH becomes better than an absolute threshold (FDD only).

Event 1f: A Primary CPICH becomes worse than an absolute threshold (FDD only).

Event 1g: Change of best cell in TDD.

Event 1h: Timeslot ISCP below a certain threshold (TDD only).

Event 1i: Timeslot ISCP above a certain threshold (TDD only).

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Parameters required for each event	OP	1 to <maxMeasEvent>		
> Intra-frequency event identity	MP		Intra-frequency event identity 10.3.7.34	
>Triggering condition 1	CV – clause 0		Enumerated(Active set cells, Monitored set cells, Active set cells and monitored set cells)	Indicates which cells can trigger the event
>Triggering condition 2	CV – clause 6		Enumerated(Active set cells, Monitored set cells, Active set cells and monitored set cells, Detected set cells, Detected set cells and monitored set cells)	Indicates which cells can trigger the event
>Reporting Range	CV – clause 2		Real(0..14.5 by step of 0.5)	In dB. In event 1a,1b.
>Cells forbidden to affect Reporting range	CV – clause 1	1 to <maxCellMeas>		In event 1a,1b
>>CHOICE *mode*	MP			
>>>FDD				
>>>>Primary CPICH info	MP		Primary	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
			CPICH info 10.3.6.59	
>>>TDD				
>>>>Primary CCPCH info	MP		Primary CCPCH info 10.3.6.56	
>W	CV – clause 2		Real(0.0..2.0 by step of 0.1)	
>Hysteresis	MP		Real(0..7.5 by step of 0.5)	In dB.
> Threshold used frequency	CV-clause 3		Integer (-115..165)	Range used depend on measurement quantity. CPICH RSCP -115 .. -40 dBm CPICH Ec/No -24..0 dB Pathloss 30..165dB ISCP -115..-25 dBm
>Reporting deactivation threshold	CV – clause 4		Integer(0, 1, 2, 3, 4, 5, 6, 7)	In event 1a Indicates the maximum number of cells allowed in the active set in order for event 1a to occur. 0 means not applicable .
>Replacement activation threshold	CV - clause 5		Integer(0, 1, 2, 3, 4, 5, 6, 7)	In event 1c Indicates the minimum number of cells allowed in the active set in order for event 1c to occur. 0 means not applicable
>Time to trigger	MP		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
>Amount of reporting	~~MP~~CV-*clause 7*		Integer(1, 2, 4, 8, 16, 32, 64, Infinity)	~~Measurement is "released" after the indicated amount of reporting from the UE itself.~~
>Reporting interval	~~MP~~CV-*clause 7*		Integer(0, 250, 500, 1000, 2000, 4000, 8000, 16000)	Indicates the interval of periodical reporting when such reporting is triggered by an event. Interval in milliseconds. 0 means no periodical reporting
>Reporting cell status	OP		Reporting cell status 10.3.7.86	

Condition	Explanation
Clause 0	The IE is mandatory if "Intra-frequency event identity" is set to ~~"1a",~~"1b"~~, "1e"~~ or "1f", otherwise the IE is not needed
Clause 1	The IE is optional if "Intra-frequency event identity" is set to "1a" or "1b", otherwise the IE is not needed
Clause 2	The IE is mandatory if "Intra-frequency event identity" is set to "1a" or "1b", otherwise the IE is not needed
Clause 3	The IE is mandatory if "Intra-frequency event identity" is set to , "1e", "1f", "1h", "1i" or "1j", otherwise the IE is not needed
Clause 4	The IE is mandatory if "Intra-frequency event identity" is set to "1a", otherwise the IE is not needed
Clause 5	The IE is mandatory if "Intra-frequency event identity" is set to "1c", otherwise the IE is not needed
Clause 6	The IE is mandatory if "Intra-frequency event identity" is set to "1ae" or "1ef".
Clause 7	The IE is mandatory if "Intra-frequency event identity" is set to "1a" or "1c".

~~NOTE 1: When best PCCPCH in active set changes, all active cells are reported.~~

10.3.7.40 Intra-frequency measurement system information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Intra-frequency measurement identity number	MD		Measurement identity number 10.3.7.73	The intra-frequency measurement identity number has default value 1.
Intra-frequency cell info list	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 for RACH Reporting	OP		Intra-frequency reporting quantity for RACH Reporting 10.3.7.42	
Maximum number of reported cells on RACH	OP		Maximum number of reported cells on RACH 10.3.7.68	
Reporting information for state CELL_DCH	OP		Reporting information for state CELL_DCH 10.3.7.87	Note 1

NOTE 1: The reporting of intra-frequency measurements is activated when state CELL_DCH is entered.

10.3.7.41 Intra-frequency reporting quantity

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

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Reporting quantities for active set cells	MP		Cell reporting quantities 10.3.7.5	
Reporting quantities for monitored set cells	MP		Cell reporting quantities 10.3.7.5	
Reporting quantities for detected set cells	OP		Cell reporting quantities 10.3.7.5	

10.3.7.42 Intra-frequency reporting quantity for RACH reporting

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

Information Element/Group name	Need	Multi	Type and reference	Semantics description
SFN-SFN observed time difference	MP		Enumerated(No report, type 1, type 2)	
CHOICE *mode*	MP			
>FDD				
>>Reporting quantity	MP		Enumerated(CPICH Ec/N0, CPICH RSCP, Pathloss, No report)	
>TDD				
>>Reporting quantity list	MP	1 to 2		
>>>Reporting quantity	MP		Enumerated(Timeslot ISCP, Primary CCPCH RSCP, No report)	

10.3.7.43 LCS Cipher GPS Data Indicator

The LCS Cipher GPS Data Indicator IE contains information for the ciphering of SIB types 15.1, 15.2 and 15.3.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Ciphering parameters	OP			
>Ciphering Key Flag	MP		Bitstring(1)	See note 1
>Ciphering Serial Number	MP		Integer(0..65 535)	The serial number used in the DES ciphering algorithm

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

10.3.7.44 LCS Error

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Error reason	MP		Enumerated(There were not enough cells to be received when performing mobile based OTDOA-IPDL. There were not enough GPS satellites to be received, when performing UE-based GPS location. Location calculation assistance data missing. Requested method not supported. Undefined error. Location request denied by the user. Location request not processed by the user and timeout.	
Additional Assistance Data	OP		structure and encoding as for the GPS Assistance Data IE in GSM 09.31 excluding the IEI and length octets	This field is optional. Its presence indicates that the target UE will retain assistance data already sent by the SRNC. The SRNC may send further assistance data for any new location attempt but need not resend previous assistance data. The field may contain the following: GPS Assistance Data necessary additional GPS assistance data

10.3.7.45 LCS GPS acquisition assistance

The Acquisition Assistance field of the GPS Assistance Data Information Element contains parameters that enable fast acquisition of the GPS signals in network-based GPS positioning. Essentially, these parameters describe the range and derivatives from respective satellites to the Reference Location at the Reference Time.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
CHOICE Reference Time				
>UTRAN reference time				GPS Time of Week counted in microseconds, given as GPS TOW in milliseconds and GPS TOW remainder in microseconds, UTRAN reference time = 1000 * GPS TOW msec + GPS TOW rem usec
>>GPS TOW msec	MP		Integer(0..6.048*10^8-1)	GPS Time of Week in milliseconds (rounded down to the nearest millisecond unit)
>>GPS TOW rem usec	MP		Integer(0..999)	GPS Time of Week in microseconds MOD 1000.
>>SFN	MP		Integer(0..4095)	
>GPS reference time only				
>>GPS TOW	MP		Integer(0..6.048*10^8-1)	GPS Time of Week in milliseconds (rounded down to the nearest millisecond unit).
Satellite information	MP	1 to <maxSat>		
>SatID	MP		Enumerated(0..63)	Identifies the satellites
>Doppler (0^{th} order term)	MP		Integer(-2048..2047)	Hz, scaling factor 2.5
>Extra Doppler	OP			
>>Doppler (1^{st} order term)	MP		Integer(-42..21)	Scaling factor 1/42
>>Doppler Uncertainty	MP		Real(12.5,25,50,100,200)	Hz
>Code Phase	MP		Integer(0..1022)	Chips, specifies the centre of the search window
>Integer Code Phase	MP		Integer(0..19)	1023 chip segments
>GPS Bit number	MP		Integer(0..3)	Specifies GPS bit number (20 1023 chip segments)
>Code Phase Search Window	MP		Integer(1023,1,2,3,4,6,8,12,16,24,32,48,64,96,128,192)	Specifies the width of the search window.
>Azimuth and Elevation	OP			
>>Azimuth	MP		Integer(0..31)	Degrees, scale factor 11.25
>>Elevation	MP		Integer(0..7)	Degrees, scale factor 11.25

CHOICE *Reference time*	Condition under which the given *reference time* is chosen
UTRAN reference time	The reference time is relating GPS time to UTRAN time (SFN)
GPS reference time only	The time gives the time for which the location estimate is valid

10.3.7.46 LCS GPS almanac

These fields specify the coarse, long-term model of the satellite positions and clocks. With one exception (δi), these parameters are a subset of the ephemeris and clock correction parameters in the Navigation Model, although with reduced resolution and accuracy. The almanac model is useful for receiver tasks that require coarse accuracy, such as determining satellite visibility. The model is valid for up to one year, typically. Since it is a long-term model, the field should be provided for all satellites in the GPS constellation.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
WN_a	MP		Bit string(8)	
Satellite information	MP	1 to <maxSat>		
>SatID	MP		Enumerated(0..63)	Satellite ID
>e	MP		Bit string(16)	
$>t_{oa}$	MP		Bit string(8)	
>δi	MP		Bit string(16)	
>OMEGADOT	MP		Bit string(16)	
>SV Health	MP		Bit string(8)	
$>A^{1/2}$	MP		Bit string(24)	
$>OMEGA_0$	MP		Bit string(24)	
$>M_0$	MP		Bit string(24)	
>ω	MP		Bit string(24)	
$>af_0$	MP		Bit string(11)	
$>af_1$	MP		Bit string(11)	

10.3.7.47 LCS GPS assistance data

The GPS Assistance Data element contains a single GPS assistance message that supports both UE-assisted and UE-based GPS methods. An Integrity Monitor (IM) shall detect unhealthy (e.g., failed/failing) satellites and also shall inform users of measurement quality in DGPS modes when satellites are healthy. Excessively large pseudo range errors, as evidenced by the magnitude of the corresponding DGPS correction, shall be used to detect failed satellites. Unhealthy satellites should be detected within 10 seconds of the occurrence of the satellite failure. When unhealthy (e.g., failed/failing) satellites are detected, the assistance and/or DGPS correction data shall not be supplied for these satellites. When the error in the IM computed position is excessive for solutions based upon healthy satellites only, DGPS users shall be informed of measurement quality through the supplied UDRE values.

NOTE: Certain types of GPS Assistance data may be derived, wholly or partially, from other types of GPS Assistance data.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
LCS GPS reference time	OP		LCS GPS reference time 10.3.7.53	
LCS GPS reference location	OP		Ellipsoid point with altitude defined in 23.032	The Reference Location field contains a 3-D location without uncertainty specified as per 23.032. The purpose of this field is to provide the UE with a priori knowledge of its location in order to improve GPS receiver performance.
LCS GPS DGPS corrections	OP		LCS GPS DGPS corrections 10.3.7.48	
LCS GPS navigation model	OP		LCS GPS navigation model 10.3.7.51	
LCS GPS ionospheric model	OP		LCS GPS ionospheric model 10.3.7.49	
LCS GPS UTC model	OP		LCS GPS UTC model 10.3.7.54	
LCS GPS almanac	OP		LCS GPS almanac 10.3.7.46	
LCS GPS acquisition assistance	OP		LCS GPS acquisition assistance 10.3.7.45	
LCS GPS real-time integrity	OP		LCS GPS real-time integrity 10.3.7.52	

10.3.7.48 LCS GPS DGPS corrections

These fields specify the DGPS corrections to be used by the UE.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
GPS TOW	MP		Integer(0..604799)	Seconds. This field indicates the baseline time for which the corrections are valid.
Status/Health	MP		Enumerated(UDRE scale 1.0, UDRE scale 0.75, UDRE scale 0.5, UDRE scale 0.3, UDRE scale 0.2, UDRE scale 0.1, no data, invalid data)	This field indicates the status of the differential corrections
Satellite information	MP	1 to <maxSat>		
>SatID	MP		Enumerated(0..63)	Satellite ID
>IODE	MP		Bit string(8)	This IE is the sequence number for the ephemeris for the particular satellite. The UE can use this IE to determine if new ephemeris is used for calculating the corrections that are provided in the broadcast message. This eight-bit IE is incremented for each new set of ephemeris for the satellite and may occupy the numerical range of [0, 239] during normal operations. See [13] for details
>UDRE	MP		Enumerated(UDRE ≤ 1.0 m, 1.0m < UDRE ≤ 4.0m, 4.0m < UDRE ≤ 8.0m, 8.0m < UDRE)	User Differential Range Error. This field provides an estimate of the uncertainty (1-σ) in the corrections for the particular satellite. The value in this field shall be multiplied by the UDRE Scale Factor in the common Corrections Status/Health field to determine the final UDRE estimate for the particular satellite. See [13] for details
>PRC	MP		Integer(-2047..2047)	Scaling factor 0.32 meters See (different from [13])
>RRC	MP		Integer(-127.. 127)	Scaling factor 0.032 meters/sec (different from [13])
>Delta PRC2	MP		Integer(-127..127)	Meters. 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	MP		Integer(-7..7)	Scaling factor 0.032 meters/sec. The difference in the rate of the change of the pseudorange correction between the satellite's ephemeris identified by IODE and the previous ephemeris two issues ago IODE –2.

>Delta PRC3	MP		Integer(-127..127)	Meters. The difference in the pseudorange correction between the satellite's ephemeris identified by IODE and the previous ephemeris three issues ago IODE –3.
>Delta RRC3	MP		Integer(-7..7)	Scaling factor 0.032 meters/sec. The difference in the rate of the change of the pseudorange correction between the satellite's ephemeris identified by IODE and the previous ephemeris three issues ago IODE –3.

NOTE: Each UDRE value shall be adjusted based on the operation of an Integrity Monitor (IM) function which exists at the network (SRNC, GPS server, or reference GPS receiver itself). Positioning errors derived at the IM which are excessive relative to DGPS expected accuracy levels shall be used to scale the UDRE values to produce consistency.

10.3.7.49 LCS GPS ionospheric model

The Ionospheric Model contains fields needed to model the propagation delays of the GPS signals through the ionosphere. Proper use of these fields allows a single-frequency GPS receiver to remove approximately 50% of the ionospheric delay from the range measurements. The Ionospheric Model is valid for the entire constellation and changes slowly relative to the Navigation Model.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
α_0	MP		Bit string(8)	
α_1	MP		Bit string(8)	
α_2	MP		Bit string(8)	
α_3	MP		Bit string(8)	
β_0	MP		Bit string(8)	
β_1	MP		Bit string(8)	
β_2	MP		Bit string(8)	
β_3	MP		Bit string(8)	

10.3.7.50 LCS GPS measurement

The purpose of the GPS Measurement Information element is to provide GPS measurement information from the UE to the SRNC. This information includes the measurements of code phase and Doppler, which enables the network-based GPS method where the position is computed in the SRNC.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Reference SFN	OP		Integer(0..4095)	The SFN for which the location is valid
GPS TOW msec	MP		Integer(0..6.048*10^8-1)	GPS Time of Week in milliseconds (rounded down to the nearest millisecond unit). This time is the GPS TOW measured by the UE. If the Reference SFN field is present it is the ms flank closest to the beginning of that frame. GPS Time of Week in microseconds = 1000 * GPS TOW msec + GPS TOW rem usec
GPS TOW rem usec	CV-capability and request		Integer(0..999)	GPS Time of Week in microseconds MOD 1000.
Measurement Parameters	MP	1 to <maxSat>		
>Satellite ID	MP		Enumerated(0..63)	
>C/N_o	MP		Integer(0..63)	the estimate of the carrier-to-noise ratio of the received signal from the particular satellite used in the measurement. It is given in whole dBs. Typical levels observed by UE-based GPS units will be in the range of 20 – 50 dB.
>Doppler	MP		Integer(-32768..32768)	Hz, scale factor 0.2.
>Whole GPS Chips	MP		Integer(0..1023)	Unit in GPS chips
>Fractional GPS Chips	MP		Integer(0..(2^{10}-1))	Scale factor 2^{-10}
>Multipath Indicator	MP		Enumerated(NM, low, medium, high)	See note 1
>Pseudorange RMS Error	MP		Enumerated(range index 0..range index 63)	See note 2

Condition	Explanation
Capability and request	This field is included only if the UE has this capability *and* if it was requested in the LCS reporting quantity

NOTE 1: The following table gives the mapping of the multipath indicator field.

Value	Multipath Indication
NM	Not measured
Low	MP error < 5m
Medium	5m < MP error < 43m
High	MP error > 43m

NOTE 2: The following table gives the bitmapping of the Pseudorange RMS Error field.

Range Index	Mantissa	Exponent	Floating-Point value, x_i	Pseudorange value, P
0	000	000	0.5	P < 0.5
1	001	000	0.5625	0.5 <= P < 0.5625
I	X	Y	$0.5 * (1 + x/8) * 2^y$	x_{i-1} <= P < x_i
62	110	111	112	104 <= P < 112
63	111	111	--	112 <= P

10.3.7.51 LCS GPS navigation model

This IE contain information required to manage the transfer of precise navigation data to the GPS-capable UE. This information includes control bit fields as well as satellite ephemeris and clock corrections.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
N_SAT	MP		Integer(1..16)	The number of satellites included in this IE
Satellite information	MP	1 to <maxSat>		
>SatID	MP		Enumerated(0..63)	Satellite ID
>Satellite Status	MP		Enumerated(NS_NN, ES_SN, ES_NN, REVD)	See note 1
>C/A or P on L2	MP		Bit string(2)	Standard formats as defined in [12]
>URA Index	MP		Bit string(4)	
>SV Health	MP		Bit string(6)	
>IODC	MP		Bit string($10^{(1)}$)	
>L2 P Data Flag	MP		Bit string(1)	
>SF 1 Reserved	MP		Bit string(87)	
>T_{GD}	MP		Bit string(8)	
>t_{oc}	MP		Bit string($16^{(1)}$)	
>af_2	MP		Bit string(8)	
>af_1	MP		Bit string(16)	
>af_0	MP		Bit string(22)	
>C_{rs}	MP		Bit string(16)	
>Δn	MP		Bit string(16)	
>M_0	MP		Bit string(32)	
>C_{uc}	MP		Bit string(16)	
>e	MP		Bit string($32^{(1)}$)	
>C_{us}	MP		Bit string(16)	
>$(A)^{1/2}$	MP		Bit string($32^{(1)}$)	
>t_{oe}	MP		Bit string($16^{(1)}$)	
>Fit Interval Flag	MP		Bit string(1)	
>AODO	MP		Bit string(5)	
>C_{ic}	MP		Bit string(16)	
>$OMEGA_0$	MP		Bit string(32)	
>C_{is}	MP		Bit string(16)	
>i_0	MP		Bit string(32)	
>C_{rc}	MP		Bit string(16)	
>ω	MP		Bit string(32)	
>OMEGAdot	MP		Bit string(24)	
>Idot	MP		Bit string(14)	

NOTE 1: The UE shall interpret enumerated symbols as follows.

Symbol	Interpretation
NS_NN	New satellite, new Navigation Model
ES_SN	Existing satellite, same Navigation Model
ES_NN	Existing satellite, new Navigation Model
REVD	Reserved

Condition	Explanation
status	Group Included unless status is ES_SN

10.3.7.52 LCS GPS real-time integrity

Contains parameters that describe the real-time status of the GPS constellation. Primarily intended for non-differential applications, the real-time integrity of the satellite constellation is of importance as there is no differential correction data by which the mobile can determine the soundness of each satellite signal. The Real-Time GPS Satellite Integrity data communicates the health of the constellation to the mobile in real-time. The satellites identified in this IE should not be used for position fixes at the moment.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Satellite information	OP	1 to <maxSat>		N_BAD_SAT=the number of bad satellites included in this IE
>BadSatID	MP		Enumerated(0..63)	Satellite ID

10.3.7.53 LCS GPS reference time

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
GPS Week	MP		Integer(0..1023)	
GPS TOW msec	MP		Integer(0..6.048*10^8-1)	GPS Time of Week in milliseconds (rounded down to the nearest millisecond unit). GPS Time of Week in microseconds = 1000 * GPS TOW msec + GPS TOW rem usec
GPS TOW rem usec	MP		Integer(0..999)	GPS Time of Week in microseconds MOD 1000.
SFN	MP		Integer(0..4095)	The SFN which the GPS TOW time stamps
GPS TOW Assist	OP	1 to <maxSat>		Fields to help the UE with time-recovery (needed to predict satellite signal)
>SatID	MP		Enumerated(0..63)	Identifies the satellite for which the corrections are applicable
>TLM Message	MP		Bit string(14)	A 14-bit value representing the Telemetry Message (TLM) being broadcast by the GPS satellite identified by the particular SatID, with the MSB occurring first in the satellite transmission.
>Anti-Spoof	MP		Boolean	The Anti-Spoof and Alert flags that are being broadcast by the GPS satellite identified by SatID.
>Alert	MP		Boolean	
>TLM Reserved	MP		Bit string(2)	Two reserved bits in the TLM Word being broadcast by the GPS satellite identified by SatID, with the MSB occurring first in the satellite transmission.

10.3.7.54 LCS GPS UTC model

The UTC Model field contains a set of parameters needed to relate GPS time to Universal Time Coordinate (UTC).

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
A_1	MP		Bit string(24)	
A_0	MP		Bit string(32)	
t_{ot}	MP		Bit string(8)	
Δt_{LS}	MP		Bit string(8)	
WN_t	MP		Bit string(8)	
WN_{LSF}	MP		Bit string(8)	
DN	MP		Bit string(8)	
Δt_{LSF}	MP		Bit string(8)	

10.3.7.55 LCS IPDL parameters

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
IP spacing	MP		Integer(5,7,10,15,20,30,40,50)	The IPs are repeated every IP spacing frame.
IP length	MP		Integer(5,10)	The length in symbols of the idle periods
IP offset	MP		Integer(0..9)	Relates the BFN and SFN, should be same as T_cell defined in 25.402
Seed	MP		Integer(0..63)	Seed used to start the random number generator
Burst mode parameters	OP			
>Burst Start	MP		Integer(0..15)	The frame number where the 1st Idle Period Burst occurs within an SFN cycle. Scaling factor 256.
>Burst Length	MP		Integer(10..25)	Number of Idle Periods in a 'burst' of Idle Periods
>Burst freq	MP		Integer(1..16)	Number of 10ms frames between consecutive Idle Period bursts. Scaling factor 256.

The function IP_position(x) described below yields the position of the x^{th} Idle Period relative to a) the start of the SFN cycle when continuous mode or b) the start of a burst when in burst mode. The operator "%" denotes the modulo operator. Regardless of mode of operation, the Idle Period pattern is reset at the start of every SFN cycle. Continuous mode can be considered as a specific case of the burst mode with just one burst spanning the whole SFN cycle. Note also that x will be reset to x=1 for the first idle period in a SFN cycle for both continuous and burst modes and will also, in the case of burst mode, be reset for the first Idle Period in every burst.

Max_dev=150-IP length

rand(x)= (106.rand(x-1) + 1283)mod6075,

rand(0)=seed

IP_position(x) = x*IP_spacing*150 + rand(xmod64)modMax_dev+IP_offset

10.3.7.56 LCS measured results

Information Element/Group name	Need	Multi	Type and reference	Semantics description
LCS Multiple Sets	OP		LCS Multiple Sets 10.3.7.59	
LCS reference cell Identity	OP		Primary CPICH Info 10.3.6.59	
LCS OTDOA measurement	OP		LCS OTDOA measurement 10.3.7.62	
LCS Position	OP		LCS Position 10.3.7.65	
LCS GPS measurement	OP		LCS GPS measurement 10.3.7.50	
LCS error	OP		LCS error 10.3.7.44	Included if LCS error occurred

10.3.7.57 LCS measurement

Information Element/Group name	Need	Multi	Type and reference	Semantics description
LCS reporting quantity	MP		LCS reporting quantity 10.3.7.67	
CHOICE reporting criteria	MP			
>LCS reporting criteria			LCS reporting criteria 10.3.7.66	
>Periodical reporting criteria			Periodical reporting criteria 10.3.7.78	
>No reporting				(no data) Chosen when this measurement only is used as additional measurement to another measurement
LCS OTDOA assistance data	OP		LCS OTDOA assistance data 10.3.7.60	
LCS GPS assistance data	OP		LCS GPS assistance data 10.3.7.47	

10.3.7.58 LCS measurement event results

This IE contains the measurement event results that are reported to UTRAN for LCS measurements.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
CHOICE Event ID	MP			
>7a				
>>LCS Position	MP		LCS Position 10.3.7.65	
>7b				
>> LCS OTDOA measurement	MP		LCS OTDOA measurement 10.3.7.62	
>7c				
>> LCS GPS measurement	MP		LCS GPS measurement 10.3.7.50	

10.3.7.59 LCS multiple sets

This element indicates how many OTDOA Measurement Information sets or GPS Measurement Information sets, and Reference cells are included in this element. This element is optional. If this element is absent, a single measurement set is included.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Number of OTDOA-IPDL/GPS Measurement Information Sets	MP		Integer(2..3)	
Number of Reference Cells	MP		Integer(1..3)	
Reference Cell relation to Measurement Elements	OP		Enumerated(First reference cell is related to first and second OTDOA-IPDL/GPS Measurement Information Sets, and second reference cell is related to third OTDOA-IPDL/GPS Measurement Information Sets. First reference cell is related to first and third OTDOA-IPDL/GPS Measurement Information Sets, and second reference cell is related to second OTDOA-IPDL/GPS Measurement Information Sets. First reference cell is related to first OTDOA-IPDL/GPS Measurement Information Sets, and second reference cell is related to second and third OTDOA/GPS Measurement Information Sets.)	This field indicates how the reference cells listed in this element relate to measurement sets later in this component. This field is conditional and included only if Number of OTDOA-IPDL/GPS Measurement Information Sets is '3' and Number of Reference cells is '2'. If this field is not included, the relation between reference cell and Number of OTDOA-IPDL/GPS Measurement Information Sets is as follows: If there are three sets and three reference cells -> First reference cell relates to first set, second reference cell relates to second set, and third reference cell relates to third set. If there are two sets and two reference cells -> First reference cell relates to first set, and second reference cell relates to second set. If there is only one reference cell and 1-3 sets -> this reference cell relates to all sets.

10.3.7.60 LCS OTDOA assistance data

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
LCS OTDOA reference cell for assistance data	OP		LCS OTDOA reference cell for assistance data 10.3.7.64	
LCS OTDOA measurement assistance data	OP	1 to <maxCellMeas>	LCS OTDOA measurement assistance data 10.3.7.63	
LCS IPDL parameters	OP		LCS IPDL parameters 10.3.7.55	If this element is not included there are no idle periods present

10.3.7.61 LCS OTDOA assistance for SIB

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Ciphering parameters	OP			Determines if DGPS correction fields are ciphered
>Ciphering Key Flag	MP		Bitstring(1)	See note 1
>Ciphering Serial Number	MP		Integer(0..65 535)	The serial number used in the DES ciphering algorithm
Search Window Size	MP		Integer(10, 20, 30, 40, 50, 60,70, infinity)	Specifies the maximum size of the search window in chips. Infinity means more
Reference Cell Position	MP		Ellipsoid point or Ellipsoid point with altitude as defined in 23.032	The position of the antenna which defines the serving cell. Used for the UE based method.
LCS IPDL parameters	OP		LCS IPDL parameters 10.3.7.55	If this element is not included there are no idle periods present
Cells to measure on	MP	1 to <maxCellMeas>		
>SFN-SFN drift	OP		Real(0,+0.33 ,+0.66,+1,+1 .33,+1.66,+2 ,+2.5,+3,+4, +5,+7,+9,+1 1,+13,+15,- 0.33,-0.66,- 1,-1.33,- 1.66,-2,-2.5,- 3,-4,-5,-7,-9,- 11,-13,-15)	The SFN-SFN drift value indicate the relative time drift in meters per second. Positive and negative values can be indicated as well as no drift value.
>Primary CPICH info	MP		Primary CPICH info 10.3.6.59	
>Frequency info	OP		Frequency info 10.3.6.35	Default the same. Included if different
>SFN-SFN observed time difference	MP		SFN-SFN observed time difference type 1. 10.3.7.88	Gives the relative timing compared to the reference cell
>Fine SFN-SFN	MP		Real(0,0.25, 0.5,0.75)	Gives finer resolution for UE-Based In chips
>Cell Position	MD			Default = Same as previous cell
>>Relative North	MP		Integer(- 32767..3276 7)	Seconds, scale factor 0.03. Relative position compared to ref. cell.
>>Relative East	MP		Integer(- 32767..3276 76)	Seconds, scale factor 0.03. Relative position compared to ref. cell.
>>Relative Altitude	MP		Integer(- 4095..4095)	Relative altitude in meters compared to ref. cell.

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

10.3.7.62 LCS OTDOA measurement

The purpose of the OTDOA Measurement Information element is to provide OTDOA measurements of signals sent from the reference and neighbour cells.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
SFN	MP		Integer(0..4095)	SFN during which the last measurement was performed
UE Rx-Tx time difference	MP		Real(876..1172 by step of 0.25)	The UE Rx-Tx timing can be used to determine the propagation delay In chips
LCS OTDOA quality type	MP		LCS OTDOA quality type 10.3.7.62a	
~~Quality type~~	~~OP~~		~~Enumerated(STD_10,STD_50,CPICH Ec/N0)~~	~~Type of quality in the quality field, default=DEFAULT_QUALITY~~
~~CHOICE Quality type~~	~~MP~~			
~~>STD_10~~				
~~>>Reference Quality 10~~	~~MP~~		~~Integer(10..320 by step of 10)~~	~~Std of TOA measurements from the cell~~
~~>STD_50~~				
~~>>Reference Quality 50~~	~~MP~~		~~Integer(50..1600 by step of 50)~~	~~Std of TOA measurements from the cell~~
~~>CPICH Ec/N0~~				
~~>>CPICH Ec/N0~~	~~MP~~		~~Enumerated(< -24, -24 dB ≤ CPICH Ec/No < -23 dB,.. -1 dB ≤ CPICH Ec/No < -0 dB, >=0 dB)~~	~~CPICH Ec/N0 for the measurement~~
~~>DEFAULT_QUALITY~~				
~~>>Reference Quality~~	~~MP~~		~~Enumerated(0-19 meters, 20-39 meters, 40-79 meters, 80-159 meters, 160-319 meters, 320-639 meters, 640-1319 meters over 1320 meters)~~	~~Estimated error in meters.~~
~~Neighbors~~Neighbours	MP	0..maxCellMeas		Number of ~~neighbors~~ neighbours included in this IE
>~~Neighbor~~ Neighbour Identity	OP		Primary CPICH info 10.3.6.59	If this field is left out it the identity is the same as in the first set of multiple sets.
~~>~~Neighbor ~~Neighbour Quality >~~ LCS OTDOA quality type	~~MP~~MP		~~Bit string(depends on Quality type)~~ LCS OTDOA quality type 10.3.7.62a	Quality of the OTDOA from the neighbor neighbour cell.
>SFN-SFN observed time difference	MP		SFN-SFN observed time difference	Gives the timing relative to the reference cell. Only type 2 is allowed. Type 2 means that only the slot timing is

			10.3.7.88	accounted for

~~CHOICE *Quality type*~~	~~Condition under which the given quality type is chosen~~
~~STD_10~~	~~Chosen when the quality type is standard deviation with a step-size of 10 m~~
~~STD_50~~	~~Chosen when the quality type is standard deviation with a step-size of 50 m~~
~~CPICH Ec/N0~~	~~Chosen when the quality type is CPICH Ec/N0~~
~~Default~~	~~Chosen if the quality type field is not included.~~

10.3.7.62a LCS OTDOA quality type

Information Element/Group name	**Need**	**Multi**	**Type and Reference**	**Semantics description**
CHOICE Quality type	MP			
>STD_10				
>>Reference Quality 10	MP		Integer(10..320 by step of 10)	Std of TOA measurements from the cell
>STD_50				
>>Reference Quality 50	MP		Integer(50..1600 by step of 50)	Std of TOA measurements from the cell
>CPICH Ec/N0				
>>CPICH Ec/N0	MP		Enumerated(<–24, -24 dB ≤ CPICH Ec/No < –23 dB,.. –1 dB ≤ CPICH Ec/No < –0 dB, >=0 dB)	CPICH Ec/N0 for the measurement
>DEFAULT_QUALITY				
>>Reference Quality	MP		Enumerated(0-19 meters, 20-39 meters, 40-79 meters, 80-159 meters, 160-319 meters, 320-639 meters, 640-1319 meters over 1320 meters)	Estimated error in meters.

CHOICE *Quality type*	**Condition under which the given quality type is chosen**
STD_10	Chosen when the quality type is standard deviation with a step-size of 10 m
STD_50	Chosen when the quality type is standard deviation with a step-size of 50 m
CPICH Ec/N0	Chosen when the quality type is CPICH Ec/N0
Default	Chosen if the quality type field is not included.

10.3.7.63 LCS OTDOA measurement assistance data

This IE gives approximate cell timing in order to decrease the search window.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Primary CPICH info	MP		Primary CPICH info 10.3.6.59	
Frequency info	OP		Frequency info 10.3.6.35	Default the same. Included if different
SFN-SFN observed time difference	MP		SFN-SFN observed time difference type 1. 10.3.7.88	Gives the relative timing compared to the reference cell
Fine SFN-SFN	OP		Real(0,0.25, 0.5,0.75)	Gives finer resolution for UE-Based
Search Window Size	MP		Integer(10, 20, 30, 40, 50, 60,70, infinity)	Specifies the maximum size of the search window in chips. Infinity means more
Relative North	OP		Integer(-20000..20000)	Seconds, scale factor 0.03. Relative position compared to ref. cell.
Relative East	OP		Integer(-20000..20000)	Seconds, scale factor 0.03. Relative position compared to ref. cell.
Relative Altitude	OP		Integer(-4000..4000)	Relative altitude in meters compared to ref. cell.

10.3.7.64 LCS OTDOA reference cell for assistance data

This IE defines the cell used for time references in all OTDOA measurements.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Primary CPICH info	MP		Primary CPICH info 10.3.6.59	
Frequency info	OP		Frequency info 10.3.6.35	Default the same. Included if different
Cell Position	OP		Ellipsoid point or Ellipsoid point with altitude as defined in 23.032	The position of the antenna which defines the cell. Can be used for the UE based method.

10.3.7.65 LCS position

The purpose of Location Information element is to provide the location estimate from the UE to the network, if the UE is capable of determining its own position.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Reference SFN	MP		Integer(0..4095)	The SFN for which the location is valid
GPS TOW msec	CV-Capability and request		Integer(0..6.048*10^8-1)	GPS Time of Week in milliseconds (rounded down to the nearest millisecond unit). This time-stamps the beginning of the frame defined in Reference SFN GPS Time of Week in microseconds = 1000 * GPS TOW msec + GPS TOW rem usec
GPS TOW rem usec	CV-Capability and request		Integer(0..999)	GPS Time of Week in microseconds MOD 1000.
Position estimate	MP		23.032, allowed types are Ellipsoid Point; Ellipsoid point with uncertainty circle; Ellipsoid point with uncertainty ellipse; Ellipsoid point with altitude; Ellipsoid point with altitude and uncertainty ellipse.	

Condition	Explanation
Capability and request	This field is included only if the UE has this capability *and* if it was requested in the LCS reporting quantity and if the method was UE-based GPS

10.3.7.66 LCS reporting criteria

The triggering of the event-triggered reporting for an LCS measurement. There are three types of events. The first, 7a, is for UE-based methods and is triggered when the position has changed more than a threshold. The second one, 7b, is primarily for UE assisted methods, but can be used also for UE based. It is triggered when the SFN-SFN measurement has changed more than a certain threshold. The third one, 7c, is triggered when the GPS time and the SFN time has drifted apart more than a certain threshold.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Parameters required for each event	OP	1 to <maxMeas Event>		
>Event ID	MP		Enumerated (7a,7b,7c)	7a=Position change 7b=SFN-SFN change, 7c=SFN-GPS TOW change
>Amount of reporting	MP		Integer(1, 2, 4, 8, 16, 32, 64,infinite)	
>Report first fix	MP		Boolean	If true the UE reports the position once the measurement control is received, and then each time an event is triggered.
>Measurement interval	MP		Integer(5,15, 60,300,900,1800,3600,7200)	Indicates how often the UE should make the measurement In seconds
>CHOICE Event ID				
>>7a				
>>>Threshold Position Change	MP		Integer(10,20,30,40,50,100,200,300,500,1000,2000,5000,10000,20000,50000,100000)	Indicated how much the position should change compared to last reported position fix in order to trigger the event.
>>7b				
>>>Threshold SFN-SFN change	MP		Real(0.25,0.5,1,2,3,4,5,10,20,50,100,200,500,1000,2000,5000)	Chips. Indicates how much the SFN-SFN measurement of ANY measured cell is allowed to change before the event is triggered.
>>7c				
>>>Threshold SFN-GPS TOW	MP		Integer(1,2,3,5,10,20,50,100)	Time in ms. When the GPS TOW and SFN timer has drifted apart more than the specified value the event is triggered)

10.3.7.67 LCS reporting quantity

The purpose of the element is to express the allowed/required location method(s), and to provide information required QoS.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Method Type	MP		Enumerated(UE assisted, UE based, UE based is preferred but UE assisted is allowed, UE assisted is preferred but UE based is allowed)	
Positioning Methods	MP		Enumerated(OTDOA, GPS OTDOA or GPS)	Indicates which location method or methods should be used. The third option means that both can be reported. OTDOA includes IPDL if idle periods are present.
Response Time	MP		Integer(1,2,4 , 8, 16, 32, 64, 128)	Indicates the desired response time in seconds
Accuracy	CV		Bit string(7)	Mandatory in all cases except when Method Type is UE assisted, then it is optional. 23.032
GPS timing of Cell wanted	MP		Boolean	If true the SRNC wants the UE to report the SFN-GPS timing of the reference cell. This is however optional in the UE.
Multiple Sets	MP		Boolean	This field indicates whether UE is requested to send multiple *OTDOA/GPS Measurement Information Sets*. The maximum number of measurement sets is three. This is field is mandatory. UE is expected to include the current measurement set.
Environment Characterisation	OP		Enumerated(possibly heavy multipath and NLOS conditions, no or light multipath and usually LOS conditions, not defined or mixed environment)	The first category correspond to e.g. Urban or Bad Urban channels. The second category corresponds to Rural or Suburban channels

10.3.7.68 Maximum number of reported cells on RACH

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Maximum number of reported cells	MP		Enumerated (no report, current cell, current cell + best neighbour, current cell+2 best neighbours, …, current cell+6 best neighbours)	

10.3.7.69 Measured results

Contains the measured results of the quantity indicated optionally by Reporting Quantity in Measurement Control. "Measured results" can be used for both event trigger mode and periodical reporting mode. The list should be in the order of the value of the measurement quality (the first cell should be the best cell). The "best" FDD cell has the largest value when the measurement quantity is "Ec/No" or "RSCP". On the other hand, the "best" cell has the smallest value when the measurement quantity is "Pathloss". The "best" TDD cell has the largest value when measurement quantity is "Primary CCPCH RSCP".

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE Measurement	MP			
>Intra-frequency measured results list			Intra-frequency measured results list 10.3.7.35	
>Inter-frequency measured results list			Inter-frequency measured results list 10.3.7.15	
>Inter-system measured results list			Inter-system measured results list 10.3.7.26	
>Traffic volume measured results list			Traffic volume measured results list 10.3.7.92	
>Quality measured results list			Quality measured results list 10.3.7.80	
>UE Internal measured results			UE Internal measured results 10.3.7.101	
>LCS measured results			LCS measured results 10.3.7.56	

10.3.7.70 Measured results on RACH

Contains the measured results on RACH of the quantity indicated optionally by Reporting Quantity in the system information broadcast on BCH. The list should be in the order of the value of the measurement quality (the first cell should be the best cell). The "best" FDD cell has the largest value when the measurement quantity is "Ec/No" or "RSCP". On the other hand, the "best" cell has the smallest value when the measurement quantity is "Pathloss". The "best" TDD cell has the largest value when measurement quantity is "Primary CCPCH RSCP".

Information Element/group name	Need	Multi	Type and reference	Semantics description
Measurement result for current cell				
CHOICE *mode*	MP			
>FDD				
>>CHOICE measurement quantity	MP			
>>>CPICH Ec/N0			Integer(-20..0)	In dB
>>>CPICH RSCP			Integer(-115..-40)	In dBm
>>>Pathloss			Integer(46..158)	In dB
>TDD				
>>Timeslot List	OP	1 to 14		
>>>Timeslot ISCP	MP		Timeslot ISCP info 10.3.7.90	The UE shall report the Timeslot ISCP in the same order as indicated in the cell info
>>Primary CCPCH RSCP	OP		Primary CCPCH RSCP info 10.3.7.79	
Measurement results for monitored cells	OP	1 to 7		
>SFN-SFN observed time difference	OP		SFN-SFN observed time difference 10.3.7.88	It is absent for current cell
>CHOICE *mode*	MP			
>>FDD				
>>>Primary CPICH info	MP		Primary CPICH info 10.3.6.59	
>>>CHOICE measurement quantity	OP			It is absent for current cell
>>>>CPICH Ec/N0			Integer(-20..0)	In dB
>>>>CPICH RSCP			Integer(-115..-40)	In dBm
>>>>Pathloss			Integer(46..158)	In dB
>>TDD				
>>>Cell parameters Id	MP		Cell parameters Id 10.3.6.8	
>>>Primary CCPCH RSCP	MP		Primary CCPCH RSCP info 10.3.7.79	

NOTE 1: Monitored cells consist of current cell and neighbouring cells.

10.3.7.71 Measurement Command

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Measurement command	MP		Enumerated(Setup,Modify ,Release)	

10.3.7.72 Measurement control system information

Information element/Group name	Need	Multi	Type and reference	Semantics description
Use of HCS	MP		Enumerated (Not used, used)	Indicates if the serving cell belongs to a HCS structure
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.
Intra-frequency measurement system information	OP		Intra-frequency measurement system information 10.3.7.40	
Inter-frequency measurement system information	OP		Inter-frequency measurement system information 10.3.7.20	
Inter-system measurement system information	OP		Inter-system measurement system information 10.3.7.31	
Traffic volume measurement system information	OP		Traffic volume measurement system information 10.3.7.98	
UE Internal measurement system information	OP		UE Internal measurement system information 10.3.7.106	

NOTE1: The reporting of intra-frequency measurements is activated when state CELL_DCH is entered.

10.3.7.73 Measurement Identity Number

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

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Measurement identity number	MP		Integer(1..16)	

10.3.7.74 Measurement reporting mode

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

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Measurement Report Transfer Mode	MP		enumerated (Acknowledged mode RLC, Unacknowledged mode RLC)	
Periodical Reporting / Event Trigger Reporting Mode	MP		Enumerated (Periodical reporting, Event trigger)	

10.3.7.75 Measurement Type

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Measurement Type	MP		Enumerated(Intra-frequency, Inter-frequency, Inter-system, Traffic volume, Quality, UE internal, LCS)	

10.3.7.76 Measurement validity

Information Element/Group name	Need	Multi	Type and reference	Semantics description
~~Resume/release~~	~~MP~~		~~Enumerated('resume', 'release')~~	~~Indicates whether a given measurement identifier should be released after transitions to CELL_DCH and/or transitions from CELL_DCH state.~~
UE state	~~CV – Resume~~MP		Enumerated(CELL_DCH, all states except CELL_DCH, all states)	Indicates the states, in which measurement reporting shall be conducted. The values 'all states except CELL_DCH' and 'all states' are used for measurement type 'traffic volume reporting'.

~~Condition~~	~~Explanation~~
~~*Resume*~~	~~This IE is mandatory if "Resume/Release" = Resume, otherwise the IE is not needed~~

10.3.7.77 Observed time difference to GSM cell

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Observed time difference to GSM cell	OP		Real(0.0..4095*3060/(4096*13 by step of 3060/(4096*13))	In ms

10.3.7.78 Periodical reporting criteria

Contains the periodical reporting criteria information. It is necessary only in the periodical reporting mode.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Amount of reporting	MD		Integer(1, 2, 4, 8, 16, 32, 64, Infinity)	~~Measurement is "released" after the indicated amount of reporting from the UE itself.~~ The default value is infinity.
Reporting interval	MP		Integer(250, 500, 1000, 2000, 3000, 4000, 6000, 8000, 12000, 16000, 20000, 24000, 28000, 32000, 64000)	Indicates the interval of periodical report. Interval in milliseconds

10.3.7.79 Primary CCPCH RSCP info

NOTE: Only for TDD

Information Element/Group name	Need	Multi	IE type and reference	Semantics description
Primary CCPCH RSCP	MP		Enumerated (-115, -114 ... –25)	Granularity 1dB

10.3.7.80 Quality measured results list

Information Element/Group name	Need	Multi	Type and reference	Semantics description
BLER measurement results	OP	1 to <maxTrCH>		
>DL Transport channel identity	MP		Transport channel identity 10.3.5.18	
>DL Transport Channel BLER	OP		Real(0.00 ..1.00, by step of 0.02)	In dB= -Log10(Transport channel BLER)
CHOICE mode				
>FDD				(No data)
~~>>SIR~~	~~OP~~		~~Integer(-10..20)~~	~~In dB~~
>TDD				
>>SIR measurement results	OP	1 to <MaxCCTrCH>		SIR measurements for DL CCTrCH
>>>TFCS ID	MP		Enumerated (1...8)	
>>>Timeslot list	MP	1 to <maxTS>		for all timeslot on which the CCTrCH is mapped on
>>>>SIR	MP		Integer(-10...20)	the UE shall report in ascending timeslot order

10.3.7.81 Quality measurement

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Quality reporting quantity	OP		Quality reporting quantity 10.3.7.84	
CHOICE report criteria	MP			
>Quality measurement reporting criteria			Quality measurement reporting criteria 10.3.7.83	
>Periodical reporting criteria			Periodical reporting criteria 10.3.7.78	
>No reporting				(no data) Chosen when this measurement only is used as additional measurement to another measurement

10.3.7.82 Quality measurement event results ~~(FFS)~~

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Transport channels causing the event	OP	1 to <maxTrCH>		
>Transport channel identity	MP		Transport channel identity 10.3.5.18	

10.3.7.83 Quality measurement reporting criteria

Event 5a: Number of bad CRCs on a certain transport channel exceeds a threshold.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Parameters sent for each transport channel	OP	1 to <maxTrCH>		
>Tran~~p~~sport channel identity	MP		Transport channel identity 10.3.5.18	
>Total CRC	MP		Integer(1..512)	Number of CRCs
>Bad CRC	MP		Integer(1..512)	Number of CRCs
>Pending after trigger	MP		Integer(1..512)	Number of CRCs

10.3.7.84 Quality reporting quantity

Information Element/Group name	Need	Multi	Type and reference	Semantics description
DL Transport Channel BLER	MP		Boolean	TRUE means report requested
Transport channels for BLER reporting	CV BLER reporting	1 to <maxTrCH>		The default, if no transport channel identities are present, is that the BLER is reported for all downlink transport channels
>DL Transport channel identity	MP		Transport channel identity 10.3.5.18	
CHOICE mode				
>FDD				(No data)
~~>>SIR~~	~~MP~~		~~Boolean~~	~~TRUE means report requested~~
>TDD				
>>SIR measurement list	OP	1 to <maxCCTrCH>		SIR measurements shall be reported for all listed TFCS IDs
>>>TFCS ID	MP		Enumerated (1...8)	

Condition	Explanation
BLER reporting	This information element is absent if 'DL Transport Channel BLER' is 'False' and optional, if 'DL Transport Channel BLER' is 'True'

10.3.7.85 Reference time difference to cell

In the System Information message, the reference time difference to cell indicates the SFN-SFN time difference between the primary CCPCH of the current cell and the primary CCPCH of a neighbouring cell..

In the Measurement Control message, the reference time difference to cell indicates the CFN-SFN time difference between UE uplink transmission timing and the primary CCPCH of a neighbouring cell.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE *accuracy*	MP			
>40 chips				
>>Reference time difference	MP		Integer(0..38400 by step of 40)	In chips
>256 chips				
>>Reference time difference	MP		Integer(0.. 38400 by step of 256)	In chips
>2560 chips				
>>Reference time difference	MP		Integer(0.. 38400 by step of 2560)	In chips

10.3.7.86 Reporting Cell Status

Indicates maximum allowed number of cells to report and whether active set cells and/or virtual active set cells and/or monitored set cells and/or detected set cells on used frequency and/or monitored set cells on non used frequency should/should not be included in the IE "Measured results".

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Choice reported cell	MP			
>Report cells within active set cells				
>>Maximum number of reported cells type1	MP		Integer(1..6)	
>Report cells within monitored set cells on used frequency				
>>Maximum number of reported cells type1	MP		Integer(1..6)	
>Report cells within active set and/or monitored setcells on used frequency				
>>Maximum number of reported cells type1	MP		Integer(1..6)	
>Report cells within detected set on used frequency				
>>Maximum number of reported cells	MP		Integer(1..6)	
>Report cells within monitored set and/or detected set on used frequency				
>>Maximum number of reported cells	MP		Integer(1..6)	
>ReportInclude all active set cells + cells within monitored set cells on used frequency				
>>Maximum number of reported cells type3	MP		Enumerated (virtual/active set cells+1, virtual/active set cells+2, …., virtual/active set cells+6)	
>Report all active set cells + cells within detected set on used frequency				
>>Maximum number of reported cells	MP		Enumerated (virtual/active set cells+1, virtual/active set cells+2, …., virtual/active set cells+6)	
>Report all active set cells + cells within monitored set and/or detected set on used frequency				
>>Maximum number of reported cells	MP		Enumerated (virtual/active set cells+1, virtual/active set cells+2, …., virtual/active set cells+6)	
>Report cells within virtual active set cells				
>> Maximum number of reported cells type1	MP		Integer(1..6)	
>Report cells within monitored set cells on non-used frequency				
>>Maximum number of reported cells type1	MP		Integer(1..6)	
>Report cells within monitored set and/or active set cells on non-used frequency				
>>Maximum number of	MP		Integer(1..6)	

reporteding cells type1				
>IncludeReport all virtual active set cells + cells within monitored set cells on non-used frequency				
>> Maximum number of reporteding cells type3	MP		Enumerated (virtual/active set cells+1, virtual/active set cells+2, …., virtual/active set cells+6)	
>Report cells Wwithin active set cells or within virtual active set cells				
>> Maximum number of reporteding cells type2	MP		Integer (1..12)	
>Report cells Wwithin active set and/or monitored setcells on used frequency or within active set and/or monitored setcells on non-used frequency				
>> Maximum number of reporteding cells type2	MP		Integer(1..12)	

NOTE: Monitored cells consist of active set cells and monitored set cells

10.3.7.87 Reporting information for state CELL_DCH

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Intra-frequency reporting quantity	MP		Intra-frequency reporting quantity 10.3.7.41	
Measurement Reporting Mode	MP		Measurement Reporting Mode 10.3.7.74	
CHOICE report criteria	MP			
>Intra-frequency measurement reporting criteria			Intra-frequency measurement reporting criteria 10.3.7.39	
>Periodical reporting criteria			Periodical reporting criteria 10.3.7.78	

10.3.7.88 SFN-SFN observed time difference

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE *type*	MP			
>Type 1			Integer(0..9830399)	Number of chips
>Type 2			Real(-1279.75..1280.0 by step of 0.25)	Number of chips

10.3.7.89 Time to trigger

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Time to trigger	MP		Integer(0, 10, 20, 40, 60, 80, 100, 120, 160, 200, 240, 320, 640, 1280, 2560, 5000)	Indicates the period of time between the timing of event detection and the timing of sending Measurement Report. Time in ms

10.3.7.90 Timeslot ISCP info

NOTE: Only for TDD

Information Element/Group name	Need	Multi	IE type and reference	Semantics description
Timeslot ISCP	MP		Integer (-115... –25)	In dBm

10.3.7.91 Traffic volume event identity

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Traffic volume event identity	MP		Enumerated(4a, 4b)	

10.3.7.92 Traffic volume measured results list

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Traffic volume measurement results	OP	1 to <maxRB>		
>RB Identity	MP		RB Identity 10.3.4.16	
>RLC buffers payload	OP		Enumerated(0, 4, 8, 16, 32, 64, 128, 256, 512, 1024, 2K, 4K, 8K, 16K, 32K, 64K, 128K, 256K, 512K, 1024K)	In bytes And N Kbytes = N*1024 bytes
>Average RLC buffer payload	OP		Enumerated(0, 4, 8, 16, 32, 64, 128, 256, 512, 1024, 2K, 4K, 8K, 16K, 32K, 64K, 128K, 256K, 512K, 1024K)	In bytes And N Kbytes = N*1024 bytes
>Variance of RLC buffer payload	OP		Enumerated(0, 4, 8, 16, 32, 64, 128, 256, 512, 1024, 2K, 4K, 8K, 16K)	In bytes And N Kbytes = N*1024 bytes

10.3.7.93 Traffic volume measurement

Information Element/Group name	Need	Multi	Type and reference	Semantics description
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	
Measurement validity	OP		Measurement validity 10.3.7.76	
CHOICE report criteria	MP			
>Traffic volume measurement reporting criteria			Traffic volume measurement reporting criteria 10.3.7.97	
>Periodical reporting criteria			Periodical reporting criteria 10.3.7.78	
>No reporting				(no data) Chosen when this measurement only is used as additional measurement to another measurement

10.3.7.94 Traffic volume measurement event results

Contains the event result for a traffic volume measurement.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
UL Transport Channel causing the event	MP		Transport channel identity 10.3.5.18	
Traffic volume event identity	MP		Traffic volume event identity 10.3.7.91	

10.3.7.95 Traffic volume measurement object

Contains the measurement object information for a traffic volume measurement.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Traffic volume measurement objects	MP	1 to <maxTrCH>		
>UL Target Transport Channel ID	MP		Transport channel identity 10.3.5.18	

10.3.7.96 Traffic volume measurement quantity

Contains the measurement quantity information for a traffic volume measurement.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Measurement quantity	MP		Enumerated(RLC buffer payload, Average RLC buffer payload, Variance of RLC buffer payload)	
Time Interval to take an average or a vaiance	CV-A/V		Integer(20, 40, ..260, by steps of 20)	In ms ~~At least 3 spare values, Criticality: reject, are needed.~~

Condition	Explanation
A/V	This IE is present when "Average RLC buffer" or "Variance of RLC buffer payload" is chosen.

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 <maxMeasperEvent>		
>>Traffic volume event identity	MP		Traffic volume event identity 10.3.7.91	
>>Reporting Threshold	MP		Enumerated(8,16,32,64,128,256,512,1024,2K,3K,4K,6K,8K,12K,16K,24K,32K,48K,64K,96K,128K,192K,256K,384K,512K,768K)	Threshold in bytes And N Kbytes = N*1024 bytes
>>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 Traffic volume event identity~~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.~~

10.3.7.98 Traffic volume measurement system information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Traffic volume measurement identity number	MD		Measurement identity number 10.3.7.73	The traffic volume measurement identity number has default value 4.
Traffic volume measurement objects	OP		Traffic volume measurement objects 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	
Measurement validity	OP		Measurement validity 10.3.7.76	
Measurement Reporting Mode	MP		Measurement Reporting Mode 10.3.7.74	
CHOICE reporting criteria	MP			
>Traffic volume measurement reporting criteria			Traffic volume measurement reporting criteria 10.3.7.97	
>Periodical reporting criteria			Periodical reporting criteria 10.3.7.78	

10.3.7.99 Traffic volume reporting quantity

Contains the reporting quantity information for a traffic volume measurement.

For all boolean types TRUE means inclusion in the report is requested.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
RLC buffer payload for each RB	MP		Boolean	
Average RLC buffer payload for each RB	MP		Boolean	
Variance of RLC buffer payload for each RB	MP		Boolean	

10.3.7.100 UE internal event identity

Information Element/Group name	Need	Multi	Type and reference	Semantics description
UE internal event identity	MP		Enumerated(6a,6b,6c,6d, 6e, 6f, 6g)	

10.3.7.101 UE internal measured results

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE *mode*	MP			
>FDD				
>>UE Transmitted Power	OP		UE transmitted power info 10.3.7.109~~Integer(-50..33)~~	~~UE transmitted power In dBm~~
>>UE Rx-Tx report entries	OP	1 to <maxRL>		
>>>Primary CPICH info	MP		Primary CPICH info 10.3.6.59	Primary CPICH info for each cell included in the active set
>>>UE Rx-Tx time difference	MP		UE Rx-Tx time difference 10.3.7.108	UE Rx-Tx time difference in chip for each RL included in the active set
>TDD				
>>UE transmitted Power list	OP	1 to <maxTS>		UE transmitted power for each used uplink timeslot in ascending timeslot number order
>>>UE transmitted power	MP		UE transmitted power info 10.3.7.109	
>>Applied TA	OP		Uplink Timing Advance 10.3.6.93	

10.3.7.102 UE internal measurement

Information Element/Group name	Need	Multi	Type and reference	Semantics description
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	MP			
>UE internal measurement reporting criteria			UE internal measurement reporting criteria 10.3.7.105	
>Periodical reporting criteria			Periodical reporting criteria 10.3.7.78	
>No reporting				(no data) Chosen when this measurement only is used as additional measurement to another measurement

CHOICE *report criteria*	Condition under which the given *report criteria* is chosen
UE internal measurement reporting criteria	Chosen when UE internal measurement event triggering is required
Periodical reporting criteria	Chosen when periodical reporting is required
No reporting	Chosen when this measurement only is used as additional measurement to another measurement

10.3.7.103 UE internal measurement event results

This IE contains the measurement event results that are reported to UTRAN for UE internal measurements.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
UE internal event identity	MP		UE internal event identity 10.3.7.100	
CHOICE *mode*	MP			
>FDD				
>Primary CPICH info	CV - clause 1		Primary CPICH info 10.3.6.59	
>TDD				(no data)

Condition	Explanation
Clause 1	This IE is mandatory if "UE internal event identity" is set to "6f" or "6g", otherwise the IE is not needed

10.3.7.104 UE internal measurement quantity

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

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE mode	MP			
>FDD				
>>Measurement quantity	MP		Enumerated(UE Transmitted Power, UTRA Carrier RSSI, UE Rx-Tx time difference)	
>TDD				
>>Measurement quantity	MP		Enumerated(UE Transmitted Power, UTRA Carrier RSSI)	
Filter coefficient	MP		Filter coefficient 10.3.7.9	

10.3.7.105 UE internal measurement reporting criteria

The triggering of the event-triggered reporting for a UE internal measurement. All events concerning UE internal measurements are labelled 6x where x is a, b, c…. In TDD, the events 6a - 6d are measured and reported on timeslot basis.

Event 6a: The UE Transmitted Power becomes larger than an absolute threshold

Event 6b: The UE Transmitted Power becomes less than an absolute threshold

Event 6c: The UE Transmitted Power reaches its minimum value

Event 6d: The UE Transmitted Power reaches its maximum value

Event 6e: The UE RSSI reaches the UEs dynamic receiver range

Event 6f: The UE Rx-Tx time difference for a RL included in the active set becomes larger than an absolute threshold

Event 6g: The UE Rx-Tx time difference for a RL included in the active set becomes less than an absolute threshold

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Parameters sent for each UE internal measurement event	OP	1 to <maxMeasEvent>		
> UE internal event identity	MP		UE internal event identity 10.3.7.100	
>Time-to-trigger	MP		Integer(0, 10, 20, 40, 60, 80, 100, 120, 160, 200, 240, 320, 640, 1280, 2560, 5000)	Time in ms. Indicates the period of time between the timing of event detection and the timing of sending Measurement Report.
>UE Transmitted power Tx power threshold	CV - clause 1		Integer(-50..33)	Power in dBm. In event 6a, 6b.
>UE Rx-Tx time difference threshold	CV - clause 2		Integer(769..1280)	Time difference in chip. In event 6f, 6g.

Condition	Explanation
Clause 1	The IE is mandatory if UE internal event identity" is set to "6a" or "6b", otherwise the IE is not needed
Clause 2	The IE is mandatory if "UE internal event identity" is set to "6f" or "6g", otherwise the IE is not needed

10.3.7.106 UE internal measurement system information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
UE internal measurement identity number	MD		Measurement identity number 10.3.7.73	The UE internal measurement identity number has default value 5.
UE internal measurement quantity	MP		UE internal measurement quantity 10.3.7.104	

10.3.7.107 UE Internal reporting quantity

For all boolean types TRUE means inclusion in the report is requested.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
UE Transmitted Power	MP		Boolean	
CHOICE mode	MP			
>FDD				
>>UE Rx-Tx time difference	MP		Boolean	
>TDD				
>>Applied TA	MP		Boolean	

10.3.7.108 UE Rx-Tx time difference

The difference in time between the UE uplink DPCCH/DPDCH frame transmission and the first significant path, of the downlink DPCH frame from the measured radio link. This measurement is for FDD only.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
UE Rx-Tx time difference	MP		Integer(876.. 1172)	In chips.

10.3.7.109 UE Transmitted Power info

Information Element/Group name	Need	Multi	IE type and reference	Semantics description
UE Transmitted Power	MP		Integer (-50... 33)	In dBm

10.3.8 Other Information elements

10.3.8.1 BCCH modification info

Indicates modification of the System Information on BCCH.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
MIB Value tag	MP		MIB Value tag 10.3.8.7	
BCCH Modification time	OP		Integer (0..~~8, 16, 24, ..~~ 4088 by step of 8)	All SFN values in which MIB may be mapped are allowed.

10.3.8.2 BSIC

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Base transceiver Station Identity Code (BSIC)	MP			[TS 23.003]
>Network Colour Code (NCC)	MP		bit string(3)	
>Base Station Colour Code (BCC)	MP		bit string(3)	

10.3.8.3 CBS DRX Level 1 information

This information element contains the CBS discontinuous reception information to be broadcast for CBS DRX Level 1 calculations in the UE.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Period of CTCH allocation (N)	MP		Integer (1..256)	$M_{TTI} \leq N \leq 4096 - K$, N multiple of M_{TTI}
CBS frame offset (K)	MP		Integer (0..255)	$0 \leq K \leq N-1$, K multiple of M_{TTI}

10.3.8.4 Cell Value tag

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Cell Value tag	MP		Integer (1..4)	

10.3.8.5 Inter-System handover failure

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Inter-System handover failure cause	MD		Enumerated(Configuration unacceptable, physical channel failure, protocol error, unspecified)	Default value is "unspecified". At least ~~3~~one spare value neededs~~, criticality = default, are required~~
Protocol error information	CV-*ProtErr*		Protocol error information 10.3.8.10	
Inter-System message	OP		Inter-System message 10.3.8.6	

Condition	Explanation
ProtErr	If the IE "Inter-system handover failure cause" has the value "Protocol error"

10.3.8.6 Inter-system message

This Information Element contains one or several messages that are structured and coded according to the specification used for the system type indicated by the first parameter.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
System type	MP		Enumerated (GSM except PCS 1900, PCS 1900, cdma2000)	This IE indicates in particular which specification to apply to decode the transported messages ~~At least 14 spare values, Criticality: reject, are needed~~
CHOICE *system*	MP			~~At least 14 spare choices, Criticality: reject, are needed~~
>GSM				
>>Message(s)	MP	1.to.<maxInterSysMessages>	Bitstring (1..512)	Formatted and coded according to GSM specifications
>cdma2000				
>>cdma2000Message	MP	1.to.<maxInterSysMessages>		
>>>MSG_TYPE(s)	MP		Bitstring (8)	Formatted and coded according to cdma2000 specifications
>>>cdma2000Messagepayload(s)	MP		Bitstring (1..512)	Formatted and coded according to cdma2000 specifications

Condition	Explanation
System	The 'GSM' choice shall be applied when the IE 'System type' is 'GSM except PCS 1900' or 'PCS 1900', and the 'cdma2000' choice shall be applied when the IE 'system type' is 'cdma2000'.

10.3.8.7 MIB Value tag

Information Element/Group name	Need	Multi	Type and reference	Semantics description
MIB Value tag	MP		Integer (1..8)	

10.3.8.8 PLMN Value tag

Information Element/Group name	Need	Multi	Type and reference	Semantics description
PLMN Value tag	MP		Integer (1..256)	

10.3.8.9 Predefined configuration identity and value tag

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Predefined configuration identity	MP		Predefined configuration identity 10.3.4.5	
Predefined configuration value tag	MP		Predefined configuration value tag 10.3.4.6	

10.3.8.10 Protocol error information

This information element contains diagnostics information returned by the receiver of a message that was not completely understood.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE diagnostics type	MP			At least one spare choice is needed.
> Protocol error cause			Protocol error cause 10.3.3.26	

10.3.8.11 References to other system information blocks and scheduling blocks

Information element/Group name	Need	Multi	Type and reference	Semantics description
References to other system information blocks	MP	1 to <maxSIB>		System information blocks for which multiple occurrences are used, may appear more than once in this list
>Scheduling information	MP		Scheduling information, 10.3.8.12	
>SIB type	MP		SIB Type, 10.3.8.17	

10.3.8.11a References to other system information blocks

Information element/Group name	Need	Multi	Type and reference	Semantics description
References to other system information blocks	MP	1 to <maxSIB>		System information blocks for which multiple occurrences are used, may appear more than once in this list
>Scheduling information	MP		Scheduling information, 10.3.8.12	
>SIB type SIBs only	MP		SIB Type SIBs only, 10.3.8.17a	

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~~MP			~~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 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.
~~Scheduling~~	~~The default value is the scheduling of the SIB as specified in another SIB.~~

10.3.8.13 SEG COUNT

Information Element/Group name	Need	Multi	Type and reference	Semantics description
SEG_COUNT	MP		Integer (1..16)	Number of segments in the system information block

10.3.8.14 Segment index

Each system information segment has an individual segment index.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Segment index	MP		Integer (~~0~~1..15)	Segments of a system information block are numbered starting with 0 for the first ~~part~~segment and 1 for the next segment, which can be the first subsequent segment or a last segment.

10.3.8.15 SIB data fixed

Contains the result of a master information block or a system information block after encoding and segmentation. The IE is used for segments with fixed length (segments filling an entire transport block).

Information Element/Group name	Need	Multi	Type and reference	Semantics description
SIB data fixed	MP		Bit string (222)	

10.3.8.16 SIB data variable

Contains either a complete system information block or a segment of a system information block. Contains the result of a master information block or a system information block after encoding and segmentation. The IE is used for segments with variable length. The system information blocks are defined in clauses 10.2.49.8.1 to 10.2.49.8.18.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
SIB data variable	MP		Bit string (1..214)	

10.3.8.17 SIB type

The SIB type identifies a specific system information block.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
SIB type	MP		Enumerated, see below	

The list of values to encode is:

Master information block,

System Information Type 1,

System Information Type 2,

System Information Type 3,

System Information Type 4,

System Information Type 5,

System Information Type 6,

System Information Type 7,

System Information Type 8,

System Information Type 9,

System Information Type 10,

System Information Type 11,

System Information Type 12,

System Information Type 13,

System Information Type 13.1,

System Information Type 13.2,

System Information Type 13.3,

System Information Type 13.4,

System Information Type 14,

System Information Type 15,

System Information Type 15.1,

System Information Type 15.2,

System Information Type 15.3,

System Information Type 16,

System Information Type 17,

Scheduling Block 1,

Scheduling Block 2

in addition, at least one5~~7~~ spare value~~s~~, criticality: ignore, ~~are~~is needed.

10.3.8.17a SIB type SIBs only

The SIB type identifies a specific system information block.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
SIB type SIBs only	MP		Enumerated, see below	

The list of values to encode is:

System Information Type 1,

System Information Type 2,

System Information Type 3,

System Information Type 4,

System Information Type 5,

System Information Type 6,

System Information Type 7,

System Information Type 8,

System Information Type 9,

System Information Type 10,

System Information Type 11,

System Information Type 12,

System Information Type 13,

System Information Type 13.1,

System Information Type 13.2,

System Information Type 13.3,

System Information Type 13.4,

System Information Type 14,

System Information Type 15,

System Information Type 15.1,

System Information Type 15.2,

System Information Type 15.3,

System Information Type 16,

System Information Type 17.

in addition, at least ~~8~~one spare value~~s~~, criticality: ignore, ~~are~~is needed.

10.3.9 ANSI-41 Information elements

10.3.9.1 ANSI 41 Core Network Information

Information element/Group name	Need	Multi	Type and reference	Semantics description
P_REV	MP		P_REV 10.3.9.10	
MIN_P_REV	MP		MIN_P_REV 10.3.9.8	
SID	MP		SID 10.3.9.11	
NID	MP		NID 10.3.9.9	

10.3.9.2 ANSI-41 Global Service Redirection information

This Information Element contains ANSI-41 Global Service Redirection information.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
ANSI-41 Global Service Redirection information	MP		ANSI-41 NAS parameter, 10.3.9.3	Formatted and coded according to the 3GPP2 document "G3G CDMA DS on ANSI-41"

10.3.9.3 ANSI-41 NAS parameter

This Information Element contains ANSI-41 User Zone Identification information.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
ANSI-41 NAS parameter	MP		Bit string (size (1..2048))	

10.3.9.4 ANSI-41 NAS system information

This Information Element contains ANSI-41 system information.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
NAS (ANSI-41) system information	MP		ANSI-41 NAS parameter, 10.3.9.3	Formatted and coded according to the 3GPP2 document "G3G CDMA DS on ANSI-41"

10.3.9.5 ANSI-41 Private ~~Neighbor~~ Neighbour List information

This Information Element contains ANSI-41 Private ~~Neighbor~~ Neighbour List information.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
ANSI-41 Private ~~Neighbor~~ Neighbour List information	MP		ANSI-41 NAS parameter, 10.3.9.3	Formatted and coded according to the 3GPP2 document "G3G CDMA DS on ANSI-41"

10.3.9.6 ANSI-41 RAND information

This Information Element contains ANSI-41 RAND information.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
ANSI-41 RAND information	MP		ANSI-41 NAS parameter, 10.3.9.3	Formatted and coded according to the 3GPP2 document "G3G CDMA DS on ANSI-41"

10.3.9.7 ANSI-41 User Zone Identification information

This Information Element contains ANSI-41 User Zone Identification information.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
ANSI-41 User Zone Identification information	MP		ANSI-41 NAS parameter, 10.3.9.3	Formatted and coded according to the 3GPP2 document "G3G CDMA DS on ANSI-41"

10.3.9.8 MIN_P_REV

This Information Element contains minimum protocol revision level.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
MIN_P_REV	MP		Bitstring (8)	Minimum protocol revision level

10.3.9.9 NID

This Information Element contains Network identification.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
NID	MP		Bitstring (16)	Network identification

10.3.9.10 P_REV

This Information Element contains protocol revision level.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
P_REV	MP		Bitstring (8)	Protocol revision level

10.3.9.11 SID

This Information Element contains System identification.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
SID	MP		Bitstring (15)	System identification

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 or Radio Access Technologies	maxOtherRAT + 1
maxOtherRAT	Maximum number or other Radio Access Technologies	15
maxURA	Maximum number of URAs in a cell	8
maxInterSysMessages	Maximum number of Inter System Messages	4
maxRABsetup	Maximum number of RABs to be established	16
UE information		
maxtransactions	Maximum number of parallel RRC transactions in downlink	25
maxPDCPalgoType	Maximum number of PDCP algorithm types	8
maxDRACclasses	Maximum number of UE classes which would require different DRAC parameters	8
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 cell	16
maxSIBperMsg	Maximum number of complete system information blocks per SYSTEM INFORMATION message	16
maxSIB	Maximum number of references to other system information blocks.	32
maxSIB-FACH	Maximum number of references to system information blocks on the FACH	8
PhyCH information		
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

maxFACHPCH	Maximum number of FACHs and PCHs mapped onto one secondary CCPCHs	8
maxRL	Maximum number of radio links	8
maxSCCPCH	Maximum number of secondary CCPCHs per cell	16
maxDPDCH-UL	Maximum number of DPDCHs per cell	6
maxDPCH-DLchan	Maximum number of channelisation codes used for DL DPCH	8
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
maxTS	Maximum number of timeslots used in one direction (UL or DL)	14
HiPUSCHIdentities	Maximum number of PDSCH Identities	64
HiPDSCHIdentities	Maximum number of PDSCH Identities	64
Measurement information		
maxTGPS	Maximum number of transmission gap pattern sequences	6
maxAdditionalMeas	Maximum number of additional measurements for a given measurement identity	4
maxMeasEvent	Maximum number of events that can be listed in measurement reporting criteria	8
maxMeasParEvent	Maximum number of measurement parameters (e.g. thresholds) per event	2
maxMeasIntervals	Maximum number of intervals that define the mapping function between the measurements for the cell quality Q of a cell and the representing quality value	1
maxCellMeas	Maximum number of cells to measure	32
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
Frequency information		
maxFDDFreqList	Maximum number of FDD carrier frequencies to be stored in USIM	4
maxTDDFreqList	Maximum number of TDD carrier frequencies to be stored in USIM	4
maxFDDFreqCellList	Maximum number of neighbouring FDD cells to be stored in USIM	32
maxTDDFreqCellList	Maximum number of neighbouring TDD cells to be stored in USIM	32
maxGSMCellList	Maximum number of GSM cells to be stored in USIM	32

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

```
Class-definitions DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

    ActiveSetUpdate-r3,
    ActiveSetUpdateComplete,
    ActiveSetUpdateFailure,
    CellUpdate,
    CellUpdateConfirm-CCCH-r3,
    CellUpdateConfirm-r3,
    CounterCheck-r3,
    CounterCheckResponse,
    DownlinkDirectTransfer-r3,
    DownlinkOuterLoopControl-r3,
    HandoverToUTRANComplete,
    InitialDirectTransfer,
    InterSystemHandoverCommand-GSM-r3,
    InterSystemHandoverCommand-CDMA2000-r3,
    InterSystemHandoverFailure,
    MeasurementControl-r3,
    MeasurementControlFailure,
    MeasurementReport,
    PagingType1,
    PagingType2,
    PhysicalChannelReconfiguration-r3,
    PhysicalChannelReconfigurationComplete,
    PhysicalChannelReconfigurationFailure,
    PhysicalSharedChannelAllocation-r3,
    PUSCHCapacityRequest,
    RadioBearerReconfiguration-r3,
    RadioBearerReconfigurationComplete,
    RadioBearerReconfigurationFailure,
    RadioBearerRelease-r3,
    RadioBearerReleaseComplete,
    RadioBearerReleaseFailure,
    RadioBearerSetup-r3,
    RadioBearerSetupComplete,
    RadioBearerSetupFailure,
    RRCConnectionReEstablishment,
    RRCConnectionReEstablishment-CCCH,
    RRCConnectionReEstablishmentComplete,
    RRCConnectionReEstablishmentRequest,
    RRCConnectionReject,
    RRCConnectionRelease-r3,
    RRCConnectionRelease-CCCH-r3,
    RRCConnectionReleaseComplete,
    RRCConnectionReleaseComplete-CCCH,
    RRCConnectionRequest,
    RRCConnectionSetup-r3,
    RRCConnectionSetupComplete,
    RRCStatus,
    SecurityModeCommand-r3,
    SecurityModeComplete,
    SecurityModeFailure,
    SignallingConnectionRelease-r3,
```

```
    SignallingConnectionReleaseRequest,
    SystemInformation-BCH,
    SystemInformation-FACH,
    SystemInformationChangeIndication,
    TransportChannelReconfiguration-r3,
    TransportChannelReconfigurationComplete,
    TransportChannelReconfigurationFailure,
    TransportFormatCombinationControl,
    TransportFormatCombinationControlFailure,
    UECapabilityEnquiry-r3,
    UECapabilityInformation,
    UECapabilityInformationConfirm-r3,
    UplinkDirectTransfer,
    UplinkPhysicalChannelControl-r3,
    URAUpdate,
    URAUpdateConfirm-r3,
    URAUpdateConfirm-CCCH-r3,
    UTRANMobilityInformation,
    UTRANMobilityInformationConfirm,
    UTRANMobilityInformationFailure
FROM PDU-definitions

-- User Equipment IEs :
    IntegrityCheckInfo
FROM InformationElements;
FROM UserEquipment-IEs;

--**************************************************************
--
-- Downlink DCCH messages
--
--**************************************************************

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

DL-DCCH-MessageType ::= CHOICE {
    activeSetUpdate                     ActiveSetUpdate-r3,
    cellUpdateConfirm                   CellUpdateConfirm-r3,
    counterCheck                        CounterCheck-r3,
    downlinkDirectTransfer              DownlinkDirectTransfer-r3,
    downlinkOuterLoopControl            DownlinkOuterLoopControl-r3,
    interSystemHandoverCommand-GSM      InterSystemHandoverCommand-GSM-r3,
    interSystemHandoverCommand-CDMA2000 InterSystemHandoverCommand-CDMA2000-r3,
    measurementControl                  MeasurementControl-r3,
    pagingType2                         PagingType2,
    physicalChannelReconfiguration      PhysicalChannelReconfiguration-r3,
    physicalSharedChannelAllocation     PhysicalSharedChannelAllocation-r3,
    radioBearerReconfiguration          RadioBearerReconfiguration-r3,
    radioBearerRelease                  RadioBearerRelease-r3,
    radioBearerSetup                    RadioBearerSetup-r3,
    rrcConnectionReEstablishment        RRCConnectionReEstablishment,
    rrcConnectionRelease                RRCConnectionRelease-r3,
    securityModeCommand                 SecurityModeCommand-r3,
    signallingConnectionRelease         SignallingConnectionRelease-r3,
    transportChannelReconfiguration     TransportChannelReconfiguration-r3,
    transportFormatCombinationControl   TransportFormatCombinationControl-,
    ueCapabilityEnquiry                 UECapabilityEnquiry-r3,
    ueCapabilityInformationConfirm      UECapabilityInformationConfirm-r3,
    uplinkPhysicalChannelControl        UplinkPhysicalChannelControl-r3,
    uraUpdateConfirm                    URAUpdateConfirm-r3,
    utranMobilityInformation            UTRANMobilityInformation-,
    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,
    rrcConnectionReEstablishmentComplete
                                        RRCConnectionReEstablishmentComplete,
    rrcConnectionReleaseComplete        RRCConnectionReleaseComplete,
    rrcConnectionSetupComplete          RRCConnectionSetupComplete,
    rrcStatus                           RRCStatus,
    securityModeComplete                SecurityModeComplete,
    securityModeFailure                 SecurityModeFailure,
    signallingConnectionReleaseRequest  SignallingConnectionReleaseRequest,
    transportChannelReconfigurationComplete
                                        TransportChannelReconfigurationComplete,
    transportChannelReconfigurationFailure
                                        TransportChannelReconfigurationFailure,
    transportFormatCombinationControlFailure
                                        TransportFormatCombinationControlFailure,
    ueCapabilityInformation             UECapabilityInformation,
    uplinkDirectTransfer                UplinkDirectTransfer,
    utranMobilityInformationConfirm     UTRANMobilityInformationConfirm,
    utranMobilityInformationFailure     UTRANMobilityInformationFailure,
    extension                           NULL
}

--********************************************************
--
-- Downlink CCCH messages
--
--********************************************************

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

DL-CCCH-MessageType ::= CHOICE {
    cellUpdateConfirm                   CellUpdateConfirm-CCCH-r3,
    rrcConnectionReEstablishment        RRCConnectionReEstablishment-CCCH,
    rrcConnectionReject                 RRCConnectionReject-r3,
    rrcConnectionRelease                RRCConnectionRelease-CCCH-r3,
    rrcConnectionSetup                  RRCConnectionSetup-r3,
    uraUpdateConfirm                    URAUpdateConfirm-CCCH-r3,
    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 {
    message                 DL-SHCCH-MessageType
}

DL-SHCCH-MessageType ::= CHOICE {
    physicalSharedChannelAllocation     PhysicalSharedChannelAllocation-r3,
    extension                           NULL
}

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

UL-SHCCH-Message ::= SEQUENCE {
    message                 UL-SHCCH-MessageType
}

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


--************************************************************
--
-- 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

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

-- UTRAN Mobility IEs :
    URA-Identity,
FROM UTRANMobility-IEs

-- User Equipment IEs :
    ActivationTime,
    C-RNTI,
    CapabilityUpdateRequirement,
    CellUpdateCause,
    CipheringAlgorithm,
    CipheringModeInfo,
    DRX-Indicator,
    EstablishmentCause,
    FailureCauseWithProtErr,
    FailureCauseWithProtErrTrId,
    InitialUE-Identity,
    IntegrityProtActivationInfo,
    IntegrityProtectionModeInfo,
    N-308,
    PagingCause,
    PagingRecordList,
    ProtocolErrorIndicator,
    ProtocolErrorIndicatorWithInfo,
    ProtocolErrorIndicatorWithMoreInfo,
    Rb-timer-indicator,
    Re-EstablishmentTimer,
    RedirectionInfo,
    RejectionCause,
    ReleaseCause,
    RRC-MessageTX-Count,
    RRC-StateIndicator,
    RRC-TransactionIdentifier,
    SecurityCapability,
    START-Value,
    STARTList,
    U-RNTI,
    U-RNTI-Short,
    UE-RadioAccessCapability,
    UE-ConnTimersAndConstants,
    URA-UpdateCause,
    UTRAN-DRX-CycleLengthCoefficient,
    WaitTime,
FROM UserEquipment-IEs
```

```
-- Radio Bearer IEs :
    PredefinedConfigIdentity,
    RAB-Info,
    RAB-Info-Short,
    RAB-InformationReconfigList,
    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

-- Transport Channel IEs:
    CPCH-SetID,
    DL-AddReconfTransChInfo2List,
    DL-AddReconfTransChInfoList,
    DL-CommonTransChInfo,
    DL-DeletedTransChInfoList,
    DRAC-StaticInformationList,
    TFC-Subset,
    TFCS-Identity,
    UL-AddReconfTransChInfoList,
    UL-CommonTransChInfo,
    UL-DeletedTransChInfoList,
FROM TransportChannel-IEs

-- Physical Channel 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-CapacityAllocationInfo,
    PDSCH-Identity,
    PDSCH-Info,
    PRACH-RACH-Info,
    PrimaryCCPCH-TX-Power,
    PUSCH-CapacityAllocationInfo,
    PUSCH-Identity,
    RL-AdditionInformationList,
    RL-RemovalInformationList,
    SSDT-Information,
    TFC-ControlDuration,
    TimeslotList,
    TX-DiversityMode,
    UL-ChannelRequirement,
    UL-ChannelRequirementWithCPCH-SetId,
    UL-DPCH-Info,
    UL-DPCH-InfoPostFDD,
    UL-DPCH-InfoPostTDD,
    UL-TimingAdvance,
    UL-TimingAdvanceControl,
FROM PhysicalChannel-IEs

-- Measurement IEs :
    AdditionalMeasurementID-List,
```

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

-- Other IEs :
    BCCH-ModificationInfo,
    CDMA2000-MessageList,
    GSM-MessageList,
    InterSystemHO-Failure,
    InterSystemMessage,
    ProtocolErrorInformation,
    ProtocolErrorMoreInformation,
    SegCount,
    SegmentIndex,
    SFN-Prime,
    SIB-Data-fixed,
    SIB-Data-variable,
    SIB-Type
FROM InformationElements
FROM Other-IEs

    maxSIBperMsg
FROM Constant-definitions;

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

ActiveSetUpdate-r3 ::= CHOICE {
    v1r3                                SEQUENCE {
        v1-IEsactiveSetUpdate-r3                ActiveSetUpdate-v1r3-IEs,
        nonCriticalExtensions           SEQUENCE {}
    },
    criticalExtensions              SEQUENCE {}
}

ActiveSetUpdate-v1r3-IEs ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        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
}

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

ActiveSetUpdateComplete ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        ul-IntegProtActivationInfo      IntegrityProtActivationInfo         OPTIONAL,
    -- Radio bearer IEs
        rb-UL-CiphActivationTimeInfo    RB-ActivationTimeInfoList               OPTIONAL,
        rb-WithPDCP-InfoList            RB-WithPDCP-InfoList                OPTIONAL,
```

```
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}
}

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

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

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

CellUpdate ::= SEQUENCE {
    -- User equipment IEs
        u-RNTI                          U-RNTI,
        startList       STARTList,
        am-RLC-ErrorIndicationC-plane   BOOLEAN,
        am-RLC-ErrorIndicationU-plane   BOOLEAN,
        cellUpdateCause                 CellUpdateCause,
        failureCause                    FailureCauseWithProtErrTrId         OPTIONAL,
        -- TABULAR: RRC transaction identifier is nested in FailureCauseWithProtErrTrId
        protocolErrorIndicator          ProtocolErrorIndicatorWithInfo,
        -- TABULAR: Protocol error information is nested in
        -- ProtocolErrorIndicatorWithInfo.
        rb-timer-indicator              Rb-timer-indicator,
    -- Measurement IEs
        measuredResultsOnRACH           MeasuredResultsOnRACH               OPTIONAL,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}
}

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

CellUpdateConfirm-r3 ::= CHOICE {
    v1r3                                SEQUENCE {
        v1-IEscellUpdateConfirm-r3          CellUpdateConfirm-v1r3-IEs,
        nonCriticalExtensions           SEQUENCE {}
    },
    criticalExtensions              SEQUENCE {}
}

CellUpdateConfirm-v1r3-IEs ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        integrityProtectionModeInfo     IntegrityProtectionModeInfo         OPTIONAL,
        cipheringModeInfo               CipheringModeInfo                   OPTIONAL,
        activationTime                  ActivationTime                      OPTIONAL,
        new-U-RNTI                      U-RNTI                              OPTIONAL,
        new-C-RNTI                      C-RNTI                              OPTIONAL,
        drx-Indicator                   DRX-Indicator,
        rrc-StateIndicator              RRC-StateIndicator,
        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-InformationReleaseList       RB-InformationReleaseList           OPTIONAL,
        rb-InformationReconfigList      RB-InformationReconfigList          OPTIONAL,
        rb-InformationAffectedList      RB-InformationAffectedList          OPTIONAL,
```

```
        rb-WithPDCP-InfoList            RB-WithPDCP-InfoList                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,
        prach-RACH-Info                 PRACH-RACH-Info                     OPTIONAL,
        ul-ChannelRequirement           UL-ChannelRequirement               OPTIONAL,
        modeSpecificPhysChInfo          CHOICE {
            fdd                             SEQUENCE {
                dl-PDSCH-Information            DL-PDSCH-Information        OPTIONAL
            },
            tdd                             NULL
        },
        dl-CommonInformation            DL-CommonInformation                OPTIONAL,
        dl-InformationPerRL-List        DL-InformationPerRL-List            OPTIONAL
        dl-InformationPerRL             DL-InformationPerRL                 OPTIONAL
}

-- **************************************************
--
-- CELL UPDATE CONFIRM for CCCH
--
-- **************************************************

CellUpdateConfirm-CCCH-r3 ::= CHOICE {
    r3                              SEQUENCE {
        -- User equipment IEs
            u-RNTI                          U-RNTI,
        -- The rest of the message is identical to the one sent on DCCH.

            cellUpdateConfirm-r3                CellUpdateConfirm-r3-IEs,
        nonCriticalExtensions           SEQUENCE {}
    },
    criticalExtensions              SEQUENCE {}
}
SEQUENCE {
    -- User equipment IEs
        u-RNTI                          U-RNTI,
    -- The rest of the message is identical to the one sent on DCCH.
        cellUpdateConfirm               CellUpdateConfirm
}


-- **************************************************
--
-- COUNTER CHECK
--
-- **************************************************

CounterCheck-r3 ::= CHOICE {
    v1r3                                SEQUENCE {
        v1-IEscounterCheck-r3                       CounterCheck-v1r3-IEs,
        nonCriticalExtensions           SEQUENCE {}
    },
    criticalExtensions              SEQUENCE {}
}

CounterCheck-v1r3-IEs ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
    -- Radio bearer IEs
        rb-COUNT-C-MSB-InformationList  RB-COUNT-C-MSB-InformationList
}

-- **************************************************
```

```
--
-- COUNTER CHECK RESPONSE
--
-- ************************************************

CounterCheckResponse ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
    -- Radio bearer IEs
        rb-COUNT-C-InformationList      RB-COUNT-C-InformationList          OPTIONAL,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}
}

-- ************************************************
--
-- DOWNLINK DIRECT TRANSFER
--
-- ************************************************

DownlinkDirectTransfer-r3 ::= CHOICE {
    v1r3                                SEQUENCE {
        v1-IEsdownlinkDirectTransfer-r3     DownlinkDirectTransfer-v1r3-IEs,
        nonCriticalExtensions           SEQUENCE {}
    },
    criticalExtensions              SEQUENCE {}
}

DownlinkDirectTransfer-v1r3-IEs ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
    -- Core network IEs
        cn-DomainIdentity               CN-DomainIdentity,
        nas-Message                     NAS-Message
}

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

DownlinkOuterLoopControl-r3 ::= CHOICE {
    v1r3                                SEQUENCE {
        v1-IEsdownlinkOuterLoopControl-r3       DownlinkOuterLoopControl-v1r3-
IEs,
        nonCriticalExtensions           SEQUENCE {}
    },
    criticalExtensions              SEQUENCE {}
}

DownlinkOuterLoopControl-v1r3-IEs ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
    -- 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-r3 ::= CHOICE {
    v1r3                                SEQUENCE {
        v1-IEshandoverToUTRANCommand-r3     HandoverToUTRANCommand-v1r3-IEs,
        nonCriticalExtensions           SEQUENCE {}
    },
    criticalExtensions              SEQUENCE {}
}

HandoverToUTRANCommand-v1r3-IEs ::= 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-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,
                modeSpecificInfo                CHOICE {
                    fdd                             SEQUENCE {
                        ul-DPCH-Info                    UL-DPCH-InfoPostFDD,
                        dl-CommonInformationPost        DL-CommonInformationPost,
                        dl-InformationPerRL-List        DL-InformationPerRL-ListPostFDD,
                        frequencyInfo                   FrequencyInfoFDD
                    },
                    tdd                             SEQUENCE {
                        ul-DPCH-Info                    UL-DPCH-InfoPostTDD,
                        dl-InformationPerRL             DL-InformationPerRL-PostTDD,
                        frequencyInfo                   FrequencyInfoTDD,
                        primaryCCPCH-TX-Power           PrimaryCCPCH-TX-Power
                    }

                }
            }
        },
    -- Physical channel IEs
        maxAllowedUL-TX-Power           MaxAllowedUL-TX-Power
}

-- **************************************************
--
-- 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 {}
}

-- **************************************************
--
-- 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 {}
}

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

InterSystemHandoverCommand-GSM-r3 ::= CHOICE {
    v1r3                                SEQUENCE {
        v1-IEsinterSystemHandoverCommand-GSM-r3
                                        InterSystemHandoverCommand-GSM-v1r3-IEs,
        nonCriticalExtensions           SEQUENCE {}
    },
    criticalExtensions              SEQUENCE {}
}

InterSystemHandoverCommand-GSM-v1r3-IEs ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        activationTime                  ActivationTime                      OPTIONAL,
    -- Radio bearer IEs
        remainingRAB-Info               RAB-Info                            OPTIONAL,
    -- Other IEs
        message-and-extension           CHOICE {
            gsm-Message                     SEQUENCE {},
            -- In this case, what follows the basic production is a variable length bit string
            -- with no length field, containing the GSM message including GSM padding up to end
            -- of container, to be analysed according to GSM specifications
            with-extension                  SEQUENCE {
                messages                        GSM-MessageList
            }
        }
}

InterSystemHandoverCommand-CDMA2000-r3 ::= CHOICE {
    v1r3                                SEQUENCE {
        v1-IEsinterSystemHandoverCommand-CDMA2000-r3
                                        InterSystemHandoverCommand-CDMA2000-v1r3-IEs,
        nonCriticalExtensions           SEQUENCE {}
    },
    criticalExtensions              SEQUENCE {}
}

InterSystemHandoverCommand-CDMA2000-v1r3-IEs ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        activationTime                  ActivationTime                      OPTIONAL,
    -- Radio bearer IEs
        remainingRAB-Info               RAB-Info                            OPTIONAL,
    -- Other IEs
        cdma2000-MessageList            CDMA2000-MessageList
}

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

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

-- **************************************************
--
```

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

MeasurementControl-r3 ::= CHOICE {
    v1r3                                SEQUENCE {
        v1-IEsmeasurementControl-r3             MeasurementControl-v1r3-IEs,
        nonCriticalExtensions           SEQUENCE {}
    },
    criticalExtensions              SEQUENCE {}
}

MeasurementControl-v1r3-IEs ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
    -- 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
}

-- ************************************************
--
-- MEASUREMENT CONTROL FAILURE
--
-- ************************************************

MeasurementControlFailure ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        failureCause                    FailureCauseWithProtErr,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}
}

-- ************************************************
--
-- MEASUREMENT REPORT
--
-- ************************************************

MeasurementReport ::= SEQUENCE {
    -- Measurement IEs
        measurementIdentityNumber       MeasurementIdentityNumber,
        measuredResults                 MeasuredResults                     OPTIONAL,
        measuredResultsOnRACH           MeasuredResultsOnRACH               OPTIONAL,
        additionalMeasuredResults       MeasuredResultsList                 OPTIONAL,
        eventResults                    EventResults                        OPTIONAL,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}
}

-- ************************************************
--
-- 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 {}
}

-- ************************************************
--
-- PAGING TYPE 2
--
-- ************************************************

PagingType2 ::= SEQUENCE {
```

```
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        pagingCause                     PagingCause,
    -- Core network IEs
        cn-DomainIdentity               CN-DomainIdentity,
        pagingRecordTypeID              PagingRecordTypeID,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}
}

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

PhysicalChannelReconfiguration-r3 ::= CHOICE {
    v1r3                                SEQUENCE {
        v1-IEsphysicalChannelReconfiguration-r3
                                        PhysicalChannelReconfiguration-v1r3-IEs,
        nonCriticalExtensions           SEQUENCE {}
    },
    criticalExtensions              SEQUENCE {}
}

PhysicalChannelReconfiguration-v1r3-IEs ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        integrityProtectionModeInfo     IntegrityProtectionModeInfo         OPTIONAL,
        cipheringModeInfo               CipheringModeInfo                   OPTIONAL,
        activationTime                  ActivationTime                      OPTIONAL,
        new-U-RNTI                      U-RNTI                              OPTIONAL,
        new-C-RNTI                      C-RNTI                              OPTIONAL,
        drx-Indicator                   DRX-Indicator,
        rrc-StateIndicator              RRC-StateIndicator,
        utran-DRX-CycleLengthCoeff      UTRAN-DRX-CycleLengthCoefficient    OPTIONAL,
    -- Core network IEs
        cn-InformationInfo              CN-InformationInfo                  OPTIONAL,
    -- UTRAN mobility IEs
        ura-Identity                    URA-Identity                        OPTIONAL,
    -- Radio bearer IEs
        rb-WithPDCP-InfoList            RB-WithPDCP-InfoList                OPTIONAL,
    -- Physical channel IEs
        frequencyInfo                   FrequencyInfo                       OPTIONAL,
        maxAllowedUL-TX-Power           MaxAllowedUL-TX-Power               OPTIONAL,
        ul-ChannelRequirement           UL-ChannelRequirementWithCPCH-SetID         OPTIONAL,
        -- TABULAR: UL-ChannelRequirementWithCPCH-SetID contains the choice
        -- between UL DPCH info, PRACH info for RACH, CPCH SET info and CPCH set ID.
        modeSpecificInfo                CHOICE {
            fdd                             SEQUENCE {
                dl-PDSCH-Information            DL-PDSCH-Information        OPTIONAL
            },
            tdd                             NULL
        },
        dl-CommonInformation            DL-CommonInformation                OPTIONAL,
        dl-InformationPerRL-List        DL-InformationPerRL-List            OPTIONAL
}

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

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

-- **************************************************
```

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

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

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

PhysicalSharedChannelAllocation-r3 ::= CHOICE {
    v1r3                                SEQUENCE {
        v1-IEsphysicalSharedChannelAllocation-r3
                                        PhysicalSharedChannelAllocation-v1r3-IEs,
        nonCriticalExtensions           SEQUENCE {}
    },
    criticalExtensions              SEQUENCE {}
}

PhysicalSharedChannelAllocation-v1r3-IEs ::= SEQUENCE {
    -- TABULAR: Integrity protection shall not be performed on this message.
    -- User equipment IEs
        c-RNTI                          C-RNTI                              OPTIONAL,
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
    -- Physical channel IEs
        ul-TimingAdvance                UL-TimingAdvanceControl             OPTIONAL,
        pusch-CapacityAllocationInfo    PUSCH-CapacityAllocationInfo        OPTIONAL,
        pdsch-CapacityAllocationInfo    PDSCH-CapacityAllocationInfo        OPTIONAL,
        confirmRequest                  ENUMERATED {
                                            confirmPDSCH, confirmPUSCH }    OPTIONAL,
        -- TABULAR: If the above value is not present, the default value "No Confirm"
        -- shall be used as specified in 10.2.23.
        iscpTimeslotList                    TimeslotList                        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,
        allocationConfirmation          CHOICE {
            pdschConfirmation               PDSCH-Identity,
            puschConfirmation               PUSCH-Identity
        }                                                                   OPTIONAL,
        protocolErrorIndicator          ProtocolErrorIndicatorWithMoreInfo,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}
}

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

RadioBearerReconfiguration-r3 ::= CHOICE {
    v1r3                                SEQUENCE {
        v1-IEsradioBearerReconfiguration-r3 ----------RadioBearerReconfiguration-v1r3-
IEs,
        nonCriticalExtensions           SEQUENCE {}
```

```
    },
    criticalExtensions              SEQUENCE {}
}

RadioBearerReconfiguration-v1r3-IEs ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        integrityProtectionModeInfo     IntegrityProtectionModeInfo         OPTIONAL,
        cipheringModeInfo               CipheringModeInfo                   OPTIONAL,
        activationTime                  ActivationTime                      OPTIONAL,
        new-U-RNTI                      U-RNTI                              OPTIONAL,
        new-C-RNTI                      C-RNTI                              OPTIONAL,
        drx-Indicator                   DRX-Indicator,
        rrc-StateIndicator              RRC-StateIndicator,
        utran-DRX-CycleLengthCoeff      UTRAN-DRX-CycleLengthCoefficient    OPTIONAL,
    -- Core network IEs
        cn-InformationInfo              CN-InformationInfo                  OPTIONAL,
    -- UTRAN mobility IEs
        ura-Identity                    URA-Identity                        OPTIONAL,
    -- Radio bearer IEs
        rab-InformationReconfigList     RAB-InformationReconfigList         OPTIONAL,
        rb-InformationReconfigList      RB-InformationReconfigList,
        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
        }                                                                   OPTIONAL,
        dl-CommonTransChInfo            DL-CommonTransChInfo                OPTIONAL,
        dl-DeletedTransChInfoList       DL-DeletedTransChInfoList           OPTIONAL,
        dl-AddReconfTransChInfoList     DL-AddReconfTransChInfo2List        OPTIONAL,
    -- Physical channel IEs
        frequencyInfo                   FrequencyInfo                       OPTIONAL,
        maxAllowedUL-TX-Power           MaxAllowedUL-TX-Power               OPTIONAL,
        ul-ChannelRequirement           UL-ChannelRequirement               OPTIONAL,
        modeSpecificPhysChInfo          CHOICE {
            fdd                             SEQUENCE {
                dl-PDSCH-Information            DL-PDSCH-Information        OPTIONAL
            },
            tdd                             NULL
        },
        dl-CommonInformation            DL-CommonInformation                OPTIONAL,
        dl-InformationPerRL-List        DL-InformationPerRL-List
}

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

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

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

RadioBearerReconfigurationFailure ::= SEQUENCE {
    -- User equipment IEs
```

```
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        failureCause                    FailureCauseWithProtErr,
    -- Radio bearer IEs
        potentiallySuccesfulBearerList  RB-IdentityList                     OPTIONAL,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}
}

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

RadioBearerRelease-r3 ::= CHOICE {
    v1r3                                SEQUENCE {
        v1-IEsradioBearerRelease-r3             RadioBearerRelease-v1r3-IEs,
        nonCriticalExtensions           SEQUENCE {}
    },
    criticalExtensions              SEQUENCE {}
}

RadioBearerRelease-v1r3-IEs ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        integrityProtectionModeInfo     IntegrityProtectionModeInfo         OPTIONAL,
        cipheringModeInfo               CipheringModeInfo                   OPTIONAL,
        activationTime                  ActivationTime                      OPTIONAL,
        new-U-RNTI                      U-RNTI                              OPTIONAL,
        new-C-RNTI                      C-RNTI                              OPTIONAL,
        drx-Indicator                   DRX-Indicator,
        rrc-StateIndicator              RRC-StateIndicator,
        utran-DRX-CycleLengthCoeff      UTRAN-DRX-CycleLengthCoefficient    OPTIONAL,
    -- Core network IEs
        cn-InformationInfo              CN-InformationInfo                  OPTIONAL,
    -- UTRAN mobility IEs
        ura-Identity                    URA-Identity                        OPTIONAL,
    -- Radio bearer IEs
        rab-InformationReconfigList     RAB-InformationReconfigList         OPTIONAL,
        rb-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
        }                                                                   OPTIONAL,
        dl-CommonTransChInfo            DL-CommonTransChInfo                OPTIONAL,
        dl-DeletedTransChInfoList       DL-DeletedTransChInfoList           OPTIONAL,
        dl-AddReconfTransChInfoList     DL-AddReconfTransChInfo2List        OPTIONAL,
    -- Physical channel IEs
        frequencyInfo                   FrequencyInfo                       OPTIONAL,
        maxAllowedUL-TX-Power           MaxAllowedUL-TX-Power               OPTIONAL,
        ul-ChannelRequirement           UL-ChannelRequirement               OPTIONAL,
        modeSpecificPhysChInfo          CHOICE {
            fdd                             SEQUENCE {
                dl-PDSCH-Information            DL-PDSCH-Information        OPTIONAL
            },
            tdd                             NULL
        },
        dl-CommonInformation            DL-CommonInformation                OPTIONAL,
        dl-InformationPerRL-List        DL-InformationPerRL-List            OPTIONAL
}

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

RadioBearerReleaseComplete ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
```

```
        ul-IntegProtActivationInfo      IntegrityProtActivationInfo         OPTIONAL,
        -- TABULAR: UL-TimingAdvance is applicable for TDD mode only.
        ul-TimingAdvance                UL-TimingAdvance                    OPTIONAL,
    -- Radio bearer IEs
        rb-UL-CiphActivationTimeInfo    RB-ActivationTimeInfoList               OPTIONAL,
        rb-WithPDCP-InfoList            RB-WithPDCP-InfoList                OPTIONAL,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}
}

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

RadioBearerReleaseFailure ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        failureCause                    FailureCauseWithProtErr,
    -- Radio bearer IEs
        potentiallySuccesfulBearerList  RB-IdentityList                     OPTIONAL,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}
}

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

RadioBearerSetup-r3 ::= CHOICE {
    v1r3                                SEQUENCE {
        v1-IEsradioBearerSetup-r3                   RadioBearerSetup-v1r3-IEs,
        nonCriticalExtensions           SEQUENCE {}
    },
    criticalExtensions              SEQUENCE {}
}

RadioBearerSetup-v1r3-IEs ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        integrityProtectionModeInfo     IntegrityProtectionModeInfo         OPTIONAL,
        cipheringModeInfo               CipheringModeInfo                   OPTIONAL,
        activationTime                  ActivationTime                      OPTIONAL,
        new-U-RNTI                      U-RNTI                              OPTIONAL,
        new-C-RNTI                      C-RNTI                              OPTIONAL,
        drx-Indicator                   DRX-Indicator,
        rrc-StateIndicator              RRC-StateIndicator,
        utran-DRX-CycleLengthCoeff      UTRAN-DRX-CycleLengthCoefficient    OPTIONAL,
    -- UTRAN mobility IEs
        ura-Identity                    URA-Identity                        OPTIONAL,
    -- Core network IEs
        cn-InformationInfo              CN-InformationInfo                  OPTIONAL,
    -- Radio bearer IEs
        srb-InformationSetupList        SRB-InformationSetupList            OPTIONAL,
        rab-InformationSetupList        RAB-InformationSetupList            OPTIONAL,
        rb-InformationAffectedList      RB-InformationAffectedList          OPTIONAL,
    -- 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
        }                                                                   OPTIONAL,
        dl-CommonTransChInfo            DL-CommonTransChInfo                OPTIONAL,
        dl-DeletedTransChInfoList       DL-DeletedTransChInfoList           OPTIONAL,
        dl-AddReconfTransChInfoList     DL-AddReconfTransChInfoList         OPTIONAL,
    -- Physical channel IEs
        frequencyInfo                   FrequencyInfo                       OPTIONAL,
        maxAllowedUL-TX-Power           MaxAllowedUL-TX-Power               OPTIONAL,
        ul-ChannelRequirement           UL-ChannelRequirement               OPTIONAL,
        modeSpecificPhysChInfo          CHOICE {
```

```
            fdd                             SEQUENCE {
                dl-PDSCH-Information            DL-PDSCH-Information        OPTIONAL
            },
            tdd                             NULL
        },
        dl-CommonInformation            DL-CommonInformation                OPTIONAL,
        dl-InformationPerRL-List        DL-InformationPerRL-List            OPTIONAL
}

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

RadioBearerSetupComplete ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        ul-IntegProtActivationInfo      IntegrityProtActivationInfo         OPTIONAL,
        -- TABULAR: UL-TimingAdvance is applicable for TDD mode only.
        ul-TimingAdvance                UL-TimingAdvance                    OPTIONAL,
        start-Value             START-Value                                 OPTIONAL,
    -- Radio bearer IEs
        rb-UL-CiphActivationTimeInfo    RB-ActivationTimeInfoList               OPTIONAL,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}
}

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

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

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

RRCConnectionReEstablishment ::= CHOICE {
    v1                                  SEQUENCE {
        v1-IEs                          RRCConnectionReEstablishment-v1-IEs,
        nonCriticalExtensions           SEQUENCE {}
    },
    criticalExtensions                  SEQUENCE {}
}

RRCConnectionReEstablishment-v1-IEs ::= SEQUENCE {
    -- User equipment IEs
        integrityProtectionModeInfo     IntegrityProtectionModeInfo         OPTIONAL,
        cipheringModeInfo               CipheringModeInfo                   OPTIONAL,
        activationTime                  ActivationTime                      OPTIONAL,
        new-U-RNTI                      U-RNTI                              OPTIONAL,
        new-C-RNTI                      C-RNTI                              OPTIONAL,
        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-PDSCH-Information            DL-PDSCH-Information        OPTIONAL
            },
            tdd                             NULL
        },
        dl-CommonInformation            DL-CommonInformation                OPTIONAL,
        dl-InformationPerRL-List        DL-InformationPerRL-List            OPTIONAL
}

-- ************************************************
--
-- RRC CONNECTION RE-ESTABLISHMENT for CCCH
--
-- ************************************************

RRCConnectionReEstablishment-CCCH ::= CHOICE {
    v1                              SEQUENCE {
        v1-IEs                          RRCConnectionReEstablishment-CCCH-v1-IEs,
        nonCriticalExtensions           SEQUENCE {}
    },
    criticalExtensions              SEQUENCE {}
}

RRCConnectionReEstablishment-CCCH-v1-IEs ::= SEQUENCE {
    -- User equipment IEs
        u-RNTI                          U-RNTI,
    -- The rest of the message is identical to the one sent on DCCH.
        rrcConnectionReEstablishment    RRCConnectionReEstablishment-v1-IEs
}

-- ************************************************
--
-- 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,
        start                   START                       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 {}
}

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

RRCConnectionReEstablishmentRequest ::= SEQUENCE {
    -- User equipment IEs
        u-RNTI                          U-RNTI,
        startList               STARTList,
        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 {}
}

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

RRCConnectionReject-r3 ::= CHOICE {
    v1r3                                SEQUENCE {
        v1-IEsrrcConnectionReject-r3            RRCConnectionReject-v1r3-IEs,
        nonCriticalExtensions           SEQUENCE {}
    },
    criticalExtensions              SEQUENCE {}
}

RRCConnectionReject-v1r3-IEs ::= SEQUENCE {
    -- TABULAR: Integrity protection shall not be performed on this message.
    -- User equipment IEs
        initialUE-Identity              InitialUE-Identity,
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        rejectionCause                  RejectionCause,
        waitTime                        WaitTime,
        redirectionInfo                 RedirectionInfo                     OPTIONAL
}

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

RRCConnectionRelease-r3 ::= CHOICE {
    v1r3                                SEQUENCE {
        v1-IEsrrcConnectionRelease-r3           RRCConnectionRelease-v1r3-IEs,
        nonCriticalExtensions           SEQUENCE {}
    },
    criticalExtensions              SEQUENCE {}
}

RRCConnectionRelease-v1r3-IEs ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        rrc-MessageTX-Count             RRC-MessageTX-Count                 OPTIONAL,
        n-308                           N-308                               OPTIONAL,
        -- The IE above is conditional on the UE state.
        releaseCause                    ReleaseCause
}

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

RRCConnectionRelease-CCCH-r3 ::= CHOICE {
    v1r3                                SEQUENCE {
        v1-IEsrrcConnectionRelease-CCCH-r3      RRCConnectionRelease-CCCH-v1r3-
IEs,
        nonCriticalExtensions           SEQUENCE {}
    },
    criticalExtensions              SEQUENCE {}
}

RRCConnectionRelease-CCCH-v1r3-IEs ::= SEQUENCE {
    -- User equipment IEs
        u-RNTI                          U-RNTI,
    -- The rest of the message is identical to the one sent on DCCH.
        rrcConnectionRelease            RRCConnectionRelease-v1r3-IEs
```

```
}

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

RRCConnectionReleaseComplete ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        errorIndication                 FailureCauseWithProtErr             OPTIONAL,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}
}

-- ********************************************************
--
-- 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 {
    -- 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 {}
}

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

RRCConnectionSetup-r3 ::= CHOICE {
    v1r3                                SEQUENCE {
        v1-IEsrrcConnectionSetup-r3             RRCConnectionSetup-v1r3-IEs,
        nonCriticalExtensions           SEQUENCE {}
    },
    criticalExtensions              SEQUENCE {}
}

RRCConnectionSetup-v1r3-IEs ::= SEQUENCE {
    -- TABULAR: Integrity protection shall not be performed on this message.
    -- User equipment IEs
        initialUE-Identity              InitialUE-Identity,
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        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,
        dl-CommonInformation            DL-CommonInformation                OPTIONAL,
        dl-InformationPerRL-List        DL-InformationPerRL-List            OPTIONAL
}

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

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

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

RRCStatus ::= SEQUENCE {
    -- Other IEs
        protocolErrorInformation        ProtocolErrorMoreInformation,
    -- TABULAR:  Identification of received message is nested in
    -- ProtocolErrorMoreInformation
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}
}

SecurityModeCommand-r3 ::= CHOICE {
    v1r3                                SEQUENCE {
        v1-IEssecurityModeCommand-r3                SecurityModeCommand-v1r3-IEs,
        nonCriticalExtensions           SEQUENCE {}
    },
    criticalExtensions              SEQUENCE {}
}

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

SecurityModeCommand-v1r3-IEs ::= SEQUENCE {
-- TABULAR: Integrity protection shall always be performed on this message.
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        securityCapability              SecurityCapability,
        cipheringModeInfo               CipheringModeInfo                   OPTIONAL,
        integrityProtectionModeInfo     IntegrityProtectionModeInfo         OPTIONAL,
    -- Core network IEs
        cn-DomainIdentity               CN-DomainIdentity
}

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

SecurityModeComplete ::= SEQUENCE {
-- TABULAR: Integrity protection shall always be performed on this message.
```

```
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        ul-IntegProtActivationInfo      IntegrityProtActivationInfo         OPTIONAL,
    -- Radio bearer IEs
        rb-UL-CiphActivationTimeInfo    RB-ActivationTimeInfoList           OPTIONAL,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}
}

-- **************************************************
--
-- SECURITY MODE FAILURE
--
-- **************************************************

SecurityModeFailure ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        failureCause                    FailureCauseWithProtErr,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}
}

-- **************************************************
--
-- SIGNALLING CONNECTION RELEASE
--
-- **************************************************

SignallingConnectionRelease-r3 ::= CHOICE {
    v1r3                                SEQUENCE {
        v1-IEssignallingConnectionRelease-r3    SignallingConnectionRelease-
v1r3-IEs,
        nonCriticalExtensions           SEQUENCE {}
    },
    criticalExtensions              SEQUENCE {}
}

SignallingConnectionRelease-v1r3-IEs ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
    -- Core network IEs
        cn-DomainIdentity               CN-DomainIdentity
        signallingFlowInfoList          SignallingFlowInfoList
}

-- **************************************************
--
-- SIGNALLING CONNECTION RELEASE REQUEST
--
-- **************************************************

SignallingConnectionReleaseRequest ::= SEQUENCE {
    -- Core network IEs
        cn-DomainIdentity               CN-DomainIdentity,
        signallingFlowInfoList          SignallingFlowInfoList,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}
}

-- **************************************************
--
-- SYSTEM INFORMATION for BCH
--
-- **************************************************

SystemInformation-BCH ::= SEQUENCE {
    -- Other information elements
        sfn-Prime                       SFN-Prime,
        payload                         CHOICE {
            noSegment                       NULL,
            firstSegment                    FirstSegment,
            subsequentSegment               SubsequentSegment,
            lastSegmentShort                        LastSegmentShort,
            lastAndFirst                    SEQUENCE {
                lastSegmentShort                        LastSegmentShort,
                firstSegment                FirstSegmentShort
            },
```

```
            lastAndComplete                 SEQUENCE {
                lastSegmentShort                LastSegmentShort,
                completeSIB-List                CompleteSIB-List,
                lastSegment                     LastSegment
            },
            lastAndCompleteAndFirst         SEQUENCE {
                lastSegmentShort                LastSegmentShort,
                completeSIB-List                CompleteSIB-List,
                firstSegment                    FirstSegmentShort
            },
            completeSIB-List                CompleteSIB-List,
            completeAndFirst                SEQUENCE {
                completeSIB-List                CompleteSIB-List,
                firstSegment                    FirstSegmentShort
            },
            completeSIB                     CompleteSIB,
            lastSegment                     LastSegment
        }
}

-- ************************************************
--
-- SYSTEM INFORMATION for FACH
--
-- ************************************************

SystemInformation-FACH ::= SEQUENCE {
    -- Other information elements
        payload                         CHOICE {
            noSegment                       NULL,
            firstSegment                    FirstSegment,
            subsequentSegment               SubsequentSegment,
            lastSegmentShort                LastSegmentShort,
            lastAndFirst                    SEQUENCE {
                lastSegmentShort                LastSegmentShort,
                firstSegment                    FirstSegmentShort
            },
            lastAndComplete                 SEQUENCE {
                lastSegmentShort                LastSegmentShort,
                completeSIB-List                CompleteSIB-List,
                lastSegment                     LastSegment
            },
            lastAndCompleteAndFirst         SEQUENCE {
                lastSegmentShort                LastSegmentShort,
                completeSIB-List                CompleteSIB-List,
                firstSegment                    FirstSegmentShort
            },
            completeSIB-List                CompleteSIB-List,
            completeAndFirst                SEQUENCE {
                completeSIB-List                CompleteSIB-List,
                firstSegment                    FirstSegmentShort
            },
            completeSIB                     CompleteSIB,
            lastSegment                     LastSegment
        }
}

-- ************************************************
--
-- 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-fixed                  SIB-Data-fixed
    -- In case the SIB data is less than 222 bits, padding shall be used
    -- The same padding bits shall be used as defined in clause 12.1
}

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

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

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

CompleteSIB ::=                     SEQUENCE {
    -- Other information elements
        sib-Type                        SIB-Type,
        sib-Data-fixed                  SIB-Data-fixedBIT STRING (SIZE (226))
    -- In case the SIB data is less than 222 bits, padding shall be used
    -- The same padding bits shall be used as defined in clause 12.1
}

CompleteSIBshort ::=                        SEQUENCE {
    -- Other information elements
        sib-Type                        SIB-Type,
        sib-Data-variable               BIT STRING (SIZE (1..218))SIB-Data-variable
}

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

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

-- ************************************************
--
```

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

TransportChannelReconfiguration-r3 ::= CHOICE {
    v1r3                                SEQUENCE {
        v1-IEstransportChannelReconfiguration-r3
                                        TransportChannelReconfiguration-v1r3-IEs,
        nonCriticalExtensions           SEQUENCE {}
    },
    criticalExtensions              SEQUENCE {}
}

TransportChannelReconfiguration-v1r3-IEs ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        integrityProtectionModeInfo     IntegrityProtectionModeInfo         OPTIONAL,
        cipheringModeInfo               CipheringModeInfo                   OPTIONAL,
        activationTime                  ActivationTime                      OPTIONAL,
        new-U-RNTI                      U-RNTI                              OPTIONAL,
        new-C-RNTI                      C-RNTI                              OPTIONAL,
        drx-Indicator                   DRX-Indicator,
        rrc-StateIndicator              RRC-StateIndicator,
        utran-DRX-CycleLengthCoeff      UTRAN-DRX-CycleLengthCoefficient    OPTIONAL,
    -- Core network IEs
        cn-InformationInfo              CN-InformationInfo                  OPTIONAL,
    -- UTRAN mobility IEs
        ura-Identity                    URA-Identity                        OPTIONAL,
    -- Radio bearer IEs
        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-PDSCH-Information            DL-PDSCH-Information        OPTIONAL
            },
            tdd                             NULL
        },
        dl-CommonInformation            DL-CommonInformation                OPTIONAL,
        dl-InformationPerRL-List        DL-InformationPerRL-List            OPTIONAL
}

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

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

-- **************************************************
--
-- TRANSPORT CHANNEL RECONFIGURATION FAILURE
```

```
--
-- ****************************************************

TransportChannelReconfigurationFailure ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        failureCause                    FailureCauseWithProtErr,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}
}

-- ****************************************************
--
-- 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.
        rrc-TransactionIdentifier       RRC-TransactionIdentifier           OPTIONAL,
    -- The information element is not included when transmitting the message
    -- on the transparent mode signalling DCCH
    modeSpecificInfo                    CHOICE {
        fdd                                 NULL,
        tdd                                 SEQUENCE {
            tfcs-ID                             TFCS-Identity   OPTIONAL
            }
    },
    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 {}
}

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

TransportFormatCombinationControlFailure ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        failureCause                    FailureCauseWithProtErr,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}
}

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

UECapabilityEnquiry-r3 ::= CHOICE {
    v1r3                                SEQUENCE {
        v1-IEsueCapabilityEnquiry-r3                UECapabilityEnquiry-v1r3-IEs,
        nonCriticalExtensions           SEQUENCE {}
    },
    criticalExtensions              SEQUENCE {}
}

UECapabilityEnquiry-v1r3-IEs ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        capabilityUpdateRequirement     CapabilityUpdateRequirement
}

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

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

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

UECapabilityInformationConfirm-r3 ::= CHOICE {
    v1r3                                SEQUENCE {
        v1-IEsueCapabilityInformationConfirm-r3
                                        UECapabilityInformationConfirm-v1r3-IEs,
        nonCriticalExtensions           SEQUENCE {}
    },
    criticalExtensions              SEQUENCE {}
}

UECapabilityInformationConfirm-v1r3-IEs ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
}

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

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

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

UplinkPhysicalChannelControl-r3 ::= CHOICE {
    v1r3                                SEQUENCE {
        v1-IEsuplinkPhysicalChannelControl-r3
    UplinkPhysicalChannelControl-v1r3-IEs,
        nonCriticalExtensions           SEQUENCE {}
    },
    criticalExtensions              SEQUENCE {}
}


UplinkPhysicalChannelControl-v1r3-IEs ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
    -- Physical channel IEs
        ccTrCH-PowerControlInfo         CCTrCH-PowerControlInfo             OPTIONAL,
        timingAdvance                   UL-TimingAdvanceControl             OPTIONAL,
        prach-ConstantValue             ConstantValue                       OPTIONAL,
        pusch-ConstantValue             ConstantValue                       OPTIONAL
}

-- ************************************************
--
-- URA UPDATE
--
-- ************************************************
```

```
URAUpdate ::= SEQUENCE {
    -- User equipment IEs
        u-RNTI                          U-RNTI,
        ura-UpdateCause                 URA-UpdateCause,
        protocolErrorIndicator          ProtocolErrorIndicatorWithMoreInfo,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}
}

-- **************************************************
--
-- URA UPDATE CONFIRM
--
-- **************************************************

URAUpdateConfirm-r3 ::= CHOICE {
    v1r3                                SEQUENCE {
        v1-IEsuraUpdateConfirm-r3                   URAUpdateConfirm-v1r3-IEs,
        nonCriticalExtensions           SEQUENCE {}
    },
    criticalExtensions              SEQUENCE {}
}

URAUpdateConfirm-v1r3-IEs ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        integrityProtectionModeInfo     IntegrityProtectionModeInfo         OPTIONAL,
        cipheringModeInfo               CipheringModeInfo                   OPTIONAL,
        new-U-RNTI                      U-RNTI                              OPTIONAL,
        new-C-RNTI                      C-RNTI                              OPTIONAL,
        drx-Indicator                   DRX-Indicator,
        rrc-StateIndicator              RRC-StateIndicator,
        utran-DRX-CycleLengthCoeff      UTRAN-DRX-CycleLengthCoefficient    OPTIONAL,
    -- CN information elements
        cn-InformationInfo              CN-InformationInfo                  OPTIONAL,
    -- UTRAN mobility IEs
        ura-Identity                    URA-Identity                        OPTIONAL,
    -- Radio bearer IEs
        rb-WithPDCP-InfoList            RB-WithPDCP-InfoList                OPTIONAL
}

-- **************************************************
--
-- URA UPDATE CONFIRM for CCCH
--
-- **************************************************

URAUpdateConfirm-CCCH-r3 ::= CHOICE {
    v1r3                                SEQUENCE {
        v1-IEsuraUpdateConfirm-CCCH-r3              URAUpdateConfirm-CCCH-v1r3-IEs,
        nonCriticalExtensions           SEQUENCE {}
    },
    criticalExtensions              SEQUENCE {}
}

URAUpdateConfirm-CCCH-v1r3-IEs ::= SEQUENCE {
    -- User equipment IEs
        u-RNTI                          U-RNTI,
    -- The rest of the message is identical to the one sent on DCCH.
        uraUpdateConfirm                URAUpdateConfirm-v1r3-IEs
}

-- **************************************************
--
-- UTRAN MOBILITY INFORMATION
--
-- **************************************************

UTRANMobilityInformation ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        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,
```

```
        ue-ConnTimersAndConstants       UE-ConnTimersAndConstants           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
        nonCriticalExtensions           SEQUENCE {}
}

-- ************************************************
--
-- UTRAN MOBILITY INFORMATION CONFIRM
--
-- ************************************************

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

-- ************************************************
--
-- UTRAN MOBILITY INFORMATION FAILURE
--
-- ************************************************

UTRANMobilityInformationFailure ::= SEQUENCE {
    -- UE information elements
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        failureCause                    FailureCauseWithProtErr,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}
}

END
```

11.3 Information element definitions

~~11.3.1 Core network information elements~~

```
~~CoreNetwork-IEs~~InformationElements DEFINITIONS AUTOMATIC TAGS ::=

-- ************************************************
--
--     CORE NETWORK INFORMATION ELEMENTS (10.3.1)
--
-- ************************************************

BEGIN

IMPORTS

    ~~CN-DRX-CycleLengthCoefficient~~
~~FROM UserEquipment-IEs~~

    ~~Min-P-REV,~~
    ~~NAS-SystemInformationANSI-41,~~
    ~~NID,~~
    ~~P-REV,~~
    ~~SID~~
~~FROM ANSI-41-IEs~~

    hiPDSCHidentities,
    hiPUSCHidentities,
    hiRM,
    maxAC,
    maxAdditionalMeas,
    maxASC,
```

```
    maxASCmap,
    maxASCpersist,
    maxCCTrCH,
    maxCellMeas,
    maxCellMeas-1,
    maxCNdomains,
    maxCPCHsets,
    maxDPCH-DLchan,
    maxDPCHcodesPerTS,
    maxDPDCH-UL,
    maxDRACclasses,
    maxFACH,
    maxFreq,
    maxFrequencybands,
    maxInterSysMessages,
    maxLoCHperRLC,
    maxMeasEvent,
    maxMeasIntervals,
    maxMeasParEvent,
    maxOtherRAT,
    maxPage1,
    maxPCPCH-APsig,
    maxPCPCH-APsubCh,
    maxPCPCH-CDsig,
    maxPCPCH-CDsubCh,
    maxPCPCH-SF,
    maxPCPCHs,
    maxPDCPAlgoType,
    maxPDSCH,
    maxPDSCH-TFCIgroups,
    maxPRACH,
    maxPUSCH,
    maxRABsetup,
    maxRAT,
    maxRB,
    maxRBallRABs,
    maxRBMuxOptions,
    maxRBperRAB,
    maxSRBsetup,
    maxRL,
    maxRL-1,
    maxSCCPCH,
    maxSat,
    maxSIB,
    maxSIB-FACH,
    maxSig,
    maxSignallingFlow
    maxSubCh,
    maxSystemCapability,
    maxTF,
    maxTF-CPCH,
    maxTFC,
    maxTFCI-2-Combs,
    maxTGPS,
    maxTrCH,
    maxTS,
    maxTS-1,
    maxURA
FROM Constant-definitions;

CN-DomainIdentity ::=               ENUMERATED {
                                        cs-domain,
                                        ps-domain,
                                        not-important,
                                        spare1,
                                        spare2 }

CN-DomainInformation ::=            SEQUENCE {
    cn-DomainIdentity                   CN-DomainIdentity,
    cn-DomainSpecificNAS-Info           NAS-SystemInformationGSM-MAP
}

CN-DomainInformationList ::=        SEQUENCE (SIZE (1..maxCNdomains)) OF
                                        CN-DomainInformation

CN-DomainSysInfo ::=                SEQUENCE {
    cn-DomainIdentity                   CN-DomainIdentity,
    cn-Type                             CHOICE {
```

```
        gsm-MAP                         NAS-SystemInformationGSM-MAP,
        ansi-41                         NAS-SystemInformationANSI-41
    },
    cn-DRX-CycleLengthCoeff         CN-DRX-CycleLengthCoefficient
}

CN-DomainSysInfoList ::=        SEQUENCE (SIZE (1..maxCNdomains)) OF
                                    CN-DomainSysInfo

CN-InformationInfo ::=          SEQUENCE {
    plmn-Identity                   PLMN-Identity                   OPTIONAL,
    cn-CommonGSM-MAP-NAS-SysInfo    NAS-SystemInformationGSM-MAP    OPTIONAL,
    cn-DomainInformationList        CN-DomainInformationList        OPTIONAL
}

Digit ::=                       INTEGER (0..9)

FlowIdentifier ::=              INTEGER (0..63)

IMEI ::=                        SEQUENCE (SIZE (15)) OF
                                    IMEI-Digit

IMEI-Digit ::=                  INTEGER (0..15)

IMSI-GSM-MAP ::=                SEQUENCE (SIZE (6..15)) OF
                                    Digit

LAI ::=                         SEQUENCE {
    plmn-Identity                   PLMN-Identity,
    lac                             BIT STRING (SIZE (16))
}

MCC ::=                         SEQUENCE (SIZE (3)) OF
                                    Digit

MNC ::=                         SEQUENCE (SIZE (2..3)) OF
                                    Digit

NAS-Message ::=                 OCTET STRING (SIZE (1..4095))

NAS-Synchronisation-Indicator   ::=     BIT STRING(SIZE(4))

NAS-SystemInformationGSM-MAP ::=    OCTET STRING (SIZE (1..8))

P-TMSI-GSM-MAP ::=              BIT STRING (SIZE (32))

PagingRecordTypeID ::=          ENUMERATED {
                                    imsi-GSM-MAP,
                                    tmsi-GSM-MAP-P-TMSI,
                                    imsi-DS-41,
                                    tmsi-DS-41 }

PLMN-Identity ::=               SEQUENCE {
    mcc                             MCC,
    mnc                             MNC
}

PLMN-Type ::=                   CHOICE {
    gsm-MAP                         SEQUENCE {
        plmn-Identity                   PLMN-Identity
    },
    ansi-41                     SEQUENCE {
        p-REV                       P-REV,
        min-P-REV                   Min-P-REV,
        sid                         SID,
        nid                         NID
    },
    gsm-MAP-and-ANSI-41         SEQUENCE {
        plmn-Identity               PLMN-Identity,
        p-REV                       P-REV,
        min-P-REV                   Min-P-REV,
        sid                         SID,
        nid                         NID
    },
    spare                       NULL
}

RAB-Identity ::=                CHOICE {
```

```
    gsm-MAP-RAB-Identity                BIT STRING (SIZE (8)),
    ansi-41-RAB-Identity                BIT STRING (SIZE (8))
}

RAI ::=                                 SEQUENCE {
    lai                                     LAI,
    rac                                     RoutingAreaCode
}

RoutingAreaCode ::=                     BIT STRING (SIZE (8))

ServiceDescriptor ::=                   CHOICE {
    gsm-MAP                                 BIT STRING (SIZE (4)),
    ansi-41                                 BIT STRING (SIZE (4))
}

SignallingFlowInfoList ::=              SEQUENCE (SIZE (1..maxSignallingFlow)) OF
                                            FlowIdentifier

TMSI-GSM-MAP ::=                        BIT STRING (SIZE (32))

END
```

11.3.2 UTRAN mobility information elements

```
UTRANMobility-IEs DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

    MaxAllowedUL-TX-Power
FROM PhysicalChannel-IEs

    HCS-ServingCellInformation,
    Q-QualMin,
    Q-RxlevMin
FROM Measurement-IEs

    maxAC,
    maxMeasIntervals,
    maxOtherRAT,
    maxRAT,
    maxURA
FROM Constant-definitions;

-- **************************************************
--
--     UTRAN MOBILITY INFORMATION ELEMENTS (10.3.2)
--
-- **************************************************

AccessClassBarred ::=               ENUMERATED {
                                        barred, notBarred }

AccessClassBarredList ::=           SEQUENCE (SIZE (maxAC)) OF
                                        AccessClassBarred

AllowedIndicator ::=                ENUMERATED {
                                        allowed, notAllowed }

CellAccessRestriction ::=           SEQUENCE {
    cellBarred                          CellBarred,
    cellReservedForOperatorUse          ReservedIndicator,
    cellReservedForSOLSA                ReservedIndicator,
    accessClassBarredList               AccessClassBarredList               OPTIONAL
}

CellBarred ::=                      CHOICE {
    barred                              SEQUENCE {
        intraFreqCellReselectionInd         AllowedIndicator,
        t-Barred                            T-Barred
    },
    notBarred                           NULL
}

CellIdentity ::=                    BIT STRING (SIZE (28))
```

```
~~CellSelectQualityMeasure ::=          ENUMERATED {~~
~~                                          cpich-Ec-N0, cpich-RSCP }~~

CellSelectReselectInfoSIB-3-4 ::=   SEQUENCE {
    mappingInfo                         MappingInfo                         OPTIONAL,
    cellSelectQualityMeasure            CHOICE {
        cpich-Ec-No                         SEQUENCE {
            q-HYST-2-S                          Q-Hyst-S                    OPTIONAL
            -- Default value for q-HYST-2-S is q-HYST-1-S
        },
        cpich-RSCP                          NULL
    },
    modeSpecificInfo                    CHOICE {
        fdd                                 SEQUENCE {
            s-Intrasearch                       S-SearchQual                OPTIONAL,
            s-Intersearch                       S-SearchQual                OPTIONAL,
            s-SearchHCS                         S-SearchRXLEV               OPTIONAL,
            rat-List                            RAT-FDD-InfoList            OPTIONAL,
            q-QualMin                           Q-QualMin,
            q-RxlevMin                          Q-RxlevMin
        },
        tdd                                 SEQUENCE {
            s-Intrasearch                       S-SearchRXLEV               OPTIONAL,
            s-Intersearch                       S-SearchRXLEV               OPTIONAL,
            s-SearchHCS                         S-SearchRXLEV               OPTIONAL,
            rat-List                            RAT-TDD-InfoList            OPTIONAL,
            q-RxlevMin                          Q-RxlevMin
        }
    },
    q-Hyst-l-S                          Q-Hyst-S,
    t-Reselection-S                     T-Reselection-S,
    hcs-ServingCellInformation          HCS-ServingCellInformation          OPTIONAL,
    maxAllowedUL-TX-Power               MaxAllowedUL-TX-Power
}

MapParameter ::=                    INTEGER (0..99)

Mapping ::=                         SEQUENCE {
    rat                                 RAT,
    mappingFunctionParameterList        MappingFunctionParameterList
}

MappingFunctionParameter ::=        SEQUENCE {
    functionType                        MappingFunctionType,
    mapParameter1                       MapParameter                        OPTIONAL,
    mapParameter2                       MapParameter,
    upperLimit                          UpperLimit                          OPTIONAL
    -- The parameter is conditional on the number of repetition
}

MappingFunctionParameterList ::=    SEQUENCE (SIZE (1..maxMeasIntervals)) OF
                                        MappingFunctionParameter

MappingFunctionType ::=             ENUMERATED {
                                        linear,
                                        functionType2,
                                        functionType3,
                                        functionType4 }

MappingInfo ::=                     SEQUENCE (SIZE (1..maxRAT)) OF
                                        Mapping

-- Actual value = IE value * 2
Q-Hyst-S ::=                        INTEGER (0..20)

RAT ::=                             ENUMERATED {
                                        utra-FDD,
                                        utra-TDD,
                                        gsm,
                                        cdma2000 }

RAT-FDD-Info ::=                    SEQUENCE {
    rat-Identifier                      RAT-Identifier,
    s-SearchRAT                         S-SearchQual,
    s-HCS-RAT                           S-SearchRXLEV                           OPTIONAL,
    s-Limit-SearchRAT                   S-SearchQual
}
```

```
RAT-FDD-InfoList ::=                SEQUENCE (SIZE (1..maxOtherRAT)) OF
                                        RAT-FDD-Info

RAT-Identifier ::=                  ENUMERATED {
                                        gsm, cdma2000,
                                        spare1, spare2 }

RAT-TDD-Info ::=                    SEQUENCE {
    rat-Identifier                      RAT-Identifier,
    s-SearchRAT                         S-SearchRXLEV,
    s-HCS-RAT                           S-SearchRXLEV                       OPTIONAL,
    s-Limit-SearchRAT                   S-SearchRXLEV
}

RAT-TDD-InfoList ::=                SEQUENCE (SIZE (1..maxOtherRAT)) OF
                                        RAT-TDD-Info

ReservedIndicator ::=               ENUMERATED {
                                        reserved,
                                        notReserved }

-- Actual value = IE value * 2
S-SearchQual ::=                        INTEGER (-16..10)

-- Actual value = (IE value * 2) + 1
S-SearchRXLEV ::=                       INTEGER (-53..45)

T-Barred ::=                        ENUMERATED {
                                        s10, s20, s40, s80,
                                        s160, s320, s640, s1280 }

T-Reselection-S ::=                 INTEGER (0..31)

-- The used range depends on the RAT used.
UpperLimit ::=                      INTEGER (1..91)

URA-Identity ::=                    BIT STRING (SIZE (16))

URA-IdentityList ::=                SEQUENCE (SIZE (1..maxURA)) OF
                                        URA-Identity

END
```

11.3.3 User equipment information elements

```
UserEquipment-IEs DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

    CN-DomainIdentity,
    IMEI,
    IMSI-GSM-MAP,
    LAI,
    P-TMSI-GSM-MAP,
    RAI,
    TMSI-GSM-MAP
FROM CoreNetwork-IEs

    RB-ActivationTimeInfoList
FROM RadioBearer-IEs

    FrequencyInfo,
    PowerControlAlgorithm,
    TGPSI
FROM PhysicalChannel-IEs

    InterSystemInfo
FROM Measurement-IEs

    ProtocolErrorInformation
FROM Other-IEs

    maxASC,
    maxCNdomains,
    maxDRACclasses,
    maxFrequencybands,
```

```
    maxPage1,
    maxSystemCapability
FROM Constant-definitions;


-- ************************************************
--
--     USER EQUIPMENT INFORMATION ELEMENTS (10.3.3)
--
-- ************************************************

ActivationTime ::=                  INTEGER (0..255)
-- TABULAR : value 'now' always appear as default, and is encoded by absence of the field

BackoffControlParams ::=            SEQUENCE {
    n-AP-RetransMax                     N-AP-RetransMax,
    n-AccessFails                       N-AccessFails,
    nf-BO-NoAICH                        NF-BO-NoAICH,
    ns-BO-Busy                          NS-BO-Busy,
    nf-BO-AllBusy                       NF-BO-AllBusy,
    nf-BO-Mismatch                      NF-BO-Mismatch,
    t-CPCH                              T-CPCH
}

C-RNTI ::=                          BIT STRING (SIZE (16))

CapabilityUpdateRequirement ::=     SEQUENCE {
    ue-RadioCapabilityUpdateRequirement BOOLEAN,
    systemSpecificCapUpdateReqList      SystemSpecificCapUpdateReqList      OPTIONAL
}

CellUpdateCause ::=                 ENUMERATED {
                                        cellReselection,
                                        periodicalCellUpdate,
                                        ul-uplinkDataTransmission,
                                        utran-pagingResponse,
                                        rb-ControlResponse,
                                        re-enteredServiceArea,
                                        radiolinkFailure,
                                        rlc-unrecoverableError,
                                        spare1, spare2, spare3, spare4, spare5, spare6, spare7,
spare8, spare9 }

ChipRateCapability ::=              ENUMERATED {
                                        mcps3-84, mcps1-28 }

CipheringAlgorithm ::=              ENUMERATED {
                                        uea0, uea1, spare1, spare2,
                                        spare3, spare4, spare5, spare6,
                                        spare7, spare8, spare9, spare10,
                                        spare11, spare12, spare13, spare14 }

CipheringModeCommand ::=            CHOICE {
    startRestart                        CipheringAlgorithm,
    stopCiphering                       NULL
}

CipheringModeInfo ::=               SEQUENCE {
    cipheringModeCommand                CipheringModeCommand,
    -- TABULAR: The ciphering algorithm is included in
    -- the CipheringModeCommand.
    activationTimeForDPCH               ActivationTime                      OPTIONAL,
    rb-DL-CiphActivationTimeInfo        RB-ActivationTimeInfoList           OPTIONAL
}

CN-DRX-CycleLengthCoefficient ::=   INTEGER (6..12)

CN-PagedUE-Identity ::=             CHOICE {
    imsi-GSM-MAP                        IMSI-GSM-MAP,
    tmsi-GSM-MAP                        TMSI-GSM-MAP,
    p-TMSI-GSM-MAP                      P-TMSI-GSM-MAP,
    imsi-DS-41                          IMSI-DS-41,
    tmsi-DS-41                          TMSI-DS-41,
    spare1                              NULL,
    spare2                              NULL,
    spare3                              NULL
}
```

```
CompressedModeMeasCapability ::=    SEQUENCE {
    fdd-Measurements                    BOOLEAN,
    -- TABULAR: The IEs below are made optional since they are conditional based
    -- on another information element. Their absence corresponds to the case where
    -- the condition is not true.
    tdd-Measurements                    BOOLEAN                             OPTIONAL,
    gsm-Measurements                    GSM-Measurements                    OPTIONAL,
    multiCarrierMeasurements            BOOLEAN                             OPTIONAL
}


CPCH-Parameters ::=                 SEQUENCE {
    initialPriorityDelayList            InitialPriorityDelayList            OPTIONAL,
    backoffControlParams                BackoffControlParams,
    powerControlAlgorithm               PowerControlAlgorithm,
    -- TABULAR: TPC step size nested inside PowerControlAlgorithm
    dl-DPCCH-BER                        DL-DPCCH-BER
}

DL-DPCCH-BER ::=                    INTEGER (0..63)

DL-PhysChCapabilityFDD ::=          SEQUENCE {
    maxSimultaneousCCTrCH-Count         MaxSimultaneousCCTrCH-Count,
    maxNoDPCH-PDSCH-Codes               INTEGER (1..8),
    maxNoPhysChBitsReceived             MaxNoPhysChBitsReceived,
    supportForSF-512                    BOOLEAN,
    supportOfPDSCH                      BOOLEAN,
    simultaneousSCCPCH-DPCH-Reception   SimultaneousSCCPCH-DPCH-Reception
}

DL-PhysChCapabilityTDD ::=          SEQUENCE {
    maxSimultaneousCCTrCH-Count         MaxSimultaneousCCTrCH-Count,
    maxTS-PerFrame                      MaxTS-PerFrame,
    maxPhysChPerFrame                   MaxPhysChPerFrame,
    minimumSF                           MinimumSF-DL,
    supportOfPDSCH                      BOOLEAN,
    maxPhysChPerTS                      MaxPhysChPerTS
}

DL-TransChCapability ::=            SEQUENCE {
    maxNoBitsReceived                   MaxNoBits,
    maxConvCodeBitsReceived             MaxNoBits,
    turboDecodingSupport                TurboSupport,
    maxSimultaneousTransChs             MaxSimultaneousTransChsDL,
    maxReceivedTransportBlocks          MaxTransportBlocksDL,
    maxNumberOfTFC-InTFCS               MaxNumberOfTFC-InTFCS-DL,
    maxNumberOfTF                       MaxNumberOfTF
}

DRAC-SysInfo ::=                    SEQUENCE {
    transmissionProbability             TransmissionProbability,
    maximumBitRate                      MaximumBitRate
}

DRAC-SysInfoList ::=                SEQUENCE (SIZE (1..maxDRACclasses)) OF
                                        DRAC-SysInfo

DRX-Indicator ::=                   ENUMERATED {
                                        noDRX,
                                        drxWithCellUpdating,
                                        drxWithURA-Updating,
                                        spare1 }

ESN-DS-41 ::=                       BIT STRING (SIZE (32))

EstablishmentCause ::=              ENUMERATED {
                                        originatingConversationalCall,
                                        originatingStreamingCall,
                                        originatingInteractiveCall,
                                        originatingBackgroundCall,
                                        originatingSubscribedTrafficCall,
                                        terminatingConversationalCall,
                                        terminatingStreamingCall,
                                        terminatingInteractiveCall,
                                        terminatingBackgroundCall,
                                        emergencyCall,
                                        interSystemCellReselection,
                                        registration,
```

```
                                        detach,
                                        sms,
                                        callRe-establishment,
                                        spare1, spare2, spare3, spare4,
                                        spare5, spare6, spare7, spare8,
                                        spare9, spare10, spare11, spare12,
                                        spare13, spare14, spare15, spare16,
                                        spare17 }

FailureCauseWithProtErr ::=         CHOICE {
    configurationUnsupported            NULL,
    physicalChannelFailure              NULL,
    incompatibleSimultaneousReconfiguration
                                        NULL,
    compressedModeRuntimeError          TGPSI,
    protocolError                       ProtocolErrorInformation,
    cellReselection                     NULL,
    invalidConfiguration                NULL,
    configurationIncomplete             NULL,
    unsupportedMeasurement              NULL,
    spare1                              NULL,
    spare2                              NULL,
    spare3                              NULL,
    spare4                              NULL,
    spare5                              NULL,
    spare6                              NULL,
    spare7                              NULL,
    spare8                              NULL,
    spare9                              NULL
}

FailureCauseWithProtErrTrId ::=     SEQUENCE {
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        failureCause                    FailureCauseWithProtErr
}

GSM-Measurements ::=                SEQUENCE {
    gsm900                              BOOLEAN,
    dcs1800                             BOOLEAN,
    gsm1900                             BOOLEAN
}


ICS-Version ::=                     ENUMERATED {
                                        r99,
                                        spare1, spare2, spare3, spare4,
                                        spare5, spare6, spare7 }

IMSI-and-ESN-DS-41 ::=              SEQUENCE {
    imsi-DS-41                          IMSI-DS-41,
    esn-DS-41                           ESN-DS-41
}

IMSI-DS-41 ::=                      OCTET STRING (SIZE (5..7))

InitialPriorityDelayList ::=        SEQUENCE (SIZE (maxASC)) OF
                                        NS-IP

InitialUE-Identity ::=              CHOICE {
    imsi                                IMSI-GSM-MAP,
    tmsi-and-LAI                        TMSI-and-LAI-GSM-MAP,
    p-TMSI-and-RAI                      P-TMSI-and-RAI-GSM-MAP,
    imei                                IMEI,
    esn-DS-41                           ESN-DS-41,
    imsi-DS-41                          IMSI-DS-41,
    imsi-and-ESN-DS-41                  IMSI-and-ESN-DS-41,
    tmsi-DS-41                          TMSI-DS-41,
    spare1                              NULL,
    spare2                              NULL,
    spare3                              NULL,
    spare4                              NULL,
    spare5                              NULL,
    spare6                              NULL,
    spare7                              NULL,
    spare8                              NULL
}

IntegrityCheckInfo ::=              SEQUENCE {
```

```
    messageAuthenticationCode           MessageAuthenticationCode,
    rrc-MessageSequenceNumber           RRC-MessageSequenceNumber
}

IntegrityProtActivationInfo ::=     SEQUENCE {
    rrc-MessageSequenceNumberList       RRC-MessageSequenceNumberList
}

IntegrityProtectionAlgorithm ::=    ENUMERATED {
                                        uia1, spare1, spare2, spare3,
                                        spare4, spare5, spare6, spare7,
                                        spare8, spare9, spare10, spare11,
                                        spare12, spare13, spare14, spare15 }


IntegrityProtectionModeCommand ::=  CHOICE {
    startIntegrityProtection            SEQUENCE {
        integrityProtInitNumber             IntegrityProtInitNumber
    },
    modify                              SEQUENCE {
        dl-IntegrityProtActivationInfo      IntegrityProtActivationInfo
    },
    spare1                              NULL,
    spare2                              NULL
}

IntegrityProtectionModeInfo ::=     SEQUENCE {
    integrityProtectionModeCommand      IntegrityProtectionModeCommand,
    -- TABULAR: DL integrity protection activation info and Integrity
    -- protection intialisation number have been nested inside
    -- IntegrityProtectionModeCommand.
    integrityProtectionAlgorithm        IntegrityProtectionAlgorithm        OPTIONAL
}

IntegrityProtInitNumber ::=         BIT STRING (SIZE (32))

LCS-Capability ::=                  SEQUENCE {
    standaloneLocMethodsSupported       BOOLEAN,
    ue-BasedOTDOA-Supported             BOOLEAN,
    networkAssistedGPS-Supported        NetworkAssistedGPS-Supported,
    gps-ReferenceTimeCapable            BOOLEAN,
    supportForIDL                       BOOLEAN
}


MaxHcContextSpace ::=                   ENUMERATED  {
                                            by512, by1024, by2048, by4096,
                                            by8192, spare1, spare2, spare3 }


MaximumAM-EntityNumberRLC-Cap ::=   ENUMERATED {
                                        am3, am4, am5, am6,
                                        am8, am16, am32, spare1 }

-- Actual value = IE value * 16
MaximumBitRate ::=                  INTEGER (0..32)


MaximumRLC-WindowSize ::=           ENUMERATED { mws2047, mws4095 }

MaxNoDPDCH-BitsTransmitted ::=      ENUMERATED {
                                        b600, b1200, b2400, b4800,
                                        b9600, b19200, b28800, b38400,
                                        b48000, b57600, spare1, spare2,
                                        spare3, spare4, spare5, spare6 }

MaxNoBits ::=                       ENUMERATED {
                                        b640, b1280, b2560, b3840, b5120,
                                        b6400, b7680, b8960, b10240,
                                        b20480, b40960, b81920, b163840,
                                        spare1, spare2, spare3 }


MaxNoPhysChBitsReceived ::=         ENUMERATED {
                                        b600, b1200, b2400, b3600,
                                        b4800, b7200, b9600, b14400,
                                        b19200, b28800, b38400, b48000,
                                        b57600, b67200, b76800, spare1 }
```

```
MaxNoSCCPCH-RL ::=                  ENUMERATED {
                                        rl1, spare1, spare2, spare3,
                                        spare4, spare5, spare6, spare7 }

MaxNumberOfTF ::=                   ENUMERATED {
                                        tf32, tf64, tf128, tf256,
                                        tf512, tf1024, spare1, spare2 }

MaxNumberOfTFC-InTFCS-DL ::=        ENUMERATED {
                                        tfc16, tfc32, tfc48, tfc64, tfc96,
                                        tfc128, tfc256, tfc512, tfc1024,
                                        spare1, spare2, spare3, spare4,
                                        spare5, spare6, spare7 }

MaxNumberOfTFC-InTFCS-UL ::=        ENUMERATED {
                                        tfc4, tfc8, tfc16, tfc32, tfc48, tfc64,
                                        tfc96, tfc128, tfc256, tfc512, tfc1024,
                                        spare1, spare2, spare3, spare4,
                                        spare5 }


-- TABULAR: Used range in Release99 is 1..224, values 225-256 are spare values
MaxPhysChPerFrame ::=               INTEGER (1..25624)

MaxPhysChPerTimeslot ::=            ENUMERATED {
                                        ts1, ts2 }


MaxPhysChPerTS ::=                  INTEGER (1..16)

MaxSimultaneousCCTrCH-Count ::=     INTEGER (1..8)

MaxSimultaneousTransChsDL ::=       ENUMERATED {
                                        e4, e8, e16, e32 }

MaxSimultaneousTransChsUL ::=       ENUMERATED {
                                        e2, e4, e8, e16, e32,
                                        spare1, spare2, spare3 }

MaxTransportBlocksDL ::=            ENUMERATED {
                                        tb4, tb8, tb16, tb32, tb48,
                                        tb64, tb96, tb128, tb256, tb512,
                                        spare1, spare2, spare3,
                                        spare4, spare5, spare6 }

MaxTransportBlocksUL ::=            ENUMERATED {
                                        tb2, tb4, tb8, tb16, tb32, tb48,
                                        tb64, tb96, tb128, tb256, tb512,
                                        spare1, spare2, spare3,
                                        spare4, spare5 }

-- TABULAR: Used range in Release99 is 1..14
MaxTS-PerFrame ::=                  INTEGER (1..164)

-- TABULAR: This IE contains dependencies to UE-MultiModeRAT-Capability,
-- the conditional fields have been left mandatory for now.
MeasurementCapability ::=           SEQUENCE {
    downlinkCompressedMode              CompressedModeMeasCapability,
    uplinkCompressedMode                CompressedModeMeasCapability
}

MessageAuthenticationCode ::=       BIT STRING (SIZE (32))

MinimumSF-DL ::=                    ENUMERATED {
                                        sf1, sf16 }

MinimumSF-UL ::=                    ENUMERATED {
                                        sf1, sf2, sf4, sf8, sf16,
                                        spare1, spare2, spare3 }

MultiModeCapability ::=             ENUMERATED {
                                        tdd, fdd, fdd-tdd }


MultiRAT-Capability ::=             SEQUENCE {
    supportOfGSM                        BOOLEAN,
    supportOfMulticarrier               BOOLEAN
```

```
}

N-300 ::=                           INTEGER (0..7)

N-301 ::=                           INTEGER (0..7)

N-302 ::=                           INTEGER (0..7)

N-303 ::=                           INTEGER (0..7)

N-304 ::=                           INTEGER (0..7)

N-308 ::=                           INTEGER (1..8)

N-310 ::=                           INTEGER (0..7)

N-312 ::=                           ENUMERATED {
                                        s1, s50, s100, s200, s400,
                                        s600, s800, s1000 }


N-313 ::=                           ENUMERATED {
                                        s1, s2, s4, s10, s20,
                                         s50, s100, s200 }

N-315 ::=                           ENUMERATED {
                                        s1, s50, s100, s200, s400,
                                        s600, s800, s1000 }

N-AccessFails ::=                   INTEGER (1..64)

N-AP-RetransMax ::=                 INTEGER (1..64)

NetworkAssistedGPS-Supported ::=    ENUMERATED {
                                        networkBased,
                                        ue-Based,
                                        bothNetworkAndUE-Based,
                                        noNetworkAssistedGPS }

NF-BO-AllBusy ::=                   INTEGER (0..31)

NF-BO-NoAICH ::=                    INTEGER (0..31)

NF-BO-Mismatch ::=                  INTEGER (0..127)

NS-BO-Busy ::=                      INTEGER (0..63)

NS-IP ::=                           INTEGER (0..28)

P-TMSI-and-RAI-GSM-MAP ::=          SEQUENCE {
    p-TMSI                              P-TMSI-GSM-MAP,
    rai                                 RAI
}


PagingCause ::=                     ENUMERATED {
                                        terminatingConversationalCall,
                                        terminatingStreamingCall,
                                        terminatingInteractiveCall,
                                        terminatingBackgroundCall,
                                        sms,
                                        spare1, spare2, spare3 }

PagingRecord ::=                    CHOICE {
    cn-IdentityPage                         SEQUENCE {
        pagingCause                         PagingCause,
        cn-DomainIdentity                   CN-DomainIdentity,
        cn-pagedUE-Identity                 CN-PagedUE-Identity
    },
    utran-IdentityPage                      SEQUENCE {
        u-RNTI                              U-RNTI,
        cn-OriginatedPage-connectedMode-UE  SEQUENCE {
            pagingCause                         PagingCause,
            cn-DomainIdentity                   CN-DomainIdentity,
            pagingRecordTypeID                  PagingRecordTypeID

        }                                                               OPTIONAL
```

```
    }
}

PagingRecordList ::=                SEQUENCE (SIZE (1..maxPage1)) OF
                                        PagingRecord


PDCP-Capability ::=                 SEQUENCE {
    losslessSRNS-RelocationSupport      BOOLEAN,
    supportForRfc2507                   CHOICE {
        notSupported                        NULL,
        supported                           MaxHcContextSpace
    }
}

PhysicalChannelCapability ::=       SEQUENCE {
    modeSpecificInfo                    CHOICE {
        fdd                                 SEQUENCE {
            downlinkPhysChCapability            DL-PhysChCapabilityFDD,
            uplinkPhysChCapability              UL-PhysChCapabilityFDD
        },
        tdd                                 SEQUENCE {
            downlinkPhysChCapability            DL-PhysChCapabilityTDD,
            uplinkPhysChCapability              UL-PhysChCapabilityTDD
        }
    }
}

ProtocolErrorCause ::=              ENUMERATED {
                                        asn1-ViolationOrEncodingError,
                                        messageTypeNonexistent,
                                        messageNotCompatibleWithReceiverState,
                                        ie-ValueNotComprehended,
                                        conditionalInformationElementError,
                                        messageExtensionNotComprehended,
                                        spare1, spare2 }

ProtocolErrorIndicator ::=          ENUMERATED {
                                        noError, errorOccurred }

ProtocolErrorIndicatorWithInfo ::= CHOICE {
    noError                             NULL,
    errorOccurred                       ProtocolErrorInformation
}

ProtocolErrorIndicatorWithMoreInfo ::=
                                    CHOICE {
    noError                             NULL,
    errorOccurred                       SEQUENCE {
        rrc-TransactionIdentifier           RRC-TransactionIdentifier,
        protocolErrorInformation            ProtocolErrorInformation
    }
}

ProtocolErrorMoreInformation ::=    SEQUENCE {
    diagnosticsType                     CHOICE {
        type1                               CHOICE {
            asn1-ViolationOrEncodingError       NULL,
            messageTypeNonexistent              NULL,
            messageNotCompatibleWithReceiverState
                                                IdentificationOfReveivedMessage,
            ie-ValueNotComprehended             IdentificationOfReveivedMessage,
            conditionalInformationElementError  IdentificationOfReveivedMessage,
            messageExtensionNotComprehended     IdentificationOfReveivedMessage,
            spare1                              NULL,
            spare2                              NULL
        },
        spare                               NULL
    }
}

RadioFrequencyBand ::=              ENUMERATED {
                                        a, b, c,
                                        spare1 }

RadioFrequencyBandList ::=          SEQUENCE (SIZE (1..maxFrequencybands)) OF
                                        RadioFrequencyBand
```

```
Rb-timer-indicator ::=              SEQUENCE {
    t314-expired                        BOOLEAN,
    t315-expired                        BOOLEAN }

Re-EstablishmentTimer ::=           CHOICE {
    t-314                               T-314Value,
    t-315                               T-315Value
}

Re-EstablishmentTimer ::=           ENUMERATED {
                                        useT314, useT315
}

RedirectionInfo ::=                 CHOICE {
    frequencyInfo                       FrequencyInfo,
    interSystemInfo                     InterSystemInfo,
    spare                               NULL
}

RejectionCause ::=                  ENUMERATED {
                                        congestion,
                                        unspecified,
                                        spare1, spare2 }


ReleaseCause ::=                    ENUMERATED {
                                        normalEvent,
                                        unspecified,
                                        pre-emptiveRelease,
                                        congestion,
                                        re-establishmentReject,
                                        directedsignallingconnectionre-establishment,
                                                            userInactivity,
                                        spare1, spare2, spare3,
                                        spare4, spare5, spare6,
                                        spare7, spare8, spare9 }

RF-Capability ::=                   SEQUENCE {
    modeSpecificInfo                    CHOICE {
        fdd                             SEQUENCE {
            ue-PowerClass                   UE-PowerClass,
            txRxFrequencySeparation         TxRxFrequencySeparation
        },
        tdd                         SEQUENCE {
            ue-PowerClass               UE-PowerClass,
            radioFrequencyBandList      RadioFrequencyBandList,
            chipRateCapability          ChipRateCapability
        }
    }
}


RLC-Capability ::=                  SEQUENCE {
    totalRLC-AM-BufferSize              TotalRLC-AM-BufferSize,
    maximumRLC-WindowSize               MaximumRLC-WindowSize,
    maximumAM-EntityNumber              MaximumAM-EntityNumberRLC-Cap
}

RRC-MessageSequenceNumber ::=       INTEGER (0..15)


RRC-MessageSequenceNumberList ::=   SEQUENCE (SIZE (4..5)) OF
                                        RRC-MessageSequenceNumber

RRC-MessageTX-Count ::=             INTEGER (1..8)

RRC-StateIndicator ::=              ENUMERATED {
                                        cell-DCH, cell-FACH, cell-PCH, ura-PCH }

RRC-TransactionIdentifier ::=       INTEGER (0..3)

S-RNTI ::=                          BIT STRING (SIZE (20))

S-RNTI-2 ::=                        INTEGER (0..1023)

SecurityCapability ::=              SEQUENCE {
    cipheringAlgorithmCap                   BIT STRING (SIZE (16)),
    integrityProtectionAlgorithmCap     BIT STRING (SIZE (16))
```

```
}


SimultaneousSCCPCH-DPCH-Reception ::= CHOICE {
    notSupported                        NULL,
    supported                           SEQUENCE {
        maxNoSCCPCH-RL                      MaxNoSCCPCH-RL,
        simultaneousSCCPCH-DPCH-DPDCH-Reception
                                            BOOLEAN
        -- The IE above is applicable only if IE Support of PDSCH = TRUE
    }
}

SRNC-Identity ::=                   BIT STRING (SIZE (12))


START-Value ::=                     BIT STRING (SIZE (20))

STARTList ::=                       SEQUENCE (SIZE (1..maxCNdomains)) OF
                                        STARTSingle


STARTSingle ::=                     SEQUENCE {
    cn-DomainIdentity                   CN-DomainIdentity,
    start-Value                         START-Value
}

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

SystemSpecificCapUpdateReqList ::= SEQUENCE (SIZE (1..maxSystemCapability)) OF
                                        SystemSpecificCapUpdateReq


T-300 ::=                           ENUMERATED {
                                        ms100, ms200, ms400, ms600, ms800,
                                        ms1000, ms1200, ms1400, ms1600,
                                        ms1800, ms2000, ms3000, ms4000,
                                        ms6000, ms8000 }


T-301 ::=                           ENUMERATED {
                                        ms100, ms200, ms400, ms600, ms800,
                                        ms1000, ms1200, ms1400, ms1600,
                                        ms1800, ms2000, ms3000, ms4000,
                                        ms6000, ms8000 }


T-302 ::=                           ENUMERATED {
                                        ms100, ms200, ms400, ms600, ms800,
                                        ms1000, ms1200, ms1400, ms1600,
                                        ms1800, ms2000, ms3000, ms4000,
                                        ms6000, ms8000 }


T-303 ::=                           ENUMERATED {
                                        ms100, ms200, ms400, ms600, ms800,
                                        ms1000, ms1200, ms1400, ms1600,
                                        ms1800, ms2000, ms3000, ms4000,
                                        ms6000, ms8000 }

T-304 ::=                           ENUMERATED {
                                        ms100, ms200, ms400,
                                        ms1000, ms2000,
                                        spare1, spare2, spare3 }

T-305 ::=                           ENUMERATED {
                                        noUpdate, m5, m10, m30,
                                        m60, m120, m360, m720 }

T-306 ::=                           ENUMERATED {
                                        noUpdate, m5, m10, m30,
                                        m60, m120, m360, m720 }

T-307 ::=                           ENUMERATED {
```

```
                                        s5, s10, s15, s20,
                                        s30, s40, s50, spare1 }

T-308 ::=                               ENUMERATED {
                                        ms40, ms80, ms160, ms320 }

T-309 ::=                               INTEGER (1..8)

T-310 ::=                               ENUMERATED {
                                        ms40, ms80, ms120, ms160,
                                        ms200, ms240, ms280, ms320 }

T-311 ::=                               ENUMERATED {
                                        ms250, ms500, ms750, ms1000,
                                        ms1250, ms1500, ms1750, ms2000 }

T-312 ::=                               INTEGER (0..15)

T-313 ::=                               INTEGER (0..15)


T-314 ::=                               ENUMERATED {
                                        s0, s2, s4, s6, s8,
                                        s12, s16, s20 }


T-314Value ::=                          SEQUENCE {
    t-314                                   T-314                                   OPTIONAL
}


T-315 ::=                               ENUMERATED {
                                        s0, s10, s30, s60, s180,
                                        s600, s1200, s1800 }


T-315Value ::=                          SEQUENCE {
    t-315                                   T-315                                   OPTIONAL
}

T-316 ::=                               ENUMERATED {
                                        s0, s10, s20, s30, s40,
                                        s50, s-inf, spare1 }

T-317 ::=                               ENUMERATED {
                                        s0, s10, s30, s60, s180,
                                        s600, s1200, s1800 }

T-CPCH ::=                              ENUMERATED {
                                        ct0, ct1 }

TMSI-and-LAI-GSM-MAP ::=                SEQUENCE {
    tmsi                                    TMSI-GSM-MAP,
    lai                                     LAI
}

TMSI-DS-41 ::=                          OCTET STRING (SIZE (2..12))

TotalRLC-AM-BufferSize ::=              ENUMERATED {
                                        kb2, kb10, kb50, kb100,
                                        kb150, kb500, kb1000,
                                        spare1 }

-- Actual value = IE value * 0.125
TransmissionProbability ::=             INTEGER (1..8)

TransportChannelCapability ::=          SEQUENCE {
    dl-TransChCapability                    DL-TransChCapability,
    ul-TransChCapability                    UL-TransChCapability
}

TurboSupport ::=                        CHOICE {
    notSupported                            NULL,
    supported                               MaxNoBits
}

TxRxFrequencySeparation ::=             ENUMERATED {
                                        mhz190, mhz174-8-205-2,
```

```
                                        mhz134-8-245-2, spare1 }

U-RNTI ::=                          SEQUENCE {
    srnc-Identity                       SRNC-Identity,
    s-RNTI                              S-RNTI
}

U-RNTI-Short ::=                    SEQUENCE {
    srnc-Identity                       SRNC-Identity,
    s-RNTI-2                            S-RNTI-2
}


UE-ConnTimersAndConstants ::=       SEQUENCE {
-- Optional is used also for parameters for which the default value is the last one read in SIB1
    t-301                               T-301                                   DEFAULT ms2000,
    n-301                               N-301                                   DEFAULT 2,
    t-302                               T-302                                   DEFAULT ms4000,
    n-302                               N-302                                   DEFAULT 3,
    t-303                               T-303                                   DEFAULT ms2000,
    n-303                               N-303                                   DEFAULT 3,
    t-304                               T-304                                   OPTIONAL,
    n-304                               N-304                                   OPTIONAL,
    t-305                               T-305                                   DEFAULT m30,
    t-306                               T-306                                   DEFAULT m30,
    t-307                               T-307                                   DEFAULT s30,
    t-308                               T-308                                   OPTIONAL,
    t-309                               T-309                                   OPTIONAL,
    t-310                               T-310                                   DEFAULT ms160,
    n-310                               N-310                                   DEFAULT 4,
    t-311                               T-311                                   DEFAULT ms2000,
    t-312                               T-312                                   DEFAULT 1,
    n-312                               N-312                                   DEFAULT s1,
    t-313                               T-313                                   OPTIONAL,
    n-313                               N-313                                   OPTIONAL,
    t-314                               T-314                                   OPTIONAL,
    t-315                               T-315                                   OPTIONAL,
    n-315                               N-315                                   OPTIONAL,
    t-316                               T-316                                   OPTIONAL,
    t-317                               T-317                                   OPTIONAL
}


UE-DCHTimersAndConstants ::=        SEQUENCE {
    t-304                               T-304                                   DEFAULT ms2000,
    n-304                               N-304                                   DEFAULT 2,
    t-308                               T-308                                   DEFAULT ms160,
    t-309                               T-309                                   DEFAULT 5,
    t-310                               T-310                                   OPTIONAL,
    n-310                               N-310                                   OPTIONAL,
    t-311                               T-311                                   OPTIONAL,
    t-313                               T-313                                   DEFAULT 3,
    n-313                               N-313                                   DEFAULT s20,
    t-314                               T-314                                   DEFAULT s12,
    t-315                               T-315                                   DEFAULT s180,
    n-315                               N-315                                   DEFAULT s1
}

UE-IdleTimersAndConstants ::=       SEQUENCE {
    t-300                               T-300,
    n-300                               N-300,
    t-312                               T-312,
    n-312                               N-312
}

UE-MultiModeRAT-Capability ::=      SEQUENCE {
    multiRAT-CapabilityList             MultiRAT-Capability,
    multiModeCapability                 MultiModeCapability
}

UE-PowerClass ::=                   INTEGER (1..4)

UE-RadioAccessCapability ::=        SEQUENCE {
    ics-Version                         ICS-Version,
    pdcp-Capability                     PDCP-Capability,
    rlc-Capability                      RLC-Capability,
    transportChannelCapability          TransportChannelCapability,
    rf-Capability                       RF-Capability,
```

```
    physicalChannelCapability           PhysicalChannelCapability,
    ue-MultiModeRAT-Capability          UE-MultiModeRAT-Capability,
    securityCapability                  SecurityCapability,
    lcs-Capability                      LCS-Capability,
    modeSpecificInfo                    CHOICE {
        fdd                                 SEQUENCE {
            measurementCapability               MeasurementCapability
        },
        tdd                                 NULL
    }
}

UL-PhysChCapabilityFDD ::=          SEQUENCE {
    maxNoDPDCH-BitsTransmitted          MaxNoDPDCH-BitsTransmitted,
    supportOfPCPCH                      BOOLEAN
}

UL-PhysChCapabilityTDD ::=          SEQUENCE {
    maxSimultaneousCCTrCH-Count         MaxSimultaneousCCTrCH-Count,
    maxTS-PerFrame                      MaxTS-PerFrame,
    maxPhysChPerTimeslot                MaxPhysChPerTimeslot,
    minimumSF                           MinimumSF-UL,
    supportOfPUSCH                      BOOLEAN
}

UL-TransChCapability ::=            SEQUENCE {
    maxNoBitsTransmitted                MaxNoBits,
    maxConvCodeBitsTransmitted          MaxNoBits,
    turboDecodingSupport                TurboSupport,
    maxSimultaneousTransChs             MaxSimultaneousTransChsUL,
    maxTransmittedBlocks                MaxTransportBlocksUL,
    maxNumberOfTFC-InTFCS               MaxNumberOfTFC-InTFCS-UL,
    maxNumberOfTF                       MaxNumberOfTF
}

URA-UpdateCause ::=                 ENUMERATED {
                                        changeOfURA,
                                        periodicURAUpdate,
                                        re-enteredServiceArea,
                                        spare1, spare2, spare3,
                                        spare4, spare5 }

UTRAN-DRX-CycleLengthCoefficient ::= INTEGER (3..12)

WaitTime ::=                        INTEGER (0..15)

END
```

11.3.4 Radio bearer information elements

```
RadioBearer-IEs DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

    CN-DomainIdentity,
    NAS-Synchronisation-Indicator,
    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;


-- ********************************************
--
--     RADIO BEARER INFORMATION ELEMENTS (10.3.4)
--
-- ********************************************

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,
    nas-Synchronisation-Indicator       NAS-Synchronisation-Indicator   OPTIONAL,
    re-EstablishmentTimer               Re-EstablishmentTimer
}

RAB-InformationReconfigList ::=     SEQUENCE (SIZE (1.. maxRABsetup)) OF
                                        RAB-InformationReconfig

RAB-InformationReconfig ::=         SEQUENCE {
    rab-Identity                        RAB-Identity,
    nas-Synchronisation-Indicator       NAS-Synchronisation-Indicator
}


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


RAB-InformationSetup ::=            SEQUENCE {
    rab-Info                            RAB-Info,
    nas-Synchronisation-Indicator       NAS-Synchronisation-Indicator   OPTIONAL,
```

```
    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 (01..3221)


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-SuspendResumeStopContinue                RB-StopContinueSuspendResume
    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-SuspendResumeStopContinue ::=                ENUMERATED {
                                        stop, continuesuspend, 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, rw64, rw128, rw256,
                                        rw512, rw768, rw1024, rw1536, rw2047,
                                        rw2560, rw3072, rw3584, rw4095 }


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 (3..4)) 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, 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 }

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, tw64, tw128, tw256,
                                        tw512, tw768, tw1024, tw1536, tw2047,
                                        tw2560, tw3072, tw3584, tw4095 }


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


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-LogicalChannelMappingList ::=    SEQUENCE {
    rlc-LogicalChannelMappingIndicator  BOOLEAN,
    ul-LogicalChannelMapping            SEQUENCE (SIZE (maxLoCHperRLC)) OF
                                        UL-LogicalChannelMapping
}

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


UL-RLC-Mode ::=                     CHOICE {
    ul-AM-RLC-Mode                      UL-AM-RLC-Mode,
    ul-UM-RLC-Mode                      UL-UM-RLC-Mode,
    ul-TM-RLC-Mode                      UL-TM-RLC-Mode,
    spare                               NULL
}


UL-TM-RLC-Mode ::=                  SEQUENCE {
    transmissionRLC-Discard             TransmissionRLC-Discard             OPTIONAL,
    segmentationIndication              BOOLEAN
}

UL-UM-RLC-Mode ::=                  SEQUENCE {
    transmissionRLC-Discard             TransmissionRLC-Discard             OPTIONAL

}
```

```
UL-TransportChannelType ::=         CHOICE {
    dch                                 TransportChannelIdentity,
    rach                                NULL,
    cpch                                NULL,
    usch                                NULL
}

END
```

11.3.5 Transport channel information elements

```
TransportChannel-IEs DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

    hiRM,
    maxCCTrCH,
    maxCPCHsets,
    maxDRACclasses,
    maxPDSCH-TFCIgroups,
    maxTF,
    maxTFC,
    maxTrCH
FROM Constant-definitions;

-- **************************************************
--
--     TRANSPORT CHANNEL INFORMATION ELEMENTS (10.3.5)
--
-- **************************************************

AllowedTFC-List ::=                 SEQUENCE (SIZE (1..maxTFC)) OF
                                        TFC-Value

AllowedTFI-List ::=                 SEQUENCE (SIZE (1..maxTF)) OF
                                        INTEGER (0..31)

BitModeRLC-SizeInfo ::=             CHOICE {
    sizeType1                           INTEGER (1..127),
    sizeType2                           SEQUENCE {
        part1                               INTEGER (0..15),
        part2                               INTEGER (1..7)                  OPTIONAL
        -- Actual size = (part1 * 8) + 128 + part2
    },
    sizeType3                           SEQUENCE {
        part1                               INTEGER (0..47),
        part2                               INTEGER (1..15)                 OPTIONAL
        -- Actual size = (part1 * 16) + 256 + part2
    },
    sizeType4                           SEQUENCE {
        part1                               INTEGER (0..62),
        part2                               INTEGER (1..63)                 OPTIONAL
        -- Actual size = (part1 * 64) + 1024 + part2
    }
}

BLER-QualityValue ::=               INTEGER (0..5163)

ChannelCodingType ::=               CHOICE {
    noCoding                            NULL,
    convolutional                       CodingRate,
    turbo                               NULL
}

CodingRate ::=                      ENUMERATED {
                                        half,
                                        third }


CommonDynamicTF-Info ::=            SEQUENCE {
    numberOfTransportBlocks             NumberOfTransportBlocks,
    rlc-Size                            CHOICE {
        fdd                                 SEQUENCE {
            octetModeRLC-SizeInfoType2          OctetModeRLC-SizeInfoType2 OPTIONAL
        },
        tdd                                 SEQUENCE {
```

```
            commonTDD-Choice                    CHOICE {
                bitModeRLC-SizeInfo                 BitModeRLC-SizeInfo,
                octetModeRLC-SizeInfoType1          OctetModeRLC-SizeInfoType1
            }                                                                   OPTIONAL
        }
    }
}


CommonDynamicTF-Info-DynamicTTI ::= SEQUENCE {
    numberOfTransportBlocks             NumberOfTransportBlocks,
    transmissionTimeInterval            TransmissionTimeInterval,
    commonTDD-Choice                    CHOICE {
        bitModeRLC-SizeInfo                 BitModeRLC-SizeInfo,
        octetModeRLC-SizeInfoType1          OctetModeRLC-SizeInfoType1
    }                                                                           OPTIONAL
}

CommonDynamicTF-InfoList ::=        SEQUENCE (SIZE (1..maxTF)) OF
                                        CommonDynamicTF-Info


CommonDynamicTF-InfoList-DynamicTTI ::= SEQUENCE (SIZE (1..maxTF)) OF
                                        CommonDynamicTF-Info-DynamicTTI


CommonTransChTFS ::=                SEQUENCE {
    tti                                 CHOICE {
        tti10                               CommonDynamicTF-InfoList,
        tti20                               CommonDynamicTF-InfoList,
        tti40                               CommonDynamicTF-InfoList,
        tti80                               CommonDynamicTF-InfoList,
        dynamic                             CommonDynamicTF-InfoList-DynamicTTI
    },
    semistaticTF-Information            SemistaticTF-Information
}

CPCH-SetID ::=                      INTEGER (1..maxCPCHsets)

CRC-Size ::=                        ENUMERATED {
                                        crc0, crc8, crc12, crc16, crc24 }


DedicatedDynamicTF-Info ::=         SEQUENCE {
    numberOfTransportBlocks             NumberOfTransportBlocks,
    rlc-Size                            CHOICE {
        bitMode                             BitModeRLC-SizeInfo,
        octetModeType1                      OctetModeRLC-SizeInfoType1
    }                                                                           OPTIONAL
}


DedicatedDynamicTF-Info-DynamicTTI ::= SEQUENCE {
    numberOfTransportBlocks             NumberOfTransportBlocks,
    transmissionTimeInterval            TransmissionTimeInterval,
    rlc-Size                            CHOICE {
        bitMode                             BitModeRLC-SizeInfo,
        octetModeType1                      OctetModeRLC-SizeInfoType1
    }                                                                           OPTIONAL
}

DedicatedDynamicTF-InfoList ::=     SEQUENCE (SIZE (1..maxTF)) OF
                                        DedicatedDynamicTF-Info


DedicatedDynamicTF-InfoList-DynamicTTI ::= SEQUENCE (SIZE (1..maxTF)) OF
                                        DedicatedDynamicTF-Info-DynamicTTI


DedicatedTransChTFS ::=             SEQUENCE {
    tti                                 CHOICE {
        tti10                               DedicatedDynamicTF-InfoList,
        tti20                               DedicatedDynamicTF-InfoList,
        tti40                               DedicatedDynamicTF-InfoList,
        tti80                               DedicatedDynamicTF-InfoList,
        dynamic                             DedicatedDynamicTF-InfoList-DynamicTTI
    },
    semistaticTF-Information            SemistaticTF-Information
```

```
}


DL-AddReconfTransChInfo2List ::=    SEQUENCE (SIZE (1..maxTrCH)) OF
                                        DL-AddReconfTransChInformation2

DL-AddReconfTransChInfoList ::=     SEQUENCE (SIZE (1..maxTrCH)) OF
                                        DL-AddReconfTransChInformation

-- ASN.1 for IE "Added or Reconfigured DL TrCH information"
-- in case of messages other than: Radio Bearer Release message and
-- Radio Bearer Reconfiguration message
DL-AddReconfTransChInformation ::=  SEQUENCE {
    dl-transportChannelIdentity         TransportChannelIdentity,
    tfs-SignallingMode                  CHOICE {
        explicit                            TransportFormatSet,
        sameAsULTrCH                        TransportChannelIdentity
    },
    dch-QualityTarget                   QualityTarget                       OPTIONAL,
    tm-SignallingInfo                   TM-SignallingInfo                   OPTIONAL
}

-- ASN.1 for IE "Added or Reconfigured DL TrCH information"
-- in case of Radio Bearer Release message and
-- Radio Bearer Reconfiguration message
DL-AddReconfTransChInformation2 ::= SEQUENCE {
    transportChannelIdentity            TransportChannelIdentity,
    tfs-SignallingMode                  CHOICE {
        explicit                            TransportFormatSet,
        sameAsULTrCH                        TransportChannelIdentity
    },
    qualityTarget                       QualityTarget                       OPTIONAL
}


DL-CommonTransChInfo ::=            SEQUENCE {
    sccpch-TFCS                         TFCS                                OPTIONAL,
    modeSpecificInfo                    CHOICE {
        fdd                                 SEQUENCE {
            tfcs-SignallingMode                 CHOICE {
                explicit                            TFCS,
                sameAsUL                            NULL
            }                                                               OPTIONAL
        },
        tdd                                 SEQUENCE {
            individualDL-CCTrCH-InfoList        IndividualDL-CCTrCH-InfoList
                                                                            OPTIONAL
        }
    }
}

DL-DeletedTransChInfoList ::=       SEQUENCE (SIZE (1..maxTrCH)) OF
                                        TransportChannelIdentity


DRAC-ClassIdentity ::=              INTEGER (1..maxDRACclasses)

DRAC-StaticInformation ::=          SEQUENCE {
    transmissionTimeValidity            TransmissionTimeValidity,
    timeDurationBeforeRetry             TimeDurationBeforeRetry,
    drac-ClassIdentity                  DRAC-ClassIdentity
}

DRAC-StaticInformationList ::=      SEQUENCE (SIZE (1..maxTrCH)) OF
                                        DRAC-StaticInformation


ExplicitTFCS-Configuration ::=      CHOICE {
    complete                            TFCS-ReconfAdd,
    addition                            TFCS-ReconfAdd,
    removal                             TFCS-RemovalList,
    replacement                         SEQUENCE {
        tfcsRemoval                         TFCS-RemovalList,
        tfcsAdd                             TFCS-ReconfAdd
    }
}
```

```
GainFactor ::=                      INTEGER (0..15)

GainFactorInformation ::=           CHOICE {
    signalledGainFactors                SignalledGainFactors,
    computedGainFactors                 ReferenceTFC-ID
}


IndividualDL-CCTrCH-Info ::=        SEQUENCE {
    dl-TFCS-Identity                    TFCS-Identity,
    tfcs-SignallingMode                 CHOICE {
        explicit                            TFCS,
        sameAsUL                            TFCS-Identity
    }
}

IndividualDL-CCTrCH-InfoList ::=    SEQUENCE (SIZE (1..maxCCTrCH)) OF
                                        IndividualDL-CCTrCH-Info

IndividualUL-CCTrCH-Info ::=        SEQUENCE {
    ul-TFCS-Identity                    TFCS-Identity,
    ul-TFCS                             TFCS
}

IndividualUL-CCTrCH-InfoList ::=    SEQUENCE (SIZE (1..maxCCTrCH)) OF
                                        IndividualUL-CCTrCH-Info


MessType ::=                        ENUMERATED {
                                        transportFormatCombinationControl~~, spare1~~ }

Non-allowedTFC-List ::=             SEQUENCE (SIZE (1..maxTFC)) OF
                                        TFC-Value


NumberOfTransportBlocks::=          CHOICE {
    zero                                NULL,
    one                                 NULL,
    small                               INTEGER (2..17),
    largeong                            INTEGER (18..512)
}

OctetModeRLC-SizeInfoType1 ::=      CHOICE {
    sizeType1                           INTEGER (0..31),
    -- Actual size = (8 * sizeType1) + 16
    sizeType2                           SEQUENCE {
        part1                               INTEGER (0..23),
        part2                               INTEGER (1..3)              OPTIONAL
        -- Actual size = (32 * part1) + 272 + (part2 * 8)
    },
    sizeType3                           SEQUENCE {
        part1                               INTEGER (0..61),
        part2                               INTEGER (1..7)              OPTIONAL
        -- Actual size = (64 * part1) + 1040 + (part2 * 8)
    }
}

OctetModeRLC-SizeInfoType2 ::=      CHOICE {
    sizeType1                           INTEGER (0..31),
    -- Actual size = (sizeType1 * 8) + 48
    sizeType2                           INTEGER (0..63),
    -- Actual size = (sizeType2 * 16) + 312
    sizeType3                           INTEGER (0..56)
    -- Actual size = (sizeType3 *64) + 1384
}


PowerOffsetInformation ::=          SEQUENCE {
    gainFactorInformation               GainFactorInformation,
    -- PowerOffsetPp-m is always absent in TDD
    powerOffsetPp-m                     PowerOffsetPp-m             OPTIONAL
}

PowerOffsetPp-m ::=                 INTEGER (-5..10)

PreDefTransChConfiguration ::=      SEQUENCE {
    ul-CommonTransChInfo                UL-CommonTransChInfo,
```

```
    ul-AddReconfTrChInfoList            UL-AddReconfTransChInfoList,
    dl-CommonTransChInfo                DL-CommonTransChInfo,
    dl-TrChInfoList                     DL-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
}


SplitTFCI-Signalling ::=            SEQUENCE {
    splitType                           SplitType                       OPTIONAL,
    tfci-Field2-Length                  INTEGER (1..10)                 OPTIONAL,
    tfci-Field1-Information             ExplicitTFCS-Configuration      OPTIONAL,
    tfci-Field2-Information             TFCI-Field2-Information         OPTIONAL
}


SplitType ::=                       ENUMERATED {
                                        hardSplit, logicalSplit }



TFC-Subset ::=                      CHOICE {
    minimumAllowedTFC-Number            TFC-Value,
    allowedTFC-List                     AllowedTFC-List,
    non-allowedTFC-List                 Non-allowedTFC-List,
    restrictedTrChInfoList              RestrictedTrChInfoList,
    fullTFCS                            NULL,
    spare                               NULL
}

TFC-Value ::=                       INTEGER (0..1023)



TFCI-Field2-Information ::=         CHOICE {
    tfci-Range                          TFCI-RangeList,
    explicit                            ExplicitTFCS-Configuration
}
```

```
TFCI-Range ::=                      SEQUENCE {
    maxTFCIField2Value                  INTEGER (1..1023),
    tfcs-InfoForDSCH                    TFCS-InfoForDSCH
}


TFCI-RangeList ::=                  SEQUENCE (SIZE (1..maxPDSCH-TFCIgroups)) OF
                                        TFCI-Range


TFCS ::=                            CHOICE {
    normalTFCI-Signalling               ExplicitTFCS-Configuration,
    splitTFCI-Signalling                SplitTFCI-Signalling
}

TFCS-Identity ::=                   SEQUENCE {
    tfcs-ID                             INTEGER (1..8)                      DEFAULT 1,
    sharedChannelIndicator              BOOLEAN
}


TFCS-IdentityPlain ::=              INTEGER (1..8)


TFCS-InfoForDSCH ::=                CHOICE {
    ctfc2bit                            INTEGER (0..3),
    ctfc4bit                            INTEGER (0..15),
    ctfc6bit                            INTEGER (0..63),
    ctfc8bit                            INTEGER (0..255),
    ctfc12bit                           INTEGER (0..4095),
    ctfc16bit                           INTEGER (0..65535),
    ctfc24bit                           INTEGER (0..16777215),
    spare                               NULL
}

TFCS-ReconfAdd ::=                  SEQUENCE{
    ctfcSize                            CHOICE{
        ctfc2Bit                            SEQUENCE (SIZE (1..maxTFC)) OF SEQUENCE {
            ctfc2                               INTEGER (0..3),
            gainFactorInformation               PowerOffsetInformation          OPTIONAL
        },
        ctfc4Bit                            SEQUENCE (SIZE (1..maxTFC)) OF SEQUENCE {
            ctfc4                               INTEGER (0..15),
            gainFactorInformation               PowerOffsetInformation          OPTIONAL
        },
        ctfc6Bit                            SEQUENCE (SIZE (1..maxTFC)) OF SEQUENCE {
            ctfc86                              INTEGER (0..63),
            gainFactorInformation               PowerOffsetInformation          OPTIONAL
        },
        ctfc8Bit                            SEQUENCE (SIZE (1..maxTFC)) OF SEQUENCE {
            ctfc168                             INTEGER (0..255),
            gainFactorInformation               PowerOffsetInformation          OPTIONAL
        },
        ctfc12Bit                           SEQUENCE (SIZE(1..maxTFC)) OF SEQUENCE {
            ctfc12                              INTEGER (0..4095),
            gainFactorInformation               PowerOffsetInformation          OPTIONAL
        },
        ctfc16Bit                           SEQUENCE (SIZE (1..maxTFC)) OF SEQUENCE {
            ctfc16                              INTEGER(0..65535),
            gainFactorInformation               PowerOffsetInformation          OPTIONAL
        },
        ctfc24Bit                           SEQUENCE (SIZE (1..maxTFC)) OF SEQUENCE {
            ctfc24                              INTEGER(0..16777215),
            gainFactorInformation               PowerOffsetInformation          OPTIONAL
        },
        spare                               NULL
    }
}

TFCS-Removal ::=                    SEQUENCE {
    tfci                                INTEGER (0..1023)
}

TFCS-RemovalList ::=                SEQUENCE (SIZE (1..maxTFC)) OF
                                        TFCS-Removal
```

```
TimeDurationBeforeRetry ::=         INTEGER (1..256)


TM-SignallingInfo   ::=             SEQUENCE {
    messType                            MessType,
    tm-SignallingMode                   CHOICE {
        mode1                               NULL,
        mode2                               SEQUENCE {
            ul-controlledTrChList               UL-ControlledTrChList
        }
    }
}



TransmissionTimeInterval ::=        ENUMERATED {
                                        tti10, tti20, tti40, tti80,
                                        spare1, spare2, spare3, spare4 }

TransmissionTimeValidity ::=        INTEGER (1..256)


TransportChannelIdentity ::=        INTEGER (1..32)

TransportFormatSet ::=              CHOICE {
    dedicatedTransChTFS                 DedicatedTransChTFS,
    commonTransChTFS                    CommonTransChTFS
}

UL-AddReconfTransChInfoList ::=     SEQUENCE (SIZE (1..maxTrCH)) OF
                                        UL-AddReconfTransChInformation


UL-AddReconfTransChInformation ::= SEQUENCE {
    transportChannelIdentity            TransportChannelIdentity,
    transportFormatSet                  TransportFormatSet
}

UL-CommonTransChInfo ::=            SEQUENCE {
    tfc-Subset                          TFC-Subset                          OPTIONAL,
    prach-TFCS                          TFCS                                OPTIONAL,
    modeSpecificInfo                    CHOICE {
        fdd                                 SEQUENCE {
            ul-TFCS                             TFCS
        },
        tdd                                 SEQUENCE {

            individualUL-CCTrCH-InfoList        IndividualUL-CCTrCH-InfoList
                                                                            OPTIONAL,
            ul-TFCS                             TFCS
        }
    }                                                                       OPTIONAL
}


UL-ControlledTrChList ::=           SEQUENCE (SIZE (1..maxTrCH)) OF
                                        TransportChannelIdentity

UL-DeletedTransChInfoList ::=       SEQUENCE (SIZE (1..maxTrCH)) OF
                                        TransportChannelIdentity


END
```

11.3.6 Physical channel information elements

```
PhysicalChannel-IEs DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

    hiPDSCHidentities,
    hiPUSCHidentities,
    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,
    maxTS-1
FROM Constant-definitions
    ActivationTime
FROM UserEquipment-IEs

    AllowedTFI-List,
    CPCH-SetID,
    TFCS,
    TFCS-Identity,
    TFCS-IdentityPlain,
    TransportChannelIdentity,
    TransportFormatSet
FROM TransportChannel-IEs

    SIB-ReferenceListFACH
FROM Other-IEs;


-- ************************************************
--
--     PHYSICAL CHANNEL INFORMATION ELEMENTS (10.3.6)
--
-- ************************************************

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 (-22..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)
}

ASCSetting ::=                      SEQUENCE {
    -- TABULAR: This is MD in tabular description
    -- Default value is previous ASC
    -- If this is the first ASC, the default value is all available signature and sub-channels
    accessServiceClass                      AccessServiceClass      OPTIONAL
}

AvailableAP-Signature-VCAMList ::=  SEQUENCE (SIZE (1..maxPCPCH-APsig)) OF
                                        AP-Signature-VCAM

AvailableAP-SignatureList ::=       SEQUENCE (SIZE (1..maxPCPCH-APsig)) OF
                                        AP-Signature

AvailableAP-SubchannelList ::=      SEQUENCE (SIZE (1..maxPCPCH-APsubCh)) OF
                                        AP-Subchannel

AvailableMinimumSF-ListVCAM ::=     SEQUENCE (SIZE (1..maxPCPCH-SF)) OF
                                        AvailableMinimumSF-VCAM


AvailableMinimumSF-VCAM ::=         SEQUENCE {
    minimumSpreadingFactor              MinimumSpreadingFactor,
    nf-Max                              NF-Max,
    maxAvailablePCPCH-Number            MaxAvailablePCPCH-Number,
    availableAP-Signature-VCAMList      AvailableAP-Signature-VCAMList
}

AvailableSignatures ::=         BIT STRING(SIZE(16))


AvailableSubChannelNumbers ::=      BIT STRING(SIZE(12))


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)

Cfntargetsfnframeoffset ::=             INTEGER(0..255)

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                         TFCI-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                         TFCI-Coding                         OPTIONAL,
    puncturingLimit                     PuncturingLimit,
    repetitionPeriodLengthAndOffset     RepetitionPeriodLengthAndOffset     OPTIONAL
}


-- Values from -35 to 10 are used in Release 99
ConstantValue ::=                   INTEGER (-3541..10)

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

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

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

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

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


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

-- DefaultDPCH-OffsetValueFDD and DefaultDPCH-OffsetValueTDD corresponds to
-- IE "Default DPCH Offset Value" depending on the mode.
-- Actual value = IE value * 512, only values from 0 to 599 used in Release 99.

DefaultDPCH-OffsetValueFDD ::=      INTEGER (0..5991023)

DefaultDPCH-OffsetValueTDD ::=      INTEGER (0..7)

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


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


DL-CCTrCh ::=                       SEQUENCE {
    tfcs-Identity                       TFCS-IdentityPlain                  OPTIONAL,
    timeInfo                            TimeInfo,
    dl-CCTrCH-TimeslotsCodes            DownlinkTimeslotsCodes              OPTIONAL,
    ul-CCTrChTPCList                    UL-CCTrChTPCList                    OPTIONAL
}



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 {
            defaultDPCH-OffsetValue             DefaultDPCH-OffsetValueFDD  OPTIONAL,
```

```
            dpch-CompressedModeInfo             DPCH-CompressedModeInfo     OPTIONAL,
            tx-DiversityMode                    TX-DiversityMode            OPTIONAL,
            ssdt-Information                    SSDT-Information            OPTIONAL
        },
        tdd                                 SEQUENCE {
            defaultDPCH-OffsetValue             DefaultDPCH-OffsetValueTDD  OPTIONAL
        }
    }
}

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

DL-CommonInformationPredef ::=      SEQUENCE {
    dl-DPCH-InfoCommon                  DL-DPCH-InfoCommonPredef    OPTIONAL,
    modeSpecificInfo                    CHOICE {
        fdd                                 SEQUENCE {
            defaultDPCH-OffsetValue             DefaultDPCH-OffsetValueFDD  DEFAULT 0
        },
        tdd                                 SEQUENCE {
            defaultDPCH-OffsetValue             DefaultDPCH-OffsetValueTDD  DEFAULT 0
        }
    }
}

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

DL-DPCH-InfoCommon ::=              SEQUENCE {
    timingIndication                    TimingIndication,
    cfntargetsfnframeoffset             Cfntargetsfnframeoffset             OPTIONAL,
    modeSpecificInfo                    CHOICE {
        fdd                                 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
        },
        tdd                                 SEQUENCE {
            commonTimeslotInfo                  CommonTimeslotInfo                  OPTIONAL
        }
    }
}


DL-DPCH-InfoCommonPost ::=          SEQUENCE {
    timingIndication                    TimingIndication,
    cfntargetsfnframeoffset             Cfntargetsfnframeoffset                 OPTIONAL,
    dl-DPCH-PowerControlInfo            DL-DPCH-PowerControlInfo                OPTIONAL
}


DL-DPCH-InfoCommonPredef ::=        SEQUENCE {
    timingIndication                    TimingIndication,
    cfntargetsfnframeoffset             Cfntargetsfnframeoffset             OPTIONAL,
    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,                   OPTIONAL,
        secondaryCPICH-Info                 SecondaryCPICH-Info             OPTIONAL,
```

```
        dl-ChannelisationCodeList           DL-ChannelisationCodeList,
        tpc-CombinationIndex                TPC-CombinationIndex,
        ssdt-CellIdentity                   SSDT-CellIdentity               OPTIONAL,
        closedLoopTimingAdjMode             ClosedLoopTimingAdjMode         OPTIONAL
    },
    tdd                                 DL-CCTrChList
}


DL-DPCH-InfoPerRL-PostFDD ::=                           SEQUENCE {
        pCPICH-UsageForChannelEst               PCPICH-UsageForChannelEst       OPTIONAL,
        dl-ChannelisationCode                   DL-ChannelisationCode,
        tpc-CombinationIndex                    TPC-CombinationIndex
}

DL-DPCH-InfoPerRL-PostTDD ::=               SEQUENCE {
    dl-CCTrCH-TimeslotsCodes                    DownlinkTimeslotsCodes
}

DL-DPCH-PowerControlInfo ::=            SEQUENCE {
    modeSpecificInfo                        CHOICE {
        fdd                                     SEQUENCE {
            dpc-Mode                                DPC-Mode
        },
        tdd                                     SEQUENCE {
            tpc-StepSizeTDD                         TPC-StepSizeTDD         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 {
            primaryCPICH-Info                   PrimaryCPICH-Info,
    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-rate-matching-restriction ::=    SEQUENCE {
    restrictedTrCH-InfoList             RestrictedTrCH-InfoList             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-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)

-- TABULAR : value [Duration = infinite] is the value by default,
-- and is encoded by absence of the full sequence. If the sequence is present,
-- thefield is absent, the default is respectivelyinfinite. Presence of the
-- field absent should not be used, but shall be understood as if the
-- sequence was absent.

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    }
}

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

FrequencyInfoTDD ::=                SEQUENCE {
    uarfcn-Nt                           UARFCN
}


IndividualTimeslotInfo ::=          SEQUENCE {
    timeslotNumber                      TimeslotNumber,
    tfci-Existence                      BOOLEAN                         ,

    midambleShiftAndBurstType           MidambleShiftAndBurstType}



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..3377)

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
```

```
}

MidambleShiftAndBurstType ::=       SEQUENCE {
    burstType                           CHOICE {
        type1                               SEQUENCE {
            midambleAllocationMode              CHOICE {
                defaultMidamble                     NULL,
                commonMidamble                      NULL,
                ueSpecificMidamble                  SEQUENCE {
                    midambleShift                       MidambleShiftLong
                }
            }
        },
        type2                               SEQUENCE {
            midambleAllocationMode              CHOICE {
                defaultMidamble                     NULL,
                commonMidamble                      NULL,
                ueSpecificMidamble                  SEQUENCE {
                    midambleShift                       MidambleShiftShort
                }
            }
        },
        type3                               SEQUENCE {
            midambleAllocationMode              CHOICE {
                defaultMidamble                     NULL,
                ueSpecificMidamble                  SEQUENCE {
                    midambleShift                       MidambleShiftAccess
                }
            }
        }
    }
}
MidambleShiftLong ::=               INTEGER (0..15)


MidambleShiftShort ::=              INTEGER (0..5)

MidambleShiftAccess ::=             INTEGER (0..7)

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 {
                                        pi4, pi8, pi16 }


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-CapacityAllocationInfo ::=    SEQUENCE {
    pdsch-PowerControlInfo              PDSCH-PowerControlInfo              OPTIONAL,
    pdsch-AllocationPeriodInfo          AllocationPeriodInfo,
    tfcs-Identity                       TFCS-IdentityPlain                  OPTIONAL,
    configuration                       CHOICE {
        old-Configuration                   SEQUENCE {
            pdsch-Identity                      PDSCH-Identity
        },
        new-Configuration                   SEQUENCE {
            pdsch-Info                          PDSCH-Info,
            pdsch-Identity                      PDSCH-Identity              OPTIONAL
        }
    }
}

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-Identity ::=                  INTEGER (1..hiPDSCHidentities)


PDSCH-Info ::=                      SEQUENCE {
    tfcs-Identity                       TFCS-IdentityPlain                  OPTIONAL,
    commonTimeslotInfo                  CommonTimeslotInfo                  OPTIONAL,
    pdsch-TimeslotsCodes                DownlinkTimeslotsCodes              OPTIONAL
}

PDSCH-PowerControlInfo ::=          SEQUENCE {
    tpc-StepSizeTDD                     TPC-StepSizeTDD                     OPTIONAL,
    ul-CCTrChTPCList                    UL-CCTrChTPCList                    OPTIONAL
}

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

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

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

PDSCH-SysInfoList-SFN ::=           SEQUENCE (SIZE (1..maxPDSCH)) OF
                                        SEQUENCE {
    pdsch-SysInfo                           PDSCH-SysInfo,
    sfn-TimeInfo                            SFN-TimeInfo                    OPTIONAL
}

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
        }                                                                   OPTIONAL,
        repetitionPeriodLengthOffset        RepPerLengthOffset-PICH         OPTIONAL,
        pagingIndicatorLength               PagingIndicatorLength           DEFAULT pi4,
        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-StepSizeFDD,
    algorithm2                          NULL
}

PowerRampStep ::=                   INTEGER (1..8)

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


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

```
PRACH-PowerOffset ::=               SEQUENCE {
    powerRampStep                       PowerRampStep,
    preambleRetransMax                  PreambleRetransMax
}


PRACH-RACH-Info ::=                 SEQUENCE {
    modeSpecificInfo                    CHOICE {
        fdd                                 SEQUENCE {
            availableSignatures                 AvailableSignatures,
            availableSF                         SF-PRACH,
            preambleScramblingCodeWordNumber    PreambleScramblingCodeWordNumber,
            puncturingLimit                     PuncturingLimit,
            availableSubChannelNumbers          AvailableSubChannelNumbers
        },
        tdd                                 SEQUENCE {
            timeslot                            TimeslotNumber,
            channelisationCode                  TDD-PRACH-CCodeList,
            prach-Midamble                      PRACH-Midamble              OPTIONAL
        }
    }
}


PRACH-SystemInformation ::=         SEQUENCE {
    prach-RACH-Info                     PRACH-RACH-Info,
    transportChannelIdentity            TransportChannelIdentity,
    rach-TransportFormatSet             TransportFormatSet                  OPTIONAL,
    rach-TFCS                           TFCS                                OPTIONAL,
    prach-Partitioning                  PRACH-Partitioning                  OPTIONAL,
    persistenceScalingFactorList        PersistenceScalingFactorList        OPTIONAL,
    ac-To-ASC-MappingTable              AC-To-ASC-MappingTable              OPTIONAL,
    modeSpecificInfo                    CHOICE {
        fdd                                 SEQUENCE {
            primaryCPICH-TX-Power               PrimaryCPICH-TX-Power       OPTIONAL,
            constantValue                       ConstantValue               OPTIONAL,
            prach-PowerOffset                   PRACH-PowerOffset           OPTIONAL,
            rach-TransmissionParameters         RACH-TransmissionParameters OPTIONAL,
            aich-Info                           AICH-Info                   OPTIONAL
        },
        tdd                                 NULL
    }
}

PRACH-SystemInformationList ::=     SEQUENCE (SIZE (1..maxPRACH)) OF
                                        PRACH-SystemInformation

PreambleRetransMax ::=              INTEGER (1..64)

PreambleScramblingCodeWordNumber ::=    INTEGER (0..15)

PreDefPhyChConfiguration ::=        SEQUENCE {
    ul-DPCH-InfoPredef                  UL-DPCH-InfoPredef,
    dl-CommonInformationPredef          DL-CommonInformationPredef  OPTIONAL
}


PrimaryCCPCH-Info ::=               CHOICE {
    fdd                                 SEQUENCE {
        tx-DiversityIndicator               BOOLEAN
    },
    tdd                                 SEQUENCE {
        syncCase                            CHOICE {
            syncCase1                           SEQUENCE {
                timeslot                            TimeslotNumber
            },
            syncCase2                           SEQUENCE {
                timeslotSync2                       TimeslotSync2
            }
        }                                                               OPTIONAL,
        cellParametersID                    CellParametersID            OPTIONAL,
        blockSTTD-Indicator                 BOOLEAN
    }
}

PrimaryCCPCH-InfoPost ::=           SEQUENCE {
    syncCase                            CHOICE {
        syncCase1                           SEQUENCE {
```

```
            timeslot                        TimeslotNumber
        },
        syncCase2                       SEQUENCE {
            timeslotSync2                   TimeslotSync2
        }
    },
    cellParametersID                CellParametersID,
    blockSTTD-Indicator             BOOLEAN
}


PrimaryCCPCH-TX-Power ::=           INTEGER (6..43)

PrimaryCPICH-Info ::=               SEQUENCE {
    primaryScramblingCode               PrimaryScramblingCode
}

-- Value range -10 .. 50 used for Release 99
PrimaryCPICH-TX-Power ::=           INTEGER (-10..503)

PrimaryScramblingCode ::=           INTEGER (0..511)


PuncturingLimit ::=                 ENUMERATED {
                                        pl0-40, pl0-44, pl0-48, pl0-52, pl0-56,
                                        pl0-60, pl0-64, pl0-68, pl0-72, pl0-76,
                                        pl0-80, pl0-84, pl0-88, pl0-92, pl0-96, pl1 }



PUSCH-CapacityAllocationInfo ::=    SEQUENCE {
    pusch-Allocation                    CHOICE {
        pusch-AllocationPending             NULL,
        pusch-AllocationAssignment          SEQUENCE {
            pdsch-AllocationPeriodInfo          AllocationPeriodInfo,
            pusch-PowerControlInfo              UL-TargetSIR                OPTIONAL,
            tfcs-Identity                       TFCS-IdentityPlain          OPTIONAL,
            configuration                       CHOICE {
                old-Configuration                   SEQUENCE {
                    pusch-Identity                      PUSCH-Identity
                },
                new-Configuration                   SEQUENCE {
                    pusch-Info                          PUSCH-Info,
                    pusch-Identity                      PUSCH-Identity      OPTIONAL
                }
            }
        }
    }
}

PUSCH-Identity ::=                  INTEGER (1..hiPUSCHidentities)

PUSCH-Info ::=                      SEQUENCE {
    tfcs-Identity                       TFCS-IdentityPlain                  OPTIONAL,
    commonTimeslotInfo                  CommonTimeslotInfo                  OPTIONAL,
    pusch-TimeslotsCodes                UplinkTimeslotsCodes                OPTIONAL
}


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

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

PUSCH-SysInfoList-SFN ::=           SEQUENCE (SIZE (1..maxPDSCH)) OF
                                        SEQUENCE {
    pusch-SysInfo                       PUSCH-SysInfo,
    sfn-TimeInfo                        SFN-TimeInfo                        OPTIONAL
}

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 ::=          SEQUENCE {
    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)
}

RestrictedTrCH ::=                  SEQUENCE {
    restrictedDL-TrCH-Identity          TransportChannelIdentity,
    allowedTFIList                      AllowedTFI-List
}

RestrictedTrCH-InfoList ::=         SEQUENCE (SIZE(1..maxTrCH)) OF
                                        RestrictedTrCH

RL-AdditionInformation ::=          SEQUENCE {
    primaryCPICH-Info                   PrimaryCPICH-Info,
    dl-DPCH-InfoPerRL                   DL-DPCH-InfoPerRL,
    tfci-CombiningIndicator             BOOLEAN,
```

```
    sccpch-InfoforFACH                  SCCPCH-InfoForFACH                  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-1)) 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-InfoForFACH ::=              SEQUENCE {
    secondaryCCPCH-Info                 SecondaryCCPCH-Info,
    tfcs                                TFCS,
    fach-PCH-InformationList            FACH-PCH-InformationList,
    sib-ReferenceListFACH               SIB-ReferenceListFACH
}

SCCPCH-SystemInformation ::=        SEQUENCE {
    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 }

SecondaryCCPCH-Info ::=             SEQUENCE {
    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,
    channelisationCode                  ChannelisationCode256
```

```
}

-- Value range 1..15 used for Release 99
SecondaryScramblingCode ::=          INTEGER (1..156)

SecondInterleavingMode ::=           ENUMERATED {
                                         frameRelated, timeslotRelated }

-- 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 {
    activationTimeSFN                    INTEGER (0..4095),
    physChDuration                   DurationTimeInfo
}

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-cd2, tfc-cd4, tfc-cd8,
                                    tfc-cd16, tfc-cd24, tfc-cd32,
                                    tfc-cd48, tfc-cd64, tfc-cd128,
                                    tfc-cd192, tfc-cd256, tfc-cd512,
                                    spare1, spare2, spare3 }

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                           TGPSI,
    tgps-StatusFlag                 TGPS-StatusFlag,
    tgcfn                           TGCFN,
    tgps-ConfigurationParams        TGPS-ConfigurationParams        OPTIONAL
}

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


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

TGPL ::=                            INTEGER (1..144)

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


TGPS-ConfigurationParams ::=        SEQUENCE {
    tgmp                            TGMP,
```

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


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

TGPSI ::=                           INTEGER (1..maxTGPS)

TGSN ::=                            INTEGER (0..14)

TimeInfo ::=                        SEQUENCE {
    activationTime                      ActivationTime                      OPTIONAL,
    durationTimeInfo                    DurationTimeInfo                    OPTIONAL
}

TimeslotList ::=                    SEQUENCE (SIZE (1..maxTS)) OF
                                        TimeslotNumber

TimeslotNumber ::=                      INTEGER (0..14)


TimeslotSync2 ::=               INTEGER (0..6)

TimingIndication ::=                ENUMERATED{
                                        initialize, maintain}

-- Actual value = IE value * 256
TimingOffset ::=                    INTEGER (0..149)

TPC-CombinationIndex ::=            INTEGER (0..5)

TPC-StepSizeFDD ::=                 INTEGER (0..1)

TPC-StepSizeTDD ::=                 INTEGER (1..3)

TX-DiversityMode ::=                ENUMERATED {
                                        noDiversity,
                                        sttd,
                                        closedLoopMode1,
                                        closedLoopMode2 }

UARFCN ::=                          INTEGER (0..16383)


UCSM-Info ::=                       SEQUENCE {
    minimumSpreadingFactor              MinimumSpreadingFactor,
    nf-Max                              NF-Max,
    channelReqParamsForUCSM             ChannelReqParamsForUCSM
}

UL-CCTrCH ::=                       SEQUENCE {
    tfcs-Identity                       TFCS-IdentityPlain                  OPTIONAL,
    timeInfo                            TimeInfo,
    commonTimeslotInfo                  CommonTimeslotInfo                  OPTIONAL,
    ul-CCTrCH-TimeslotsCodes            UplinkTimeslotsCodes                OPTIONAL
}

UL-CCTrCHList ::=                   SEQUENCE (SIZE (1..maxCCTrCH)) OF
                                        UL-CCTrCH

UL-CCTrChTPCList ::=                SEQUENCE (SIZE (1..maxCCTrCH)) OF
```

```
                                        TFCS-Identity

UL-ChannelRequirement ::=           CHOICE {
    ul-DPCH-Info                        UL-DPCH-Info,
    cpch-SetInfo                        CPCH-SetInfo
}

UL-ChannelRequirementWithCPCH-SetID ::=     CHOICE {
    ul-DPCH-Info                        UL-DPCH-Info,
    prach-RACH-Info                     PRACH-RACH-Info,
    cpch-SetInfo                        CPCH-SetInfo,
    cpch-SetID                          CPCH-SetID,
    spare                               NULL
}


UL-CompressedModeMethod ::=         ENUMERATED {
                                        sf-2,
                                        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-TimingAdvanceControl     OPTIONAL,
            ul-CCTrCHList                       UL-CCTrCHList
        }
    }
}

UL-DPCH-InfoPostFDD ::=             SEQUENCE {
    ul-DPCH-PowerControlInfo            UL-DPCH-PowerControlInfoPostFDD,
            scramblingCodeType                  ScramblingCodeType,
            reducedScramblingCodeNumber         ReducedScramblingCodeNumber,
            spreadingFactor                     SpreadingFactor

}

UL-DPCH-InfoPostTDD ::=             SEQUENCE {
    ul-DPCH-PowerControlInfo            UL-DPCH-PowerControlInfoPostTDD,
    ul-TimingAdvance                    UL-TimingAdvanceControl                 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                                 SEQUENCE {
            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,
            ul-OL-PC-Signalling                 CHOICE {
                broadcast-UL-OL-PC-info             NULL,
                handoverGroup                       SEQUENCE {
                    individualTS-InterferenceList       IndividualTS-InterferenceList,
                    dpch-ConstantValue                  ConstantValue,
                    primaryCCPCH-TX-Power               PrimaryCCPCH-TX-Power
            }
        }                                                               OPTIONAL
    }
}


UL-DPCH-PowerControlInfoPostFDD ::= SEQUENCE {
            powerControlAlgorithm               PowerControlAlgorithm
            -- TABULAR: TPC step size nested inside PowerControlAlgorithm
}

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..-7047)

--
UL-ScramblingCode ::=               INTEGER (0..16777215)

-- Actual value = (IE value * 0.5) - 11
UL-TargetSIR ::=                    INTEGER (0..62)

UL-TimingAdvance ::=                INTEGER (0..63)

UL-TimingAdvanceControl ::=         CHOICE {
    disabled                            NULL,
    enabled                             SEQUENCE {
        ul-TimingAdvance                    UL-TimingAdvance                OPTIONAL,
        activationTime                      ActivationTime                  OPTIONAL
    }
}

UL-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-ChannelisationCodeList            UL-TS-ChannelisationCodeList
        }
    }
}

UplinkTimeslotsCodes ::=            SEQUENCE {
    firstIndividualTimeslotInfo         IndividualTimeslotInfo,
    ul-TS-ChannelisationCodeList        UL-TS-ChannelisationCodeList,
    moreTimeslots                       CHOICE {
        noMore                              NULL,
        additionalTimeslots                 CHOICE {
            consecutive                         SEQUENCE {
                numAdditionalTimeslots              INTEGER (1..maxTS-1)
            },
            timeslotList                        SEQUENCE (SIZE (1..maxTS-1)) OF
                                                    UplinkAdditionalTimeslots
        }
    }
}


END
```

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,
    CellParametersID,
    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;
```

```
-- ************************************************
--
--     MEASUREMENT INFORMATION ELEMENTS (10.3.7)
--
-- ************************************************

AcquisitionSatInfo ::=              SEQUENCE {
    satID                               SatID,
    doppler0thOrder                     INTEGER (-2048..2047),
    extraDopplerInfo                    ExtraDopplerInfo                    OPTIONAL,
    codePhase                           INTEGER (0..1022),
    integerCodePhase                    INTEGER (0..19),
    gps-BitNumber                       INTEGER (0..3),
    codePhaseSearchWindow               CodePhaseSearchWindow,
    azimuthAndElevation                 AzimuthAndElevation                 OPTIONAL
}

AcquisitionSatInfoList ::=          SEQUENCE (SIZE (1..maxSat)) OF
                                        AcquisitionSatInfo

AdditionalAssistanceData ::=        OCTET STRING (SIZE (1..38))

AdditionalMeasurementID-List ::=    SEQUENCE (SIZE (1..maxAdditionalMeas)) OF
                                        MeasurementIdentityNumber


AlmanacSatInfo ::=                  SEQUENCE {
    satID                               SatID,
    e                                   BIT STRING (SIZE (16)),
    t-oa                                BIT STRING (SIZE (8)),
    deltaI                              BIT STRING (SIZE (16)),
    omegaDot                            BIT STRING (SIZE (16)),
    satHealth                           BIT STRING (SIZE (8)),
    a-Sqrt                              BIT STRING (SIZE (24)),
    omega0                              BIT STRING (SIZE (24)),
    m0                                  BIT STRING (SIZE (24)),
    omega                               BIT STRING (SIZE (24)),
    af0                                 BIT STRING (SIZE (11)),
    af1                                 BIT STRING (SIZE (11))
}

AlmanacSatInfoList ::=              SEQUENCE (SIZE (1..maxSat)) OF
                                        AlmanacSatInfo

AverageRLC-BufferPayload ::=        ENUMERATED {
                                        pla0, pla4, pla8, pla16, pla32,
                                        pla64, pla128, pla256, pla512,
                                        pla1024, pla2k, pla4k, pla8k, pla16k,
                                        pla32k, pla64k, pla128k, pla256k,
                                        pla512k, pla1024k }

AzimuthAndElevation ::=             SEQUENCE {
    azimuth                             INTEGER (0..31),
    elevation                           INTEGER (0..7)
}

BadSatList ::=                      SEQUENCE (SIZE (1..maxSat)) OF
                                        INTEGER (0..63)

BCCH-ARFCN ::=                      INTEGER (0..1023)

BLER-MeasurementResults ::=         SEQUENCE {
    transportChannelIdentity            TransportChannelIdentity,
    dl-TransportChannelBLER             DL-TransportChannelBLER             OPTIONAL
}

BLER-MeasurementResultsList ::=     SEQUENCE (SIZE (1..maxTrCH)) OF
                                        BLER-MeasurementResults

BLER-TransChIdList ::=              SEQUENCE (SIZE (1..maxTrCH)) OF
                                        TransportChannelIdentity


BSIC-VerificationRequired ::=       ENUMERATED {
                                        required, notRequired }
```

```
BurstModeParameters ::=             SEQUENCE {
    burstStart                          INTEGER (0..15),
    burstLength                         INTEGER (10..25),
    burstFreq                           INTEGER (1..16)
}



CellDCH-ReportCriteria ::=          CHOICE {
    intraFreqReportingCriteria          IntraFreqReportingCriteria,
    periodicalReportingCriteria         PeriodicalReportingCriteria
}

-- Actual value = IE value * 0.5
CellIndividualOffset ::=            INTEGER (-20..20)


CellInfo ::=                        SEQUENCE {
    cellIndividualOffset                CellIndividualOffset                DEFAULT 0,
    referenceTimeDifferenceToCell       ReferenceTimeDifferenceToCell       OPTIONAL,
    modeSpecificInfo                    CHOICE {
        fdd                                 SEQUENCE {
            primaryCPICH-Info                   PrimaryCPICH-Info           OPTIONAL,
            primaryCPICH-TX-Power               PrimaryCPICH-TX-Power       OPTIONAL,
            readSFN-Indicator                   BOOLEAN,
            tx-DiversityIndicator               BOOLEAN
        },
        tdd                                 SEQUENCE {
            primaryCCPCH-Info                   PrimaryCCPCH-Info,
            primaryCCPCH-TX-Power               PrimaryCCPCH-TX-Power       OPTIONAL,
            timeslotInfoList                    TimeslotInfoList            OPTIONAL
        }
    }
}


CellInfoSI-RSCP ::=                 SEQUENCE {
    cellIndividualOffset                CellIndividualOffset                DEFAULT 0,
    referenceTimeDifferenceToCell       ReferenceTimeDifferenceToCell       OPTIONAL,
    modeSpecificInfo                    CHOICE {
        fdd                                 SEQUENCE {
            primaryCPICH-Info                   PrimaryCPICH-Info           OPTIONAL,
            primaryCPICH-TX-Power               PrimaryCPICH-TX-Power       OPTIONAL,
            readSFN-Indicator                   BOOLEAN,
            tx-DiversityIndicator               BOOLEAN
        },
        tdd                                 SEQUENCE {
            primaryCCPCH-Info                   PrimaryCCPCH-Info,
            primaryCCPCH-TX-Power               PrimaryCCPCH-TX-Power       OPTIONAL,
            timeslotInfoList                    TimeslotInfoList            OPTIONAL
        }
    },
    cellSelectionReselectionInfo        CellSelectReselectInfoSIB-11-12-RSCP        OPTIONAL
}

CellInfoSI-ECN0 ::=                 SEQUENCE {
    cellIndividualOffset                CellIndividualOffset                DEFAULT 0,
    referenceTimeDifferenceToCell       ReferenceTimeDifferenceToCell       OPTIONAL,
    modeSpecificInfo                    CHOICE {
        fdd                                 SEQUENCE {
            primaryCPICH-Info                   PrimaryCPICH-Info           OPTIONAL,
            primaryCPICH-TX-Power               PrimaryCPICH-TX-Power       OPTIONAL,
            readSFN-Indicator                   BOOLEAN,
            tx-DiversityIndicator               BOOLEAN
        },
        tdd                                 SEQUENCE {
            primaryCCPCH-Info                   PrimaryCCPCH-Info,
            primaryCCPCH-TX-Power               PrimaryCCPCH-TX-Power       OPTIONAL,
            timeslotInfoList                    TimeslotInfoList            OPTIONAL
        }
    },
    cellSelectionReselectionInfo        CellSelectReselectInfoSIB-11-12-ECN0    OPTIONAL
}

CellInfoSI-HCS-RSCP ::=             SEQUENCE {
    cellIndividualOffset                CellIndividualOffset                DEFAULT 0,
    referenceTimeDifferenceToCell       ReferenceTimeDifferenceToCell       OPTIONAL,
    modeSpecificInfo                    CHOICE {
```

```
        fdd                                 SEQUENCE {
            primaryCPICH-Info                   PrimaryCPICH-Info           OPTIONAL,
            primaryCPICH-TX-Power               PrimaryCPICH-TX-Power       OPTIONAL,
            readSFN-Indicator                   BOOLEAN,
            tx-DiversityIndicator               BOOLEAN
        },
        tdd                                 SEQUENCE {
            primaryCCPCH-Info                   PrimaryCCPCH-Info,
            primaryCCPCH-TX-Power               PrimaryCCPCH-TX-Power       OPTIONAL,
            timeslotInfoList                    TimeslotInfoList            OPTIONAL
        }
    },
    cellSelectionReselectionInfo        CellSelectReselectInfoSIB-11-12-HCS-RSCP    OPTIONAL
}

CellInfoSI-HCS-ECN0 ::=             SEQUENCE {
    cellIndividualOffset                CellIndividualOffset                DEFAULT 0,
    referenceTimeDifferenceToCell       ReferenceTimeDifferenceToCell       OPTIONAL,
    modeSpecificInfo                    CHOICE {
        fdd                                 SEQUENCE {
            primaryCPICH-Info                   PrimaryCPICH-Info           OPTIONAL,
            primaryCPICH-TX-Power               PrimaryCPICH-TX-Power       OPTIONAL,
            readSFN-Indicator                   BOOLEAN,
            tx-DiversityIndicator               BOOLEAN
        },
        tdd                                 SEQUENCE {
            primaryCCPCH-Info                   PrimaryCCPCH-Info,
            primaryCCPCH-TX-Power               PrimaryCCPCH-TX-Power       OPTIONAL,
            timeslotInfoList                    TimeslotInfoList            OPTIONAL
        }
    },
    cellSelectionReselectionInfo        CellSelectReselectInfoSIB-11-12-HCS-ECN0    OPTIONAL
}

CellMeasuredResults ::=             SEQUENCE {
    cellIdentity                        CellIdentity                        OPTIONAL,
    sfn-SFN-ObsTimeDifference           SFN-SFN-ObsTimeDifference           OPTIONAL,
    cfn-SFN-ObsTimeDifference           CFN-SFN-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 {
            cellParametersID                    CellParametersID,
            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 {
    sfn-SFN-OTD-Type                    SFN-SFN-OTD-Type,
    cellIdentity                        BOOLEAN,
    cfn-SFN-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-Offset1S-N                        Q-OffsetS-N                         DEFAULT 0,
    q-Offset2S-N                        Q-OffsetS-N                         OPTIONAL,
    maxAllowedUL-TX-Power               MaxAllowedUL-TX-Power               OPTIONAL,
    hcs-NeighbouringCellInformation-RSCP        HCS-NeighbouringCellInformation-RSCP
    OPTIONAL,
    modeSpecificInfo                    CHOICE {
        fdd                                 SEQUENCE {
            q-QualMin                           Q-QualMin                   OPTIONAL,
            q-RxlevMin                          Q-RxlevMin                  OPTIONAL
        },
        tdd                                 SEQUENCE {
            q-RxlevMin                          Q-RxlevMin                  OPTIONAL
        },
        gsm                                 SEQUENCE {
            q-RxlevMin                          Q-RxlevMin                  OPTIONAL
        }
    }
}

CellSelectReselectInfoSIB-11-12-RSCP ::=    SEQUENCE {
    q-OffsetS-N                     Q-OffsetS-N                     DEFAULT 0,
    maxAllowedUL-TX-Power               MaxAllowedUL-TX-Power               OPTIONAL,
    modeSpecificInfo                    CHOICE {
        fdd                                 SEQUENCE {
            q-QualMin                           Q-QualMin                   OPTIONAL,
            q-RxlevMin                          Q-RxlevMin                  OPTIONAL
        },
        tdd                                 SEQUENCE {
            q-RxlevMin                          Q-RxlevMin                  OPTIONAL
        },
        gsm                                 SEQUENCE {
            q-RxlevMin                          Q-RxlevMin                  OPTIONAL
        }
    }
}

CellSelectReselectInfoSIB-11-12-ECN0 ::=    SEQUENCE {
    q-Offset1S-N                        Q-OffsetS-N                     DEFAULT 0,
    q-Offset2S-N                        Q-OffsetS-N                     DEFAULT 0,
    maxAllowedUL-TX-Power               MaxAllowedUL-TX-Power               OPTIONAL,
    modeSpecificInfo                    CHOICE {
        fdd                                 SEQUENCE {
            q-QualMin                           Q-QualMin                   OPTIONAL,
            q-RxlevMin                          Q-RxlevMin                  OPTIONAL
        },
        tdd                                 SEQUENCE {
            q-RxlevMin                          Q-RxlevMin                  OPTIONAL
        },
        gsm                                 SEQUENCE {
            q-RxlevMin                          Q-RxlevMin                  OPTIONAL
        }
    }
}

CellSelectReselectInfoSIB-11-12-HCS-RSCP ::=    SEQUENCE {
    q-OffsetS-N                     Q-OffsetS-N                     DEFAULT 0,
    maxAllowedUL-TX-Power               MaxAllowedUL-TX-Power               OPTIONAL,
    hcs-NeighbouringCellInformation-RSCP        HCS-NeighbouringCellInformation-RSCP
    OPTIONAL,
    modeSpecificInfo                    CHOICE {
        fdd                                 SEQUENCE {
            q-QualMin                           Q-QualMin                   OPTIONAL,
            q-RxlevMin                          Q-RxlevMin                  OPTIONAL
        },
        tdd                                 SEQUENCE {
            q-RxlevMin                          Q-RxlevMin                  OPTIONAL
        },
        gsm                                 SEQUENCE {
            q-RxlevMin                          Q-RxlevMin                  OPTIONAL
        }
```

```
    }
}
--???
CellSelectReselectInfoSIB-11-12-HCS-ECN0 ::=    SEQUENCE {
    q-Offset1S-N                        Q-OffsetS-N                     DEFAULT 0,
    q-Offset2S-N                        Q-OffsetS-N                     DEFAULT 0,
    maxAllowedUL-TX-Power               MaxAllowedUL-TX-Power               OPTIONAL,
    hcs-NeighbouringCellInformation-ECN0        HCS-NeighbouringCellInformation-ECN0
    OPTIONAL,
    modeSpecificInfo                    CHOICE {
        fdd                                 SEQUENCE {
            q-QualMin                           Q-QualMin                   OPTIONAL,
            q-RxlevMin                          Q-RxlevMin                  OPTIONAL
        },
        tdd                                 SEQUENCE {
            q-RxlevMin                          Q-RxlevMin                  OPTIONAL
        },
        gsm                                 SEQUENCE {
            q-RxlevMin                          Q-RxlevMin                  OPTIONAL
        }
    }
}

CellToMeasure ::=                   SEQUENCE {
    sfn-sfn-Drift                       INTEGER (0..30)                     OPTIONAL,
    primaryCPICH-Info                   PrimaryCPICH-Info,
    frequencyInfo                       FrequencyInfo                       OPTIONAL,
    sfn-SFN-ObservedTimeDifference      SFN-SFN-ObsTimeDifference1,
    fineSFN-SFN                         FineSFN-SFN,
    cellPosition                        CellPosition                        OPTIONAL
}

CellToMeasureInfoList ::=           SEQUENCE (SIZE (1..maxCellMeas)) OF
                                        CellToMeasure

CellToReport ::=                    SEQUENCE {
    frequency                           Frequency,
    bsic                                BSIC
}

CellToReportList ::=                SEQUENCE (SIZE (1..maxCellMeas)) OF
                                        CellToReport


CFN-SFN-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                               SatID,
    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..2505)

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))

EnvironmentCharacterisation ::=         ENUMERATED {
                                        possibleHeavyMultipathNLOS,
                                        lightMultipathLOS,
                                        notDefined }


Event1a ::=                         SEQUENCE {
    triggeringCondition                 TriggeringCondition2,
    reportingRange                      ReportingRange,
    forbiddenAffectCellList             ForbiddenAffectCellList             OPTIONAL,
    w                                   W,
    reportDeactivationThreshold         ReportDeactivationThreshold,
    reportingAmount                     ReportingAmount,
    reportingInterval                   ReportingInterval
}


Event1b ::=                         SEQUENCE {
    triggeringCondition                 TriggeringCondition1,
    reportingRange                      ReportingRange,
    forbiddenAffectCellList             ForbiddenAffectCellList             OPTIONAL,
    w                                   W
}


Event1c ::=                         SEQUENCE {
    replacementActivationThreshold      ReplacementActivationThreshold,
    reportingAmount                     ReportingAmount,
    reportingInterval                   ReportingInterval
}


Event1ef ::=                        SEQUENCE {
    triggeringCondition                 TriggeringCondition2,
    thresholdUsedFrequency              ThresholdUsedFrequency
}

Event1f ::=                     SEQUENCE {
```

```
    triggeringCondition                 TriggeringCondition1,
    thresholdUsedFrequency              ThresholdUsedFrequency
}

Event2a ::=                         SEQUENCE {
    usedFreqThreshold                   Threshold,
    usedFreqW                           W,
    hysteresis                          HysteresisInterFreq,
    timeToTrigger                       TimeToTrigger,
    reportingAmount                     ReportingAmount,
    reportingInterval                   ReportingInterval,
    reportingCellStatus                 ReportingCellStatus             OPTIONAL,
    nonUsedFreqParameterList            NonUsedFreqParameterList        OPTIONAL
}

Event2b ::=                         SEQUENCE {
    usedFreqThreshold                   Threshold,
    usedFreqW                           W,
    hysteresis                          HysteresisInterFreq,
    timeToTrigger                       TimeToTrigger,
    reportingAmount                     ReportingAmount,
    reportingInterval                   ReportingInterval,
    reportingCellStatus                 ReportingCellStatus             OPTIONAL,
    nonUsedFreqParameterList            NonUsedFreqParameterList        OPTIONAL
}

Event2c ::=                         SEQUENCE {
    hysteresis                          HysteresisInterFreq,
    timeToTrigger                       TimeToTrigger,
    reportingAmount                     ReportingAmount,
    reportingInterval                   ReportingInterval,
    reportingCellStatus                 ReportingCellStatus             OPTIONAL,
    nonUsedFreqParameterList            NonUsedFreqParameterList        OPTIONAL
}

Event2d ::=                         SEQUENCE {
    usedFreqThreshold                   Threshold,
    usedFreqW                           W,
    hysteresis                          HysteresisInterFreq,
    timeToTrigger                       TimeToTrigger,
    reportingAmount                     ReportingAmount,
    reportingInterval                   ReportingInterval,
    reportingCellStatus                 ReportingCellStatus             OPTIONAL
}

Event2e ::=                         SEQUENCE {
    hysteresis                          HysteresisInterFreq,
    timeToTrigger                       TimeToTrigger,
    reportingAmount                     ReportingAmount,
    reportingInterval                   ReportingInterval,
    reportingCellStatus                 ReportingCellStatus             OPTIONAL,
    nonUsedFreqParameterList            NonUsedFreqParameterList        OPTIONAL
}

Event2f ::=                         SEQUENCE {
    usedFreqThreshold                   Threshold,
    usedFreqW                           W,
    hysteresis                          HysteresisInterFreq,
    timeToTrigger                       TimeToTrigger,
    reportingAmount                     ReportingAmount,
    reportingInterval                   ReportingInterval,
    reportingCellStatus                 ReportingCellStatus             OPTIONAL
}

Event3a ::=                         SEQUENCE {
    thresholdOwnSystem                  Threshold,
    w                                   W,
    thresholdOtherSystem                Threshold,
    hysteresis                          Hysteresis,
    timeToTrigger                       TimeToTrigger,
    reportingAmount                     ReportingAmount                 OPTIONAL,
    reportingInterval                   ReportingInterval,
```

```
    reportingCellStatus                 ReportingCellStatus                 OPTIONAL
}


Event3b ::=                             SEQUENCE {
    thresholdOtherSystem                    Threshold,
    hysteresis                              Hysteresis,
    timeToTrigger                           TimeToTrigger,
    reportingAmount                         ReportingAmount                 OPTIONAL,
    reportingInterval                       ReportingInterval,
    reportingCellStatus                     ReportingCellStatus             OPTIONAL

}


Event3c ::=                             SEQUENCE {
    thresholdOtherSystem                    Threshold,
    hysteresis                              Hysteresis,
    timeToTrigger                           TimeToTrigger,
    reportingAmount                         ReportingAmount                 OPTIONAL,
    reportingInterval                       ReportingInterval,
    reportingCellStatus                     ReportingCellStatus             OPTIONAL

}


Event3d ::=                             SEQUENCE {
    hysteresis                              Hysteresis,
    timeToTrigger                           TimeToTrigger,
    reportingAmount                         ReportingAmount                 OPTIONAL,
    reportingInterval                       ReportingInterval,
    reportingCellStatus                     ReportingCellStatus             OPTIONAL

}

EventIDInterFreq ::=                    ENUMERATED {
                                            e2a, e2b, e2c, e2d, e2e, e2f }

EventIDInterSystem ::=                  ENUMERATED {
                                            e3a, e3b, e3c, e3d }


EventIDIntraFreq ::=                    ENUMERATED {
                                            e1a, e1b, e1c, e1d, e1e,
                                            e1f, e1g, e1h, e1i }

EventResults ::=                        CHOICE {
    intraFreqEventResults                   IntraFreqEventResults,
    interFreqEventResults                   InterFreqEventResults,
    interSystemEventResults                 InterSystemEventResults,
    trafficVolumeEventResults               TrafficVolumeEventResults,
    qualityEventResults                     QualityEventResults,
    ue-InternalEventResults                 UE-InternalEventResults,
    lcs-MeasurementEventResults             LCS-MeasurementEventResults
}

ExtraDopplerInfo ::=                    SEQUENCE {
    doppler1stOrder                         INTEGER (-42..21),
    dopplerUncertainty                      DopplerUncertainty
}


FACH-MeasurementOccasionInfo ::=        SEQUENCE {
    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 ::=                 CHOICE {
    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 ::=            SEQUENCE {
    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                               SatID,
    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-RSCP ::=        SEQUENCE {
    penaltyTime                                 PenaltyTime-RSCP
    -- TABULAR: The default value is "notUsed", temporary offset is nested inside PenaltyTime
}

HCS-CellReselectInformation-ECN0 ::=        SEQUENCE {
    penaltyTime                         PenaltyTime-ECN0
    -- TABULAR: The default value is "notUsed", temporary offset is nested inside PenaltyTime
}

HCS-NeighbouringCellInformation-RSCP ::= SEQUENCE {
    hcs-PRIO                            HCS-PRIO                            DEFAULT 0,
    q-HCS                               Q-HCS                               DEFAULT 0,
    hcs-CellReselectInformation         HCS-CellReselectInformation-RSCP
}

HCS-NeighbouringCellInformation-ECN0 ::= SEQUENCE {
    hcs-PRIO                            HCS-PRIO                            DEFAULT 0,
    q-HCS                               Q-HCS                               DEFAULT 0,
```

```
    hcs-CellReselectInformation         HCS-CellReselectInformation-ECN0
}

HCS-PRIO ::=                            INTEGER (0..7)

HCS-ServingCellInformation ::=      SEQUENCE {
    hcs-PRIO                            HCS-PRIO                            DEFAULT 0,
    q-HCS                               Q-HCS                               DEFAULT 0,
    t-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-RSCP ::=       SEQUENCE {
    removedInterFreqCellList            RemovedInterFreqCellList            OPTIONAL,
    newInterFreqCellList                NewInterFreqCellSI-List-RSCP        OPTIONAL
}

InterFreqCellInfoSI-List-ECN0 ::=       SEQUENCE {
    removedInterFreqCellList            RemovedInterFreqCellList            OPTIONAL,
    newInterFreqCellList                NewInterFreqCellSI-List-ECN0        OPTIONAL
}

InterFreqCellInfoSI-List-HCS-RSCP ::=       SEQUENCE {
    removedInterFreqCellList            RemovedInterFreqCellList            OPTIONAL,
    newInterFreqCellList                NewInterFreqCellSI-List-HCS-RSCP    OPTIONAL
}
InterFreqCellInfoSI-List-HCS-ECN0 ::=       SEQUENCE {
    removedInterFreqCellList            RemovedInterFreqCellList            OPTIONAL,
    newInterFreqCellList                NewInterFreqCellSI-List-HCS-ECN0    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                   OPTIONAL
}


InterFreqMeasQuantity ::=           SEQUENCE {
    reportingCriteria                   CHOICE {
        intraFreqReportingCriteria          SEQUENCE {
            intraFreqMeasQuantity               IntraFreqMeasQuantity
        },
```

```
        interFreqReportingCriteria          SEQUENCE {
            filterCoefficient                   FilterCoefficient           DEFAULT fc0,
            modeSpecificInfo                    CHOICE {
                fdd                                 SEQUENCE {
                    freqQualityEstimateQuantity-FDD     FreqQualityEstimateQuantity-FDD
                },
                tdd                                 SEQUENCE {
                    freqQualityEstimateQuantity-TDD     FreqQualityEstimateQuantity-TDD
                }
            }
        }
    }
}

InterFreqMeasuredResults ::=        SEQUENCE {
    frequencyInfo                       FrequencyInfo                       OPTIONAL,
    utra-CarrierRSSI                    UTRA-CarrierRSSI                    OPTIONAL,
    interFreqCellMeasuredResultsList    InterFreqCellMeasuredResultsList    OPTIONAL
}

InterFreqMeasuredResultsList ::=    SEQUENCE (SIZE (1..maxFreq)) OF
                                        InterFreqMeasuredResults


InterFreqMeasurementSysInfo-RSCP ::=    SEQUENCE {
    interFreqMeasurementID                  MeasurementIdentityNumber           DEFAULT 2,
    interFreqCellInfoSI-List                InterFreqCellInfoSI-List-RSCP       OPTIONAL,
    interFreqMeasQuantity                   InterFreqMeasQuantity               OPTIONAL,
    interFreqReportingCriteria              InterFreqReportingCriteria          OPTIONAL
}

InterFreqMeasurementSysInfo-ECN0 ::=        SEQUENCE {
    interFreqMeasurementID              MeasurementIdentityNumber           DEFAULT 2,
    interFreqCellInfoSI-List            InterFreqCellInfoSI-List-ECN0       OPTIONAL,
    interFreqMeasQuantity               InterFreqMeasQuantity               OPTIONAL,
    interFreqReportingCriteria          InterFreqReportingCriteria          OPTIONAL
}

InterFreqMeasurementSysInfo-HCS-RSCP ::=        SEQUENCE {
    interFreqMeasurementID              MeasurementIdentityNumber           DEFAULT 2,
    interFreqCellInfoSI-List            InterFreqCellInfoSI-List-HCS-RSCP   OPTIONAL,
    interFreqMeasQuantity               InterFreqMeasQuantity               OPTIONAL,
    interFreqReportingCriteria          InterFreqReportingCriteria          OPTIONAL
}

InterFreqMeasurementSysInfo-HCS-ECN0 ::=        SEQUENCE {
    interFreqMeasurementID              MeasurementIdentityNumber           DEFAULT 2,
    interFreqCellInfoSI-List            InterFreqCellInfoSI-List-HCS-ECN0   OPTIONAL,
    interFreqMeasQuantity               InterFreqMeasQuantity               OPTIONAL,
    interFreqReportingCriteria          InterFreqReportingCriteria          OPTIONAL
}

InterFreqReportCriteria ::=         CHOICE {
    intraFreqReportingCriteria          IntraFreqReportingCriteria,
    interFreqReportingCriteria          InterFreqReportingCriteria,
    periodicalReportingCriteria         PeriodicalWithReportingCellStatus,
    noReporting                         ReportingCellStatusOpt
}

InterFreqReportingCriteria ::=      SEQUENCE {
    interFreqEventList                  InterFreqEventList                  OPTIONAL
}

InterFreqReportingQuantity ::=      SEQUENCE {
    utra-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
}

InterSystemCellInfoList-HCS ::=         SEQUENCE {
    removedInterSystemCellList          RemovedInterSystemCellList,
    newInterSystemCellList              NewInterSystemCellList-HCS
}

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           OPTIONAL,
    systemSpecificInfo                      CHOICE {
        gsm                                     SEQUENCE {
            measurementQuantity                     MeasurementQuantityGSM,
            filterCoefficient                       FilterCoefficient       DEFAULT fc1,
            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
}

InterSystemMeasurementSysInfo-HCS ::=   SEQUENCE {
```

```
    interSystemMeasurementID            MeasurementIdentityNumber           DEFAULT 3,
    interSystemCellInfoList             InterSystemCellInfoList-HCS         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-RSCP ::=   SEQUENCE {
    removedIntraFreqCellList            RemovedIntraFreqCellList            OPTIONAL,
    newIntraFreqCellList                NewIntraFreqCellSI-List-RSCP
}

IntraFreqCellInfoSI-List-ECN0 ::=       SEQUENCE {
    removedIntraFreqCellList            RemovedIntraFreqCellList            OPTIONAL,
    newIntraFreqCellList                NewIntraFreqCellSI-List-ECN0
}

IntraFreqCellInfoSI-List-HCS-RSCP ::=       SEQUENCE {
    removedIntraFreqCellList            RemovedIntraFreqCellList            OPTIONAL,
    newIntraFreqCellList                NewIntraFreqCellSI-List-HCS-RSCP
}

IntraFreqCellInfoSI-List-HCS-ECN0 ::=       SEQUENCE {
    removedIntraFreqCellList            RemovedIntraFreqCellList            OPTIONAL,
    newIntraFreqCellList                NewIntraFreqCellSI-List-HCS-ECN0
}

IntraFreqEvent ::=                  CHOICE {
    e1a                                 Event1a,
    e1b                                 Event1b,
    e1c                                 Event1c,
    e1d                                 NULL,
    e1e                                 Event1ef,
    e1f                                 Event1ef,
    e1g                                 NULL,
    e1h                                 ThresholdUsedFrequency,
    e1i                                 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 fc1,
    modeSpecificInfo                    CHOICE {
        fdd                             SEQUENCE {
            intraFreqMeasQuantity-FDD       IntraFreqMeasQuantity-FDD
        },
        tdd                             SEQUENCE {
            intraFreqMeasQuantity-TDDList   IntraFreqMeasQuantity-TDDList
        }
    }
}


IntraFreqMeasQuantity-FDD ::=       ENUMERATED {
                                        cpich-Ec-NO,
                                        cpich-RSCP,
                                        pathloss,
                                        utra-CarrierRSSI }

IntraFreqMeasQuantity-TDD ::=       ENUMERATED {
                                        primaryCCPCH-RSCP,
                                        pathloss,
                                        timeslotISCP,
                                        utra-CarrierRSSI }


IntraFreqMeasQuantity-TDDList ::=   SEQUENCE (SIZE (1..4)) OF
                                        IntraFreqMeasQuantity-TDD

IntraFreqMeasuredResultsList ::=    SEQUENCE (SIZE (1..maxCellMeas)) OF
                                        CellMeasuredResults

IntraFreqMeasurementSysInfo-RSCP ::=    SEQUENCE {
    intraFreqMeasurementID              MeasurementIdentityNumber           DEFAULT 1,
    intraFreqCellInfoSI-List            IntraFreqCellInfoSI-List-RSCP       OPTIONAL,
    intraFreqMeasQuantity               IntraFreqMeasQuantity               OPTIONAL,
    intraFreqReportingQuantityForRACH   IntraFreqReportingQuantityForRACH   OPTIONAL,
    maxReportedCellsOnRACH              MaxReportedCellsOnRACH              OPTIONAL,
    reportingInfoForCellDCH             ReportingInfoForCellDCH             OPTIONAL
}

IntraFreqMeasurementSysInfo-ECN0 ::=        SEQUENCE {
    intraFreqMeasurementID              MeasurementIdentityNumber           DEFAULT 1,
    intraFreqCellInfoSI-List            IntraFreqCellInfoSI-List-ECN0       OPTIONAL,
    intraFreqMeasQuantity               IntraFreqMeasQuantity               OPTIONAL,
    intraFreqReportingQuantityForRACH   IntraFreqReportingQuantityForRACH   OPTIONAL,
    maxReportedCellsOnRACH              MaxReportedCellsOnRACH              OPTIONAL,
    reportingInfoForCellDCH             ReportingInfoForCellDCH             OPTIONAL
}

IntraFreqMeasurementSysInfo-HCS-RSCP ::=    SEQUENCE {
    intraFreqMeasurementID              MeasurementIdentityNumber           DEFAULT 1,
    intraFreqCellInfoSI-List            IntraFreqCellInfoSI-List-HCS-RSCP   OPTIONAL,
    intraFreqMeasQuantity               IntraFreqMeasQuantity               OPTIONAL,
    intraFreqReportingQuantityForRACH   IntraFreqReportingQuantityForRACH   OPTIONAL,
    maxReportedCellsOnRACH              MaxReportedCellsOnRACH              OPTIONAL,
    reportingInfoForCellDCH             ReportingInfoForCellDCH             OPTIONAL
}

IntraFreqMeasurementSysInfo-HCS-ECN0 ::=    SEQUENCE {
    intraFreqMeasurementID              MeasurementIdentityNumber           DEFAULT 1,
    intraFreqCellInfoSI-List            IntraFreqCellInfoSI-List-HCS-ECN0   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      OPTIONAL
}


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 {
                                        ipl5, ipl10 }

IP-Spacing ::=                      ENUMERATED {
                                        e5, e7, e10, e15, e20,
                                        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 fileds for word3 – word110 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)
}

LCS-DGPS-SIB-Data ::=               SEQUENCE {
    nodeBClockDrift                     NodeB-ClockDrift                    OPTIONAL,
    referenceLocationforSIB ReferenceLocationforSIB,
    referenceSFN                        ReferenceSFN                        OPTIONAL,
    referenceGPS-TOW                    GPS-TOW-1usec,
    statusHealth                        DiffCorrectionStatus,
    dgps-InformationList                DGPS-InformationList
}

LCS-Ephe-SIB-Data ::=               SEQUENCE {
    transmissionTOW                     INTEGER (0..1048575),
    satID                               SatID,
    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
}
```

```
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-Indicator ::=           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-1usec,
    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 ::=     CHOICE~~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
    },
    neighbourList                       NeighbourList                       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-1usec,
    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,
    environmentCharacterisztation           EnvironmentCharacterisztation           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 ::=                 CHOICE {
    intraFreqMeasuredResultsList        IntraFreqMeasuredResultsList,
    interFreqMeasuredResultsList        InterFreqMeasuredResultsList,
    interSystemMeasuredResultsList      InterSystemMeasuredResultsList,
    trafficVolumeMeasuredResultsList    TrafficVolumeMeasuredResultsList,
    qualityMeasuredResults              QualityMeasuredResults,
    ue-InternalMeasuredResults          UE-InternalMeasuredResults,
    lcs-MeasuredResults                 LCS-MeasuredResults
}

MeasuredResultsList ::=             SEQUENCE (SIZE (1..maxAdditionalMeas)) OF
                                        MeasuredResults


MeasuredResultsOnRACH ::=           SEQUENCE {
    currentCell                         SEQUENCE {
        modeSpecificInfo                    CHOICE {
```

```
            fdd                                 SEQUENCE {
                measurementQuantity                 CHOICE {
                    cpich-Ec-N0                         CPICH-Ec-N0,
                    cpich-RSCP                          CPICH-RSCP,
                    pathloss                            Pathloss
                }
            },
            tdd                                 SEQUENCE {
                timeslotISCP                        TimeslotISCP-List       OPTIONAL,
                primaryCCPCH-RSCP                   PrimaryCCPCH-RSCP       OPTIONAL
            }
        }
    },
    monitoredCells                      MonitoredCellRACH-List              OPTIONAL
}

MeasurementCommand ::=              CHOICE {
    setup                               MeasurementType,
    modify                              SEQUENCE {
        measurementType                     MeasurementType                 OPTIONAL
    },
    release                             NULL
}

MeasurementControlSysInfo ::=       SEQUENCE {
    use-of-HCS                          CHOICE  {
        hcs-not-used                    SEQUENCE    {
            cellSelectQualityMeasure    CHOICE  {
                cpich-RSCP              SEQUENCE    {
                    intraFreqMeasurementSysInfo         IntraFreqMeasurementSysInfo-HCS-RSCP
    OPTIONAL,
                    interFreqMeasurementSysInfo         InterFreqMeasurementSysInfo-HCS-RSCP
    OPTIONAL
                },
                cpich-Ec-No             SEQUENCE    {
                    intraFreqMeasurementSysInfo         IntraFreqMeasurementSysInfo-HCS-ECN0
    OPTIONAL,
                    interFreqMeasurementSysInfo         InterFreqMeasurementSysInfo-HCS-ECN0
    OPTIONAL
                }
            },
            interSystemMeasurementSysInfo       InterSystemMeasurementSysInfo-HCS       OPTIONAL
        },
        hcs-used                        SEQUENCE    {
            cellSelectQualityMeasure    CHOICE  {
                cpich-RSCP              SEQUENCE    {
                    intraFreqMeasurementSysInfo         IntraFreqMeasurementSysInfo-RSCP
    OPTIONAL,
                    interFreqMeasurementSysInfo         InterFreqMeasurementSysInfo-RSCP
    OPTIONAL
                },
                cpich-Ec-No             SEQUENCE    {
                    intraFreqMeasurementSysInfo         IntraFreqMeasurementSysInfo-ECN0
    OPTIONAL,
                    interFreqMeasurementSysInfo         InterFreqMeasurementSysInfo-ECN0
    OPTIONAL
                }
            },
            interSystemMeasurementSysInfo       InterSystemMeasurementSysInfo       OPTIONAL
        }
    },

    trafficVolumeMeasSysInfo            TrafficVolumeMeasSysInfo            OPTIONAL,
    ue-InternalMeasurementSysInfo       UE-InternalMeasurementSysInfo       OPTIONAL
}


MeasurementIdentityNumber ::=       INTEGER (1..16)

MeasurementQuantityGSM ::=          ENUMERATED {
                                        gsm-CarrierRSSI,
                                        pathloss }

MeasurementReportingMode ::=        SEQUENCE {
    measurementReportTransferMode       TransferMode,
    periodicalOrEventTrigger            PeriodicalOrEventTrigger
}
```

```
MeasurementType ::=                 CHOICE {
    intraFrequencyMeasurement           IntraFrequencyMeasurement,
    interFrequencyMeasurement           InterFrequencyMeasurement,
    interSystemMeasurement              InterSystemMeasurement,
    lcs-Measurement                     LCS-Measurement,
    trafficVolumeMeasurement            TrafficVolumeMeasurement,
    qualityMeasurement                  QualityMeasurement,
    ue-InternalMeasurement              UE-InternalMeasurement
}

MeasurementValidity ::=             SEQUENCE {
    resume-Release                      Resume-Release
    ue-State                            ENUMERATED {
                                            cell-DCH, all-But-Cell-DCH, all-States }
}

MonitoredCellRACH-List ::=          SEQUENCE (SIZE (1..7)) OF
                                        MonitoredCellRACH-Result


MonitoredCellRACH-Result ::=        SEQUENCE {
    sfn-SFN-ObsTimeDifference           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
            }                                                               OPTIONAL
        },
        tdd                                 SEQUENCE {
            cellParametersID                    CellParametersID,
            primaryCCPCH-RSCP                   PrimaryCCPCH-RSCP
        }
    }
}

MultipathIndicator ::=              ENUMERATED {
                                        nm,
                                        low,
                                        medium,
                                        high }

N-CR-T-CRMaxHyst ::=                SEQUENCE {
    n-CR                                INTEGER (1..16)                     DEFAULT 8,
    t-CRMaxHyst                         T-CRMaxHyst
}

NavigationModelSatInfo ::=          SEQUENCE {
    satID                               SatID,
    satelliteStatus                     SatelliteStatus,
    navModel                            NavModel
}

NavigationModelSatInfoList ::=      SEQUENCE (SIZE (1..maxSat)) OF
                                        NavigationModelSatInfo

NavModel ::=                        SEQUENCE {
    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)),
    sf1Revd                             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)),
    omegaDot                            BIT STRING (SIZE (24)),
    iDot                                BIT STRING (SIZE (14))
}

Neighbour ::=                       SEQUENCE {
    neighbourIdentity                   PrimaryCPICH-Info                   OPTIONAL,
    neignbourQuantity                   NeighbourQuantity,
    sfn-SFN-ObsTimeDifference2          SFN-SFN-ObsTimeDifference2
}

NeighbourList ::=                   SEQUENCE (SIZE (1..maxCellMeas)) OF
                                        Neighbour

-- **TODO**, to be defined fully
NeighbourQuantity ::=               SEQUENCE {
}

NewInterFreqCell ::=                SEQUENCE {
    interFreqCellID                     InterFreqCellID                     OPTIONAL,
    frequencyInfo                       FrequencyInfo                       OPTIONAL,
    cellInfo                            CellInfo
}

NewInterFreqCellList ::=            SEQUENCE (SIZE (1..maxCellMeas)) OF
                                        NewInterFreqCell

NewInterFreqCellSI-RSCP ::=             SEQUENCE {
    interFreqCellID                     InterFreqCellID                     OPTIONAL,
    frequencyInfo                       FrequencyInfo                       OPTIONAL,
    cellInfo                            CellInfoSI-RSCP
}

NewInterFreqCellSI-ECN0 ::=             SEQUENCE {
    interFreqCellID                     InterFreqCellID                     OPTIONAL,
    frequencyInfo                       FrequencyInfo                       OPTIONAL,
    cellInfo                            CellInfoSI-ECN0
}

NewInterFreqCellSI-HCS-RSCP ::=             SEQUENCE {
    interFreqCellID                     InterFreqCellID                     OPTIONAL,
    frequencyInfo                       FrequencyInfo                       OPTIONAL,
    cellInfo                            CellInfoSI-HCS-RSCP
}

NewInterFreqCellSI-HCS-ECN0 ::=             SEQUENCE {
    interFreqCellID                     InterFreqCellID                     OPTIONAL,
    frequencyInfo                       FrequencyInfo                       OPTIONAL,
    cellInfo                            CellInfoSI-HCS-ECN0
}

NewInterFreqCellSI-List-ECN0 ::=            SEQUENCE (SIZE (1..maxCellMeas)) OF
                                        NewInterFreqCellSI-ECN0

NewInterFreqCellSI-List-HCS-RSCP ::=            SEQUENCE (SIZE (1..maxCellMeas)) OF
                                        NewInterFreqCellSI-HCS-RSCP

NewInterFreqCellSI-List-HCS-ECN0 ::=            SEQUENCE (SIZE (1..maxCellMeas)) OF
                                        NewInterFreqCellSI-HCS-ECN0

NewInterFreqCellSI-List-RSCP ::=        SEQUENCE (SIZE (1..maxCellMeas)) OF
                                        NewInterFreqCellSI-RSCP


NewInterSystemCell ::=              SEQUENCE {
    technologySpecificInfo              CHOICE {
        gsm                                 SEQUENCE {
            q-Offset                            Q-Offset                    OPTIONAL,
            q-RxlevMin                          Q-RxlevMin,
            maxAllowedUL-TX-Power               MaxAllowedUL-TX-Power,
            cellSelectionReselectionInfo        CellSelectReselectInfoSIB-11-12     OPTIONAL,
```

```
            bsic                                BSIC,
            bcch-ARFCN                          BCCH-ARFCN,
            gsm-OutputPower                     GSM-OutputPower             OPTIONAL
        },
        is-2000                             SEQUENCE {
            is-2000SpecificMeasInfo             IS-2000SpecificMeasInfo
        },
        spare1                              NULL,
        spare2                              NULL
    }
}

NewInterSystemCell-HCS ::=              SEQUENCE {
    technologySpecificInfo              CHOICE {
        gsm                                 SEQUENCE {
            q-Offset                            Q-Offset                    OPTIONAL,
            hcs-NeighbouringCellInformation-RSCP    HCS-NeighbouringCellInformation-RSCP
                                                                            OPTIONAL,
            q-RxlevMin                          Q-RxlevMin,
            maxAllowedUL-TX-Power               MaxAllowedUL-TX-Power,
            cellSelectionReselectionInfo        CellSelectReselectInfoSIB-11-12     OPTIONAL,
            bsic                                BSIC,
            bcch-ARFCN                          BCCH-ARFCN,
            gsm-OutputPower                     GSM-OutputPower             OPTIONAL
        },
        is-2000                             SEQUENCE {
            is-2000SpecificMeasInfo             IS-2000SpecificMeasInfo
        },
        spare1                              NULL,
        spare2                              NULL
    }
}
--???
NewInterSystemCellList ::=          SEQUENCE (SIZE (1..maxCellMeas)) OF
                                        NewInterSystemCell

NewInterSystemCellList-HCS ::=          SEQUENCE (SIZE (1..maxCellMeas)) OF
                                        NewInterSystemCell-HCS

NewIntraFreqCell ::=                SEQUENCE {
    intraFreqCellID                     IntraFreqCellID                     OPTIONAL,
    cellInfo                            CellInfo
}

NewIntraFreqCellList ::=            SEQUENCE (SIZE (1..maxCellMeas)) OF
                                        NewIntraFreqCell

NewIntraFreqCellSI-RSCP ::=             SEQUENCE {
    intraFreqCellID                     IntraFreqCellID                     OPTIONAL,
    cellInfo                            CellInfoSI-RSCP
}

NewIntraFreqCellSI-ECN0 ::=         SEQUENCE {
    intraFreqCellID                     IntraFreqCellID                     OPTIONAL,
    cellInfo                            CellInfoSI-ECN0
}
NewIntraFreqCellSI-HCS-RSCP ::=     SEQUENCE {
    intraFreqCellID                     IntraFreqCellID                     OPTIONAL,
    cellInfo                            CellInfoSI-HCS-RSCP
}

NewIntraFreqCellSI-HCS-ECN0 ::=     SEQUENCE {
    intraFreqCellID                     IntraFreqCellID                     OPTIONAL,
    cellInfo                            CellInfoSI-HCS-ECN0
}

NewIntraFreqCellSI-List-RSCP ::=        SEQUENCE (SIZE (1..maxCellMeas)) OF
                                            NewIntraFreqCellSI-RSCP

NewIntraFreqCellSI-List-ECN0 ::=        SEQUENCE (SIZE (1..maxCellMeas)) OF
                                        NewIntraFreqCellSI-ECN0

NewIntraFreqCellSI-List-HCS-RSCP ::=    SEQUENCE (SIZE (1..maxCellMeas)) OF
                                        NewIntraFreqCellSI-HCS-RSCP

NewIntraFreqCellSI-List-HCS-ECN0 ::=    SEQUENCE (SIZE (1..maxCellMeas)) OF
                                        NewIntraFreqCellSI-HCS-ECN0
```

```
NodeB-ClockDrift ::=                INTEGER (0..15)

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-RSCP ::=                CHOICE {
    notUsed                             NULL,
    pt10                                TemporaryOffset,
    pt20                                TemporaryOffset,
    pt30                                TemporaryOffset,
    pt40                                TemporaryOffset,
    pt50                                TemporaryOffset,
    pt60                                TemporaryOffset
}

PenaltyTime-ECN0 ::=                CHOICE {
    notUsed                             NULL,
    pt10                                TemporaryOffsetList,
    pt20                                TemporaryOffsetList,
    pt30                                TemporaryOffsetList,
    pt40                                TemporaryOffsetList,
    pt50                                TemporaryOffsetList,
    pt60                                TemporaryOffsetList
}

PendingTimeAfterTrigger ::=         ENUMERATED {
                                        ptat0-25, ptat0-5, ptat1,
                                        ptat2, ptat4, ptat8, ptat16 }

PeriodicalOrEventTrigger ::=        ENUMERATED {
                                        periodical,
                                        eventTrigger }


PeriodicalReportingCriteria ::=     SEQUENCE {
    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                                     NULL,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                                     NULL,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 }

-- 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 ::=        CHOICE {
    removeAllInterFreqCells             NULL,
    removeSomeInterFreqCells            SEQUENCE (SIZE (1..maxCellMeas)) OF
                                            InterFreqCellID,
    removeNoInterFreqCells              NULL
}

RemovedInterSystemCellList ::=      CHOICE {
    removeAllInterSystemCells           NULL,
    removeSomeInterSystemCells          SEQUENCE (SIZE (1..maxCellMeas)) OF
                                            InterSystemCellID,
    removeNoInterSystemCells            NULL
}

RemovedIntraFreqCellList ::=        CHOICE {
    removeAllIntraFreqCells             NULL,
    removeSomeIntraFreqCells            SEQUENCE (SIZE (1..maxCellMeas)) OF
                                            IntraFreqCellID,
    removeNoIntraFreqCells              NULL
}

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,
    withinActiveAndOrMonitoredUsedFreq      MaxNumberOfReportingCellsType1,
```

```
    withinDetectedSetUsedFreq           MaxNumberOfReportingCellsType1,
    withinMonitoredAndOrDetectedUsedFreq
                                        MaxNumberOfReportingCellsType1,
    allActiveplusMonitoredSet           MaxNumberOfReportingCellsType3,
    allActivePlusDetectedSet            MaxNumberOfReportingCellsType3,
    allActivePlusMonitoredAndOrDetectedSet
                                        MaxNumberOfReportingCellsType3,
    withinVirtualActSet                 MaxNumberOfReportingCellsType1,
    withinMonitoredSetNonUsedFreq       MaxNumberOfReportingCellsType1,
    withinMonitoredAndOrActiveSetNonUsedFreq
                                        MaxNumberOfReportingCellsType1,
    allVirtualActSetplusMonitoredSetNonUsedFreq
                                        MaxNumberOfReportingCellsType3,
    withinActSetOrVirtualActSet         MaxNumberOfReportingCellsType2,
    withinActSetAndOrMonitoredUsedFreqOrMonitoredNonUsedFreq
                                        MaxNumberOfReportingCellsType2
}


ReportingCellStatusOpt ::=          SEQUENCE {
    reportingCellStatus                 ReportingCellStatus                 OPTIONAL
}


ReportingInfoForCellDCH ::=         SEQUENCE {
    intraFreqReportingQuantity          IntraFreqReportingQuantity,
    measurementReportingMode            MeasurementReportingMode,
    reportCriteria                      CellDCH-ReportCriteria
}

ReportingInterval ::=               ENUMERATED {
                                        noPeriodicalreporting, ri0-25,
                                        ri0-5, ri1, ri2, ri4, ri8, ri16 }

ReportingIntervalLong ::=           ENUMERATED {
                                        ril0, ril0-25, ril0-5, ril1,
                                        ril2, ril3, ril4, ril6, ril8,
                                        ril12, ril16, ril20, ril24,
                                        ril28, ril32, ril64 }

-- Actual value = IE value * 0.5
ReportingRange ::=                  INTEGER (0..29)

Resume-Release ::=                  CHOICE {
    resume                              UE-State,
    release                             NULL
}

RL-AdditionInfoList ::=             SEQUENCE (SIZE (1..maxRL-1)) OF
                                        PrimaryCPICH-Info

RL-InformationLists ::=             SEQUENCE {
    rl-AdditionInfoList                 RL-AdditionInfoList                 OPTIONAL,
    rl-RemovalInfoList                  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..63)

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
}


SIR-TFCS ::=                        TFCS-IdentityPlain


SIR-TFCS-List ::=                   SEQUENCE (SIZE (1..maxCCTrCH)) OF
                                        SIR-TFCS


SIR-TimeslotList ::=                SEQUENCE (SIZE (1..maxTS)) OF
                                        SIR

-- Reserved bits in subframe 1 of the GPS navigation message
SubFrame1Reserved ::=               SEQUENCE {
    reserved1                           BIT STRING (SIZE (23)),
    reserved2                           BIT STRING (SIZE (24)),
    reserved3                           BIT STRING (SIZE (24)),
    reserved4                           BIT STRING (SIZE (16))
}

T-CRMax ::=                         CHOICE {
    notUsed                             NULL,
    t30                                 N-CR-T-CRMaxHyst,
    t60                                 N-CR-T-CRMaxHyst,
    t120                                N-CR-T-CRMaxHyst,
    t180                                N-CR-T-CRMaxHyst,
    t240                                N-CR-T-CRMaxHyst
}

T-CRMaxHyst ::=                     ENUMERATED {
                                        notUsed, t10, t20, t30,
                                        t40, t50, t60, t70 }

TemporaryOffset ::=                 ENUMERATED {
                                        to10, to20, to30, to40, to50,
                                        to60, to70, infinite }

TemporaryOffsetList ::=             SEQUENCE    {
        temporaryOffset1                TemporaryOffset,
        temporaryOffset2                TemporaryOffset
}

Threshold ::=                       INTEGER (-115..0)

ThresholdPositionChange ::=         ENUMERATED {
                                        pc10, pc20, pc30, pc40, pc50,
                                        pc100, pc200, pc300, pc500,
                                        pc1000, pc2000, pc5000, pc10000,
                                        pc20000, pc50000, pc100000 }

ThresholdSFN-GPS-TOW ::=            ENUMERATED {
                                        ms1, ms2, ms3, ms5, ms10,
                                        ms20, ms50, ms100 }

ThresholdSFN-SFN-Change ::=         ENUMERATED {
```

```
                                    c0-25, c0-5, c1, c2, c3, c4, c5,
                                    c10, c20, c50, c100, c200, c500,
                                    c1000, c2000, c5000 }

ThresholdUsedFrequency ::=          INTEGER (-115..165)


-- Actual value = IE value * 20., IE values 14-16 are spare values.
TimeInterval ::=                    INTEGER (1..136)


TimeslotInfo ::=                    SEQUENCE {
    timeslotNumber                      TimeslotNumber,
    burstType                           BurstType
}


TimeslotInfoList ::=                SEQUENCE (SIZE (1..maxTS)) OF
                                        TimeslotInfo

TimeslotISCP ::=                    INTEGER (-115..-25)


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

TimeslotListWithISCP ::=            SEQUENCE (SIZE (1..maxTS)) OF
                                        TimeslotWithISCP

TimeslotWithISCP ::=                SEQUENCE {
    timeslot                            TimeslotNumber,
    timeslotISCP                        TimeslotISCP
}

TimeToTrigger ::=                   ENUMERATED {
                                        ttt0, ttt10, ttt20, ttt40, ttt60,
                                        ttt80, ttt100, ttt120, ttt160,
                                        ttt200, ttt240, tt320, ttt640,
                                        ttt1280, ttt2560, ttt5000 }

TrafficVolumeEventParam ::=         SEQUENCE {
    eventID                             TrafficVolumeEventType,
    reportingThreshold                  TrafficVolumeThreshold,
    timeToTrigger                       TimeToTrigger                       OPTIONAL,
    pendingTimeAfterTrigger             PendingTimeAfterTrigger             OPTIONAL,
    tx-InterruptionAfterTrigger         TX-InterruptionAfterTrigger         OPTIONAL
}

TrafficVolumeEventResults ::=       SEQUENCE {
    ul-transportChannelCausingEvent     TransportChannelIdentity,
    trafficVolumeEventIdentity          TrafficVolumeEventType
}

TrafficVolumeEventType ::=          ENUMERATED {
                                        e4a,
                                        e4b }


TrafficVolumeMeasQuantity ::=       CHOICE {
    rlc-BufferPayload                   NULL,
    averageRLC-BufferPayload            TimeInterval,
    varianceOfRLC-BufferPayload         TimeInterval
}


TrafficVolumeMeasSysInfo ::=        SEQUENCE {
    trafficVolumeMeasurementID          MeasurementIdentityNumber           DEFAULT 4,
    trafficVolumeMeasurementObjectList  TrafficVolumeMeasurementObjectList  OPTIONAL,
    trafficVolumeMeasQuantity           TrafficVolumeMeasQuantity           OPTIONAL,
    trafficVolumeReportingQuantity      TrafficVolumeReportingQuantity      OPTIONAL,
    trafficVolumeMeasRepCriteria        TrafficVolumeReportingCriteria      OPTIONAL,
    measurementValidity                 MeasurementValidity                 OPTIONAL,
    measurementReportingMode            MeasurementReportingMode,
    reportCriteriaSysInf                TrafficVolumeReportCriteriaSysInfo

}

TrafficVolumeMeasuredResults ::=    SEQUENCE {
```

```
    rb-Identity                         RB-Identity,
    rlc-BuffersPayload                  RLC-BuffersPayload                  OPTIONAL,
    averageRLC-BufferPayload            AverageRLC-BufferPayload            OPTIONAL,
    varianceOfRLC-BufferPayload         VarianceOfRLC-BufferPayload         OPTIONAL
}

TrafficVolumeMeasuredResultsList ::= SEQUENCE (SIZE (1..maxRB)) OF
                                    TrafficVolumeMeasuredResults

TrafficVolumeMeasurement ::=        SEQUENCE {
    trafficVolumeMeasurementObjectList  TrafficVolumeMeasurementObjectList  OPTIONAL,
    trafficVolumeMeasQuantity           TrafficVolumeMeasQuantity           OPTIONAL,
    trafficVolumeReportingQuantity      TrafficVolumeReportingQuantity      OPTIONAL,
    measurementValidity                 MeasurementValidity                 OPTIONAL,
    reportCriteria                      TrafficVolumeReportCriteria
}

TrafficVolumeMeasurementObjectList ::= SEQUENCE (SIZE (1..maxTrCH)) OF
                                        TransportChannelIdentity

TrafficVolumeReportCriteria ::=     CHOICE {
    trafficVolumeReportingCriteria      TrafficVolumeReportingCriteria,
    periodicalReportingCriteria         PeriodicalReportingCriteria,
    noReporting                         NULL
}


TrafficVolumeReportCriteriaSysInfo ::=  CHOICE {
    trafficVolumeReportingCriteria      TrafficVolumeReportingCriteria,
    periodicalReportingCriteria         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, th2k, th3k,
                                        th4k, th6k, th8k, th12k, th16k,
                                        th24k, th32k, th48k, th64k, th96k,
                                        th128k, th192k, th256k, th384k,
                                        th512k, th768k }


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)

TriggeringCondition1 ::=            ENUMERATED {
                                        activeSetCellsOnly,
                                        monitoredSetCellsOnly,
                                        activeSetAndMonitoredSetCells }

TriggeringCondition2 ::=            ENUMERATED {
                                        activeSetCellsOnly,
```

```
                                        monitoredSetCellsOnly,
                                        activeSetAndMonitoredSetCells,
                                        detectedSetCellsOnly,
                                        detectedSetAndMonitoredSetCells }

TX-InterruptionAfterTrigger ::=     ENUMERATED {
                                        txiat0-25, txiat0-5, txiat1,
                                        txiat2, txiat4, txiat8, txiat16 }

UDRE ::=                            ENUMERATED {
                                        lessThan1,
                                        between1-and-4,
                                        between4-and-8,
                                        over8 }

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                   DEFAULT fc1
}


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-1usec,
    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,
    RRC-TransactionIdentifier,
    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,
    PUSCH-SysInfoList-SFN,
    PICH-PowerOffset,
    PRACH-SystemInformationList,
    PrimaryCCPCH-Info,
    PrimaryCCPCH-TX-Power,
    PUSCH-SysInfoList,
    PUSCH-SysInfoList-SFN,
    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-Indicator,
    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;

-- **************************************************
--
--     OTHER INFORMATION ELEMENTS (10.3.8)
--
```

```
-- **************************************************

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))

IdentificationOfReveivedMessage ::= SEQUENCE {
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        receivedMessageType             ReceivedMessageType
}

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,
    spare4                              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.
        sibSb-ReferenceList             SIBSb-ReferenceList,
```

```
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
}

MIB-ValueTag ::=                    INTEGER (1..8)

NCC ::=                             INTEGER (0..7)

PLMN-ValueTag ::=                   INTEGER (1..256)


PredefinedConfigIdentityAndValueTag ::= SEQUENCE {
    predefinedConfigIdentity            PredefinedConfigIdentity,
    predefinedConfigValueTag            PredefinedConfigValueTag    OPTIONAL
}

ProtocolErrorInformation ::=        SEQUENCE {
    diagnosticsType                     CHOICE {
        type1                               SEQUENCE {
            protocolErrorCause                  ProtocolErrorCause
        },
        spare                               NULL
    }
}

ReceivedMessageType ::=             ENUMERATED {
                                        activeSetUpdate,
                                        cellUpdateConfirm,
                                        counterCheck,
                                        downlinkDirectTransfer,
                                        downlinkOuterLoopControl,
                                        interSystemHandoverCommand,
                                        measurementControl,
                                        pagingType2,
                                        physicalChannelReconfiguration,
                                        physicalSharedChannelAllocation,
                                        radioBearerReconfiguration,
                                        radioBearerRelease,
                                        radioBearerSetup,
                                        rrcConnectionRelease,
                                        rrcConnectionReject,
                                        rrcConnectionSetup,
                                        securityModeCommand,
                                        signallingConnectionRelease,
                                        transportChannelReconfiguration,
                                        transportFormatCombinationControl,
                                        ueCapabilityEnquiry,
                                        ueCapabilityInformationConfirm,
                                        uplinkPhysicalChannelControl,
                                        uraUpdateConfirm,
                                        utranMobilityInformation,
                                        spare1, spare2, spare3, spare4,
                                        spare5, spare6, spare7
}

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
    }                                                                       OPTIONAL
}
```

```
SchedulingInformationSIB ::=            SEQUENCE {
    sib-Type                            SIB-TypeAndTag,
    scheduling                          SchedulingInformation
}

SchedulingInformationSIBSb ::=          SEQUENCE {
    sibSb-Type                          SIBSb-TypeAndTag,
    scheduling                          SchedulingInformation
}

SegCount ::=                            INTEGER (1..16)

SegmentIndex ::=                        INTEGER (01..15)

-- Actual value = 2 * IE value
SFN-Prime ::=                           INTEGER (0..2047)


SIB-Data-fixed ::=                      BIT STRING (SIZE (222))


SIB-Data-variable ::=                   BIT STRING (SIZE (1..214))

SIB-ReferenceList ::=                   SEQUENCE (SIZE (1..maxSIB)) OF
                                            SchedulingInformationSIB

SIBSb-ReferenceList ::=                 SEQUENCE (SIZE (1..maxSIB)) OF
                                            SchedulingInformationSIBSb

SIB-ReferenceListFACH ::=               SEQUENCE (SIZE (1..maxSIB-FACH)) OF
                                            SchedulingInformationSIB

SIB-Type ::=                            ENUMERATED {
                                            masterInformationBlock,
                                            systemInformationBlockType1,
                                            systemInformationBlockType2,
                                            systemInformationBlockType3,
                                            systemInformationBlockType4,
                                            systemInformationBlockType5,
                                            systemInformationBlockType6,
                                            systemInformationBlockType7,
                                            systemInformationBlockType8,
                                            systemInformationBlockType9,
                                            systemInformationBlockType10,
                                            systemInformationBlockType11,
                                            systemInformationBlockType12,
                                            systemInformationBlockType13,
                                            systemInformationBlockType13-1,
                                            systemInformationBlockType13-2,
                                            systemInformationBlockType13-3,
                                            systemInformationBlockType13-4,
                                            systemInformationBlockType14,
                                            systemInformationBlockType15,
                                            systemInformationBlockType15-1,
                                            systemInformationBlockType15-2,
                                            systemInformationBlockType15-3,
                                            systemInformationBlockType16,
                                            systemInformationBlockType17,
                                            spare1, spare2, spare3, spare4,
                                            spare5, spare6, spare7 }

SIB-TypeAndTag ::=                      CHOICE {
    sysInfoType1                            PLMN-ValueTag,
    sysInfoType2                            PLMN-ValueTag,
    sysInfoType3                            CellValueTag,
    sysInfoType4                            CellValueTag,
    sysInfoType5                            CellValueTag,
    sysInfoType6                            CellValueTag,
    sysInfoType7                            NULL,
    sysInfoType8                            CellValueTag,
    sysInfoType9                            NULL,
    sysInfoType10                           NULL,
    sysInfoType11                           CellValueTag,
    sysInfoType12                           CellValueTag,
    sysInfoType13                           CellValueTag,
    sysInfoType13-1                         CellValueTag,
    sysInfoType13-2                         CellValueTag,
    sysInfoType13-3                         CellValueTag,
```

```
    sysInfoType13-4                     CellValueTag,
    sysInfoType14                       NULL,
    sysInfoType15                       CellValueTag,
    sysInfoType16                       PredefinedConfigIdentityAndValueTag,
    sysInfoType17                       NULL
}

SIBSb-TypeAndTag ::=                    CHOICE {
    sysInfoType1                        PLMN-ValueTag,
    sysInfoType2                        PLMN-ValueTag,
    sysInfoType3                        CellValueTag,
    sysInfoType4                        CellValueTag,
    sysInfoType5                        CellValueTag,
    sysInfoType6                        CellValueTag,
    sysInfoType7                        NULL,
    sysInfoType8                        CellValueTag,
    sysInfoType9                        NULL,
    sysInfoType10                       NULL,
    sysInfoType11                       CellValueTag,
    sysInfoType12                       CellValueTag,
    sysInfoType13                       CellValueTag,
    sysInfoType13-1                     CellValueTag,
    sysInfoType13-2                     CellValueTag,
    sysInfoType13-3                     CellValueTag,
    sysInfoType13-4                     CellValueTag,
    sysInfoType14                       NULL,
    sysInfoType15                       CellValueTag,
    sysInfoType16                       PredefinedConfigIdentityAndValueTag,
    sysInfoType17                       NULL,
    sysInfoTypeSB1                      CellValueTag,
    sysInfoTypeSB2                      CellValueTag
}

SibOFF ::=                              ENUMERATED {
                                            so2, so4, so6, so8, so10,
                                            so12, so14, so16, so18,
                                            so20, so22, so24, so26,
                                            so28, so30, so32 }

SibOFF-List ::=                         SEQUENCE (SIZE (1..15)) OF
                                            SibOFF


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-ConnTimersAndConstants       UE-ConnTimersAndConstants,
        ue-IdleTimersAndConstants       UE-IdleTimersAndConstants,
        ue-DCHTimersAndConstants        UE-DCHTimersAndConstants,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}
}


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 {}
}


SysInfoType3 ::=                        SEQUENCE {
    -- Other IEs
        sib-ReferenceList               SIB-ReferenceList               OPTIONAL,
        sib4indicator                   BOOLEAN,
    -- UTRAN mobility IEs
        cellIdentity                    CellIdentity,
        cellSelectReselectInfo          CellSelectReselectInfoSIB-3-4,
        cellAccessRestriction           CellAccessRestriction,
```

```
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}
}


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 {}
}


SysInfoType5 ::=                    SEQUENCE {
    -- Other IEs
        sib-ReferenceList               SIB-ReferenceList                   OPTIONAL,
        sib6indicator                   BOOLEAN,
    -- Physical channel IEs
        modeSpecificInfo                CHOICE {
            fdd                             SEQUENCE {
                pich-PowerOffset                PICH-PowerOffset,
                aich-PowerOffset                AICH-PowerOffset
            },
            tdd                             SEQUENCE {
                pusch-SysInfoList-SFN           PUSCH-SysInfoList-SFN       OPTIONAL,
                pdsch-SysInfoList-SFN           PDSCH-SysInfoList-SFN       OPTIONAL,
                midambleConfiguration           MidambleConfiguration       OPTIONAL,
                primaryCCPCH-TX-Power           PrimaryCCPCH-TX-Power       OPTIONAL,
                prach-ConstantValue             ConstantValue               OPTIONAL,
                dpch-ConstantValue              ConstantValue               OPTIONAL,
                pusch-ConstantValue             ConstantValue               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 {}
}


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-SysInfoList-SFN           PUSCH-SysInfoList-SFN       OPTIONAL,
                pdsch-SysInfoList-SFN           PDSCH-SysInfoList-SFN       OPTIONAL,
                midambleConfiguration           MidambleConfiguration       OPTIONAL,
                primaryCCPCH-TX-Power           PrimaryCCPCH-TX-Power       OPTIONAL,
                prach-ConstantValue             ConstantValue               OPTIONAL,
                dpch-ConstantValue              ConstantValue               OPTIONAL,
                pusch-ConstantValue             ConstantValue               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 {}
}
```

```
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 {}
}

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 {}
}

SysInfoType9 ::=                    SEQUENCE {
    -- Other IEs
        sib-ReferenceList               SIB-ReferenceList                   OPTIONAL,
    -- Physical channel IEs
        cpch-PersistenceLevelsList      CPCH-PersistenceLevelsList,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}
}

SysInfoType10 ::=                   SEQUENCE {
    -- Other IEs
        sib-ReferenceList               SIB-ReferenceList                   OPTIONAL,
    -- User equipment IEs
        drac-SysInfoList                DRAC-SysInfoList,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}
}

SysInfoType11 ::=                   SEQUENCE {
    -- Other IEs
        sib-ReferenceList               SIB-ReferenceList                   OPTIONAL,
        sib12indicator                  BOOLEAN,
    -- Measurement IEs
        fach-MeasurementOccasionInfo    FACH-MeasurementOccasionInfo        OPTIONAL,
        measurementControlSysInfo       MeasurementControlSysInfo,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}
}

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 {}
}

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 {}
}

SysInfoType13-1 ::=                 SEQUENCE {
    -- ANSI-41 IEs
        ansi-41-RAND-Information        ANSI-41-RAND-Information,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}
}

SysInfoType13-2 ::=                 SEQUENCE {
    -- ANSI-41 IEs
        ansi-41-UserZoneID-Information  ANSI-41-UserZoneID-Information,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}
}

SysInfoType13-3 ::=                 SEQUENCE {
    -- ANSI-41 IEs
        ansi-41-PrivateNeighbourListInfo ANSI-41-PrivateNeighbourListInfo,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}
}

SysInfoType13-4 ::=                 SEQUENCE {
    -- ANSI-41 IEs
        ansi-41-GlobalServiceRedirectInfo
                                        ANSI-41-GlobalServiceRedirectInfo,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}
}


SysInfoType14 ::=                   SEQUENCE {
    -- Other IEs
        sib-ReferenceList               SIB-ReferenceList               OPTIONAL,
    -- Physical channel IEs
        individualTS-InterferenceList   IndividualTS-InterferenceList,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}
}

SysInfoType15 ::=                   SEQUENCE {
    -- Other IEs
        sib-ReferenceList               SIB-ReferenceList               OPTIONAL,
    -- Measurement IEs
        lcs-GPS-Assistance              LCS-Cipher-GPS-Data-Indicator           OPTIONAL,
        lcs-OTDOA-Assistance            LCS-OTDOA-AssistanceSIB         OPTIONAL,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}
}

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 (1..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 {}
}

SysInfoType17 ::=                   SEQUENCE {
    -- Other IEs
        sib-ReferenceList               SIB-ReferenceList               OPTIONAL,
    -- Physical channel IEs
        pusch-SysInfoList               PUSCH-SysInfoList-SFN           OPTIONAL,
        pdsch-SysInfoList               PDSCH-SysInfoList-SFN           OPTIONAL,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}
}

SysInfoTypeSB1 ::=                  SEQUENCE {
    -- Other IEs
        sib-ReferenceList               SIB-ReferenceList               OPTIONAL,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}
}

SysInfoTypeSB2 ::=                  SEQUENCE {
    -- Other IEs
        sib-ReferenceList               SIB-ReferenceList               OPTIONAL,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}
}

END
```

11.3.9 ANSI-41 information elements

```
ANSI-41-IEs DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

-- **************************************************
--
--      ANSI-41 INFORMATION ELEMENTS (10.3.9)
--
-- **************************************************

ANSI-41-GlobalServiceRedirectInfo ::=   ANSI-41-NAS-Parameter
ANSI-41-PrivateNeighbourListInfo ::=    ANSI-41-NAS-Parameter
ANSI-41-RAND-Information ::=            ANSI-41-NAS-Parameter
ANSI-41-UserZoneID-Information ::=      ANSI-41-NAS-Parameter
ANSI-41-NAS-Parameter ::=               BIT STRING (SIZE (1..2048))

Min-P-REV ::=                           BIT STRING (SIZE (8))

NAS-SystemInformationANSI-41 ::=        ANSI-41-NAS-Parameter
NID ::=                                 BIT STRING (SIZE (16))

P-REV ::=                               BIT STRING (SIZE (8))

SID ::=                                 BIT STRING (SIZE (15))

END
```

11.4 Constant definitions

```
Constant-definitions DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

hiPDSCHidentities           INTEGER ::= 64
hiPUSCHidentities           INTEGER ::= 64
hiRM                        INTEGER ::= 256
maxAC                       INTEGER ::= 16
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
maxPredefConfig             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
maxSIBperMsg                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
maxTFCI-2-Combs             INTEGER ::= 512
maxTGPS                     INTEGER ::= 6
maxTrCH                     INTEGER ::= 32
maxTrCHpreconf              INTEGER ::= 16
maxTS                       INTEGER ::= 14
maxTS-1                     INTEGER ::= 13
maxURA                      INTEGER ::= 8

END
```

11.5 RRC information between network nodes

```
Internode-definitions DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

    HandoverToUTRANCommand-r3,
    MeasurementReport,
    PhysicalChannelReconfiguration-r3,
    RadioBearerReconfiguration-r3,
    RadioBearerRelease-r3,
    RadioBearerSetup-r3,
```

```
    TransportChannelReconfiguration-r3,
    UECapabilityInformation-r3
FROM PDU-definitions

-- Core Network IEs :
    CN-DomainInformationList,
    NAS-SystemInformationGSM-MAP,
FROM CoreNetwork-IEs

-- UTRAN Mobility IEs :
    CellIdentity,
    URA-Identity,
FROM UTRANMobility-IEs

-- User Equipment IEs :
    C-RNTI,
    RRC-MessageSequenceNumber,
    START-Value,
    STARTList,
    U-RNTI,
    UE-RadioAccessCapability,
FROM UserEquipment-IEs

-- Radio Bearer IEs :
    PDCP-InfoReconfig,
    PredefinedConfigValueTag,
    RAB-InformationSetupList,
    RB-Identity,
    RB-MappingInfo,
    RLC-Info,
    RLC-SequenceNumber,
    SRB-InformationSetupList,
FROM RadioBearer-IEs

-- Transport Channel IEs :
    CPCH-SetID,
    DL-CommonTransChInfo,
    DL-AddReconfTransChInfoList,
    DRAC-StaticInformationList,
    UL-CommonTransChInfo,
    UL-AddReconfTransChInfoList,
FROM TransportChannel-IEs

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

-- Other IEs :
    InterSystemMessage
FROM InformationElements

FROM Other-IEs

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

-- RRC information transferred between network nodes,
-- per group of information transfers having same endpoint
-- Alike class definitions for RRC PDUs

-- **************************************************
--
-- RRC information, to target RNC
--
-- **************************************************

ToRNC-Message ::= SEQUENCE {
    message             ToRNC-MessageType
}
```

```
ToRNC-MessageType ::= CHOICE {
    handoverPreparationInfo             HandoverPreparationInfo,
    sRNC-RelocationInfo                 SRNC-RelocationInfo,
    extension                           NULL
}

-- **************************************************
--
-- RRC information, target RNC to source RNC
--
-- **************************************************

T-RNC-ToSRNC-Container ::= SEQUENCE {
    message             T-RNC-ToSRNC-ContainerType
}

T-RNC-ToSRNC-ContainerType::= CHOICE {
    radioBearerSetup                    RadioBearerSetup-r3,
    radioBearerReconfiguration          RadioBearerReconfiguration-r3,
    radioBearerRelease                  RadioBearerRelease-r3,
    transportChannelReconfiguration     TransportChannelReconfiguration-r3,
    physicalChannelReconfiguration      PhysicalChannelReconfiguration-r3,
    extension                           NULL
}

-- **************************************************
--
-- RRC information, target RNC to source RAT
--
-- **************************************************

T-RNC-ToSRNC-RAT-Container ::= SEQUENCE {
    message             T-RNC-ToOtherRAT-ContainerType
}

T-RNC-ToOtherRAT-ContainerType::= CHOICE {
    handoverToUTRANCommand              HandoverToUTRANCommand,
    extension                           NULL
}

-- Container definitions, alike PDU definitions
-- RRC Container definition, to target RNC

HandoverPreparationInfo::=          SEQUENCE {
    uE-RadioAccessCapability            UE-RadioAccessCapability,
    uE-SecurityInfo                     STARTList,
    preConfigStatusInfo                 PreConfigStatusInfo
}

-- **************************************************
--
-- SRNC Relocation information
--
-- **************************************************

SRNC-RelocationInfo ::=             SEQUENCE {
    -- Non-RRC IEs
        stateOfRRC                      StateOfRRC,
        stateOfRRC-Procedure            StateOfRRC-Procedure,
        cipheringStatus                 CipheringStatus,
        calculationTimeForCiphering     CalculationTimeForCiphering         OPTIONAL,
        cipheringInfoPerRB-List         CipheringInfoPerRB-List             OPTIONAL,
        integrityProtectionStatus       IntegrityProtectionStatus,
        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
        preConfigStatusInfo             PreConfigStatusInfo,
        srb-InformationList             SRB-InformationSetupList,
        rab-InformationList             RAB-InformationSetupList            OPTIONAL,
    -- Transport channel IEs
        ul-CommonTransChInfo            UL-CommonTransChInfo                OPTIONAL,
        ul-TransChInfoList              UL-AddReconfTransChInfoList         OPTIONAL,
        modeSpecificInfo                CHOICE {
            fdd                             SEQUENCE {
                cpch-SetID                      CPCH-SetID                  OPTIONAL,
                transChDRAC-Info                DRAC-StaticInformationList  OPTIONAL
            },
            tdd                             NULL
        },
        dl-CommonTransChInfo            DL-CommonTransChInfo                OPTIONAL,
        dl-TransChInfoList              DL-AddReconfTransChInfoList         OPTIONAL,
    -- Measurement report
        measurementReport               MeasurementReport                   OPTIONAL
}

-- RRC Container definition, target RNC to source RNC
-- Nothing new, only re-using RRC PDUs
--
-- RRC Container definition, target RNC to source system
-- Nothing new, re-using RRC PDUs (HandoverToUTRANCommand)

-- IE definitions

CalculationTimeForCiphering ::=     SEQUENCE {
    cell-Id                             CellIdentity,
    sfn                                 INTEGER (0..4095)
}

CipheringInfoPerRB ::=              SEQUENCE {
    dl-START                                START-Value,
    ul-START                            START-Value
}

-- TABULAR: Multiplicity value numberOfRadioBearers has been replaced
-- with maxRB.
CipheringInfoPerRB-List ::=         SEQUENCE (SIZE (1..maxRB)) OF
                                        CipheringInfoPerRB

CipheringStatus ::=                 ENUMERATED {
                                        started, notStarted }

ImplementationSpecificParams ::=    BIT STRING (SIZE (1..512))


IntegrityProtectionStatus ::=       ENUMERATED {
                                        started, notStarted }

MeasurementCommandWithType ::=      CHOICE {
    setup                               MeasurementType,
    modify                              NULL,
    release                             NULL
}

OngoingMeasRep ::=                  SEQUENCE {
    measurementIdentityNumber           MeasurementIdentityNumber,
    measurementCommandWithType          MeasurementCommandWithType,
    -- TABULAR: The CHOICE Measurement in the tabular description is included
    -- in the IE above.
    measurementReportingMode            MeasurementReportingMode            OPTIONAL,
    additionalMeasurementID-List        AdditionalMeasurementID-List        OPTIONAL
}

OngoingMeasRepList ::=              SEQUENCE (SIZE (1..maxNoOfMeas)) OF
                                        OngoingMeasRep

PreConfigStatusInfo ::=             SEQUENCE (SIZE (1..maxPredefConfig)) OF
                PredefinedConfigValueTag


SRB-SpecificIntegrityProtInfo ::=   SEQUENCE {
    rb-Identity                         RB-Identity                         OPTIONAL,
    ul-RRC-HFN                              BIT STRING (SIZE (28)),
    dl-RRC-HFN                              BIT STRING (SIZE (28)),
```

```
    ul-RRC-SequenceNumber               RRC-MessageSequenceNumber,
    dl-RRC-SequenceNumber               RRC-MessageSequenceNumber
}

SRB-SpecificIntegrityProtInfoList ::= SEQUENCE (SIZE (4..maxSRBsetup)) OF
                                        SRB-SpecificIntegrityProtInfo

StateOfRRC ::=                      ENUMERATED {
                                        cell-DCH, cell-FACH,
                                        cell-PCH, ura-PCH }

StateOfRRC-Procedure ::=            ENUMERATED {
                                        awaitNoRRC-Message,
                                        awaitRRC-ConnectionRe-establishmentComplete,
                                        awaitRB-SetupComplete,
                                        awaitRB-ReconfigurationComplete,
                                        awaitTransportCH-ReconfigurationComplete,
                                        awaitPhysicalCH-ReconfigurationComplete,
                                        awaitActiveSetUpdateComplete,
                                        awaitHandoverComplete,
                                        sendCellUpdateConfirm,
                                        sendUraUpdateConfirm,
                                        sendRrcConnectionReestablishment,
                                        otherStates }

END
```

3GPP TSG RAN WG2#17
Sophia Antipolis, France, Nov 13th-17th, 2000

Document R2-002439
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

CHANGE REQUEST

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

25.331	CR	604r2	Current Version:	3.4.1

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

For submission to:	TSG-RAN #10	for approval	X	strategic		(for SMG use only)
list expected approval meeting # here ↑		for information		non-strategic		

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 [X] UTRAN / Radio [X] Core Network [ ]

Source: TSG-RAN WG2 **Date:** 2000-11-17

Subject: Corrections to Measurement Occasion concept

Work item:

Category: *(only one category shall be marked with an X)*

F	Correction	X	**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	X
				Release 00	

Reason for change:

The following corrections and modifications have been made on the Measurement occasion concept:

1. Since UE monitors all FACHs on a SCCPCH, a Measurement Occasion must have a duration of the TTI of the FACH having largest TTI.

2. Equation for calculating Measurement occasion has been modified for easier understanding.

3. Minimum repetition period of a Measurement Occasion have been changed from 2**3 = 8 TTIs to 2**1 = 2 TTIs. Usage of UTRAN DRX cycle within the cell as default value has been removed, since there is no connection between Measurement Occasions and DRX cycle.

4. Possibility to inhibit measurements and cell re-selection evaluation on inter-frequency FDD and TDD cells and Inter-RAT cells is introduced.

5. Subdivision of k into k_UTRA and k_inter_RAT is removed.

6. Editorial changes.

Clauses affected: 8.1.1.5.11, 8.1.1.5.12, 8.5.13, 8.6.7, 10.3.7.8, 11.3.7

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.

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8.1.1.5.11 System Information Block type 11

The UE should store all relevant IEs included in this system information block. The UE shall:

- if IEs containing scheduling information for other system information blocks are included, act on those IEs in a similar manner as specified for the scheduling information contained within the master information block;
- for each measurement type start a measurement using the set of IEs specified for that measurement type;
- associate each measurement with the identity number given by the IE "Measurement identity number";
- if included, store the IE "Intra-frequency reporting quantity" and the IE "Intra-frequency measurement reporting criteria" or "Periodical reporting criteria" in order to activate reporting when state CELL_DCH is entered;
- If IE "Use of HCS" is set to "used", indicating that HCS is used, do the following:
  - If IE "HCS neighbouring cell information" is not included in the first occurrence of IE "Intra-frequency Cell Information", use the default values specified for the IE "HCS neighbouring cell information" for that cell;
  - If IE "HCS neighbouring cell information" is not included in other occurrence of IE "Intra-frequency Cell Information", for that cell use the same parameter values as used for the preceding IE "Intra-frequency Cell Information";
  - If IE "HCS neighbouring cell information" is not included in the first occurrence of IE "Inter-frequency Cell Information", use the default values specified for the IE "HCS neighbouring cell information" for that cell;
  - If IE "HCS neighbouring cell information" is not included in other occurrence of IE "Inter-frequency Cell Information", for that cell use the same parameter values as used for the preceding IE "Inter-frequency Cell Information";
  - If IE "HCS neighbouring cell information" is not included in the first occurrence of IE "Inter-system Cell Information", use the default values specified for the IE "HCS neighbouring cell information" for that cell;
  - If IE "HCS neighbouring cell information" is not included in other occurrence of IE "Inter-system Cell Information", for that cell use the same parameter values as used for the preceding IE "Inter-system Cell Information".
- If IE “FACH measurement occasion info” is included, UE shall act as specified in section 8.6.7. If IE “FACH measurement occasion info” is not included, UE shall neither perform inter-frequency/inter-RAT measurements nor inter-frequency/inter-RAT cell re-selection evaluation, independent on UE measurement capabilities.

8.1.1.5.12 System Information Block type 12

If in connected mode, the UE should store all relevant IEs included in this system information block. The UE shall:

- if IEs containing scheduling information for other system information blocks are included, act on those IEs in a similar manner as specified for the scheduling information contained within the master information block;
- for each measurement type start (or continue) a measurement using the set of IEs specified for that measurement type;
- remove the intra-frequency cells given by the IE "Removed intra-frequency cells" from the list of intra-frequency cells specified in system information block type 11 and add the intra-frequency cells given by the IE "New intra-frequency cells" to the list of intra-frequency cells specified in system information block type 11;
- if any of the IEs "Intra-frequency measurement quantity", "Intra-frequency reporting quantity for RACH reporting", "Maximum number of reported cells on RACH" or "Reporting information for state CELL_DCH" are not included in the system information block, read the corresponding IE(s) in system information block type 11 and use that information for the intra-frequency measurement;
- if included in this system information block or in system information block type 11, store the IE "Intra-frequency reporting quantity" and the IE "Intra-frequency measurement reporting criteria" or "Periodical reporting criteria" in order to activate reporting when state CELL_DCH is entered;

- remove the inter-frequency cells given by the IE "Removed inter-frequency cells" from the list of inter-frequency cells specified in system information block type 11 and add the inter-frequency cells given by the IE "New inter-frequency cells" to the list of inter-frequency cells specified in system information block type 11;

- if the IE "Inter-frequency measurement quantity" is not included in the system information block, read the corresponding IE in system information block type 11 and use that information for the inter-frequency measurement;

- remove the inter-system cells given by the IE "Removed inter-system cells" from the list of inter-system cells specified in system information block type 11 and add the inter-system cells given by the IE "New inter-system cells" to the list of inter-system cells specified in system information block type 11;

- if the IE "Inter-system measurement quantity" is not included in the system information block, read the corresponding IE in system information block type 11 and use that information for the inter-system measurement;

- if in state CELL_FACH, start traffic volume measurement reporting as specified in the IE "Traffic volume measurement reporting quantity";

- associate each measurement with the identity number given by the IE "Measurement identity number";

- If IE "Use of HCS" is set to "used", indicating that HCS is used, do the following:

  - If IE "HCS neighbouring cell information" is not included in the first occurrence of IE "Intra-frequency Cell Information", use the default values specified for the IE "HCS neighbouring cell information" for that cell;

  - If IE "HCS neighbouring cell information" is not included in other occurrence of IE "Intra-frequency Cell Information", for that cell use the same parameter values as used for the preceding IE "Intra-frequency Cell Information";

  - If IE "HCS neighbouring cell information" is not included in the first occurrence of IE "Inter-frequency Cell Information", use the default values specified for the IE "HCS neighbouring cell information" for that cell;

  - If IE "HCS neighbouring cell information" is not included in other occurrence of IE "Inter-frequency Cell Information", for that cell use the same parameter values as used for the preceding IE "Inter-frequency Cell Information";

  - If IE "HCS neighbouring cell information" is not included in the first occurrence of IE "Inter-system Cell Information", use the default values specified for the IE "HCS neighbouring cell information" for that cell;

  - If IE "HCS neighbouring cell information" is not included in other occurrence of IE "Inter-system Cell Information", for that cell use the same parameter values as used for the preceding IE "Inter-system Cell Information".

- If IE “FACH measurement occasion info” is included, UE shall act as specified in section 8.6.7. If IE “FACH measurement occasion info” is not included, UE shall neither perform inter-frequency/inter-RAT measurements nor inter-frequency/inter-RAT cell re-selection evaluation, independent on UE measurement capabilities.

If in idle mode, the UE shall not use the values of the IEs in this system information block.

8.5.13 ~~Measurement~~ FACH measurement occasion calculation

When in CELL_FACH state the UE shall perform inter-frequency and inter-system measurements during the frame(s) with the SFN value fulfilling the following equation:

~~((SFN div N) mod M_REP = C_RNTI mod M_REP~~

SFN div N = C_RNTI mod M_REP + n * M_REP

where n = 0,1,2… as long as SFN is below its maximum value.

~~where~~

- N is the TTI (in number of 10ms frames) of the FACH having the largest TTI on the SCCPCH monitored by UE~~div 10ms~~
- M_REP is the Measurement Occasion cycle length. According to the equation above, a FACH Measurement Occasion of N frames will be repeated every N * M_REP frame.

  $M\_REP = 2^k$

- ~~k = k_UTRA – k_Inter_RAT_tot~~

  where,

  - k~~_Inter_RAT_tot is the sum of all the k_Inter_RAT values corresponding to a system that the UE supports in addition to UTRA, and that have neighbours present in the measurement control message on system information sent from the current cell.~~ is the FACH Measurement occasion cycle length coefficient.
    The value of the FACH Measurement occasion cycle length coefficient is read on system information in "System Information Block Type 11" or "System Information Block Type 12" in the IE "FACH measurement occasion info".
  - C_RNTI is the C-RNTI value of the UE

- ~~k_UTRA and k_Inter_RAT are read on system information in "System Information Block Type 11" or "System Information Block Type 12" in the IE "FACH measurement occasion info".~~

The UE is allowed to measure on other occasions in case the UE moves "out of service" area or in case it can simultaneously perform the ordered measurements.

8.6.7.x FACH measurement occasion info

IE “FACH measurement occasion info” is used to control UE measurement acitivities in inter-frequency and inter-RAT cells in CELL_FACH state.

If IE “FACH measurement occasion info” is received, UE shall, when in CELL_FACH state act as follows:

- If IE “FACH Measurement occasion length coefficient” is included, and
  - if, according to its measurement capabilities, UE is not able to perform some of the indicated measurements in this IE simultaneously as receiving the SCCPCH of serving cell, UE shall perform those measurements during FACH measurement occasions, see 8.5.13.
  - If, according to its measurement capabilities, UE is able to perform some of the indicated measurements in this IE simultaneously as receiving the SCCPCH of serving cell, UE may perform measurements also on other occasions.
  - If, according to its measurement capabilities, UE is able to perform the measurements supported by UE and indicated in this IE simultaneously as receiving the SCCPCH of serving cell, UE shall perform the measurements simultaneously as receiving the SCCPCH of serving cell.
- If IE “FACH Measurement occasion length coefficient” is not included, UE shall only perform those indicated measurements indicated in this IE that UE, according to its measurement capabilities, is able to perform simultaneously as receiving the SCCPCH of serving cell.
- If IE “Inter-frequency FDD measurement indicator” is set to TRUE, UE shall perform measurements and evaluate cell re-selection criteria according to [TS 25.304] on inter-frequency FDD cells listed in IE “Measurement control system information” in "System Information Block Type 11" or "System Information Block Type 12".
  If IE “Inter-frequency FDD measurement indicator” is set to FALSE, UE shall neither perform measurements nor evaluate cell re-selection criteria on inter-frequency FDD cells.
- If IE “Inter-frequency TDD measurement indicator” is set to TRUE, UE shall perform measurements and evaluate cell re-selection criteria according to [TS 25.304] on inter-frequency TDD cells listed in IE “Measurement control system information” in "System Information Block Type 11" or "System Information Block Type 12".
  If IE “Inter-frequency TDD measurement indicator” is set to FALSE, UE shall neither perform measurements nor evaluate cell re-selection criteria on inter-frequency TDD cells.
- If IE “Inter-RAT measurement indicators” is included, UE shall perform measurements and evaluate cell re-selection criteria according to [TS 25.304] on those cells of listed Inter-RAT types that are present in IE “Measurement control system information” in "System Information Block Type 11" or "System Information Block Type 12".

10.3.7.8 FACH measurement occasion info

This IE is for FDD only.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
~~k_UTRA~~FACH Measurement occasion cycle length coefficient	~~M~~OP		~~UTRAN DRX cycle length coefficient 10.3.3.47~~ Integer(1..12)	~~Default value is the existing value of UTRAN DRX cycle length coefficient~~
Inter-frequency FDD measurement indicator	MP		Boolean	TRUE means that measurements are required
Inter-frequency TDD measurement indicator	MP		Boolean	TRUE means that measurements are required
~~Other RAT present in inter-system cell info~~Inter-RAT measurement indicators	OP	1 to <maxOther RAT>		
>RAT type	MP		Enumerated(GSM, IS2000)	At least 14 spare values, Criticality: Reject, are needed
~~>k_Inter_Rat~~	~~MP~~		~~Integer(0..12)~~	

11.3.7 Measurement information elements

```
:
:
FACH-MeasurementOccasionInfo ::=    SEQUENCE {
    k-UTRA                              UTRAN-DRX-CycleLengthCoefficient,
    fACH-meas-occasion-coeff            INTEGER (1..12)                         OPTIONAL,
    inter-freq-FDD-meas-ind             BOOLEAN,
    inter-freq-TDD-meas-ind             BOOLEAN,
    otherRAT-InSysInfoList              OtherRAT-InSysInfoList                  OPTIONAL
    inter-RAT-meas-ind                  SEQUENCE (SIZE (1..maxOtherRAT)) OF
                                        RAT-Type                                OPTIONAL
}


:
:

K-InterRAT ::=                      INTEGER (0..12)

:
:

OtherRAT-InSysInfo ::=              SEQUENCE {
    rat-Type                            RAT-Type,
    k-InterRAT                          K-InterRAT
}

OtherRAT-InSysInfoList ::=          SEQUENCE (SIZE (1..maxOtherRAT)) OF
                                        OtherRAT-InSysInfo
```

3GPP TSG RAN WG2#17
Sofia Antipolis, France, 13- 17 November 2000

Document R2-002271
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

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25.331	CR	606	Current Version:	3.4.1

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

For submission to:	TSG-RAN #10	for approval	X	strategic		(for SMG Use only)
list expected approval meeting # here ↑		for information		non-strategic		

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	X	UTRAN / Radio	X	Core Network	

Source:	TSG-RAN WG2		**Date:**	16-11-2000	
Subject:	Corrections concerning optimisation of RB information				
Work item:					

Category: *(only one category shall be marked with an X)*			**Release:**		
F	Correction	X		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	X
				Release 00	

Reason for change:

The size of a number of RRC messages is critical especially for those transferred via other RAT eg. GSM. The proposal CR makes it possible to reduce the number of segments needed for several size critical messages, including the handover to UTRAN command message, the RRC connection setup message and the downloadable pre-defined RB configuration IE

Summary of main changes:
- introduction of possibility to specify RLC info for a RB is same as for another RB
- introduction of possibility to specify that DL logical channel mapping is same as for UL
- introduction of possibility to omit common transport channel configuration in RRC connection setup, in which case configuration from system information applies

Clauses affected: 8.6.4.1, 10.2.41, 10. 3.4.18, 10.3.4.20, 10.3.4.21, 10.3.4.24, 11.2, 11.3.4

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: Difference as compared to earlier distributed version are shown by different colour revision marks.


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

8.1.3.4 Reception of an RRC CONNECTION SETUP message by the UE

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

If the values are different, the UE shall:

- ignore the rest of the message;

If the values are identical, the UE shall:

- stop timer T300, and act upon all received information elements as specified in 8.6, unless specified otherwise in the following;

.- store the value of the IE "New U-RNTI";

- initiate the signalling link parameters according to the IE "RB mapping info";

- if neither the IE "PRACH info (for RACH)",nor the IE "Uplink DPCH info" is included:

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

- if neither the IE "Secondary CCPCH info", nor the IE "Downlink DPCH info" is included:

  - start to receive the physical channel of type Secondary CCPCH that is given in system information to be used as default by FACH;

- enter a state according to subclause 8.5.7;

- transmit an RRC CONNECTION SETUP COMPLETE message on the uplink DCCH after successful state transition per subclause 8.5.7, with the contents set as specified below:

  - include START [3GPP TS 33.102] values to be used in ciphering and integrity protection for each CN domain;

- if requested in the IE "Capability update requirement" sent in the RRC CONNECTION SETUP message:

  include its UTRAN-specific capabilities in the IE "UE radio access capability";

- if requested in the IE "Capability update requirement" sent in the RRC CONNECTION SETUP message:

  - include its inter-system capabilities in the IE "UE system specific capability".

When the successful delivery of the RRC CONNECTION SETUP COMPLETE message has been confirmed by RLC the UE shall:

- update its variable UE_CAPABILITY_TRANSFERRED which UE capabilities it has transmitted to the UTRAN;

- set the "Status" in the variable INTEGRITY_ PROTECTION_INFO to "Not started";

and the procedure ends.

8.6.4.1 RB mapping info

If the IE "RB identity" and the IE "RB mapping info" are included, the UE shall:

- for each RB:
  - delete all previously stored multiplexing options for that radio bearer;
  - store each new multiplexing option for that radio bearer;
- use the multiplexing options applicable for the transport channels to be used;
- configure MAC multiplexing if that is needed in order to use those transport channels;
- use "MAC logical channel priority" when selecting TFC in MAC.

In case IE “RB mapping info” includes IE “Downlink RLC logical channel info” but IE “Number of downlink RLC logical channels” is absent, the parameter values are exactly the same as for the corresponding UL logical channels. In case two multiplexing options are specified for the UL, the first options shall be used as default for the DL. As regards to the IE “Channel type”, the following rule should be applied to derive the DL channel type from the UL channel included in the IE:

Channel used in UL	Same as implies following DL- channel type
DCH	DCH,
RACH	FACH,
CPCH	DSCH
USCH	DSCH

10.2.41 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 10.3.3.13	
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	3 to 4		Information for signalling radio bearers, in the order RB 1 up to 4.
>Signalling RB information to setup	MP		Signalling RB information to setup 10.3.4.24	
TrCH Information Elements				
Uplink transport channels				
UL Transport channel information common for all transport channels	OP		UL Transport channel information common for all transport channels 10.3.5.24	
Added or Reconfigured TrCH information list	~~MP~~CV-*Cell_FACH*	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	CV-*Cell_FACH*	1 to <maxTrCH		

Information Element/Group name	Need	Multi	Type and reference	Semantics description
	~~MP~~	>		
>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 10.3.6.35	Default value is the existing value of frequency information
Uplink radio resources				
Maximum allowed UL TX power	MD		Maximum allowed UL TX power 10.3.6.38	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 10.3.6.86	
>PRACH Info (for RACH)			PRACH Info (for RACH) 10.3.6.51	
>CPCH SET Info			CPCH SET Info 10.3.6.12	
Downlink radio resources				
Downlink information common for all radio links	OP		Downlink information common for all radio links 10.3.6.23	
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 10.3.6.26	

Condition	**Explanation**
Cell_FACH	This IE is optional when UE's final state is CELL_FACH, else it is mandatory

10.3.4.17 RB information to be affected

Information Element/Group name	Need	Multi	Type and reference	Semantics description
RB identity	MP		RB identity 10.3.4.16	
RB mapping info	MP		RB mapping info 10.3.4.21	

10.3.4.18 RB information to reconfigure

Information Element/Group name	Need	Multi	Type and reference	Semantics description
RB identity	MP		RB identity 10.3.4.16	
PDCP info	OP		PDCP info 10.3.4.2	
PDCP SN info	C PDCP		PDCP SN info 10.3.4.3	PDCP sequence number info from the network. Present only in case of lossless SRNS relocation.
CHOICE *RLC info type*	OP			
>RLC info			RLC info 10.3.4.23	
>Same as RB			RB identity 10.3.4.16	Identity of RB with exactly the same RLC info IE values
RB mapping info	OP		RB mapping info 10.3.4.21	
RB suspend/resume	OP		Enumerated(suspend, resume)	

Condition	Explanation
PDCP	This IE is optional only if "PDCP info" is present. Otherwise it is absent.

10.3.4.19 RB information to release

Information Element/Group name	Need	Multi	Type and reference	Semantics description
RB identity	MP		RB identity 10.3.4.16	

10.3.4.20 RB information to setup

Information Element/Group name	Need	Multi	Type and reference	Semantics description
RB identity	MP		RB identity 10.3.4.16	
PDCP info	OP		PDCP info 10.3.4.2	
CHOICE *RLC info type*	MP			
>RLC info	~~MP~~		RLC info 10.3.4.23	
>Same as RB			RB identity 10.3.4.16	Identity of RB with exactly the same RLC info IE values
RB mapping info	MP		RB mapping info 10.3.4.21	

Multi Bound	Explanation
MaxSetupRBcount	The maximum number of RBs to setup.

NOTE This information element is included within IE "Predefined RB configuration"

10.3.4.21 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 uplink 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]
>>Uplink transport channel type	MP		Enumerated(DCH,RACH, CPCH,USCH)	CPCH is FDD only USCH is TDD only
>>ULTransport channel identity	CV-*UL-DCH/USCH*		Transport channel identity 10.3.5.18	This is the ID of a DCH or USCH (TDD only) that this RB could be mapped onto.
>>Logical channel identity	OP		Integer(1..15)	This parameter is used to distinguish logical channels multiplexed by MAC on a transport channel.
>>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)	[see 25.321]. Default value is 0.
>Downlink RLC logical channel info	CV-*DL-RLC info*			
>>Number of downlink RLC logical channels	~~CV-*DL-RLC info*~~MD	1 to MaxLoCHperRLC		1 or 2 logical channels per RLC entity or radio bearer RLC [TS 25.322] Default value is that parameter values for DL are exactly the same as for corresponding UL logical channel. In case two multiplexing options are specified for the UL, the first options shall be used as default for the DL. As regards to the IE "Channel type", rule is specified in 8.6.4.1.
>>>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 uplink RLC logical channels" in IE "RB mapping info" is 2, then this is present. Otherwise this IE is not needed.
UL-DCH/USCH	If IE "Uplink transport channel type" is equal to "DCH" or "USCH" (TDD only) this IE is 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.

10.3.4.23 RLC info

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE *Uplink RLC mode*	OP			Indicates if Acknowledged, Unacknowledged or Transparent mode RLC shall be used. One spare value needed, criticality: reject.
>AM RLC				
>>Transmission RLC discard	MP		Transmission RLC discard 10.3.4.25	
>>Transmission window size	MP		Integer(1,8,16,32,64,128,256,512,768,1024,1536,2047,2560,3072,3584,4095)	Maximum number of RLC PUs sent without getting them acknowledged. This parameter is needed if acknowledged mode is used. UE shall also assume that the UTRAN receiver window is equal to this value.
>>Timer_RST	MP		Integer(50, 100, 150, 200, 250, 300, 350, 400, 450, 500, 550, 600, 700, 800, 900, 1000)	It is used to detect the loss of RESET ACK PDU. 16 spare values needed, criticality: reject
>>Max_RST	MP		Integer(1, 4, 6, 8, 12 16, 24, 32)	The maximum number of retransmission of RESET PDU. 8 spare values needed, criticality: reject
>> Polling info	OP		Polling info 10.3.4.4	
>UM RLC				
>> Transmission RLC discard	OP		Transmission RLC discard 10.3.4.25	
>TM RLC				
>>Transmission RLC discard	OP		Transmission RLC discard 10.3.4.25	
>>Segmentation indication	MP		Boolean	TRUE indicates that segmentation is performed.
CHOICE *Downlink RLC mode*	OP			Indicates if Acknowledged, Unacknowledged or Transparent mode RLC shall be used. One spare value needed, criticality: reject.
>AM RLC				
>>In-sequence delivery	MP		Boolean	TRUE indicates that RLC shall preserve the order of higher layer PDUs when these are delivered. FALSE indicates that receiving RLC entity could allow SDUs to be delivered to the higher layer in different order than submitted to RLC sublayer at the transmitting side.
>>Receiving window size	MP		Integer(1,8,16,32,64,128,256,512,768,1024,1536,2047,2560,3072,3584,4095)	Maximum number of RLC PUs allowed to be received. This parameter is needed if acknowledged mode is used. UE shall also assume that the UTRAN transmitter window is equal to this value. At least one spare value with

				criticality reject needed
>>Downlink RLC status Info	MP		Downlink RLC status info 10.3.4.1	
>UM RLC				(No data)
>TM RLC				(No data)
>>Segmentation indication	MP		Boolean	TRUE indicates that segmentation is performed.

NOTE This information element is included within IE "Predefined RB configuration"

10.3.4.24 Signalling RB information to setup

Information Element/Group name	Need	Multi	Type and reference	Semantics description
RB identity	MD		RB identity 10.3.4.16	Default value is the smallest value not yet used as default in the message (e.g., 0, then 1, and so on)
CHOICE *RLC info type*	MP			~~At least one spare choice needed, critically: reject~~
>RLC info			RLC info 10.3.4.23	
>Same as RB			RB identity 10.3.4.16	Identity of RB with exactly the same RLC info IE values
RB mapping info	MP		RB mapping info 10.3.4.21	

NOTE This information element is included within IE "Predefined RB configuration"

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,

    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-Info-Short,
    RAB-InformationReconfigList,
    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,
    TFCS-Identity,
    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-CapacityAllocationInfo,
    PDSCH-Identity,
    PDSCH-Info,
    PRACH-RACH-Info,
    PrimaryCCPCH-TX-Power,
    PUSCH-CapacityAllocationInfo,
    PUSCH-Identity,
    RL-AdditionInformationList,
    RL-RemovalInformationList,
    SSDT-Information,
    TFC-ControlDuration,
    TimeslotList,
    TX-DiversityMode,
    UL-ChannelRequirement,
    UL-DPCH-Info,
    UL-DPCH-InfoPostFDD,
    UL-DPCH-InfoPostTDD,
    UL-TimingAdvance,
    UL-TimingAdvanceControl
FROM PhysicalChannel-IEs

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

    BCCH-ModificationInfo,
    CDMA2000-MessageList,
    GSM-MessageList,
    InterSystemHO-Failure,
    InterSystemMessage,
    ProtocolErrorInformation,
    SegCount,
    SegmentIndex,
    SFN-Prime,
    SIB-Data-fixed,
    SIB-Data-variable,
    SIB-Type
FROM Other-IEs

    maxSIBperMsg
```

```
FROM Constant-definitions;

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

ActiveSetUpdate ::= CHOICE {
    v1                              SEQUENCE {
        v1-IEs                          ActiveSetUpdate-v1-IEs,
        nonCriticalExtensions           SEQUENCE {}
    },
    criticalExtensions              SEQUENCE {}
}

ActiveSetUpdate-v1-IEs ::= 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
}

-- ************************************************
--
-- 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 {}
}

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

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

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

CellUpdate ::= SEQUENCE {
    -- User equipment IEs
        u-RNTI                          U-RNTI,
        startList       STARTList,
        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 {}
}

-- ************************************************
```

```
--
-- CELL UPDATE CONFIRM
--
-- ************************************************

CellUpdateConfirm ::= CHOICE {
    v1                              SEQUENCE {
        v1-IEs                          CellUpdateConfirm-v1-IEs,
        nonCriticalExtensions           SEQUENCE {}
    },
    criticalExtensions              SEQUENCE {}
}

CellUpdateConfirm-v1-IEs ::= 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
        frequencyInfo                   FrequencyInfo                       OPTIONAL,
        maxAllowedUL-TX-Power           MaxAllowedUL-TX-Power               OPTIONAL,
        prach-RACH-Info                 PRACH-RACH-Info                     OPTIONAL,
        dl-InformationPerRL             DL-InformationPerRL                 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.
        cellUpdateConfirm               CellUpdateConfirm
}


-- ************************************************
--
-- COUNTER CHECK
--
-- ************************************************

CounterCheck ::= CHOICE {
    v1                              SEQUENCE {
        v1-IEs                          CounterCheck-v1-IEs,
        nonCriticalExtensions           SEQUENCE {}
    },
    criticalExtensions              SEQUENCE {}
}

CounterCheck-v1-IEs ::= SEQUENCE {
    -- Radio bearer IEs
        rb-COUNT-C-MSB-InformationList  RB-COUNT-C-MSB-InformationList
}

-- ************************************************
--
-- 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 {}
}

-- ************************************************
--
-- DOWNLINK DIRECT TRANSFER
--
```

```
-- **************************************************

DownlinkDirectTransfer ::= CHOICE {
    v1                              SEQUENCE {
        v1-IEs                          DownlinkDirectTransfer-v1-IEs,
        nonCriticalExtensions           SEQUENCE {}
    },
    criticalExtensions              SEQUENCE {}
}

DownlinkDirectTransfer-v1-IEs ::= SEQUENCE {
    -- Core network IEs
        cn-DomainIdentity               CN-DomainIdentity,
        nas-Message                     NAS-Message
}

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

DownlinkOuterLoopControl ::= CHOICE {
    v1                              SEQUENCE {
        v1-IEs                          DownlinkOuterLoopControl-v1-IEs,
        nonCriticalExtensions           SEQUENCE {}
    },
    criticalExtensions              SEQUENCE {}
}

DownlinkOuterLoopControl-v1-IEs ::= 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 ::= CHOICE {
    v1                              SEQUENCE {
        v1-IEs                          HandoverToUTRANCommand-v1-IEs,
        nonCriticalExtensions           SEQUENCE {}
    },
    criticalExtensions              SEQUENCE {}
}

HandoverToUTRANCommand-v1-IEs ::= 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-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,
                modeSpecificInfo                CHOICE {
                    fdd                             SEQUENCE {
                        ul-DPCH-Info                    UL-DPCH-InfoPostFDD,
                        dl-CommonInformationPost        DL-CommonInformationPost,
                        dl-InformationPerRL-List        DL-InformationPerRL-ListPostFDD,
                        frequencyInfo                   FrequencyInfoFDD
                    },
                    tdd                             SEQUENCE {
                        ul-DPCH-Info                    UL-DPCH-InfoPostTDD,
                        dl-InformationPerRL             DL-InformationPerRL-PostTDD,
                        frequencyInfo                   FrequencyInfoTDD,
                        primaryCCPCH-TX-Power           PrimaryCCPCH-TX-Power
                    }

                }
            }
        },
    -- Physical channel IEs
        maxAllowedUL-TX-Power           MaxAllowedUL-TX-Power
}

-- **************************************************
--
-- 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 {}
}

-- **************************************************
--
-- 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 {}
}

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

InterSystemHandoverCommand-GSM ::= CHOICE {
    v1                              SEQUENCE {
        v1-IEs                          InterSystemHandoverCommand-GSM-v1-IEs,
        nonCriticalExtensions           SEQUENCE {}
    },
    criticalExtensions              SEQUENCE {}
}

InterSystemHandoverCommand-GSM-v1-IEs ::= SEQUENCE {
    -- User equipment IEs
        activationTime                  ActivationTime                      OPTIONAL,
    -- Radio bearer IEs
        remainingRAB-Info               RAB-Info                            OPTIONAL,
    -- Other IEs
        message-and-extension           CHOICE {
            gsm-Message                     SEQUENCE {},
            -- In this case, what follows the basic production is a variable length bit string
            -- with no length field, containing the GSM message including GSM padding up to end
            -- of container, to be analysed according to GSM specifications
            with-extension                  SEQUENCE {
                messages                        GSM-MessageList
            }
        }
}
```

```
InterSystemHandoverCommand-CDMA2000 ::= CHOICE {
    v1                              SEQUENCE {
        v1-IEs                          InterSystemHandoverCommand-CDMA2000-v1-IEs,
        nonCriticalExtensions           SEQUENCE {}
    },
    criticalExtensions              SEQUENCE {}
}

InterSystemHandoverCommand-CDMA2000-v1-IEs ::= SEQUENCE {
    -- User equipment IEs
        activationTime                  ActivationTime                      OPTIONAL,
    -- Radio bearer IEs
        remainingRAB-Info               RAB-Info                            OPTIONAL,
    -- Other IEs
        cdma2000-MessageList            CDMA2000-MessageList
}

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

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

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

MeasurementControl ::= CHOICE {
    v1                              SEQUENCE {
        v1-IEs                          MeasurementControl-v1-IEs,
        nonCriticalExtensions           SEQUENCE {}
    },
    criticalExtensions              SEQUENCE {}
}

MeasurementControl-v1-IEs ::= 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
}

-- **************************************************
--
-- MEASUREMENT CONTROL FAILURE
--
-- **************************************************

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

-- **************************************************
--
-- 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 {}
}

-- **************************************************
```

```
--
-- 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 {}
}

-- ************************************************
--
-- 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 {}
}

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

PhysicalChannelReconfiguration ::= CHOICE {
    v1                              SEQUENCE {
        v1-IEs                          PhysicalChannelReconfiguration-v1-IEs,
        nonCriticalExtensions           SEQUENCE {}
    },
    criticalExtensions              SEQUENCE {}
}

PhysicalChannelReconfiguration-v1-IEs ::= SEQUENCE {
    -- User equipment IEs
        integrityProtectionModeInfo     IntegrityProtectionModeInfo         OPTIONAL,
        cipheringModeInfo               CipheringModeInfo                   OPTIONAL,
        activationTime                  ActivationTime                      OPTIONAL,
        new-U-RNTI                      U-RNTI                              OPTIONAL,
        new-C-RNTI                      C-RNTI                              OPTIONAL,
        drx-Indicator                   DRX-Indicator,
        utran-DRX-CycleLengthCoeff      UTRAN-DRX-CycleLengthCoefficient    OPTIONAL,
    -- Core network IEs
        cn-InformationInfo              CN-InformationInfo                  OPTIONAL,
    -- UTRAN mobility IEs
        ura-Identity                    URA-Identity                        OPTIONAL,
    -- Radio bearer IEs
        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, PRACH info for RACH, CPCH SET info and CPCH set ID.
        modeSpecificInfo                CHOICE {
            fdd                             SEQUENCE {
                dl-PDSCH-Information            DL-PDSCH-Information        OPTIONAL
            },
            tdd                             NULL
        },
        dl-CommonInformation            DL-CommonInformation                OPTIONAL,
        dl-InformationPerRL-List        DL-InformationPerRL-List            OPTIONAL
}

-- ************************************************
--
-- 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 {}
}

-- **************************************************
--
-- 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 ::= CHOICE {
    v1                              SEQUENCE {
        v1-IEs                          PhysicalSharedChannelAllocation-v1-IEs,
        nonCriticalExtensions           SEQUENCE {}
    },
    criticalExtensions              SEQUENCE {}
}

PhysicalSharedChannelAllocation-v1-IEs ::= 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-TimingAdvanceControl             OPTIONAL,
        pusch-CapacityAllocationInfo    PUSCH-CapacityAllocationInfo        OPTIONAL,
        pdsch-CapacityAllocationInfo    PDSCH-CapacityAllocationInfo        OPTIONAL,
        confirmRequest                  ENUMERATED {
                                            confirmPDSCH, confirmPUSCH }    OPTIONAL,
        -- TABULAR: If the above value is not present, the default value "No Confirm"
        -- shall be used as specified in 10.2.23.
        iscpTimeslotList                    TimeslotList                        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,
        allocationConfirmation          CHOICE {
            pdschConfirmation               PDSCH-Identity,
            puschConfirmation               PUSCH-Identity
        }                                                                   OPTIONAL,
        protocolErrorIndicator          ProtocolErrorIndicatorWithInfo,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}
}

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

RadioBearerReconfiguration ::= CHOICE {
    v1                              SEQUENCE {
        v1-IEs                          RadioBearerReconfiguration-v1-IEs,
        nonCriticalExtensions           SEQUENCE {}
    },
    criticalExtensions              SEQUENCE {}
}
```

```
RadioBearerReconfiguration-v1-IEs ::= SEQUENCE {
    -- User equipment IEs
        integrityProtectionModeInfo     IntegrityProtectionModeInfo         OPTIONAL,
        cipheringModeInfo               CipheringModeInfo                   OPTIONAL,
        activationTime                  ActivationTime                      OPTIONAL,
        new-U-RNTI                      U-RNTI                              OPTIONAL,
        new-C-RNTI                      C-RNTI                              OPTIONAL,
        drx-Indicator                   DRX-Indicator,
        utran-DRX-CycleLengthCoeff      UTRAN-DRX-CycleLengthCoefficient    OPTIONAL,
    -- Core network IEs
        cn-InformationInfo              CN-InformationInfo                  OPTIONAL,
    -- UTRAN mobility IEs
        ura-Identity                    URA-Identity                        OPTIONAL,
    -- Radio bearer IEs
        rab-InformationReconfigList     RAB-InformationReconfigList         OPTIONAL,
        rb-InformationReconfigList      RB-InformationReconfigList,
        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
        }                                                                   OPTIONAL,
        dl-CommonTransChInfo            DL-CommonTransChInfo                OPTIONAL,
        dl-DeletedTransChInfoList       DL-DeletedTransChInfoList           OPTIONAL,
        dl-AddReconfTransChInfoList     DL-AddReconfTransChInfo2List        OPTIONAL,
    -- Physical channel IEs
        frequencyInfo                   FrequencyInfo                       OPTIONAL,
        maxAllowedUL-TX-Power           MaxAllowedUL-TX-Power               OPTIONAL,
        ul-ChannelRequirement           UL-ChannelRequirement               OPTIONAL,
        modeSpecificPhysChInfo          CHOICE {
            fdd                             SEQUENCE {
                dl-PDSCH-Information            DL-PDSCH-Information        OPTIONAL
            },
            tdd                             NULL
        },
        dl-CommonInformation            DL-CommonInformation                OPTIONAL,
        dl-InformationPerRL-List        DL-InformationPerRL-List
}

-- **************************************************
--
-- 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 {}
}

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

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

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

RadioBearerRelease ::= CHOICE {
    v1                              SEQUENCE {
        v1-IEs                          RadioBearerRelease-v1-IEs,
```

```
        nonCriticalExtensions           SEQUENCE {}
    },
    criticalExtensions              SEQUENCE {}
}

RadioBearerRelease-v1-IEs ::= SEQUENCE {
    -- User equipment IEs
        integrityProtectionModeInfo     IntegrityProtectionModeInfo         OPTIONAL,
        cipheringModeInfo               CipheringModeInfo                   OPTIONAL,
        activationTime                  ActivationTime                      OPTIONAL,
        new-U-RNTI                      U-RNTI                              OPTIONAL,
        new-C-RNTI                      C-RNTI                              OPTIONAL,
        drx-Indicator                   DRX-Indicator,
        utran-DRX-CycleLengthCoeff      UTRAN-DRX-CycleLengthCoefficient    OPTIONAL,
    -- Core network IEs
        cn-InformationInfo              CN-InformationInfo                  OPTIONAL,
    -- UTRAN mobility IEs
        ura-Identity                    URA-Identity                        OPTIONAL,
    -- Radio bearer IEs
        rab-InformationReconfigList     RAB-InformationReconfigList         OPTIONAL,
        rb-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
        }                                                                   OPTIONAL,
        dl-CommonTransChInfo            DL-CommonTransChInfo                OPTIONAL,
        dl-DeletedTransChInfoList       DL-DeletedTransChInfoList           OPTIONAL,
        dl-AddReconfTransChInfoList     DL-AddReconfTransChInfo2List        OPTIONAL,
    -- Physical channel IEs
        frequencyInfo                   FrequencyInfo                       OPTIONAL,
        maxAllowedUL-TX-Power           MaxAllowedUL-TX-Power               OPTIONAL,
        ul-ChannelRequirement           UL-ChannelRequirement               OPTIONAL,
        modeSpecificPhysChInfo          CHOICE {
            fdd                             SEQUENCE {
                dl-PDSCH-Information            DL-PDSCH-Information        OPTIONAL
            },
            tdd                             NULL
        },
        dl-CommonInformation            DL-CommonInformation                OPTIONAL,
        dl-InformationPerRL-List        DL-InformationPerRL-List            OPTIONAL
}

-- **************************************************
--
-- 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 {}
}

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

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

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

```
--
-- ************************************************

RadioBearerSetup ::= CHOICE {
    v1                              SEQUENCE {
        v1-IEs                          RadioBearerSetup-v1-IEs,
        nonCriticalExtensions           SEQUENCE {}
    },
    criticalExtensions              SEQUENCE {}
}

RadioBearerSetup-v1-IEs ::= SEQUENCE {
    -- User equipment IEs
        integrityProtectionModeInfo     IntegrityProtectionModeInfo         OPTIONAL,
        cipheringModeInfo               CipheringModeInfo                   OPTIONAL,
        activationTime                  ActivationTime                      OPTIONAL,
        new-U-RNTI                      U-RNTI                              OPTIONAL,
        new-C-RNTI                      C-RNTI                              OPTIONAL,
        drx-Indicator                   DRX-Indicator,
        utran-DRX-CycleLengthCoeff      UTRAN-DRX-CycleLengthCoefficient    OPTIONAL,
    -- UTRAN mobility IEs
        ura-Identity                    URA-Identity                        OPTIONAL,
    -- Core network IEs
        cn-InformationInfo              CN-InformationInfo                  OPTIONAL,
    -- Radio bearer IEs
        srb-InformationSetupList        SRB-InformationSetupList            OPTIONAL,
        rab-InformationSetupList        RAB-InformationSetupList            OPTIONAL,
        rb-InformationAffectedList      RB-InformationAffectedList          OPTIONAL,
    -- 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
        }                                                                   OPTIONAL,
        dl-CommonTransChInfo            DL-CommonTransChInfo                OPTIONAL,
        dl-DeletedTransChInfoList       DL-DeletedTransChInfoList           OPTIONAL,
        dl-AddReconfTransChInfoList     DL-AddReconfTransChInfoList         OPTIONAL,
    -- Physical channel IEs
        frequencyInfo                   FrequencyInfo                       OPTIONAL,
        maxAllowedUL-TX-Power           MaxAllowedUL-TX-Power               OPTIONAL,
        ul-ChannelRequirement           UL-ChannelRequirement               OPTIONAL,
        modeSpecificPhysChInfo          CHOICE {
            fdd                             SEQUENCE {
                dl-PDSCH-Information            DL-PDSCH-Information        OPTIONAL
            },
            tdd                             NULL
        },
        dl-CommonInformation            DL-CommonInformation                OPTIONAL,
        dl-InformationPerRL-List        DL-InformationPerRL-List            OPTIONAL
}

-- ************************************************
--
-- 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,
        start               START                   OPTIONAL,
    -- Radio bearer IEs
        rb-UL-CiphActivationTimeInfo    RB-ActivationTimeInfo               OPTIONAL,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}
}

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

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

```
        nonCriticalExtensions           SEQUENCE {}
}

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

RRCConnectionReEstablishment ::= CHOICE {
    v1                              SEQUENCE {
        v1-IEs                          RRCConnectionReEstablishment-v1-IEs,
        nonCriticalExtensions           SEQUENCE {}
    },
    criticalExtensions              SEQUENCE {}
}

RRCConnectionReEstablishment-v1-IEs ::= SEQUENCE {
    -- User equipment IEs
        integrityProtectionModeInfo     IntegrityProtectionModeInfo         OPTIONAL,
        cipheringModeInfo               CipheringModeInfo                   OPTIONAL,
        activationTime                  ActivationTime                      OPTIONAL,
        new-U-RNTI                      U-RNTI                              OPTIONAL,
        new-C-RNTI                      C-RNTI                              OPTIONAL,
        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-PDSCH-Information            DL-PDSCH-Information        OPTIONAL
            },
            tdd                             NULL
        },
        dl-CommonInformation            DL-CommonInformation                OPTIONAL,
        dl-InformationPerRL-List        DL-InformationPerRL-List            OPTIONAL
}

-- **************************************************
--
-- RRC CONNECTION RE-ESTABLISHMENT for CCCH
--
-- **************************************************

RRCConnectionReEstablishment-CCCH ::= CHOICE {
    v1                              SEQUENCE {
        v1-IEs                          RRCConnectionReEstablishment-CCCH-v1-IEs,
        nonCriticalExtensions           SEQUENCE {}
    },
    criticalExtensions              SEQUENCE {}
}

RRCConnectionReEstablishment-CCCH-v1-IEs ::= SEQUENCE {
    -- User equipment IEs
        u-RNTI                          U-RNTI,
    -- The rest of the message is identical to the one sent on DCCH.
        rrcConnectionReEstablishment    RRCConnectionReEstablishment-v1-IEs
}

-- **************************************************
```

```
--
-- 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,
        start               START                   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 {}
}

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

RRCConnectionReEstablishmentRequest ::= SEQUENCE {
    -- User equipment IEs
        u-RNTI                          U-RNTI,
        startList               STARTList,
        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 {}
}

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

RRCConnectionReject ::= CHOICE {
    v1                              SEQUENCE {
        v1-IEs                          RRCConnectionReject-v1-IEs,
        nonCriticalExtensions           SEQUENCE {}
    },
    criticalExtensions              SEQUENCE {}
}

RRCConnectionReject-v1-IEs ::= 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
}

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

RRCConnectionRelease::= CHOICE {
    v1                              SEQUENCE {
        v1-IEs                          RRCConnectionRelease-v1-IEs,
        nonCriticalExtensions           SEQUENCE {}
    },
    criticalExtensions              SEQUENCE {}
}

RRCConnectionRelease-v1-IEs ::= SEQUENCE {
    -- User equipment IEs
        rrc-MessageTX-Count             RRC-MessageTX-Count                 OPTIONAL,
        -- The IE above is conditional on the UE state.
        releaseCause                    ReleaseCause
}

-- **************************************************
--
```

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

RRCConnectionRelease-CCCH::= CHOICE {
    v1                              SEQUENCE {
        v1-IEs                          RRCConnectionRelease-CCCH-v1-IEs,
        nonCriticalExtensions           SEQUENCE {}
    },
    criticalExtensions              SEQUENCE {}
}

RRCConnectionRelease-CCCH-v1-IEs ::= SEQUENCE {
    -- User equipment IEs
        u-RNTI                          U-RNTI,
    -- The rest of the message is identical to the one sent on DCCH.
        rrcConnectionRelease            RRCConnectionRelease-v1-IEs
}

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

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

-- ************************************************
--
-- 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 {
    -- 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 {}
}

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

RRCConnectionSetup::= CHOICE {
    v1                              SEQUENCE {
        v1-IEs                          RRCConnectionSetup-v1-IEs,
        nonCriticalExtensions           SEQUENCE {}
    },
    criticalExtensions              SEQUENCE {}
}

RRCConnectionSetup-v1-IEs ::= 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         OPTIONAL,
        dl-CommonTransChInfo            DL-CommonTransChInfo                OPTIONAL,
        dl-AddReconfTransChInfoList     DL-AddReconfTransChInfoList         OPTIONAL,
    -- Physical channel IEs
        frequencyInfo                   FrequencyInfo                       OPTIONAL,
        maxAllowedUL-TX-Power           MaxAllowedUL-TX-Power               OPTIONAL,
        ul-ChannelRequirement           UL-ChannelRequirement               OPTIONAL,
        dl-CommonInformation            DL-CommonInformation                OPTIONAL,
        dl-InformationPerRL-List        DL-InformationPerRL-List            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            OPTIONAL,
        ue-SystemSpecificCapability     InterSystemMessage                  OPTIONAL,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}
}

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

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

SecurityModeCommand ::= CHOICE {
    v1                              SEQUENCE {
        v1-IEs                          SecurityModeCommand-v1-IEs,
        nonCriticalExtensions           SEQUENCE {}
    },
    criticalExtensions              SEQUENCE {}
}

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

SecurityModeCommand-v1-IEs ::= SEQUENCE {
-- TABULAR: Integrity protection shall always be performed on this message.
    -- User equipment IEs
        securityCapability              SecurityCapability,
        cipheringModeInfo               CipheringModeInfo                   OPTIONAL,
        integrityProtectionModeInfo     IntegrityProtectionModeInfo         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 {}
}
```

```
-- **************************************************
--
-- SECURITY MODE FAILURE
--
-- **************************************************

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

-- **************************************************
--
-- SIGNALLING CONNECTION RELEASE
--
-- **************************************************

SignallingConnectionRelease::= CHOICE {
    v1                              SEQUENCE {
        v1-IEs                          SignallingConnectionRelease-v1-IEs,
        nonCriticalExtensions           SEQUENCE {}
    },
    criticalExtensions              SEQUENCE {}
}

SignallingConnectionRelease-v1-IEs ::= SEQUENCE {
    -- Core network IEs
        signallingFlowInfoList          SignallingFlowInfoList
}

-- **************************************************
--
-- SIGNALLING CONNECTION RELEASE REQUEST
--
-- **************************************************

SignallingConnectionReleaseRequest ::= SEQUENCE {
    -- Core network IEs
        signallingFlowInfoList          SignallingFlowInfoList,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}
}

-- **************************************************
--
-- SYSTEM INFORMATION for BCH
--
-- **************************************************

SystemInformation-BCH ::= SEQUENCE {
    -- Other information elements
        sfn-Prime                       SFN-Prime,
        payload                         CHOICE {
            noSegment                       NULL,
            firstSegment                    FirstSegment,
            subsequentSegment               SubsequentSegment,
            lastSegmentShort                        LastSegmentShort,
            lastAndFirst                    SEQUENCE {
                lastSegmentShort                        LastSegmentShort,
                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
            },
            completeSIB                     CompleteSIB,
            lastSegment                     LastSegment
        }
}

-- **************************************************
--
-- SYSTEM INFORMATION for FACH
```

```
--
-- ************************************************

SystemInformation-FACH ::= SEQUENCE {
    -- Other information elements
        payload                         CHOICE {
            noSegment                       NULL,
            firstSegment                    FirstSegment,
            subsequentSegment               SubsequentSegment,
            lastSegmentShort                        LastSegmentShort,
            lastAndFirst                    SEQUENCE {
                lastSegmentShort                        LastSegmentShort,
                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
            },
            completeSIB                     CompleteSIB,
            lastSegment                     LastSegment
        }
}

-- ************************************************
--
-- 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-fixed                  SIB-Data-fixed
    -- In case the SIB data is less than 222 bits, padding shall be used
    -- The same padding bits shall be used as defined in clause 12.1
}
```

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

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

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

CompleteSIB ::=                     SEQUENCE {
    -- Other information elements
        sib-Type                        SIB-Type,
        sib-Data-fixed                  SIB-Data-fixed
    -- In case the SIB data is less than 222 bits, padding shall be used
    -- The same padding bits shall be used as defined in clause 12.1
}

CompleteSIBshort ::=                        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 {}
}

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

TransportChannelReconfiguration::= CHOICE {
    v1                              SEQUENCE {
        v1-IEs                          TransportChannelReconfiguration-v1-IEs,
        nonCriticalExtensions           SEQUENCE {}
    },
    criticalExtensions              SEQUENCE {}
}

TransportChannelReconfiguration-v1-IEs ::= SEQUENCE {
    -- User equipment IEs
        integrityProtectionModeInfo     IntegrityProtectionModeInfo         OPTIONAL,
        cipheringModeInfo               CipheringModeInfo                   OPTIONAL,
        activationTime                  ActivationTime                      OPTIONAL,
        new-U-RNTI                      U-RNTI                              OPTIONAL,
        new-C-RNTI                      C-RNTI                              OPTIONAL,
        drx-Indicator                   DRX-Indicator,
        utran-DRX-CycleLengthCoeff      UTRAN-DRX-CycleLengthCoefficient    OPTIONAL,
    -- Core network IEs
        cn-InformationInfo              CN-InformationInfo                  OPTIONAL,
    -- UTRAN mobility IEs
        ura-Identity                    URA-Identity                        OPTIONAL,
    -- Radio bearer IEs
        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-PDSCH-Information            DL-PDSCH-Information        OPTIONAL
            },
            tdd                         NULL
        },
        dl-CommonInformation            DL-CommonInformation                OPTIONAL,
        dl-InformationPerRL-List        DL-InformationPerRL-List            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 {}
}

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

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

-- **************************************************
--
-- 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.
    modeSpecificInfo                    CHOICE {
        fdd                                 NULL,
        tdd                                 SEQUENCE {
            tfcs-ID                             TFCS-Identity   OPTIONAL
            }
    },
    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 {}
}

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

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

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

```
UECapabilityEnquiry ::= CHOICE {
    v1                              SEQUENCE {
        v1-IEs                          UECapabilityEnquiry-v1-IEs,
        nonCriticalExtensions           SEQUENCE {}
    },
    criticalExtensions              SEQUENCE {}
}

UECapabilityEnquiry-v1-IEs ::= SEQUENCE {
    -- User equipment IEs
        capabilityUpdateRequirement     CapabilityUpdateRequirement
}

-- **************************************************
--
-- 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 {}
}

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

UECapabilityInformationConfirm ::= CHOICE {
    v1                              SEQUENCE {
        v1-IEs                          UECapabilityInformationConfirm-v1-IEs,
        nonCriticalExtensions           SEQUENCE {}
    },
    criticalExtensions              SEQUENCE {}
}

UECapabilityInformationConfirm-v1-IEs ::= SEQUENCE {
}

-- **************************************************
--
-- 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 {}
}

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

UplinkPhysicalChannelControl ::= CHOICE {
    v1                              SEQUENCE {
        v1-IEs                          UplinkPhysicalChannelControl-v1-IEs,
        nonCriticalExtensions           SEQUENCE {}
    },
    criticalExtensions              SEQUENCE {}
}


UplinkPhysicalChannelControl-v1-IEs ::= SEQUENCE {
    -- Physical channel IEs
        ccTrCH-PowerControlInfo         CCTrCH-PowerControlInfo             OPTIONAL,
        timingAdvance                   UL-TimingAdvanceControl             OPTIONAL,
        prach-ConstantValue             ConstantValue                       OPTIONAL,
        pusch-ConstantValue             ConstantValue                       OPTIONAL
}

-- **************************************************
```

```
--
-- URA UPDATE
--
-- ************************************************

URAUpdate ::= SEQUENCE {
    -- User equipment IEs
        u-RNTI                          U-RNTI,
        ura-UpdateCause                 URA-UpdateCause,
        protocolErrorIndicator          ProtocolErrorIndicatorWithInfo,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}
}

-- ************************************************
--
-- URA UPDATE CONFIRM
--
-- ************************************************

URAUpdateConfirm ::= CHOICE {
    v1                              SEQUENCE {
        v1-IEs                          URAUpdateConfirm-v1-IEs,
        nonCriticalExtensions           SEQUENCE {}
    },
    criticalExtensions              SEQUENCE {}
}

URAUpdateConfirm-v1-IEs ::= 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
}

-- ************************************************
--
-- URA UPDATE CONFIRM for CCCH
--
-- ************************************************

URAUpdateConfirm-CCCH ::= CHOICE {
    v1                              SEQUENCE {
        v1-IEs                          URAUpdateConfirm-CCCH-v1-IEs,
        nonCriticalExtensions           SEQUENCE {}
    },
    criticalExtensions              SEQUENCE {}
}

URAUpdateConfirm-CCCH-v1-IEs ::= SEQUENCE {
    -- User equipment IEs
        u-RNTI                          U-RNTI,
    -- The rest of the message is identical to the one sent on DCCH.
        uraUpdateConfirm                URAUpdateConfirm-v1-IEs
}

-- ************************************************
--
-- UTRAN MOBILITY INFORMATION
--
-- ************************************************

UTRANMobilityInformation ::= 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
```

```
        nonCriticalExtensions           SEQUENCE {}
}

-- **************************************************
--
-- UTRAN MOBILITY INFORMATION CONFIRM
--
-- **************************************************

UTRANMobilityInformationConfirm ::= 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 {}
}

-- **************************************************
--
-- UTRAN MOBILITY INFORMATION FAILURE
--
-- **************************************************

UTRANMobilityInformationFailure ::= SEQUENCE {
    -- UE information elements
        failureCause                    FailureCauseWithProtErr,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}
}

END
```

11.3.4 Radio bearer information elements

```
RadioBearer-IEs DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

    CN-DomainIdentity,
    NAS-Synchronisation-Indicator,
    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 {
    lossless SRNS-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-InformationReconfigList ::=     SEQUENCE (SIZE (1.. maxRABsetup)) OF
                                        RAB-InformationReconfig

RAB-InformationReconfig ::=         SEQUENCE {
    rab-Identity                        RAB-Identity,
    nas-Synchronisation-Indicator       NAS-Synchronisation-Indicator
}


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


RAB-InformationSetup ::=            SEQUENCE {
    rab-Info                            RAB-Info,
    nas-Synchronisation-Indicator       NAS-Synchronisation-Indicator   OPTIONAL,
```

```
    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-InfoChoice                      RLC-InfoChoice,
    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        CHOICE {
        not-Applicable                      NULL,
        same-As-UL                          NULL,
        specified                           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, rw64, rw128, rw256,
                                        rw512, rw768, rw1024, rw1536, rw2047,
                                        rw2560, rw3072, rw3584, rw4095 }


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,
    same-as-RB                          RB-Identity,
    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 (3..4)) 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, 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 }
```

```
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, tw64, tw128, tw256,
                                        tw512, tw768, tw1024, tw1536, tw2047,
                                        tw2560, tw3072, tw3584, tw4095 }


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


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-LogicalChannelMappingList ::=    SEQUENCE {
    rlc-LogicalChannelMappingIndicator  BOOLEAN,
    ul-LogicalChannelMapping            SEQUENCE (SIZE (maxLoCHperRLC)) OF
                                        UL-LogicalChannelMapping
}

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


UL-RLC-Mode ::=                     CHOICE {
    ul-AM-RLC-Mode                      UL-AM-RLC-Mode,
    ul-UM-RLC-Mode                      UL-UM-RLC-Mode,
    ul-TM-RLC-Mode                      UL-TM-RLC-Mode,
    spare                               NULL
}


UL-TM-RLC-Mode ::=                  SEQUENCE {
    transmissionRLC-Discard             TransmissionRLC-Discard             OPTIONAL,
    segmentationIndication              BOOLEAN
}

UL-UM-RLC-Mode ::=                  SEQUENCE {
    transmissionRLC-Discard             TransmissionRLC-Discard             OPTIONAL

}

UL-TransportChannelType ::=         CHOICE {
    dch                                 TransportChannelIdentity,
    rach                                NULL,
    cpch                                NULL,
    usch                                NULL
}

END
```

3GPP TSG RAN WG2#17
Sophia Antipolis, France, 13th – 17th November, 2000

Document R2-002352
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

CHANGE REQUEST

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

25.331	**CR**	**608r1**	Current Version:	3.4.1

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

For submission to:	TSG-RAN #10	for approval	X	strategic		(for SMG use only)
list expected approval meeting # here ↑		for information		non-strategic		

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	X	UTRAN / Radio	X	Core Network	

Source:	TSG-RAN WG2	**Date:**	2000-10-13

Subject:	Corrections to security

Work item:	

Category: *(only one category shall be marked with an X)*				**Release:**	
	F	Correction	X	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	X
				Release 00	

Reason for change:

1) In TS 33.102 it is specified that the UE should monitor the START value to ensure the ciphering and integrity protection keys are not used for a long time.

The UE stores the START values for each CN domain when entering idle mode.

When establishing an RRC connection, the UE shall compare the THRESHOLD value, stored in the USIM as premanently set by the operator, with the START for eacn CN domain. If a START for a CN domain is greater than the THRESHOLD then the UE shall delete the ciphering and integrity keys and inform upper layers that the UE has no keys. The information to upper layer should occur before any NAS messages are sent after the RRC connection setup phase.

This will eventually trigger an authentication on the NAS level and consequently the reception of new keys. This will result in the START being reset to zero, as defined in 8.5.11.

2) From 25.331 v3.4.1 in 8.3.1.4, “Reception of an CELL UPDATE message by the UTRAN”:

When the UTRAN receives a CELL UPDATE message, it may either:

- transmit a CELL UPDATE CONFIRM message on the downlink DCCH or optionally on the CCCH but only if ciphering is not required; or

- initiate an RRC connection release procedure (see subclause 8.1.4) by transmitting an RRC CONNECTION RELEASE message on the downlink CCCH.

If the UE is moving to a cell controlled by a D-SRNC then the D-RNC will not have the integrity protection configuration for the UE. Therefore, if the D-SRNC was to choose to send a RRC CONNECTION RELEASE message on the downlink CCCH then this message shall not be integrity protected.

Clauses affected:	8.1.3.2, 8.1.12.1, 8.5.12, 10.2.38, 13.4.18(new), A.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.

8.1.3 RRC connection establishment

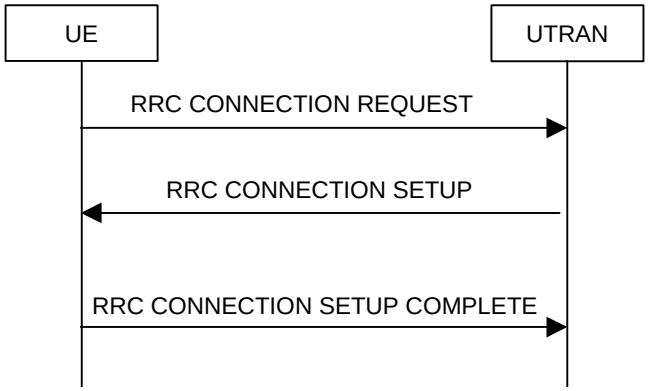

Figure 7: RRC Connection Establishment, network accepts RRC connection

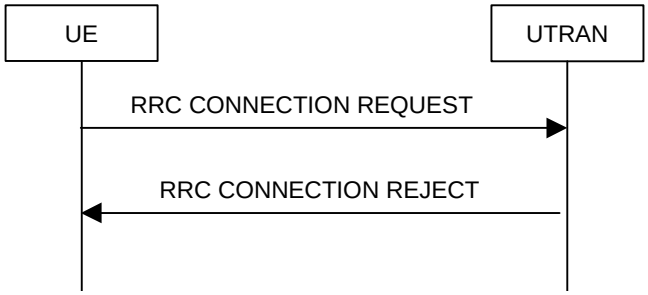

Figure 8: RRC Connection Establishment, network rejects RRC connection

8.1.3.1 General

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

8.1.3.2 Initiation

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

Upon initiation of the procedure, the UE shall:

- set the variable PROTOCOL_ERROR_INDICATOR to FALSE;
- set CFN in relation to SFN of current cell according to 8.5.17;
- delete the ciphering and integrity protection key in the USIM if the START for any CN domain is greater than the value “THRESHOLD” of the variable START_THRESHOLD. The deletion of the keys shall be informed to upper layers.
- transmit an RRC CONNECTION REQUEST message on the uplink CCCH, reset counter V300, and start timer T300;
- perform the mapping of the Access Class to an Access Service Class as specified in subclause 8.5.15, and shall apply the given Access Service Class when accessing the RACH;
- set the IE "Establishment cause" reflecting the cause of establishment in the upper layers;
- set the IE "Initial UE identity" according to subclause 8.5.1;
- set the IE "Protocol error indicator" to the value of the variable PROTOCOL_ERROR_INDICATOR;
- include a measurement report, as specified in the IE "Intra-frequency reporting quantity for RACH reporting" and the IE "Maximum number of reported cells on RACH" in system information block type 11.

8.1.3.3 Reception of an RRC CONNECTION REQUEST message by the UTRAN

Upon receiving an RRC CONNECTION REQUEST message, UTRAN should either:

- transmit an RRC CONNECTION SETUP message on the downlink CCCH; or
- transmit an RRC CONNECTION REJECT message on the downlink CCCH. In the RRC CONNECTION REJECT message, the UTRAN may direct the UE to another UTRA carrier or to another system. After the RRC CONNECTION REJECT message has been sent, all context information for the UE may be deleted in UTRAN.

8.1.3.4 Reception of an RRC CONNECTION SETUP message by the UE

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

If the values are different, the UE shall:

- ignore the rest of the message;

If the values are identical, the UE shall:

- stop timer T300, and act upon all received information elements as specified in 8.6, unless specified otherwise in the following;
- .- store the value of the IE "New U-RNTI";
- initiate the signalling link parameters according to the IE "RB mapping info";
- if neither the IE "PRACH info (for RACH)",nor the IE "Uplink DPCH info" is included:
  - let the physical channel of type PRACH that is given in system information to be the default in uplink to which the RACH is mapped to;
- if neither the IE "Secondary CCPCH info", nor the IE "Downlink DPCH info" is included:
  - start to receive the physical channel of type Secondary CCPCH that is given in system information to be used as default by FACH;
- enter a state according to subclause 8.5.7;
- transmit an RRC CONNECTION SETUP COMPLETE message on the uplink DCCH after successful state transition per subclause 8.5.7, with the contents set as specified below:
  - include START [3GPP TS 33.102] values to be used in ciphering and integrity protection for each CN domain;
- if requested in the IE "Capability update requirement" sent in the RRC CONNECTION SETUP message:

  include its UTRAN-specific capabilities in the IE "UE radio access capability";
- if requested in the IE "Capability update requirement" sent in the RRC CONNECTION SETUP message:
  - include its inter-system capabilities in the IE "UE system specific capability".

When the successful delivery of the RRC CONNECTION SETUP COMPLETE message has been confirmed by RLC the UE shall:

- update its variable UE_CAPABILITY_TRANSFERRED which UE capabilities it has transmitted to the UTRAN;
- set the "Status" in the variable INTEGRITY_ PROTECTION_INFO to "Not started";

and the procedure ends.

8.1.3.5 Physical channel failure or T300 timeout

Upon expiry of timer T300 or, if the UE failed to establish the physical channel(s) according to subclause 8.5.4 indicated in the RRC CONNECTION SETUP message, the UE shall:

- check the value of V300, and:
  - if V300 is equal to or smaller than N300:
    - transmit a new RRC CONNECTION REQUEST message on the uplink CCCH;
    - restart timer T300;
    - increase counter V300;
    - set the IEs in the RRC CONNECTION REQUEST message according to subclause 8.1.3.2;
  - if V300 is greater than N300:
    - enter idle mode. The procedure ends and a connection failure may be indicated to the non-access stratum. Other actions the UE shall perform when entering idle mode from connected mode are specified in subclause 8.5.2.

8.1.3.6 Invalid RRC CONNECTION SETUP message

If the UE receives an RRC CONNECTION SETUP message which contains an IE "Initial UE identity" with a value which is identical to the value of the IE "Initial UE identity" in the most recent RRC CONNECTION REQUEST message sent by the UE, but the RRC CONNECTION SETUP message 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 V300, and

- if V300 is equal to or smaller than N300:
  - transmit a new RRC CONNECTION REQUEST message on the uplink CCCH;
  - set the variable PROTOCOL_ERROR_INDICATOR to TRUE;
  - restart timer T300;
  - increase counter V300;
  - set the IEs in the RRC CONNECTION REQUEST message according to subclause 8.1.3.2;
- if V300 is greater than N300:
  - enter idle mode and the procedure ends and a connection failure may be indicated to the non-access stratum. Other actions the UE shall perform when entering idle mode from connected mode are specified in subclause 8.5.2.

8.1.3.7 Reception of an RRC CONNECTION REJECT message by the UE

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

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

If the values are identical, the UE shall stop timer T300 and:

- if the IE "wait time" <> '0', and
  - if the IE "frequency info" is present and:
    - if V300 is equal to or smaller than N300:

- initiate cell selection on the designated UTRA carrier;
- after having selected and camped on a cell:
  - re-initiate the RRC connection establishment procedure;
  - delay cell reselection to original carrier until the time stated in the IE "wait time" has elapsed;
- if a cell selection on the designated carrier fails:
  - wait for the time stated in the IE "wait time";
  - then transmit a new RRC CONNECTION REQUEST message on the uplink CCCH of the original serving cell;
  - restart timer T300;
  - increase counter V300;
  - set the IEs in the RRC CONNECTION REQUEST message according to subclause 8.1.3.2;
- if V300 is greater than N300:
  - enter idle mode. The procedure ends and a connection failure may be indicated to the non-access stratum. Other actions the UE shall perform when entering idle mode from connected mode are specified in subclause 8.5.2.

- if the IE "inter-system info" is present and:
  - if V300 is equal to or smaller than N300:
    - perform cell selection in the designated system;
    - delay cell reselection to the original system until the time stated in the IE " wait time" has elapsed.
    - if cell selection in the designated system fails:
      - wait at least the time stated in the IE "wait time";
      - then transmit a new RRC CONNECTION REQUEST message on the uplink CCCH;
      - restart timer T300
      - increase counter V300;
      - set the IEs in the RRC CONNECTION REQUEST message according to subclause 8.1.3.2.
  - if V300 is greater than N300:
    - 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 neither the IEs "frequency info" nor "inter-system info" are present and:
  - if V300 is equal to or smaller than N300:
    - wait at least the time stated in the IE "wait time";
    - transmit a new RRC CONNECTION REQUEST message on the uplink CCCH;
    - restart timer T300;
    - increase counter V300;
    - set the IEs in the RRC CONNECTION REQUEST message according to subclause 8.1.3.2;
  - if V300 is greater than N300:

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

- if the IE "wait time" = '0':

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

8.1.3.8 Invalid RRC CONNECTION REJECT message

If the UE receives an RRC CONNECTION REJECT message which contains an IE "Initial UE identity" with a value which is identical to the value of the IE "Initial UE identity" in the most recent RRC CONNECTION REQUEST message sent by the UE; but the RRC CONNECTION REJECT message 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:

- if the IE "wait time" is <> 0, and:

  - if V300 is equal to or smaller than N300:

    - wait for the time stated in the IE "wait time";

    - transmit a new RRC CONNECTION REQUEST message on the uplink CCCH, restart timer T300;

    - increase counter V300;

    - set the IEs in the RRC CONNECTION REQUEST message according to subclause 8.1.3.2, except for the IE "Protocol error indicator" which shall be set to TRUE.

  - if V300 is greater than N300:

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

- if the IE "wait time" is = 0:

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

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

When UTRAN has received the RRC CONNECTION SETUP COMPLETE message, the procedure ends on the UTRAN side.

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

RRC CONNECTION RELEASE (CCCH only)

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 synchronization problems with the RRC SN.

For CCCH and each signalling radio bearer, the UE shall use two 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.

10.2.38 RRC CONNECTION RELEASE

This message is sent by UTRAN to release the RRC connection. The message also releases the signalling connection and all radio bearers between the UE and UTRAN.

RLC-SAP: UM or TM

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	CV-DCCH~~CH~~		Integrity check info 10.3.3.14	Integrity check info is included if integrity protection is applied
Number of RRC Message Transmissions	CH Cell_DCH		Number of RRC Message Transmissions 10.3.3.21	
Release cause	MP		Release cause 10.3.3.31	

Condition	Explanation
CCCH	This IE is only sent when CCCH is used.
DCCH	This IE is only sent when DCCH is used.
Cell_DCH	This IE is present when UE is in CELL_DCH state.

13.4.18 START_THRESHOLD

This variable contains information about the maximum allowed value of the START for a CN domain.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
THRESHOLD	MP		Integer (0..1048576)	20 bits

Annex A (informative): USIM parameters

A.1 Introduction

This annex contains recommendations about the network parameters to be stored in the USIM.

A.2 Ciphering information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Cipher key for each CN domain	MP	<1 to maxCNDomains>		Cipher key is described in 33.102.
> Old CK	MP		Bitstring (128)	
> New CK	MP		Bitstring (128)	
Integrity key for each CN domain	MP	<1 to maxCNDomains>		Integrity key is described in 33.102.
> Old IK	MP		Bitstring (128)	
> New IK	MP		Bitstring (128)	
THRESHOLD	MP		Bitstring (20)	
START value for each CN domain	MP	<1 to maxCNDomains>		START value is described in 33.102.
> Old START	MP		Bitstring (20)	
> New START	MP		Bitstring (20)	
KSI, Key set identifier for each CN domain	MP	<1 to maxCNDomains>		Key set identifier is described in 33.102.
> Old KSI	MP		Bitstring (3)	
> New KSI	MP		Bitstring (3)	

3GPP TSG RAN WG2#17
Sophia Antipolis, France, 13th - 17th November, 2000

Document R2-002384
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

CHANGE REQUEST

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

25.331	CR	609r1	Current Version:	3.4.1

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

For submission to:	TSG-RAN #10	for approval	X	strategic		(for SMG use only)
list expected approval meeting # here ↑		for information		non-strategic		

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	X	UTRAN / Radio	X	Core Network	

Source:	TSG-RAN WG2	**Date:**	2000-11-13

Subject:	Ciphering activation time for DPCH

Work item:	

Category: *(only one category shall be marked with an X)*				**Release:**		
	F	Correction	X		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	X
					Release 00	

Reason for change:

In RAN2#16, contribution R2-002127 highlighted a problem of ensuring that the start of incrementing of the COUNT-C for radio bearers that are mapped onto transparent RLC can be out of sync when moving from CELL_FACH to CELL_DCH, where a DPCH is set up for the first time.

This CR proposes a solution to the problem at hand.

1) Currently, the IE “Activation time for DPCH” is included in the IE “Ciphering mode info”, which is included in the following downlink messages:

ACTIVE SET UPDATE
CELL UPDATE CONFIRM
PHYSICAL CHANNEL RECONFIGURATION
RADIO BEARER RECONFIGURATION
RADIO BEARER RELEASE
RADIO BEARER SETUP
RRC-CONNECTION RE-ESTABLISHMENT (this message no longer exists)
SECURITY MODE COMMAND
TRANSPORT CHANNEL RECONFIGURATION
URA UPDATE CONFIRM
UTRAN MOBILITY INFORMATION

It is proposed to change the name of the IE “Activation time for DPCH” to “Ciphering activation for DPCH”.

2) The UE can be instructed to move to the CELL_DCH with the following messages:

RADIO BEARER SETUP

RADIO BEARER RECONFIGURATION
RADIO BEARER RELEASE
TRANSPORT CHANNEL RECONFIGURATION
PHYSICAL CHANNEL RECONFIGURATION

It is proposed to include an time for when the COUNT-C for radio bearers mapped on transparent RLC can begin incremented. A new IE “COUNT-C activation time” is introduced into the above COMPLETE messages. As the UE defines the time when ciphering can begin for transparent radio beares, then there is no ambiguity for when the COUNT-C can begin incrementing.

3) For a UE that is in CELL_DCH state and is undergoing a RRC connection re-establishment procedure will loose the DPCH for a period of time. As such, the IE “COUNT-C activation time” is introduced in the message to ensure that the incrementing of COUNT-C is correctly synchronised for radio bearers that are mapped onto transparent RLC.

4) It is not specified in 8.1.12.2.1 when the OP “Activation time for DPCH” should be included.

Clauses affected: ~~8.1.5.5~~, 8.1.12.2.1, 8.1.12.4, 8.1.12.5, 8.2.1.3, 8.2.1.6, 8.2.2.4, 8.2.2.5, 8.2.3.3, 8.2.3.6, 8.6.3.4, 10.2.21, 10.2.26, 10.2.29, 10.2.32, ~~10.2.35~~, 10.2.52, 10.2.64, 10.3.3.5, 10.3.4.13, 11.3.3

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

Other comments:

help.doc

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

8.1.5 RRC connection re-establishment

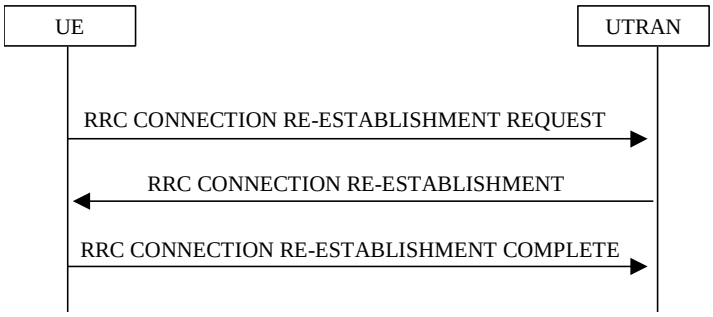

Figure 11: RRC Connection Re-establishment, successful case

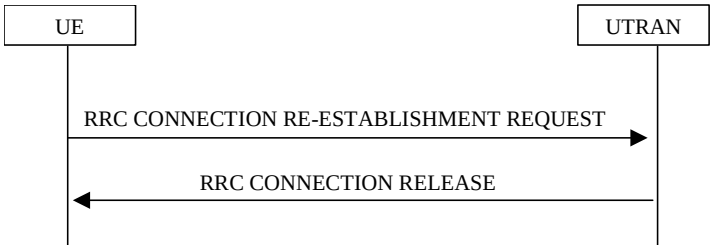

Figure 12: RRC Connection Re-establishment, failure case

8.1.5.1 General

The purpose of this procedure is to act on a lost RRC connection.

8.1.5.2 Initiation

When a UE loses the radio connection in CELL_DCH due to e.g. radio link failure (see subclause 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), 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 which are associated with T315. An indication may be sent to the non-access stratum.

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

If T315>0, the UE shall re-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 START values from each CN domain in RRC CONNECTION RE-ESTABLISHMENT REQUEST message.

UE shall set CFN in relation to SFN of current cell according to 8.5.17.

8.1.5.3 Detection of "in service area"

If the UE detects "in service area"(see subclause 8.5.9), it shall:

- set the IE "U-RNTI" to the value stored in the UE;
- if the value of the variable PROTOCOL_ERROR_INDICATOR is TRUE:
  - set the IE "Protocol error indicator" to TRUE;
  - set 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;
  - set the IE "Protocol error indicator" to FALSE;
- include an IE "Measured Results on RACH", 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;
- transmit an RRC CONNECTION RE-ESTABLISHMENT REQUEST message on the uplink CCCH and start timer T301.

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

UTRAN may either:

- initiate the RRC connection re-establishment procedure and transmit an RRC CONNECTION RE-ESTABLISHMENT message on the downlink DCCH on FACH or CCCH; or
- initiate the RRC connection release procedure (see subclause 8.1.4) by transmitting an RRC CONNECTION RELEASE message on the downlink CCCH on FACH.

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 RRC CONNECTION RE-ESTABLISHMENT REQUEST message from the UE and when the UTRAN receives it, UTRAN commands the UE to reset all AM_RLC entities by sending RRC CONNECTION RE-ESTABLISHMENT message.

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

Upon reception of the RRC CONNECTION RE-ESTABLISHMENT message the UE shall stop timer T301, and use the contents of the RRC CONNECTION RE-ESTABLISHMENT message as specified in subclause 8.6, unless specified otherwise in the following:

- For each reconfigured radio bearer use the mapping option applicable for the transport channels used according to the IE "RB mapping info";
- Configure MAC multiplexing if that is needed in order to use appropriate transport channel(s);
- Use MAC logical channel priority when selecting TFC in MAC.

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

- let the physical channel of type PRACH that is given in system information Block Type 6 be the default in uplink;

- if system information block type 6 is not present in the cell:
  - let the physical channel of type PRACH given in system information block type 5 be the default in uplink.

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

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

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

- use the TFS given in system information.

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

- delete the stored TFS;
- use the TFS given in system information.

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 "New U-RNTI" is included, the UE shall:

- update its identity.

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

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

The UE shall enter a state according to 8.5.7.

~~If the UE will be in CELL_DCH state at the conclusion of this procedure the UE shall:~~

- ~~include the IE "COUNT-C activation time" in the RRC CONNECTION RE-ESTABLISHMENT COMPLETE message. The UE shall specify a CFN value other than the default, "Now" for this IE.~~

After successful state transition, the UE shall:

- check if the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO is set;
  - if the variable is set:
    - include and set the IE "Radio bearer uplink ciphering activation time info" to the value of that variable;
- transmit an RRC CONNECTION RE-ESTABLISHMENT COMPLETE message on the uplink DCCH using AM RLC.

When the successful delivery of the RRC CONNECTION RE-ESTABLISHMENT COMPLETE message has been confirmed by RLC, the UE shall clear the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO and the procedure ends.

8.1.12.2.1 Ciphering configuration change

To stop or start/restart ciphering, UTRAN sends a SECURITY MODE COMMAND message on the downlink DCCH in AM RLC using the old ciphering configuration. If no old ciphering configuration exists then the SECURITY MODE COMMAND is not ciphered.

Prior to sending the SECURITY MODE COMMAND, and for the CN domain as indicated in the IE "CN domain identity" in the SECURITY MODE COMMAND, UTRAN should:

- suspend all radio bearers using RLC-AM and RLC-UM;
- suspend all signalling radio bearers using RLC-AM and RLC-UM, except the signalling radio bearer used to send the SECURITY MODE COMMAND message on the downlink DCCH in RLC-AM;

- set, for the signalling radio bearer used to send the SECURITY MODE COMMAND, the "RLC send sequence number" in IE "Radio bearer downlink ciphering activation time info" in the IE "Ciphering mode info", at which time the new ciphering configuration shall be applied;

- include "Ciphering activation time for DPCH" in IE "Ciphering mode info" when a DPCH exists for radio bearers using transparent mode RLC;

- set, for each suspended radio bearer and signalling radio bearer, the "RLC send sequence number" in IE "Radio bearer downlink ciphering activation time info" in the IE "Ciphering mode info", at which time the new ciphering configuration shall be applied.

While suspended, radio bearers and signalling radio bearers shall not deliver RLC PDUs with sequence number greater than or equal to the number in IE "Radio bearer downlink ciphering activation time info".

When the successful delivery of the SECURITY MODE COMMAND has been confirmed by RLC, UTRAN shall:

- resume all the suspended radio bearers and signalling radio bearers. The old ciphering configuration shall be applied for the transmission of RLC PDUs with RLC sequence number less than the number indicated in the IE "Radio bearer downlink ciphering activation time info", as sent to the UE. The new ciphering configuration shall be applied for the transmission of RLC PDUs with RLC sequence number greater than or equal to the number indicated in IE "Radio bearer downlink ciphering activation time info", sent to the UE.

8.1.12.4 Cipher activation time too short

If the time specified by the IE "~~Activation~~ Ciphering activation time for DPCH" or the IE "Radio bearer downlink ciphering activation time info" contained in the IE "Ciphering mode info" has elapsed, the UE shall switch immediately to the new ciphering configuration.

8.1.12.5 Reception of SECURITY MODE COMPLETE message by the UTRAN

UTRAN should apply integrity protection on the received SECURITY MODE COMPLETE message and all subsequent messages with the new integrity protection configuration, if changed. When UTRAN has received a SECURITY MODE COMPLETE message and the integrity protection has successfully been applied, UTRAN shall use

- for radio bearers using RLC-AM or RLC-UM:
  - the old ciphering configuration for received RLC PDUs with RLC sequence number less than the RLC sequence number indicated in the IE "Radio bearer uplink ciphering activation time info" sent by the UE;
  - the new ciphering configuration for received RLC PDUs with RLC sequence number greater than or equal to the RLC sequence number indicated in the IE "Radio bearer uplink ciphering activation time info" sent by the UE;
  - if an RLC reset occurs after the SECURITY MODE COMPLETE message has been received by UTRAN, but before the activation time for new ciphering key has been reached, RRC in UTRAN configures RLC in UTRAN with the new ciphering key and activation time after the RLC reset;
- for radio bearers using RLC-TM:
  - the new ciphering configuration for the received RLC PDUs at the CFN as indicated in the IE "~~Activation~~ Ciphering activation time for DPCH" in the IE "Ciphering mode info";
- and the procedure ends.

8.2 Radio Bearer control procedures

8.2.1 Radio bearer establishment

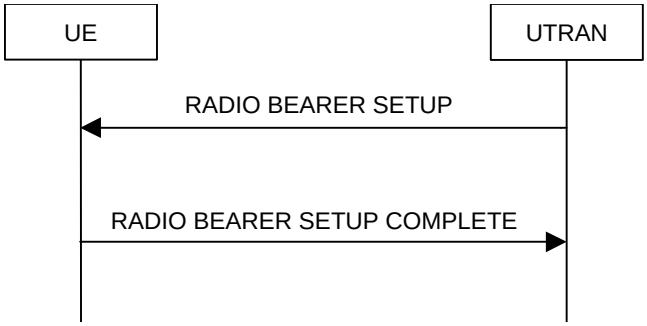

Figure 23: Radio Bearer Establishment, normal case

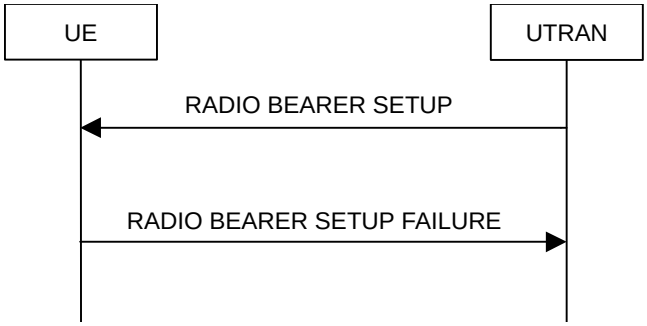

Figure 24: Radio Bearer Establishment, UE reverts to old configuration

8.2.1.1 General

The purpose of this procedure is to establish new radio bearer(s) or re-configure previously established radio bearers. Each radio bearer established by the procedure belongs to one of the following categories:

a signalling radio bearer, i.e. used for control plane signalling;

a radio bearer that implements a radio access bearer (RAB) or RAB subflow in the user plane.

While establishing radio bearers, the procedure may perform a hard handover, see 8.3.5.

8.2.1.2 Initiation

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

To initiate the procedure, UTRAN should:

- configure new radio links in any new physical channel configuration and start transmission and reception on the new radio links;
- transmit a RADIO BEARER SETUP message on the downlink DCCH using AM or UM RLC.

If the Radio Bearer Establishment procedure is simultaneously initiated with SRNS relocation procedure, and ciphering and/or integrity protection are activated, UTRAN should:

- transmit new ciphering and/or integrity protection information to be used after reconfiguration.

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

- set TFCS according to the new transport channel(s).

If the IE "Activation Time" is included, UTRAN should:

- set it to a value taking the UE performance requirements into account.

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

If RAB subflows are established, UTRAN should:

- include in the RADIO BEARER SETUP message RAB subflows in ascending order, with the RAB subflow with the smallest number in first position.

8.2.1.3 Reception of a RADIO BEARER SETUP message by the UE

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:

Upon reception of a RADIO BEARER SETUP message the UE shall perform actions as specified below:

- 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;

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 8.6, unless specified otherwise in the following.

The UE shall:

- for the new radio bearer(s):
  - if the variable CIPHERING_STATUS is set to "Started":
    - initialise ciphering on the non-transparent radio bearers using the current START value. All transparent mode radio bearers have a common hyperframe number (MAC-d HFN), which is not incremented due to addition of new transparent radio bearer(s);
- in case of non-transparent mode radio bearers:
  - transmit the current START value to UTRAN in RADIO BEARER SETUP COMPLETE message;
- suspend data transmission on RB 3 and upward, if RLC-AM or RLC-UM is used on those radio bearers.
- if the IE "RAB information for setup" is included, the procedure is used to establish radio bearers belonging to a radio access bearer:
  - associate the new radio bearers that are defined by the IE(s) "RB information to setup" 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:
      - 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:
      - 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:
  - create a new RAB subflow for the radio access bearer;
  - number the RAB subflow in ascending order, assigning the smallest number to the RAB subflow which appear first in the RADIO BEARER SETUP message;
  - store the number of the RAB subflow in the variable ESTABLISHED_RABS;

The UE may first release the current physical channel configuration and shall then establish a new physical channel configuration according to 8.6 and the following.

- if neither the IE "PRACH info" nor the IE "Uplink DPCH info" is included and the UE will be in CELL_FACH state at the conclusion of this procedure:
  - 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 and the UE will be in CELL_FACH state at the conclusion of this procedure:
  - 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 8.6 and:
  - infer that the PDSCH will be transmitted from the BS from which the downlink DPCH is transmitted;

The UE shall use the physical channel(s) applicable to the state in which it will be at the conclusion of this procedure as specified below.

If the UE will be in CELL_FACH state at the conclusion of this procedure the UE shall:

- if the IE "TFS" is neither included nor previously stored in the UE for that transport channel(s):
  - use the TFS given in system information.
- if none of the TFS stored is compatible with the physical channel to be used:
  - delete stored TFS;
  - use the TFS given in system information;

If the UE is not in CELL_DCH prior to this procedure and will be in CELL_DCH state at the conclusion of this procedure the UE shall:

- include the IE "COUNT-C activation time" in the RADIO BEARER SETUP COMPLETE message. The UE shall specify a CFN value other than the default, "Now" for this IE.

The UE shall transmit a RADIO BEARER SETUP COMPLETE message on the uplink DCCH using AM RLC when the new configuration is in place. In particular the UE shall:

- transmit the RADIO BEARER SETUP COMPLETE message using the new configuration;

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;
- clear the variable ORDERED_CONFIG;
- clear the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO;

The UE shall enter a state according to 8.5.7.

The procedure ends.

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

When UTRAN has received the RADIO BEARER SETUP COMPLETE message, UTRAN may delete any old configuration.

If the IE "UL Timing Advance" is included, UTRAN shall evaluate the timing advance value that the UE has to use in the new cell after handover.

If the IE “COUNT-C activation time” is included, UTRAN should only begin incrementing the COUNT-C for radio bearers that are mapped on transparent mode RLC at the CFN ~~at the CFN~~ as indicated in this IE.

The procedure ends on the UTRAN side

8.2.2 Reconfiguration procedures

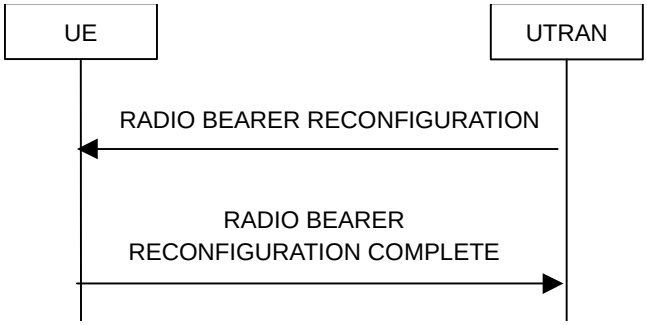

Figure 25: Radio bearer reconfiguration, normal flow

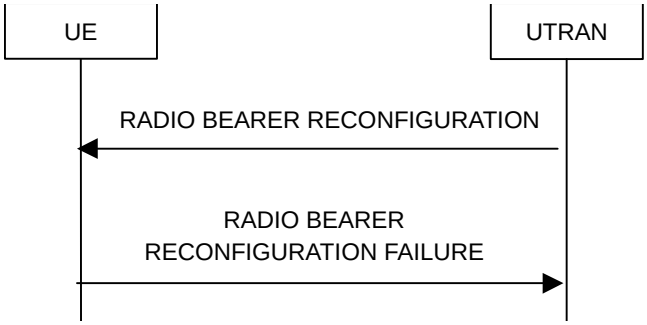

Figure 26: Radio bearer reconfiguration, failure case

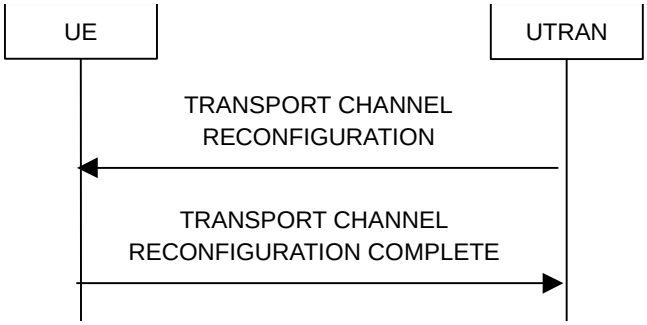

Figure 27: Transport channel reconfiguration, normal flow

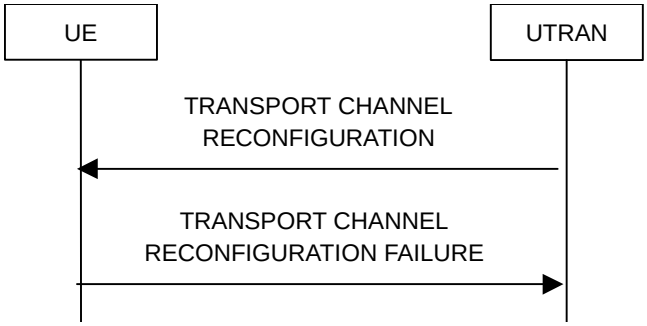

Figure 28: Transport channel reconfiguration, failure case

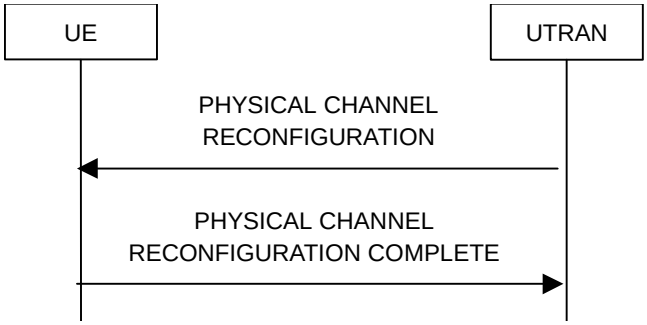

Figure 29: Physical channel reconfiguration, normal flow

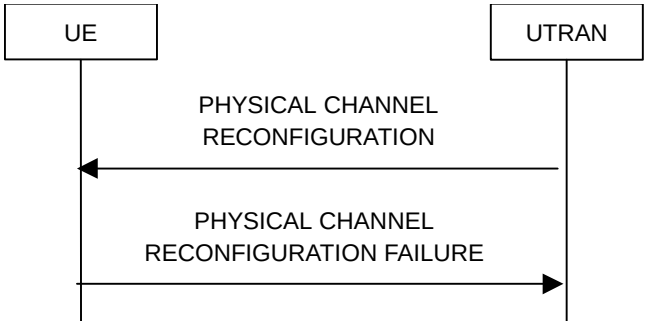

Figure 30: Physical channel reconfiguration, failure case

8.2.2.1 General

Reconfiguration procedures include radio bearer reconfiguration procedure, transport channel reconfiguration procedure and physical channel reconfiguration procedure. The radio bearer reconfiguration procedure is used to reconfigure parameters for a radio bearer or the signalling link to reflect a change in QoS. The transport channel reconfiguration procedure is used to reconfigure transport channel parameters. The physical channel reconfiguration procedure is used to establish, reconfigure and release physical channels. While doing so, these procedures may perform a hard handover, see 8.3.5.

8.2.2.2 Initiation

To initiate the procedure, UTRAN should:

- configure new radio links in any new physical channel configuration;
- start transmission and reception on the new radio links;
- transmit a RADIO BEARER RECONFIGURATION or TRANSPORT CHANNEL RECONFIGURATION or PHYSICAL CHANNEL RECONFIGURATION message on the downlink DCCH using AM or UM RLC.
- if the reconfiguration procedure is simultaneous with SRNS relocation procedure, and ciphering and/or integrity protection are activated:

- transmit new ciphering and/or integrity protection information to be used after reconfiguration.

- if transport channels are added, reconfigured or deleted in uplink and/or downlink, the UTRAN should:
  - set TFCS according to the new transport channel(s).

- if transport channels are added or deleted in uplink and/or downlink, the UTRAN should:
  - send the RB Mapping Info for the new configuration

In the Radio Bearer Reconfiguration procedure UTRAN should indicate that uplink transmission shall be suspended on certain bearers. Uplink transmission on a radio bearer used by the RRC signalling should not be suspended.

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

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

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

8.2.2.4 Reception of a RADIO BEARER RECONFIGURATION or TRANSPORT CHANNEL RECONFIGURATION or PHYSICAL CHANNEL RECONFIGURATION message by the UE in CELL_FACH state

Upon reception of a RADIO BEARER RECONFIGURATION or TRANSPORT CHANNEL RECONFIGURATION or PHYSICAL CHANNEL RECONFIGURATION message in CELL_FACH state, the UE shall perform actions specified below:

- store the received UE Information Elements, RB Information Elements, TrCH Information Elements and PhyCH information elements in the variable ORDERED_CONFIG;

- act upon all received information elements as specified in 8.6, unless specified otherwise in the following.

The UE shall:

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

If neither the IE "PRACH info" nor the IE "Uplink DPCH info" is included and the UE will be in CELL_FACH state at the conclusion of this procedure, 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 and the UE will be in CELL_FACH state at the conclusion of this procedure, 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 then the UE shall act upon the IE "PDSCH code mapping" as specified in Subclause 8.6 and:

- infer that the PDSCH will be transmitted from the cell from which the downlink DPCH is transmitted (there being only one link in the active set).

The UE shall use the physical channel(s) applicable to the state in which it will be at the conclusion of this procedure as specified below.

- if the UE will be in CELL_FACH state at the conclusion of this procedure:
  - if the IE "TFS" is neither included nor previously stored in the UE for that transport channel(s):
    - use the TFS given in system information;
  - if none of the TFS stored is compatible with the physical channel to be used:

- delete stored TFS;
- use the TFS given in system information;

The UE shall enter a state according to 8.5.7.

If the UE will be in CELL_DCH state at the conclusion of this procedure the UE shall:

- include the IE "COUNT-C activation time" in the RADIO BEARER RECONFIGURATION COMPLETE or TRANSPORT CHANNEL RECONFIGURATION COMPLETE or PHYSICAL CHANNEL RECONFIGURATION COMPLETE ~~RADIO BEARER SETUP COMPLETE~~ message. The UE shall specify a CFN value other than the default, "Now" for this IE

In case of reception of a RADIO BEARER RECONFIGURATION message, the UE shall:

- if the UE is not entering CELL_PCH or URA_PCH:
  - transmit a RADIO BEARER RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC when the new configuration is in place. In particular:
    - transmit the COMPLETE message using the new configuration;
- if the UE is entering CELL_PCH or URA_PCH:
  - transmit the COMPLETE message on the uplink DCCH using AM RLC and in particular:
    - transmit the COMPLETE message using the old configuration;

In case of reception of a TRANSPORT CHANNEL RECONFIGURATION message, the UE shall:

- transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.

In case of reception of a PHYSICAL CHANNEL RECONFIGURATION message, the UE shall:

- transmit a PHYSICAL CHANNEL RECONFIGURATION 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 successful delivery of the RADIO BEARER RECONFIGURATION COMPLETE or TRANSPORT CHANNEL RECONFIGURATION COMPLETE or PHYSICAL CHANNEL RECONFIGURATION COMPLETE message has been confirmed by RLC, the UE shall:

- enter a state according to subclause 8.5.7
- if the UE ends up in the CELL_PCH or URA_PCH state:
  - delete its C-RNTI.
- clear the variable ORDERED_CONFIG;
- clear the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO and the procedure ends.

8.2.2.5 Reception of a RADIO BEARER RECONFIGURATION COMPLETE OR TRANSPORT CHANNEL RECONFIGURATION COMPLETE or PHYSICAL CHANNEL RECONFIGURATION COMPLETE message by the UTRAN

When UTRAN has received the RADIO BEARER RECONFIGURATION COMPLETE TRANSPORT CHANNEL RECONFIGURATION COMPLETE or PHYSICAL CHANNEL RECONFIGURATION COMPLETE message, UTRAN may delete the old configuration.

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

If the IE "UL Timing Advance" is included, UTRAN shall evaluate the timing advance value that the UE has to use in the new cell after handover.

If the IE “COUNT-C activation time” is included, UTRAN should only begin incrementing the COUNT-C for radio bearers that are mapped on transparent mode RLC at the CFN ~~at the CFN~~ as indicated in this IE.

The procedure ends on the UTRAN side.

8.2.3 Radio bearer release

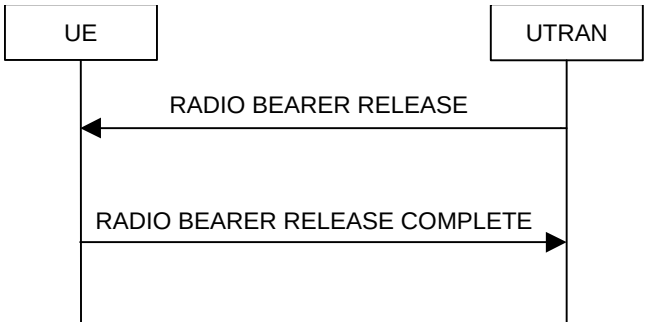

Figure 31: Radio Bearer Release, normal case

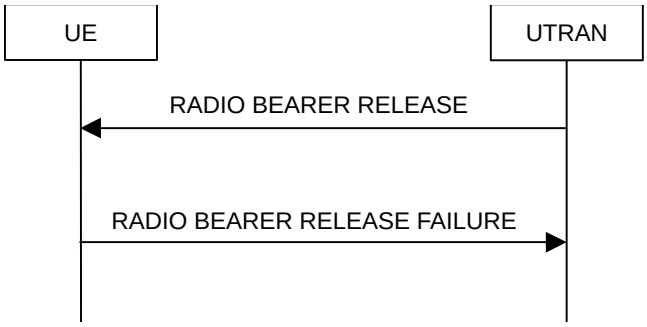

Figure 32: Radio Bearer Release, UE reverts to old configuration

8.2.3.1 General

The purpose of this procedure is to release existing radio bearer(s). While doing so, the procedure may perform a hard handover, see 8.3.5.

8.2.3.2 Initiation

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

To initiate the procedure, UTRAN:

- may configure new radio links in any new physical channel configuration and start transmission and reception on the new radio links;
- transmits a RADIO BEARER RELEASE message on the downlink DCCH using AM or UM RLC.

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

- set TFCS according to the new transport channel(s).

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

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

8.2.3.3 Reception of RADIO BEARER RELEASE by the UE

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

Upon reception of a RADIO BEARER RELEASE message the UE shall perform the following:

- store the received UE Information Elements, RB Information Elements, TrCH Information Elements and PhyCH information elements in the variable ORDERED_CONFIG;
- act upon all received information elements as specified in 8.6, unless specified otherwise in the following:
  - for the released radio bearer(s):
    - delete the information about the radio bearer from the variable ESTABLISHED_RABS;
    - when all radio bearers belonging to the same radio access bearer have been released:
      - indicate release of the radio access bearer to the upper layer entity using the CN domain identity together with the RAB identity stored in the variable ESTABLISHED_RABS;
      - delete all information about the radio access bearer from the variable ESTABLISHED_RABS;
  - for all remaining radio bearer(s):
    - use the multiplexing option applicable for the transport channels to be used;
    - configure MAC multiplexing if that is needed in order to use appropriate 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;

The UE may first release the current physical channel configuration and shall then establish a new physical channel configuration according to 8.6 and the following. The UE shall:

- if neither the IE "PRACH info" nor the IE "Uplink DPCH info" is included and the UE will be in CELL_FACH state at the conclusion of this procedure:
  - 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 and the UE will be in CELL_FACH state at the conclusion of this procedure:
  - 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:
  - act upon the IE "PDSCH code mapping" as specified in subclause 8.6;
  - infer that the PDSCH will be transmitted from the cell from which the downlink DPCH is transmitted;
- use the physical channel(s) applicable to the state in which it will be at the conclusion of this procedure as specified below;
- if the UE will be in CELL_FACH state at the conclusion of this procedure:
  - if the IE "TFS" is neither included nor previously stored in the UE for that transport channel(s):
    - use the TFS given in system information.
  - if none of the TFS stored is compatible with the physical channel to be used:
    - delete stored TFS and use the TFS given in system information;

The UE shall enter a state according to 8.5.7.

If the UE will be in CELL_DCH state at the conclusion of this procedure the UE shall:

- include the IE "COUNT-C activation time" in the RADIO BEARER ~~SETUP~~RELEASE COMPLETE message. The UE shall specify a CFN value other than the default, "Now" for this IE.

If the RADIO BEARER RELEASE message is used to initiate a transition from CELL_DCH to CELL_FACH state and the IE "New C-RNTI" is not included the UE shall:

- perform a cell update procedure according to 8.3.1 before sending the RADIO BEARER RELEASE COMPLETE message.

The UE shall transmit a RADIO BEARER RELEASE COMPLETE message on the uplink DCCH using AM RLC when the new configuration is in place, with the exception below. 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.

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

If the RADIO BEARER RELEASE message is used to initiate a transition from CELL_DCH to CELL_PCH or to URA_PCH state, the RADIO BEARER RELEASE COMPLETE message shall be transmitted on the old configuration before the UE has completed the state transition.

When the successful delivery of the RADIO BEARER RELEASE COMPLETE message has been confirmed by RLC the UE shall:

- clear the variable ORDERED_CONFIG;
- clear the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO;
- resume data transmission on RB 3 and upwards if RLC-AM or RLC-UM is used on those radio bearers and the procedure ends.

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

When UTRAN has received the RADIO BEARER RELEASE COMPLETE message, UTRAN may delete any old configuration.

If the IE "UL Timing Advance" is included, UTRAN shall:

- evaluate the timing advance value that the UE has to use in the new cell after handover.

If the IE "COUNT-C activation time" is included, UTRAN should only begin incrementing the COUNT-C for radio bearers that are mapped on transparent mode RLC at the CFN as indicated in this IE.

The procedure ends on the UTRAN side.

8.3.1 Cell update

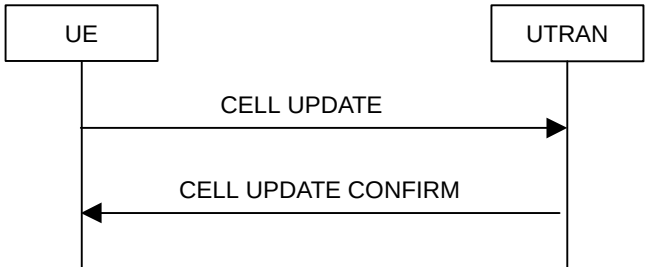

Figure 40: Cell update procedure, basic flow

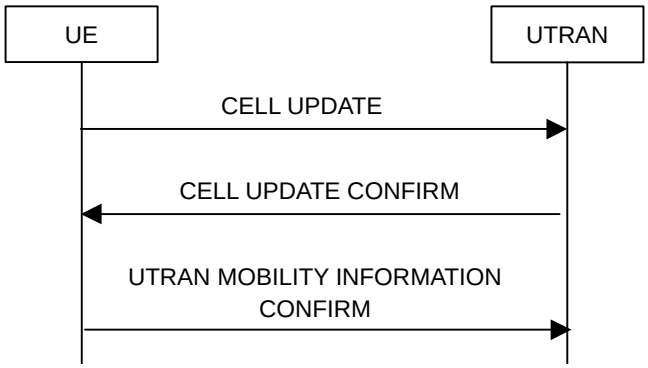

Figure 41: Cell update procedure with UTRAN mobility information

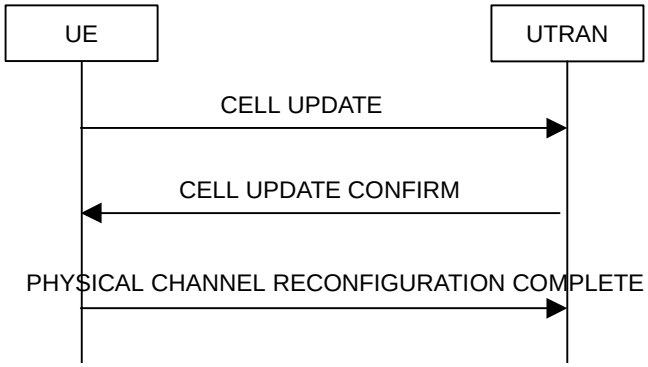

Figure 42: Cell update procedure with physical channel reconfiguration

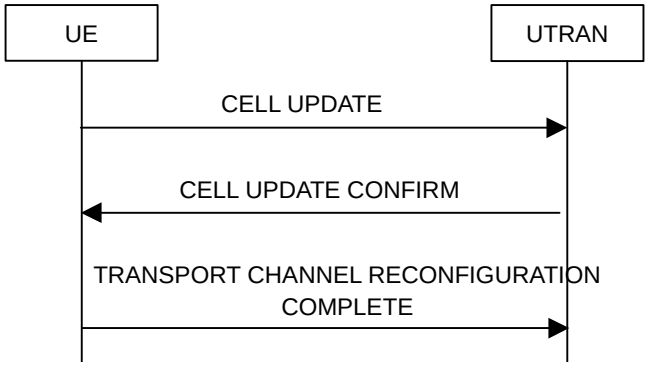

Figure 43: Cell update procedure with transport channel reconfiguration

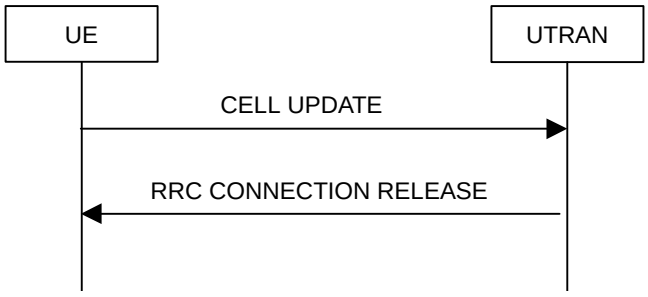

Figure 44: Cell update procedure, failure case

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. Secondly, the procedure may be used by the UE to indicate to the UTRAN a

transition from URA_PCH or CELL_PCH state to CELL_FACH state prior to transmitting uplink data. Thirdly, the procedure may also be used for supervision of the RRC connection, even if no cell reselection takes place. The cell update procedure can include the resetting of 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 shall initiate the cell update procedure in the following cases:

- Cell reselection: In CELL_FACH or CELL_PCH state, the UE selects another cell.
- Periodic cell update: In CELL_FACH and CELL_PCH state, the timer T305 expires while the UE detects "in the service area" (as specified in 8.5.9) and periodic cell updating has been required in IE "Information for periodical cell and URA update" in System Information Block Type 2.
- RB control response: The UE receives an RB control message initiating a transition from CELL_DCH to CELL_FACH state, but the message does not indicate which cell to camp on. Consequently the UE selects a cell autonomously.
- UL data transmission: In CELL_PCH state and URA_PCH state, the UE makes a state transition to CELL_FACH state in order to transmit UL data.
- Paging response: In CELL_PCH and URA_PCH state, the UE receives a PAGING TYPE 1 message as in subclause 8.1.2.3.
- Re-entering service area: In URA_PCH state, the UE has been out of service area and re-enters service area before T307 expires.

In order to initiate the cell update procedure, the UE shall :

- set the variable PROTOCOL_ERROR_INDICATOR to FALSE;
- move to CELL_FACH state, if not already in that state;
- consider the 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;
- transmit a CELL UPDATE message on the uplink CCCH;
- start timer T302 and reset counter V302.

The UE shall set the IEs in the CELL UPDATE as follows:

- indicate the reason for CELL update in the IE "CELL update cause" corresponding to the initiation cause as listed above;
- 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.
- If 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 UE shall set the IE "AM_RLC error indication". If the UE detects unrecoverable error in an AM RLC entity (for u-plane) for u-plane link, the UE shall set the IE "AM_RLC error indication (for u-plane)".
- The UE shall include the START values from each CN domain in CELL UPDATE message.

The UE shall include an intra-frequency measurement report in IE "Measured results on RACH", 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 (or type 11, if system information block type 12 is not being broadcast).

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" as specified in subclause 8.5.5, the UE shall

- start timer T307;
- re-select to a new cell, as described in [4].

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 an 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 may either:

- transmit a CELL UPDATE CONFIRM message on the downlink DCCH or optionally on the CCCH but only if ciphering is not required; or
- initiate an RRC connection release procedure (see subclause 8.1.4) by transmitting an RRC CONNECTION RELEASE message on the downlink CCCH.

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, the UE shall use old C-RNTI as a valid C-RNTI.

The UE shall act upon all received information elements as specified in 8.6, 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 that for the 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 a UTRAN MOBIITY INFORMATION CONFIRM 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 8.6.6.2 and 8.6.6.3.

  - 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 8.5.7 applied on the CELL UPDATE CONFIRM message.

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

In case the UE does not transit to 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 equal to or smaller 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 to another UTRA cell (including the previously serving cell) when waiting for the CELL UPDATE CONFIRM message, the UE shall check the value of V302 and:

- if V302 is equal to or smaller 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 UTRAN MOBILITY INFORMATION CONFIRM 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.

8.6.3.4 Ciphering mode info

The IE "Ciphering mode info" defines the new ciphering configuration. If the IE "Ciphering mode info" is present, the UE shall check the IE "Ciphering mode command" as part of the IE "Ciphering mode info", and perform the following:

- if IE "Ciphering mode command" has the value "start/restart", the UE shall:

  - start or restart ciphering, using the ciphering algorithm (UEA [3GPP TS 33.102]) indicated by the IE "Ciphering algorithm" as part of the new ciphering configuration. The new ciphering configuration shall be applied as specified below.

- set the variable CIPHERING_STATUS to "Started".

- if the IE "Ciphering mode command" has the value "stop", the UE shall

  - stop ciphering. The new ciphering configuration shall be applied as specified below

  - set the variable CIPHERING_STATUS to "Not started".

- in case the IE "Ciphering mode command" has the value "start/restart" or "stop", the new ciphering configuration shall be applied as follows:

  - if the IE "Ciphering ~~A~~activation time for DPCH" is present in the IE "Ciphering mode info", the UE shall apply the new configuration at that time for radio bearers using RLC-TM.

  - if the IE "Radio bearer downlink ciphering activation time info" is present in the IE "Ciphering mode info", the UE shall apply the following procedure for each radio bearer using RLC-AM and RLC-UM indicated by the IE "RB identity":

    - suspend data transmission on the radio bearer

    - store the "RLC send sequence number" for that radio bearer in the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO, at which time the new ciphering configuration shall be applied.

    - when the data transmission of that radio bearer is resumed, the UE shall switch to the new ciphering configuration according to the following:

      - use the old ciphering configuration for the transmitted and received RLC PDUs with RLC sequence number smaller than the corresponding RLC sequence number indicated in the IE "Radio bearer uplink ciphering activation time info" sent to UTRAN respectively in the received IE "Radio bearer downlink ciphering activation time info" received from UTRAN.

      - use the new ciphering configuration for the transmitted and received RLC PDUs with RLC sequence number greater than or equal to the corresponding RLC sequence number indicated in the IE "Radio bearer uplink ciphering activation time info" sent to UTRAN respectively in the received IE "Radio bearer downlink ciphering activation time info" received from UTRAN

      - for a radio bearer using RLC-AM, when the RLC sequence number indicated in the IE "Radio bearer downlink ciphering activation time info" is not included in the RLC transmission window, the UE may release the old ciphering configuration for that radio bearer.

If the IE "Ciphering mode info" is not present, the UE shall not change the ciphering configuration.

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 10.3.3.14	
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 10.3.3.36	START value to be used in this CN domain.
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 10.3.3.27	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
ProtErr	If the IE "Protocol error indicator" has the value "TRUE"

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 10.3.3.14	
Integrity protection mode info	OP		Integrity protection mode info 10.3.3.17	
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 10.3.3.34	
RLC reset indicator (for U-plane)	MD		RLC reset indicator 10.3.3.34	
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 <maxRBallRABs>		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 10.3.4.22	
PhyCH information elements				
Frequency info	MD		Frequency info 10.3.6.35	Default value is the existing value of frequency information
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 10.3.6.38	
PRACH Info (for RACH)	OP		PRACH Info (for RACH) 10.3.6.51	
Downlink radio resources				
Downlink information for one radio link	OP		Downlink information for each radio link 10.3.6.26	

Condition	Explanation
CCCH	This IE is only sent when CCCH is used and ciphering is not required

10.2.21 PHYSICAL CHANNEL RECONFIGURATION COMPLETE

This message is sent from the UE when a physical channel reconfiguration has been done.

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 10.3.3.14	
Uplink integrity protection activation info	OP		Integrity protection activation info 10.3.3.15	
CHOICE mode	MP			
>FDD				(no data)
>TDD				
>>Uplink Timing Advance	OP		Uplink Timing Advance 10.3.6.93	This information element shall be present in case of handover procedure if timing advance is enabled. Calculated timing advance value for the new cell after handover in a synchronous TDD network
RB Information elements				
COUNT-C activation time	OP		Activation time 10.3.3.1	Used for radio bearers mapped on RLC-TM. Only applicable if the UE is moving to CELL_DCH state due to this procedure
Radio bearer uplink ciphering activation time info	OP		RB activation time info 10.3.4.13	
RB with PDCP information list	OP	1 to <maxRBallRABs>		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 10.3.4.22	

10.2.26 RADIO BEARER RECONFIGURATION COMPLETE

This message is sent from the UE when a RB and signalling link reconfiguration has been done.

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 10.3.3.14	
Uplink integrity protection activation info	OP		Integrity protection activation info 10.3.3.15	
CHOICE mode	MP			
>FDD				(no data)
>TDD				

>>Uplink Timing Advance	OP		Uplink Timing Advance 10.3.6.93	This information element shall be present in case of handover procedure if timing advance is enabled. Calculated timing advance value for the new cell after handover in a synchronous TDD network
RB Information elements				
COUNT-C activation time	OP		Activation time 10.3.3.1	Used for radio bearers mapped on RLC-TM. Only applicable if the UE is moving to CELL_DCH state due to this procedure
Radio bearer uplink ciphering activation time info	OP		RB activation time info 10.3.4.13	
RB with PDCP information list	OP	1 to <maxRBallRABs>		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 10.3.4.22	

10.2.29 RADIO BEARER RELEASE COMPLETE

This message is sent from the UE when radio bearer release 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	
UE information elements				
Integrity check info	CH		Integrity check info 10.3.3.14	Integrity check info is included if integrity protection is applied
Uplink integrity protection activation info	OP		Integrity protection activation info 10.3.3.15	
CHOICE mode	MP			
>FDD				(no data)
>TDD				
>>Uplink Timing Advance	OP		Uplink Timing Advance 10.3.6.93	This information element shall be present in case of handover procedure if timing advance is enabled. Calculated timing advance value for the new cell after handover in a synchronous TDD network
RB Information elements				
COUNT-C activation time	OP		Activation time 10.3.3.1	Used for radio bearers mapped on RLC-TM. Only applicable if the UE is moving to CELL_DCH state due to this procedure
Radio bearer uplink ciphering activation time info	OP		RB activation time info 10.3.4.13	

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 10.3.3.14	
Uplink integrity protection activation info	OP		Integrity protection activation info 10.3.3.15	
CHOICE mode	OP			
>FDD				(no data)
>TDD				
>>Uplink Timing Advance	OP		Uplink Timing Advance 10.3.6.93	This information element shall be present in case of handover procedure if timing advance is enabled. Calculated timing advance value for the new cell after handover in a synchronous TDD network
START	OP		START 10.3.3.36	This information element is not needed for transparent mode RBs
RB Information elements				
COUNT-C activation time	OP		Activation time 10.3.3.1	Used for radio bearers mapped on RLC-TM. Only applicable if the UE is moving to CELL_DCH state due to this procedure
Radio bearer uplink ciphering activation time info	OP		RB activation time info 10.3.4.13	

10.2.35 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 10.3.3.14	
Uplink integrity protection activation info	OP		Integrity protection activation info 10.3.3.15	
CHOICE mode	OP			
>FDD				(no data)
>TDD				
>>Uplink Timing Advance	OP		Uplink Timing Advance 10.3.6.93	This information element shall be present in case of handover procedure if timing advance is enabled. Calculated timing advance value for the new cell after handover in a synchronous TDD network
START	OP		START 10.3.3.36	
RB Information elements				
~~COUNT-C activation time~~	~~OP~~		~~Activation time 10.3.3.1~~	~~Used for radio bearers mapped on RLC-TM. Only applicable if the UE is moving to CELL_DCH state due to this procedure~~
Radio bearer uplink ciphering activation time info	OP		RB activation time info 10.3.4.13	
RB with PDCP information list	OP	1 to <maxRBallRABs>		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 10.3.4.22	

10.2.52 TRANSPORT CHANNEL RECONFIGURATION COMPLETE

This message is sent from the UE when a transport channel reconfiguration has been done.

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 10.3.3.14	
Uplink integrity protection activation info	OP		Integrity protection activation info 10.3.3.15	
CHOICE mode	OP			
>FDD				(no data)
>TDD				
>>Uplink Timing Advance	OP		Uplink Timing Advance 10.3.6.93	This information element shall be present in case of handover procedure if timing advance is enabled. Calculated timing advance value for the new cell after handover in a synchronous TDD network
RB Information elements				
COUNT-C activation time	OP		Activation time 10.3.3.1	Used for radio bearers mapped on RLC-TM. Only applicable if the UE is moving to CELL_DCH state due to this procedure
Radio bearer uplink ciphering activation time info	OP		RB activation time info 10.3.4.13	
RB with PDCP information list	OP	1 to <maxRBallRABs>		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 10.3.4.22	

10.2.64 UTRAN MOBILITY INFORMATION CONFIRM

This message is used to confirm the new UTRAN mobility information for 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	
UE information elements				
Integrity check info	CH		Integrity check info 10.3.3.14	
Uplink integrity protection activation info	OP		Integrity protection activation info 10.3.3.15	
RB Information elements				
COUNT-C activation time	OP		Activation time 10.3.3.1	Used for radio bearers mapped on RLC-TM. Only applicable if the UE is moving to CELL_DCH state due to this procedure
Radio bearer uplink ciphering activation time info	OP		RB activation time info 10.3.4.13	
RB with PDCP information list	OP	1 to <maxRBallRABs>		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 10.3.4.22	

10.3.3.5 Ciphering mode info

This information element contains the ciphering specific security mode control information.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Ciphering mode command	MP		Enumerated (start/restart, stop)	
Ciphering algorithm	CV-*notStop*		Ciphering algorithm 10.3.3.4	
Ciphering aActivation time for DPCH	OP		Activation time 10.3.3.1	Used for radio bearers mapped on RLC-TM. Only applicable if the UE is already in CELL_DCH state
Radio bearer downlink ciphering activation time info	OP		RB activation time info, 10.3.4.13	Used for radio bearers mapped on RLC-AM or RLC-UM

Condition	Explanation
notStop	The IE is mandatory if the IE "Ciphering mode command" has the value "start/restart", otherwise the IE is not needed in the message.

10.3.4.13 RB activation time info

This IE contains the time, in terms of RLC sequence numbers, when a certain configuration shall be activated, for a number of radio bearers.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Radio bearer activation time	OP	1 to <maxRB>		
>RB identity	MP		RB identity 10.3.4.16	
>RLC sequence number	MP		Integer (0.. 4095)	RLC SN [TS 25.322]. Used for radio bearers mapped on RLC AM and UM

11.3.3 User equipment information elements

```
UserEquipment-IEs DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

    CN-DomainIdentity,
    IMEI,
    IMSI-GSM-MAP,
    LAI,
    P-TMSI-GSM-MAP,
    RAI,
    TMSI-GSM-MAP
FROM CoreNetwork-IEs

    RB-ActivationTimeInfoList
FROM RadioBearer-IEs

    FrequencyInfo,
    PowerControlAlgorithm,
    TGPSI
FROM PhysicalChannel-IEs

    InterSystemInfo
FROM Measurement-IEs

    ProtocolErrorInformation
FROM Other-IEs

    maxASC,
    maxCNdomains,
    maxDRACclasses,
    maxFrequencybands,
    maxPage1,
    maxSystemCapability
FROM Constant-definitions;


ActivationTime ::=                  INTEGER (0..255)
-- TABULAR : value 'now' always appear as default, and is encoded by absence of the field

BackoffControlParams ::=            SEQUENCE {
    n-AP-RetransMax                     N-AP-RetransMax,
    n-AccessFails                       N-AccessFails,
    nf-BO-NoAICH                        NF-BO-NoAICH,
    ns-BO-Busy                          NS-BO-Busy,
    nf-BO-AllBusy                       NF-BO-AllBusy,
    nf-BO-Mismatch                      NF-BO-Mismatch,
    t-CPCH                              T-CPCH
}

C-RNTI ::=                          BIT STRING (SIZE (16))

CapabilityUpdateRequirement ::=     SEQUENCE {
    ue-RadioCapabilityUpdateRequirement BOOLEAN,
    systemSpecificCapUpdateReqList      SystemSpecificCapUpdateReqList      OPTIONAL
}

CellUpdateCause ::=                 ENUMERATED {
                                        cellReselection,
                                        periodicCellUpdate,
                                        ul-DataTransmission,
```

```
                                        pagingResponse,
                                        rb-ControlResponse,
                                        re-enteredServiceArea,
                                        spare1, spare2 }

ChipRateCapability ::=              ENUMERATED {
                                        mcps3-84, mcps1-28 }

CipheringAlgorithm ::=              ENUMERATED {
                                        uea0, uea1, spare1, spare2,
                                        spare3, spare4, spare5, spare6,
                                        spare7, spare8, spare9, spare10,
                                        spare11, spare12, spare13, spare14 }

CipheringModeCommand ::=            CHOICE {
    startRestart                        CipheringAlgorithm,
    stopCiphering                       NULL
}

CipheringModeInfo ::=               SEQUENCE {
    cipheringModeCommand                CipheringModeCommand,
    -- TABULAR: The ciphering algorithm is included in
    -- the CipheringModeCommand.
    cipheringActivationTimeForDPCHactivationTimeForDPCH             ActivationTime
    OPTIONAL,
    rb-DL-CiphActivationTimeInfo        RB-ActivationTimeInfoList           OPTIONAL
}

CN-DRX-CycleLengthCoefficient ::=   INTEGER (6..12)

CN-PagedUE-Identity ::=             CHOICE {
    imsi-GSM-MAP                        IMSI-GSM-MAP,
    tmsi-GSM-MAP                        TMSI-GSM-MAP,
    p-TMSI-GSM-MAP                      P-TMSI-GSM-MAP,
    imsi-DS-41                          IMSI-DS-41,
    tmsi-DS-41                          TMSI-DS-41,
    spare1                              NULL,
    spare2                              NULL,
    spare3                              NULL
}

CompressedModeMeasCapability ::=    SEQUENCE {
    fdd-Measurements                    BOOLEAN,
    -- TABULAR: The IEs below are made optional since they are conditional based
    -- on another information element. Their absence corresponds to the case where
    -- the condition is not true.
    tdd-Measurements                    BOOLEAN                             OPTIONAL,
    gsm-Measurements                    GSM-Measurements                    OPTIONAL,
    multiCarrierMeasurements            BOOLEAN                             OPTIONAL
}


CPCH-Parameters ::=                 SEQUENCE {
    initialPriorityDelayList            InitialPriorityDelayList            OPTIONAL,
    backoffControlParams                BackoffControlParams,
    powerControlAlgorithm               PowerControlAlgorithm,
    -- TABULAR: TPC step size nested inside PowerControlAlgorithm
    dl-DPCCH-BER                        DL-DPCCH-BER
}

DL-DPCCH-BER ::=                    INTEGER (0..63)

DL-PhysChCapabilityFDD ::=          SEQUENCE {
    maxSimultaneousCCTrCH-Count         MaxSimultaneousCCTrCH-Count,
    maxNoDPCH-PDSCH-Codes               INTEGER (1..8),
    maxNoPhysChBitsReceived             MaxNoPhysChBitsReceived,
    supportForSF-512                    BOOLEAN,
    supportOfPDSCH                      BOOLEAN,
    simultaneousSCCPCH-DPCH-Reception   SimultaneousSCCPCH-DPCH-Reception
}

DL-PhysChCapabilityTDD ::=          SEQUENCE {
    maxSimultaneousCCTrCH-Count         MaxSimultaneousCCTrCH-Count,
    maxTS-PerFrame                      MaxTS-PerFrame,
    maxPhysChPerFrame                   MaxPhysChPerFrame,
    minimumSF                           MinimumSF-DL,
    supportOfPDSCH                      BOOLEAN,
    maxPhysChPerTS                      MaxPhysChPerTS
```

```
}

DL-TransChCapability ::=            SEQUENCE {
    maxNoBitsReceived                   MaxNoBits,
    maxConvCodeBitsReceived             MaxNoBits,
    turboDecodingSupport                TurboSupport,
    maxSimultaneousTransChs             MaxSimultaneousTransChsDL,
    maxReceivedTransportBlocks          MaxTransportBlocksDL,
    maxNumberOfTFC-InTFCS               MaxNumberOfTFC-InTFCS-DL,
    maxNumberOfTF                       MaxNumberOfTF
}

DRAC-SysInfo ::=                    SEQUENCE {
    transmissionProbability             TransmissionProbability,
    maximumBitRate                      MaximumBitRate
}

DRAC-SysInfoList ::=                SEQUENCE (SIZE (1..maxDRACclasses)) OF
                                        DRAC-SysInfo

DRX-Indicator ::=                   ENUMERATED {
                                        noDRX,
                                        drxWithCellUpdating,
                                        drxWithURA-Updating,
                                        spare1 }

ESN-DS-41 ::=                       BIT STRING (SIZE (32))

EstablishmentCause ::=              ENUMERATED {
                                        originatingConversationalCall,
                                        originatingStreamingCall,
                                        originatingInteractiveCall,
                                        originatingBackgroundCall,
                                        originatingSubscribedTrafficCall,
                                        terminatingConversationalCall,
                                        terminatingStreamingCall,
                                        terminatingInteractiveCall,
                                        terminatingBackgroundCall,
                                        emergencyCall,
                                        interSystemCellReselection,
                                        registration,
                                        detach,
                                        sms,
                                        callRe-establishment,
                                        spare1, spare2, spare3, spare4,
                                        spare5, spare6, spare7, spare8,
                                        spare9, spare10, spare11, spare12,
                                        spare13, spare14, spare15, spare16,
                                        spare17 }

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

GSM-Measurements ::=                SEQUENCE {
    gsm900                              BOOLEAN,
    dcs1800                             BOOLEAN,
    gsm1900                             BOOLEAN
}


ICS-Version ::=                     ENUMERATED {
                                        r99,
                                        spare1, spare2, spare3, spare4,
                                        spare5, spare6, spare7 }

IMSI-and-ESN-DS-41 ::=              SEQUENCE {
    imsi-DS-41                          IMSI-DS-41,
    esn-DS-41                           ESN-DS-41
}
```

```
IMSI-DS-41 ::=                      OCTET STRING (SIZE (5..7))

InitialPriorityDelayList ::=        SEQUENCE (SIZE (maxASC)) OF
                                        NS-IP

InitialUE-Identity ::=              CHOICE {
    imsi                                IMSI-GSM-MAP,
    tmsi-and-LAI                        TMSI-and-LAI-GSM-MAP,
    p-TMSI-and-RAI                      P-TMSI-and-RAI-GSM-MAP,
    imei                                IMEI,
    esn-DS-41                           ESN-DS-41,
    imsi-DS-41                          IMSI-DS-41,
    imsi-and-ESN-DS-41                  IMSI-and-ESN-DS-41,
    tmsi-DS-41                          TMSI-DS-41,
    spare1                              NULL,
    spare2                              NULL,
    spare3                              NULL,
    spare4                              NULL,
    spare5                              NULL,
    spare6                              NULL,
    spare7                              NULL,
    spare8                              NULL
}

IntegrityCheckInfo ::=              SEQUENCE {
    messageAuthenticationCode           MessageAuthenticationCode,
    rrc-MessageSequenceNumber           RRC-MessageSequenceNumber
}

IntegrityProtActivationInfo ::=     SEQUENCE {
    rrc-MessageSequenceNumberList       RRC-MessageSequenceNumberList
}

IntegrityProtectionAlgorithm ::=    ENUMERATED {
                                        uia1, spare1, spare2, spare3,
                                        spare4, spare5, spare6, spare7,
                                        spare8, spare9, spare10, spare11,
                                        spare12, spare13, spare14, spare15 }


IntegrityProtectionModeCommand ::=  CHOICE {
    startIntegrityProtection            SEQUENCE {
        integrityProtInitNumber             IntegrityProtInitNumber
    },
    modify                              SEQUENCE {
        dl-IntegrityProtActivationInfo      IntegrityProtActivationInfo
    },
    spare1                              NULL,
    spare2                              NULL
}

IntegrityProtectionModeInfo ::=     SEQUENCE {
    integrityProtectionModeCommand      IntegrityProtectionModeCommand,
    -- TABULAR: DL integrity protection activation info and Integrity
    -- protection intialization number have been nested inside
    -- IntegrityProtectionModeCommand.
    integrityProtectionAlgorithm        IntegrityProtectionAlgorithm        OPTIONAL
}

IntegrityProtInitNumber ::=         BIT STRING (SIZE (32))

LCS-Capability ::=                  SEQUENCE {
    standaloneLocMethodsSupported       BOOLEAN,
    ue-BasedOTDOA-Supported             BOOLEAN,
    networkAssistedGPS-Supported        NetworkAssistedGPS-Supported,
    gps-ReferenceTimeCapable            BOOLEAN,
    supportForIDL                       BOOLEAN
}


MaxHcContextSpace ::=                   ENUMERATED  {
                                            by512, by1024, by2048, by4096,
                                            by8192, spare1, spare2, spare3 }


MaximumAM-EntityNumberRLC-Cap ::=   ENUMERATED {
                                        am3, am4, am5, am6,
```

```
                                        am8, am16, am32, spare1 }

-- Actual value = IE value * 16
MaximumBitRate ::=                  INTEGER (0..32)


MaximumRLC-WindowSize ::=           ENUMERATED { mws2047, mws4095 }

MaxNoDPDCH-BitsTransmitted ::=      ENUMERATED {
                                        b600, b1200, b2400, b4800,
                                        b9600, b19200, b28800, b38400,
                                        b48000, b57600, spare1, spare2,
                                        spare3, spare4, spare5, spare6 }

MaxNoBits ::=                       ENUMERATED {
                                        b640, b1280, b2560, b3840, b5120,
                                        b6400, b7680, b8960, b10240,
                                        b20480, b40960, b81920, b163840,
                                        spare1, spare2, spare3 }


MaxNoPhysChBitsReceived ::=         ENUMERATED {
                                        b600, b1200, b2400, b3600,
                                        b4800, b7200, b9600, b14400,
                                        b19200, b28800, b38400, b48000,
                                        b57600, b67200, b76800, spare1 }

MaxNoSCCPCH-RL ::=                  ENUMERATED {
                                        rl1, spare1, spare2, spare3,
                                        spare4, spare5, spare6, spare7 }

MaxNumberOfTF ::=                   ENUMERATED {
                                        tf32, tf64, tf128, tf256,
                                        tf512, tf1024, spare1, spare2 }

MaxNumberOfTFC-InTFCS-DL ::=        ENUMERATED {
                                        tfc16, tfc32, tfc48, tfc64, tfc96,
                                        tfc128, tfc256, tfc512, tfc1024,
                                        spare1, spare2, spare3, spare4,
                                        spare5, spare6, spare7 }

MaxNumberOfTFC-InTFCS-UL ::=        ENUMERATED {
                                        tfc4, tfc8, tfc16, tfc32, tfc48, tfc64,
                                        tfc96, tfc128, tfc256, tfc512, tfc1024,
                                        spare1, spare2, spare3, spare4,
                                        spare5 }


-- TABULAR: Used range in Release99 is 1..224, values 225-256 are spare values
MaxPhysChPerFrame ::=               INTEGER (1..256)

MaxPhysChPerTimeslot ::=            ENUMERATED {
                                        ts1, ts2 }


MaxPhysChPerTS ::=                  INTEGER (1..16)

MaxSimultaneousCCTrCH-Count ::=     INTEGER (1..8)

MaxSimultaneousTransChsDL ::=       ENUMERATED {
                                        e4, e8, e16, e32 }

MaxSimultaneousTransChsUL ::=       ENUMERATED {
                                        e2, e4, e8, e16, e32,
                                        spare1, spare2, spare3 }

MaxTransportBlocksDL ::=            ENUMERATED {
                                        tb4, tb8, tb16, tb32, tb48,
                                        tb64, tb96, tb128, tb256, tb512,
                                        spare1, spare2, spare3,
                                        spare4, spare5, spare6 }

MaxTransportBlocksUL ::=            ENUMERATED {
                                        tb2, tb4, tb8, tb16, tb32, tb48,
                                        tb64, tb96, tb128, tb256, tb512,
                                        spare1, spare2, spare3,
                                        spare4, spare5 }
```

```
-- TABULAR: Used range in Release99 is 1..14
MaxTS-PerFrame ::=                  INTEGER (1..16)

-- TABULAR: This IE contains dependencies to UE-MultiModeRAT-Capability,
-- the conditional fields have been left mandatory for now.
MeasurementCapability ::=           SEQUENCE {
    downlinkCompressedMode              CompressedModeMeasCapability,
    uplinkCompressedMode                CompressedModeMeasCapability
}

MessageAuthenticationCode ::=       BIT STRING (SIZE (32))

MinimumSF-DL ::=                    ENUMERATED {
                                        sf1, sf16 }

MinimumSF-UL ::=                    ENUMERATED {
                                        sf1, sf2, sf4, sf8, sf16,
                                        spare1, spare2, spare3 }

MultiModeCapability ::=             ENUMERATED {
                                        tdd, fdd, fdd-tdd }


MultiRAT-Capability ::=             SEQUENCE {
    supportOfGSM                        BOOLEAN,
    supportOfMulticarrier               BOOLEAN
}


N-300 ::=                           INTEGER (0..7)

N-301 ::=                           INTEGER (0..7)

N-302 ::=                           INTEGER (0..7)

N-303 ::=                           INTEGER (0..7)

N-304 ::=                           INTEGER (0..7)

N-310 ::=                           INTEGER (0..7)

N-312 ::=                           ENUMERATED {
                                        s1, s50, s100, s200, s400,
                                        s600, s800, s1000 }


N-313 ::=                           ENUMERATED {
                                        s1, s2, s4, s10, s20,
                                         s50, s100, s200 }

N-315 ::=                           ENUMERATED {
                                        s1, s50, s100, s200, s400,
                                        s600, s800, s1000 }

N-AccessFails ::=                   INTEGER (1..64)

N-AP-RetransMax ::=                 INTEGER (1..64)

NetworkAssistedGPS-Supported ::=    ENUMERATED {
                                        networkBased,
                                        ue-Based,
                                        bothNetworkAndUE-Based,
                                        noNetworkAssistedGPS }

NF-BO-AllBusy ::=                   INTEGER (0..31)

NF-BO-NoAICH ::=                    INTEGER (0..31)

NF-BO-Mismatch ::=                  INTEGER (0..127)

NS-BO-Busy ::=                      INTEGER (0..63)

NS-IP ::=                           INTEGER (0..28)

P-TMSI-and-RAI-GSM-MAP ::=          SEQUENCE {
    p-TMSI                              P-TMSI-GSM-MAP,
    rai                                 RAI
}
```

```
PagingCause ::=                     ENUMERATED {
                                        terminatingConversationalCall,
                                        terminatingStreamingCall,
                                        terminatingInteractiveCall,
                                        terminatingBackgroundCall,
                                        sms,
                                        spare1, spare2, spare3 }

PagingRecord ::=                    CHOICE {
    cn-Page                             SEQUENCE {
        pagingCause                         PagingCause,
        cn-DomainIdentity                   CN-DomainIdentity,
        cn-pagedUE-Identity                 CN-PagedUE-Identity
    },
    utran-Page                          U-RNTI
        pagingCause                         PagingCause,
        cn-DomainIdentity                   CN-DomainIdentity,

    }
}

PagingRecordList ::=                SEQUENCE (SIZE (1..maxPage1)) OF
                                        PagingRecord


PDCP-Capability ::=                 SEQUENCE {
    losslessSRNS-RelocationSupport      BOOLEAN,
    supportForRfc2507                   CHOICE {
        notSupported                        NULL,
        supported                           MaxHcContextSpace
    }
}

PhysicalChannelCapability ::=       SEQUENCE {
    modeSpecificInfo                    CHOICE {
        fdd                                 SEQUENCE {
            downlinkPhysChCapability            DL-PhysChCapabilityFDD,
            uplinkPhysChCapability              UL-PhysChCapabilityFDD
        },
        tdd                                 SEQUENCE {
            downlinkPhysChCapability            DL-PhysChCapabilityTDD,
            uplinkPhysChCapability              UL-PhysChCapabilityTDD
        }
    }
}

ProtocolErrorCause ::=              ENUMERATED {
                                        asn1-ViolationOrEncodingError,
                                        messageTypeNonexistent,
                                        messageNotCompatibleWithReceiverState,
                                        ie-ValueNotComprehended,
                                        conditionalInformationElementError,
                                        messageExtensionNotComprehended,
                                        spare1, spare2 }

ProtocolErrorIndicator ::=          ENUMERATED {
                                        noError, errorOccurred }

ProtocolErrorIndicatorWithInfo ::= CHOICE {
    noError                             NULL,
    errorOccurred                       ProtocolErrorInformation
}

RadioFrequencyBand ::=              ENUMERATED {
                                        a, b, c,
                                        spare1 }

RadioFrequencyBandList ::=          SEQUENCE (SIZE (1..maxFrequencybands)) OF
                                        RadioFrequencyBand


Re-EstablishmentTimer ::=           CHOICE {
    t-314                               T-314Value,
    t-315                               T-315Value
}
```

```
RedirectionInfo ::=                 CHOICE {
    frequencyInfo                       FrequencyInfo,
    interSystemInfo                     InterSystemInfo,
    spare                               NULL
}

RejectionCause ::=                  ENUMERATED {
                                        congestion,
                                        unspecified,
                                        spare1, spare2 }


ReleaseCause ::=                    ENUMERATED {
                                        normalEvent,
                                        unspecified,
                                        pre-emptiveRelease,
                                        congestion,
                                        re-establishmentReject,
    directedsignallingconnectionre-establishment,
    userInactivity,
                                        spare1, spare2, spare3,
                                        spare4, spare5, spare6,
                                        spare7, spare8, spare9 }

RF-Capability ::=                   SEQUENCE {
    modeSpecificInfo                    CHOICE {
        fdd                             SEQUENCE {
            ue-PowerClass                   UE-PowerClass,
            txRxFrequencySeparation         TxRxFrequencySeparation
        },
        tdd                         SEQUENCE {
            ue-PowerClass               UE-PowerClass,
            radioFrequencyBandList      RadioFrequencyBandList,
            chipRateCapability          ChipRateCapability
        }
    }
}


RLC-Capability ::=                  SEQUENCE {
    totalRLC-AM-BufferSize              TotalRLC-AM-BufferSize,
    maximumRLC-WindowSize               MaximumRLC-WindowSize,
    maximumAM-EntityNumber              MaximumAM-EntityNumberRLC-Cap
}

RRC-MessageSequenceNumber ::=       INTEGER (0..15)


RRC-MessageSequenceNumberList ::=   SEQUENCE (SIZE (4..5)) OF
                                        RRC-MessageSequenceNumber

RRC-MessageTX-Count ::=             INTEGER (1..8)

S-RNTI ::=                          BIT STRING (SIZE (20))

S-RNTI-2 ::=                        INTEGER (0..1023)

SecurityCapability ::=              SEQUENCE {
    cipheringAlgorithmCap                   BIT STRING (SIZE (16)),
    integrityProtectionAlgorithmCap     BIT STRING (SIZE (16))
}


SimultaneousSCCPCH-DPCH-Reception ::= CHOICE {
    notSupported                        NULL,
    supported                           SEQUENCE {
        maxNoSCCPCH-RL                      MaxNoSCCPCH-RL,
        simultaneousSCCPCH-DPCH-DPDCH-Reception
                                            BOOLEAN
        -- The IE above is applicable only if IE Support of PDSCH = TRUE
    }
}

SRNC-Identity ::=                   BIT STRING (SIZE (12))


START ::=               BIT STRING (SIZE (20))
```

```
STARTList ::=                       SEQUENCE (SIZE (1..maxCNdomains)) OF
                                        STARTSingle


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

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

SystemSpecificCapUpdateReqList ::= SEQUENCE (SIZE (1..maxSystemCapability)) OF
                                        SystemSpecificCapUpdateReq


T-300 ::=                           ENUMERATED {
                                        ms100, ms200, ms400, ms600, ms800,
                                        ms1000, ms1200, ms1400, ms1600,
                                        ms1800, ms2000, ms3000, ms4000,
                                        ms6000, ms8000 }


T-301 ::=                           ENUMERATED {
                                        ms100, ms200, ms400, ms600, ms800,
                                        ms1000, ms1200, ms1400, ms1600,
                                        ms1800, ms2000, ms3000, ms4000,
                                        ms6000, ms8000 }


T-302 ::=                           ENUMERATED {
                                        ms100, ms200, ms400, ms600, ms800,
                                        ms1000, ms1200, ms1400, ms1600,
                                        ms1800, ms2000, ms3000, ms4000,
                                        ms6000, ms8000 }


T-303 ::=                           ENUMERATED {
                                        ms100, ms200, ms400, ms600, ms800,
                                        ms1000, ms1200, ms1400, ms1600,
                                        ms1800, ms2000, ms3000, ms4000,
                                        ms6000, ms8000 }

T-304 ::=                           ENUMERATED {
                                        ms100, ms200, ms400,
                                        ms1000, ms2000,
                                        spare1, spare2, spare3 }

T-305 ::=                           ENUMERATED {
                                        noUpdate, m5, m10, m30,
                                        m60, m120, m360, m720 }

T-306 ::=                           ENUMERATED {
                                        noUpdate, m5, m10, m30,
                                        m60, m120, m360, m720 }

T-307 ::=                           ENUMERATED {
                                        s5, s10, s15, s20,
                                        s30, s40, s50, spare1 }

T-308 ::=                           ENUMERATED {
                                        ms40, ms80, ms160, ms320 }

T-309 ::=                           INTEGER (1..8)

T-310 ::=                           ENUMERATED {
                                        ms40, ms80, ms120, ms160,
                                        ms200, ms240, ms280, ms320 }

T-311 ::=                           ENUMERATED {
                                        ms250, ms500, ms750, ms1000,
                                        ms1250, ms1500, ms1750, ms2000 }

T-312 ::=                           INTEGER (0..15)
```

```
T-313 ::=                           INTEGER (0..15)


T-314 ::=                           ENUMERATED {
                                        s0, s2, s4, s6, s8,
                                        s12, s16, s20 }


T-314Value ::=                      SEQUENCE {
    t-314                               T-314                               OPTIONAL
}


T-315 ::=                           ENUMERATED {
                                        s0, s10, s30, s60, s180,
                                        s600, s1200, s1800 }


T-315Value ::=                      SEQUENCE {
    t-315                               T-315                               OPTIONAL
}

T-CPCH ::=                          ENUMERATED {
                                        ct0, ct1 }

TMSI-and-LAI-GSM-MAP ::=            SEQUENCE {
    tmsi                                TMSI-GSM-MAP,
    lai                                 LAI
}

TMSI-DS-41 ::=                      OCTET STRING (SIZE (2..12))

TotalRLC-AM-BufferSize ::=          ENUMERATED {
                                        kb2, kb10, kb50, kb100,
                                        kb150, kb500, kb1000,
                                        spare1 }

-- Actual value = IE value * 0.125
TransmissionProbability ::=         INTEGER (1..8)

TransportChannelCapability ::=      SEQUENCE {
    dl-TransChCapability                DL-TransChCapability,
    ul-TransChCapability                UL-TransChCapability
}

TurboSupport ::=                    CHOICE {
    notSupported                        NULL,
    supported                           MaxNoBits
}

TxRxFrequencySeparation ::=         ENUMERATED {
                                        mhz190, mhz174-8-205-2,
                                        mhz134-8-245-2, spare1 }

U-RNTI ::=                          SEQUENCE {
    srnc-Identity                       SRNC-Identity,
    s-RNTI                              S-RNTI
}

U-RNTI-Short ::=                    SEQUENCE {
    srnc-Identity                       SRNC-Identity,
    s-RNTI-2                            S-RNTI-2
}


UE-ConnTimersAndConstants ::=       SEQUENCE {
-- Optional is used also for parameters for which the default value is the last one read in SIB1
    t-301                               T-301                               DEFAULT ms2000,
    n-301                               N-301                               DEFAULT 2,
    t-302                               T-302                               DEFAULT ms4000,
    n-302                               N-302                               DEFAULT 3,
    t-303                               T-303                               DEFAULT ms2000,
    n-303                               N-303                               DEFAULT 3,
    t-304                               T-304                               OPTIONAL,
    n-304                               N-304                               OPTIONAL,
    t-305                               T-305                               DEFAULT m30,
    t-306                               T-306                               DEFAULT m30,
    t-307                               T-307                               DEFAULT s30,
```

```
    t-308                               T-308                               OPTIONAL,
    t-309                               T-309                               OPTIONAL,
    t-310                               T-310                               DEFAULT ms160,
    n-310                               N-310                               DEFAULT 4,
    t-311                               T-311                               DEFAULT ms2000,
    t-312                               T-312                               DEFAULT 1,
    n-312                               N-312                               DEFAULT s1,
    t-313                               T-313                               OPTIONAL,
    n-313                               N-313                               OPTIONAL,
    t-314                               T-314                               OPTIONAL,
    t-315                               T-315                               OPTIONAL,
    n-315                               N-315                               OPTIONAL
}


UE-DCHTimersAndConstants ::=        SEQUENCE {
    t-304                               T-304                               DEFAULT ms2000,
    n-304                               N-304                               DEFAULT 2,
    t-308                               T-308                               DEFAULT ms160,
    t-309                               T-309                               DEFAULT 5,
    t-310                               T-310                               OPTIONAL,
    n-310                               N-310                               OPTIONAL,
    t-311                               T-311                               OPTIONAL,
    t-313                               T-313                               DEFAULT 3,
    n-313                               N-313                               DEFAULT s20,
    t-314                               T-314                               DEFAULT s12,
    t-315                               T-315                               DEFAULT s180,
    n-315                               N-315                               DEFAULT s1
}

UE-IdleTimersAndConstants ::=       SEQUENCE {
    t-300                               T-300,
    n-300                               N-300,
    t-312                               T-312,
    n-312                               N-312
}

UE-MultiModeRAT-Capability ::=      SEQUENCE {
    multiRAT-CapabilityList             MultiRAT-Capability,
    multiModeCapability                 MultiModeCapability
}

UE-PowerClass ::=                   INTEGER (1..4)

UE-RadioAccessCapability ::=        SEQUENCE {
    ics-Version                         ICS-Version,
    pdcp-Capability                     PDCP-Capability,
    rlc-Capability                      RLC-Capability,
    transportChannelCapability          TransportChannelCapability,
    rf-Capability                       RF-Capability,
    physicalChannelCapability           PhysicalChannelCapability,
    ue-MultiModeRAT-Capability          UE-MultiModeRAT-Capability,
    securityCapability                  SecurityCapability,
    lcs-Capability                      LCS-Capability,
    modeSpecificInfo                    CHOICE {
        fdd                                 SEQUENCE {
            measurementCapability               MeasurementCapability
        },
        tdd                                 NULL
    }
}

UL-PhysChCapabilityFDD ::=          SEQUENCE {
    maxNoDPDCH-BitsTransmitted          MaxNoDPDCH-BitsTransmitted,
    supportOfPCPCH                      BOOLEAN
}

UL-PhysChCapabilityTDD ::=          SEQUENCE {
    maxSimultaneousCCTrCH-Count         MaxSimultaneousCCTrCH-Count,
    maxTS-PerFrame                      MaxTS-PerFrame,
    maxPhysChPerTimeslot                MaxPhysChPerTimeslot,
    minimumSF                           MinimumSF-UL,
    supportOfPUSCH                      BOOLEAN
}

UL-TransChCapability ::=            SEQUENCE {
    maxNoBitsTransmitted                MaxNoBits,
    maxConvCodeBitsTransmitted          MaxNoBits,
```

```
    turboDecodingSupport                TurboSupport,
    maxSimultaneousTransChs             MaxSimultaneousTransChsUL,
    maxTransmittedBlocks                MaxTransportBlocksUL,
    maxNumberOfTFC-InTFCS               MaxNumberOfTFC-InTFCS-UL,
    maxNumberOfTF                       MaxNumberOfTF
}

URA-UpdateCause ::=                 ENUMERATED {
                                        changeOfURA,
                                        periodicURAUpdate,
                                        re-enteredServiceArea,
                                        spare1, spare2, spare3,
                                        spare4, spare5 }

UTRAN-DRX-CycleLengthCoefficient ::= INTEGER (3..12)

WaitTime ::=                        INTEGER (0..15)

END
```

3GPP TSG RAN WG2#17
Sophia Antipolis, France, Nov 13th-17th, 2000

Document R2-002275
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

CHANGE REQUEST

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

25.331	CR	610	Current Version:	3.4.1

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

For submission to:	TSG-RAN #10	for approval	X	strategic		(for SMG use only)
list expected approval meeting # here ↑		for information		non-strategic		

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	X	UTRAN / Radio	X	Core Network	

Source: TSG-RAN WG2 **Date:** 2000-09-22

Subject: Confirmation of signalling connection establishment

Work item:

Category: *(only one category shall be marked with an X)*

F	Correction	X	**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	X
				Release 00	

Reason for change:

The RRC specification does not include a confirmation to higher layers when a signalling connection is established.

The proposal is, in the Initial direct transfer procedure, to indicate a confirmation when the INITIAL DIRECT TRANSFER message is delivered to RLC for transmission.

1) This is in line with the new adopted principles on procedure ending.
2) If RLC fails to transmit the INITIAL DIRECT TRANSFER message, it will either lead to: a) release of the signalling connection in the UE due to a failure to perform recovery by means of cell update, or if the recovery succeeds but the INITIAL DIRECT TRANSFER message was lost, b) a timed out procedure in the upper layers.

Clauses affected: 8.1.8.2

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.

8.1.8.2 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 3.

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" (or "system information block type 11" if "system information block type 12" is not being broadcast).

When ~~the successful delivery of~~ the INITIAL DIRECT TRANSFER message has been ~~confirmed by RLC~~delivered to lower layers for transmission:

- the UE shall confirm the establishment of a signalling connection to the upper layer entity for the particular CN domain, and;
- the procedure ends.

3GPP RAN2 #17
Sophia Antipolis, France, 14-17 Nov 2000

Document R2-002387
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

CHANGE REQUEST

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

25.331	CR	611r2	Current Version:	3.4.1.

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

For submission to:	TSG-RAN #10	for approval	X	strategic		(for SMG use only)
list expected approval meeting # here ↑		for information		Non-strategic		

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	X	UTRAN / Radio	X	Core Network	

Source: TSG-RAN WG2 **Date:** 17-11-2000

Subject: RACH Sub-channel signalling

Work item:

Category: *(only one category shall be marked with an X)*

F	Correction	X	
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	X
Release 00	

Reason for change: The current signalling to the UE of sub-channels for each ASC imposes to allocate sub-channel in a consecutive way, which may lead to some collision/delay issues in relation with RACH preamble retransmission timing issue as specified in RAN WG1.

Clauses affected: 10.3.6.5, 11.3.6

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.

10.3.6.5 ASC setting

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Available signature Start Index	MP		Integer(0..15)	
Available signature End Index	MP		Integer(0..15)	
~~Available~~ Assigned S~~s~~ub-~~-~~ C~~c~~hannel ~~Start Index~~Number	MP		~~Integer(0..11)~~Bitstring(4)	Note
~~Available sub-channel End Index~~	~~MP~~		~~Integer(0..11)~~	

Note: The usage of this IE is conditional upon setting of "AICH transmission timing" IE. In case that "AICH transmission timing" = 0, the leftmost bit shall be ignored. The 3 rightmost (least significant bits) shall be repeated 4 times to form a bitstring of length 12 bits. In case that "AICH transmission timing" = 1, the bitstring shall be repeated 3 times to form a bitstring of length 12 bits.

In both cases, for the resulting bitstring (that includes the repetitions) bit-wise logical AND operation with the "Available Sub Channel number" IE included in "PRACH info (for RACH)" shall be performed.

The resulting bitstring, after logical AND operation, indicates the sub-channels assigned to the respective ASC. This bitstring shall be interpreted by the UE in the same way as specified for the "Available Sub-Channel Number" IE, see Sec. 10.3.6.51 (i.e. each bit set to 1 or 0 indicates availability or non-availability, respectively, of sub-channel number _x, x= 0 to 11, for the respective ASC).

11.3.6 Physical channel information elements

```
PhysicalChannel-IEs DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

    hiPDSCHidentities,
    hiPUSCHidentities,
    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,
    maxTS-1
FROM Constant-definitions
    ActivationTime
FROM UserEquipment-IEs

    AllowedTFI-List,
    CPCH-SetID,
    TFCS,
    TFCS-Identity,
    TFCS-IdentityPlain,
    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)
    assignedSubChannelNumber            BIT STRING (SIZE(4))
}

AccessServiceClassIndex ::=         INTEGER (1..8)
```

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Document R2-002449
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

CHANGE REQUEST

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25.331	CR	613r2	Current Version:	V3.4.1

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

For submission to:	TSG-RAN #10	for approval	X	strategic		(for SMG use only)
list expected approval meeting # here ↑		for information		non-strategic		

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 [X] Core Network [ ]

Source: TSG-RAN WG2 **Date:** 9 November, 2000

Subject: Assistance data delivery for UP

Work item:

Category: *(only one category shall be marked with an X)*

F	Correction	X	**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	X
				Release 00	

Reason for change: A UE may request assistance data from the network. At the moment this is only possible in combination with a measurement request. In order to enable to convey the assistance data, a new message is.

Clauses affected: 8.5.x; 10.1.1.2; 10.2.x; 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.

10.1.1.2 Extension of a message with additional information elements

In future releases of this protocol, RRC messages may be extended with new information elements. These additional information elements shall always be included at the end of the message.
UTRAN is able to control the behaviour of a UE receiving a message extended with a not comprehended additional information element by indicating for each extension the "criticality" which may be "ignore" or "reject". Therefore UTRAN indicates the criticality for extensions provided in all messages it sends towards the UE, with the exception of broadcast messages. In the direction from UE to UTRAN, not criticality information is included for protocol extensions added at the end of a message. This is shown in the following table. Furthermore, the table indicates at which level extensions are included for the SYSTEM INFORMATION message.

Type	Message
Extensions and criticality	ACTIVE SET UPDATE 10.2.1 ASSISTANCE DATA DELIVERY 10.2.x CELL UPDATE CONFIRM 10.2.5 DOWNLINK DIRECT TRANSFER 10.2.8 DOWNLINK OUTER LOOP CONTROL 10.2.9 HANDOVER TO UTRAN COMMAND 10.2.10 INTER SYSTEM HANDOVER COMMAND 10.2.13 MEASUREMENT CONTROL 10.2.15 PAGING TYPE 1 10.2.18 PAGING TYPE 2 10.2.19 PHYSICAL CHANNEL RECONFIGURATION 10.2.20 PHYSICAL SHARED CHANNEL ALLOCATION 10.2.23 RADIO BEARER RECONFIGURATION 10.2.25 RADIO BEARER RELEASE 10.2.28 RADIO BEARER SETUP 10.2.31 RRC CONNECTION RE- ESTABLISHMENT 10.2.34 RRC CONNECTION REJECT 10.2.37 RRC CONNECTION RELEASE 10.2.38 RRC CONNECTION SETUP 10.2.41 SECURITY MODE COMMAND 10.2.44 SIGNALLING CONNECTION RELEASE 10.2.47 SIGNALLING CONNECTION RELEASE REQUEST 10.2.48 TRANSPORT CHANNEL RECONFIGURATION 10.2.51 TRANSPORT FORMAT COMBINATION CONTROL 10.2.54 UE CAPABILITY ENQUIRY 10.2.56 UE CAPABILITY INFORMATION CONFIRM 10.2.58 UPLINK PHYSICAL CHANNEL CONTROL 10.2.60 URA UPDATE CONFIRM 10.2.62 UTRAN MOBILITY INFORMATION 10.2.63
Extensions	ACTIVE SET UPDATE COMPLETE 10.2.2 ACTIVE SET UPDATE FAILURE 10.2.3 CELL UPDATE 10.2.4 INITIAL DIRECT TRANSFER 10.2.12 INTER SYSTEM HANDOVER FAILURE 10.2.14 MEASUREMENT CONTROL FAILURE 10.2.16 MEASUREMENT REPORT 10.2.17 PHYSICAL CHANNEL RECONFIGURATION COMPLETE 10.2.21 PHYSICAL CHANNEL RECONFIGURATION FAILURE 10.2.22 PUSCH CAPACITY REQUEST 10.2.24 RADIO BEARER RECONFIGURATION COMPLETE 10.2.26 RADIO BEARER RECONFIGURATION FAILURE 10.2.27 RADIO BEARER RELEASE COMPLETE 10.2.29 RADIO BEARER RELEASE FAILURE 10.2.30 RADIO BEARER SETUP COMPLETE 10.2.32 RADIO BEARER SETUP FAILURE 10.2.33 RRC CONNECTION RE- ESTABLISHMENT COMPLETE 10.2.35 RRC CONNECTION RE- ESTABLISHMENT REQUEST 10.2.36 RRC CONNECTION RE- ESTABLISHMENT REJECT 10.2.37 RRC CONNECTION RELEASE COMPLETE 10.2.39 RRC CONNECTION REQUEST 10.2.40 RRC CONNECTION SETUP COMPLETE 10.2.42 RRC STATUS 10.2.43 SECURITY MODE COMPLETE 10.2.45 SECURITY MODE FAILURE 10.2.46 Master Information Block 10.2.49.8.1 System Information Block type 1 to System Information Block type 16 10.2.49.8.2 to 10.2.49.8.18 SYSTEM INFORMATION CHANGE INDICATION 10.2.50 TRANSPORT CHANNEL RECONFIGURATION COMPLETE 10.2.52 TRANSPORT CHANNEL RECONFIGURATION FAILURE 10.2.53 TRANSPORT FORMAT COMBINATION CONTROL FAILURE 10.2.55 UE CAPABILITY INFORMATION 10.2.57 UPLINK DIRECT TRANSFER 10.2.59 URA UPDATE 10.2.61 UTRAN MOBILITY INFORMATION CONFIRM 10.2.64 UTRAN MOBILITY INFORMATION FAILURE 10.2.65
None	SYSTEM INFORMATION 10.2.49

Type	Message
	First Segment 10.2.49.1 Subsequent or last Segment 10.2.49.3 Complete SIB 10.2.49.5 SIB content 10.2.49.8.1

NOTE 1: For the SYSTEM INFORMATION message protocol extensions are only possible at the level of system information blocks. If extension is needed at the level of SYSTEM INFORMATION, another message should be defined.

The "Extensions and criticality" may include both critical and non- critical extensions. Within the encoded message, the critical extensions shall always appear before non-critical extensions.

NOTE 2: The above implies that a UE may stop decoding upon the first not comprehended IE it encounters.

The UE shall comprehend all information elements within a message upto the revision of the protocol it supports for the concerned message.

8.5.x Assistance Data Delivery

Figure x

8.5.x.1 General

The purpose of the assistance data delivery procedure is to transfer UE positioning related assistance data from the UTRAN to the UE.

8.5.x.2 Initiation

The UTRAN may deliver UP related assistance data with a ASSISTANCE DATA DELIVERY message, which is transmitted on the downlink DCCH using AM RLC if RNC is requested to do so by the CN.

8.5.x.3 Reception of ASSISTANCE DATA DELIVERY message by the UE

Upon reception of a ASSISTANCE DATA DELIVERY message the UE shall:

- if IE "LCS OTDOA assistance data" is included, store the OTDOA assistance data
- if IE "LCS GPS assistance data" is included, store the GPS assistance data

8.5.x.4 Invalid ASSISTANCE DATA DELIVERY message

If the UE receives a ASSISTANCE DATA DELIVERY 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;
- include the IE "Protocol error information" with contents set to the value of the variable PROTOCOL_ERROR_INFORMATION.

- when the successful delivery of the RRC STATUS message has been confirmed by RLC, the UE shall resume normal operation as if the invalid ASSISTANCE DATA DELIVERY message has not been received.

10.2.xx ASSISTANCE DATA DELIVERY

This message is sent by UTRAN to convey UP assistance data to the UE.

RLC-SAP: AM

Logical channel: DCCH

Direction: UTRAN→UE

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
Assistance data Information elements				
LCS OTDOA assistance data	OP		LCS OTDOA assistance data 10.3.7.60	
LCS GPS assistance data	OP		LCS GPS assistance data 10.3.7.47	

11.1 General message structure

```
Class-definitions DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

    ActiveSetUpdate,
    ActiveSetUpdateComplete,
    ActiveSetUpdateFailure,
    AssistanceDataDelivery,
    CellUpdate,
    CellUpdateConfirm-CCCH,
    CellUpdateConfirm,
    CounterCheck,
    CounterCheckResponse,
    DownlinkDirectTransfer,
    DownlinkOuterLoopControl,
    HandoverToUTRANComplete,
    InitialDirectTransfer,
    InterSystemHandoverCommand-GSM,
    InterSystemHandoverCommand-CDMA2000,
    InterSystemHandoverFailure,
    MeasurementControl,
    MeasurementControlFailure,
    MeasurementReport,
    PagingType1,
    PagingType2,
    PhysicalChannelReconfiguration,
    PhysicalChannelReconfigurationComplete,
    PhysicalChannelReconfigurationFailure,
    PhysicalSharedChannelAllocation,
    PUSCHCapacityRequest,
    RadioBearerReconfiguration,
    RadioBearerReconfigurationComplete,
    RadioBearerReconfigurationFailure,
    RadioBearerRelease,
    RadioBearerReleaseComplete,
    RadioBearerReleaseFailure,
    RadioBearerSetup,
    RadioBearerSetupComplete,
```

```
    RadioBearerSetupFailure,
    RRCConnectionReEstablishment,
    RRCConnectionReEstablishment-CCCH,
    RRCConnectionReEstablishmentComplete,
    RRCConnectionReEstablishmentRequest,
    RRCConnectionReject,
    RRCConnectionRelease,
    RRCConnectionRelease-CCCH,
    RRCConnectionReleaseComplete,
    RRCConnectionReleaseComplete-CCCH,
    RRCConnectionRequest,
    RRCConnectionSetup,
    RRCConnectionSetupComplete,
    RRCStatus,
    SecurityModeCommand,
    SecurityModeComplete,
    SecurityModeFailure,
    SignallingConnectionRelease,
    SignallingConnectionReleaseRequest,
    SystemInformation-BCH,
    SystemInformation-FACH,
    SystemInformationChangeIndication,
    TransportChannelReconfiguration,
    TransportChannelReconfigurationComplete,
    TransportChannelReconfigurationFailure,
    TransportFormatCombinationControl,
    TransportFormatCombinationControlFailure,
    UECapabilityEnquiry,
    UECapabilityInformation,
    UECapabilityInformationConfirm,
    UplinkDirectTransfer,
    UplinkPhysicalChannelControl,
    URAUpdate,
    URAUpdateConfirm,
    URAUpdateConfirm-CCCH,
    UTRANMobilityInformation,
    UTRANMobilityInformationConfirm,
    UTRANMobilityInformationFailure
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,
    assistanceDataDelivery              AssistanceDataDelivery,
    cellUpdateConfirm                   CellUpdateConfirm,
    counterCheck                        CounterCheck,
    downlinkDirectTransfer              DownlinkDirectTransfer,
    downlinkOuterLoopControl            DownlinkOuterLoopControl,
    interSystemHandoverCommand-GSM      InterSystemHandoverCommand-GSM,
    interSystemHandoverCommand-CDMA2000 InterSystemHandoverCommand-CDMA2000,
    measurementControl                  MeasurementControl,
    pagingType2                         PagingType2,
    physicalChannelReconfiguration      PhysicalChannelReconfiguration,
    physicalSharedChannelAllocation     PhysicalSharedChannelAllocation,
    radioBearerReconfiguration          RadioBearerReconfiguration,
    radioBearerRelease                  RadioBearerRelease,
    radioBearerSetup                    RadioBearerSetup,
    rrcConnectionReEstablishment        RRCConnectionReEstablishment,
    rrcConnectionRelease                RRCConnectionRelease,
    securityModeCommand                 SecurityModeCommand,
    signallingConnectionRelease         SignallingConnectionRelease,
    transportChannelReconfiguration     TransportChannelReconfiguration,
    transportFormatCombinationControl   TransportFormatCombinationControl,
    ueCapabilityEnquiry                 UECapabilityEnquiry,
    ueCapabilityInformationConfirm      UECapabilityInformationConfirm,
```

```
    uplinkPhysicalChannelControl        UplinkPhysicalChannelControl,
    uraUpdateConfirm                    URAUpdateConfirm,
    utranMobilityInformation            UTRANMobilityInformation,
    extension                           NULL
}
```

11.2 PDU definitions

```
-- **************************************************
--
-- Assistance Data Delivery
--
-- **************************************************

AssistanceDataDelivery ::= CHOICE {
    v1                              SEQUENCE {
        v1-IEs                          AssistanceDataDelivery-v1-IEs,
        nonCriticalExtensions           SEQUENCE {}
    },
    criticalExtensions              SEQUENCE {}
}

AssistanceDataDelivery-v1-IEs ::= SEQUENCE {
    --Assistance Data Information Elements
    lcs-GPS-AssistanceData          LCS-GPS-AssistanceData              OPTIONAL,
    lcs-OTDOA-AssistanceData        LCS-OTDOA-AssistanceData            OPTIONAL
}
```

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Document R2-002382
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

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25.331	CR	614r1	Current Version:	3.4.1

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

For submission to:	TSG-RAN #10	for approval	X	strategic		(for SMG use only)
list expected approval meeting # here ↑		for information		non-strategic		

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	X	Core Network	

Source:	TSG-RAN WG2	**Date:** 7th November 2000
Subject:	Clarification of LCS measurements	
Work item:		

Category: *(only one category shall be marked with an X)*			**Release:**		
	F	Correction	X	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	X
				Release 00	

Reason for change:	The description of LCS measurements in chapter 14.12 was missing
Clauses affected:	14.12

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.

14.12 LCS measurements

~~The LCS measurement information are included in 14.10.1~~

14.12.1 LCS measurement quantity

The quantity to measure for LCS is dependant on the location method and the method type requested in the IE "LCS reporting quantity". In case the OTDOA method is requested, the UE shall measure the following quantities disregarding of the method type used:

- SFN-SFN observed time difference

If the Assisted GPS method is requested, the UE has to request its internal GPS receiver to make measurements. The measurements to be made by the GPS receiver are not within the scope of this section.

If it is indicated in the IE "LCS reporting quantity" to report the GPS timing of the cell, the UE shall measure the following quantity:

- UE GPS timing of cell frames for LCS

14.12.2 LCS reporting quantity

The quantity to report is also dependant on the location method and method type requested in the IE "LCS reporting quantity". If the method type is set to "UE based", the IE "LCS Position" has to be included in the report.

In case the method type is set to "UE assisted", the following IEs have to be included in the report:

- IE "LCS OTDOA measurement" in case the OTDOA location method is requested.
- IE "LCS GPS measurement" in case the GPS location method is requested.

14.12.3 LCS reporting events

In the LCS reporting criteria field in the Measurement Control messages, the UTRAN notifies the UE of which events should trigger a measurement report. LCS reporting events that can trigger a report are given below. The content of the measurement report is dependant on the location method and method type requested in the IE "LCS reporting quantity" of the Measurement Control message and is described in detail in [18].

14.12.3.1 Reporting Event 7a: The UE position changes more than an absolute threshold

When this event is ordered by UTRAN in a measurement control message, the UE shall send a measurement report when the UE changes its position compared to the last reported position more than a predefined threshold. This event is used for UE-based methods only.

14.12.3.2 Reporting Event 7b: SFN-SFN measurement changes more than an absoulte threshold

When this event is ordered by UTRAN in a measurement control message, the UE shall send a measurement report when the SFN-SFN time difference measurement of any measured cell changes more than a predefined threshold. This event is primarily used for UE-assisted methods, but can be used also for UE-based methods.

14.12.3.3 Reporting Event 7c: GPS time and SFN time have drifted apart more than an absolute threshold

When this event is ordered by UTRAN in a measurement control message, the UE shall send a measurement report when the GPS Time Of Week and the SFN timer have drifted apart more than a predefined threshold. This event is primarily used for UE-assisted methods, but can be used also for UE-based methods.

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Sophia Antipolis, France, Nov 14th to 17th, 2000

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e.g. for 3GPP use the format TP-99xxx
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25.331	CR	615r2	Current Version:	3.4.1

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

For submission to:	TSG-RAN #10	for approval	X	strategic		(for SMG use only)
list expected approval meeting # here ↑		For information		non-strategic		

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	X	UTRAN / Radio	X	Core Network	

Source: TSG-RAN WG2 **Date:** 2000-11-13

Subject: Configuration of RLC PDU sizes for logical channels

Work item:

Category: *(only one category shall be marked with an X)*

F	Correction	X	**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	X
				Release 00	

Reason for change:
Currently there are no means to signal the RLC PDU sizes the UE shall use for a certain logical channel when MAC multiplexing is used. The reason is that the RLC PDU sizes are signalled per transport channel and not per logical channel. Thus, the UE will not know what RLC PDU sizes are valid for which RLC entities.
It is proposed to include a list of RLC sizes into the RB mapping info and a list of logical channels into the Transport Format Set to allow the configuration of RLC Sizes for certain logical channels. For efficiency reasons the structure of the Transport Format Set is slightly changed.

Clauses affected: 8.6.4.1, 8.6.5.1, 10.3.4.21, 10.3.5.23, ASN.1

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.

8.6.4 Radio bearer information elements

8.6.4.1 RB mapping info

If the IE "RB identity" and the IE "RB mapping info" are included, the UE shall, for each transport channel in each multiplexing option of that RB:

- if a “Transport format set” for that transport channel is included in the same message, and the value (index) of any IE “RLC size index” in the IE “RLC size index list” does not correspond to an “RLC size” in the IE transport format set of that transport channel given in the message, or,
- if a “Transport format set” for that transport channel is not included in the same message, and the value (index) of any IE “RLC size index” in the IE “RLC size index list” does not correspond to an “RLC size” in the stored transport format set of that transport channel:
  - keep the previously stored multiplexing options for that RB;
  - set the variable INVALID_CONFIGURATION to TRUE;
- else:
  - for each RB:
    - delete all previously stored multiplexing options for that radio bearer;
    - store each new multiplexing option for that radio bearer;
  - use the multiplexing options applicable for the transport channels to be used;
  - configure MAC multiplexing if that is needed in order to use those transport channels;
  - use "MAC logical channel priority" when selecting TFC in MAC;

8.6.4.2 RLC Info

If the IE "RB identity" and the IE "RLC Info" are included, the UE shall:

- Configure the transmitting and receiving RLC entities in the UE for that radio bearer accordingly.

8.6.4.3 PDCP Info

If the IEs "RB identity" and "PDCP info" are included, the UE shall:

- Configure the PDCP entity for that radio bearer accordingly.

8.6.5 Transport channel information elements

8.6.5.1 Transport Format Set

If the IE "transport channel identity" and the IE "Transport format set" is included, the UE shall, for the indicated transport channel:

- if the value (index) of any IE “RB identity” (and "Logical Channel" for RB's using two UL logical channels) in the IE “Logical channel list” does not correspond to a logical channel indicated to be mapped onto this transport channel in any RB multiplexing option (either included in the same message or previously stored and not changed by this message):
  - keep the transport format set for that that transport channel;
  - set the variable INVALID_CONFIGURATION to TRUE;
- else:

- store the transport format set for that transport channel.;

- If the IE "Transport format Set" has the choice "Transport channel type" set to "Dedicated transport channel", the UE shall:

  - Calculate the transport block size for all transport formats in the TFS using the following

    TB size = RLC PDU size + MAC header size,

  where:

  - MAC header size is calculated according to 3G TS 25.321 if MAC multiplexing is used. Otherwise it is 0 bits.

The UTRAN should not assign transport formats with different “RLC Size” to any logical channel transferring data using AM RLC. If an AM RLC entity is mapped to two logical channels, UTRAN may configure more than one “RLC Size” for the logical channel transferring control PDUs only.

8.6.5.2 Transport format combination set

If the IE "Transport format combination set" is included, the UE shall for that direction (uplink or downlink):

- remove a previously stored transport format combination set if this exists;
- store the new transport format combination set present in the IE "Transport format combination set";
- start to respect those transport format combinations.

For downlink CCTrCHs if no TFCS is stored in the UE the UE shall consider all possible transport format combinations and calculate the possible TFCI values according to the IE transport format combination set.

For downlink CCTrCHs if a TFCS is stored in the UE and

- if the IE "Transport format combination set" is not included and transport channels are deleted in the message, the UE shall:
  - remove the affected transport format combinations from the transport format combination set, recalculate the TFCI values and start to respect those transport format combinations
- if the IE "Transport format combination set" is not included and transport channels are added in the message, the UE shall:
  - consider all possible new combinations to be valid and recalculate the TFCI values and start to respect those transport format combinations. In TDD the new transport format combinations are considered to belong to the TFCS with the ID 1 of DCH type.
- if the IE "Transport format combination set" is not included and transport channels are replaced the UE shall:
  - consider all possible transport format combinations to be valid and calculate the TFCI values accordingly.

8.6.5.3 Transport format combination subset

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

- restrict the transport format combination set in the uplink to that transport format combination subset. If the transport format combination subset indicates the "full transport format combination set" any restriction on transport format combination set is released and the UE may use the full transport format combination set.

10.3.4.21 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 uplink 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]
>>Uplink transport channel type	MP		Enumerated(DCH,RACH, CPCH,USCH)	CPCH is FDD only USCH is TDD only
>>ULTransport channel identity	CV-*UL-DCH/USCH*		Transport channel identity 10.3.5.18	This is the ID of a DCH or USCH (TDD only) that this RB could be mapped onto.
>>Logical channel identity	OP		Integer(1..15)	This parameter is used to distinguish logical channels multiplexed by MAC on a transport channel.
>>CHOICE *RLC size list*	MP			The RLC sizes that are allowed for this logical channel
>>>All			Null	All RLC sizes listed in the *Transport Format Set*. 10.3.5.23
>>>Configured			Null	The RLC sizes configured for this logical channel in the *Transport Format Set*. 10.3.5.23 if present in this message or in the previously stored configuration otherwise
>>>Explicit List		1 to <maxTF>		Lists the RLC sizes that are valid for the logical channel.
>>>>RLC size index	MP		Integer(1..maxTF)	The integer number is a reference to the *RLC size* which arrived at that position in the *Transport Format Set* 10.3.5.23
>>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)	[see 25.321]. Default value is 0.
>Number of downlink RLC logical channels	CV-*DL-RLC info*	1 to MaxLoCHperRLC		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-*		Transport	

	DCH/DSCH		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 uplink RLC logical channels" in IE "RB mapping info" is 2, then this is present. Otherwise this IE is not needed.
UL-DCH/USCH	If IE "Uplink transport channel type" is equal to "DCH" or "USCH" (TDD only) this IE is 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.

10.3.5.23 Transport Format Set

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE *Transport channel type*	MP			
>Dedicated transport channels				The transport channel that is configured with this TFS is of type DCH
>>Dynamic Transport Format Information	MP	1 to <maxTF>		~~The first instance of the parameter *Dynamic transport format information* correspond to Transport format 0 for this transport channel, the second to transport format 1 and so on.~~Note
>>>RLC Size	MP		Integer(0..4992)	Unit is bits
>>>Number of TBs and TTI List	MP	1 to <maxTF>		Present for every valid number of TB's (and TTI) for this RLC Size.
>>>>Transmission Time Interval	CV-dynamicTTI		Integer(10,20,40,80)	ms 4 spare values are needed Criticality reject
>>>>Number of Transport blocks	MP		Integer(0..512)	Note
~~>>>RLC Size~~	~~MP~~		~~Integer(0..4992)~~	~~Unit is bits~~
>>>CHOICE *Logical Channel List*	MP			The logical channels that are allowed to use this RLC Size
>>>>ALL			Null	All logical channels mapped to this transport channel.
>>>>Configured			Null	The logical channels configured to use this RLC size in the *RB mapping info*. 10.3.4.21 if present in this message or in the previously stored configuration otherwise
>>>>Explicit List		1 to 15		Lists the logical channels that are allowed to use this RLC size.
>>>>>RB Identity	MP		RB identity 10.3.4.16	
>>>>>LogicalChannel	CH-UL-RLCLogicalChannels		Integer(0..1)	Indicates the relevant UL logical channel for this RB. "0" corresponds to the first, "1" corresponds to the second UL logical channel configured for this RB in the IE "RB mapping info".
>>Semi-static Transport Format Information	MP		Semi-static Transport Format Information 10.3.5.11	
>Common transport channels				The transport channel that is configured with this TFS is of a type not equal to DCH
>>Dynamic Transport Format Information	MP	1 to <maxTF>		~~The first instance of the parameter *Dynamic transport format information* correspond to Transport format 0 for this transport channel, the second to transport format 1 and so on.~~Note
>>>RLC Size	MP		Integer(0..49	Unit is bits

Information Element/Group name	Need	Multi	Type and reference	Semantics description
			92)	
>>>Number of TBs and TTI List	MP	1 to <maxTF>		Present for every valid number of TB's (and TTI) for this RLC Size.
>>>Number of Transport blocks	MP		Integer(0..512)	Note
~~>>>RLC Size~~	~~MP~~		~~Integer(0..4992)~~	~~Unit is bits~~
>>>CHOICE mode	MP			
>>>>FDD				(no data)
>>>>TDD				
>>>>> Transmission Time Interval	CV-dynamicTTI		Integer(10,20,40,80)	ms 4 spare values needed. Criticality reject
>>>CHOICE *Logical Channel List*	MP			The logical channels that are allowed to use this RLC Size
>>>>ALL			Null	All logical channels mapped to this transport channel.
>>>>Configured			Null	The logical channels configured to use this RLC size in the *RB mapping info*. 10.3.4.21 if present in this message or in the previously stored configuration otherwise
>>>>Explicit List		1 to 15		Lists the logical channels that are allowed to use this RLC size.
>>>>>RB Identity	MP		RB identity 10.3.4.16	
>>>>>LogicalChannel	CV-UL-RLCLogicalChannels		Integer(0..1)	Indicates the relevant UL logical channel for this RB. "0" corresponds to the first, "1" corresponds to the second UL logical channel configured for this RB in the IE "RB mapping info".
>>Semi-static Transport Format Information	MP		Semi-static Transport Format Information 10.3.5.11	

Condition	Explanation
dynamicTTI	This IE is included if dynamic TTI usage is indicated in IE Transmission Time Interval in Semi-static Transport Format Information. Otherwise it is not needed.
UL-RLCLogicalChannels	If "Number of uplink RLC logical channels" in IE "RB mapping info" in this message is 2 or the IE "RB mapping info" is not present in this message and 2 UL logical channels are configured for this RB, then this IE is present. Otherwise this IE is not needed.

NOTE: The first instance of the parameter *Number of TBs and TTI List* within the *Dynamic transport format information* correspond to transport format 0 for this transport channel, the second to transport format 1 and so on. The total number of configured transport formats for each transport channel does not exceed <maxTF>.

NOTE: The parameter "rate matching attribute" is in line with the RAN WG1 specifications. However, it is not currently in line with the description in 25.302.

NOTE: For dedicated channels, 'RLC size' reflects RLC PDU size. In FDD for common channels 'RLC size' reflects actual TB size. In TDD for common channels since MAC headers are not octet aligned, to calculate TB size the MAC header bit offset is added to the specified size (similar to the dedicated case). Therefore for TDD DCH TrCHs the 4 bit C/T is added if MAC multiplexing is applied, for FACH the 3 bit TCTF offset is added and for RACH the 2 bit TCTF offset is added.

NOTE: If the number of transport blocks <> 0, and Optional IE "CHOICE RLC mode" or "CHOICE Transport block size is absent, it implies that no RLC PDU data exists but only parity bits exist. If the number of transport blocks = 0, it implies that neither RLC PDU data nor parity bits exist.

11.3.4 Radio bearer information elements

```
RadioBearer-IEs DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

    CN-DomainIdentity,
    NAS-Synchronisation-Indicator,
    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-InformationReconfigList ::=     SEQUENCE (SIZE (1.. maxRABsetup)) OF
                                        RAB-InformationReconfig

RAB-InformationReconfig ::=         SEQUENCE {
    rab-Identity                        RAB-Identity,
    nas-Synchronisation-Indicator       NAS-Synchronisation-Indicator
}


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


RAB-InformationSetup ::=            SEQUENCE {
    rab-Info                            RAB-Info,
    nas-Synchronisation-Indicator       NAS-Synchronisation-Indicator   OPTIONAL,
    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, rw64, rw128, rw256,
                                        rw512, rw768, rw1024, rw1536, rw2047,
                                        rw2560, rw3072, rw3584, rw4095 }


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)

RLC-SizeInfo    ::=                 SEQUENCE {
    rlc-SizeIndex                       INTEGER (1..maxTF)
}

RLC-SizeExplicitList    ::=         SEQUENCE (SIZE  (1..maxTF)) OF
                                        RLC-SizeInfo
```

```
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 (3..4)) 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, 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 }


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, tw64, tw128, tw256,
                                    tw512, tw768, tw1024, tw1536, tw2047,
                                    tw2560, tw3072, tw3584, tw4095 }


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


UL-LogicalChannelMapping ::=        SEQUENCE {
    -- TABULAR: UL-TransportChannelType contains TransportChannelIdentity as well.
    ul-TransportChannelType             UL-TransportChannelType,
    logicalChannelIdentity              LogicalChannelIdentity              OPTIONAL,
    rlc-SizeList                        CHOICE {
        all                                 NULL,
        configured                          NULL,
        explicitList                        RLC-SizeExplicitList
    }
    mac-LogicalChannelPriority          MAC-LogicalChannelPriority,
```

```
    logicalChannelMaxLoss               LogicalChannelMaxLoss               DEFAULT lcm0
}



UL-LogicalChannelMappingList ::=    SEQUENCE {
    rlc-LogicalChannelMappingIndicator  BOOLEAN,
    ul-LogicalChannelMapping            SEQUENCE (SIZE (maxLoCHperRLC)) OF
                                        UL-LogicalChannelMapping
}

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


UL-RLC-Mode ::=                     CHOICE {
    ul-AM-RLC-Mode                      UL-AM-RLC-Mode,
    ul-UM-RLC-Mode                      UL-UM-RLC-Mode,
    ul-TM-RLC-Mode                      UL-TM-RLC-Mode,
    spare                               NULL
}


UL-TM-RLC-Mode ::=                  SEQUENCE {
    transmissionRLC-Discard             TransmissionRLC-Discard             OPTIONAL,
    segmentationIndication              BOOLEAN
}

UL-UM-RLC-Mode ::=                  SEQUENCE {
    transmissionRLC-Discard             TransmissionRLC-Discard             OPTIONAL

}

UL-TransportChannelType ::=         CHOICE {
    dch                                 TransportChannelIdentity,
    rach                                NULL,
    cpch                                NULL,
    usch                                NULL
}
```

END

11.3.5 Transport channel information

```
TransportChannel-IEs DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

    hiRM,
    maxCCTrCH,
    maxCPCHsets,
    maxDRACclasses,
    maxPDSCH-TFCIgroups,
    maxTF,
    maxTFC,
    maxTrCH
FROM Constant-definitions

    RB-Identity

FROM RadioBearer-IEs;

AllowedTFC-List ::=                 SEQUENCE (SIZE (1..maxTFC)) OF
                                        TFC-Value

AllowedTFI-List ::=                 SEQUENCE (SIZE (1..maxTF)) OF
                                        INTEGER (0..31)

BitModeRLC-SizeInfo ::=             CHOICE {
    sizeType1                           INTEGER (1..127),
    sizeType2                           SEQUENCE {
        part1                               INTEGER (0..15),
        part2                               INTEGER (1..7)                  OPTIONAL
        -- Actual size = (part1 * 8) + 128 + part2
    },
    sizeType3                           SEQUENCE {
        part1                               INTEGER (0..47),
        part2                               INTEGER (1..15)                 OPTIONAL
        -- Actual size = (part1 * 16) + 256 + part2
    },
    sizeType4                           SEQUENCE {
        part1                               INTEGER (0..62),
        part2                               INTEGER (1..63)                 OPTIONAL
        -- Actual size = (part1 * 64) + 1024 + part2
    }
}

BLER-QualityValue ::=               INTEGER (0..63)

ChannelCodingType ::=               CHOICE {
    noCoding                            NULL,
    convolutional                       CodingRate,
    turbo                               NULL
}

CodingRate ::=                      ENUMERATED {
                                        half,
                                        third }


CommonDynamicTF-Info ::=            SEQUENCE {
    numberOfTransportBlocks             NumberOfTransportBlocks,
    rlc-Size                            CHOICE {
        fdd                                 SEQUENCE {
            octetModeRLC-SizeInfoType2          OctetModeRLC-SizeInfoType2  OPTIONAL
        },
        tdd                                 SEQUENCE {
            commonTDD-Choice                    CHOICE {
                bitModeRLC-SizeInfo                 BitModeRLC-SizeInfo,
                octetModeRLC-SizeInfoType1          OctetModeRLC-SizeInfoType1
            }                                                               OPTIONAL
        }
    },
    numberOfTbSizeList              SEQUENCE (SIZE (1..maxTF)) OF
                                        NumberOfTransportBlocks,
    logicalChannelList              LogicalChannelList
}
```

```
CommonDynamicTF-Info-DynamicTTI ::= SEQUENCE {
    numberOfTransportBlocks             NumberOfTransportBlocks,
    transmissionTimeInterval            TransmissionTimeInterval,
    commonTDD-Choice                    CHOICE {
        bitModeRLC-SizeInfo                 BitModeRLC-SizeInfo,
        octetModeRLC-SizeInfoType1          OctetModeRLC-SizeInfoType1
    }                                                                   OPTIONAL,
    numberOfTbSizeAndTTIList            NumberOfTbSizeAndTTIList,
    logicalChannelList                  LogicalChannelList
}

CommonDynamicTF-InfoList ::=        SEQUENCE (SIZE (1..maxTF)) OF
                                        CommonDynamicTF-Info


CommonDynamicTF-InfoList-DynamicTTI ::= SEQUENCE (SIZE (1..maxTF)) OF
                                        CommonDynamicTF-Info-DynamicTTI


CommonTransChTFS ::=                SEQUENCE {
    tti                                 CHOICE {
        tti10                               CommonDynamicTF-InfoList,
        tti20                               CommonDynamicTF-InfoList,
        tti40                               CommonDynamicTF-InfoList,
        tti80                               CommonDynamicTF-InfoList,
        dynamic                             CommonDynamicTF-InfoList-DynamicTTI
    },
    semistaticTF-Information            SemistaticTF-Information
}

CPCH-SetID ::=                      INTEGER (1..maxCPCHsets)

CRC-Size ::=                        ENUMERATED {
                                        crc0, crc8, crc12, crc16, crc24 }


DedicatedDynamicTF-Info ::=         SEQUENCE {
    numberOfTransportBlocks             NumberOfTransportBlocks,
    rlc-Size                            CHOICE {
        bitMode                             BitModeRLC-SizeInfo,
        octetModeType1                      OctetModeRLC-SizeInfoType1
    }                                                                   OPTIONAL,
    numberOfTbSizeList              SEQUENCE (SIZE (1..maxTF)) OF
                                        NumberOfTransportBlocks,
    logicalChannelList              LogicalChannelList
}




DedicatedDynamicTF-Info-DynamicTTI ::= SEQUENCE {
    numberOfTransportBlocks             NumberOfTransportBlocks,
    transmissionTimeInterval            TransmissionTimeInterval,
    rlc-Size                            CHOICE {
        bitMode                             BitModeRLC-SizeInfo,
        octetModeType1                      OctetModeRLC-SizeInfoType1
    }                                                                   OPTIONAL,
    numberOfTbSizeAndTTIList            NumberOfTbSizeAndTTIList,
    logicalChannelList              LogicalChannelList
}

DedicatedDynamicTF-InfoList ::=     SEQUENCE (SIZE (1..maxTF)) OF
                                        DedicatedDynamicTF-Info


DedicatedDynamicTF-InfoList-DynamicTTI ::= SEQUENCE (SIZE (1..maxTF)) OF
                                        DedicatedDynamicTF-Info-DynamicTTI


DedicatedTransChTFS ::=             SEQUENCE {
    tti                                 CHOICE {
        tti10                               DedicatedDynamicTF-InfoList,
        tti20                               DedicatedDynamicTF-InfoList,
        tti40                               DedicatedDynamicTF-InfoList,
        tti80                               DedicatedDynamicTF-InfoList,
```

```
        dynamic                             DedicatedDynamicTF-InfoList-DynamicTTI
    },
    semistaticTF-Information            SemistaticTF-Information
}


DL-AddReconfTransChInfo2List ::=    SEQUENCE (SIZE (1..maxTrCH)) OF
                                        DL-AddReconfTransChInformation2

DL-AddReconfTransChInfoList ::=     SEQUENCE (SIZE (1..maxTrCH)) OF
                                        DL-AddReconfTransChInformation


DL-AddReconfTransChInformation ::=  SEQUENCE {
    dl-transportChannelIdentity         TransportChannelIdentity,
    tfs-SignallingMode                  CHOICE {
        explicit                            TransportFormatSet,
        sameAsULTrCH                        TransportChannelIdentity
    },
    dch-QualityTarget                   QualityTarget                       OPTIONAL,
    tm-SignallingInfo                   TM-SignallingInfo                   OPTIONAL
}


DL-AddReconfTransChInformation2 ::= SEQUENCE {
    transportChannelIdentity            TransportChannelIdentity,
    tfs-SignallingMode                  CHOICE {
        explicit                            TransportFormatSet,
        sameAsULTrCH                        TransportChannelIdentity
    },
    qualityTarget                       QualityTarget
}


DL-CommonTransChInfo ::=            SEQUENCE {
    sccpch-TFCS                         TFCS                                OPTIONAL,
    modeSpecificInfo                    CHOICE {
        fdd                                 SEQUENCE {
            tfcs-SignallingMode                 CHOICE {
                explicit                            TFCS,
                sameAsUL                            NULL
            }                                                               OPTIONAL
        },
        tdd                                 SEQUENCE {
            individualDL-CCTrCH-InfoList        IndividualDL-CCTrCH-InfoList
                                                                            OPTIONAL
        }
    }
}

DL-DeletedTransChInfoList ::=       SEQUENCE (SIZE (1..maxTrCH)) OF
                                        TransportChannelIdentity


DRAC-ClassIdentity ::=              INTEGER (1..maxDRACclasses)

DRAC-StaticInformation ::=          SEQUENCE {
    transmissionTimeValidity            TransmissionTimeValidity,
    timeDurationBeforeRetry             TimeDurationBeforeRetry,
    drac-ClassIdentity                  DRAC-ClassIdentity
}

DRAC-StaticInformationList ::=      SEQUENCE (SIZE (1..maxTrCH)) OF
                                        DRAC-StaticInformation


ExplicitTFCS-Configuration ::=      CHOICE {
    complete                            TFCS-ReconfAdd,
    addition                            TFCS-ReconfAdd,
    removal                             TFCS-RemovalList,
    replacement                         SEQUENCE {
        tfcsRemoval                         TFCS-RemovalList,
        tfcsAdd                             TFCS-ReconfAdd
    }
}
```

```
GainFactor ::=                      INTEGER (0..15)

GainFactorInformation ::=           CHOICE {
    signalledGainFactors                SignalledGainFactors,
    computedGainFactors                 ReferenceTFC-ID
}


IndividualDL-CCTrCH-Info ::=        SEQUENCE {
    dl-TFCS-Identity                    TFCS-Identity,
    tfcs-SignallingMode                 CHOICE {
        explicit                            TFCS,
        sameAsUL                            TFCS-Identity
    }
}

IndividualDL-CCTrCH-InfoList ::=    SEQUENCE (SIZE (1..maxCCTrCH)) OF
                                        IndividualDL-CCTrCH-Info

IndividualUL-CCTrCH-Info ::=        SEQUENCE {
    ul-TFCS-Identity                    TFCS-Identity,
    ul-TFCS                             TFCS
}

IndividualUL-CCTrCH-InfoList ::=    SEQUENCE (SIZE (1..maxCCTrCH)) OF
                                        IndividualUL-CCTrCH-Info

LogicalChannelByRB          ::=     SEQUENCE {
    rb-Identity                         RB-Identity,
    logChOfRb                           INTEGER (0..1)                  OPTIONAL
}

LogicalChannelList                  CHOICE {
        all                             NULL,
        configured                      NULL,
        explicitList                    SEQUENCE (SIZE (1..15)) OF
                                            LogicalChannelByRB
    }

MessType ::=                        ENUMERATED {
                                        transportFormatCombinationControl, spare1 }

Non-allowedTFC-List ::=             SEQUENCE (SIZE (1..maxTFC)) OF
                                        TFC-Value


NumberOfTransportBlocks::=          CHOICE {
    zero                                NULL,
    one                                 NULL,
    small                               INTEGER (2..17),
    long                                INTEGER (18..512)
}


NumberOfTbSizeAndTTIList    ::=     SEQUENCE (SIZE (1..maxTF)) OF SEQUENCE {
        numberOfTransportBlocks         NumberOfTransportBlocks,
        transmissionTimeInterval        TransmissionTimeInterval
    }

OctetModeRLC-SizeInfoType1 ::=      CHOICE {
    sizeType1                           INTEGER (0..31),
    -- Actual size = (8 * sizeType1) + 16
    sizeType2                           SEQUENCE {
        part1                               INTEGER (0..23),
        part2                               INTEGER (1..3)              OPTIONAL
        -- Actual size = (32 * part1) + 272 + (part2 * 8)
    },
    sizeType3                           SEQUENCE {
        part1                               INTEGER (0..61),
        part2                               INTEGER (1..7)              OPTIONAL
        -- Actual size = (64 * part1) + 1040 + (part2 * 8)
    }
}

OctetModeRLC-SizeInfoType2 ::=      CHOICE {
    sizeType1                           INTEGER (0..31),
    -- Actual size = (sizeType1 * 8) + 48
    sizeType2                           INTEGER (0..63),
```

```
    -- Actual size = (sizeType2 * 16) + 312
    sizeType3                       INTEGER (0..56)
    -- Actual size = (sizeType3 *64) + 1384
}


PowerOffsetInformation ::=          SEQUENCE {
    gainFactorInformation               GainFactorInformation,
    -- PowerOffsetPp-m is always absent in TDD
    powerOffsetPp-m                     PowerOffsetPp-m                     OPTIONAL
}

PowerOffsetPp-m ::=                 INTEGER (-5..10)

PreDefTransChConfiguration ::=      SEQUENCE {
    ul-CommonTransChInfo                UL-CommonTransChInfo,
    ul-AddReconfTrChInfoList            UL-AddReconfTransChInfoList,
    dl-CommonTransChInfo                DL-CommonTransChInfo,
    dl-TrChInfoList                     DL-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
}


SplitTFCI-Signalling ::=            SEQUENCE {
    splitType                           SplitType                       OPTIONAL,
    tfci-Field2-Length                  INTEGER (1..10)                 OPTIONAL,
    tfci-Field1-Information             ExplicitTFCS-Configuration      OPTIONAL,
    tfci-Field2-Information             TFCI-Field2-Information         OPTIONAL
}


SplitType ::=                       ENUMERATED {
                                        hardSplit, logicalSplit }



TFC-Subset ::=                      CHOICE {
    minimumAllowedTFC-Number            TFC-Value,
    allowedTFC-List                     AllowedTFC-List,
```

```
    non-allowedTFC-List                 Non-allowedTFC-List,
    restrictedTrChInfoList              RestrictedTrChInfoList
}

TFC-Value ::=                       INTEGER (0..1023)




TFCI-Field2-Information ::=         CHOICE {
    tfci-Range                          TFCI-RangeList,
    explicit                            ExplicitTFCS-Configuration
}


TFCI-Range ::=                      SEQUENCE {
    maxTFCIField2Value                  INTEGER (1..1023),
    tfcs-InfoForDSCH                    TFCS-InfoForDSCH
}


TFCI-RangeList ::=                  SEQUENCE (SIZE (1..maxPDSCH-TFCIgroups)) OF
                                        TFCI-Range


TFCS ::=                            CHOICE {
    normalTFCI-Signalling               ExplicitTFCS-Configuration,
    splitTFCI-Signalling                SplitTFCI-Signalling
}

TFCS-Identity ::=                   SEQUENCE {
    tfcs-ID                             INTEGER (1..8)                      DEFAULT 1,
    sharedChannelIndicator              BOOLEAN
}


TFCS-IdentityPlain ::=              INTEGER (1..8)


TFCS-InfoForDSCH ::=                CHOICE {
    ctfc2bit                            INTEGER (0..3),
    ctfc4bit                            INTEGER (0..15),
    ctfc6bit                            INTEGER (0..63),
    ctfc8bit                            INTEGER (0..255),
    ctfc12bit                           INTEGER (0..4095),
    ctfc16bit                           INTEGER (0..65535),
    ctfc24bit                           INTEGER (0..16777215),
    spare                               NULL
}

TFCS-ReconfAdd ::=                  SEQUENCE{
    ctfcSize                            CHOICE{
        ctfc2Bit                            SEQUENCE (SIZE (1..maxTFC)) OF SEQUENCE {
            ctfc2                               INTEGER (0..3),
            gainFactorInformation               PowerOffsetInformation          OPTIONAL
        },
        ctfc4Bit                            SEQUENCE (SIZE (1..maxTFC)) OF SEQUENCE {
            ctfc4                               INTEGER (0..15),
            gainFactorInformation               PowerOffsetInformation          OPTIONAL
        },
        ctfc6Bit                            SEQUENCE (SIZE (1..maxTFC)) OF SEQUENCE {
            ctfc8                               INTEGER (0..63),
            gainFactorInformation               PowerOffsetInformation          OPTIONAL
        },
        ctfc8Bit                            SEQUENCE (SIZE (1..maxTFC)) OF SEQUENCE {
            ctfc16                              INTEGER (0..255),
            gainFactorInformation               PowerOffsetInformation          OPTIONAL
        },
        ctfc12Bit                           SEQUENCE (SIZE(1..maxTFC)) OF SEQUENCE {
            ctfc12                              INTEGER (0..4095),
            gainFactorInformation               PowerOffsetInformation          OPTIONAL
        },
        ctfc16Bit                           SEQUENCE (SIZE (1..maxTFC)) OF SEQUENCE {
            ctfc16                              INTEGER(0..65535),
            gainFactorInformation               PowerOffsetInformation          OPTIONAL
        },
        ctfc24Bit                           SEQUENCE (SIZE (1..maxTFC)) OF SEQUENCE {
```

```
            ctfc24                              INTEGER(0..16777215),
            gainFactorInformation               PowerOffsetInformation          OPTIONAL
        },
        spare                               NULL
    }
}

TFCS-Removal ::=                    SEQUENCE {
    tfci                                INTEGER (0..1023)
}

TFCS-RemovalList ::=                SEQUENCE (SIZE (1..maxTFC)) OF
                                        TFCS-Removal

TimeDurationBeforeRetry ::=         INTEGER (1..256)


TM-SignallingInfo   ::=             SEQUENCE {
    messType                            MessType,
    tm-SignallingMode                   CHOICE {
        mode1                               NULL,
        mode2                               SEQUENCE {
            ul-controlledTrChList               UL-ControlledTrChList
        }
    }
}



TransmissionTimeInterval ::=        ENUMERATED {
                                        tti10, tti20, tti40, tti80,
                                        spare1, spare2, spare3, spare4 }

TransmissionTimeValidity ::=        INTEGER (1..256)


TransportChannelIdentity ::=        INTEGER (1..32)

TransportFormatSet ::=              CHOICE {
    dedicatedTransChTFS                 DedicatedTransChTFS,
    commonTransChTFS                    CommonTransChTFS
}

UL-AddReconfTransChInfoList ::=     SEQUENCE (SIZE (1..maxTrCH)) OF
                                        UL-AddReconfTransChInformation


UL-AddReconfTransChInformation ::= SEQUENCE {
    transportChannelIdentity            TransportChannelIdentity,
    transportFormatSet                  TransportFormatSet
}

UL-CommonTransChInfo ::=            SEQUENCE {
    tfc-Subset                          TFC-Subset                          OPTIONAL,
    prach-TFCS                          TFCS                                OPTIONAL,
    modeSpecificInfo                    CHOICE {
        fdd                                 SEQUENCE {
            ul-TFCS                             TFCS
        },
        tdd                                 SEQUENCE {

            individualUL-CCTrCH-InfoList        IndividualUL-CCTrCH-InfoList
                                                                            OPTIONAL,
            ul-TFCS                             TFCS
        }
    }                                                                       OPTIONAL
}


UL-ControlledTrChList ::=           SEQUENCE (SIZE (1..maxTrCH)) OF
                                        TransportChannelIdentity

UL-DeletedTransChInfoList ::=       SEQUENCE (SIZE (1..maxTrCH)) OF
                                        TransportChannelIdentity

END
```

3GPP RAN WG2 Meeting #17
Sophia Antipolis

***Document* R2-002300**
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

CHANGE REQUEST

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

25.331	CR	617	Current Version:	3.4.1

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

For submission to:	TSG-RAN #10	for approval	X	strategic		(for SMG use only)
list expected approval meeting # here ↑		for information		non-strategic		

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

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

Source: TSG-RAN WG2 **Date:** 7/11/2000

Subject: Correction for PDSCH power control for TDD

Work item:

Category: *(only one category shall be marked with an X)*

F	Correction	X	**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	X
				Release 00	

Reason for change: A description for the UE behaviour on reception of the IE "PDSCH power control info" was missing in the procedure part in TDD.
Additionally, the possibility to do not power control the downlink shared channel at all is included by allowing a list with 0 associated UL CCTrCHs is proposed.

Clauses affected: 8.6.6.22, 10.3.6.44, 11.3.6

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: Pending on decision in WG1

help.doc

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

8.6.6.22 PDSCH Power Control info

If the IE “PDSCH Power Control info” is included the UE shall:

- configure PDSCH power control with the received values.

If the IE “PDSCH Power Control info” is not included the UE shall:

- continue to use the stored values

10.3.6.44 PDSCH Power Control info

NOTE: Only for TDD.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
TPC Step Size	OP		Integer (1, 2, 3)	In dB
UL CCTrCH TPC List	~~MD~~MP	~~1~~0..<maxCCTrCH>		UL CCTrCH identities for TPC commands associated with this DL CCTrCH. ~~Default is previous list or all defined UL CCTrCHs~~
>UL TPC TFCS Identity	MP		Transport Format Combination Set Identity 10.3.5.21	

11.3.6 Physical channel information elements

```
...

UL-CCTrChTPCList ::=                SEQUENCE (SIZE (1..maxCCTrCH)) OF
                                            TFCS-Identity

...

END
```

3GPP TSG RAN WG2 Meeting #17
Sophia Antipolis, France, Nov. 13-17, 2000

***Document* R2-002302**
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

CHANGE REQUEST

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25.331	CR	619	Current Version:	3.4.1

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

For submission to:	TSG-RAN #10	for approval	X	strategic		(for SMG use only)
list expected approval meeting # here ↑		for information		non-strategic		

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	X	UTRAN / Radio	X	Core Network	

Source: TSG-RAN WG2 **Date:** 25.8.2000

Subject: Correction of Midamble Shift for Burst Type 3

Work item:

Category: *(only one category shall be marked with an X)*			**Release:**	
F	Correction	X	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	X
			Release 00	

Reason for change: The midamble shift that can be selected for burst type 3 was restricted. This has been corrected.

Clauses affected: 10.3.6.40, 11.3.6

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.

10.3.6.40 Midamble shift and burst type

NOTE: Only for TDD.

This information element indicates burst type and midamble allocation. Three different midamble allocation schemes exist:

- Default midamble: the midamble shift is selected by layer 1 depending on the associated channelization code (DL and UL)
- Common midamble: the midamble shift is chosen by layer 1 depending on the number of channelization codes (possible in DL only)
- UE specific midamble: a UE specific midamble is explicitly assigned (DL and UL).

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE Burst Type	MP			
>Type 1				
>>Midamble Allocation Mode	MP		Enumerated (Default midamble, Common midamble, UE specific midamble)	At least 1 spare value (criticality = reject) required.
>>Midamble Shift	CV UE		Integer(0..15)	
>Type 2				
>>Midamble Allocation Mode	MP		Enumerated (Default midamble, Common midamble, UE specific midamble)	At least 1 spare value (criticality = reject) required.
>>Midamble Shift	CV UE		Integer(0..5)	
>Type 3				
>>Midamble Allocation Mode	MP		Enumerated (Default midamble, UE specific midamble)	
>>Midamble Shift	CV UE		Integer (0..15~~7~~)	NOTE: Burst Type 3 is only used in uplink.

Condition	Explanation
UE	This information element is only sent when the value of the "Midamble Allocation Mode" IE is "UE-specific midamble".

11.3.6 Physical channel information elements

```
MidambleShiftAndBurstType ::=       SEQUENCE {
    burstType                           CHOICE {
        type1                               SEQUENCE {
            midambleAllocationMode              CHOICE {
                defaultMidamble                     NULL,
                commonMidamble                      NULL,
                ueSpecificMidamble                  SEQUENCE {
                    midambleShift                       MidambleShiftLong
                }
            }
        },
        type2                               SEQUENCE {
            midambleAllocationMode              CHOICE {
                defaultMidamble                     NULL,
                commonMidamble                      NULL,
                ueSpecificMidamble                  SEQUENCE {
                    midambleShift                       MidambleShiftShort
                }
            }
        },
        type3                               SEQUENCE {
            midambleAllocationMode              CHOICE {
                defaultMidamble                     NULL,
                ueSpecificMidamble                  SEQUENCE {
                    midambleShift                       MidambleShiftLongAccess
                }
            }
        }
    }
}
MidambleShiftLong ::=               INTEGER (0..15)


MidambleShiftShort ::=              INTEGER (0..5)

MidambleShiftAccess ::=             INTEGER (0..7)
```

3GPP TSG RAN WG2#17
Sophia-Antipolis, France, 13th –17th Nov., 2000

Document R2-002304
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

CHANGE REQUEST

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25.331	CR	621	Current Version:	3.4.1

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

For submission to:	TSG-RAN #10	for approval	X	strategic		(for SMG use only)
list expected approval meeting # here ↑		for information		non-strategic		

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	X	UTRAN / Radio	X	Core Network	

Source:	TSG-RAN WG2	**Date:** 2000-10-27
Subject:	Correction of text concerning Scheduling of System Information	
Work item:		

Category: *(only one category shall be marked with an X)*				**Release:**	
	F	Correction	X	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	X
				Release 00	

Reason for change:
According to the current text, it is not completely clear whether SIB_POS(I) of a segment other than the first segment of a SIB may exceed the value SIB_REP. It is clarified that this is not allowed.
Secondly. A text improvement for the relationship between SFN of a frame that contains the a segment I is given.

Clauses affected: 8.1.1.1.5

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:

8.1.1.1.5 Scheduling of system information

Scheduling of system information blocks is performed by the RRC layer in UTRAN. If segmentation is used, it should be possible to schedule each segment separately.

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

The scheduling of each system information block broadcast on a BCH transport channel is defined by the following parameters:

- the number of segments (SEG_COUNT);
- the repetition period (SIB_REP). The same value applies to all segments;
- the position (phase) of the first segment within one cycle of the Cell System Frame Number (SIB_POS(0)). Since system information blocks are repeated with period SIB_REP, the value of SIB_POS(i), i=0, 1, 2, … SEG_COUNT-1 must be less than SIB_REP for all segments;
- the offset of the subsequent segments in ascending index order (SIB_OFF(i), i=1, 2, … SEG_COUNT-1) The position of the subsequent segments is calculated using the following: SIB_POS(i) = SIB_POS(i-1) + SIB_OFF(i).

The scheduling is based on the Cell System Frame Number (SFN). The SFN of a frame at which a particular segment, *i*, with i=0, 1, 2, … SEG_COUNT-1 of a system information block occurs ~~is defined as follows~~ fulfils the following relation:

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

TSG-RAN Working Group 2#17
Sophia Antipolis, France, 13 - 17 November 2000

Document R2-002479
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx
Rev of R2-002086

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**	**622r1**	Current Version:	3.4.1

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

For submission to:	TSG-RAN #10	for approval	X	strategic		*(for SMG use only)*
List expected approval meeting # here ↑		for information		non-strategic		

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

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

(at least one should be marked with an X)

Source:	TSG-RAN WG2	**Date:**	24/11/00

Subject: Allignment of GSM'99 BA Range concept and its inclusion in UTRA

Work item:

Category: *(only one category shall be marked with an X)*

F	Correction	X	**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	X
				Release 00	

Reason for change: BA Range is an existing feature of GSM that may be used to increase the speed of RPLMN selection. This CR allows UTRAN to apply the same optimisation.

Clauses affected: 8.1.4.3, 10.2.38, 10.3.8.11a (new), 10.3.10, 11.2, 11.3.8, 11.4

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:

8.1.4 RRC connection release

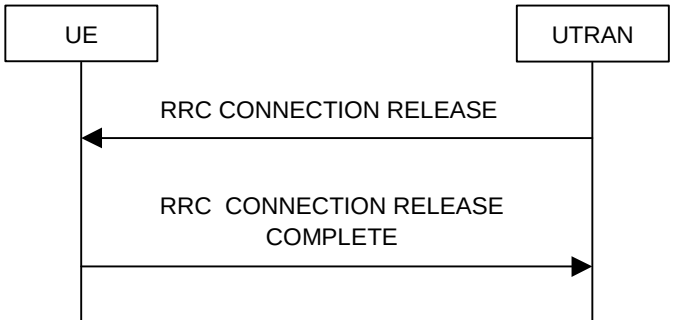

Figure 9: RRC Connection Release procedure on the DCCH

Figure 10: RRC Connection Release procedure on the CCCH

8.1.4.1 General

The purpose of this procedure is to release the RRC connection including the signalling link and all radio bearers between the UE and the UTRAN. By doing so, all established signalling flows and signalling connections will be released.

8.1.4.2 Initiation

When the UE is in state CELL_DCH or CELL_FACH, the UTRAN may at anytime initiate an RRC connection release by transmitting an RRC CONNECTION RELEASE message using UM RLC. When UTRAN transmits an RRC CONNECTION RELEASE message as response to a received RRC CONNECTION RE-ESTABLISHMENT REQUEST (subclause 8.1.5), CELL UPDATE (subclause 8.3.1) or URA UPDATE (subclause 8.3.2) message from the UE, UTRAN should use the downlink CCCH to transmit the message. In all other cases the downlink DCCH should be used, although the downlink CCCH may be used as well.

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

8.1.4.3 Reception of an RRC CONNECTION RELEASE message by the UE

The UE shall receive and act on an RRC CONNECTION RELEASE message in states CELL_DCH and CELL_FACH. Furthermore this procedure can interrupt any ongoing procedures with the UE in the above listed states.

When the UE receives the first RRC CONNECTION RELEASE message, it shall:

- in state CELL_DCH:
  - initialise the counter V308 with the value of the IE "Number of RRC Message Transmissions", which indicates the number of times the RRC CONNECTION RELEASE COMPLETE message shall be sent;
  - transmit an RRC CONNECTION RELEASE COMPLETE message using UM RLC on the DCCH to the UTRAN;
  - if the IE "Rplmn information" is present, the UE can store the IE on the ME together with the PLMN id for which it applies. The UE may then utilise this information, typically indicating where a number of BCCH frequency ranges of a RAT may be expected to be found, during subsequent Rplmn selections of the indicated PLMN.

- start timer T308.

- in state CELL_FACH and if the RRC CONNECTION RELEASE message was received on the DCCH

  - transmit an RRC CONNECTION RELEASE COMPLETE message using AM RLC on the DCCH to the UTRAN.

  - if the IE "Rplmn information" is present, the UE can store the IE on the ME together with the PLMN id for which it applies. The UE may then utilise this information, typically indicating where a number of BCCH frequency ranges of a RAT may be expected to be found, during subsequent Rplmn selections of the indicated PLMN.

When in state CELL_FACH and if the RRC CONNECTION RELEASE message was received on the CCCH, the UE shall not transmit an RRC CONNECTION RELEASE COMPLETE message.

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

The UE shall indicate release of all current signalling flows and radio access bearers to the non-access stratum and pass the value of the IE "Release cause" received in the RRC CONNECTION RELEASE message to the non-access stratum.

From the time of the indication of release to the non-access stratum until the UE has entered idle mode, any non-access stratum request to establish a new RRC connection shall be queued. This new request may be processed only after the UE has entered idle mode.

When in state CELL_FACH and if the RRC CONNECTION RELEASE message was received on the CCCH, the UE shall release all its radio resources, enter idle mode and the procedure ends on the UE side. Actions the UE shall perform when entering idle mode are given in subclause 8.5.2.

8.1.4.4 Invalid RRC CONNECTION RELEASE message

If the RRC CONNECTION RELEASE message contains a protocol error causing the variable PROTOCOL_ERROR_REJECT to be set to TRUE according to clause 16, and if the "protocol error cause" in PROTOCOL_ERROR_INFORMATION is set to any cause value except "ASN.1 violation or encoding error", the UE shall perform procedure specific error handling as follows:

The UE shall:

- ignore any IE(s) causing the error but treat the rest of the RRC CONNECTION RELEASE message as normal according to subclause 8.1.4.3, with an addition of the following actions;

- if the RRC CONNECTION RELEASE message was received on the DCCH:

  - include the IE "Error indication" in the RRC CONNECTION RELEASE COMPLETE message with:

    - the IE "Failure cause" set to the cause value "Protocol error" and

    - the IE "Protocol error information" set to the value of the variable PROTOCOL_ERROR_INFORMATION;

8.1.4.5 Expiry of timer T308, unacknowledged mode transmission

When in state CELL_DCH and the timer T308 expires, the UE shall:

- decrease V308 by one;

- if V308 is equal to or smaller than N308:

  - retransmit the RRC CONNECTION RELEASE COMPLETE message;

- if V308 is greater than N308:

  - release all its radio resources;

  - enter idle mode and the procedure ends on the UE side. Actions the UE shall perform when entering idle mode are given in subclause 8.5.2.

8.1.4.6 Successful transmission of the RRC CONNECTION RELEASE COMPLETE message, acknowledged mode transmission

When acknowledged mode was used and RLC has confirmed the transmission of the RRC CONNECTION RELEASE COMPLETE message the UE shall:

- release all its radio resources;
- enter idle mode and the procedure ends on the UE side. Actions the UE shall perform when entering idle mode are given in subclause 8.5.2.

8.1.4.7 Reception of an RRC CONNECTION RELEASE COMPLETE message by UTRAN

When UTRAN receives an RRC CONNECTION RELEASE COMPLETE message from the UE, it should:

- release all UE dedicated resources and the procedure ends on the UTRAN side.

8.1.4.8 Unsuccessful transmission of the RRC CONNECTION RELEASE COMPLETE message, acknowledged mode transmission

When acknowledged mode was used and RLC does not succeed in transmitting the RRC CONNECTION RELEASE COMPLETE message, the UE shall:

- release all its radio resources;
- enter idle mode and the procedure ends on the UE side. Actions the UE shall perform when entering idle mode are given in subclause 8.5.2.

8.1.4.9 Detection of loss of dedicated physical channel by UTRAN in CELL_DCH state

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

8.1.4.10 No reception of an RRC CONNECTION RELEASE COMPLETE message by UTRAN

If UTRAN does not receive any RRC CONNECTION RELEASE COMPLETE message, it should release all UE dedicated resources.

10.2.38 RRC CONNECTION RELEASE

This message is sent by UTRAN to release the RRC connection. The message also releases the signalling connection and all radio bearers between the UE and UTRAN.

RLC-SAP: UM or TM

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 10.3.3.14	Integrity check info is included if integrity protection is applied
Number of RRC Message Transmissions	CH Cell_DCH		Number of RRC Message Transmissions 10.3.3.21	
Release cause	MP		Release cause 10.3.3.31	
Other information elements				
Rplmn information	OP		Rplmn information for multiple technologies 10.3.8.11a	

Condition	Explanation
CCCH	This IE is only sent when CCCH is used.
Cell_DCH	This IE is present when UE is in CELL_DCH state.

10.3.8.11a Rplmn information

Contains information to provide faster RPLMN selection in the UE.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Gsm BA Range	OP	1 to maxNumGSMFreqRanges		GSM BA Range
> GSM Lower Range (UARFCN)	MP		Integer(0..16383)	Lower bound for range of GSM BA freqs
> GSM Upper Range (UARFCN)	MP		Integer(0..16383)	Upper bound for range of GSM BA freqs
FDD UMTS Frequency list	OP	1 to maxNumFDDFreqs		
> UARFCN (Nlow)	MP		Integer(0..16383)	[25.101]
> UARFCN (Nupper)	OP		Integer(0..16383)	[25.101] This IE is only needed when the FDD frequency list is specifying a range.
TDD UMTS Frequency list	OP	1 to maxNumTDDFreqs		
> UARFCN	MP		Integer(0..16383)	[25.102]
CDMA2000 UMTS Frequency list	OP	1 to maxNumCDMA200Freqs		
> BAND_CLASS	MP		Bitstring(5 bits)	TIA/EIA/IS-2000
> CDMA_FREQ	MP		Bitstring (11 bits)	TIA/EIA/IS-2000

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 or Radio Access Technologies	maxOtherRAT + 1
maxOtherRAT	Maximum number or other Radio Access Technologies	15
maxURA	Maximum number of URAs in a cell	8
maxInterSysMessages	Maximum number of Inter System Messages	4
maxRABsetup	Maximum number of RABs to be established	16
UE information		
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 cell	16
maxSIBperMsg	Maximum number of complete system information blocks per SYSTEM INFORMATION message	16
maxSIB	Maximum number of references to other system information blocks.	32
maxSIB-FACH	Maximum number of references to system information blocks on the FACH	8
PhyCH information		
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
maxFACHPCH	Maximum number of FACHs and PCHs mapped onto one secondary CCPCHs	8
maxRL	Maximum number of radio links	8

maxSCCPCH	Maximum number of secondary CCPCHs per cell	16
maxDPDCH-UL	Maximum number of DPDCHs per cell	6
maxDPCH-DLchan	Maximum number of channelisation codes used for DL DPCH	8
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
maxTS	Maximum number of timeslots used in one direction (UL or DL)	14
HiPUSCHIdentities	Maximum number of PDSCH Identities	64
HiPDSCHIdentities	Maximum number of PDSCH Identities	64
Measurement information		
maxTGPS	Maximum number of transmission gap pattern sequences	6
maxAdditionalMeas	Maximum number of additional measurements for a given measurement identity	4
maxMeasEvent	Maximum number of events that can be listed in measurement reporting criteria	8
maxMeasParEvent	Maximum number of measurement parameters (e.g. thresholds) per event	2
maxMeasIntervals	Maximum number of intervals that define the mapping function between the measurements for the cell quality Q of a cell and the representing quality value	1
maxCellMeas	Maximum number of cells to measure	32
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
Frequency information		
maxFDDFreqList	Maximum number of FDD carrier frequencies to be stored in USIM	4
maxTDDFreqList	Maximum number of TDD carrier frequencies to be stored in USIM	4
maxFDDFreqCellList	Maximum number of neighbouring FDD cells to be stored in USIM	32
maxTDDFreqCellList	Maximum number of neighbouring TDD cells to be stored in USIM	32
maxGSMCellList	Maximum number of GSM cells to be stored in USIM	32
Other information		
maxNumGSMFreqRanges	Maximum number of GSM Frequency Ranges to store	32
maxNumFDDFreqs	Maximum number of FDD cenrtre frequencies to store	8
maxNumTDDFreqs	Maximum number of TDD centre frequencies to store	8
maxNumCDMA200Freqs	Maximum number of CDMA2000 centre frequencies to store	8

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


    BCCH-ModificationInfo,
    CDMA2000-MessageList,
    GSM-MessageList,
    InterSystemHO-Failure,
    InterSystemMessage,
    ProtocolErrorInformation,
    Rplmn-Information,
    SegCount,
    SegmentIndex,
    SFN-Prime,
    SIB-Data-fixed,
    SIB-Data-variable,
    SIB-Type
FROM Other-IEs

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

RRCConnectionRelease::= CHOICE {
    v1                              SEQUENCE {
        v1-IEs                          RRCConnectionRelease-v1-IEs,
        nonCriticalExtensions           SEQUENCE {}
    },
    criticalExtensions              SEQUENCE {}
}

RRCConnectionRelease-v1-IEs ::= SEQUENCE {
    -- User equipment IEs
        rrc-MessageTX-Count             RRC-MessageTX-Count                 OPTIONAL,
        -- The IE above is conditional on the UE state.
        releaseCause                    ReleaseCause,
        rplmn-information               Rplmn-Information                   OPTIONAL
}
```

11.3.8 Other information elements

```
CDMA2000-UMTS-Frequency-List    ::=     SEQUENCE (SIZE (1..maxNumCDMA2000Freqs)) OF
                                            FrequencyInfoCDMA2000


FDD-UMTS-Frequency-List         ::=     SEQUENCE (SIZE (1..maxNumFDDFreqs)) OF
                                            FrequencyInfoFDD
FrequencyInfoCDMA2000           ::=     SEQUENCE {
                                            band-Class      BIT STRING (SIZE (5)),
                                            cdma-Freq       BIT STRING (SIZE(11))
}

GSM-BA-Range                    ::=     SEQUENCE {
                                            gsmLowRangeUARFCN       UARFCN,
                                            gsmUpRangeUARFCN        UARFCN
}

GSM-BA-Range-List               ::=     SEQUENCE (SIZE (1..maxNumGSMFreqRanges)) OF
                                            GSM-BA-Range

Rplmn-Information               ::=     SEQUENCE {
                                            gsm-BA-Range-List       GSM-BA-Range-List   OPTIONAL,
                                            fdd-UMTS-Frequency-List FDD-UMTS-Frequency-List
    OPTIONAL,
                                            tdd-UMTS-Frequency-List FDD-UMTS-Frequency-List
    OPTIONAL,
                                            cdma2000-UMTS-Frequency-List    CDMA2000-UMTS-
Frequency-List  OPTIONAL
}

TDD-UMTS-Frequency-List ::=             SEQUENCE (SIZE (1..maxNumTDDFreqs)) OF
                                            FrequencyInfoTDD
```

11.4 Constant definitions

```
Constant-definitions DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

hiPDSCHidentities           INTEGER ::= 64
hiPUSCHidentities           INTEGER ::= 64
hiRM                        INTEGER ::= 256
...
maxNumCDMA2000Freqs         INTEGER ::=  8
maxNumGSMFreqRanges         INTEGER ::= 32
maxNumFDDFreqs              INTEGER ::=  8
maxNumTDDFreqs              INTEGER ::=  8
```

3GPP TSG-RAN WG2 Meeting #17
Sophia Antipolis, France, 10.11.2000

Tdoc DocNumber R2-002451

CR-Form-v3

CHANGE REQUEST

⌘ **25.331** **CR** **623** ⌘ rev **r1** ⌘ Current version: **3.4.1** ⌘

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

Proposed change affects: ⌘ (U)SIM ☐ ME/UE **X** Radio Access Network **X** Core Network ☐

Title:	⌘	Clarification on RB mapping info
Source:	⌘	TSG-RAN WG2
Work item code:	⌘	***Date:*** ⌘ 10.11.2000
Category:	⌘	***Release:*** ⌘ R99

Use one of the following categories:
F *(essential correction)*
A *(corresponds to a correction in an earlier release)*
B *(Addition of feature),*
C *(Functional modification of feature)*
D *(Editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
REL-4 (Release 4)
REL-5 (Release 5)

Reason for change: ⌘ This CR clarifies the number of different RB mapping options and the usage of logical channel IDs.

In cell DCH state, DCH, FACH and DSCH for DL and DCH for UL can be used. Although it is stated nowhere, it is assumed that a logical channel is never mapped onto two different DCHs at the same time. However, in 25.321 it is stated that a logical channel may be mapped onto a DCH and DSCH simultaneously. Therefore, in cell DCH state it is possible to have two RB mapping options for each DL logical channel. The decision which channel to use is up to MAC.

In cell FACH state, RACH or CPCH in UL and BCH, PCH and FACH for DL are possible. Except for BCCH all logical channels in DL have to be mapped on FACH or PCH only. BCCH may be mapped onto BCH or FACH, however, BCCH may not be mapped to BCH and FACH simultaneously, therefore only one mapping option is necessary in cell FACH state.

In cell PCH state RACH or CPCH in UL and BCH, PCH and FACH in DL are possible. So, in this state again only one mapping option is sensible.

For URA PCH state the same is valid as for cell FACH and PCH state.

Summary:
In cell DCH state two mapping options may be configured for a logical channel. For all other states, only 1 mapping option is necessary. Since a RB may have two DL logical channels in RLC AM (one for user, one for control data), each RB may have a maximum of 7 RB mapping options.

Summary of change: ⌘ Calrification of RB mapping options

Consequences if not approved:	⌘	

Clauses affected:	⌘	10.3.4.21		
Other specs affected:	⌘	Other core specifications Test specifications O&M Specifications	⌘	
Other comments:	⌘			

How to create CRs using this form:

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

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

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://www.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2000-09 contains the specifications resulting from the September 2000 TSG meetings.

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

10.3.4.21 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>		Note1
>RLC logical channel mapping indicator	CV-ULRLCLogicalChannels		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 uplink 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]
>>Uplink transport channel type	MP		Enumerated(DCH,RACH, CPCH,USCH)	CPCH is FDD only USCH is TDD only
>>ULTransport channel identity	CV-*UL-DCH/USCH*		Transport channel identity 10.3.5.18	This is the ID of a DCH or USCH (TDD only) that this RB could be mapped onto.
>>Logical channel identity	OP		Integer(1..15)	This parameter is used to distinguish logical channels multiplexed by MAC on a transport channel.
>>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)	[see 25.321]. Default value is 0.
>Number of downlink RLC logical channels	CV-*DL-RLC info*	1 to MaxLoCHperRLC		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 uplink RLC logical channels" in IE "RB mapping info" is 2, then this is present. Otherwise this IE is not needed.
UL-DCH/USCH	If IE "Uplink transport channel type" is equal to "DCH" or "USCH" (TDD only) this IE is 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.

Note: In DCH state a logical channel may be mapped onto DCH and DSCH simultaneously, therefore max. 4 different multiplexing options are possible in that case. In all other states max. 1 RB multiplexing option is possible.

3GPP TSG-RAN WG2 Meeting #17
Sophia Antipolis, France, 13-17/11/200

Tdoc r2-002430

CR-Form-v3

CHANGE REQUEST

⌘ **25.331** **CR** **624** ⌘ rev **r1** ⌘ Current version: **3.4.1** ⌘

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

Proposed change affects: ⌘ (U)SIM ☐ ME/UE **X** Radio Access Network **X** Core Network ☐

Title:	⌘	Correction to UE multi RAT capability
Source:	⌘	TSG-RAN WG2
Work item code:	⌘	***Date:*** ⌘ 15/11/2000
Category:	⌘ **F**	***Release:*** ⌘ R99

Use one of the following categories:
F *(essential correction)*
A *(corresponds to a correction in an earlier release)*
B *(Addition of feature),*
C *(Functional modification of feature)*
D *(Editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 *(GSM Phase 2)*
R96 *(Release 1996)*
R97 *(Release 1997)*
R98 *(Release 1998)*
R99 *(Release 1999)*
REL-4 *(Release 4)*
REL-5 *(Release 5)*

Reason for change:	⌘	The multi RAT capability only allows the UE to signal GSM capability, but not the GSM bands that are supported.
Summary of change:	⌘	In the tabular format a change is made to the measurement capability to indicate the support of independent GSM bands.
Consequences if not approved:	⌘	The UE will not be able to signal the GSM bands supported to the network. The UTRAN could request the UE to make measurements on GSM bands that are npot supported by the mobile.

Clauses affected:	⌘	10.3.3.20
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	TR 25.926 is also affected.

How to create CRs using this form:
Comprehensive information and tips about how to create CRs can be found at: http://www.3gpp.org/3G_Specs/CRs.htm. Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.
2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://www.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2000-09 contains the specifications resulting from the September 2000 TSG meetings.

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

10.3.3.20 Measurement capability

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Need for downlink compressed mode				
FDD measurements DL	MP		Boolean	TRUE means that the UE requires DL compressed mode in order to perform measurements on FDD
TDD measurements DL	CV *tdd_sup*		Boolean	TRUE means that the UE requires DL compressed mode in order to perform measurements on TDD
~~GSM measurements DL~~	~~CV *gsm_sup*~~			
~~>~~ GSM 900 DL	CV *Gsm900_sup*~~MP~~		Boolean	TRUE means that the UE requires DL compressed mode in order to perform measurements on GSM 900
~~>~~ DCS 1800 DL	CV *Gsm1800_sup*~~MP~~		Boolean	TRUE means that the UE requires DL compressed mode in order to perform measurements on DCS 1800
~~>~~ GSM 1900 DL	CV *Gsm1900_sup*~~MP~~		Boolean	TRUE means that the UE requires DL compressed mode in order to perform measurements on GSM 1900
Multi-carrier measurement DL	CV *mc_sup*		Boolean	TRUE means that the UE requires DL compressed mode in order to perform measurements on multi-carrier
Need for uplink compressed mode				
FDD measurements UL	MP		Boolean	TRUE means that the UE requires UL compressed mode in order to perform measurements on FDD
TDD measurements UL	CV *tdd_sup*		Boolean	TRUE means that the UE requires UL compressed mode in order to perform measurements on TDD
~~GSM measurements UL~~	~~CV *Gsm_sup*~~			
~~>~~ GSM 900 UL	CV *Gsm900_sup*~~MP~~		Boolean	TRUE means that the UE requires UL compressed mode in order to perform measurements on GSM 900
~~>~~ DCS 1800 UL	CV *Gsm1800_sup*~~MP~~		Boolean	TRUE means that the UE requires UL compressed mode in order to perform measurements on DCS 1800
~~>~~ GSM 1900 UL	CV *Gsm1900_sup*~~MP~~		Boolean	TRUE means that the UE requires UL compressed mode in order to perform measurements on GSM 1900
Multi-carrier measurement UL	CV *mc_sup*		Boolean	TRUE means that the UE requires UL compressed mode in order to perform measurements on multi-carrier

Condition	Explanation
tdd_sup	Presence is mandatory if IE Multi-mode capability = TDD. Otherwise this field is not needed in the message.
Gsm900_sup	Presence is mandatory if IE Multi-RAT capability = GSM900. Otherwise this field is not needed in the message.
Gsm1800_sup	Presence is mandatory if IE Multi-RAT capability = GSM1800. Otherwise this field is not needed in the message.
Gsm1900_sup	Presence is mandatory if IE Multi-RAT capability = GSM1900. Otherwise this field is not needed in the message.
mc_sup	Presence is mandatory if IE Multi-RAT capability = multi-carrier. Otherwise this field is not needed in the message.